Bachelor Thesis Finance

The effect of financial incentives on performance

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Table of contents

Chapter 1 – Introduction and problem formulation......................................................... 4
  1.1 Problem indication
  1.2 Main research question
  1.3 Research questions
    1.3.1 What are financial experiments?
    1.3.2 How does the effort level depend on the connection between effort and outcome?
    1.3.3 What effects do financial incentives have on performance?
    1.3.4 What is the effect of different pay-off mechanisms on the subject’s performance?
    1.3.5 How does the degree of difficulty play a role in financial experiments?
    1.3.6 How do different task-types influence the performance in financial experiments?
  1.4 Graphical representation

Chapter 2 – What are financial experiments? ................................................................. 9

Chapter 3 - How does the effort level depend on the connection between effort and outcome?..10
  3.1 What is effort?
  3.2 The incentives-effort relationship
    3.2.1 Expectancy theory
    3.2.2 Agency theory
    3.2.3 Social-cognitive theory
    3.2.4 Goal-setting theory
  3.3 The effort-performance relationship
  3.4 The Bonner and Sprinkle conceptual framework
  3.5 Volitional outcomes versus aspirational outcomes

Chapter 4 – What effects do financial incentives have on performance?.............................14
  4.1 Financial incentives help performance
  4.2 Financial incentives hurt performance
4.2.1 Intrinsic motivation

4.4.2 Affect

4.3 Financial incentives have no effect on performance

Chapter 5 – What is the effect of different pay-off mechanisms on the subject’s performance?..18

5.1 Performance contingent reward systems versus randomly distributed incentives

5.2 Most common schemes

Chapter 6 – How does the degree of difficulty play a role in financial experiments?.................21

6.1 Arousal

6.2 Strategies

6.3 Expected utility theory

6.4 Self-efficacy and required skills

6.5 Task attractiveness

Chapter 7 – How do different task-types influence the performance in financial experiments?...24

Chapter 8 – Summary and conclusions................................................................................25

Chapter 9 – List of references............................................................................................27
Chapter 1 - Introduction and problem formulation

1.1 Problem indication

The effect of financial incentives have or do not have on performance is widely discussed and investigated. Basically, it is stated that if people receive payments for certain behaviors, the expectation is that they are likely to engage in these desired behaviors (Bettinger 2008). Stone and Ziebart (1995) analyzed prior research and note that: “relatively small changes in task conditions can produce large differences in the effects of incentives.” (p.250). Research showed that sometimes financial incentives improve performance, but other times do not have a demonstrable effect. The outcome is mostly dependent on the setting of the experiment. Samuels and Whitecotton (2010) conducted further research on the effect of financial incentives on decision-ided performance and showed the former confirmed negative relationship between incentives and performance in the context of decision aids. Decision aids are defined as tools that support the individual when making a decision by providing information about the outcomes and options. However, they found this is not applicable when decision makers have access to additional contextual information not captured by the decision aid, even when this additional information might be irrelevant.

Moreover, there is a relationship between financial incentives and intrinsic motivation. In general, people are motivated by factors that exist in the person himself; real self motivation which arises out of, for example, personal interest. Monetary rewards are said to enhance intrinsic motivation, however there is even more evidence that argues the opposite; including Deci and Ryan (1985) who have found that financial rewards undermine intrinsic motivation.

Out of a lot of literature, some theories are briefly explained below to give an idea about the research conducted on the topic about financial incentives, performance, and other variables which strengthen or attenuate this relationship.

Locke (1968) conducted a lot of research concerning the effect on performance by goal setting, and concluded:
Offering an individual money for output may motivate him to set his goals higher than he would otherwise but this will depend entirely upon how much money he wishes to make and how much effort he wishes to expend to make it. (p. 185)

Another theory about the relationship between several variables which may influence performance is presented by Walker and Smith (1993). The empirical work supporting the “labor theory of cognition” viewed individuals which chose how much effort to put in a certain task to balance with monetary benefits. However, intrinsic motivation is ignored as well as the match between the analytical skills of the subject and the demands of the task. Camerer and Hogarth (1999) extended this theory and proposed a “capital-labor-production theory”, where financial incentives, intrinsic motivation of the subject, cognitive characteristics were linked with performance.

