

## **Do Top Managers Work Harder When They Are Monitored?**

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'For those with a normative bent, making the internal control systems of corporations work is the major challenge facing economists and management scholars in the 1990s. For those who choose to take a purely positive approach, the major challenge is understanding how these systems work' (JENSEN 1993)

Agency theory is the neoclassical economists' attempt to open up the black box of the firm. This theory assumes that supervisors are imperfectly informed about the effort of workers, and that monitoring is an important instrument they can use to resolve the problem. For example, the theory holds that top managers are motivated because they are monitored by boards of directors, where monitoring implies pay contingent on observed performance, or dismissal if top managers perform badly (JENSEN and MECKLING, 1976, FAMA and JENSEN, 1983)

However, recent evidence shows that the sensitivity of pay for performance for top managers – through bonuses and salary changes, shareholdings, stock options, and dismissals – is weak (WARNER, WATTS and WRUCK, 1988, WEISBACH, 1988, GILSON, 1989, JENSEN and MURPHY, 1990). JENSEN and MURPHY (1990) argue that this sensitivity is too weak to be consistent with agency theory. One interpretation of these findings is that boards of directors discipline top managers insufficiently, and that the publicly owned corporation is an inefficient structure (JENSEN, 1993). Another interpretation is that publicly owned corporations are essentially efficient, but that agency theorists have so far ignored vital elements of how boards and other principals motivate lower level workers, other than through monitoring. Agency theorists could learn from non-economic disciplines in this respect (BAKER, JENSEN and MURPHY, 1988)

This paper explores the second view, adopting an eclectic perspective principal-agent theory incorporating key notions of social exchange theory

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(HOMANS, 1961, BLAU, 1964) This perspective echoes intuitions expressed in WILLIAMSON (1975), and more formal theory in FREY (1992) It is shown that this perspective can rationalize various 'puzzles' for principal-agent theory 1) that top managers design compensation contracts for top managers that imply weak pay-performance sensitivities, 2) that pay packages of lower level workers imply even weaker sensitivities, 3) that principals give biased evaluations of work effort, and 4) that internal labour markets are used to discipline workers, in addition to pay packages (BAKFR et al , 1988, JENSEN and MURPHY, 1990) In addition, I develop and test hypotheses on the use and effects of monitoring in hierarchies Predictions are tested with LISREL, using 1985 HAY data on 116 Dutch executive board members Consistent with predictions the paper finds that when the principal is the board of directors or the CEO, and social exchange contracts are expected to be important, monitoring is *not* the important control instrument suggested by principal-agent theory When the principal is the CFO (a fellow-executive), such monitoring is even detrimental In contrast, when social exchange contracts are less likely to develop, when headquarters supervises SBU-managers, such monitoring seems more valuable

This article is structured as follows Section I describes the background of this study The theory and hypotheses are developed in section II Section III discusses methodological issues Test results from survey data are presented in section IV Section V shows that the eclectic perspective can rationalise various puzzles for agency theory The paper ends with conclusions and suggestions for further research

## 1 BACKGROUND

The early economic theory of the firm used non-economic concepts to rationalise why firms existed COASE (1937) assumed that workers were motivated by authority, because working for the firm implied accepting a master-servant relationship WILLIAMSON (1975) emphasised the importance of 'atmosphere' as a source of work incentives in hierarchies (see also ARROW, 1974), although he expected monitoring to be important when atmosphere was less likely to develop, such as between headquarters and SBU-managers

With the rise of agency theory, the economic theory of the firm largely abandoned non-economic concepts<sup>1</sup> ALCHIAN and DEMSETZ (1972) showed that monitoring was sufficient to rationalise why firms exist When technologies

1 For example, the concept of 'atmosphere' had disappeared in WILLIAMSON (1985)

of workers are interrelated, it is optimal for them to bring in a manager-owner with the right to hire and fire workers and set their pay, who is motivated himself because he is the residual claimant. If top managers are not residual claimants, they are motivated by a board of directors, who sets their pay and fires them if they perform badly (JENSEN and MECKLING, 1976, FAMA and JENSEN, 1983). However, recent evidence shows that the pecuniary consequences of the actions of boards are small for top managers. JENSEN and MURPHY (1990) find that the pay of CEOs of Fortune top 500-firms is weakly tied to performance (through bonuses and salary changes, shareholdings, stock options). Dismissal policies of US boards also imply weak pecuniary incentives, since the probability that top managers in badly performing firms are fired is small (WARNER, WATTS and WRUCK, 1988, WEISBACH, 1988, GILSON, 1989, JENSEN and MURPHY, 1990). Similar results about top management pay and turnover were found for Japan and Germany (KAPLAN, 1994a, b). These internal control systems are inconsistent with agency theory (JENSEN and MURPHY, 1990).

