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Ahmet Berkant Aktan, BSc

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Mag. Dr. Martin Altenburger

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Abstract

Contracts and their effects on behaviors have been one of the most researched topics in the literature from psychology to economics, particularly since the development of transaction cost theory and popularity of incomplete contracts. Today, the role of contracts is not only specifying responsibilities of each party or protecting exchange hazards, but they also provoke (sometimes unpredictable) actions by conveying messages regarding beliefs of partners. Correspondingly, they are used as a relationship management tool. In the current work, this topic is extended to behavioral economics by applying framing phenomenon of prospect theory. More precisely, for analyzing the stimulated employee behaviors and their performance, monetary equivalent employee contracts are represented as a bonus or penalty as well as the combination of them. Although rational individuals could not be deceived by different representations of a specific alternative as claimed by classical theories of economics, compared with equivalent bonus arrangements, penalty contracts are confirmed and accepted as a performance-enhancing tool thanks to the loss aversion, though it is not free of the problems. Furthermore, in contrast to this reality, bonus payment schemes are still preferred to penalty deals in practice, both by employees and employers.

Keywords: *contract framing, prospect theory, loss aversion, social preferences, experiment, employee performance, bonus, penalty, trust*

Übersicht

Verträge und Ihre Einflüsse auf das Verhalten der Menschen werden eine der meist geforschten und beliebten Thematik in der Psychologie und Ökonomie, insbesondere seit der Entwicklung von Transaktionskostentheorie und der Popularität von unvollständigen Verträgen. Heutzutage, die Rolle von Verträgen ist nicht nur die Bestimmung der Verantwortungen oder die Absicherung der Transaktionsrisiken, sondern sie lösen (manchmal unvorhersehbare) Taten wegen deren Mitteilungseigenschaften bezüglich der Meinungen von Partnern aus. Aus diesem Grund werden sie auch als das Instrument für die Leitung der Beziehungen beurteilt. In dieser Arbeit wird dieses Thema auf die Verhaltensökonomik durch die „Framing“ Idee der Prospect-Theorie erstreckt. Zu diesem Zweck werden die ökonomisch gleichen Verträge entweder als Bonus, Strafe oder auf die kombinierte Weise präsentiert und die verursachte Verhalten beziehungsweise die Leistung der Mitarbeiter analysiert. Auch wenn klassische ökonomische Theorien behaupten, dass kein rationaler Mensch durch solche Manipulationen betrogen werden kann, haben Ergebnisse der Experimente aus „Framing Literatur“ positive Effekte von Strafen auf die Leistung dank der Verlustaversion bestätigt. Allerdings bringen Strafe-Verträge andere Probleme mit, die die Verallgemeinerung der Erkenntnisse der Forschung problematisch macht. Außerdem sind in der Praxis Bonus-Verträge noch beliebter als Strafen sowohl für Arbeitgeber als auch für Arbeitnehmer.

Schlüsselwörter: *contract framing, Prospect-Theorie, Verlustaversion, soziale Präferenzen, Experiment, Mitarbeiterleistung, Bonus, Strafe, Vertrauen*

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List of Abbreviations

Abbreviation	Meaning
U.S.	United States
RMB	Ren Min Bi
RFT	Regulatory Focus Theory
EVT	Expectancy Violation Theory
AG	Aktiengesellschaft
BMI	Body Mass Index
i.e.	id est
e.g.	exempli gratia
et al.	et alii
B2B	Business “to” Business
SJR	Scientific Journal Rankings
ABDC	Australian Business Deans Council
VHB	Verband der Hochschullehrer für Betriebswirtschaft
A/S	Aktieselskab

Table 1 Index for Abbreviations

1. Introduction

According to classical theories of economics, rational individuals cannot be tricked by framing when they choose between equivalent alternatives. However, prospect theory has shown its possibility by many comprehensive examples and experiments. Even though different options provide the same outcome regardless of their representations, people are not immune to framing manipulation. Consequently, their preferences and behaviors could be altered with the help of framing (Kahneman & Tversky, 1979). In the current work, it is applied to the employment arrangements, generally by developing two contracts which are differently framed as bonus and penalty. Aside from this distinction, both lead to the same monetary outcome (salary) for the same performance level. A simple example of such contracts could be seen in Appendix I with numbers. For now, assume that employee A produces 20 units and works under a bonus contract. Another worker, who receives penalty arrangement and performs at the identical level (20 units), will get the same salary as worker A. Hence, these two contracts are equivalent except their representation. Therefore, rational employees should be indifferent between them and their performance should not be affected by differently framed but objectively same arrangements. However, like in the experiments of Daniel Kahneman and Amos Tversky, framing induces unique behaviors and shapes the employee performance considerably.

The focus of the current literature review lies on the discussions of the relationship between framing and performance as well as the conditions in which framed contracts could be used effectively for improving the employee effort. The goal is giving some practical advice with the help of different studies that mostly provide contradictory findings. After providing some necessary information that are useful for investigating the causal relationship between framing and performance as well as understanding the contract framing idea from different perspectives (Section 2), as the primary method to collect data in this research area is conducting field and laboratory experiments, they will be analyzed deeply (Section 3 & 4). However, field experiments are relatively rare in the contract framing literature. Thus, laboratory studies will dominate the discussion.

On the other hand, the stand of the research is ambiguous. Since the laboratory studies are more common, by their nature, they usually cover simple, short-term oriented contracts. Their results almost always suggest that penalty framed contracts increase the employee performance because people are loss averse and react to losses extremely. However, even though the researchers sometimes try to resemble real-world employment relationships in these simple experiments, the generalizability of their findings would be questionable. For that reason, their results have received different objections (Section 4).

Although penalties positively influence the performance in those simple laboratory studies most of the time, they are not preferred in practice. Companies like Siemens AG, Beiersdorf AG, Deutsche Bank, Ikea, Volkswagen AG, Daimler AG, 3M, and General Electric which are operating in different industries and have different sizes announced in their most recent annual reports that added to the base salary, they

pay bonuses to their executives. Furthermore, instead of punishing low performance, some of them also honor their managers and regular employees with a bonus who are standing at the relatively lower hierarchical levels (e.g., Ikea). Most importantly, none of these companies prefer penalties in their compensation plans (Siemens AG, 2017; Beiersdorf, 2017; Deutsche Bank, 2017; Ikea, 2013; Ikea, 2017; Volkswagen AG, 2017; Daimler, 2017; 3M, 2017; General Electric, 2017). These examples could be extended, but there is a significant result here: Either these companies behave irrationally, or penalties are not free of problems (Van der Stede et al., 2018). As a result of this contradiction between practice and theoretical predictions, in section 4, the applicability of penalty contracts in real-world companies will be critically discussed. It is essential because opposite to other research areas of contract framing (e.g., B2B market), in the employment context, the analysis is done at the individual level. Thus, the significance of the psychology cannot be underestimated. For example, some researchers who create an experimental setting that pays attention to the reputation, personal relationships, and trust show the favorableness of the bonus by employees, whereas the penalty deals are associated with negative feelings. Thereby, these scholars argue that because of the social preferences, the positive performance effects of penalty framing most likely diminish in long-term (Luft, 1994; Christ et al., 2012; Van der Stede et al., 2018).

In addition to these claims, the problem of creating and implementing effective variable compensation plans should also not be neglected for getting intended results from framed contracts because they have variable payment characteristics after all. Hence, contract framing does not provide a complete solution to the employee performance problem; i.e., it is not always a costless strategy as it seems (Brooks et al., 2017). Briefly, in sections 3 and 4, the effects of contract framing on employee performance will be examined from different perspectives. After that, since the research stand has not given complete answers to the employee performance issue so far, in section 5, some conditions will be argued that might allow the useful application of framing in real-world companies. Finally, in the last part, with the recommendations for future research, the work will be concluded.

2. Prospect Theory

Prospect theory is crucial for the current literature review because it provides the framing and shows its power for manipulating the behaviors and choices of individuals dramatically. More importantly, the research question is derived from this theory, which is the relationship between contract framing and employee performance. A detailed presentation of the framing idea could be seen in Appendix II with the help of two experiments. This chapter aims to explain it comprehensively, which should make the analysis of contract framing experiments and their underlying logic clearer. In the following, a short historical overview to expected utility theory will be given, which led to the existence of prospect theory ultimately.

In the 18th century, a Swiss mathematician and physicist Daniel Bernoulli developed so-called expected utility hypothesis. His purpose was to show the insufficiency of expected value analysis for explaining the decisions of individuals under some conditions. According to his claim, instead of multiplication of expected outcomes of some alternatives with the (objective) probabilities, decision makers should derive their expected utilities for the results of those alternatives to multiply them with related probabilities. These expected utilities could be different for each financial outcome depending on the valuation by different individuals. Then, in the early 20th century, with their works, John von Neumann and Oskar Morgenstern helped the development of expected utility theory further. Until the late 1970s, this theory was highly debated but at the same time, widely accepted for analyzing the decisions of individuals. Expected utility theory could also be seen a twin of rational choice theory which are together sometimes regarded as “classical theories of economics,” though some differences between them exist (von Neumann & Morgenstern, 2007; Gaunersdorfer, 2014; Anand, 1995; Osborne, 2000; Tadelis, 2013; Binmore, 2008). Thus, some psychologists and economists were skeptical about expected utility theory to explain decisions under uncertainty (or sometimes called risk) and tried to attack some of its assertions. Among many scholars like Allais and Zeckhauser, Amos Tversky and Daniel Kahneman criticized some of these assumptions and developed prospect theory. They proved the tendency of people to violate the claims of expected utility theory.

More importantly for this thesis, prospect theory grants one of the most crucial and popular potential explanations for different employee reactions (performance discrepancies) to differently framed but economically equivalent contracts: “*loss aversion*.” It implies that a loss of a certain amount of money (or non-monetary possessions) causes more suffering than the pleasure of gaining even if the magnitudes are the same (Kőszegi, 2014). To develop this notion, Daniel Kahneman and Amos Tversky also benefited from the ideas of French economist Maurice Allais, who successfully invalidated some assumptions of expected utility theory (Allais, 1979).

For the validation of loss aversion as a reason for different reactions of individuals to the objectively same alternatives, Kahneman and Tversky conducted simple experiments. For example, in one of their studies, when a problem was framed as the gain, subjects tended to behave as risk-averse and preferred the sure alternative instead of the higher but uncertain benefit. On the other hand, if the options were sure loss and a gamble, to avoid the pain of the loss to some extent or entirely, the majority of participants selected the risky outcome. This kind of experimental results created the loss aversion concept ultimately (Kahneman & Tversky 1979; Tversky & Kahneman, 1981 and 1986). Related experiments could be seen in Appendix II with the visualization of the value function.

According to the developers of prospect theory, psychological analysis of risk and value had been neglected for examining the decisions so far. For instance, expected utility theory could be regarded as a normative model for an idealized (rational) decision maker. For that reason, it should not be accepted

as a theory for describing real people behavior. However, it does not mean that normative analysis is implausible and rest on weak claims. On the contrary, most of the time, its assumptions tend to hold if the analysis is done for long-term. For instance, people are usually considered to be capable of pursuing their targets, particularly if they have incentives and opportunities to learn from their experiences. Furthermore, if the competition is present, optimal decisions increase the chance of survival. Consequently, people are motivated to act rationally and might be able to correct their mistakes in the long run. This statement is critically important for the analysis of contract framing experiments because it seems that time horizon might moderate the performance effects of framed contracts. However, the detailed explanation will be done later in sections 3, 4 and 5.

In their very first papers in the 1970s and 1980s, Daniel Kahneman & Amos Tversky argued about the logic of such a normative model and its inability to provide an adequate foundation for a descriptive decision-making theory. They suggested, although its long-term argument would be plausible, deviations of actual behaviors of individuals from the normative model should be “too widespread to be ignored, too systematic to be dismissed as random error, and too fundamental to be accommodated by relaxing the normative system.” (Tversky & Kahneman 1986). Among many assumptions of the normative model which they attacked, like cancellation, transitivity, and dominance, the most important one for the contract framing research is the invariance assumption. This hypothesis purports that different representations of a particular choice problem should result in the same preference. Therefore, selecting between alternatives should be independent of their description. However, Tversky & Kahneman (1986) successfully showed its falsifiability. They concluded by different experiments that framing is so crucial to direct the actions of individuals.

Studies of Kahneman and Tversky were mainly done in developed countries such as the U.S. However, their research has been replicated by other economists and psychologists in different nations and these scholars have almost always reached to similar results as predicted by the framing idea of Daniel Kahneman and Amos Tversky (Kahneman & Tversky 1979; Tversky & Kahneman, 1981 and 1986; Gaunersdorfer, 2014; Osborne, 2000; Tadelis, 2013; Binmore, 2008; Kőszegi, 2014; also, see contract framing experiments that will be discussed below). Today it could be easily said that framing and loss aversion are universal concepts (Novemsky & Kahneman, 2005; Wang et al., 2017).

The power of the framing and loss aversion motivated scholars to think about their applicability for real-world settings. For instance, Ganzach & Karsahi (1995) showed that marketing could benefit from framing for manipulating the behaviors of consumers; more precisely, their buying habits. In addition to it, Waller & Conaway (2011) argued about the strategy of the sports articles producer Nike Inc. for effectively protecting their corporate social responsibility by using the framing idea. These examples could also be extended to different research areas since people tend to simplify nearly all kind of choice problems for deciding between alternatives. Therefore, scholars who investigate the employment issues like

motivation, job satisfaction, and performance, have started to devote more attention to the framing for getting higher effort from employees, which is essentially the topic of the current work.

One of the main reasons for the simplification tendency of human beings is their bounded rationality (Simon, 1955). As a consequence of the scarce time and lack of cognitive abilities, people prefer to reach a conclusion by using shortcuts but still try to be as rational as possible. Therefore, they usually disregard components that these alternatives share while choosing. To evaluate them quickly, they focus on the aspects which distinguish these options (Tversky 1972). Generally, in contract framing experiments, differently framed but equivalent arrangements have two similar components which are the base salary and variable part. The only distinction between them is the description of the latter; namely the performance-dependent pay.

Consequently, it could be assumed that individuals pay more attention to the terms “bonus” and “penalty,” instead of the numbers. Thus, their reactions to these identical contracts as well as chosen effort levels become entirely different. At this point, Kahneman and Tversky extended this idea by discussing the possibility of leading individuals to various actions and manipulating their choices between differently represented but objectively same options because alternatives could be decomposed into common and distinctive components in more than a single way. Although the employee preferences for differently framed contracts are not the main topic of the thesis, it might influence the effort indirectly. Therefore, this idea of Kahneman & Tversky (1979) as well as of Tversky & Kahneman (1981, 1986) is also relevant for further analysis.

As a summary, if the concepts of prospect theory (e.g., loss aversion) should be used in employment contracts to enhance the performance, self-evidently, employees would exert higher effort when they are threatened by the loss of their base pay. Naturally, this argument favors penalty contracts. However, the decision about the penalty value is also critical. Otherwise, relatively high base salaries with insufficient penalties would create false motivations. Employees could be still induced to perform well, but they would accept the punishment as the cost of leisure. In this aspect, the experiment of Brooks et al. (2017) is relevant. The authors suggested that it would be better for an employer to forgo variable payments regardless of their framing if he would not create a compelling performance threshold and penalty or bonus amounts. Hence, developing and implementing effective payment schemes is the *sine qua non* for getting higher employee performance caused by framing.

Finally, a long and yet not concluded debate regarding the employee preferences for differently framed contracts and the expected negative influence of penalties on internal cognitive processes of individuals make scholars reluctant to generalize the (potential) positive performance effects of penalty framing resting on the loss aversion (e.g., Christ et al., 2012; Van der Stede et al., 2018). In the following sections, these issues will be investigated in a very detailed way to see which contract form generates higher effort and under which conditions.

3. Contract Framing and Its Effects on the Employee Performance

In this section, the causal relationship between employee performance and contract framing is investigated at the light of different experiments. They are chosen according to some criteria, like the ratings of journals in which they are published. Except for one experiment, all of these journals are ordered either into the first or second quartile according to the rating methodology of Scimago Journal & Country Rank (SJR). Additionally, for control purposes, the ratings of journals from “Australian Business Deans Council (ABDC)” and “Verband der Hochschullehrer für Betriebswirtschaft (VHB)” are considered. They provide similar rankings as SJR, though their methodologies are different. These are the most popular rating agencies which are preferred while evaluating the quality of journals. Furthermore, in the current work, the knowledge from the studies is benefited, which analyze the framing idea in a general way without considering the employment (e.g., articles of Daniel Kahneman and Amos Tversky or some marketing studies). For the selection of such papers, the same rule regarding journal ratings is applied. Appendix III makes this feature of contract framing experiments and other papers visible.

In particular, the studies that test pure bonus and pure penalty almost always provide similar results and use comparable designs¹. Thereby, their evaluation based on the quality criteria is essential since it limits the number of selected experiments considerably; otherwise, the same information could be repeated throughout the thesis because of the abundance of such studies in the contract framing literature. Moreover, in addition to the experiments which apply basic settings (short-term orientation; using simple, linear payment schemes with complete contracts and so on), more real-world oriented but at the same time, more complex studies are preferred; also, complicated compensation schemes other than linear plans are discussed. Today, there is a trend of using budget-based, kinked payment schemes by companies from different industries with various scales (Jensen, 2003). Besides, bonus banks have also been applied as standard practice (Fischer et al., 2015). Two laboratory studies that inspect this kind of compensation plans with framing will be presented in the sections 3.1.2 and 3.2, respectively.

Although these issues could be examined by a field experiment more effectively, scholars are usually reluctant to do it because, in the field, companies request to follow their principles and guidelines which makes the causality analysis problematic, additionally to the uncontrollable environmental variables. It is an important reason for the rarity of the field test in contract framing research. Nevertheless, laboratory studies help researchers to understand the framing effect from both psychological and economic viewpoints for complete contracts. For such types of arrangements, their findings might be generalized because the psychological aspects and behaviors of humans are hard to change. Even if they are relatively old, still, very famous Milgram and Stanford Prison experiments have been cited in the literature for

¹ Although the terms pure bonus and pure penalty sound odd and unusual, they are commonly used in contract framing literature to differentiate deals that only reward, only penalize, or combine these pure forms in a single contract. More precise examples will be provided in section 3.1.3.

related arguments, and some newer research has also confirmed their findings (Carnahan & McFarland, 2007; Blass, 1999). Concisely, relying on laboratory studies in framing literature should not be criticized, but findings would be enriched by using some complex experimental designs and payment forms to mimic real-world situations in the future.

Finally, in a broader sense, there are two categories of experiments in contract framing research. Some of them measure the performances of participants directly, whereas others try to derive the causal relationship between effort and framing indirectly by analyzing only preferences of individuals for differently framed but equivalent contracts. This structure is also followed in the current work. However, there is no simple connection between framing and performance. For that reason, as mentioned in the introductory part, in section 4, some of the most important objections to the experimental findings of the current chapter will be critically discussed. It is vital for evaluating the potential real-world effects of contract framing.

3.1 Performance Measurement

Studies which measure the employee performance directly is more common in contract framing literature, compared with others that are more interested in investigating the employee preferences for the contract forms. Therefore, they need to be categorized for making a good review and analysis. For this purpose, in this subsection, before more complex studies become the focus of the discussion, the group of experiments will be presented that prefer simple settings in the meaning of using complete contracts with clear consequences and neglecting the psychological issues related to the framing like trust and reciprocity. The purpose of this practice is to understand the fundamental of framing concept in employment contracts; then extend the knowledge with the help of more real-world oriented studies.