Gneezy and Rustichini (2000) presented some experiments where they concluded that monetary incentives increases performance in most of the times. However, it is not always the case that offering financial incentives leads to better performance, even more, sometimes it even reduces effort, since other factors come in that influences the decision of the subject. Also Stone and Ziebart (1995) conclude that “very high incentives may potentially decrease decision quality by increasing negative affect.” (p. 259)

It is obvious that the factors influencing performance are difficult to determine and they interact with each other through various relationships. In research, contradicting results exists sometimes.

The topic is of relevance since a lot of research has been conducted on the effect of financial incentives but contradicting results exist whether financial incentives increase motivation, effort and concomitant performance on tasks. Therefore it is important to gain knowledge about the conditions in which financial rewards improve performance or do not to create insight in which environment to apply them. Factors which can influence the effectiveness of incentives will be discussed. Moreover, intrinsic motivation and extrinsic rewards are two kinds of human motivation that play an important role in the workplace. There is a huge difference in performance level between motivated and unmotivated employees, which causes a problem for managers. Amabile (1993) proposes the model of motivational synergy, which is the positive combination of intrinsic and extrinsic motivation. One of the propositions is that extrinsic
motivation is most likely to combine synergistically with intrinsic motivation when the initial level of intrinsic motivation is high.

The relevance of investigating the effect of financial incentives on performance can be extended to real life examples, like to improve the design of conditional cash transfer programs. Conditional transfer programs are widely used in poor countries to reduce poverty, where families receive rewards, conditioned on the actions and criteria determined by the government, for example sending children to school or receiving vaccinations. But it is also relevant to practices on the work floor, especially concerning the pay of employees, this research will help by investigating which payment schemes are helpful.

The ultimate aim of this thesis is to accomplish an overview of the effects of financial incentives on performance, based on literature review on former research and journals from secondary literature. Internet will be used as well as the search engine of Tilburg University.

1.2 Main research question

The main research question which will be investigated through literature survey will be the following: Are financial incentives effective in having an influence on the subject’s performance?

1.3 Research questions

The following research questions divide the problem statement into more specific questions. Each research question will be answered in the next chapter in separate paragraphs.

1.3.1 What are financial experiments?

It is important to start with a clear definition of what financial experiments are in order to avoid misunderstandings.

1.3.2 How does the effort level depend on the connection between effort and outcome?

A number of theories are proposed to show the monetary incentives-effort relation. Thereby, it is not said that higher level of effort automatically leads to a higher level of performance. One can put more effort in to accomplish a certain task; however, the question remains whether this effect
is visible in the performance quality. This is also explained by a difference in outcomes: volitional outcomes versus aspirational outcomes.

1.3.3 **What effects do financial incentives have on performance?**

Financial incentives can have different effects on performance. They can help or might hurt performance, or have no effect at all. These possibilities are investigated and presented.

1.3.4 **What is the effect of different pay-off mechanisms on the subject’s performance?**

Pay-off mechanisms is one of the variables in the Bonner and Sprinkle (2000) framework which appears to influence the performance of the individual.

1.3.5 **How does the degree of difficulty play a role in financial experiments?**

Also the degree of difficulty seems to play a role with respect to performance, task complexity affect performance in several ways; it decreases effort and the higher the level of difficulty the higher skill requirements which in turn influences the relationship of effort on performance.

1.3.6 **How do different task-types influence the performance in financial experiments?**

Ultimately, the influence of different task-types is investigated. Factors described in former chapters will be applied in determining the differences between task types.
1.4 Graphical representation

The following scheme represents the variables that will be investigated.

Financial incentives may increase or decrease the amount of effort exerted by the individual which in turn affect task performance. In the relationship between monetary incentives and level of performance, effort is the link in-between. Intrinsic motivation reduces the direct effect of financial incentives on effort partially, and therefore can be assumed as a mediator. However, the financial incentives-effort relationship depends on the level of different payment schemes, degree of difficulty, and task types. These moderators are also present in the relationship between effort and performance.
Chapter 2 – What are financial experiments?

Jenkins (1986) noted that outcomes differ between different settings. Jenkins observed stronger effects in the research he conducted about the effects of financial incentives on performance in laboratory settings than in field settings.