One possible interpretation of the inconsistency is that internal control systems are 'wrong,' and that boards of directors fail to motivate top managers sufficiently (JENSEN, 1989, 1993, JENSEN and MURPHY, 1990). This should lead to layers of agency problems, where top down, each management layer has fewer incentives to supervise the next. It is a puzzle for these agency theorists why such corporations survive. Indeed, JENSEN (1989) predicts the eclipse of publicly held corporations in mature industries with much 'free' cash flow, such as oil and tobacco, through leveraged buy-outs (LBOs). LBOs combine major shareholdings of top managers (on average, 20%) with major holdings of boards of directors (on average, more than 60%). Halfway the 1990s, however, LBOs have not become the dominant 'life form' in these industries.

A second interpretation of the inconsistency is that the theory is wrong, and that the agency paradigm should be adapted to improve explanations of 'surviving' organisations such as publicly held corporations (BAKER et al., 1988). BAKER et al. suggest two research avenues in this respect. First, that the classic principal-agent model should be refined. Examples of recent contributions that can rationalise weak pay-performance sensitivities are HOLMSTROM and MILGROM (1990), BAKER (1992), JOHN and JOHN (1993), and PERRI (1994). Unfortunately, this theory offers little insight into what motivates managers instead, if pecuniary incentives are unimportant. Second, that non-economic insights should be incorporated into agency theory.

This paper explores the second research avenue. So far, agency theorists have assumed that boards of directors are valuable because they monitor top managers, screen investment proposals, and provide counsel to top managers (FAMA and JENSEN, 1983, JENSEN, 1993). This paper proposes a fourth way they can

be valuable that boards develop and maintain valuable social exchange contracts with top managers (cf. HOMANS, 1961, BLAU, 1964). I will assume that rational boards design optimal economic contracts bearing these social exchange contracts in mind. At a deeper level, this paper implies that firms exist in addition to markets, because they allow the development and maintenance of valuable social exchange contracts between principals and workers. This view is congruent with intuitions expressed in WILLIAMSON (1975), and more formal theory in FREY (1992).

## II. THEORY AND HYPOTHESES

Social exchange theory was founded by HOMANS (1961) and BLAU (1964) but has also been studied by some economists including AKERLOF (1982) and HOLLANDER (1990). This theory maintains that a system of exchange exists, almost of gifts, between principals and workers where principals 'give' trust, loyalty, and recognition to workers and workers 'give' effort in return. The exchange process may start with minor transactions, gradually promoting trust and loyalty through their recurrent and expanding character (BLAU, 1964). These reactions are typically not calculated but rather prompted by the stimulus-response mechanism of the human emotional system (HOLLANDER, 1990). In this context, monitoring signals a breach of trust to which workers will respond by breaking their part of the social exchange contract – by lowering their effort level.

This paper assumes that rational principals are aware of this mechanism when they design economic contracts implying monitoring and contingent pay<sup>2</sup>. This is consistent with FREY (1992), who proposed a simple principal-agent model that incorporates key insights of social exchange theory. His model implies that monitoring may have both a *positive* effect on work effort (an agency effect), and a *negative* effect (if it breaches social exchange contracts, a social-exchange effect)<sup>3</sup>. Whether the *net*-effect of monitoring on work effort is positive or negative, and whether monitoring is valuable depends on the importance of social exchange contracts in the particular setting. FREY uses his perspective to analyse environmental policies, crime prevention, tax policies, and the choice

2. The approach in this paper is truly eclectic since it assumes that rational principals take non-rational behaviour into account – by themselves and by others.

