

# THE EFFECT OF MONETARY REWARDS ON AUTONOMOUS MOTIVATION IN AN ENABLING PERFORMANCE MEASUREMENT CONTEXT

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## Abstract

This paper investigates the impact of monetary rewards on autonomous motivation in a context of an enabling performance measurement system (PMS). The study uses survey data from 314 managers. The results indicate that organizations benefit from PMSs that are perceived as highly enabling. A highly enabling PMS leads to a higher level of autonomous motivation, when compared to a situation with a minimally enabling PMS or no PMS at all. In companies where the PMS is perceived as minimally enabling, the results indicate that perceived fairness of individual monetary rewards positively affects managers' autonomous motivation. The findings also reveal that the more the PMS is perceived as enabling, the less effective a fair individual bonus is for enhancing autonomous motivation.

**Keywords:** Performance Measurement System, Autonomous Motivation, Individual Monetary Bonus, Management, Fairness

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## 1 Introduction<sup>1</sup>

Scholars and practitioners have been searching for variables and mechanisms which affect the motivation and the performance of managers in order to increase organizational performance. A performance measurement system (PMS) can be used to enhance organizational behaviour (Kaplan & Norton, 1992). Consequently, organizations spend an enormous amount of time on the development of management control systems (Franco-Santos & Bourne, 2005).

Rewards and incentive systems are key elements of a management control system. Incentives are often linked to the PMS. Rewards are considered pivotal in an organization's motivational arsenal (Rynes, Gerhart, & Parks, 2005). As such, many organizations link monetary rewards to performance and believe that so-called 'pay-for-performance' positively influences the motivation and performance of managers. Nevertheless, scholars who illustrate the importance, relevance, and positive impact of rewards (e.g. Fang & Gerhart, 2012; Kunz & Pfaff, 2002; Rynes, et al., 2005) are as numerous as scholars who reveal a diminishing effect of rewards on outcome variables (e.g. Falk & Kosfeld, 2006; Kohn, 1993; Sliwka, 2007; Stone, Bryant, & Wier, 2010). Consequently, even after 30 years of research on this topic, scholars still stress the importance of investigating the effect of monetary rewards in relation to PMSs (Franco-Santos

& Bourne, 2005; Franco-Santos, Lucianetti, & Bourne, 2012). Bonner and Sprinkle (2002), for example, indicate that the effect of monetary rewards will impact performance indirectly by influencing motivation, and subsequently, effort. Other studies on this topic stress the integration of potential mediating and moderating variables, such as the magnitude of the bonus (Gneezy & Rustichini, 2000; Pouliakas, 2010) and the degree to which the pay is perceived to be fair (Gagné & Forest, 2008).

From the different success stories and failures of the introduction of PMSs, scholars have already learned that PMS contexts in which managers work differ widely. In some situations, the PMS is developed and used in an enabling way; in other contexts, PMSs are introduced and used in a coercive way. Research in the domain of management control has pointed out the importance of the systems and processes to be enabling (e.g.; Hempel, Zhang, & Han, 2012; Parker, 2003). Wouters and Wilderom (2008) illustrated that manager attitudes are more positive when the PMS is developed and used in an enabling way, instead of in a coercive way.

To investigate the role of PMSs and other control related variables on performance, motivation has been put forward (Ankli & Palliam, 2012). To define motivation, this study uses the self-determination theory. This theory distinguishes two types of motivation: autonomous and controlled motivation (Ryan & Deci, 2000a). Autonomous motivation is argued to be the most effective type of motivation, as

<sup>1</sup> Abbreviations: performance measurement system (PMS); self-determination theory (SDT)

it increases job satisfaction and job performance (Baard, Deci, & Ryan, 2004; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010). In addition, employees thrive more when they are autonomously motivated regardless the level of controlled motivation these employees have (Van den Broeck, Lens, De Witte, & Van Coillie, 2013). Consequently, scholars point out the importance for organizations to strive for autonomous motivation to motivate employees (Ankli & Palliam, 2012). Therefore, this research will focus on the level of autonomous motivation, rather than the level of controlled motivation.

The aim of this paper is to investigate whether individual monetary rewards can have an effect on autonomous motivation when the organization uses an enabling PMS. To accomplish this goal, we determine whether the use of enabling PMSs on itself already positively influences the autonomous motivation of managers. We then determine whether linking individual monetary rewards to performance measures enhances the autonomous motivation.

The paper contributes to the literature in several ways. First, by focusing on the effect of an enabling PMS on autonomous motivation, this study answers the call for more research on the relation between performance measurement and managerial performance. (Bourne, Melnyk, Bititci, Platts, & Andersen, 2014). In addition, by integrating the effect of individual monetary rewards in the relationship between an enabling PMS and autonomous motivation, our research responds to the call for more research on the effect of monetary rewards in combination with PMSs (Franco-Santos & Bourne, 2005). Third, the interplay between monetary rewards and an enabling PMS is investigated while considering the fairness of the reward, the management level, and the magnitude of the bonus. These variables are indicated to interfere with the relationship between PMS and managerial behaviour.

The remainder of this paper is structured as follows. First, our study will be set out in a theoretical context. This will include a development of the hypotheses. Second, a description of our study will be presented; this will display details on the data collection process and the research methodology. Third, the results of the empirical tests will be outlined and the findings will be discussed. Fourth, the paper will end with the conclusions, limitations, and opportunities for future research.

## **2 Literature review and hypothesis development**

### **2.1 PMS and the perception of an enabling PMS**

The presence of a robust PMS within an organisation results in significant progress towards the strategic goals, despite the absence of other factors (MacBryde,

Paton, Bayliss, & Grant, 2014). Another fundamental tenet of management control systems is to motivate employees to achieve organizational goals (Liu & Leitch, 2013). Recent research stresses the importance of using the PMS to support operational managers to motivate and enable higher level managers to improve operations (Wouters, 2009) and support managers whose performance is being measured (Wouters & Roijmans, 2011). This and many other studies have revealed that a PMS is seen both by scholars and practitioners as a system capable of improving organizational performance, managerial performance, and managerial motivation. Nevertheless, performance measurement and management is not without its problems and is accused of delivering an unclear and inconsistent impact on performance (Franco-Santos, et al., 2012). Consequently, further research into the effectiveness of PMSs is necessary. To obtain insights into effectiveness, scholars have introduced the concept of enabling formalization in a management control system context (e.g.; Ahrens & Chapman, 2004; Wouters & Wilderom, 2008). This concept finds its origin in the context of workflow formalization (Adler & Borys, 1996).