Probably the most suitable setting for this research is a laboratory setting. The advantages of a laboratory setting are that experimental conditions can be controlled with more certainty and precision than in a field setting. As different conditions in this type of research are of extreme importance, the laboratory setting is most suitable. As reward for good performance on a task of the experiment, incentives are used by the researchers. In this research it only concerns monetary incentives, and the expectation is that they act like a motivator for acquiring a higher performance level. However, the incentives used in laboratory settings are usually small, and this may reduce the strength of the relationship between monetary incentives and performance. In this case, money may have a different meaning in laboratory settings than in real-life and may not give the best realistic result. Also, for this thesis only literature concerning individual settings is considered, it is about the individual effort one exerts.

A monetary incentive is an extrinsic motivator and presents a link between performance and pay. For laboratory experiments, college students are appropriate for research. Especially those students which have relatively constant skills are suitable and they do not have the opportunity during the course of the experiment to gain extra knowledge or acquire skills. This is especially relevant when testing the degree of difficulty in experiments, the chance of skills being developed when complexity increases remains small. Therefore it is also important that the studies are short in duration.

Why are financial experiments useful? Financial experiments help predict the behavior of persons in various settings under several conditions. To obtain a firm’s goal of increasing wealth and/or making profit, employees are paid a salary to ensure that they will exert enough effort to deliver good results. In laboratory settings, experiments can be conducted when deciding in which form is most beneficial to pay salary in the workplace. But also concerning the part of (intrinsic) motivation, experiments conducted in a laboratory setting can enhance more intelligibility about how to extend this to real life situations.
Chapter 3 – How does the effort level depend on the connection between effort and outcome?

3.1 What is effort?

Effort is in this case the use of mental or physical activity to achieve something; it may include many things, e.g. strategy developing, time devoted to a task and physical effort. Performance is the actual level of how well an individual does on a certain task, i.e. the actual result. It is not easy to determine the relationship between the level of effort and the quality and quantity of performance. Concerning immediate performance increases, effort has several dimensions: direction, level (intensity) and duration (persistence). Direction refers to the choice of the individual to a specific task to take part in. The level of effort reflects the amount of attention someone devotes to a certain task during a fixed period of time. Effort duration is how much time a person devotes on a task. Changes in these components lead to changes toward current performance. Theoretically, monetary incentives have positive influences on all of these components if people believe that an increase in cognitive resources devoted to the task (during a short time span) will lead to increases in performance for which they are rewarded.

3.2 The incentives-effort relationship

Several theories explain the effect of incentives on effort, four well-known theories are: expectancy theory, agency theory, social-cognitive theory and goal theory.

3.2.1 Expectancy theory

Expectancy theory (Vroom, 1964) posits that people make decisions in such a way to obtain a desired outcome because they expect to maximize their satisfaction by choosing that particular outcome. Valence, expectancy and instrumentally are the three main components of this theory and how an individual perceives these beliefs leads to the motivational force which includes a certain level of effort which leads to the desired outcome. So according to this theory, when performance-contingent incentives are present, because of the increased expectancy about the effort-outcome relationship and an increased valence of the outcome, the motivation and thereby effort of the subject will increase.
3.2.2 Agency theory

Agency theory (Eisenhardt, 1989) posits the following assumptions: humans are motivated by self-interest, are rational and are risk-averse. The aspect of risk aversion makes the subject share risk which is inefficient. However, the motivational benefits are assumed to exceed this loss. So as long as a task does not increase their economic well-being, an individual will exert no effort. According to this theory, to align the interests of the agent (employee) with the interests of the principal (employer), incentive based schemes to reward agents can be used to reduce agency loss and maximizing the interest of the principal. So financial incentives have to provide motivation to exert effort. That is, the financial incentives have to be high enough to trigger the individual to perform well on a task.

3.2.3 Social-cognitive theory

Social-cognitive theory is a learning theory where self-efficacy stands at the core. Self-efficacy is defined by Bandura (1994) as an individual’s belief about his/her capabilities to accomplish a task; it provides the basis for human motivation. A person with higher self-efficacy sets himself higher goals and have a stronger commitment to them (Locke, Frederick, Lee & Bobko, 1984). Also, challenging goals increase the level of motivation and influences task performance (Mento, Steel, and Karren, 1987; Bandura, 1989). Due to a raised level of motivation, individuals are more likely to put more effort in tasks than people with low self-efficacy. According to social-cognitive theory, monetary incentives make tasks more interesting which elect a higher level of effort and leads to better performance, whereby the subject increases skills and leads to increased self-efficacy.