3.1.1 Experiments with Basic Settings

The research of Hossain & List (2012) is one of the most popular and cited studies in contract framing literature. The desire of authors was applying framing in a real-world employment contract to increase productivity in firms. Thus, they did a field experiment in a Chinese manufacturing company. Self-evidently, subjects were the already appointed employees. Although the external validity of their experiment was considerably high, they faced with inevitable problems like in every field study. Therefore, there are some attempts to validate their findings in a more controlled environment; hence, in the laboratory. (Brooks et al., 2012)

Nevertheless, the study reached interesting results and had unique features. Above all, it is long-term oriented research which lasted approximately six months. Although it might be questionable whether it is a long-time horizon for employment contracts, it is still a considerable improvement for contract framing literature in which short-term oriented (a few hours) laboratory studies dominate the analysis. Other important properties of this experiment are the comparison of individual and team efforts and using quantity and quality as two separate dependent variables. Moreover, analyzing the behaviors of

Chinese workers is essential; the investigation of the attitude of citizens from developing nations is a good practice to extend the current research that mainly focuses on the developed countries.

The researchers believed that they would assume the causality between variables with more confidence if employees could continue with their regular tasks as before the experiment. Therefore, they manipulated only framing of payments by stating that employees under bonus treatment would be paid if their performance could exceed a specific threshold value. On the other hand, for penalty treatment, workers were told that their base salary would be deducted by some amount if they could not reach an expected performance level at the end of the investigation period. Logically, to make these contracts (treatments) identical, the base salary of penalty deals was higher than that of bonus arrangements. According to Hossain & List (2012), to get more valid results as well as for enhancing them, additionally to the loss aversion, they should have tested the endowment effect by paying the base salary in advance. However, the company did not want it and requested to follow company principles. For that reason, the researchers had no choice but accepted it.

Furthermore, for reducing potential negative emotional connotations, in the penalty treatment, Hossain & List (2012) did not communicate the reduction in payment as a fine or punishment but only as the decrease of base pay. Besides, for control purposes, some employees worked with their usual payment scheme; namely without incentives (fixed payments). However, the results were not only compared between experimental and control groups, but authors also did a pre- and post-experimental performance comparison for each group. Finally, to reach robust results in such field experiments, information transmission between individuals who perform under different payment schemes should be limited, and it was secured by the authors effectively.

Results of the experiment have some interesting patterns. Firstly, regardless of the framing, using incentives improved productivity compared with control groups. Moreover, the researchers found that penalty framing increased it by 1%. However, this result was only significant for group performance and not for individual effort. The experimental setting would be the reason for this finding. In the study, employees who built a team and considered as groups were paid or penalized collectively. In groups, if they were large enough, the probability of having at least one loss averse worker would be high. Consequently, for not letting down their colleagues in the team, they might exert higher efforts while others would not care it much. Finally, results showed that even though the experimenters also analyzed quality as a dependent variable, positive effects of penalty framing on the performance was present only for quantity; namely for simple assignments.

As mentioned, Hossain & List (2012) had conducted their research for six months to check the sustainability of positive performance effects of penalty contracts. After the research period, the authors were able to show that 1% productivity increase had lasted during their study. Therefore, they argued about the possibility of significant long-term economic growth invoked by contract framing because according

to them, it should be a costless strategy. The only task of an employer is to arrange the wording of a contract. For justifying this claim, they calculated the framing effect in monetary terms with the management of the Chinese company. Caused by the incentive scheme, the labor bill became significantly higher, but it was compensated by increased productivity further. It means, if the positive effects of penalty framing on the performance would not wane over time, it could also have positive impacts on the profitability in the absence of trust, reciprocity, voluntary cooperation and other related psychological arguments (Hossain & List, 2012). In this experiment, such considerations were not so crucial because workers only manufactured products with clearly defined features; their interactions with managers and intellectual abilities like creativity were not expected. Therefore, in this context, the positive effects of penalty framing on the performance could be accepted with more confidence.

In the same year, another famous field experiment was conducted by Fryer et al. (2012). Like Hossain & List (2012), this research was long-term oriented (payments depended on the end of the year performance); also, it inspected both individual and group performance. Except that, these two field studies had essential differences. First, Fryer et al. (2012) did their research in the U.S.; namely in a well-developed country. Second, their subjects were teachers whose pay was made dependent on the performance of their students in math exams. Correspondingly, this setting was prone to some critical problems. Even if teachers would perform well and try their best to teach, it may be arguable whether math is a talent. Thus, some students could not perform well even if they would also study harder. Therefore, the teachers might devote more attention to students who are well in math and neglect others. In this case, the applied payment policy could backfire. However, after conducting some statistical tests, authors did not find such a tendency in the research population. Furthermore, after investigating behaviors of teachers and students in detail, they confirmed that teachers did not discourage “bad” students from taking the exam.

Since such significant problems were not present in their experiment, their setting resembled the real-world employment situation better because, in reality, the result of an employee performance generally depends on uncontrollable environmental variables even if she could perform considerably well in objective terms. Subordinate performance might be regarded as this kind of variable. Furthermore, still, teachers had some degree of control over student performance compared with various macroeconomic shocks in the business world. Another difference between the current experiment and Hossain & List (2012) is the examination of the endowment effect by Fryer et al. (2012) because teachers were paid in advance. They received their base salaries at the beginning of the study and were told that they would receive an additional bonus if their students could perform well (bonus treatment) or should return some amount of the money if their students could not reach a predetermined test score (penalty treatment). As expected from all contract framing experiments, these two treatments were identical except their representations.

At the end of the treatment period, loss framing increased the performance considerably both for groups and individuals. On the other hand, gain treatment did not have any significant positive impact on the performance. Fryer et al. (2012) interpreted their results with the help of prospect theory and reported loss aversion as the primary cause. However, they believed that they needed to test the robustness of the experimental results for justifying their claims. First, they analyzed the impact of liquidity constraint. For teaching in a proper manner, teachers might need to purchase some materials that could be relatively expensive. Therefore, in this experimental setting, subjects in loss treatment had the upper hand because each of them was paid a relatively higher base salary in advance. However, according to data, teachers in loss treatment spent unexpectedly less money for teaching materials contrary to their colleagues in bonus treatment.

Another critical problem would be the students who might intent to cheat. More importantly, some teachers may allow it for increasing their grades or even help them during the exams. However, robustness tests of researchers also eliminated this concern. Therefore, the reason for the increased performance should be the loss aversion and endowment effect. Similar to Hossain & List (2012), it could be said that loss frame might lead to long-term sustainable economic growth because students performed relatively well when their teachers were paid according to penalty incentive scheme and the experiment was long-term oriented. Thus, the sustainability of penalty framing for enhancing the performance was also confirmed by this experiment. However, both studies did not consider the social preferences and potential adverse effects of punishments for a more extended period.

Although these issues will be revisited in section 4.2 and the sustainability of positive performance effects of penalties be questioned in a detailed way, relatively new research of Van der Stede and his colleagues tried to enlighten this problem while examining the performance effects of framed contracts. Since the knowledge regarding contract framing has evolved for the last two decades considerably, the researchers tested the framing from different perspectives thoroughly. Therefore, ordering their findings to a single section would be inappropriate; hence, some aspects of this experiment will also be presented in different parts of the current literature review.

Like Hossain & List (2012), they did field research in a Chinese manufacturing plant, but the time horizon was considerably longer (more than two years). Thanks to this feature of the experiment, the claims of Hossain & List (2012) and Fryer et al. (2012) regarding the sustainability of positive performance effects of framing could also be discussed here. In addition to it, this study had two interesting characteristics. First, although the workers received bonus-malus contracts (combination of bonus and penalty), the authors were able to test the effects of bonuses and penalties separately. Second, they treated performance and effort as two distinct dependent variables, though they have been used interchangeably throughout the thesis. The performance was measured by production quality and efficiency while the effort was judged by production quantity and time.

For testing the impact of framing on the performance and effort level of workers, the researchers first examined these variables in the subsequent periods. They found immediate strong positive effects of penalties on individual performance. In contrast to two field experiments that were conducted in China (Hossain & List, 2012 and Hong et al., 2015 below), Van der Stede et al. (2018) confirmed that framed contracts could also alter the individual performance, even in a highly collectivist culture; though some claim that the Chinese have also started to prioritize individualist values (Steele & Lynch, 2013; Hui et al., 2004). It is crucial because Hossain & List (2012) believe that only some potential loss averse workers in different groups were responsible for higher group performance in their penalty treatments.

In contrast to Hossain & List (2012) and Fryer et al. (2012), Van der Stede and his associates were skeptical about the sustainability of penalty effect. They tried to get the answer for this issue by taking another feature of prospect theory other than the loss aversion into the account which has been overlooked in the contract framing research so far. The value function that can be seen in Appendix II is concave in gain part, whereas convex and steeper in loss part. In addition to the loss aversion, it also implies diminishing sensitivity. It suggests that marginal utility (disutility) decreases with the value of gain (loss); higher the bonus/penalty amount, smaller their effects on behaviors. For that reason, the selection of performance threshold values as well as bonuses and penalties determine the effectiveness of framed contracts. This statement will be discussed detailed while presenting the experiments of Brooks et al. (2012 & 2017) in sections 3.1.3 and 4.1.

Van der Stede et al. (2018) found that eventually, the marginal effect of the bonuses exceeded that of penalties considerably if the bonus and penalty amounts were sufficiently and realistically large compared with the relatively small amounts that have been used in fictional laboratory experiments. Furthermore, at some point (around RMB 481 in their study), the marginal effect of penalties on the effort became negative. According to the authors, it might be one reason for the dominance of bonus contracts in practice. It seems that penalty has a strong immediate effect, but it decreases faster in the following periods, particularly after adjusting the wage. As predicted by social preferences, penalty deals might negatively influence the performance in long-run especially if the employment arrangement is open-ended. Essentially, it is the most important objection to by simple experiments confirmed positive performance effects of penalties. Finally, the authors suggested that the researchers should not limit themselves to the loss aversion but examine other claims of prospect theory like diminishing sensitivity.

As mentioned, there are some attempts to validate the results of Hossain & List (2012). It is a famous study, but at the same time has some major issues which make some researchers like Richard R.W. Brooks and his colleagues reluctant to derive conclusions from that research without a further investigation. Naturally, the laboratory provides a highly controllable environment which results in better internal validity compared with the field research in general. For this purpose, Brooks et al. (2012) conducted a lab experiment to check the robustness of the findings of Hossain & List (2012). In addition to

the loss aversion, in the laboratory, they tested the endowment effect explicitly. Their purpose was to investigate as many different anomalies as possible which might be linked to the framing. Therefore, other than the effort, they wanted to derive additional behavioral implications like fairness, employee satisfaction, and trust.

Moreover, this experiment could be regarded as a short introduction to social preferences. Indeed, it is an interesting topic; there are many theoretical assumptions but few empirical investigations regarding the significance of social preferences for contract framing analysis. A related and striking real-world framing example is the relationship between the Danish company Oeresund A/S and its contract partners. Majority of contracts between them were called “Cadillac” contracts because they required the highest possible quality levels. Consequently, breaching was almost a certainty. Furthermore, they were framed as penalties. Thus, most of the partners announced their dissatisfaction about terms of the arrangement. Thus, the company also started offering bonuses which became eligible after achieving some threshold values. In the end, most of the partners were delighted, but the problem that Oeresund A/S experienced was the lower effort levels under bonus framed contracts. It is one of many similar examples, and for such real-world oriented, complex contractual settings, the literature has not found a compromise between framing, effort and “happiness” yet.

Brooks and his partners criticized Hossain & List (2012) because of their unclear explanations regarding information asymmetry. Although they explicitly noted their efforts for reducing information transmission between participants, information structure was not controlled by the researchers. Besides, only groups reacted to contract framing with different effort levels significantly. As mentioned, the logical explanation of Hossain & List (2012) was the possible presence of at least one loss averse worker who might be motivated for improving group performance because of the penalties. However, it was not enough for some scholars. For example, Landeo & Spier (2012) suggested that coordination effects may play a considerable role in teams as well.

In Brooks et al. (2012) only individuals received differently framed contracts. The purpose was the eliminating various team effects and analyzing whether loss aversion was the main reason for increased performance as stated by Hossain & List (2012). Furthermore, there was a deterministic relationship between effort and output. Besides, the information structure was symmetric, and the experiment did not require any real effort task.

Among their different hypotheses, the most important claims for the thesis are increased effort under loss frame and the communication role of penalty framing. According to the researchers, the current experiment investigated mainly the reasons for different effort levels of subjects as a reaction to the framing of contracts. However, they also did not neglect the performance tests and penalty framed contracts positively associated with higher performance levels compared with bonuses. Like Hossain & List (2012), they first described the loss aversion as the primary cause of the positive influence of penalty

framing on the effort. Besides, they pointed out two additional factors as the reasons: endowment effect and expectation communication (i.e., the perception of penalty threshold as a default/expected performance level and recognition of by penalty contracts regulated tasks easier). While the former is related to loss aversion, the latter might be seen the main contribution of Brooks et al. (2012) to the contract framing literature which could motivate scholars to re-evaluate their explanations regarding harmful effects of penalty framing from social preferences perspective (for detailed discussion, see chapter 4.1.) In the end, Brooks et al. (2012) validated the findings of Hossain & List (2012) by enhancing the literature by two other factors to explain the reasons for the behavioral anomalies linked to the contract framing.

James Frederickson and William Waller did another framing experiment that included simple linear contracts. However, the researchers analyzed the framing effects on the performance indirectly by looking at the behaviors of participants regarding decision-influencing information facilitating. This information was called ex-post state signal and framed as either bonus or penalty, as usual. The goal of this experiment was analyzing the prominence of decision-influencing information for motivating effort- and risk-averse employees and the effects of framing on it. There were two types of decision-influencing information in the study: output and state signal. The former is intuitive; it was the result of employee effort.

On the other hand, state signal was the measure of uncontrollable state variable which might affect the output of employee effort. For instance, a sudden change in macroeconomics policy of a country or introduced additional taxes which are resulted from political problems between nations might have considerable positive or negative effects on the output of a salesperson. Most of the time, state signal could not be predicted easily by employer and employee ex-ante. However, according to Hölmstrom (1979), sometimes it would be possible and, in this case, using such information is beneficial for both parties, particularly for the employer who wants to measure the employee effort precisely for justifying the payment of output-based wage.

Accordingly, Frederickson & Waller (2005) developed an employment contract which consists of three parts: salary, output- and state-signal based wage. The first two aspects were fixed; only the latter part of the contract was framed differently. Moreover, the researchers wanted to predict whether loss aversion would increase the indifference point of individuals in penalty contracts. Indeed, they found that because of the loss aversion, employees were willing to work with a penalty framed contract as long as it could provide them higher expected wage (indifference point) than a bonus contract. At the same time, employers accommodated the loss aversion of employees by offering penalty framed deals which had higher expected pay than bonus arrangements. Consequently, because of the potential higher wages, the well-being of employers worsened with penalty contracts. Frederickson & Waller (2005) criticize here the findings of previous experiments by saying that increased performance of employees, which is

stimulated by penalty framing, should not always be translated to the better profits because of the possibly higher wages.

The experiment had an effort choice setting and, in each round, the subjects were re-paired randomly to minimize reputation effects. Although it decreased the reality, it was not important for the goal of the study. The researchers found on average higher effort under penalty framed contracts. However, employees resisted to facilitate decision-influencing information in penalty framing relative to bonus contracts, i.e., they did not pay attention to this issue. One reason would be higher expected salaries caused by the ineffective penalty amounts. On the other hand, bonus framing affected the social learning process of incorporating decision-influencing information positively thanks to its positive contribution to the atmosphere in the company. The authors tested this learning process by focusing on the weighting the state signal from participants. After 15 rounds, the weight for the state signal in the bonus group converged to the optimum, whereas in penalty group the weight was considerably lower than the ideal value.

In short, Frederickson & Waller (2005) combined principal-agent setting with contract framing and responsibility accounting. Their study was complete because they tested both the preferences of individuals for different contract forms by investigating their welfares resulted from framed deals and the performance effects of framing in a more real-world oriented setting. Their recommendation is to decide about the framing of a contract by considering its impacts on information facilitating as well as induced administration and psychological costs. Implementation of a bonus frame usually leads to lower costs because it is easy to execute (i.e., it is a common practice among different companies from various industries and countries) and as Luft (1994) showed, it is preferable by employees. However, in boundary control systems, penalty framing would be less costly to carry out because avoiding the penalty is fully controllable by employees; in this case, uncontrollable events are not present. Therefore, controllability might moderate the loss aversion and the selection of a contract frame.

This issue was also investigated by Van der Stede et al. (2018). In their experiment, workers reacted to the changes in their payments caused by uncontrollable events negatively and the magnitude was considerably higher in penalty contracts. Briefly, there is no simple answer to the performance effect of framing; even the experiments with simple settings sometimes face with difficulties for answering the research question. They showed clearly that penalty contracts are positively associated with the effort but for generalizing this finding, many different conditions should be held simultaneously. This statement become more meaningful while discussing the other studies in the following sections.

3.1.2 Experiments with Complex Payment Schemes and Policies

All the studies that presented above used simple linear payment schemes, which consisted of a base salary and a variable payment framed as the penalty or the bonus. Besides, the primary target was testing the individual (absolute) effort and not the “relative”, though some of them also considered group performance (e.g. Hossain & List, 2012 and Fryer et al., (2012). In those studies, the variable component

of a compensation package is capped at a maximum, mostly at a predetermined level. Although there is a necessity in contract framing literature to create experiments that involve some complex payment schemes or test relative performance, scholars are still silent about it. It is understandable because such settings are hard to develop in the laboratory. In addition to it, in the field, firms usually want from researchers to follow their principles. Therefore, the manipulation room of the experimenters is considerably restricted. Consequently, there are relatively few studies which investigated interesting payment policies with framing manipulation. The research of Bryan Church and his colleagues is one example of this kind of experiments.

In their research, they created two economically equivalent but differently framed contracts, as usual. Participants were required to do a real-effort task, and the payment depended on the outcome in terms of quantity. The variable part of the pay was determined according to low and high budget targets which were fixed at the beginning of the study. Many companies from different fields with various scales use such compensation plans, and sometimes their merits are argued by scholars because they are prone to some dysfunctional behaviors. For example, Michael C. Jensen is skeptical about such budget-based compensation plans and advocates unbounded (simple) linear payments (Jensen, 2001 & 2003).

Specifically, both contracts (bonus and penalty) had three regions in the study. In region I, which could be identified as unpenalized performance, the payment did not depend on the effort, until the subject reached a prespecified low-level target. When the performance exceeded it, the second area became activated, and the payment varied with the effort. Region II is called the incentive zone. After achieving the highest level of the target, subjects found themselves in region III. In this part, there was no relationship between effort and payment, as the first region. It is named the unrewarded performance.

The research question of Church et al. (2008) was whether contract framing affects the attitude of employees towards the whole contract in such a compensation plan. For this purpose, they mainly investigated the behavior of subjects in the third region conditional on reaching it because a rational individual should not have any incentive to perform more in this part of the contract. In reality, there is also a reputation effect; the relationship continues after the performance evaluation period. However, in the experiment of Church et al. (2008), there was no such a consideration since it consisted of three warm-ups and a treatment period. Based on the classical theories of economics, a rational individual should stop working after receiving the maximum possible payment from this experiment. However, the researchers believed that framing might change the behavior of participants dramatically. As a consequence of the reciprocity and trust (i.e., social preferences), subjects who received bonus contracts would exert higher effort in the third region. They may act pleasantly as a reaction to the positively framed contracts. Church and his associates presumed that framing would induce some non-financial incentives to perform well.

However, the result did not support their expectations. Framing was active only in the second region, and like in the previous studies, there the subjects worked under penalty framed contracts performed better than participants who received bonus contracts, though it was true only for the research population (i.e., the result was not statistically significant at conventional levels). In the first and third regions, framing did not have any effect on the performance. It means, in their research, participants could be able to understand the nature of kinked incentive contract and acted as rationality assumes. One reason would be the short-term orientation of the experiment. Reputation, trust and other psychological concepts that regulate the relationship between employees and employer should not be important in this study; however, Church et al. (2008) made their assumptions resting on such phenomena.