The concept of enabling formalization was originally developed to explain the efficiency and flexibility of work processes (Adler & Borys, 1996). This concept was translated into a management control system context (Ahrens & Chapman, 2004). In its original context, Adler and Borys (1996) differentiated between two types of formalization, namely coercive and enabling formalization. While coercive formalization aims to force employee compliance, enabling formalization makes employees feel facilitated or motivated by the rules and systems in place (Wouters & Wilderom, 2008).

Scholars indicate that both enabling and coercive formalization have the power to improve individual behaviour (Baum & Wally, 2003; Helin, Jensen, Sandstrom, & Clegg, 2011; Langfred & Moyer, 2004; Patel, 2011). Although both enabling and coercive formalization are stated to be more constraining to an individual's ability than a lack of formalization, the research indicates that enabling formalization is more positively associated with outcome variables, such as autonomy, than coercive formalization (Hempel, et al., 2012; Langfred & Moyer, 2004). Other scholars have found an indication toward the superiority of enabling above coercive formalization to increase the mastery of employee tasks (Hempel, et al., 2012), enlightenment, self-regulation (Helin, et al., 2011), and knowledge performance (Li, Lee, Li, & Liu, 2010). Moreover, employees are more likely to have a positive attitude toward formalized systems, such as PMS, when it enables them to better perform their tasks. It will be more negative if it functions as a mean by which management attempts to coerce effort and compliance (Wouters & Roijmans, 2011). This indicates that an enabling formalization delivers better results toward managerial behaviour than coercive

formalization. Therefore, this research focuses on the enabling type of formalization.

An enabling formalization requires the presence of four features: repair, internal transparency, global transparency, and flexibility (Adler & Borys, 1996). The first feature is important, as there needs to be repair possibilities. The system must make it possible to deal with unexpected breakdowns and identify opportunities for improvement (Adler & Borys, 1996). Consequently, repair means that users can mend and improve the work process themselves, rather than allowing breakdowns and other non-programmable events to force work processes to a halt (Wouters & Roijmans, 2011). The second essential feature is internal transparency. Internal transparency means that managers fully understand the logic of the system and have a view on the status of the elements the system comprises (Adler & Borys, 1996). The third feature is global transparency which delivers insights into how local systems and elements fit into the organization as a whole (Ahrens & Chapman, 2004). Such a system offers the employees an understanding of where their own tasks fit in the organization as a whole (Wouters & Roijmans, 2011). The fourth feature is that it must be possible to adapt the PMS, when necessary (Ahrens & Chapman, 2004). In other words, it has to be flexible so that users can make controlling decisions after enabling systems have provided the information (Wouters & Roijmans, 2011).

Adler and Borys (1996) indicated that enabling formalization will influence the level of identified motivation. Other research in the management control domain stresses the pivotal role of motivation to explain the impact on performance (e.g.; Ankli & Palliam, 2012). Consequently, this study will use autonomous motivation to indicate the degree to which an enabling PMS is effective.

## **2.2 Enabling PMS and autonomous motivation**

This paper focuses on the self-determination theory (SDT). This theory was developed in 1985 by Deci and Ryan. It has recently gained more attention in the management accounting context (e.g., Ankli & Palliam, 2012).

SDT states that motivation should not be treated as a unitary concept. Moreover, the theory indicates that different motivation types can be distinguished. These types can be categorized in two major categories: autonomous and controlled motivation. In a working context, it is important to: (1) consider SDT's autonomous and controlled motivation separately, and (2) consider motivation as a predictor of performance (Ankli & Palliam, 2012). Consequently, motivation should be considered as the outcome variable in this relationship.

Looking at the SDT in more detail illustrates that SDT distinguishes several motivation types (Roth, Assor, Kanat-Maymon, & Kaplan, 2007). This new

type of categorization defines more than one type of extrinsic motivation, next to intrinsic motivation. The types of extrinsic motivation are external regulation, introjected regulation, identified regulation, and integrated regulation (Ryan & Deci, 2000b). These types differ in the reason for behaving.

Identified and integrated regulation, together with intrinsic motivation, are the most internalized motivation types. Consequently, they are classified under autonomous motivation. When people are motivated autonomously, people engage in an activity because they find it interesting; they do the activity volitionally (Gagne & Deci, 2005). Autonomous motivation consists of the motivation types that involve the experience of volition and choice (Vansteenkiste, Lens, & Deci, 2006). This is in contrast to controlled motivation. If people are motivated in a controlled manner, participating in the activity involves a sense of pressure or a sense of forced engagement (Gagne & Deci, 2005). Controlled motivation involves the experience of being pressured and coerced (Vansteenkiste, et al., 2006). This latter type of motivation contains the two remaining types of extrinsic motivation, namely external regulation and introjected regulation.

Autonomous motivation and controlled motivation can both result in high involvement in an activity (Vansteenkiste, Niemiec, & Soenens, 2010). However, individuals are most resourceful and innovative when they feel motivated, largely as a result of their interests, inner satisfactions, and work challenges (Ankli & Palliam, 2012). Therefore, SDT stresses the importance of autonomous motivation above controlled motivation (Vansteenkiste, et al., 2010; Wong-On-Wing, Guo, & Lui, 2010). Autonomous motivation is more powerful in creating well-being, job satisfaction, and performance (Baard, et al., 2004; Mills, 2011; Ryan & Deci, 2000b). Moreover, when employees have a high level of autonomous motivation, the level of controlled motivation does change the level of effort employees put into their job (Van den Broeck, et al., 2013). An organization should therefore concentrate on creating autonomous motivation over controlled motivation.

To create and enhance autonomous motivation, there must be an autonomy supportive context (Gagne & Deci, 2005). An autonomy supportive context appears when an employee's three basic psychological needs (autonomy, competence, and relatedness) are supported. The need for autonomy involves experiencing choices and feelings, like being the initiator of one's own actions (deCharms, 1968; Deci, 1975; according to Baard et al., 2004). The feeling of competence involves being able to attain the desired outcomes for an optimally challenging task (e.g. Skinner, 1995; White, 1959; according to Baard et al., 2004). The need for relatedness, which should also be satisfied to augment autonomous motivation, refers to a longing to experience positive relationships and engages with others (Evelein et al., 2008). SDT

suggests that the level of autonomous motivation and its enhancement are determined by the degree to which people can satisfy the three basic psychological needs (Gagne et al., 2010). Consequently, when the PMS creates an atmosphere in which the three basic needs are supported, autonomous motivation can be enhanced.