3.2.4 Goal-setting theory

Goal-setting theory (Locke, 1968) proposes that setting harder goals instead of easier goals, leads to better performance, although the probability of reaching these goals is lower. In the case of more challenging goals, people must exert more effort to attain the goal than it is the case for easier goals. Also in the study of Pritchard and Curts (1973) it is confirmed that setting goals enhance task performance, however, this should be supported by financial incentives as well. Thus, setting higher goals is more challenging and will increase the chance of obtaining the set goal because individuals exert more effort. Financial incentives affect effort in goal-setting in the
sense that incentives result in a higher level of effort resulting from greater goal commitment because subjects attach more importance to the goal. However, in the case the individual lacks the skills to perform well on the task, there arises a gap between the skill required by the task and the actual skills the subject has. The effect of monetary rewards will be attenuated when this gap becomes bigger.

In conclusion, the general prediction of these theories is that monetary incentives increase effort and increased effort leads to improved performance.

3.3 The effort-performance relationship

But does more effort in all cases lead to a better performance? There is empirical evidence that financial incentives often do not lead to an increase in performance when the level of effort increases (Farber and Spence 1953). Awasthi and Pratt (1990) worked on some experimental tasks and conclude:

The results indicate that, while monetary incentives increase effort, their effect on performance depends on the decision maker’s perceptual differentiation … This finding suggests that in certain settings monetary incentives may motivate higher levels of effort and the utilization of greater resources without improving performance. (p. 799)

Also Camerer and Hogarth (1999) argue that effort only improves performance if the match between the analytical skills possession and the demands of the task is good.

So effort is an important variable in the connection between monetary incentives and task performance. The effect from monetary incentives to the actual performance is reduced by effort.
3.4 The Bonner and Sprinkle conceptual framework

Bonner and Sprinkle (2000) developed a framework to understand the previous described factors and their effect on the relationships.

In their conceptual framework, cognitive and motivational mechanisms act as a mediator in the relation between monetary incentives and effort. Person variables, task variables, environmental variables and incentive scheme variables moderate the monetary incentives-effort relation and the effort-task performance relation.

3.5 Volitional outcomes versus aspirational outcomes

As well, the outcome has to be taken into account as a factor which can influence the monetary incentives-task performance relation. There has to be made a distinction with respect to the desired outcome for which the participant will be rewarded in the experiment. Volitional outcomes apply when the desired outcome is similar to the criteria for the payment, in this case it is expected that monetary incentives have a direct influence, since the participant can more or less decide to obtain the desired outcome to put a certain amount of effort in it. In contrast to volitional outcomes, aspirational outcomes flow from the effort put in the task, which can lead to better performance. Since this improved performance in not always the case, earning monetary rewards on aspirational outcomes is more difficult. However, the pay-offs of these different outcomes has to be linked with the different pay-off schemes that exist.

When this is extended to real-life examples, when considering firms, employers have certain expectations from their employees. For example, sales men are expected to sell a minimum amount of products, this is an aspirational outcome and will depend on the effort put in the task.
Chapter 4 – What effects do financial incentives have on performance?

Monetary rewards can have different effects on performance in the sense that it is possible that people make different choices than they would make in the case without financial rewards. Financial incentives influence decision quality and thereby performance in three possible ways: financial incentives help performance, financial incentives hurt performance and financial incentives have no effect on performance. Research has been conducted on these effects and several conclusions are presented. However, it shows that monetary incentives cause various effects on decision quality and performance. In fact, the effects of incentives are not always predictable and in most of the cases task characteristics play an important role.

4.1 Financial incentives help performance

There exists unambiguous research about the time devoted to a task when monetary incentives are applies. Tversky and Kahneman (1986) argue that incentives work by focusing attention and lengthen the time of consideration. As a consequence, decision errors which arise from insufficient attention are presumable prevented by rewards. This means that monetary incentives help increase the level of performance. However, they also state that: “The corrective power of incentives depends on the nature of the particular error and cannot be taken for granted.” (p. S274). Also Stone and Ziebart (1995) confirm that monetary rewards increase the extent of attention given to a task.

Libby and Lipe (1992) state that recall can be positively affected by effort in the presence of monetary incentives. Consequently, judgment biases are diminished since financial incentives encourage the individual to work harder at recall and hence improve performance.