Resembling real-world employment compensation plans and relationships in a laboratory experiment brought enormous challenges. Therefore, it would be better to conduct such research in the field albeit lower internal validity. Among many problems that the experimenters faced, two of them were critical which motivated the scholars to reconsider their experimental results: partitioning of the sample into incentive regions and distinguishing effort and skill. Thus, once again they emphasized the importance of creating effective variable payment schemes to get intended results from framing. They admitted that they might have selected the performance thresholds poorly and it would be the most important reason for the insignificant results.

Even so, this experiment provided essential insights into the real-world applications. For instance, if managers could reach an expected highest performance level easily, framing could not have any effect on their motivation to exert more effort. Church et al. (2008) pointed out here the importance of intrinsic motivation. According to them, it would be still higher with bonus framed contracts. Therefore, they still advised the using of bonus contracts in such a compensation plan. Their study is the only one that considered kinked payment schemes in contract framing; as a result, there is no benchmark to compare its findings. While it has many aspects to improve, neither Church and his colleagues nor other scholars have intended to revise the experiment so far.

In another study, Hong et al. (2015) considered the effects of framed contracts on the relative performance thoroughly. Even though the importance of the “relative” was the starting point of prospect theory and correspondingly has been emphasized by it most of the time, in contract framing research, very little attention has been devoted to it so far. The study of Hong and his partners was a natural field experiment and conducted in the high-tech Chinese company in which Hossain & List (2012) also did their research. The company is always in search for improving the performance of its employees and seems accepted the significance of incentive contract framing.

The management applied in its one division a tournament payment policy. The contest was done between different teams. Thus, teamwork was investigated in this experiment. At the end of the evaluation period, teams who performed better than other contestants were entitled to receive additional bonuses. By its

nature, tournaments are proper to bonus framing more. Consequently, some problems, especially in the field, would be inevitable. Therefore, Hong et al. (2015) is still the only experiment which considered tournament payment policy with framing in the field.

Their contribution to the framing literature is twofold. First, the researchers aimed to investigate the effects of framing on the productivity of workers. Second, according to the authors, the essential virtue of their study was its intention for showing the importance of appropriateness of incentive schemes for different job types. They argued that this issue and framing have complementary natures; otherwise, it would be impossible to assume the performance impact of framing completely. Like Church et al. (2008), they emphasized the prominence of developing effective compensation plans for getting intended performance results from framed deals. Therefore, they call other researchers to conduct framing experiments with different and preferably complex payment schemes because results of simple experiments could provide necessary information regarding framing effects; however, their findings would be hard to generalize for real-world settings.

The research lasted nearly six months, and the researchers did not manipulate the teams; hence, the team composition was the same as before the study. Teams could be seen homogenous concerning their talents and other structural aspects. All groups were responsible for similar types of assignments. Consequently, the management believed that relative performance evaluation, like the tournament, would be the best practice to measure the effort and determine the payments. Nevertheless, they had unsatisfied with the effort levels of their workers so far.

The experimental setting had significant problems though, especially some teams worked in the same environment. Although their performance level was told at the end of the evaluation period, there might be some opportunities to discuss relative efforts between different team members. Therefore, the results required robust statistical tests to draw inferences about the framing effect. For solving some critical issues efficiently, the researchers wanted to separate the work location of employees; however, the company policy did not allow it. Nevertheless, workers were not aware of the study and its timeframe. Furthermore, aside from some important members of the management, the majority of them was not told the research hypothesis. These were the managers who had direct contact with the workers.

When the researchers compared the performance of teams separately by considering the framing manipulation, they found no statistically significant difference between bonus and penalty framing regarding individual worker productivity (absolute performance), although the descriptive statistics showed positive impacts of penalty framing on the effort. The authors argued about the nature of the tournament here; according to them, it should be the reason for this statistically insignificant result. They supposed that in tournaments, players care little about their absolute performance, which was the average hourly productivity in the experiment, but more about winning the contest because only this determines their payment ultimately. Therefore, the researchers considered the likelihood of winning the competition as

the dependent variable. After this modification, in their data, they found in total 70.4% of the cases the team under punishment treatment had higher productivity per-hour compared with the team under reward treatment. According to the data set, penalty framing increased the likelihood of winning the contest by more than 35%, and the result was statistically significant. They compared their findings with other experiments (e.g., Hossain & List, 2012) and stated that “winning the competition” should be more appropriate dependent variable in their research because it might enter the workers’ objective function more prominently in the tournament setting. When the dependent variable was adjusted accordingly, penalty framing associated with significantly higher performance in the tournament situation

Hong et al. (2015) accepted the possibility of “informal information transfer” between members of different groups, in particular between the employees who worked in the same room. Therefore, despite the fact that the workers received the official competition results only at the end of the round, their effort choice would be dynamically adjusted throughout the contest, which justifies the preferability of “winning the competition” as the dependent variable.

Furthermore, the researchers mentioned that some problems which are related to the field studies and variable payment schemes might be present in their research. Contract framing could help to enhance the performance of employees both in the group and individual setting, but it is not a solution for such issues. Hence, these problems should be solved before conducting the experiment or applying the framed contracts by real-world companies. Otherwise, insignificant results or unintended consequences would not be avoided.

Finally, it might be argued that Hossain & List (2012) and Hong et al. (2015) are two similar studies which should be treated in the same section. However, Hossain & List (2012) did not test the relative performance entirely like Hong et al. (2015), but their primary target was the analysis of individual effort. In addition to it, Hong et al. (2015) applied a more complex payment policy (tournament and relative performance evaluation) than Hossain & List (2012) in which the performance thresholds were predetermined and announced at the beginning of the experiment, even in the group performance comparison. Hence, the relative effort was not relevant in Hossain & List (2012).

3.1.3 Combination of Bonus and Penalty Framing

In this section, the experiments are not categorized according to the complexity of payment schemes. They have a standard feature in this regard, which is the bringing bonuses and penalties in a single (mostly linear) contract together. In this case, the common practice is punishing the employees for their lower than expected effort but at the same time rewarding them if they could exceed an expected performance level, though some different policies are also observed.

The primary motivation for the merge of bonus and penalty stems from the real-world buyer-seller interactions. In this type of relationships, contracts usually include clauses which foresee severe penalties for lower than expected performance (for detailed overview regarding each country see the handbook

of EY Consumer Products & Retail sector global legal team, 2017). However, a significant number of managers and scholars debate about such practices and recommend using bonuses for better than expected outcomes. In supplier-buyer transactions, because of the domination of impersonal interactions compared with employment context, punishments are used in deals effectively against opportunistic behaviors. Since by the nature of these transactions employing bonuses alone seems inappropriate, some scholars propose the practicing bonuses and penalties in a single contract. With this form, the intention is securing minimum performance standard with fines and at the same time motivating contract partners for exerting higher effort with the help of potential rewards. Hence, the resentment that might be caused by penalties could be avoided with this method (Andreoni et al., 2003; Armantier & Boly, 2015; Weber & Mayer, 2011; Weber et al., 2011).

One of the early discussions regarding this policy was done by Andreoni and his partners in 2003 thoroughly but only from the psychological viewpoint (i.e., psychological but not performance effects of combined contracts were analyzed). They created an experimental design to investigate the psychological effects of pure bonus and pure penalty framings as well as the combination of them. For this purpose, the authors applied ultimatum game and analyzed the topics like fairness and reciprocity in the light of framing idea. However, with their experimental setting, they excluded reputation because participants were randomly re-matched after each session. Moreover, their identities were anonymous.

In the study, there were two types of roles named by researchers as the proposer (she) and responder (he). In each treatment session, proposer could offer from her endowment some amount of money to responder who could decide to accept it without any other action. However, he could also reward or punish her at the cost of a cent. For instance, if he would decide to honor her because of a fair offer, could do it by a cent; as a result, the earnings of the proposer increase by 5 cents more. For punishment, the same rule applied with a modification. He could penalize her by a cost of one cent, but at the same time, the gain of the proposer decreases by 5 cents. However, the power of the responder depends on the contract type between the parties which was randomly decided at the beginning of the session. There were four types of arrangements. In a dictator contract, the responder did not have any right to penalize or reward. In a carrot (stick) contract he could honor (punish) only. For the carrot-stick contract, which could be seen the combination of bonus and penalty framing, the responder could either penalize or reward. The decision belonged to him. Therefore, he had the most power in the latter contract type.

In this experiment, there was only one sub-game perfect equilibrium; namely, in every type of the deal, the proposer should offer the minimum possible amount and responder should always accept it. However, like in many such psychological game experiments, results were considerably different from rational predictions. Andreoni et al. (2003) found the highest average offer of proposers in carrot-stick treatment followed by carrot, stick, and dictator contractual settings. Besides, willingness to engage in

cooperation with proposer was also highest in carrot-stick treatment, whereas penalties and bonuses were alone not so effective for it.

Resting on the arguments of Andreoni et al. (2003), the research of Armantier & Boly (2015) explored the performance effects of the combination in the employment context. Although the authors did not pay attention to the problem of possible higher wages due to the combination, their experimental result showed that employers could get important benefits from this practice. For example, subjects performed considerably better in incentivized contracts compared with fixed compensations schemes (control group) despite receiving on average lower pays. Therefore, with the help of incentive contracts regardless of their framings, higher effort with lower final payments would be induced easily. Consequently, the duty of an employer should be “exploiting” it more by framing the contracts.

Armantier & Boly (2015) tried to fill the research gap because they believed that while there are many studies testing the effects of pure bonus and penalty framing on employee performance, the experiments examining the combination of these two are still rare, even though some studies from other research fields favor the simultaneously exercising bonus and penalty in a single contract (e.g., Andreoni et al., 2003). An essential problem for such a study would be the constituting of combined contracts which are identical to pure forms for each level of employee performance. However, Armantier & Boly (2015) showed that it is not a hard task; equivalent, simple, complete, and linear contracts could be invented easily. A related example is provided in Appendix I.

For testing their assertions, the researchers conducted both “framed field” and traditional lab experiments. The experimental settings of both studies were the same in terms of treatments and the assignments. The purpose of the lab experiment that took place in Montréal was to validate the field work of Burkina Faso (similar to the relationship between Hossain & List, 2012 and Brooks et al., 2012). For their experiments, Armantier & Boly (2015) invented four contracts. One of them was a fixed salary agreement which paid regardless of the effort the maximum amount of the money that participants who worked under one of the incentive contracts could receive. While it was impossible to create an equivalence between fixed and incentive compensation schemes, the former served as a control to assess the effects of contract framing in monetary terms, both for employees and employers. Essentially, comparing incentive schemes with flat payments allowed researchers to identify a lower bound for effects of contingent payments on the effort levels.

The assignment was grading (spell-checking) which is called “dictée.” It is a well-known exam type in Francophone schooling system. Furthermore, grading such tests in Burkina Faso is seen as an everyday part-time work among the population. Therefore, the duty of the experiment was well-known by participants. In addition to it, they received market-level earnings. Consequently, the external validity of the research was considerably high.

Both studies produced similar results which suggested that the performance of participants was the lowest in the fixed payment scheme, despite the fact that on average they were paid considerably higher than subjects who worked with one of the incentive contracts. Furthermore, like in previous studies, the participants exerted higher effort when they received pure penalty contracts compared with pure bonuses. However, subjects who worked under combined bonus and penalty scheme showed the best performance. These results were statistically significant. Armantier & Boly (2015) emphasized that if an employer knows the production function of employees or at least can make rough estimations, it would be better to use incentive contracts than fixed compensation plans because, from the latter, employees benefit more without bringing the sufficient profit to the employer.

Furthermore, if the employer would be able to develop combined bonus and penalty compensation plans, it should be the best option for him to secure better profit thanks to the higher employee effort. Besides, they argued that while pure penalties would have adverse psychological effects (e.g., distrust, hostile reactions and so on), merging bonuses and penalties could eliminate them effectively. However, to assess the cost-effectiveness resulted from incentive contracts, comprehensive knowledge is needed regarding the employer's marginal benefits from increased effort because if applied, the unlimited linear payment schemes with the combination of bonus and penalty might result in uncontrollable wage inflation. Therefore, again, it is crucial to know the productivity of employees for determining expected performance thresholds to take advantage of incentivized payments with the help of framing fully. Finally, the researchers analyzed two dimensions of effort (duration and intensity) which were responsible for different performance levels of subjects. According to the experimenters, they deserved more detailed discussions. In the following, numbers will be given only for Burkina Faso field research. Although they were different in Montréal lab study, qualitative results were similar.

Effort duration was defined as the time a subject invested in a task, and the effort intensity was measured by the amount of attention that a participant dedicated to the work. The authors found a consistent relationship between effort duration and grading quality. It was the lowest in fixed compensation plan (75 minutes) and highest in combined bonus and penalty (103 minutes). However, the difference between the pure penalty (97 minutes) and the bonus-penalty combination was not statistically significant. Nevertheless, the vast and significant difference between fixed and bonus-penalty treatments shows the importance of using incentive contracts in practice to motivate employees to exert more effort.

In contrast to effort intensity (productivity), the analysis of effort duration was relatively straightforward. However, by using some parametric estimation practices, the authors were able to compare the productivity among different treatments. They found that it increased by 4.8% when the subjects received incentive contracts, either the pure bonus or the pure penalty. The researchers could not distinguish productivity between pure forms, but they showed its further escalation by moving from the pure bonus to the combined bonus and penalty contract. On the other hand, shifting from the combined

contract to the pure penalty was responsible for 3.6 % of lower productivity. Concisely, Armantier & Boly (2015) confirmed the positive features of combined bonuses and penalties with their comprehensive analyses. However, in their other research, they argued about some unintended negative consequences resulted from combined contracts. It will be discussed in section 4.4.

In 2008, Annette Kirstein made another attempt to test the psychological predictions of Andreoni et al. (2003) in the employment context. For this purpose, she applied the experimental setting of Andreoni and his associates, except for the task of subjects. In her research, contrary to previous base work, participants had to show real effort. She claimed that it might induce intrinsic motivation. Furthermore, more fair judgments by principals while utilizing the penalties or bonuses would be observed. Indeed, she reached to results which confirmed her assumptions. Principals valued the effort more because agents conducted a real effort task instead of merely financial decisions.

Similar to Fehr & Gächter (2000) and Decker et al. (2003), Kirstein (2008) found the positive impact of penalty framing on the performance compared with the combination, but it was valid only for her research population (i.e., statistically insignificant result). On the other side, like in many studies in contract framing literature, employees found it unpleasant. As Fehr & Gächter (2002) predicted, subjects under fixed payment treatment in the experiment stated that their motivation to perform well was based on the intrinsic motives, like “sense of duty,” “responsibility,” “colleagueship,” and “joint profit maximization.” (Kirstein, 2006). However, avoiding punishments or receiving rewards were solely motives of participants under penalty or bonus treatments, respectively. Briefly, Kirstein (2008) showed that the combination of bonus and penalty should not always be treated as a superior option compared with pure forms and if the intrinsic motivation would be more relevant for an employer, framed incentive contracts may have the negative influence on it. Nevertheless, insignificant results of the experiment weaken these claims of her.

In 2013, another research which focused on a less developed nation was done by Saenger and his colleagues in Vietnam. Its most important property was the incorporating of the advantages of both field and laboratory studies by doing so-called framed field experiment. Participants were farmers from Vietnamese dairy sector, and they stated in the study their input choice for producing milk. It was an important decision for them because its quality was the most crucial factor for identifying their payoff in the end. Self-evidently, it was not a real effort task.

Buyers of dairy products in Vietnam such as processors and wholesalers have embraced contract *farming* because small-scale farmers have a comparative advantage in the production of labor-intensive goods thanks to less monitoring cost for more motivated family labor (Poulton et al., 2010). However, this practice was not free of troubles; lack of the willingness for meeting strict quality standards, which require the use of particular input, was a massive problem for processors and wholesalers.

In Vietnamese dairy sector, almost always penalty framed contracts between processors and smallholder dairy farmers had been used so far. However, the majority of dairy farmers declared their antipathy against them but still needed to make a transaction with processing companies because they did not have any other option. Their bargaining power was very limited because raw milk is highly perishable, and production requires a high degree of asset specificity. Nevertheless, processing companies were unhappy about the quality of inputs. Therefore, in contrast to two important field studies of Hossain & List (2012) and Fryer et al. (2012), in this context, penalty framing has not led to the higher performance yet.

In the experiment, dairy farmers were required to choose the input level that mimicked risky day-to-day production decisions. It made the assignment similar to their real-world decisions; hence, subjects were familiar with the problem. For payoffs, two possibilities were present: some farmers continued with the existed payment structure, which was named baseline treatment, and others received so-called bonus treatment that integrated bonuses and penalties. Additionally, the authors included a third payment policy labeled as the counterfactual treatment which had only penalties but less harsh than the baseline treatment.

According to the findings, counterfactual treatment decreased the input choice even further compared with existed baseline version. Therefore, reducing penalty amount negatively influenced the effort of subjects because it decreased the degree of loss aversion and caused an ineffective variable compensation plan (selection of a poor performance threshold value and penalty amount). However, when the baseline treatment was complemented by the bonus which resulted in the combined contract, significantly higher input choice by subjects was observed. Thus, authors claimed that if a company offers a penalty contract, it may provoke employees to exert higher effort but when they become restless and unhappy because of the punishments, which might be inevitable in long-term, this firm could motivate its workers more and eliminate the negative feelings by including bonuses into penalty schemes. However, an essential problem of this practice would be potentially unjustified higher wages in firms if the compensation plan foresees unlimited linear payments for higher than expected performance level. In short, this study favored combined contracts, though it also had some downsides, like not considering pure bonus agreements. Therefore, the question of whether pure bonus would have more positive impacts on input choice could not be answered by this research.

Five years later their first contract framing experiment, again, Richard R.W. Brooks and his colleagues analyzed the same topic, but it was not the replication of their previous research. In this newer study, they examined the importance of creating and implementing an effective variable compensation scheme for getting accurate results from contract framing experiments. In previous sections, this issue is also considered by some framing studies (e.g., Church et al., 2008 and Hong et al., 2015), but they gave only advice regarding its significance but did not test it like Brooks et al. (2017) comprehensively.

Essentially, framed contracts which are considered in framing literature offer variable payments (see Appendix I). Therefore, contract framing might not lead to intended employee performance results by ineffective schemes (e.g., choosing poor threshold values for expected performance levels). In this context, Brooks et al. (2017) could be seen as the first experiment in contract framing literature that paid attention to this issue thoroughly. According to them, their approach may solve different experimental problems of the literature because so many studies used threshold values to determine bonus and penalty amounts without devoting the attention to their effectiveness (e.g., Church et al., 2008 in Section 3.1.2). Briefly, the statement regarding the significance of effective variable compensation plans for contract framing research should be more evident after the analysis of the current study.

The researchers discussed in their previous paper that penalty framing might set expected performance level. As a consequence, it would moderate potential adverse psychological effects of punishments. Logically, it depends on the threshold value selection by employers. More importantly, if an employee perceives the level unrealistically high, the adverse effects of penalty framing resting on social preferences (e.g., distrust, resentment, suspicion, anger and so on) would prevail and diminish the performance further. While it is impossible to find an optimal value for each employee, especially if employer and employee encounter for the first time, a rough estimate would be available for both parties. The problem of threshold value determination would be solved when employees disclose their unhappiness related to it, but most of the time they protest it without explicitly announcing and when they would have a possibility to damage their employers either by quitting or decreasing the effort, they are usually not reluctant to do it (Brooks et al., 2017; Baron & Kreps, 1999; Kieser & Ebers, 2006)

Therefore, the primary interest of the experimenters in this study was the effects of explicitly declared threshold values on the employee effort. Moreover, they believed that combined bonus and penalty in a single contract would positively influence the performance; hence, they applied this version of framed contracts in their research. It seems that they were persuaded by the results of some previously discussed experiments regarding performance improvement effects of the combination as well as its positive impact on the internal cognitive processes of employees. Thus, their work is presented in this section; also, it is related to the lower performance levels of subjects in Saenger et al. (2013) with counterfactual treatment.