The presence of an enabling PMS should support the three basic psychological needs. Previous research has indicated that companies with a PMS delegate greater autonomy to their business units, which consequently affects the organization performance positively (De Geuser, Mooray, & Oyon, 2009). The features within an enabling PMS can support the three basic psychological needs. First, repair can support the need for competence and the need for autonomy. The presence of repair possibilities can provide managers with a feeling of autonomy. Repair can also contribute to the managers' feeling of competence, as they will know how the company wants them to react if a certain situation arises. Second, internal transparency supports a feeling of competence as the manager will have a clear and detailed tool to control the department. Moreover, internal transparency can also lead to an increase in the feeling for autonomy. The third feature is global transparency that can support two of the three basic psychological needs. Through the link of local systems with the company as a whole, the feeling of relatedness can be supported. In addition, the manager will feel more competent as the global transparency makes it possible to have a clear view of how local systems and elements fit into the organization as a whole. Fourth is flexibility; flexibility will enhance the managers feeling of autonomy, as they obtain the opportunity to change the system, if necessary. The need for relatedness might also be supported as the managers feel more connected to the organization as they get the opportunity to make changes to the PMS when necessary. Consequently, when managers perceive the PMS as enabling, this will lead to an autonomy supportive context as the different features (repair, internal transparency, global transparency, and flexibility) support the three basic psychological needs. Subsequently, an augmented level of autonomous motivation will be created. This indicates the superiority of a situation in which an enabling PMS is used over a situation in which no PMS, or no enabling PMS, is used.

H1: Managers who perceive their PMS as highly enabling will have a higher level of autonomous motivation than managers who do not have a PMS or who perceive their PMS as minimally enabling.

### **3 Individual monetary rewards and autonomous motivation**

Research on the consequences of monetary rewards on motivation conflict in their findings (Franco-Santos & Bourne, 2005; Libby & Lipe, 1992). Some scholars

indicated that monetary rewards have a detrimental effect on autonomous motivation (Deci, Koestner, & Ryan, 1999; Falk & Kosfeld, 2006; Kunz & Linder, 2012; Weibel, Rost, & Osterloh, 2007). Kunz and Linder (2012), for example, found that monetary rewards have a detrimental effect on identified and integrated motivation (the two extrinsic types of autonomous motivation). Although detrimental effects exist, they do not appear in all situations (Deci, et al., 1999). Other scholars found that in a working environment, the introduction of rewards does not tackle the level of intrinsic motivation and enhance the level of extrinsic motivation (Decoene & Bruggeman, 2006; Kunz & Pfaff, 2002; Van Herpen, Van Praag, & Cools, 2005). More recently, research on pay for individual performance even indicated that intrinsic motivation is higher under pay for individual performance (Fang & Gerhart, 2012). As a result research on rewards is currently at a crossroads (Bourne, et al., 2014).

Through the literature on autonomous motivation we already became aware of the importance of an autonomy supportive context to improve autonomous motivation. Consequently, only when rewards enhance the basic psychological needs, a higher level of autonomous motivation can be reached. Nevertheless, not every reward in every situation can lead to an enhanced level of autonomous motivation. A reward which is linked to the PMS has the opportunity to fulfil the three psychological needs. Monetary rewards used in a PMS context are linked to the targets set forward in the system. The link with the targets creates the opportunity to support the three basic psychological needs: autonomy, competence and relatedness. Autonomy can be enhanced if rewards are linked with the defined targets. In this way the manager can get the feeling that he is initiator of his own actions in order to reach the defined targets. The manager's level of competence can be supported when the proposed targets are achievable. The feeling of relatedness can be fulfilled if the rewards make it possible to strengthen the link between the manager and the organization and his colleagues. However, rewards in se are often not sufficient enough to create the necessary support toward satisfaction of the three basic psychological needs, hence autonomous motivation. Often only a situation characterised with procedural justice is associated with a positive outcome on the needs and subsequently on autonomous motivation.

The term procedural justice refers to whether the reward is fairly determined or not (Hartmann & Slapnicar, 2012a). Procedural justice is a variable that is positively associated with the three basic psychological needs (Boudrias et al., 2011; Gillet et al., 2013). Other psychological research investigating workplace autonomous motivation also indicates that procedural justice supports the three basic psychological needs; which subsequently enhances autonomous motivation (Gagné & Forest, 2008).

Moreover, in a management control context the role of procedural justice is stressed. The organizational literature provides evidence that participants find fairness perceptions very important. The organizations procedures, which explains important workplace outcomes, such as motivation, should be fair (Hartmann & Slapnicar, 2012b). In addition, trust and justice are the underlying mechanisms often mentioned as moderators in the relationship between monetary rewards and performance related outcomes (e.g.; Burney, Henle, & Widener, 2009; Sliwka, 2007). In our study, we will refer to this procedural justice of the monetary reward as fairness. It is expected that only when a reward is characterised with a certain degree of fairness an augmentation of the autonomous motivation will occur. Fairness of the individual bonus affects the manager's level of autonomous motivation. This results in following hypothesis:

H2: The higher the level of fairness of the individual monetary reward, the higher the level of autonomous motivation.

#### **4 Enabling PMS, individual monetary rewards and autonomous motivation**

When the PMS in se is already highly enabling, the three basic needs will already be supported and the rewards will be less effective as they do not improve the clarity of the strategy and targets of the organization. In contrast, in a situation where there is a minimally enabling PMS, the possibility to increase the level of autonomous motivation is higher. This increased possibility results from the lower level of autonomous motivation that is associated with a minimally enabling PMS. As a result, the manager can get indication on the goals of the organization and the expectations toward him, through the monetary rewards which are linked to several targets. These targets give an indication concerning the goals of the organization. This delivers opportunities that can enhance the satisfaction of autonomy, competence and relatedness; and subsequently augment autonomous motivation. However, the higher the level of enabling PMS, the lower the power of the rewards. In this situation, the managers' three psychological needs will already be highly supported. The lower the enabling PMS, the more support rewards can offer to the three basic psychological needs of the managers.

H3: The lower the level of enabling PMS, the higher the strength of fairness of the bonus to affect the manager's autonomous motivation. On the contrary, the higher the level of enabling PMS, the lower the positive relationship between fairness of the bonus and the autonomous motivation.

Notably, previous literature indicates the pivotal role of the magnitude of the reward. "Pay enough or do not pay at all" is the conclusion in Gneezy (2000). Pouliakas (2010) found that individual rewards were only effective if they were large enough. As a result,

the possibility exists that managers who receive a small reward do not experience the predicted outcomes because the reward is too small to attract the manager's attention toward the important targets. Consequently, if the reward is not large enough, it will have no opportunity to create direction and clarity. Subsequently it will not support the three psychological needs. Hence, autonomous motivation is not affected. Therefore, the proposed hypothesis will only occur when the reward is large enough. This study will control for this by integrating the magnitude of the bonus as a variable in the analysis.