3. Classical agency theory predicts only the agency effect. This theory implies that informative monitoring is always valuable and will lead to optimal pay systems that imply stronger pay-effort relations and more work effort (SHAVEIL, 1979; HOLMSTROM, 1979, 1982).

between a voluntary (paid) and a conscripted military service (see also, FREY 1993a) I will use his perspective to sharpen predictions from WILLIAMSON (1975) about the value, the use, and the effects of monitoring in hierarchies<sup>4</sup> Executive board members will be analysed in three settings when their principal is 1) the board of directors, or 2) the CEO (a fellow-executive), or 3) a parent company

WILLIAMSON (1975) suggests that 'atmosphere,' trust, loyalty, and – presumably – also social exchange relations are relatively weak when the principal is at headquarters and the manager at an SBU In that case, optimal pay policies require relatively strong, additional work incentives from monitoring and contingent pay Moreover, the negative side-effect of monitoring on work effort, through breach of social exchange contracts, is expected to be weak or non-existent For both reasons, monitoring and contingent pay are expected to be relatively important sources of work effort in this setting

WILLIAMSON (1975) suggests that 'atmosphere,' trust, loyalty, social exchange contracts, and the like, are more important elsewhere in hierarchies, such as when the principal of executive board members is the board or the CEO (a fellow-manager) Especially in the latter case, contacts between executives and principals will likely be personal and frequent, perhaps on a daily basis, and social exchange contracts are expected to be well developed At most relatively weak (additional) incentives from monitoring and pecuniary pay are required in this setting Moreover, such monitoring is expected to have a relatively strong negative side-effect on work effort, through breach of social exchange contracts In theory, the net effect of monitoring and contingent pay on work effort may even be negative in this setting This leads to the following predictions<sup>5</sup>

H<sub>1</sub> The net-effect of monitoring on work effort is relatively strong when the principal of executive board members is the parent company, and is relatively weak (possibly negative) when the principal is the CEO, with an intermediate effect when the principal is the board of directors

H<sub>2</sub> More use is made of monitoring when the principal is the parent company than when it is the CEO, with an intermediate result when the principal is the board of directors

4 For a more formal treatment, see FREY (1993b)

5 An earlier version of this paper develops and tests some additional hypotheses on the use and effects of monitoring (BARKEMA, 1992)

Hypothesis 2 also follows from a different perspective – that CEOs get so much information about fellow-executives as part of day-to-day operations that less (additional) monitoring is needed. Thus, any empirical support for H<sub>2</sub> should be interpreted with care. Finally, I submit the third hypothesis:

H<sub>3</sub>: Bonuses have a relatively strong positive effect on work effort when the principal is the parent company. A weaker (possibly negative) relationship between bonuses and work effort exists when the principal is the CEO. An intermediate relationship exists when the principal is the board of directors.

### III. METHOD

#### *1. Sample*

The hypotheses were tested on data from the 1985 HAY Compensation Survey for the Netherlands. The survey was held among randomly selected top managers of medium-sized firms in a wide variety of industries. The questions in the survey regarded the pay mix of these managers, how they were monitored, and so on. An executive was selected from the HAY data for the present analysis if (s)he met these three conditions:

1. Worked at a firm with multiple executive board members and a formal chairman of the board.
2. Was an executive board member.
3. Reported to the parent company, or the board of directors, or the CEO.

The remaining sample contained 116 executives. The addition of criterion 3 reduced the sample from 137 to 116. The executives that had been omitted reported to shareholders, or to unspecified 'others.' Criterion 1 was added to increase the homogeneity of the sample, in terms of top management structures of remaining firms. This also controlled to some extent for differences in firm size, since many small firms were omitted from the data set. The median number of employees of the remaining firms was 166. The median sales were f 70 million (one guilder is roughly \$ 0.65). Thus, these firms are somewhat smaller than the firms analysed in most previous compensation studies.

## 2 Variables

### 1 Monitoring

Principal-agent theory provides little guidance in how to operationalise the theoretical construct monitoring. Standard principal-agent theory (e.g., HOLMSTROM, 1979, 1982) generally assumes that workers are evaluated explicitly, based on *ex-ante* specified criteria, laid down in formal contracts between principals and agents. An economic rationale for such contracts is that they reduce influencing and politicking by workers (MILGROM, 1988, MILGROM and ROBERTS, 1992). In a multi-period context, evaluations are presumably held on a regular basis<sup>6</sup>. The HAY data set contains three variables that operationalise such 'monitoring'

- 1 FORMALITY, the extent to which the executive is subjected to a formal evaluation procedure
- 2 SPECIFICITY, the extent to which the executive is evaluated based on well-defined, specific criteria<sup>7</sup>
- 3 REGULARITY, the extent to which the executive is evaluated on a regular basis