4.2 Financial incentives hurt performance

There is also some evidence that monetary rewards can lead to a lower level of performance. Intrinsic motivation and affect play a major role in this perspective.
4.2.1 Intrinsic motivation

Deci (1971) conducted an experiment and concluded that in case a reward was offered, intrinsic motivation declined because the motivation was attributed to the external factor. The intrinsic motivation hereby becomes less important and when the external factor, i.e. monetary reward, is removed, the declined intrinsic motivation leads to a decrease in effort. Later, Deci and Ryan (1980) posit the cognitive evaluation theory which suggests that intrinsic motivation is affected by external factors and investigates what consequences the effect of those external events have on intrinsic motivation. External events can have two functional aspects: a controlling and an informational aspect. The controlling aspect pressures people toward specified outcomes. The informational aspect contains feedback in the context of self-determination. From research, it appears that the largest body of evidence confirms that the controlling aspect diminishes intrinsic motivation more than the informational aspect enhances intrinsic motivation. However, in practice, it is very hard to determine which part of the motivation is intrinsic and which part comes from external factors. Although intrinsic motivation plays an important role, it is difficult to control for.

Frey and Jegen (2001) propose the motivation crowding effect, where intrinsic motivation and extrinsic motivation interact with each other. It indicates that in general, monetary incentives decrease intrinsic motivation; however, in some cases it may strengthen intrinsic motivation. The desired effect of financial incentives is that intrinsic motivation is enhanced, and this is called crowding-in, the undesired effect is the opposite and is called crowding-out. The crowding-in effect appears when the individual perceive monetary rewards as supportive or informative, where self-esteem is fostered and increases self-determination. Intrinsic motivation is crowd-out if the external event is perceived as controlling, self-esteem en self-determination is diminished and the subject reduces intrinsic motivation consequently. Financial incentives also trigger the price effect, which means that the rewards increase the intention to perform well because of the marginal monetary benefit. In case the crowding-in effect is present, the price effect will strengthen this effect and their increased motivation caused by monetary rewards as well as their intrinsic motivation is increased. However, if external factors undermine intrinsic motivation, so the undesired crowding-out effect is present, this in turn negatively affects the benefits from performing and reduces hereby the level of performance. But in general, it turns out that the
crowding-in effect is absent and the crowding-out effect and price effect are contradicting each other. So the direction of the ultimate effect depends on the size of each of them. The survey of Frey and Jegen shows strong empirical evidence exists for the crowding-out and crowding-in effect. However, it is not always clear in which conditions these effects dominate the price effect.

Figure 1 illustrates the interaction between the crowding-out effect and the price effect. Line S demonstrates the price effect, the higher the reward the more effort an individual exerts. The crowding-out effect shifts the line to the left, $S'$. And when these effects are combined it ends up in point C. Here, the crowding-out effect dominates the price effect and work effort reduces.

The effect of monetary rewards on the level of motivation is showed in Figure 2 (Anghelcev and Eighmey, 2007). Stage 1 shows the introduction of the monetary reward; motivation decreases as a result of the crowding-out effect. In stage 2, motivation is primarily driven by the financial incentive, since the reward increases in value and the overall level of motivation increases.

Intrinsic motivation plays hardly a role anymore.

4.2.2 Affect

Stone and Ziebart (1995) include another variable that affects the relation between financial incentives and performance, namely affect. According to Zevon and Tellegen (1982), affect has two independent dimensions: positive affect and negative affect. Positive affect is characterized by feelings of excitement, joy and enthusiasm while negative affect is the presence of emotions.
such as fear, sadness and anger. Increased negative affect can reduce information processing ability (Lewinsohn and Mano, 1993), so participants do not process all of the available information and make decisions too quick. Stone and Ziebart conclude in their research that very high monetary incentives are likely to decrease decision quality, which is caused by the increased negative affect. However, some other economists argue the opposite.

4.3 Financial incentives have no effect on performance

Commonly it has been claimed that errors which are observed in rational models are due to the cost of thinking and hence will be eliminated by monetary rewards (Smith, 1985). However, there is not much evidence to support this statement. Studies showed that failures exist even in the presence of financial incentives, e.g. inconsistency in decision-making (Grether and Plott 1979). So this suggests monetary rewards play no role in decision-making and thus on performance. This can be extended to real-life examples, even in situations with presence of monetary rewards people make illogical choices.