## **5 Methodology**

### **5.1 Data collection process**

To collect data, an online questionnaire using a sample of Belgian managers was conducted. To optimize the quality of the questionnaire, we followed some recommendations of Dillman et al. (2009). We extensively pretested the questionnaire in three different steps. First, a pilot test of the questionnaire was distributed through a modern communication channel (Linked In) to obtain general feedback on our questionnaire. In total, 71 managers filled out the questionnaire as a pre-test. We used their comments to improve the wording and the order of the questionnaire. Second, this second version was reviewed by a multidisciplinary team of academics with knowledge in management accounting, self-determination theory and survey design. They made suggestions to improve the validity and reliability of the measured constructs and the control variables. This resulted in a third draft of the questionnaire. This third draft involved cognitive interviews with two potential respondents from the selected population (Dillman, 2000). The purpose of this interview was twofold. First, we wanted to make sure that people were able to navigate through the questionnaire appropriately. Second, we wanted to be reassured that the respondent interpreted the questions in the way it was intended. To realize this, one of the authors was present when these two respondents used the online tool to fill out the questionnaire. If they thought it was necessary, they could pose the author questions. To finalize this pre-test, the author asked some questions related to the questionnaire. For example, the author asked the respondent why he/she hesitated to fill out certain questions. Some minor adaptations to the questionnaire were then made, primarily to improve readability.

For this study, we used Dutch-speaking managers that worked in production, development, logistics and shared service centres at the middle management or top management level at Belgian companies with at least 100 employees. We used the minimum size of 100 employees to make sure the selected managers were employed at a company in which a PMS can be used for both control and

information purposes; in addition, a bonus system might be in use.

The survey was written in Dutch. Therefore, we sampled Dutch-speaking managers (about 60% of the inhabitants of Belgium use Dutch as their native language). Managers from production, development, logistics, and shared services were selected to obtain a broad range of respondent functions to achieve a larger generalization of the results. We obtained 2,411 e-mail addresses from a direct marketing company that specialized in managerial functions.

We sent out an invitation with a link to the online questionnaire to participate in the questionnaire to these 2,411 managers (June 2013). 343 managers did not receive the message; they either left the firm, changed their e-mail address, or had an email address that gave us a mail delivery failure message. Consequently 2,068 managers were reached and 240 managers (11.60%) returned the questionnaire after a first invitation. Another 140 managers completed the questionnaire after having received a reminder three weeks later. In total, 380 people filled out the questionnaire (18.38%). As some of the respondents did not complete the entire questionnaire, their responses were removed; this resulted in a total of 358 (17.31%) filled out questionnaires. The response rate is comparable with other similar research (e.g. Widener, 2007).

Before analysing the data, some checks to confirm the robustness of the data were performed. This involved testing for response bias. A comparison between the early and late respondents was made. The first 10% of respondents were compared with the last 10% of the respondents. No significant differences on any of the variables (dependent, independent, and control variables) were detected.

We then controlled for outliers. The Cook's distance analysis indicated two points as possible

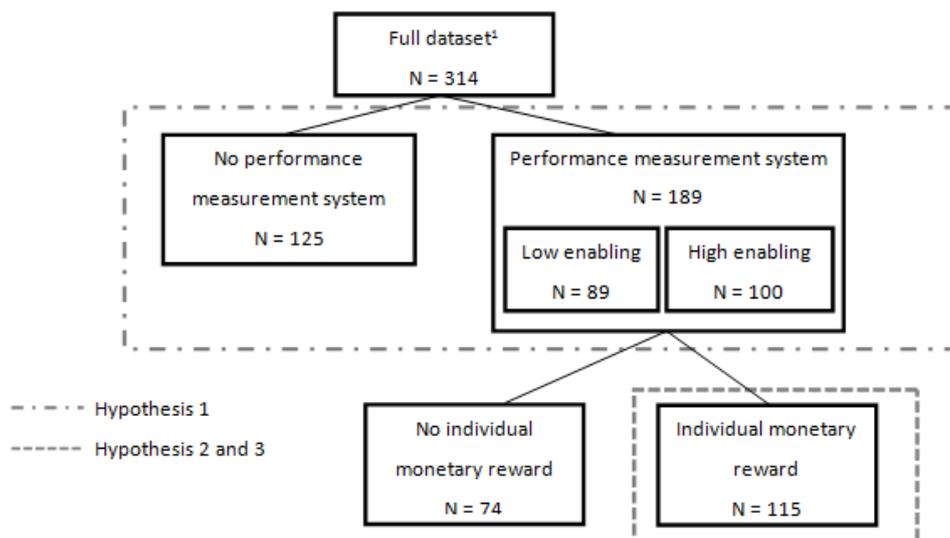
outliers. As these points may distort the outcome and accuracy of the performed regressions, we decided to eliminate them from the sample. We also looked at the extreme data points, in relation to our dependent variable. Autonomous motivation is a variable measured on a 7-point Likert scale (1: completely disagree, 7: completely agree) that is slightly skewed to the right. The data for this variable revealed a normal distribution between four and seven. Only respondents had an average of less than three. These respondents were deleted from the sample. In this way a normal distribution with variance between four and seven appears.

One other respondent got deleted from the sample, as the respondents' percentage of maximum bonus was smaller than the percentage of the minimum bonus; this survey was eliminated to maintain the accuracy of the analyses.

In addition, managers at different management levels might use a PMS differently (Malina & Selto, 2001). Besides using the system to control, formulate strategy and communicate to serve higher-level managers, a PMS also supports the people whose performance is being measured (Wouters & Roijmans, 2011). As a result, managers at different levels might benefit differently from the presence of an enabling PMS. The way in which first level managers are able to use the PMS often differs from how it is used by middle and top management. To avoid a very heterogeneous group, we deleted the first level managers (N = 36) from the dataset.

In total, 314 questionnaires from middle and top managers are used in the analyses. To control for differences that might exist between middle and top level managers, a control variable "management level" will be used when the proposed hypotheses are tested.

Figure 1. Dataset



Note: <sup>1</sup> After deleting outliers and first level managers

The demographics of the respondents were split in three groups. Panel A illustrates the data of all 314 respondents. The analysis of Hypothesis 1 will use the responses of all 314 managers. Concerning hypothesis 2, we focused on managers confronted with a PMS (see Figure 1). Managers whose organization does not have a PMS are excluded from this analysis. 189 respondents (60.19%) indicated that their organization used a PMS. The demographics of these managers can be found in Panel B. In addition, of those 189 managers, 115 managers also received an individual monetary bonus. For the third hypothesis, only the respondents that received an individual bonus were included (N = 115). In Panel C, the demographics of those respondents are displayed.