This time, the authors conducted a real effort study. Besides, it was an online experiment. Generally, in online studies, participants have real opportunity costs because if they came to the laboratory, it would be hard to leave when they want (e.g., students as subjects). On the other hand, in online research, they could quit but may lose the money they have earned, and the time invested so far. Nonetheless, the environment in which the subjects work could not be controlled by experimenters, but it was not a big problem for answering the research question of Brooks et al. (2017).

There were four contracts in the experiment named plain-vanilla, low-bar, stretching, and extreme-effort. They were randomly distributed among participants; hence, they did not have any right to select the contract form they like. In plain-vanilla, there was no stated threshold value and base pay, but participants received €1 for each correct output. In other contracts expected performance levels were declared explicitly as 5, 15, and 50 pieces, respectively. Furthermore, these numbers were also the base salaries of these contracts.

In arrangements other than plain-vanilla, if the subjects could not reach the threshold, they should pay the penalty such as that value less current output level. On the other side, if the participants would exceed the expected performance level, they could receive €1 for each correct output as extra bonuses. Furthermore, each contract provided the identical payoffs for the same effort levels regardless of the contract form which is the most critical prerequisite in contract framing research². Therefore, if the performances of individuals would be different, the main reason should be discrepancies in threshold values.

Indeed, the results were intriguing. Subjects worked under stretching contract outperformed others. Furthermore, the performance of participants with the low-bar and extreme-effort contracts were even lower than that of the subjects with plain-vanilla deals. Brooks et al. (2017) re-evaluated here the question whether the framing could always be regarded as a costless strategy. Most of the experiments in contract framing research have used explicitly reported expected performance levels at the beginning of the treatment, but the effects of them have been largely overlooked so far. The trade-off is obvious. Setting the value at a demanding but realistic level increases the effort; hence, effects of contract framing on the performance could be accepted here with more assurance. However, too low or too high values decrease the motivation of individuals further. The latter would be perceived by individuals as impossible to arrive and the former as too easy to reach. Correspondingly, contract framing loses its effect on the employee performance. In the same vein, Armantier & Boly (2015) confirmed this statement and mentioned diminishing sensitivity as the reason like Van der Stede et al. (2018).

Therefore, if employers would not have reliable information about the production function of employees, it might be better not to specify any threshold value. In this case, applying pure bonus contracts would be useful because, in the plain-vanilla contract of Brooks et al. (2017), only a bonus was paid for each correct output. However, not only the thresholds but the amount of bonus and penalty also seem crucial. The significance of reward or penalty size was also discussed by prospect theory, though authors in contract framing literature devoted less attention to this issue (Kahneman & Tversky, 1979; Tversky

² Assume the production of 20 units:

$$\text{Plan - vanilla: } 1 * 20 = 20$$

$$\text{Low - bar: } 5 + ((1 * 20) - 5) = 20$$

$$\text{Stretching: } 15 + ((1 * 20) - 15) = 20$$

$$\text{Extreme - effort: } 50 - (50 - 1 * 20) = 20$$

& Kahneman 1981, 1986). Logically, unproductive base salaries and bonuses or penalties might not provide intended results; rather, they would destruct the employee performance further (de Swardt et al., 2010).

Concisely, framing might not be accepted as a costless strategy, as claimed by Hossain & List (2012) because problems related to the variable payment schemes are also valid for framed contracts. For example, ineffective compensation plans diminish the loss aversion impact in penalty contracts considerably. Therefore, before testing the performance effects of contract framing, researchers/managers should secure the efficacy of payment schemes regarding threshold values as well as bonus and penalty amounts. With taking this methodological advice into account, problems in framing research and practice, like insignificant experimental results or unintended performance effects, could be solved.

3.1.3.1 Combined Contracts and Teamwork

In previous sections, some experiments applied pure forms of framed contracts in group settings. However, except from Hong et al. (2015), they did not test the relative performance thoroughly. In this small part of the thesis, the group work is analyzed with both pure forms and combined contracts. Furthermore, the design of the experiments is wholly different from those previous studies but still similar to Andreoni et al. (2003) to some extent. Therefore, these studies are more interested in the analysis of group dynamics with the help of framing concept but did not neglect the performance effect completely.

For instance, David L. Dickinson investigated teamwork and the possibility of handicapping by comparing ability levels of workers. For mimicking real-world employment situation in which employees have distinctive talents, agents were endowed different monetary amounts at the beginning of the experiment which might affect their contribution to the teamwork noticeably. When the principals were not informed about talent divergence, penalty framing increased the performance (contribution). It seems that fear of punishment motivated less talented employees to contribute nearly all their endowment, but the negative atmosphere in the group was an inevitable consequence. On the other hand, when talent levels became common knowledge, principals judged effort accordingly and, in that case, the combination of bonus and penalty led to maximum performance. Furthermore, the negative atmosphere between agents was eliminated because of the knowledge about talent levels and positive psychological effects of combined contracts compared with pure penalties (Dickinson D. L., 2001).

However, it is also questionable, whether in real-world with unlimited time horizon, highly talented employees would be willing to bear the problems resulted from talent divergence in their groups. Here, the statement of Kirstein (2008) is essential. She suggested that experimental settings which try to resemble real-world applications might be responsible for different (and sometimes contradictory or insignificant) results. However, as every company and every work condition have unique characteristics, such diverse experimental results should not be seen a problem but a virtue for analyzing real-world employment situations in more detail with improved settings in the future.

Some experiments in the framing literature were conducted without giving subjects the role of the external monitor in a group. In this experimental setting, employees build teams and either punish or reward their colleagues. Essentially, these studies try to mirror the teamwork environment more precisely. Their research question is whether and which type of framing could be used in groups to enhance both positive atmosphere and employee/team performance in the absence of an external monitor. Furthermore, they also investigated the free-riding problem, but it is beyond the scope of the current literature review. Nevertheless, some intuitive advice regarding the solution to this issue with the help of framing will be given in the conclusion part.

Sefton et al. (2007) developed an experimental design in which the group members could not punish or reward, only punish, only reward, or do both. In the first treatment, on average, group contribution was lowest. Each member tried to maximize their own earning by contributing very little, even though the group outcome could be considerably better if each member would grant sufficiently. They acted myopic in the absence of rewards and penalties. Therefore, the researchers concluded that people need to have some control mechanisms for behaving desirably. After incorporating differently framed contracts, initially, bonus treatment increased the group outcome but diminished it further significantly because people tended to honor contributors in further interactions less. They wanted to keep the endowed monetary units for themselves.

On the other hand, penalties used in the beginning less, but when selfish individuals contributed less or not at all, to punish them, subjects did not hesitate to use harsh penalties, though the penalty was also costly for their own well-being. Like in Andreoni et al. (2003), penalties imposed by group members decreased the earnings of punishers and the punished subjects. However, rewards could be seen merely an earning transfer between participants which does not have any negative impact on the total group earnings. It means that they could be (fairly) distributed among team members at the end of the evaluation period.

On average, Sefton et al. (2007) found that pure penalty framing increased the individual contribution more than the pure bonus. Correspondingly, the threat of being penalized moderated the free-riding contrary to the pure bonus deals. Besides, according to the results, there was a synergic relationship between bonus and penalty framing; when they were combined, the maximum output was reached both in terms of contributions of group members and total earnings. As a result, especially for teamwork, employers can rely on such differently framed but self-decided control mechanisms that would be applied only by group members. At the end of their research, the authors declared that penalty should be useful for sustaining the cooperation, whereas earnings could be maximized by the merging of two because, in the following rounds, subjects might hesitate to apply penalties since it is also costly for their well-being. However, if the potential bonus would supplement the punishment, free-riding loses its attractiveness because subjects tended to reward generous members. In addition to it, they might also

exclude free-riders by imposing monetary punishments. Therefore, the researchers favored combined bonus and penalty in the group work setting without the external monitor. Members feared from the penalty, but at the same time, they were assured that they would be rewarded with a bonus if they could act as expected by other group members. Therefore, the combined bonus and penalty contract was a powerful tool here. Ultimately, it should lead to higher employee performance which employers consider more.

However, Rand et al. (2009) argued oppositely. Similar to the setting of Sefton et al. (2007) but more attention paid to the reputation of subjects, they found that reward might be as effective as punishment. Indeed, the latter decreased total earnings without any considerable positive effect on the contributions, whereas the former increased the contributions and the total earnings of group members in the end. Here, the researchers emphasize that donations are evaluated by members subjectively. Therefore, if some of them would not like the granted amount, might apply harsh penalties even in the combined contract design. This tendency was also confirmed by Sefton et al. (2007) to some extent. According to Rand et al. (2009), this probably causes the revenge feeling especially if the reputation of each subject would be salient by making the previous interactions between participants regarding punishments and rewards visible.

In contrast, in the pure bonus contract, there is no such a problem since employees could only reward themselves, though free-riders could benefit from this arrangement more if the group outcome would be distributed among members equally. Indeed, at first glance, free-riding seems a dominant strategy both in Sefton et al. (2007) and Rand et al. (2009). However, as Offerman (2002) and Andreoni et al. (2003) confirmed, in such intimate group settings, members are willing to give up own-earning maximization strategy by rewarding generous offers and punishing others who contribute less than expected.

However, this idea of Rand et al. (2009) received different objections. First of all, to avoid the free-rider problem, in the pure bonus setting, promoting healthy relationship and ultimately intrinsic motivation derived from helping other people should be essential which is not as easy as it seems. However, if the sanction would be used rarely or has only symbolic meaning to secure expected performance level, it could increase the outcome more than the pure bonus thanks to the loss aversion and threatening the free-riders. It is particularly important because as discussed by Brooks et al. (2012 & 2017), penalty thresholds might have such figurative meanings in many real-world compensation plans. In addition to it, Dari-Mattiacci & de Geest (2010) showed that punishments but not rewards have a multiplication effect. The threat of penalty could be extended over periods, whereas it is not true for the bonus. The reason is, by complying the penalty, the threat continues because it is not applied.

On the other side, the bonus should be paid when a party becomes able to receive it by her activities. Therefore, most likely, contract terms would be renegotiated in this situation. However, in Rand et al. (2009), the social loss imposed by the penalty dominated its disciplining effect for securing minimum

performance level. According to them, penalties carry more risk and involve the possibility of retaliation. By referring to the potentially harmful psychological effects of penalty framing like distrust and hostile reactions as well as possibly applied unnecessary harsh punishments by group members, Rand et al. (2009) proposed the use of bonus more often. Other than many abstract laboratory experiments, once the reputation becomes important, people react to penalties extremely negative since they perceive themselves on average more ethical than others. Consequently, they do not believe that they deserve the punishment and respond very hostile by penalizing their co-workers in the following interactions (Ford & Richardson, 1994; Reynolds, 2003). “Losing face” or other kinds of social costs should be more important in these intimate group settings. Therefore, Rand et al. (2009) believe that, in those groups, monetary punishments might have adverse impacts on the performance; if the penalties would be seen by employers necessary to discipline the employees in this group setting, they should rely on social punishments imposed by group members, like excluding free-riders or others who contribute less than possible.

Briefly, the researchers suggest that in group settings without an external monitor, the pure bonus is the superior option. However, there is no clear prediction in contract framing literature regarding the optimal framing possibility in such groups, but efficacy depends on different factors. In the conclusion part, they will be discussed briefly for applying framing in such a group setting to increase the employee motivation and performance.

3.1.3.2 Questionable Synergy Between Bonus and Penalty

In another influential paper, Fehr & Schmidt (2007) tested the relationship between bonus and penalty precisely. The question regarding the synergy resulted from combination should be answered carefully because above mostly positive effects were discussed (exceptions were Rand et al., 2009 and Kirstein, 2008). However, the scholars who oppose the combination, or at least skeptical about it, give the phenomena like, overjustification or crowding-out as examples from motivation studies. At first glance, promoting both intrinsic and extrinsic motivation seems to be an advantage for an employer but as it turned out, the latter usually negatively influences the former (Kunz & Pfaff, 2002; Kirchler, 2011a; Kirchler, 2011b). Besides, in jobs which are multi-faceted, bonus and penalty could provide incentives for one aspect while diminishing the motivation for another. (Kaplan & Atkinson, 1998; Horstmann et al., 2005). Thereby, the positive effects of the combined bonus and penalty should not be accepted without an empirical investigation that examines the interactions between them.

According to Fehr & Schmidt (2007), in their previous framing studies, they showed the inability of the penalty contracts for inducing first-best efficient solution, at least theoretically. They argue here in the same vein as Rand et al. (2009). Correspondingly, they suggested that the bonus arrangement should be significantly more profitable. According to them, employers also acted in their previous experiments in this way; more than 80 % of principals offered rewards instead of punishments. However, like many

other researchers, they accept the positive or at least disciplining effect of the punishment on the employee performance or behavior. Therefore, the combination would be a dominant option compared with pure forms. Besides, employers should prefer it more because they have more power with this contract option. Resting on these arguments, for being certain regarding the potential positive effects of the combined contracts, Fehr & Schmidt (2007) wanted to inspect the simultaneous utilization of bonus and penalty thoroughly.

However, in their research, in contrast to other studies showed above, merging of bonus and penalty could not be successful to induce higher effort. Besides, principals who were less fair, primarily chose this contract form because they tried to mask them as generous by including rewards, but in the treatment periods, they did not pay announced bonuses most of the time. On the other hand, still, two third of principals preferred pure bonus to pure penalty. Although the experimental setting had some problems (a single decision-making opportunity, straightforward task, and symmetrically informed principals and agents), it pointed out the reality that merits of the combined contracts should be analyzed with more caution. The possibility of using the fine and further applying it might signal the selfishness of the principal. Therefore, he could be perceived by agents someone who would make less generous offers after the performance evaluation period. In particular, it would be right for incomplete contract settings in which no clear relationship between effort and payment might exist (see below Christ et al., 2012). As a result, employees might not have any motivation to increase their performance. However, this claim could not be generalized easily because the reputation of the employer is crucial here which was not considered in Fehr & Schmidt (2007).

Therefore, more contract framing research should examine the synergy between rewards and punishments before generalizing their results. Nevertheless, the authors seemingly prefer to test the performance impacts of combined contracts and derive the possible synergy in this way. Since these researchers also mostly prefer short-term oriented simple experiments, the question regarding the interaction between pure forms might not be answered entirely. Thus, only Fehr & Schmidt (2007) is presented in this short section.

Briefly, majority of scholars believe that the combination of bonus and penalty is not as same as the tying intrinsic and extrinsic motivation together, even though Fehr & Schmidt (2007), Kirstein (2008), Rand et al. (2009) and Brink & Rankin (2013) (see in the next section) muddy the water. Since, the positive performance and psychological aspects of this practice dominate the negatives as many experiments above confirmed, in the following years, more combined contracts in terms of framing would be observed both in experiments and real-world employment relationships for making a compromise between performance enhancement effect of the penalty and positive atmosphere and feelings resulted from the bonus.

As a summary, in this chapter (3.1), the effects of framing on the employee performance was analyzed by looking at different experimental settings. Most of the time, penalties (or sometimes the combination of bonus and penalty) positively affected the employee effort. Therefore, employers should apply them more in their companies, but still, pure bonus contracts have been preferred in the real world (Siemens AG, 2017; Beiersdorf, 2017; Deutsche Bank, 2017; Ikea, 2013; Ikea, 2017; Volkswagen AG, 2017; Daimler, 2017; 3M, 2017; General Electric, 2017; Van der Stede et al., 2018; Liu & Zhang, 2015). Consequently, because of their reluctance to use penalties, employers might be blamed for acting irrational. However, this question will be revised in the following (section 3.2 and whole section 4) by paying more attention to the preferences of individuals, psychological effects induced by framed contracts and some hidden costs behind them. For this purpose, both theoretical predictions and empirical observations will be given. For selected experiments, still, the same criteria are valid (see page 5).

3.2 Preference Analysis

In the previously discussed studies, participants received the bonus, penalty, or combined contracts randomly; they did not have any right to select between contract forms. It means that contracts were dictated. However, some scholars propose that subjects should select contract forms freely for making the psychological effects of framed deals more transparent. In this section, the arguments of these scholars will be discussed with the help of their studies. In their research, participants could accept or reject the offered contracts and even sometimes select the contract frame freely before doing their mission. These experiments generally refer to two classical studies and their contradictory findings in contract framing research: Luft (1994) and Hannan et al. (2005). Broadly, Luft (1994) proved that if employees could select one of the contract forms, they mostly prefer the bonus to the penalty, even if they would be equivalent in monetary terms. On the other hand, in this self-selection possibility, employee performance was approximately same; framing did not have any positive or negative influence on the performance in her experiment. However, another famous study showed in the absence of self-selection remarkable higher performance with penalty framing (Hannan et al. 2005). If these results would be compared, contracts should be dictated for getting higher employee effort.

However, if it would be so simple, contract framing research should not be in an ambiguous situation as mentioned in the introduction part. In the dictated contract setting, social preferences become critical and forced penalty contracts may cause a negative atmosphere and emotional attachments like distrust. Therefore, preference analysis seems to be crucial for assuming the performance effect of framing with more confidence, particularly for the long-term arrangements. For instance, if penalties are selected by workers voluntarily and they still lead to better performance (contrary to Luft, 1994), the findings of experiments in the previous section could be applied in real-world companies with more assurance without paying much attention to the possible detrimental psychological effects of framing. As it will be shown soon, employers can apply some policies to persuade employees regarding the preferability of penalty to bonus and get higher performance. Nevertheless, even this situation sometimes does not help

to remove the negative influence of punishment on the internal cognitive processes of employees entirely.

In other words, the studies in the current category share a common goal: They want to show that true effects of contract framing on the employee performance could be understood as long as individuals are allowed to choose framed contracts freely. It approximates the real world more because instead of dictating a contract form, in firms, workers could usually negotiate the arrangements. Majority of experiments in contract framing literature have used already recruited subjects/employees who are dictated to work with differently framed deals. Thus, in those studies, only the incentive constraint was taken into account, but in labor markets, employees are free to decide between potential jobs and already appointed workers can change their employers. Once they would have attractive outside opportunities, they usually do not hesitate to take the advantage (Baron & Kreps, 1999). Therefore, participation constraint also requires the attention in contract framing literature. Since the goal of the thesis is to get more generalizable answers for the relationship between framing and employee performance, without discussing the individual preferences, it would not be reached.

In 2017, Jonathan de Quidt conducted a relatively new study that primarily investigated preferences. He examined the job acceptance rates of potential employees, dependent on the framing of offered contracts. He employed subjects from US-based Amazon Mechanical Turk (MTurk) in which the workers can access many alternative tasks. They could be regarded the outside options. Therefore, the experimental setting mimicked the real-world hiring situation. Furthermore, according to Berinsky et al. (2012), MTurk workers are representative of the U.S. population. Besides, the number of participants were highly sufficient. In the first stage, nearly 1400 people were present, and approximately 700 subjects participated in the second stage of the research. In stage 1, subjects received fixed payments for their effort. Then, a week later, they were invited to do the same job, but in stage 2, the pay depended on their performance. In this case, contracts were framed as bonus or penalty and subjects could freely accept or reject the offers.

Resting on the claims of Luft (1994) and Fehr & Gächter (2002), Jonathan de Quidt hypothesized in his experiments (he conducted six studies) that on average, bonus contracts should be preferred (accepted) more than the equivalent penalty contracts. In different experimental settings, he tested this assumption but found precisely the opposite tendency. In four studies, penalty framed contracts were accepted by individuals more than bonus arrangements.