Another argument to support this statement that monetary incentives have no effect on performance is related to the concept of intrinsic motivation. If the participant has a sufficient level of self-motivation, offering financial incentives will not add any extra value.

In cases where additional effort leads to a not proportional increase in money return, the effect of monetary incentives is absent. Financial incentives appear to have no effect either in situations where the so-called floor and ceiling effects are present. The floor effect appears when conducting a test which is too difficult, with the consequence that much people obtain a score nearby the minimum. The ceiling effect is the opposite; the results are limited to a maximum value which results in obtaining very high scores for a lot of the participants. Due to these effects, a good comparison cannot be made with other tests and it gives an unrealistic representation.

All in all, it is not easy to determine the effect of financial incentives on performance. As seen in Chapter 3, there are several factors that determine the successfulness of monetary rewards.
Chapter 5 – What is the effect of different pay-off mechanisms on the subject’s performance?

There are various types of pay-off mechanisms which may influence the performance of the subject. The varying cognitive and personal characteristics between individuals may influence the effectiveness of the incentives in different ways across different pay-off mechanisms. Every type of incentive scheme may alter the relation between financial incentives and effort as well as the effort-performance relationship. A distinction can be made between performance contingent reward systems and randomly distributed incentives.

5.1 Performance contingent reward systems versus randomly distributed incentives

Firms can use incentive based compensation because they expect to enhance performance of the employee. In perspective of the agency theory, incentive schemes are necessary to motivate the employee to behave appropriately, so to align the interests of the manager and the employee. With performance contingent reward systems, the expectation is that employees become more motivated and are willing to work harder to obtain a certain goal, under the assumption that employees do not like to work. However, in research of Lepper et al. (1973), when offering monetary rewards, perceptions of the individual can change. A task where the subject derives utility from before may be perceived as “work” henceforward. Consequently, subjects are only willing to perform a certain task if they receive financial compensation. A similar conclusion was presented by the work of Frey and Jegen (2001).

Awasthi and Pratt (1990) pointed out that performance contingent reward systems influence the time spent on a task, in a positive way that the subject devotes more time, irrespective of skill. This effect is not visible with respect to subjects working under fixed pay. However, it appears that the increased effort under the piece-rate system does not always lead to a higher level of performance, as stated before; it depends on the perceptual differentiation of the subject.

Also research of Brase (2009) points out that monetary incentives which are based on performance leads to better results than using the flat-rate system.

Concerning performance-contingent reward systems Ryan, Mims & Koestner (1983) conclude, in line with the cognitive evaluation theory:
Performance-contingent rewards can thus either increase intrinsic motivation with respect to no-feedback/no-reward controls when informationally administered or decrease intrinsic motivation when administered controllingly. In either case, performance-contingent rewards, like all other rewards, tend to lower intrinsic motivation relative to no rewards if there is identical feedback within the same interpersonal context. (pp. 748-749)

Stone and Ziebart (1995): “offering performance-contingent incentives increased choice accuracy through changes in the amount, sequence, and variability of information processing, but decreased choice accuracy by increasing negative affect.”

5.2 Most common schemes

The four most common schemes are: flat-rate schemes, piece-rate schemes, quota schemes and a tournament setting. Among these types, the flat-rate system is the only payment scheme which is randomly distributed. According to … quota schemes have the highest likelihood of provoking positive incentive effects, followed by piece-rate schemes, tournament schemes, and fixed-rate schemes. In this order, these several types of schemes are explained and elaborated below.

Quota

This system pays a flat rate until a certain level is achieved by the individual, and from that moment on, he receives a bonus, sometimes proportional to the performance.

The quota can be seen as a goal to be reached, it is a challenge for the individuals to put effort in a task to ultimately reach this quota. Then the earlier described goal-setting theory can be used to explain the effect of goal setting on performance. So in comparison to the other payment schemes, quota systems will lead to better performance than the other types of systems, since a concrete goal is present (the quota), in contrast to the other schemes.

Piece-rate

The piece-rate system pays a certain amount of money for each unit of output, so compensation is linked to performance.
**Tournament**

In this type of setting, the monetary rewards are linked to the competitive rankings of performance of all individuals. The payment of the agent only depends on his relative performance compared to his other colleagues.