When looking at the demographics of the respondents, we noticed that most respondents were male (approximately 80%). On average, they were 48 years old (Table 1). Most of the organizations were situated in the manufacturing or service business (Table 2).

## 5.2 Variable measurement

The degree to which a PMS is perceived as enabling is measured using a 7-point Likert scale<sup>2</sup>. The scale consists of 12 items measuring the four features of an enabling PMS (repair, internal transparency, global transparency, and flexibility). The scale was pretested and tested in different studies delivering a Cronbach's alpha of .928 (study with 186 respondents) and .907 (study with 45 respondents). In Table 3, more information on the factor loadings and Cronbach's alpha (in this study) is provided.

To obtain an indication of the rewards, the respondents had to answer whether their firm did or did not make use of individual monetary rewards. Further information about the rewards and the reward system was asked when the respondent indicated it was possible to receive a reward. Our proposed model makes use of: (1) the magnitude of the individual reward (continuous variable); and (2) the level of fairness of the individual bonus (continuous variable).

The magnitude of the individual bonus was measured by taking the difference between the maximum individual bonus managers could receive (in a percentage of net wage) and the minimum individual bonus managers could receive (in a percentage of the net wage).

The level of fairness of the individual reward was measured using three 7-point Likert style questions. In total, 134 respondents indicated that they received an individual bonus and answered the three questions from which we could deviate the degree to which they perceived the individual bonus as fair. The basis for the formulation of these questions was found in a study by Hartmann and Slapnicar (2009). An

adapted version of the questions were introduced in our questionnaire. In our version, we adapted the questions to make them suitable for our research. The items used can be found in Table 3. Factor loadings were all above .8; Cronbach's alpha was .901.

Motivation was measured using an adapted version of the second motivation at the work scale (MAWS2 scale). This scale was still under construction when the questionnaire was developed and sent to the respondents<sup>3</sup>. As a result, we pretested this questionnaire to check the validity and reliability of the items. The pre-test resulted in a 12 item scale to measure autonomous motivation (six items) and controlled motivation (six items). The Cronbach's alpha for these two variables were, respectively, .832 and .794. In this study, we focus on the effect on autonomous motivation; consequently, the six items on autonomous motivation are integrated into the analyses. Information on the factor loadings and Cronbach's alpha in this research can be found in Table 3.

The management level is used in this study as control variable. The management level indicates whether the manager is a middle manager or a top manager. This variable is introduced as previous research indicated that management level differences could lead to differences in managerial behaviour (e.g.; Malina & Selto, 2001; Wouters & Roijmans, 2011).

## 6 Results and discussion

### 6.1 Descriptives

After the data were collected an initial screening of the variables took place. The descriptives of the independent and dependent variables are shown in Table 4. In Panel A, the data of all 314 respondents are displayed. Panel B illustrates the descriptives of the dependent and independent variables of the managers whose organization used a PMS (N = 189). In Panel C the information concerning the respondents that have both a PMS and an individual monetary reward (N = 115). Although the dependent variable is slightly skewed to the right, it is normally distributed between the ranges of 4 and 7.

<sup>2</sup> The authors have validated this scale and the scale development paper is currently under review in an international journal

<sup>3</sup> The scale has been validated and published: (Gagné et al., 2014)

**Table 1.** Demographics (company size, company and function time, gender, and age)

PANEL A	N	Freq	%	Cumul %	Mean	Med	Min	Max	SD
Company size	314								
51 to 100		2	.6	.6					
101 to 250		82	26.1	26.8					
251 to 500		53	16.9	43.6					
501 to 1,000		42	13.4	57.0					
1,001 to 2,000		25	8.0	65.0					
2,001 to 5,000		26	8.3	73.2					
5,001 to 10,000		17	5.4	78.7					
> 10,001		67	21.3	100.0					
Gender	314								
Male		248	79.0	79.0					
Female		66	21.0	100.0					
Age	313				47.81	48	29	65	7.67
Management level	314								
Middle manager		172	54.8	54.8					
Top manager		142	45.2	100.0					
PANEL B	N	Freq	Per-cent	Cumul perc.	Mean	Med	Min	Max	SD
Company size	189								
51 to 100		0	.0	.0					
101 to 250		43	22.8	22.8					
251 to 500		29	15.3	38.1					
501 to 1,000		24	12.7	50.8					
1,001 to 2,000		17	9.0	59.8					
2,001 to 5,000		15	7.9	67.7					
5,001 to 10,000		11	5.8	73.5					
> 10,001		50	26.5	100.0					
Gender	189								
Male		145	76.70	76.70					
Female		44	23.30	100.0					
Age	188				47.92	48	29	65	7.84
Management level	189								
Middle manager		103	54.5	54.5					
Top manager		86	45.5	100.0					
Individual bonus (Y/N)	189								
No		74	39.2	39.2					
Yes		115	60.8	100.0					
PANEL C	N	Freq	Per-cent	Cumul perc.	Mean	Med	Min	Max	SD
Company size	115								
51 to 100		0	.0	.0					
101 to 250		23	20.0	20.0					
251 to 500		13	11.3	31.3					
501 to 1,000		13	11.3	42.6					
1,001 to 2,000		12	10.4	53.0					
2,001 to 5,000		8	7.0	60.0					
5,001 to 10,000		7	6.1	66.1					
> 10,001		39	33.9	100.0					
Gender	115								
Male		93	80.9	80.9					
Female		22	19.1	100.00					
Age	114				48.21	48	29	65	7.92
Management level	115								
Middle manager		56	48.7	48.7					
Top manager		59	51.3	100.0					
Magnitude bonus (3 groups)	115								
Small		35	30.4	30.4					
Medium		40	34.8	65.2					
High			40	34.8	100.0				