Executives in the sample scored these variables on Likert scales ranging from 1 to 7<sup>8</sup>

### 2 Work Effort

There is no unambiguous way to measure individual work effort. The operationalization in this paper is anchored in BECKER's 1965 economic analysis of time use. BECKER recognised that time is a scarce resource (there are only 24 hours

- 6 HOLMSTROM (1979) shows that randomization is of no value. This result is somewhat weaker than the claim that regularity is valuable. It implies that non-regularity is not valuable. Therefore, this paper also contains a test of whether 'regularity' is indeed a valid indicator of 'monitoring'.
- 7 Principal-agent theory suggests two things about evaluation criteria: 1) they are well-specified, and 2) they are specified *ex ante*. The operationalisation in this paper captures only the first aspect.
- 8 The questions in the survey were phrased such that higher scores on REGULARITY implied more regular evaluations, and that lower scores on SPECIFICITY and FORMALITY implied that executives were evaluated more on well-defined specific criteria and as part of a formal procedure.

per day), that individuals allocate over work and other activities (sleep, child care, visiting theatres etc.) depending on the relative personal costs and gains associated with these activities. HOLMSTROM and MILGROM (1987, 1990, 1991) merged this insight with principal-agent theory. Their analysis implies that more monitoring and higher 'piece rates' or bonus rates for work effort motivate workers to spend more of their limited time working, at the expense of other activities.<sup>9</sup> Thus, individual work effort is operationalised in this theory by the amount of time that individuals spend working. BECKER's seminal 1965 article has triggered many empirical studies on individual time use (for an overview, see JUSTER and STAFFORD, 1991), but no such study has yet appeared in agency theory.

The time devoted to work was operationalised in this paper by a natural indicator of this variable: HOURS, the number of hours that executives work per week. This variable was available from the data set at an ordinal level. In general, measuring time use through surveys may be noisy, since individuals have imperfect memories. Data on time use from diaries kept daily seem more reliable, although the expected increase in reliability is smaller for activities that are carried out regularly, such as work (JUSTER and STAFFORD, 1991). Noisy measurement is not a unique feature of this study, it is the rule rather than the exception in empirical research. Nevertheless, future studies using data from diaries kept daily will improve on the present study in this respect.

### 3 Other Variables

BONUS is the 1984 bonus of the manager. YFIRM and YJOB are the number of years of tenure with the present firm and in the present position, respectively. AGE is the manager's age. Finally, the managers' effort may be influenced by the *portion* of their income that is at stake in the form of the bonus, rather than by the absolute size of the bonus. Therefore I will also test whether the results are robust for using the variable SLOPE rather than BONUS, where  $SLOPE = BONUS / (SALARY + BONUS)$ , and SALARY is the manager's 1984 salary.

9. This does not mean that principals assess the amount of time that managers work when monitoring their performance. 'Monitoring' implies explicit evaluations of work effort, based on *ex-ante* specified criteria laid down in formal contracts between principals and agents. Principal-agent theory predicts that bonuses or other pay changes conditional on such 'monitoring' lead to optimal pay systems that imply stronger pay-effort relations and more time and attention devoted to work.



## IV RESULTS

## 1 Summary Statistics

The mean BONUS of the executives in the sample was f 29,114. The mean SALARY and SLOPE were f 198,662 and 0.11, respectively. These bonuses are lower than the bonuses in JENSEN and MURPHY (1990), both in absolute and relative terms. Shareholdings and stock options are less common elements of executive pay packages in the Netherlands than they are in the US. Hostile takeovers are impossible in the Netherlands, due to the many frictions on the takeover market<sup>10</sup>. In sum, pay-performance sensitivities for Dutch managers seem weaker than for US managers (see also PENNING (1993)). If pay-performance sensitivities of US managers are too weak to be consistent with principal-agent theory (JENSEN and MURPHY, 1990), this seems to apply *a fortiori* for Dutch managers<sup>11</sup>. Yet, Dutch executives work quite hard. Table 1 presents the distribution of scores on the ordinal variable HOURS.

Table 1

The Number of Hours worked per Week of 116 Executive Board Members of medium-sized Dutch Firms in 1985

Hours	≤ 40	40-50	50-60	60-70	≥ 70
Numbers of Executives	1	14	52	40	8

10 Instead, Dutch boards of directors *only* have outside members. The Dutch system does not allow insiders on the board, as the US system does. JENSEN (1993) suggests that boards with only outsiders will avoid some of the agency problems that occur when insiders are present. However, evidence in BYRD and HICKMAN (1992) implies that having only outsiders is not optimal either, and that it is possible to have too many independent outsiders, perhaps because informal communication channels with the firm are less developed in that case.