Although it was not his purpose or more precisely his experimental setting was not suitable for it, he also inspected the performance effect of framing. Even though they were not always statistically significant for each study, results of de Quidt (2017) did not contradict to the findings of previous research regarding employee performance; penalty contracts stimulated higher effort than bonus deals.

A potential explanation for unexpected higher preferences of penalty contracts would be the commitment. Some people have weak self-control. Consequently, they need some challenges, targets or just reasons to behave in a particular way. Penalty framing might help such individuals thanks to the loss aversion. For instance, Imas et al. (2016) found in their laboratory experiment the willingness of workers to pay more for a penalty contract and proved the commitment mechanism of the punishment as a reason. In the field, Kaur et al. (2010, 2015) were able to show the preference of huge fraction of employees for strictly dominated incentive contracts that had commitment feature. Therefore, de Quidt (2017) assumed it as a potential cause for higher acceptance rates of penalties. However, it was not true for his study. An important reason for this claim is that in one of his experiments, payment was independent of effort because the assignment was only the prediction of the result of a coin toss. Even in this study, higher acceptance rates of the penalty contracts were observed.

Salience would seem another potential explanation. It induces a behavioral anomaly because people sometimes tend to overweight salient information while they form judgments or make evaluations. However, most of the time, it is irrelevant for the decision. Especially in arrangements with specified threshold values, employees might not focus on the contract wholly but devote more attention to the relatively higher base pay of the penalty framed deals. The prospect theory has also argued this inclination. According to de Quidt (2017), survey evidence reported that majority of participants subjectively perceived the penalty contract as better paid. Besides, it was favored by subjects who had higher reservation wage on average (for related argument regarding wage inflation caused by loss-framed contracts see Frederickson & Waller, 2005 and Armantier & Boly, 2015 above).

Before manipulating the salience, for having more confidence about this potential explanation, first, he changed the fixed and variable parts of the contracts separately. The researcher observed increased acceptance rate of contracts with higher base salaries, but the greater variable compensation part does not have any influence on the preferences of subjects. After this knowledge, in his two experiments, Jonathan de Quidt manipulated salience by encouraging employees to pay attention to the contract as a unit. For this purpose, first, he deemphasized the base pay. In the following experiment, the participants were required to select directly between bonus and penalty framed contracts which should make the equivalence transparent. Both experiments eliminated the penalty preference, but the positive performance effects were also not observed, like in Luft (1994). Therefore, he claimed that salience is the explanation for higher preference rates of penalty arrangements and more experiment should be conducted to reach further conclusive results. On the other hand, reducing the salience of base salary did not increase the acceptance of the bonus relative to the penalty, but the rate was roughly equalized. Correspondingly, commitment feature of punishment should also not be neglected altogether.

Although it was simpler than real-world job negotiations, the research of Jonathan de Quidt showed the preferability of penalty contracts. In the light of his salience claim, he also suggested that employers

could camouflage the penalty aspects in deals easily and make the base pay apparent. There are some practices like small prints, or thoroughly explaining the importance of higher base salary for the well-being of employees. In particular, according to him, such practices could be easily applied while hiring new employees. Furthermore, he is not alone in this discussion topic (e.g., Imas et al., 2016). Referring to these findings, he believes that with the help of such policies, individuals could be motivated to select penalty arrangement; consequently, higher employee effort could be induced by decreasing the potentially harmful psychological effects of punishments.

However, the last claim requires more attention. Thus, it will be revisited in the following section because compared with bonus contracts, subjects in de Quidt (2017) evaluated penalty framed deals and the linked jobs as less trustworthy despite their voluntary choices between framed contracts. In a short-term oriented experiment, it should not be a problem, but for a long-term employment relationship, negative psychological effects of penalty framing seem to be indirectly confirmed by Jonathan de Quidt. More precisely, the self-selected penalty contract does not lead to a positive atmosphere necessarily, but it could delay the existence of adverse reactions to some extent.

Brink & Rankin (2013) also analyzed the preferences of individuals for differently framed contracts. Furthermore, with their research, they also inspected the issue argued by Fehr & Schmidt (2007) regarding the possible synergy between bonus and penalty. For this purpose, in addition to the pure bonus, pure penalty and a simultaneous application of them, the researchers created a more real-world oriented contract type which is the combination of bonus and penalty with the clawing back possibility. In many aspects, it resembles the bonus bank structure. A clawback option makes the employer eligible for taking some amount of already awarded payment or benefit back because of the subsequent incidences. Nowadays, it has become one of the most applied compensation plans, particularly the last financial crisis is the most important reason for its popularity (Fischer et al., 2015). Despite that fact, analysis of the clawback has been neglected in the contract framing literature so far. Thus, Brink & Rankin (2013) wanted to fill this research gap.

In their experiment, they developed three contract forms which are classic for a framing study; namely pure bonus, pure penalty, and combined contracts were present. The difference of their research is the modification of the latter type of the deal with clawbacks, whereas one setting had a bonus which was higher than clawed back portion of the compensation while it was lower than the taken away part of the payment in another design. In every case, the contracts were economically equivalent.

First, the authors investigated the preferences of participants. Thereby, the subjects were offered a framed incentive contract and a flat payment. Their task was to declare the contract from with which they would like to work. The data showed that the pure bonus was preferred most of the time, followed by the pure penalty and combination without clawing back. Even though the practice of merging the bonus and penalty is often seen an advantage for capitalizing on both pure forms, in this experiment, it

was not favored by subjects. Like in Luft (1994), rewards alone were rated by participants more positively. Therefore, contrary to the claims of most experiments in section 3.1.3, dictating the combined contracts would not solve the problems related to the penalties. Indeed, subjects selected pure penalties more than the combination in Brink & Rankin (2013). Although the authors did not investigate it, individuals might perceive the combined deals more complicated, and it would influence their choice.

Furthermore, when the subjects were told that some amount of bonus might be taken away, it became the least attractive alternative. Brink & Rankin (2013) reported here the loss aversion as the reason for the preference of the pure bonus contract to any other types. However, when the participants were required to select between an economically equivalent pure penalty and the combined contract with clawing back, the majority of them selected pure penalties. Therefore, the authors suspected another mechanism than loss aversion which may be responsible for this behavior. Since in the latter type the bonus was firstly paid and then taken back, it might trigger the endowment effect. After testing this possibility, Brink & Rankin (2013) confirmed this hypothesis. According to them, another interesting result which is also connected to the salience argument of de Quidt (2017) was that subjects who received claw back contracts with a higher base salary (bonus lower than penalty) preferred it to the equivalent contract which had a lower base salary with higher bonus than the possibly retrieved amount. Thus, in this study, the salience of base payment was also very important for the preferences of employees. Since the firms increasingly rely on incentive contracts with clawed back options, Brink & Rankin (2013) warned them by their study. Referring to de Quidt (2017), for making such deals more attractive, fixed payment part should be higher and more noticeable, but it might have another potential unintended consequence like lower performance due to resembling the incentive contract as one that provides only the fixed pay.

In 2016, Evers and her colleagues did another research that examined the acceptance (preferences) of objectively same but differently framed policies (only pure penalty and pure bonus schemes). They recommend that studies which used simple settings should be analyzed carefully because, to successfully implement and receive intended results from framing, additionally to its influence on altering the behavior, its acceptance by stakeholders is essential. According to them, it is even more critical if such stakeholders could have a voice regarding the choice of policies and their implementation aspects. Indeed, it is right for real-world employment negotiations; employees could bargain with employers in terms of the payment and required tasks.

The researchers conducted seven studies and found that in general, for policies that aimed to stimulate desirable voluntary behavior, individuals wanted to be rewarded and accepted them only when the bonus was promised. In this case, the punishment was unproductive. On the other side, policies which targeted the obligations were favored if the people would be punished, who failed to behave as expected, instead of rewarding the individuals who met the obligations. It is called by Evers et al. (2016) the matching effect.

Although the authors did not state it, from their results could be derived that differently framed contracts should regulate different aspects of jobs. For instance, the expected performance level or naturally expected tasks from the employment arrangement should be controlled by penalty contracts; if employees could not act desirably, they should be punished. On the other hand, the aspects that require voluntary cooperation or creativity and flexibility should be arranged by bonus contracts, and employees should be awarded accordingly. Contrary to Brink & Rankin (2013), indirectly, positive effects of merging bonus and penalty arrangements were confirmed by Evers et al. (2016) as long as employers consider the matching effect. Indeed, it has become an increasingly important argument because today's jobs, especially that of the service sector, are multi-faceted and a single complete contract could not cover every issue. Consequently, it could be said that penalty is not always perceived by employees negatively, but aspects of the jobs that are punished or rewarded determine their recognition. Intelligently applying the combination of bonus and penalty could solve both performance and motivational problems.

As a summary of the current section, human beings tend to prefer the rewards more by their nature. Therefore, penalties are not welcomed most of the time. However, the disciplining effect of punishments should also not be overlooked. The seemingly obvious solution would be combining bonus and penalty. By doing so, the expectations of both parties could be fulfilled. It means that employers are made sure of the certain performance level and employees become eligible for the bonus. Nevertheless, the matching effect should not be forgotten, and aspects of jobs should be regulated accordingly.

On the other hand, some authors showed that combination also brings other problems (e.g., Fehr & Schmidt, 2007; Rand et al., 2009; Brink & Rankin, 2013). First and foremost, it may be hard to implement. Furthermore, the possibility of punishment still exists. Thus, according to the previously named authors who are skeptical about the combination, the pure bonus contract should be the dominant option followed by a combined contract. Nonetheless, these two arguments purport the common idea: Even it positively influences the performance, the penalty alone could diminish the motivation and ultimately the performance in long-run because people perceive themselves more ethical than others and claim by blaming external factors that they did not deserve punishments at the end of performance evaluation period even though they would select the penalty contracts without any pressure in the beginning (Ford & Richardson, 1994; Reynolds, 2003; de Quidt, 2017; Van der Stede et al., 2018). It seems that this self-selection option could only delay the existence of adverse psychological effects of punishments.

However, the lack of research which investigates these issues comprehensively (particularly the possible synergy between pure forms) in the contract framing literature does not make the generalizability of its performance claims easy. More importantly, by contrasting the number of experiments discussed in the current section and chapter 3.1, it can be understood that preference analysis in contract framing literature will also not be a favorite topic compared with the performance analysis in the future. For that reason, in the following, the effects of penalties on the internal cognitive processes of individuals will

be analyzed detailed, generally with the help of psychology. Nevertheless, the investigation of the relationship between framing and performance will continue. Hence, it will be enhanced from different perspectives.

4. Objections to Increased Performance Claim of Penalty Contracts

As a short reminder, throughout section 3.1, experiments mostly confirmed the positive impact of the penalty on the employee performance due to the loss aversion; hence, it is a widely accepted result in contract framing research, particularly for short-term oriented, complete, and simple deals. On the other hand, potential harmful psychological effects of penalties in long-run make the causality analysis between framing and performance a big issue because, by their nature, people dislike the punishments. In particular, preference analysis and related experiments in section 3.2 brought these adverse effects of penalties into the question for the first time after Luft (1994). Then other scholars who mostly investigate the topics like the link between employee performance and their motivation, satisfaction, and trust have started to examine the positive performance claims of penalty contracts for real-world employment agreements.

Although the combined contracts could be seen a compromise regarding performance and (adverse) psychological effects, studies that examine these arrangements usually provide contradictory findings compared with research that analyzes only pure bonus and pure penalty contracts. More importantly, problems resulted from simultaneously promoting both intrinsic and extrinsic motivation could be valid for combined contracts to some extent. Briefly, some researchers show important objections to previous classical experiments; mostly to the positive performance effect of punishment, which is assumed without further investigation by considering other real-world effects. These are the scholars who believe that the psychological effects of framed contracts should not be underestimated to derive more conclusive results. Correspondingly, their experiments will be analyzed in this part of the thesis.

Their most important claim is, opposite to B2B transactions in which penalty contracts are used effectively, in the employment context, the analysis is done at micro-level. Thereby, psychology becomes critical (Bigoni et al., 2014; Weber & Mayer, 2011; Weber et al., 2011). In the following, with its help, the results of experiments from chapter 3.1 will be critically revised. The purpose is to make the findings more generable and enhance the knowledge as well as be more confident about the causal relationship between employee performance and contract framing. Consequently, the following arguments should not be considered merely criticisms. On the contrary, they provide a clear path for improving the contract framing research.

4.1 Regulatory Focus and Expectancy Violation Theories

These two theories make some predictions regarding the psychological effects of framed contracts, naturally from a theoretical viewpoint. They also provide necessary arguments for the following two

sections which examine the essential concepts (e.g., trust and reciprocity) in the employment context. While regulatory focus theory (RFT) represents contract framing arguments more, expectancy violation theory (EVT) is more related to social preferences. Besides, instead of in contract framing literature applied bonus and penalty framing, in these theories, naming them as promotion and prevention focus is more common.

First of all, RFT and EVT bring social preferences and contract framing together. For this purpose, their first job is setting expected behaviors that are induced by framing. It is the domain of RFT because it suggests that framing has the signaling effect. While presenting some experiments in section 3, it was mentioned but should become clearer here. The framing of the contract signals the difficulty of the linked job. People tend to believe that assignments should be more manageable, which are regulated by penalty contracts. On the other hand, bonus arrangements are associated with more laborious duties. It is the perception of individuals, according to different experimental results (Weber & Mayer, 2011; Brooks et al., 2012; Brooks et al., 2017; Fehr & Schmidt, 2007).

Therefore, even though they do not like arrangements that foresee punishments, in experiments, they do not hesitate to prefer penalty contracts to bonus deals, which is not predicted by social preferences. Furthermore, resting on these arguments, the penalty threshold is also perceived as default (expected) performance level that must be reached in every case. Thereby, the role of penalty might be evaluated by employees only as securing the minimum performance standards. Thus, framing could also be used to manipulate these perceptions of individuals. On the other hand, expectancy violation theory (EVT) questions the possible reactions of contract partners when the expectations are met or violated.

According to these two theories, if the employees, who receive penalty contracts, achieve the expected performance level, low-intensity positive emotions between them and their employers would be present since workers do what they are supposed to. On the other hand, if they fail, high-intensity negative emotions are more pronounced. In the latter case, the relationship would be terminated with a severely negative experience. The opposite situation is right for promotion framed contracts. Achieving the target results in highly positive emotional attachments but failing would lead to only low-intensity negative emotions in the worst-case scenario. The reason relies on the recognition of individuals regardless of the equivalence of contracts. As mentioned, according to RFT and EVT, individuals associate penalties with minimum performance standards that everybody should be able to achieve in normal circumstances. Hence, it is their job to do. Otherwise, they would not perform even at a level they are expected to do according to the employment arrangement. On the other hand, bonus contracts are related to the higher than expected effort levels.

An empirical analysis regarding the signaling and expectation communication features of framing was done by Brooks et al. (2012). The authors confirmed their importance with a very comprehensive study. In section 3.1, this experiment was discussed only regarding the performance effects of framing.

However, the researchers also found that the bonus was perceived by individuals as the compensation for “voluntary” overperformance, whereas punishment was something to motivate them to reach a default performance level. It means everybody should achieve it without the intervention of unforeseeable variables. Therefore, punishments could be used only as a device for securing the default performance level. As a result, potential adverse effects that are induced by penalties could be avoided.

Moreover, the authors claimed in their experiment that this expectation communication feature of penalty deals should promote higher individual effort compared with bonus arrangements. However, if an individual would be intrinsically motivated, still loss framing might have a negative impact on trust and cooperation. For this purpose, Brooks et al. (2012) tested motivational and cognitive explanations. Former states that a subject with a stronger tendency towards social desirability should increase her performance under loss frame while the cognitive explanation argues that not the motivation but the desire to comply with default expectation should be responsible for the higher employee performance. According to the results, cognitive explanations were associated with higher effort, and motivational aspects like social desirability did not play an important role; i.e., statistical tests regarding motivation were insignificant. It means that people tend to comply with the default performance level and this is more prevalent in penalty contracts. Finally, Brooks et al. (2012) reported that “expectation communication” would be another explanation for higher employee performance under penalty framed arrangements, additionally to the loss aversion and endowment effect.

Consequently, RFT and EVT provide two recommendations for the applicability of framed contracts: **(1)** If the thresholds or the aspects of a job that are regulated by bonus or penalty deals could be selected carefully (signaling and matching effects), the negative atmosphere resulted from penalties might be considerably decreased, though may not be eliminated altogether. For example, if the expected effort level is pointed out by a relatively high but still achievable value in penalty contracts, thanks to loss aversion, higher employee performance could be induced, but at the same time the negative atmosphere could be avoided to some extent since the workers were assured that they could do their tasks. It could be possible because penalties set only minimum performance standards according to their recognition. This prediction of RFT and EVT would be even more reliable if the employees choose the penalty contracts voluntarily. (Weber & Mayer, 2011; Brooks et al., 2012, 2017). Indeed, because of the signaling the easiness of a job, they would prefer the penalty deals without any pressure, in addition to salience and commitment arguments of de Quidt (2017) and Imas et al. (2016) **(2)** However, for taking this recommendation into account, employers should know the production function of their employees. Otherwise, they cannot take advantage of these predictions of RFT and EVT. If that knowledge would not be available and even if employers would not devote their attention to the threshold value selection or signaling and matching effects regardless of the availability of that employee information, penalty framing will promote negative mood more, and bonus deals might still lead to positive emotional

attachments. Self-evidently, in this case, employers should offer bonus contracts; otherwise, the penalty most likely diminishes the performance further instead of enhancing it.

However, an essential problem of RFT and EVT is their very general assumptions which may be blamed as being relatively weak and complicated. Furthermore, their predictions seem more appropriate for B2B transactions as opposed to employment relationships. For instance, even if employers would consider the previously discussed recommendations for effectively implementing the bonus and penalty in the contracts, adverse psychological effects of penalty framing could be observed in controlling the current performance level of employees. According to Weber & Mayer (2011), vigilant behaviors are expected in prevention framed contracts, and they could be the reason for arm-length relationships and more appropriate for such interactions. Therefore, prevention frame mostly causes the distrust regardless of the penalty amount and expected performance level.

On the other hand, increased trust is the typical result in promotion framed contracts. Besides, as missing the target has minimal negative consequences in such deals according to perceptions of individuals, achieving the goal dominates every other aspect of the employee motivation. Consequently, promotion framed arrangements support a greater level of flexibility and creativity for meeting the maximal goal as well as intrinsic motivation to some extent.

As a result of these different and complex theoretical predictions, a compromise is needed to apply the advice of RFT and EVT to real-world employment contracts. For reaching it, framed deals would be arranged accordingly to the job characteristics. By doing so, both the bonus and penalty might lead to better performance depending on some critical conditions. For example, for firms that require flexibility and creativity from their employees, like high-tech companies, promotion framed contracts are more appropriate. For types of jobs, in which the overachieving the target brings fewer benefits whereas missing it would cause huge troubles, a prevention framed contract should be applied because of its disciplining effect (loss aversion). Furthermore, for simple tasks like production in factories that rely on human effort more, it would also be an optimal solution (Baron & Kreps, 1999).

An empirical proof regarding this issue was provided by Förster et al. (2003). In their study, subjects with promotion focus deals were more successful for the mission that requires creativity, whereas others with prevention focus arrangements did not pay much attention to this aspect of the job. Their purpose was finishing the duty with minimal failures. Thereby, context should determine the choice between bonus and penalty. In other papers, especially in entrepreneurship context, Baron (2004) proved the idea generation as more successful with bonus while according to Brockner et al. (2004), due diligence performance is positively affected by the prevention focus. More related to trust and reciprocity considerations of social preferences literature, Tykocinski et al. (1994) showed in their research that partners who worked under promotion framed contracts displaced more positive thoughts for each other, whereas the hostile feelings were present between subjects working under prevention framed deals.