**Table 2.** Demographiques (industry)

	PANEL A (N=313)			PANEL B (N=189)			PANEL C (N=115)		
	Freq	%	Cum. %	Freq	%	Cum. %	Freq	%	Cum. %
Agriculture	3	1.0	1.0	1	0.5	0.5	1	0.9	0.9
Food	36	11.5	12.5	23	12.2	12.7	16	13.9	14.8
Textile	5	1.6	14.1	1	0.5	13.2	1	0.9	15.7
Chemical products, perfum, jewelerie	44	14.1	28.1	29	15.3	28.6	20	17.4	33.0
Metal, machine construction	42	13.4	41.5	26	13.8	42.3	14	12.2	45.2
Construction of carriages, furniture, utilities, toys, sports goods	39	12.5	54.0	28	14.8	57.1	16	13.9	59.1
Construction, wood, glass	40	12.8	66.8	20	10.6	67.7	10	8.7	67.8
Retail and wholesale trade	30	9.6	76.4	15	7.9	75.7	6	5.2	73.0
Transport	16	5.1	81.5	10	5.3	81.0	6	5.2	78.3
Shipping	2	0.6	82.1	1	0.5	81.5	1	0.9	79.1
Hotel and catering industry	1	0.3	82.4	1	0.5	82.0	1	0.9	80.0
Media (film, television, radio)	10	3.2	85.6	5	2.6	84.7	3	2.6	82.6
Factoring, holdings	13	4.2	89.8	11	5.8	90.5	8	7.0	89.6
Tourism	5	1.6	91.4	1	0.5	91.0	1	0.9	90.4
Rental services	6	1.9	93.3	2	1.1	92.1	1	0.9	91.3
Defense, education, health and care sector	5	1.6	94.9	4	2.1	94.2	3	2.6	93.9
Repair and amusement sector	10	3.2	98.1	6	3.2	97.4	5	4.3	98.3
Other	6	1.9	100.0	5	2.6	100.0	2	1.7	100.0

**Table 3.** Factor loadings and Cronbach's alpha (N = 314)

Item		Cronbach's alpha	Factor Loading
Enabling PMS		.902	
Repair 1	The performance measures help me to start actions for improvement myself.		.769
Repair 2	The performance measurement system makes it possible to react in time, consequently be able to avoid problems.		.695
Repair 3	The performance measurement system makes it possible to put forward some measures which can serve as alarm bells.		.603
Intra 1	I understand the performance measures in my domain.		.582
Intra 2	I understand why certain performance measures are included in my domain.		.722
Intra 3	There is information available about the current condition of the performance measures in my domain.		.773
Glotra 1	The performance measurement system gives me an indication in how I execute my job.		.687
Glotra 2	The link between my own tasks and the goals of the organization are clear.		.688
Glotra 3	The performance measurement systems makes it possible to communicate with the stakeholders of the organization.		.642
Flex 1	I can take decisions on the basis of the performance information delivered by the performance measurement system.		.672
Flex 2	Performance measures can be added to the performance measurement system to meet specific work needs.		.629
Flex 3	Suggestions on which I can make decisions, arise from the performance measurement system.		.688

**Table 3.** Factor loadings and Cronbach's alpha (N = 314) (continued)

		Item	Cronbach's alpha	Factor Loading
Fairness			.901	
Fairness 1	I have full confidence in the system's fairness in determining the goals that need to be reached.			.906
Fairness 2	I have full confidence in the system's fairness in determining the individual reward.			.927
Fairness 3	I believe that the way in which my performance is measured is fair.			.815
Autonomous motivation			.764	
Autmot 1	I work because what I do in this job has a lot of personal meaning to me.			.804
Autmot 2	I work because I personally consider it important to put efforts in my job.			.426
Autmot 3	I work because this job represents well who I am deep down.			.704
Autmot 4	I work because I enjoy this work very much.			.800
Autmot 5	I work because this job fits well with the interests I have.			.608
Autmot 6	I work because the work I do is a lot of fun.			.661

**Table 4.** Dependent and independent variables: mean (M), median (Med), standard deviation (SD)

	N	Autonomous motivation			Enabling PMS			Fairness		
		Mean	Med	St dev	Mean	Med	St dev	Mean	Med	St dev
Panel A										
All respondents	314	5.89	6.00	.628						
No PMS	125	5.77	5.83	.671						
Low enabling PMS	89	5.82	5.83	.626						
High enabling PMS	100	6.03	6.00	.543						
Panel B										
Low + high enabling PMS	189	5.93	6.00	.590	6.00	5.33	.821			
Bonus No	74	5.84	5.83	.653	5.19	5.33	.855			
Bonus Yes	115	5.98	6.00	.541	5.25	5.33	.801			
Panel C										
Bonus Yes	115	5.98	6.00	.541	5.25	5.33	.801	5.31	5.67	1.39

From the Pearson correlation table, we can conclude that there is no indication of multicollinearity (Table 5). This is confirmed by the VIF in the linear regression analyses. No variable exceeded the value of 1.2. The correlations indicate a relationship between an enabling PMS and autonomous motivation ( $r = .239$ ,  $p = .001$ ), as well as between fairness and autonomous motivation ( $r = .233$ ,  $p = .002$ ). The magnitude of the individual bonus does not correlate with autonomous motivation ( $r = .016$ ,  $p = .840$ ). Nevertheless, there exists a positive correlation between the magnitude of the individual bonus and the fairness of the individual bonus ( $r = .197$ ,  $p = .010$ ). The tests with the demographic variables (untabulated) indicated that the management level is the only demographic variable that is correlated with the dependent or one of the independent variables. The management level correlates with fairness ( $r = .232$ ,  $p = .002$ ). Consequently, management level will be integrated as control variable in the analyses.

## 6.2 Hypotheses testing

Hypothesis 1 which states that managers who perceive their PMS as highly enabling will have a higher level of autonomous motivation than managers who do not have a PMS or who perceive their PMS as minimally enabling, is tested with an ANCOVA. This first analysis gives us an indication on whether having a PMS delivers a higher level of autonomous motivation. The managers whose organization has a PMS were compared to the managers whose organization did not have a PMS. A comparison between managers with a highly enabling PMS, managers with a minimally enabling PMS, and managers without an enabling PMS was then conducted. To distinguish between managers with a highly enabling and a minimally enabling PMS, we split up the managers whose firm had a PMS in two groups.

**Table 5.** Correlations (Pearson) of all variables

		1	2	3	4
1. Autonomous motivation	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	314			
2. Enabling performance measurement system	Pearson Correlation	.239**	1		
	Sig. (2-tailed)	.001			
	N	189	189		
3. Fairness	Pearson Correlation	.233**	.204*	1	
	Sig. (2-tailed)	.002	.028		
	N	170	115	170	
4. Magnitude	Pearson Correlation	.016	0.08	.197*	1
	Sig. (2-tailed)	.840	.393	.010	
	N	170	115	170	170

\*\* Correlation is significant at the 0.01 level (2-tailed).  
\* Correlation is significant at the 0.05 level (2-tailed).

The first group perceived the degree in which the PMS is enabling as minimal [lower half of median split (<5.33)], while the upper half experienced a highly enabling PMS (>5.33)<sup>4</sup>. The results pointed toward a significant difference between these three groups (Table 6).