Bull, Schotter and Weigelt (1987) found that in tournament schemes, for individuals who lack required skills or/and with a lower self-efficacy, the incentives-effort relationship is reduced (they believe that an increase in effort will not lead to a higher level of performance) and thus they give up.

**Flat-rate**

In flat-rate schemes there is no link between performance and pay, the financial reward is the same irrespective of the performance, thus without proportional varying.

Subsequently, individuals who lack the required skill needed to perform a task, will prefer this type of incentive scheme because then they are sure that they will gain some reward irrespective of their results.

Performance on moderately difficult tasks (compared to very easy and very hard tasks) was most sensitive to incentives.
Chapter 6 – How does the degree of difficulty play a role in financial experiments?

There also might be a relationship between offering financial incentives, the degree complexity of the task and the performance of the individual. In the study of Campbell (1984), a difficult task is defined as having several conflicting and interrelated elements which has to be satisfied. Later, Campbell and Gingrich (1986) added to the former definition that the elements place substantial cognitive demands on the task-doer for comprehension and execution. The more difficult a certain task is to perform, may have its influence on the motivation of the individual and consequently the performance.

The complexity of a task can have several influences on performance. The higher the level of task complexity, the more the positive effect of incentives on performance is diminished. But there is also a dimension which proposes the opposite. Next, the different factors which relate the influence of task difficulty to performance will discuss this.

6.1 Arousal

Increases in the degree of difficulty ask for higher effort requirements (Wood, 1986) for successful task performance. In that case, people may put less effort in a more difficult task than in a simpler task. A first explanation for this is the following: task complexity can be linked to arousal and monetary incentives, which are all positively related. Arousal can be defined as the degree to which someone experiences an emotion, like to which extent someone is feeling excited or active. The Yerkes-Dodson law (1908) posits an inverted-U relationship between arousal and effort, and thus between effort and performance.

From the graph, it appears that different types of tasks require different levels of arousal for the best performance. For simple tasks, a higher level of arousal leads to the best performance because people need to get motivated. For difficult tasks, a lower level of arousal is optimal since the individual needs to concentrate. Therefore,
concerning complex tasks, the positive relationship between incentives and effort may be attenuated.

6.2 Strategies

Locke and Latham (1990) made an important difference in strategies between simple and difficult tasks. More complex tasks require task-specific strategies to obtain a good result, while simple tasks can be solved by universal task strategies. So depending on the type of task, different strategies will be applied. Since information about strategies is obtained by learning and doing, chances are bigger that independent task strategies needed for a simple task are sooner obtained.

6.3 Expected utility theory

Another explanation for this phenomenon is the expected utility theory first proposed by Bernoulli in 1738. This theory posits that, when performing a task, an individual weighs the benefits and costs related to that task. So when accomplishing a task, the subject reasons whether the benefits of well-performing a task weighs out the cost of exerting effort. The cost of effort in more complex tasks is likely to be higher than for simple tasks and consequently the subject will exert less effort in difficult tasks.

6.4 Self-efficacy and actual skills

A related factor of the expected utility theory is self-efficacy. The perception of someone that he will accomplish a task by putting a certain amount of effort in it, determines the outcome when weighing costs and benefits. A person with high self-efficacy is more likely to believe that he can accomplish a task and his costs will not outweigh the benefits, while a person with a low self-efficacy might think that he cannot exert that amount of effort and will put less effort in which results in lower performance. However, this might not always be the case. A person with a high-efficacy can also lead to a wrong interpretation of someone’s skills (Gist and Mitchell, 1992), if someone thinks to posses the certain skills to accomplish the task, but in fact they do not posses those skills, their increase in effort will not lead to a better performance since they lack the required skills. Monetary incentives may increase the effort exerted in a task, but if an
individual does not possess the necessary skills, this will not lead to an increased effort-performance relationship. In both cases is the effect of monetary incentives diminished.

Wright (1992) found a relationship between the variables in line with Locke’s goal setting theory. These results imply that with respect to easy goals, incentives contingent upon goal attainment might enhance performance by increasing goal commitment. However, concerning more difficult goals, performance is more effectively increased by setting incentives contingent upon performance. So this results in different types of incentives schemes depending on the degree of difficulty of the task. For difficult tasks, the subject think he cannot reach the set goal and will reject it. Then, in the case of the subject participates in a quota scheme, there is no further extrinsic motivation to maintain a good level of performance. In contrast, when using a piece-rate system scheme, when individuals reject the goal, despite the higher commitment level which may be observed using incentives contingent upon goal attainment, the performance level is higher in case of a piece-rate system, because there is still extrinsic motivation present.