As a result, opposite to the predictions of most experiments in section 3, RFT and EVT do not believe that the penalty increases the performance all the time. Nevertheless, they still favor the penalty contracts but suggest that some necessary conditions must be held for getting higher performance from employees, like deriving difficulty of the task from framing or considering the job characteristics and required duty. If these prerequisites are not taken into account before offering the contract, it would be better to continue with bonus deal (or even dictating); it could also result in a sufficient performance level thanks to the potentially intrinsically motivated employees and positive atmosphere in the company.

4.2 Social Preferences

The term “social preferences” is used for motives like altruism, trust, reciprocity, intrinsic happiness for helping other people and so on. They are essential for assessing the performance effect of framing because most of the time a direct link between these motives and employee performance exists. Framed contracts could affect the performance by influencing the internal cognitive processes of employees, both positively and negatively (Podsakoff et al., 2006). The most important reasons for this connection are previously discussed signaling effect of framing and the tendency of individuals to derive information from offered contracts regarding the attitude of employers, which is the domain of social preferences (Bowles & Polanía-Reyes, 2012; Kirchler, 2011a; Kirchler, 2011b; Friedemann et al., 2011; Weber & Mayer, 2011; Brooks et al., 2012, 2017). Furthermore, according to the attribution theory, people blame external factors when the events are adverse, whereas they attribute the occurrences to the internal factors if they are positive. Thus, when an employee receives the bonus, he most likely believes that his ability and higher performance generated it. In contrast, if he is penalized, according to him, some external factors should be responsible for the poor performance (Morewedge, 2009). Consequently, penalties generally promote the negative feeling further. Therefore, similar to RFT and EVT arguments, for taking advantage of loss aversion, some conditions must be held, which is the purpose of the discussion of the entire capital 4.

In contract framing literature, the prior task of the knowledge derived from social preferences seems to be testing the theoretical predictions of RFT and EVT in employment context more because these two theories provide mostly unclear predictions and analyze B2B markets. Correspondingly, they make their analysis at macro-level; explaining the behaviors of “companies” is more important for them. However, there are some unique characteristics of employment relationships which would not be answered by RFT and EVT easily. Nevertheless, “social preferences analysis” in employment is a relatively huge topic. Thereby, the discussion is limited only by relevant arguments for framing. More precisely, for the current work, trust, reciprocity, and reputation of contract partners are essential.

The crucial problem of contract framing research is the desire of authors to use short-term oriented, complete contracts that are more appropriate for laboratory studies. Such experiments were mostly discussed above in section 3. Clearly, they showed the disciplining effect of penalties. Additionally,

because of the inclination of human beings to avoid loss, employees could be stimulated to perform considerably well. However, the generalizability of their results is a huge problem. By their nature, reputation and trust cannot be observed with this experimental setting easily, especially in a laboratory study which does not last more than two hours mostly and done between anonymous partners. However, in contrast to the bonus arrangements, even such studies sometimes showed the negative feelings between partners who decided to work with penalty contracts, both for the employer-employee relationship and teams in which members were penalized collectively.

Nevertheless, it was not the purpose of those studies, and their design was not appropriate for testing communicative feature of framing. For examining these effects empirically in the employment context, Tannenbaum et al. (2013) conducted six different experiments. Their research question was whether employees derive from framed contracts the information regarding the attitude of their employers towards them and if so, what their reactions are.

The authors were motivated by a widespread practice of some companies in the U.S., which try to incentivize their employees for maintaining healthy lifestyles. These firms rely either on carrot or stick policies, like discounted premiums for healthy-weight employees or higher premiums for overweight workers depending on their body mass index (BMI). Results of the research suggest, even if these two policies would be economically identical, they do not always transmit the same information. Indeed, monetary equivalence does not imply information equivalence. From the applied policy, subjects of the experiments inferred opinion of their employers and reacted to the stick policies hostile. Many of them considered leaving the company, especially who were judged overweight.

In contrast, the carrot policy was not perceived as a positive attitude of the company towards healthy employees, but unfavorable behavioral effects of this policy on both types of employees were also not present. This result could be regarded as an important explanation for the popularity of bonus framed contracts compared with penalties in real-world companies, both for salaries and non-monetary benefits (e.g., mentioned companies on page 1). Thus, employers might not be so irrational as they are blamed. Resting on the results of their experiments, the researchers concluded that stick policies were more expressive than carrots. The reason for this fact should be the rarity of such policies in the real world. Information theory shows higher informative feature of rare events. As a result, stick policies could convey more information regarding employer opinion and most likely cause hostile reactions (McKenzie & Mikkelsen, 2007; Sher & McKenzie, 2006).

Furthermore, in one of their studies, employees who had acceptable BMIs declared that they should be treated by the carrot policy. According to them, sticks should be appropriate for overweight workers. Therefore, the conclusion of this study is, according to the beliefs of participants, punishments are convenient for employees who do not act as expected. Therefore, once the penalty contract is applied for every employee or each aspect of a job, already motivated workers would also decrease their

performance because they might conclude the lack of trust of their employers. Tannenbaum et al. (2013) confirmed (unintentionally) the most primitive version of the matching effect which was thoroughly analyzed by Evers et al. (2016). Nevertheless, it is hard to generalize from the studies of Tannenbaum et al. (2013) because considering the weight of employees as a performance variable is arguable. Moreover, ethical problems would also become a serious matter to distinguish employees based on BMIs in the real world, especially if it would become the common knowledge among employees (Flegal et al., 2012; Ogden et al., 2014).

Nevertheless, in every case, when a company applies a stick policy, employees deduce from it that overweight is a problem for the employer. Therefore, Tannenbaum et al. (2013) also proved the significance of “norm framing” feature of penalties (synonym to signaling and expectation communication effects of framing, as discussed by RFT, EVT, and Brooks et al., 2012, 2017). They set the expected performance level; essentially the expected behavior in this experiment. However, the researchers could not find any definite connection between penalty and motivation to reach healthy BMIs. It was true, even when stick policies favored overweight employees by charging them in total less than carrot policy implies. In addition to the hostile work environment concerns, current research signifies that punishment policies are not popular among the public (McGregor, 2007, Barry et al., 2009). Thus, they might also cause reputational costs (Tannenbaum et al., 2013).

Some theories which are closely related to social preferences (e.g., psychological, relational, behavioral and implicit contract theories as well as RFT and EVT) try to find the reasons for hostile reactions of employees to the penalty contracts because it seems that they positively influence the employee performance at the same time. Thus, employers face here with a trade-off. However, these theories do not provide solutions to this problem. Thereby, in the conclusion section, some propositions will be discussed for utilizing differently framed contracts effectively in appropriate circumstances.

The standard argument of these theories is that by their nature, people dislike being punished and incline to prefer bonus more even if the outcomes of each contract would be identical, though their preferences could be shifted by some nice policies (see de Quidt, 2017). However, long-term performance effects of self-selected penalty contracts have not been confirmed yet. If employees derive some conclusions from penalty framed contracts regarding the attitude of their employers, according to general propositions of social preferences, they might believe that their employers do not trust them; instead wants to discipline his workers unpleasantly by punishing the failures. Since trust is reciprocal, employees could act accordingly. Their intrinsic motivation would decrease; even if they work hard and perform well under (self-selected) penalty framed contracts, this effect could be valid only for short-term, and in long-run, they may seek different jobs (Bradach & Eccles, 1989; Gambetta, 1988; Zand, 1981). More importantly, if they would be able to eliminate the penalty with their performance, they would not work anymore (or slow down) in the related performance evaluation period because exerting the effort will not bring

anything more in return. These are the most discussed and popular objections to increased performance claim of penalty framed contracts, which are generally accepted without further investigation. Precisely, although the loss aversion would be a universal concept, positive performance effect of penalties requires more real-world oriented investigations before assuming it in that way (Luft, 1994; Liu & Zhang, 2015). As shown in section 3.1.3, the combination of penalty and bonus would be useful to eliminate these matters, but they also bring other potential problems like wage inflation, complexity and still the existence of penalties or the possibility of being penalized.

Different from others, psychological contract theory tries to find a compromise between positive performance and predicted adverse psychological effects of penalty contracts by including ideological aspects into the analysis. It finds its roots in the social exchange theory (Thompson & Bunderson, 2003). Here, employees might be stimulated to think that they are bound to their organization for pursuing some sacred goal, like environmental protection or fighting poverty. Contraventions of ideological aspects usually do not lead to aggressive responses; rather employees want to change this situation through positive communication with their employers and colleagues. They also reassess their performance and try to improve it (Thompson & Hart, 2006).

In the light of this claim of psychological contract theory, negative perceptions of penalty framed deals could be avoided by the following practice: Employers would motivate their employees with the help of penalty contracts by saying that if they would not work hard, their low performance could also affect many people in society. However, it may not be enough. Employees could react oppositely and assert that they do not need a threat of a penalty for acting as expected since they have already intrinsically motivated for the objective of the organization. Here, the employer has another powerful instrument; namely norm framing. He might communicate the penalty threshold only as an expected performance that everybody should reach under normal conditions for the aim of the company. Essentially, it sets an anchor and assures the needed effort level for the common goal. Correspondingly, the higher performance could be reached with increased motivation (Brooks et al., 2012 & 2017).

Nevertheless, no study has investigated this advice of psychological contract theory in the contract framing literature so far. Hence, these arguments would be weak and seem to be more appropriate for non-profit organizations, which are not the concern of contract framing research in general. However, this recommendation of the psychological contract theory should be taken into account; notably, its modifications could be applied in some companies to create a strong bond between the firm and its employees.

4.3 Dynamic Environment

In this setting, there is uncertainty between employee effort and compensation. The motivation is to resemble the real employment situation in a laboratory experiment to get more generable results and to avoid seemingly most essential problems of classical framing experiments (e.g., short-term orientation without considering psychological effects or reputation). In addition to it, the researchers in the current

section want to explain the discrepancy between practitioners' behavior (reliance more on bonus) and contract framing recommendation for using penalty contracts more. Hollenbeck et al. (1994) critically discuss that typical framing effects observed in a static setting would not be true in uncertain situations. Dynamic environment increases this uncertainty further. In the following, this issue will be investigated with the incomplete contracts and manipulation of target timing (i.e., announcement of expected performance level before or after the evaluation period).

4.3.1 Incomplete Contracts

Before discussing one of the most famous studies in contract framing research that applied this type of deals, having some general information about incomplete contracts would be useful because they are fundamentally different from complete versions. Since the development of transaction cost theory, the role of incomplete contracts in financial deals and employment agreements have become one of the most popular researched topics in (behavioral) economics and psychology. As its name suggests, by incomplete contracts, parties agree to determine some details of the transaction later. Different reasons would be responsible for this practice, but one of the obvious is the achievement of flexibility. If the relationship would be considered long-term oriented, too many uncertainty factors might develop in the future. Therefore, with the incomplete contracts, parties might adapt themselves to such environmental changes (Kreps, 1990; Baron & Kreps, 1999; Kieser & Ebers, 2006; Williamson 1979 & 1981).

Complete contracts had mostly regulated employment relationships until the late 20th century. Although, because of the specification of nearly every term they caused inflexibility, it was not a big problem in those years since the duties of employees and their contribution to firm value were relatively simple. However, in today's employment deals, more incomplete contracts have been observed that regulate both the tasks of and payments to employees. Economists are usually skeptical about the advantages of achieved adaptability because such incomplete contracts could be used by rational and selfish economic actors opportunistically. For example, by incomplete contracts, parties are usually required to make some relation-specific investments. As gains from such contributions because of the incomplete nature of the agreement are not clear, parties could underinvest. Here, trust and the reputation of contract partners are vital for motivating actors (Kreps, 1990; Baron & Kreps, 1999; Kieser & Ebers, 2006; Williamson 1979 & 1981).

While incomplete contracts are seemingly popular in (behavioral) economics and psychology, it has not been an attractive topic among contract framing researchers (Hart & Moore, 2008, Christ et al., 2012). One of the major reasons for the rareness of contract framing experiments that use incomplete contracts is the necessity of a multi-period design with different job aspects while simultaneously considering the reputation of both parties.

However, as mentioned, these contracts have become more critical, and by their nature, not all the aspects of required employee performance could be specified by them (Kreps, 1990). Correspondingly,

companies rely more on the voluntary cooperation from their employees for achieving their targets. In this context, Fehr & Gächter (2002) investigated the effects of framed incentive contracts on voluntary cooperation and concluded that compared with economically equivalent bonus arrangements, penalty framed contracts undermine it.

Although doing framing experiments with an incomplete contract setting which resembles the real-world is a hard task, it is still possible to create a simple environment for testing psychological and performance effects together with the bonus and penalty framing. The research of Christ et al. (2012) is the only laboratory experiment that used incomplete contracts manipulated by framing. For that reason, this research is highly valuable, but the non-existence of other related studies also makes the generalizability of its results difficult. Hence, there is no benchmark to compare its findings. The researchers believed that their experiment might stimulate others to do this kind of studies more.

If there would be a direct relationship between effort and output, like jobs in simple production factories (e.g., Hossain & List, 2012), or if the employees would be hired only seasonally, the findings of previous studies could be enough to derive a straightforward relationship between framing and performance. Indeed, in Christ et al. (2012), when the researchers first offered complete contracts, performance was considerably higher with the penalty framed deals.

The first goal of the authors was to find the underlying motive for the dominance of bonus contracts in practice. Some scholars from psychology, economics, and accounting believe that the preferences of employees should be the cause and employers wanted to comply (Luft, 1994; Brink & Rankin, 2013; Evers et al., 2016; de Quidt, 2017). However, employers do not have to select a contract type regarding its framing because of the preferences of agents, but they always want to find ways to improve the effectiveness and efficiency of their companies. After all, it is one reason for the existence of contract framing research. For instance, in experiments like Hossain & List (2012) and Hong et al. (2015), employers asked scholars to test framing effect in their company for enhancing employee performance. Although the research of Frederickson & Waller (2005) discussed in section 3.1 confirmed the reality that higher effort generated by penalty framing would not always result in better profits, still many authors and managers believe that if such higher performance levels would be constant over time, earnings should be improved ultimately (Hannan et al. 2005; Hossain & List, 2012 & Fryer et al., 2012; Hong et al., 2015). As mentioned, previous classical studies put a question mark in the minds regarding the rationality of employers due to their reliance on bonus contracts more. Christ et al. (2012) pointed out the degree of contract completeness as the most important reason for the inconsistency between empirical research and practical application.

They developed an experimental design to mirror incomplete contract setting while considering the importance of trust between contract partners. It means that they also appreciated the significance of social preferences in addition to the dynamic environmental effects which are highly related and could also be

analyzed together. There are many different forms to create such contracts, but for laboratory experiments, it should be as simple as possible to eliminate the problems of understanding by subjects. If they could not figure out the nature (not the purpose) of the study, results would be less valid.

Researchers proposed subjects differently framed but identical incomplete contracts; they governed only one of the two assignments which the participants were responsible. This setting approximates the real-world employment situation basically because many modern jobs are multi-faceted even if they require only some simple tasks in total. In the first assignment of the research, incentive contract determined the payoff for the effort, and it was framed as a bonus or penalty. However, for the second work that the employees must perform, the employer had control over the compensation. As a consequence of this discretion, according to the researchers, trust between employee and employer should become the crucial factor for the performance level of the second duty. The experimenters wanted to analyze, whether the framed contract for the first task would have any impact on trust and if so, whether it would alter the performance for the second duty.

According to the results of the study, performance of employees was considerably higher for the first task who received penalty framed contracts. Loss aversion worked there perfectly. However, the crucial finding is that the subjects who worked under bonus deals in the first duty performed relatively better in the second assignment. Contrary to the results of previous framing experiments, when the contracts became incomplete, the influence of framing on the performance was reversed.

According to Christ et al. (2012), the rationale behind this adverse effect of framing is trust. When the contracts are complete, as it was in Hannan et al. (2005) and Hossain & List (2012), trust between contract partners would be less important because every aspect of a job is fixed on the paper. Since the consequences of effort levels are evident, holding all else constant, the optimal behavior of participants would be showing the highest performance to get the maximum payoff from such short-term oriented experiments. In this case, the loss aversion has a positive impact on the effort. On the other hand, if the principal has some discretion over the salary of employees, like in many incomplete contracts, he might behave opportunistically. At least, he has this possibility (Fisher et al., 2005). Thereby, trust becomes an essential moderator for the performance effects of framing.

Furthermore, formal control mechanisms most likely affect the trust badly (Das & Teng, 1998, 2001; Enzle & Anderson, 1993; Inkpen & Currall, 1998; Malhotra & Murnighan, 2002; Christ et al., 2008). However, Christ et al. (2008) and Christ et al. (2012) suggest here that the nature of control is the decisive element. In this sense, its framing is relevant. Unpleasant effects would be observed only with a negatively framed formal control mechanism, like punishment. Employees usually perceive it as being intrusive and something that diminishes their autonomy (Christ et al., 2008; Christ et al., 2012). There are different control mechanisms, but for the current work, the most important one is the incentive

contract. It has a formal control characteristic; after all, an employer wants to supervise his employees by offering different incentive contracts.

Bonus framed deals could be regarded as a positive formal control method because employees know that they are going to be “rewarded” instead of “punished” by employers. Thus, relying on the social projection theory, they might also think that their employer trusts them for providing good performance and wants to honor with the bonus. As the trust is reciprocal, they also expect fair payments even though there is no clear relationship between effort and salary; i.e., incomplete contracts. Correspondingly, they repay this *recognized* kindness with the higher performance. (Krueger, 1998; Bradach & Eccles, 1989; Gambetta, 1998; Zand, 1981).

In general, using formal control mechanisms that are more intrusive and constraint the employees’ autonomy signals some message from principal to agent, which was also proved by the study of Tannenbaum et al. (2013). Employees might believe their employer expects them to engage in opportunistic behaviors intentionally, like cheating, shirking and stealing. Furthermore, sometimes negatively framed controls would be perceived by employees as the questioning of their competence and skills. According to Christ et al. (2012), as argued in the previous section, penalty contracts exactly transmit these expectations even if the intention of the principal would not be that. Consequently, resting on these arguments, employees’ trust in the employer could be impaired when the latter offers a penalty contract. On the other hand, damage should be less in a bonus deal, or even it would be reversed.

As a summary, the experiment shows in contrast to widely accepted positive effects of penalty framing on performance which relies on complete contract settings, in more real-world oriented incomplete contracts, bonus framing could increase the employee effort more, thanks to its positive influence on trust. Therefore, it is another critical objection in the literature to the claimed positive performance effects of penalties. However, as mentioned above, it is the only experiment that studied incomplete contracts in the framing literature thoroughly. For that reason, it might be impossible to predict the real impact of bonus contracts on trust and indirectly on performance in this framework. Consequently, there is a need in contract framing literature to conduct such research more, either in field or laboratory. Still, considering the findings of social projection theory, psychological studies regarding employment relationships (Bowles & Polanía-Reyes, 2012; Kirchler, 2011a; Kirchler, 2011b; Friedemann et al., 2011), and particularly Luft (1994) and Hannan et al. (2005), the arguments of Christ et al. (2012) show a clear path to improve contract framing research. Although RFT and EVT discuss the positive use of signaling effect like the perception of minimum performance standards, in a dynamic environment, the unpleasant information transmitted by penalties become a considerable problem contrary to the static one, which RFT and EVT make their predictions resting on it.