Further analysis through the least significant difference revealed the superiority of a PMS perceived as highly enabling. A PMS perceived as highly enabling delivers a level of autonomous motivation that is significantly higher than the level of autonomous motivation in the condition where there is no PMS ( $p = .003$ ) or where the PMS is perceived as minimally enabling ( $p = .029$ ). The level of autonomous motivation of a manager that perceives the PMS as minimally enabling does not differ significantly from the level of autonomous motivation of the managers whose organization had no PMS ( $p = .525$ ). These findings support Hypothesis 1, indicating the importance of a highly enabling PMS. Hence, implementing a PMS is not per se enough to increase autonomous motivation. The degree to which the PMS is perceived as enabling plays a pivotal role. These results provide support of the pivotal role of enabling when a PMS is implemented and used in the organization.

To investigate the power of rewards when an enabling PMS is in use, a hierarchical regression analysis is conducted. The degree to which the PMS is seen as enabling is integrated in the analysis as a continuous variable. This continuous variable ought to give us the most detailed information on this matter<sup>5</sup>.

<sup>4</sup> The analysis has also been conducted when using "5" as cut-off to determine whether the PMS is minimally enabling rather than highly enabling. This means that the respondent will be classified as perceiving the PMS as highly enabling when he/she indicated that on average he/she at least agrees with the statements on enabling PMS. The results are the same as when the analysis is done when using the median as cut-off.

<sup>5</sup> A regression in which the perception on enabling PMS is measured as a categorical variable – as in an analysis for Hypothesis 1- has also been conducted. This test delivered the same results.

Previous research already indicates the importance of several variables. One important variable that rose in several management control related studies is fairness. Only a fair individual bonus might increase the level of autonomous motivation. Therefore, hypothesis 2 indicates that the higher the level of fairness of the individual monetary reward, the higher the level of autonomous motivation. This will be tested together with hypothesis 3 in a hierarchical regression analysis. Hypothesis 3 states that The lower the level of enabling PMS, the higher the strength of fairness of the bonus to affect the manager's autonomous motivation. The hierarchical analysis makes it possible to evaluate: the effect of an enabling PMS on autonomous motivation while including management level as control variable, and the effect of an enabling PMS and fairness of the individual bonus on autonomous motivation (full model), while taking the magnitude of the bonus into consideration, and controlling for management level. In the full model we can also identify whether the expected relationship between fairness and autonomous motivation exists. This method makes it possible to compare the additional explaining power of the different models. The results are displayed in Table 7 and the formula of the full model is shown below.

**Table 6.** ANCOVA effect of PMS on autonomous motivation (N=314)

	Sum of Squares	F-statistic	P-value
Management level (middle vs. top)	1.433	3.760	.053
Enabling PMS (3 groups)	3.720	4.504	.008
Post hoc tests	Mean		
No PMS	5.77	vs. low enabling PMS	.525 <sup>b</sup>
		vs. high enabling PMS	.003 <sup>b</sup>
Minimally enabling PMS	5.83	vs. no PMS	.525 <sup>b</sup>
		vs. high enabling PMS	.029 <sup>b</sup>
Highly enabling PMS	6.03	vs. no PMS	.003 <sup>b</sup>
		vs. low enabling PMS	.029 <sup>b</sup>

Note: <sup>b</sup> Adjustment for multiple comparisons: Least Significant Difference

$$\text{Autmot} = b_0 + b_1\text{EPMS} + b_2\text{FAIR} + b_3\text{MAG} + b_4\text{MANLEV} + b_5\text{EPMS*FAIR} + b_6\text{EPMS*MAG} + b_7\text{FAIR*MAG} + b_7\text{EPMS*FAIR*MAG} + \varepsilon \quad (1)$$

Where: Autmot = level of autonomous motivation (continuous)

$b_0$  = intercept

EPMS = degree to which the PMS is perceived as enabling (continuous)

FAIR = perception of the degree to which the bonus is fair (continuous)

MAG = magnitude of the bonus (continuous)

MANLEV = dummy management level (categorical: middle/top)

$\varepsilon$  = error term

The introduction of fairness of the individual monetary rewards can add in explaining the variance. The full model displays a  $R^2$  adjusted of 10 %, while the model with only enabling PMS explained 6.30 %. Not only the interaction effect of fairness and an enabling PMS is significant ( $t = -1.989$ ,  $p = .049$ ); the main effect of fairness on autonomous motivation is significant ( $t = 2.246$ ,  $p = .027$ ). As a consequence, hypothesis 2 indicating a higher level of fairness is associated with a higher level of autonomous motivation is confirmed. In addition, evidence for hypothesis 3 has been found. The lower the perception of an enabling PMS, the more the managers' autonomous motivation increases as the bonus is perceived more fair. The higher the perception of the PMS as enabling, the less susceptible the manager is towards the introduction of unfair bonuses.

In contrast to previous findings on the magnitude of the bonus (e.g.; Gneezy & Rustichini, 2000; Pouliakas, 2010) no deterioration of the findings appeared when the manager gets a small reward. Even more, the magnitude of the bonus did not matter at all. A graphical reproduction of the magnitude of the bonus in relation to autonomous motivation (untabulated) revealed data points that formed a line with a slope of zero. The regression analysis confirms this finding and extent it by indicating no significant relationship on the dependent variable even in combination with fairness and enabling PMS. The findings of this study might deviate from those of previous studies as our research concentrates on middle and top managers, whereas the previous research uses a sample that is representative for the whole population, or uses students as participants in

the study. As research indicates potential differences might already appear when top and middle managers are compared (Malina & Selto, 2001; Wouters & Roijmans, 2011), there might also be differences between employees from other organizational levels and students.