As stated before, the likelihood of observing a positive effect on of monetary incentives decreases as task complexity increases, due to the increasing gap between required skills and the actual skills a person possesses.

6.5 Task attractiveness

Fessler (2003) investigated the relationship between task difficulty and task attractiveness. It shows that more complex tasks are more attractive to the individual than are simpler tasks. Attractiveness elects a higher level of motivation. He also shows that there is a positive relationship between task attractiveness and task performance. So the more complex a task, the better the performance of the subject. Again, this is limited to the perceptual differentiation of the individual. In turn, this has implications for the design of payment schemes.

So this implies that task attractiveness also plays a major role in the determination of different task types.
Chapter 7 – How do different task-types influence the performance in financial experiments?

As stated before, the likelihood of observing a positive effect on of monetary incentives decreases as task complexity increases, due to the increasing gap between required skills and the actual skills a person possesses. Therefore, difficult tasks are more likely to diminish the positive effect on performance financial incentives may have and a difference can be made between different types of task to point this out.

So this implies that task attractiveness also plays a major role in the determination of different task types.

Bonner and Sprinkle (2000) made a distinction between different types of task and ordered them in broad categories increasing in complexity.

1) Vigilance and detection tasks

2) Memory tasks

3) Production and simple clerical tasks

4) Judgement and choice tasks

5) Problem solving, reasoning, and game playing tasks

This is the order according to the complexity, the more complex the bigger the gap between required skills and actual skills becomes, which leads to worse performance. Libby and Lipe (1992) found a contradicting result. In their research they investigated the role of incentives in two different task types: recall tasks and recognition tasks. Recall tasks are viewed as the more difficult tasks than recognition tasks. Surprisingly, the positive effect of monetary incentives was greater on the more difficult task type.

When ordering the task types according to perceived attractiveness would yield the opposite result of ordering them according to complexity. So this does not immediately give a clear answer to the question which task type leads to the best performance.
Chapter 8 – Summary and conclusions

In this thesis, several theories are presented to show the effect of monetary incentives on effort. Effort has several dimensions: direction, level, and duration. Following these theories, rewards have a positive effect on the level of effort in all three dimensions. However, the increased level of effort does not automatically lead to better performance. Perceptual differentiation and intrinsic motivation are some factors that influence this relationship.

Performance contingent reward schemes leads in most of the cases to a better result than a fixed pay scheme. Although it may not always lead to an increase in performance, individuals devote more time to a task when the reward system is contingent. Among these, the quota scheme elects the best result, a concrete goal is present here in contrast to the other schemes. However, when offering incentive based rewards, tasks perceived as attractive may now be perceived as unattractive. This leads to a reduction in task performance, this level is then equal to the level of performance when offering a fixed-wage compensation. So it is advisable whether tasks are perceived as attractive or not, before introducing a quota scheme. What is obvious, a flat rate is most ineffective, there is no link between performance and pay. Thus, persons are not motivated by the money they can earn because they will receive it anyway irrespective of their performance.

But also the complexity of a task effects performance. Difficult tasks can be perceived as attractive which in turn positively affects performance. However, when tasks become too difficult, there arises a gap between the skills an individual possesses versus the skills which are required to perform well, also this contributes to the floor effect. Still can these tasks be perceived as attractive, yet, individuals are not able anymore to contribute to performance. So tasks of intermediate difficulty have the optimal level of difficulty to trigger the positive effects of monetary rewards.

Monetary rewards and intrinsic motivation interact with each other. In most of the cases, it is clear that intrinsic motivation in reduced when the monetary incentive is established. The motivation afterwards is then mainly driven by the extrinsic reward. Though, the role of intrinsic motivation will have to be investigated in more detail. Although the different effects on intrinsic motivation are known, it is not always clear in what conditions they appear.
This thesis provides insights in the various relationships that exists among incentives, effort and performance. Also theories concerning motivation are presented. When understanding these relationships and factors that moderate them, recommendations can be made for organizations to take advantage of the positive effects monetary rewards can have on performance. This has consequence for the design of incentive schemes in organizations.
Chapter 9 – List of references