4.3.2 Target Timing

There is a long, yet not concluded debate in accounting for motivating employees by linking their compensation to the achievement of a specific performance target. As shown throughout the current work, the common practice is identifying the required performance level before the evaluation period. It is called the static approach, and the experiments in contract framing literature prefer mostly this procedure. However, some influential papers have documented the dysfunctional behaviors like shirking and earnings management which are induced by this static method (Banker et al., 2000; Murphy, 2000; Jensen, 2001; Healy, 1985; Hope & Fraser, 2003a; Hope & Fraser, 2003b; Jensen, 2003; Merchant & Van der Stede, 2007). Furthermore, target determination period consumes too much time and too many resources that could be used more effectively elsewhere.

Besides, if the targets are selected poorly, motivational problems might also be present (e.g., Brooks et al., 2017 in contract framing research). Notwithstanding the reputational effects of the practice of slowing down or giving up entirely, once employees understand reaching to target would be impossible in the current evaluation period, they seem a rational behavior from the economical viewpoint. Self-evidently, these dysfunctional actions would also be observed after hitting the expected performance level (Hope & Fraser, 2003a; Hope & Fraser, 2003b; Liu & Leitch, 2013). Some authors believe that such dysfunctional behaviors related to the ex-ante announced performance targets could be eliminated with peer competition because individuals tend to outperform their peers (Frederickson, 1992; Hannan et al., 2008). According to social comparison theory, psychological costs of worse performance become greater when the social comparison is more salient (Tesser & Campbell, 1980). Thus, some researchers propose to utilize peer-determined performance targets (Hope & Fraser, 2003a; Hope & Fraser, 2003b). However, they could not provide a complete solution; on the contrary, have brought other problems.

Liu & Zhang (2015) appreciated these thoughts but took another approach and developed a tournament setting in a dynamic environment. However, their research should not be confused with Hong et al. (2015) which was discussed in section 3.1.2. In the current study, individual performance was the dependent variable and judged by the relative performance evaluation. On the other hand, in Hong et al. (2015), groups were rewarded or penalized collectively; hence, those researchers used the pure form of a tournament payment policy. Furthermore, the subjects knew when the evaluation period ends, whereas Liu & Zhang (2015) also manipulated the announcement time of expected performance level. If it would not be specified ex-ante, employees could never be sure whether they have already exceeded it or not (Hope & Fraser, 2003a; Hope & Fraser, 2003b; Liu & Leitch, 2013). As a consequence, slowing or giving up might not be observed; essentially, it would not be a rational behavior anymore.

For investigating this issue, firstly, the researchers declared the expected performance level at the beginning of the evaluation period, as usual. In addition to it, they developed a so-called ex-post setting. Here, the expected performance level was not the common knowledge until the end of the treatment

period. Logically, it should induce different actions and alter the perceptions of individuals. Since peer group's average productivity determined the result of employee effort, in *ex-post* setting, the authors claimed that bonus deal should enhance the performance by reducing the likelihood of the effort manipulation and by making the peer competition more prevalent. At the same time, penalty contracts should not be appropriate for *ex-post* announcements. Above, the possible detrimental psychological effects of penalty framing were well documented. Expectedly, if the employees would not know the required performance level during the evaluation period, these effects might be more severe. Most likely, it could decrease the intrinsic motivation further because in this case, penalty contracts are perceived as harsh, unfair and non-trusting. It might trigger the suspicion or anger among employees. Furthermore, penalties remind the past failures more; not disclosing the expected performance level may be responsible for the doubts of individuals regarding their ability to reach the expected performance level. Thus, they would perceive the arrangement unreasonable. (Fehr & Falk, 2002; Hannan et al., 2005; Luft, 1994).

If these claims would be true, in a dynamic environment, employees should perform better with bonus contracts. Indeed, Liu & Zhang (2015) confirmed this hypothesis. In the experiment, individuals who received the *ex-post* bonus contracts significantly outperformed others. Furthermore, for subjects working under penalty contracts, altering the announcement time was not responsible for the performance discrepancies.

According to the statements of participants, they found the *ex-post* penalty contracts unfair because of the uncertainty about the supposed performance level. In addition to it, these subjects were significantly less motivated than others who received *ex-post* bonus arrangements. Although the adverse motivational effects of penalty framing are a well-known result among scholars who devote more attention to the social preferences, lower performance in the uncertain situation is also intriguing because in the current experiment, the contracts were identical and loss aversion had been still provoked. Hence, Liu & Zhang (2015) showed after Christ et al. (2012) that in an uncertain environment which approximates the real world more, bonus deals increase the employee performance and motivation. Loss aversion is positively associated with the effort only when there is a precise relationship between performance and compensation (e.g., simple, short-term oriented, and complete contracts). Even this kind of studies which bring the objections to classical experiments are relatively rare; their contributions are enormous. They pose significant challenges that contract framing research should overcome in the future.

4.4 Other Hidden Costs behind Penalty Framing

In a manner of speaking, penalty framing might have some “side effects” which are not directly related to the employee performance but would bring essential problems that could make employers skeptical for applying the punishments instead of bonuses. In this section, some of these issues will be discussed briefly. More importantly, they may explain the dominance of bonus payment schemes in practice despite seemingly positive performance effects of penalty contracts.

One of such hidden costs of penalty framing is employee turnover. For example, Lemieux et al. (2012) tried to find the reason for the dominance of bonus contracts in companies by looking at this issue from an economist perspective. They analyzed this question with the help of implicit contract theory, though it will not be explained here detailed because it is not the topic of the thesis. The researchers investigated the lay-offs and involuntary unemployment situations for getting the answers. According to this theory, in different business cycles, firms should alter the wage but not the number of workers; however, in reality, the opposite policy is applied. (Azariadis, 1975; Azariadis & Stiglitz, 1983; Baily, 1974; Gordon, 1974; Beaudry & DiNardo, 1995; Miyoshi, 2012). Although this advice of the implicit contract theory seems easy to exercise in a booming economy, in a bad business cycle, employees who receive only fixed payments usually react to wage reductions in a hostile way. They either resign or do not perform well for forcing their employers to fire them; by doing so, they could receive at least their severance pay (Miles et al. 2012).

On the other hand, employees who work with bonus framed contracts would be more willing to arrange their bonus terms and accept the reduction of their bonus payments if they perceive the fact that business environment obliged their employers to do so. However, if employees would be told that they must pay more penalties because of the bad business cycle, they could react even more negatively than the workers who receive only the flat payment and threatened by the possible reduction of it, which also shows decreasing the base salary is not an option for these employees. Therefore, even in the absence of *strong* psychological explanations regarding social preferences, employees and employers could prefer bonus deals to fixed and penalty framed variable payment schemes because of the economic reasons. Both older and relatively new studies also found the positive influence of bonus contracts on national employment rate in the U.S., which is good for society (Weitzman, 1983; Azfar & Danninger, 2001; Oyer & Schaefer, 2005).

Van der Stede et al. (2018) also investigated the issue of turnover and its possible connection with framing. According to them, in their field study, workers who received penalty contracts became restless and tended to leave the company. Then, in the first opportunity, they resigned and employed by other firms. The authors showed that one standard deviation of bonuses reduced the turnover probability by 2.828 % whereas one standard deviation of penalties increased it by 1.660%. More importantly, not only regular workers but highly skilled and talented employees left the company. Correspondingly, the human capital loss of the investigated Chinese manufacturing plant was relatively severe. Therefore, bonus arrangements will probably dominate the penalty compensation plans in the future.

Another critical problem that might be linked to the penalty framing would be corruption. Armantier & Boly (2014) investigated the bribery acceptance rates of subjects in their Burkina Faso field experiment. The setting was as same as in section 3.1.3 discussed framing research of these authors, but in the current study, they only examined the relationship between contract framing and bribery. According to them,

framed contracts transmit some message and stimulate employees to act (un)favorable. They believed that penalties might lead to disloyal behaviors. However, only combined contracts resulted in higher corruption, whereas there was no relationship between bribery and pure bonus or pure penalty deals in their experiment. Above, these two researchers found the positive performance effects of combined contracts. However, it seems that it would not align the objectives of employees and employers. Indeed, it is true because employees were assured that employers could not catch them which was guaranteed by the nature of the experiment's setting. Correspondingly, they were free to decide for accepting or rejecting the offered bribes without considering the consequences. Therefore, if the subjects would only respond to financial incentives, they should have accepted the bribe in all treatments.

Armantier & Boly (2014) suggested that combined contracts promote extrinsic motivation too much at the expense of intrinsic motivation compared with pure forms. Consequently, employees would not be hesitant to show some disloyal behaviors because they might be (unintentionally) persuaded that they do their tasks only for getting some monetary benefits. Although the pure penalties also induce some dysfunctional behaviors which are more related to the social preferences, the authors stated that combined contracts might solve these adverse psychological effects of penalties to some extent; however, bring other, most likely economic problems at the same time.

Finally, cheating would also depend on the framing of contracts. Grolleau et al. (2016) examined this issue by analyzing the self-reported performances of subjects both in monitored and unmonitored conditions. The contracts were equivalent in this laboratory study and framed either as bonus or penalty. In both conditions, penalty framed arrangements led to more cheating behavior, particularly in the unmonitored setting. According to the authors, there are two reasons for this dysfunctional action. First, penalties damage the relationship between employees and the employer. Thereby, penalty payment schemes are recognized as unfair. Furthermore, people tend to avoid the loss by their nature, which is mentioned throughout the thesis. Therefore, they would not hesitate to cheat for reducing the magnitude of loss.

Second, referring to Kahneman et al. (1986), people often feel less guilty for unethical actions if their motivation would be eliminating the loss or decreasing its magnitude. More importantly, such immoral decisions are accepted not only by the individual but also condoned by third parties. Concisely, Grolleau et al. (2016) suggest that employers should be more cautious while using penalty schemes because such dysfunctional behaviors could counterbalance higher performance effects. Thus, the net gain of employers from penalty contracts would be near zero. Consequently, the recommendation of this research is to use bonus contracts more because the fear of a loss seems to be responsible for more dishonest behaviors than the attractiveness of the gain.

As a summary, although such considerations are less connected to the main topic of the thesis, the considered hidden costs of penalties in this section might explain the reluctance of employers for practicing the penalty contracts in their companies. Above all else, the whole chapter 4 emphasizes that framing is

a powerful but not a simple strategy to improve the overall firm success without troubles. In particular, if the creating and retaining a long-term relationship is crucial in a given firm or business sector, (penalty) framing might even become a huge problem for employers (Lemieux et al. 2012). In the following section, the work will be concluded, and some conditions for favorable application of framed contracts will be critically discussed.

5. Conclusion

Loss aversion is accepted as a universal phenomenon and applied in various contexts in different countries, though its degree might depend on different conditions. Regardless of the demographic characteristics, human beings hate to lose (Novemsky & Kahneman, 2005; Wang et al., 2017). Therefore, they react to the losses more extremely and willing to take some risky decisions or exert more physical and cognitive effort to avoid it. Furthermore, they are not immune to framing manipulation which can be used for provoking the loss aversion. Since people devote more attention to avoid loss, even if the alternatives would lead to the same outcome in objective terms, they usually prefer the bonus to the penalty and sometimes do not understand the sameness between options at first glance (Kahneman & Tversky 1979; Tversky & Kahneman, 1981 & 1986). Even though they would perceive this reality, might still react as predicted by the prospect theory. For example, some marketing studies show that consumers who understand the intention of psychological pricing still find them attractive and tend to round the price to the next lowest number. In general, human beings seem to have difficulties for resisting to such manipulations, which led to various behavioral anomalies at the end (Hermann & Fassnacht, 2016).

Since many different and comprehensive experiments have confirmed the claims of the developers of prospect theory regarding loss aversion, companies increasingly pay their attention to this concept to capitalize on its ideas for their well-being; i.e., receiving more profits thanks to higher employee performance. For example, some firms invited researchers to test the framing effects in their departments (e.g., Hossain & List, 2012).

By its nature, the applicability of loss aversion is more suitable for communication. Therefore, in practice, first comprehensive examples were observed in the marketing area. For persuading consumers that they might lose something if they would not act immediately, offering limited price discounts for some products is still one of the most applied strategies. In addition to it, some bigger companies effectively use loss aversion in their communication with (potential) customers for gaining additional consumers or making existed clients more loyal (Hermann & Fassnacht, 2016; Waller & Conaway, 2011; Ganzach & Karsahi, 1995; Gabaix & Laibson, 2006). In the business context, for securing certain performance standards, loss aversion is used effectively in B2B transactions (Weber & Mayer, 2011; Weber et al., 2011). However, for getting higher employee performance and ultimately higher profits, the framing of employment deals has not provided clear predictions yet. In the current literature review, this issue was investigated from different perspectives with the help of various experiments.

Firstly, equivalent pure bonus and pure penalty contracts were analyzed both for performance aspects and preferences of individuals. Comparison of these two contract forms mostly results in relatively higher efforts induced by penalty contracts. Besides, the studies that examine pure forms have provided less contradictory findings. By looking at only this comparison, employers should have a clear policy: They must offer or even dictate penalty contracts if they want to get higher employee performance.

However, it is not so simple as it seems. Contrary to the B2B market transactions, in the employment context, the analysis is done at the individual level. In addition to some hidden costs of penalties which are more related to the economic concerns, psychological aspects that might be linked to the penalties should also be analyzed with more caution for receiving more generalizable results from framing experiments. Furthermore, studies that analyze the preferences of individuals have also emphasized the importance of psychology. Interesting and somewhat an unexpected result from these studies is the preferability of penalties. As a result of the commitment feature of penalty contracts and their higher base salaries, subjects do not hesitate to accept these offers. However, even though the self-selection would seem a solution for psychological problems associated with penalties at first glance, it does not necessarily mean that employees will like such arrangements. For instance, de Quidt (2017) showed in his experiment higher acceptance rates of jobs linked to penalty arrangements but also the recognition of them as less trustworthy offers even by employees who preferred them freely.

Concisely, although penalty contracts lead to higher effort thanks to the loss aversion, which is a widely accepted fact in the contract framing literature when psychological effects are investigated, contract framing research finds itself in an ambiguous situation. Therefore, combining bonus and penalty in a single contract have been recommended. However, even though they sometimes cause higher performance than pure penalty arrangements, they bring other essential problems like complexity or other unforeseen dysfunctional behaviors. Consequently, in the literature, the ambiguity has not been clarified yet. Therefore, in the following, to make some accurate assumptions for taking advantage of framing in an employment contract to increase the employee effort, nine propositions will be discussed, which also summarize the contribution of the current literature review.

(1) The first proposition of the thesis for practical implications emphasizes the allowance for employees to choose differently framed contracts freely. In this case, individuals who select penalty deals would perform better and not react to the punishments immensely compared with dictated arrangements because they voluntarily prefer it. Although some classical experiments like Luft (1994) and Hannan et al. (2005) argue that people tend to prefer bonus more, newer experiments have also shown increased popularity of penalty contracts (e.g., de Quidt, 2017; Imas et al., 2016; Brooks et al., 2012). The salience of higher base salary of the penalty deal as well as its commitment and communication features are responsible for this tendency. Furthermore, these studies provide some “nice” policies for stimulating

employees to select penalties more. Though the self-selection is still not a complete solution for psychological problems related to the punishments, it could moderate them.

Furthermore, in the following negotiations, employers might have more power because they did not dictate the contract form at the beginning. Any problem that might exist in the future could be solved in two ways: First, the employer might create an environment which would lead to higher intrinsic motivation. By doing so, the adverse effects of penalties could be counterbalanced. Second, she could also include the bonus in the employment contract. In section 3.1.3, the merits of this combination were discussed detailed. It often results in higher performance than the pure penalty and solves many related psychological issues caused by this pure form (e.g., Armantier & Boly, 2015). Nevertheless, employees might not appreciate it because they sometimes perceive combined contracts more complicated (Brink & Rankin, 2013). However, since by their nature human beings do not like the dictated contracts, first motivating employees to select penalties freely, then incorporating bonuses when they become unhappy would result in the higher performance by preserving loss aversion and enhancing it with positive features of bonuses. However, self-selection is key here. Otherwise, dictating a penalty contract and modifying it later with a bonus probably will not lead to intended results of the first proposition.

(2) However, sometimes companies would not be able to merge bonus and penalty; either they may find it unattractive in given circumstances, or simply company policy might not allow such a payment scheme. Correspondingly, they should implement only pure forms. For such firms, the second proposition of the thesis could be helpful. It is related to the time horizon of the employment agreement which can moderate the relationship between employee effort and framed contracts considerably. As mentioned throughout the thesis, one of the most important critiques against contract framing research is its inclination to prefer very short-term oriented laboratory experiments and its attempt to generalize their results for real-world employment relationships in which the time-horizon could be regarded unlimited. In the latter case, concerns of social preferences become more important. Having a healthy relationship between employees and employers is crucial for long-term firm success. For instance, today, companies rely on voluntary cooperation or contribution of their employees more to achieve its goals. Employees are willing to act in that way as long as a positive atmosphere in the company is present. Otherwise, they would provide only a performance level that could allow them to stay within the company. In this situation, dictating penalty contracts is still not helpful. Fehr & Gächter (2002) found that the penalty contracts undermine the voluntary cooperation considerably whereas bonus deals have either positive or tiny negative impacts on it. The latter will occur if the arrangement emphasizes the monetary aspect of the contract too much.

The second proposition of the thesis has three recommendations here: **a)** Penalty contracts should never be dictated if the employment deal is open-ended (no specific time for termination of the relationship). **b)** If employees would be made eligible to choose between contracts in an open-ended relationship and

if they prefer penalties more, once the adverse effects of punishments prevail, employers should change the agreement terms and offer only bonuses. However, it has some critical problems which favor the dictated bonus contracts instead of allowing self-selection. First of all, employers might lose their power because they obey the demands of their employees in the first encounter. In addition to it, the motivation of the employer to exploit incentive effects of variable payments with loss aversion might be known among employees. It may cause more unrest, and the personal relationship between contract partners might be heavily damaged. Furthermore, employees may resist the changes in the payment structure for a while (Baron & Kreps, 1999). Thereby, it should be seen the last option for the employer. Promoting intrinsic motivation could solve the problems more effectively in this situation. **c)** The final recommendation is related to the employment agreements which has a defined termination date. For example, if employees are hired only seasonally or people brought together for the first time for a short-term oriented project, in contrast to other recommendations, penalties could be dictated here. Thanks to the loss aversion, employees would exert higher effort because in a limited and short time horizon, social preferences become less critical and efficiency should be considered more, both by employees and employers (Macneil I. R., 1980; McLaughlin et al. 2014).

(3) The dynamic environment is also vital to make some advice for practical applications. Above this issue was analyzed with two laboratory experiments. However, it is worth to remind them again because in a dynamic environment a clear result exists. If there is no definite relationship between effort and payment, bonus contracts should be offered or even dictated. Otherwise, lack of knowledge regarding the consequences of employee effort would lead to more unrest, negative atmosphere and ultimately to the hostile reactions by employees. This proposition is significant for practice because today more incomplete contracts are observed in employment agreements which create the dynamic environment (Baron & Kreps, 1999). It also explains the dominance of bonus contracts in companies (Christ et al., 2012; Liu & Zhang, 2015). However, these studies did not test the reputation of employers. If he is a highly trusted person, employees might believe that he will pay fair wages and not manipulate the performance standards arbitrarily, even in the penalty agreements. Nevertheless, it would not be a solution for adverse psychological effects related to the uncertainty. As a result, penalties should not be considered in a dynamic (uncertain) environment.

(4) Theoretical predictions of RFT and EVT regarding the communication effect of penalties should also not be underestimated, though their explanations might be blamed as relatively weak. Brooks et al. (2012 & 2017) showed that penalties could be used effectively for signaling only minimum performance level. They also confirmed that if the thresholds for expected performance could be selected optimally, most of the harmful psychological effects related to the punishments would be avoided. Although they stated that “some” policies would make it possible, they did not provide concrete practices. In this fourth proposition, for applying this signaling and expectation communication effects of penalties for increasing the employee effort, some relevant conditions will be discussed.