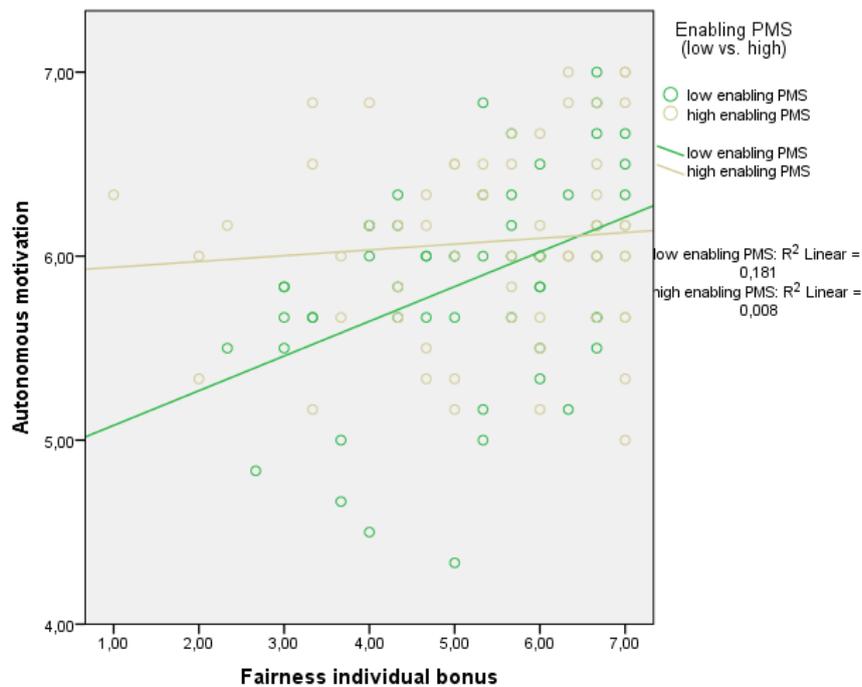
In order to visualize the findings, the categorical variable of the enabling PMS, which distinguishes between a minimally perceived and highly perceived enabling PMS (median split), is used<sup>6</sup>. The graph (Figure 2) displays the robustness of autonomous motivation in the situation where the managers perceive the PMS as highly enabling. When the PMS is perceived as minimally enabling, there is a positive association between the managers' autonomous motivation and the level of perceived fairness of the individual bonus. Moreover, the more the individual reward is perceived as fair, the higher the level of autonomous motivation. These findings indicate that it is not interesting to integrate individual monetary rewards when the PMS is perceived as highly enabling.

<sup>6</sup> The analysis with the categorization delivered the same results as the analysis with the continuous variable on enabling PMS.

**Table 7.** Hierarchical regression effect fairness individual bonus and enabling PMS on autonomous motivation (N=115)

Variables	Reduced model			Full model		
	Coefficient	t-statistics	p-value	Coefficient	t-statistics	p-value
Management level (middle vs. Top)	.132	1.348	.180	.094	.923	.358
Enabling PMS	.170	2.763	.007	.781	2.383	.019
Fairness				.746	2.246	.027
Magnitude				.080	.976	.331
Enabling PMS x Fairness				-.127	-1.989	.049
Enabling PMS x Magnitude				-.018	-1.008	.316
Fairness x Magnitude				-.014	-1.011	.315
Enabling PMS x Fairness x Magnitude				.003	1.04	.301
F-value	4.837		.010	2.585		.013
Adjusted R <sup>2</sup>	.063			.100		
N	115			115		

**Figure 2.** Effect of fairness and enabling performance measurement system on autonomous motivation



## 7 Conclusions

This paper investigates the effect of monetary rewards on autonomous motivation in an enabling PMS context. Our results illustrate that managers' autonomous motivation is significantly higher when the PMS is perceived as highly enabling. In other words, the degree to which the PMS is enabling influences the autonomous motivation. In addition, the fairness of the individual bonus positively influences the level of autonomous motivation. A significant interaction effect between enabling PMS and fairness on autonomous motivation indicates that the effect of monetary rewards on autonomous motivation is influenced by the perceived fairness of the bonus. The

data indicate that in organizations where the performance measurement system is perceived to be minimally enabling, the perceived fairness of individual monetary rewards positively affects managers' autonomous motivation. The findings also reveal that the more the performance measurement system is perceived as enabling, the less effective a fair individual bonus is to enhance the level of autonomous motivation of managers.

These findings contribute to the discussion on the effectiveness of rewards to improve the motivation and performance of managers. In line with the expectations of Bonner and Sprinkle (2002) and Fang and Gerhart (2012), we find a positive effect of monetary rewards on autonomous motivation. In the

situation where the managers' perceive the PMS as minimally enabling, the introduction of monetary rewards improves autonomous motivation. Nevertheless, not all situations result in an enhancement of autonomous motivation. Consequently, we cannot completely contradict the findings of Kunz and Linder (2012). Those authors are more nuanced and state the possibility of the existence of the detrimental effect of rewards on autonomous motivation. Our data do not illustrate a detrimental effect, however they show that augmentation of the autonomous motivation is practically non-existent in a highly enabling PMS context.

Deci et al. (1999) stated that not every situation will lead to a change in the level of autonomous motivation. In our search, we concentrated on individual monetary rewards in a PMS context. The integration of the degree to which the PMS is perceived as enabling makes it possible to contribute to the search of the consequences of monetary rewards on managerial behaviour. Up to now, there have been conflicts in the findings on the effects (Franco-Santos & Bourne, 2005). Distinguishing situations with a highly and a minimally enabling PMS makes it possible to make a better prediction of the power of rewards. The presence of a highly enabling PMS in combination with a fair monetary reward results in only a small change of the autonomous motivation. Nevertheless, when there is a minimally enabling PMS in combination with a fair monetary reward augmentation of the level of autonomous motivation is discovered.

This research was able to provide some interesting findings; nevertheless, this study also has limitations that are worth considering. The first limitation is that the measures in this study were self-reported measures. Although it is not evident to use self-reported measures to measure managerial behaviour, several scholars indicate that self-reported measures are reliable (Hall, 2011; Mills, 2011).

The second limitation occurs when investigating the effect of rewards. We took monetary individual rewards into consideration, which is only a small part of the possibilities an organization has to reward their managers. Consequently, a suggestion for further research is to gather more details on other rewards (e.g., group rewards, promotion opportunities) used in organizations to stimulate motivation and performance.

The third limitation possible lies in the research method. We used a large online questionnaire to measure the effect of rewards on motivation in an enabling context, which made it possible to collect data in a heterogeneous group of managers and which increased the possibility of generalization. However, the counterpart is that such a large sample is very complex. Hence, as rewards are also very multifaceted, it might lead to overlooking some possible confounding variables. This study tried to deal with this issue by controlling for certain variables

that might influence the relationship (e.g., management level). Nevertheless, there might be other confounding factors not previously defined in the literature that might have an influence. Executing an experiment could be an interesting line of future research to shed light on the investigated relationships, as it offers the opportunity to control certain variables.

This study contributes to practice through the indication of the importance of creating a highly enabling PMS. In addition, organizations that have a highly enabling PMS will benefit less from a fair individual monetary reward. An organization where the PMS is perceived as minimally enabling will benefit from the introduction of individual monetary rewards, but only when the reward is perceived as fair. The fairer the reward, the larger the impact of the individual monetary reward on the autonomous motivation. The introduction of an individual monetary reward can bring the autonomous motivation of managers to the same level as the level of autonomous motivation from managers that perceive their PMS as highly enabling. Therefore, organizations should try to achieve a highly enabling PMS in order to obtain a high autonomous motivation without the need for additional monetary rewards.

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