11 One explanation for the observed difference in pay-performance sensitivities between the Netherlands and the US is that while product markets are often global, labour markets tend to be national. Individual reputations of top managers are well known in the relatively small Dutch labour market, and top managers may have strong incentives to avoid being fired for bad performance. An alternative explanation, from the perspective of the eclectic theory, is that work incentives from social exchange contracts are more important in the Netherlands than they are in the US.

Table 1 shows that the modal executive worked 50-60 hours per week, and that a substantial number worked 60-70 hours per week. Table 2 presents the distribution of scores on the observables of 'monitoring'<sup>12</sup>

Table 2  
The 1985 Scores of 116 Executive Board Members of medium-sized Dutch Firms on Three Dimension of Monitoring\*

scores	1	2	3	4	5	6	7	
Irregularly	6	3	14	8	17	20	41	Regularly
Specific criteria	4	12	10	21	18	17	25	General criteria
Formally	15	8	9	24	14	22	19	Informally

\*REGULARITY: the extent to which they are monitored irregularly rather than regularly, SPECIFICITY, the extent to which they are monitored on specific criteria rather than on general criteria and FORMALITY: the extent to which they are monitored formally rather than as part of an informal evaluation procedure.

Table 2 shows that a substantial fraction of executives was not monitored as suggested by principal-agent theory. A substantial number was not evaluated regularly (31 managers score  $\leq 4$  on REGULARITY), not evaluated based on well-defined, specific criteria (81 executives score  $\geq 4$  on SPECIFICITY), and not as part of a formal procedure (79 executives score  $\geq 4$  on FORMALITY).

## 2. The Impact of 'Monitoring' on Work Effort

The empirical analysis was carried out with LISREL, a flexible framework for econometric analysis (JORESKOG, 1973, 1977, JORESKOG and WOLD, 1981). H<sub>1</sub> states that the effect of monitoring on work effort is relatively strong when the principal is the parent and relatively weak (possibly negative) when the principal is the CEO, with an intermediate effect when the principal is the board of directors. The hypothesis is tested with the model in figure 1. The latent variable

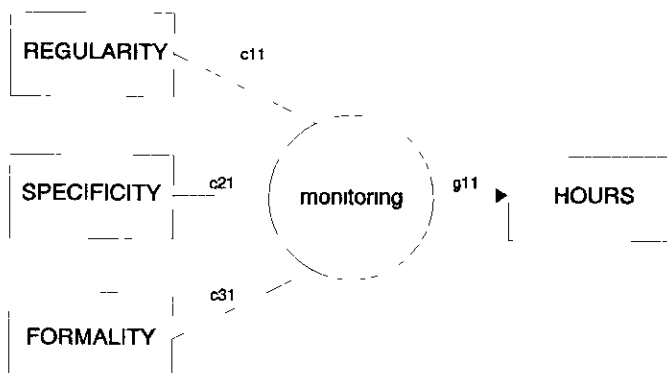
<sup>12</sup> Due to missing values, the number of scores does not equal 116 for each variable.

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'monitoring' is measured by the observables REGULARITY, SPECIFICITY, and FORMALITY. The relevant effect, in terms of hypothesis testing, is the effect of 'monitoring' on HOURS.

Figure 1

The Impact of Monitoring on Hours of Work



The model in *figure 1* was estimated on three subsets, executives whose principal was 1) the parent company (n=38), 2) the board of directors (n=56), or 3) the CEO (n=22). The latent variable 'monitoring' needs to be scaled, which can either be done by setting one factor loading in the measurement model on 1, or by fixing the covariance of 'monitoring' on 1. I used the last option, in order to get estimates of the significance of all three factor loadings. This provides information on the validity of the three indicators of 'monitoring'. Such information is useful, since principal-agent theory provides little guidance on what the relevant indicators of 'monitoring' are, for example, whether REGULARITY is indeed a valid indicator of 'monitoring'.