First and foremost, developing an ideal compensation plan is the essential prerequisite. For example, too low or unrealistically too high required effort levels should not be useful for getting intended results from penalty framed contracts (Brooks et al., 2017). Working with a high-quality consultation firm and allowing employees to discuss the terms would solve significant problems related to the penalty deals and compensation plan from the very beginning. In addition to it, the reputation of the employer is utterly important. If he is a trusted person, employees might believe that he will always pay fair wages. As a consequence of the positive perception of their employers, they could recognize the penalty only as a device for securing minimum performance standards and adapt themselves accordingly. As a result, even if they must pay penalties at the end of a performance evaluation period, they might blame themselves for their lower performance. Hence, the healthy communication between contract partners is crucial here as well as the selection of performance thresholds. Furthermore, psychological contract theory proposes that if the characteristics of a job could promote the ideological aspects, penalties would be used effectively by employers for securing expected performance standards without the presence of its most negative psychological effects.

(5) Job types are also crucial for applying bonuses or penalties effectively. According to Baron & Kreps (1999) jobs could be divided into two categories in a broader sense. One of them is called guardian type jobs. Here, the higher employee performance would not bring many benefits but lower than expected effort would cause disasters. For instance, if pilots would land five minutes earlier than the scheduled arriving time, it might not be so important for an airline company. On the other hand, if they rush things for an early landing and crash, it would be a catastrophe for the firm even if the pilots cause a minor accident and nobody hurts. In the same vein, workers in nuclear sites should be more careful and act more disciplined. They are not required to do miracles. It is also true for workers in a manufactory plant. In section 4.1, the disciplining effect of penalties was discussed while arguing about the importance of RFT and EVT for contract framing literature. In these jobs, for provoking loss aversion, employees should be threatened by harsh penalties. They should know the negative consequences of not behaving disciplined and not conducting their basic tasks expectedly. Furthermore, they must be discouraged to take initiatives. On the other side, bonus arrangements are not appropriate for guardian jobs even if there is an equivalence between offered bonus and penalty contracts because people do not perceive the sameness but focus on the terms “bonus” and “penalty.” Correspondingly, for guardian jobs, positive performance effect of penalty could be assumed with more assurance.

Another job category mentioned by Baron & Kreps, (1999) is called stars. In this type of jobs, employees are required to be more creative. As a consequence, they are given more flexibility; discipline is less important. Examples could be the jobs in software and high-tech companies or research and development departments of firms, particularly for inventing a new product which might give a massive boost to the company. A healthy climate in such firms is crucial for success. Employees should not be threatened but encouraged by the bonus for being more creative. Both empirical tests and real-world

observations proved the positive effects of the bonus and ineffectiveness of the penalty for such job characteristics (Förster et al., 2003; Baron, 2004; Brockner et al., 2004 and Tykocinski et al., 1994). Concisely, job types would moderate the performance effects of framed contracts. The penalty could increase the effort in guardian jobs considerably, whereas the bonus positively associated with the performance in star jobs. In these cases, contracts should be dictated accordingly; self-selection would cause problems if workers from star jobs prefer penalties and vice versa.

Finally, some works could be seen as a mixture of guardian and star jobs, which might require various tasks regulated by a single contract. For example, employees might be expected to behave disciplined for some duties, whereas creativity would become more important in other categories. In this case, instead of the whole work, “*job aspects*” should be regulated according to the advice of the current proposition. Logically, it leads to the combination of bonus and penalty in a single contract.

(6) Characteristics of existed employee-employer relationship would also be crucial for the influence of framed contracts on the effort levels. Trust, fairness, and reciprocity in employment relationships are expected to be more critical if there is a close interpersonal relationship between employer and employees. Therefore, if the latter perceive the former merely as a “boss” and nothing more than that, the penalty deal would increase the performance. Otherwise, in more intimate relationships like family-owned small firms, the bonus should be preferred or at least the combination of bonus and penalty (Dickinson & Villeval, 2008).

(7) Up to this point, mostly the relationship between absolute performance and contract framing has been discussed. However, some experiments in contract framing literature also tested the group work and its possible association with the framing, though such studies are relatively rare. The research provides different advice depending on the group setting regarding the presence of an external monitor but not the distribution of the earnings among team members at the end of the evaluation period. With an external monitor, experiments like Hossain & List (2012), Fryer et al. (2012) and Hong et al. (2015) confirmed the positive performance effect of pure penalty contracts. In this condition, holding all else constant, offering (dictating) penalty contracts seems the preferable option, though as Hossain & List (2012) argued, loss averse workers could be exploited if the earnings would be distributed equally. Nevertheless, above discussed propositions regarding job characteristics, existed relationships, dynamic environment and so on should also be considered before making the decision.

On the other hand, some experiments like Sefton et al. (2007) and Rand et al. (2009) analyzed group dynamics without the presence of external monitors, but members could reward or penalize themselves. In contrast to the experiments with an external monitor, these studies delivered contradictory findings. In the bonus deal, which is supported by Rand et al. (2009), the earnings were higher. However, free-riding may not be solved when the earnings would be distributed equally. Thus, Sefton et al. (2007)

proposed the combination of bonus and penalty because they appreciated the positive feelings among group members thanks to bonus and disciplining effect of penalty thanks to loss aversion.

As a compromise, if the free-riding would not be a problem or could be solved by positive communication with more intimate group setting (i.e., not monetary but social punishments), the bonus could be applied instead of the penalty, as suggested by Rand et al. (2009). Otherwise, if the employer would want to eliminate free-riding and get still positive group outcome, combined contracts could be helpful instead of pure penalty deals. Without positive influence on earnings, resentment and retaliation could be observed in pure penalty setting due to the (unjustified) harsh punishments (Sefton et al., 2007).

(8) Time of the encounter might also govern the performance effects of framing. If employees and employers do not know each other and negotiate the employment contract for the first time, offering penalty might signal distrust of employer. Even if the employee would accept the offer, he might be relentless shortly. On the other hand, above Hossain & List (2012), Fryer et al. (2012), and Hong et al. (2015) showed that changing (modifying) the payment policy for already existed employees did not cause problems; on the contrary, penalty contracts increased the performance considerably. Nevertheless, the subjects in those studies were employees from manufactory plants and teachers. However, according to Baron & Kreps, (1999), in bigger companies, the possible adjustments of existed payment structures is resisted by employees and cause dissatisfaction. Therefore, referring to the above written three experiments and Dickinson & Villeval (2008), the proposition regarding encounter time could be valid only for relatively small firms with closer interpersonal relationships.

(9) Finally, Drucker (1993) stated in the beginning of 1990s that in every few hundred years in Western societies, mainly in North America and West-Europe, a sharp transformation of values and beliefs occurs. According to him, a new trend in those years would be the increased attention on relational parts of economic transactions and rearranging of organizations by relational contracts. Twenty-five years later after his claims, today, technology has changed the methods of managing the organizations, and the internet permitted both local and global personal interactions at a level which has not been achieved in the history. As a result of these developments, relational aspects of a transaction have become even more critical. Consequently, the selected contract form should be sensitive to societal customs but also allow long-term planning and efficiency at the same time (Macneil, 1969 & 1980; McLaughlin et al., 2014). For example, some societal norms would accept penalty framing as a necessity; correspondingly, adverse effects on the trust would be eliminated without any extra effort. In countries like China, Japan, Saudi Arabia, and Singapore, authorities are not reluctant to imply harsh penalties for unwanted behaviors (Marshall, 2011; MacKenzie, 2010; Finances Online, 2018). Despite the lack of research regarding this issue in the contract framing literature, in local companies of such countries, penalty contracts could be used more and employees willingly accept it because of the cultural and societal norms.

6. Recommendation for Future Research

For the last two decades, contract framing has become an increasingly popular research topic. The seemingly irrational behavior of individuals (i.e., opposite reactions to objectively same contracts due to the framing) has stimulated scholars to investigate this issue further. Furthermore, the number of companies which invite researchers to test framing effect on performance should not be underestimated (e.g., Hossain & List, 2012; Fryer et al., 2012; Hong et al., 2015; Van der Stede et al., 2018). However, the research has still important issues which make the generalizability of experimental results problematic. Above all, the experiments that test simple (complete) and short-term oriented linear contracts are common in the literature. Although these studies provide a clear logic regarding framing idea, its applicability depends on different conditions (e.g., propositions above). Instead of bringing new ideas or applying the framing in different contexts, scholars usually prefer to do the same kind of simple setting experiments which could not go beyond repeating existing knowledge because the tendency to exert more physical and cognitive efforts for avoiding the loss is a widely accepted behavior of humans. Therefore, in the current literature review, the experiments were selected according to some criteria like journal ratings and the complexity of studies. The purpose was avoiding the presentation of the same kind of (redundant) findings throughout the thesis but explaining more real-world oriented and interesting experiments. For getting more generalizable results and be more confident about the propositions of the conclusion part, either more field experiments or more complex laboratory studies are necessary.

Furthermore, more attention should be devoted to psychological issues, especially to social preferences. It can be done by simultaneously testing the performance and preference regarding differently framed contracts with appropriate experimental designs. Consequently, performance effects could be assumed with more confidence even in the absence of field experiments. Furthermore, diminishing sensitivity concept of prospect theory could be used more to understand true long-term performance effects of framing as well as the popularity of bonus payment schemes in practice. Finally, in addition to the prospect theory, knowledge from others like psychological and behavioral contract theories as well as RFT and EVT regarding their implications for employment relationships could also be used in contract framing literature more for enhancing the existed knowledge.

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Appendix I

In the following, the formulaic expression of the most primitive type of two equivalent but differently framed contracts will be given. Although some more complex forms also exist, the most basic version should be helpful for understanding the framing idea and underlying logic of experiments which are analyzed above.

$$\text{Bonus Contract: } W_b + B$$

$$\text{Penalty Contract: } W_p - P$$

W_b is the base salary of the bonus contract; W_p is the base salary of the penalty contract; B is the bonus amount and P is the penalty amount.

For example, if $W_b = 30$ & $B = P = 10$ & $W_p = 40$, the minimum and maximum payments of both contracts are 30 and 40, respectively (Church et al., 2008; Nosenzo, 2016).

Additionally, as discussed in section 3.1.3, bonus and penalty could be combined to capitalize on the advantages of both. One possibility to create such contracts is:

$$\text{Salary} = \begin{cases} W - P & u < Target_l \\ W + B * u & Target_l \leq u < Target_h \end{cases}$$

It means that if the number of units produced (u) is lower than the lowest expected performance level ($Target_l$), the employee should pay a penalty which is deducted from her base wage. After reaching the $Target_l$, she avoids this penalty and gets the bonus until reaching to the highest expected performance level ($Target_h$). Sometimes companies prefer to pay unlimited bonus after achieving the lowest performance level. In this case, the term “ $Target_h$ ” is simply removed from the formula (Armantier & Boly, 2015; Jensen, 2001 & 2003).

Furthermore, it is argued that creating an equivalence between pure bonus, pure penalty, and combined contracts would be regarded as a hard task (Armantier & Boly, 2015). Nevertheless, simple contracts make it possible. The following table shows the compensation plan of Armantier & Boly (2014). Level I indicates the best and level IV the worst performance.

	Pure Bonus	Pure Penalty	Combination
Base Salary	25	250	120
Level I	225	0	130
Level II	125	-100	30
Level III	75	-150	-20
Level IV	0	-225	-95

Table 2 Equivalence between Contract Forms (Armantier & Boly, 2014)

For example, all contracts allow subjects to get 100 experimental units if their performance is ordered to the third level:

$$\text{Pure Bonus: } 25 + 75 = 100$$

$$\text{Pure Penalty: } 250 - 150 = 100$$

$$\text{Combination: } 120 - 20 = 100$$

Appendix II

Here, the evidence for loss aversion concept and its power for altering the behavior of individuals will be provided by two experiments of Daniel Kahneman and Amos Tversky. In the first experiment, individuals are supposed to select between sure gain and gamble; also, between sure loss and gamble. In the second experiment, they should choose a program for fighting the fictional disease. The proportion of participants who selected each alternative could be seen in the brackets:

First question:

a sure gain of \$100 [72%] or

50% chance to gain \$200 and 50% chance to gain nothing [28%]

Second question:

a sure loss of \$100 [36%] or

50% chance to lose nothing and 50% chance to lose \$200 [64%]

Participants behaved risk-averse for gaining some monetary amount but become risk-seeker for eliminating the loss. Further experiments have confirmed this tendency of individuals in different countries. Today, loss aversion is accepted as a universal concept (Kahneman & Tversky, 1979; Tversky & Kahneman, 1981 & 1986; Novemsky & Kahneman, 2005; Kőszegi, 2014; Wang et al., 2017).

Asian Disease Problem (positive frame)

“Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

If Program A is adopted, 200 people will be saved. [72%]

If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved. [28%]” (Kahneman & Tversky 1979; Tversky & Kahneman, 1981 & 1986).

Asian Disease Problem (negative frame)

“Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

If Program C is adopted, 400 people will die. [22%]

If Program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die [78%]” (Kahneman & Tversky 1979; Tversky & Kahneman, 1981 & 1986).

Although the programs A and C as well as programs B and D are equivalent, since losses loom larger than gains, in the positive frame, participants preferred certain outcome whereas in the negative frame they selected gamble. Such induced behavioral anomalies by loss aversion also provoked contract framing researchers to utilize framing idea in the employment context. The following value function visualizes the notion of loss aversion (i.e., its asymmetric slope indicates it) (Van der Stede et al., 2018)

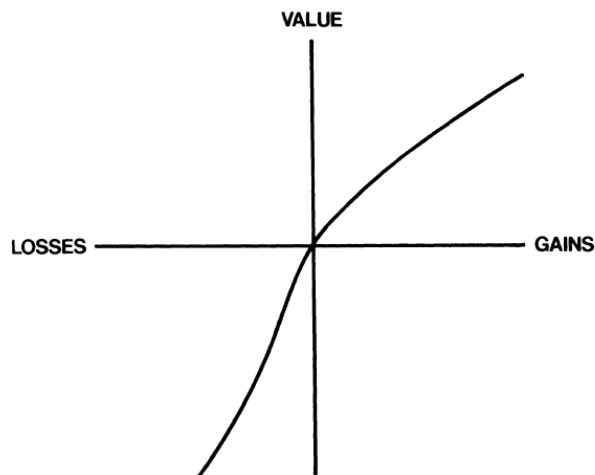


Figure 1 Value Function (Tversky & Kahneman, 1981)

It is steeper and convex in loss area whereas concave in gain part. Consequently, people react losses more extreme and do not hesitate to choose risky outcomes. Furthermore, suffering from losing is more severe than the pleasure of gaining even if the amounts would be exactly the same in absolute terms (e.g., loss of €100 vs. the gain of €100). In addition to it, it also implies diminishing sensitivity: Higher the losses/gains, lower the suffering/pleasure (Kahneman & Tversky 1979; Tversky & Kahneman, 1981 & 1986).

Appendix III

In the following tables, features of the selected contract framing experiments and papers, which inspect the framing in a general way, could be seen. Journal ratings according to SJR was the primary criteria for choosing. Nevertheless, they are also enhanced by VHB and ABDC ratings which should make the quality of selected journals clearer. According to SJR methodology, best journals are ordered to the first quartile (Q1) while the worst publications find their place in the last quartile (Q4). Therefore, journals which take place in the Q1 and Q2 are preferred in the current work. An exception was the research of Brooks et al. (2012). However, it should be presented for analyzing the experiment of Brooks et al. (2017), which is the essential study for the discussions of signaling effect of RFT and EVT as well as the significance of implementing effective variable payment schemes. Ranged from best to worst, VHB divide journals into five categories (A+, A, B, C, D) whereas ABDC prefer four categories like SJR (A*, A, B, C). The ratings A+, A and B as well as A* and A are acceptable categories in scientific papers. The more detailed description of their methodologies could be seen on their websites (see References).

Author(s)	Journal	SJR (2017)	VHB-JOUR-QUAL3	ABDC Master List
Hossain & List (2012)	Management Science	Q1	A+	A*
Fryer et al. (2012)	NBER Macroeconomics Annual	Q1	no rating	A
Saenger et al. (2013)	Journal of Agricultural Economics	Q1	no rating	A
Brooks et al. (2012)	Journal of Institutional and Theoretical Economics	Q3	B	A
Brooks et al. (2017)	Journal of Legal Studies	Q1	no rating	no rating
Frederickson & Waller (2005)	Journal of Accounting Research	Q1	A+	A*
de Quidt (2017)	Journal of the European Economic Association	Q1	not rated	A*
Christ et al. (2012)	The Accounting Review	Q1	no rating	A*
Church et al. (2008)	Journal of Management Accounting Research	Q1	B	A
Hong et al. (2015)	Journal of Economic Behavior and Organization	Q1	A	A*
Andreoni et al. (2003)	The American Economic Review	Q1	A+	A*
Armantier & Boly (2015)	International Economic Review	Q1	not rated	A*
Dickinson (2001)	Experimental Economics	Q1	A	A*
Fehr & Schmidt (2007)	The American Economic Review	Q1	A+	A*
Brink & Rankin (2013)	Behavioral Research in Accounting	Q2	B	A
Tannenbaum et al. (2013)	Psychological Science	Q1	no rating	A*
Evers et al. (2016)	Management Science	Q1	A+	A*
Imas et al. (2016)	Management Science	Q1	A+	A*
Liu & Zhang (2015)	The European Accounting Review	Q2	A	A*
Armantier & Boly (2014)	Economics of Governance	Q2	no rating	B
Grolleau et al. (2016)	Management Science	Q1	A+	A*
Luft (1994)	Journal of Accounting and Economics	Q1	A+	A*
Weber & Mayer (2011)	Academy of Management Review	Q1	A+	A*
Weber et al. (2011)	Academy of Management Journal	Q1	A+	A*
Bigoni et al., 2014	B.E. Journal of Economic Analysis and Policy	Q2	no rating	A

Table 3 Features of Contract Framing Experiments

Author(s)	Journal	SJR (2017)	VHB-JOUR-QUAL3	ABDC Master List
Kahneman & Tversky (1979)	Econometrica	Q1	A+	A*
Tversky & Kahneman (1981)	Science	Q1	A+	no rating
Tversky & Kahneman (1986)	The Journal of Business (discontinued)	no rating	no rating	A*
Ganzach & Karsahi (1995)	Journal of Business Research	Q1	B	A
Waller & Conaway (2011)	Journal of Business Communication	Q1	not rated	C
Simon, (1955)	Quarterly Journal of Economics	Q1	no rating	A*
Tversky, (1972)	Psychological Review	Q1	no rating	A*
Kőszegi (2014)	Journal of Economic Literature	Q1	no rating	A*
Jensen (2003)	European Financial Management	Q1	B	A
Fehr & Gächter (2000)	The American Economic Review	Q1	A+	A*
Decker et al. (2003)	The Journal of Conflict Resolution	Q1	no rating	A*
Dari-Mattiacci & de Geest (2010)	Journal of Law, Economics, and Organization	Q1	B	A
Kunz & Pfaff, 2002	Accounting, Organizations and Society	Q1	A	A*
Horstmann et al., 2005	Journal of Labor Economics	Q1	A	A*
Lemieux et al. (2012)	The American Economic Review	Q1	A+	A*
Kaur et al. (2010)	The American Economic Review	Q1	A+	A*
Kaur et al. (2015)	Journal of Political Economy	Q1	A+	A*
Offerman, 2002	European Economic Review	Q1	not rated	A*
Novemsky & Kahneman, 2005	Journal of Marketing Research	Q1	A+	A*
Wang et al. (2017)	Journal of Behavioral Decision Making	Q1	B	A

Table 4 Features of Selected Papers from Framing Literature