The observables REGULARITY, SPECIFICITY, and FORMALITY were available from the data set at an ordinal level. Therefore, for subsets 1 and 2, I estimated the system of equations using a matrix of polyserial and polychoric correlations (OLSSON, 1979). The number of observations in subset 3 was too small for reliable estimates of polychoric correlations, so I estimated the system of equations using a matrix of Pearson correlation coefficients. Some care is in

order if model estimates from this correlation matrix are compared to estimates from polychoric correlations. However, additional calculations showed that the conclusions from the analysis did not change if model estimates from subset 3 were compared to model estimates from subsets 1 and 2 based on Pearson correlation coefficients. Another reason for interpreting the results with some care is that the sample sizes are quite small. Unweighted Least-Squares estimates from the three subsets are presented in *table 3*<sup>13</sup>.

*Table 3*

LISREL estimates from a 1985 Sample of Executive Board Members of medium-sized Dutch Firms\*

	$\gamma_{11}$	$\gamma_{21}$	$\gamma_{31}$	$\beta_{11}$	$R^2$	$Cm^2$
CEO	0.658 (2.56)	-0.120 (-0.50)	0.987 (-3.21)	0.514 (-2.18)	0.27	1.59
Board	0.551 (0.77)	0.369 (-2.64)	-0.966 (0.85)	0.173 (0.35)	0.03	16.55
Parent	0.642 (2.52)	-0.059 (-0.32)	-0.887 (-2.82)	0.318 (1.73)	0.10	0.07

\*Estimates were obtained from executives whose principal was the CEO (n=22), the board of directors (n=56), or a parent company (n=38). T-values are given in parentheses.

*Table 3* shows that when the principal is the parent, 'monitoring' has a significant positive effect on HOURS ( $t = 1.73$ ,  $p < 0.05$ , one-tailed test). In contrast, when the principal is the CEO, 'monitoring' has a significant negative effect on HOURS ( $p < 0.05$ ). An intermediate effect is measured when the principal is the board of directors. These results corroborate hypothesis 1.

Furthermore, all coefficients of measurement models estimated on the 3 subsets have the expected sign, positive in case of REGULARITY, and negative in case of SPECIFICITY and FORMALITY. Most of these coefficients are

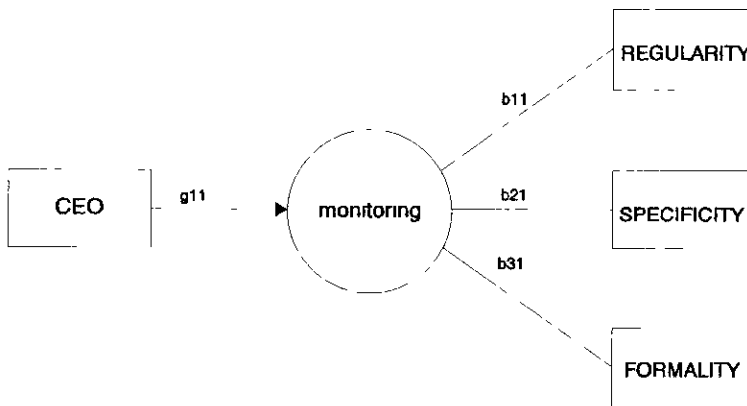
13 Chi-squares and t values were calculated under the assumption of multivariate normality. The error terms in this measurement model and in other measurement models were assumed to be uncorrelated, that is, off-diagonal elements of the matrix of disturbances of measurement models were assumed to be zero.

significant. These results largely corroborate that the three observables operationalise the construct 'monitoring'. The  $\chi^2$ s for the models estimated on the subsets of executives whose principal is the parent company or the CEO are very low (0.07 and 1.59, respectively), indicating a good model fit. The  $\chi^2$  for the model estimated on the executives whose principal is the board is higher (16.55), indicating that in this case the model (underlying theory + model assumptions) fitted the data less well. Finally, as in other compensation studies, it cannot *a priori* be excluded that the omission of 'firm size' from the model caused omitted-variable problems. However, additional calculations showed that adding firm sales and employees to the model as explanatory variables did not lead to different conclusions.

### 3 Differences in Monitoring

Hypothesis 2 states that more use is made of monitoring when the principal is the parent than when the principal is the CEO, with an intermediate result when the principal is the board of directors. This hypothesis was tested with the model in figure 2. CEO is a dummy, valued 1 if the principal is the CEO, and 0 otherwise.

Figure 2  
Differences in Monitoring



The model in *figure 2* was estimated on two subsets: 1) executives whose principal is the CEO or the board of directors ( $n=78$ ), and 2) executives whose principal is the CEO or the parent company ( $n=60$ ). The estimates are presented in *table 4*<sup>14</sup>

*Table 4*

LISREL-estimates from a 1985 Sample of 116 Executive Board Members of medium-sized Dutch Firms\*

	g <sub>11</sub>	b <sub>11</sub>	b <sub>21</sub>	b <sub>31</sub>	R <sup>2</sup>	Chi <sup>2</sup>
Subset 1	-0.374 (-1.83)	1.000 -	-0.063 (-0.24)	-0.905 (-1.61)	0.21	26.61
Subset 2	-0.523 (-3.47)	1.000 -	-0.187 (-0.98)	-1.139 (-5.28)	0.47	1.97

\*Estimates were obtained from subset 1: executives whose principal was the CEO or board of directors ( $n=78$ ), and subset 2: executives whose principal was the CEO or parent company ( $n=60$ ). T-values are given in parentheses.

*Table 4* shows that CEOs engage less in 'monitoring' than do other principals. For both subsets, the effect of the CEO dummy on 'monitoring' is negative and significant ( $p < 0.10$  and  $p < 0.01$ ). The smaller and less significant effect associated with subset 1 is consistent with the idea that boards of directors 'monitor' less than do parent companies. The combined results are consistent with H<sub>2</sub>. The chi<sup>2</sup>s of the models estimated on subsets 1 and 2 are 26.61 and 1.97, respectively. This indicates that the model fits the data well, unless monitoring by the board is included in the analysis (as in subset 1). Finally, an expanded version of the model that also contained size variables did not lead to different conclusions.

14 In the measurement model  $b_{11} = 1$  since in this model the latent variable cannot be scaled by fixing the variance of 'monitoring' on 1.

4 Bonus-effort Relationships

Hypothesis 3 states that bonuses have a relatively strong, positive effect on work effort when the principal is the parent. A weaker, possibly negative relationship between bonuses and work effort is expected when the principal is the CEO. An intermediate result is expected when the principal is the board of directors. In theory, both the amount of work effort of executives and their bonuses may be influenced by third variables, such as their productivity, experience and skills. To mitigate potential omitted-variable problems, the effect of BONUS on HOURS was estimated with differences in the manager's age, years of firm tenure, and tenure in the present position statistically controlled for. The model is given in figure 3. The estimation results are presented in table 5.

Figure 3  
The Impact of Bonuses on Hours of Work

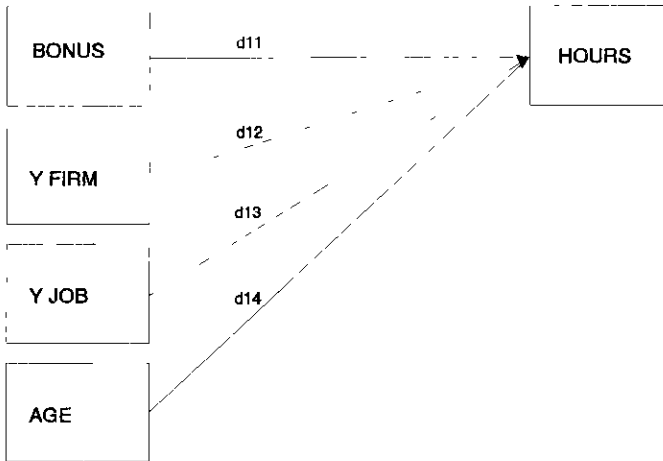


Table 5

LISREL-estimates from a 1985 Sample of 116 Executive Board Members of medium-sized Dutch Firms\*

Independent Variable	Bonus	Age	Firm Tenure	Tenure in Present Pos.	R <sup>2</sup>
<b>Principal</b>					
CEO	-0.457 (-1.65)	-0.412 (-1.25)	0.460 (1.02)	-0.380 (-0.81)	0.37
Board	-0.001 (-0.01)	-0.104 (-0.66)	0.069 (0.34)	-0.273 (-1.18)	0.05
Parent	0.440 (2.28)	0.105 (0.40)	-0.108 (-0.52)	0.225 (0.99)	0.21

\* The number of hours worked per week was regressed on the executive bonus, age, firm tenure and tenure in the present position. Estimates were obtained from subsets of executives whose principal is the CEO (n=72), the board of directors (n=56) or a parent company (n=38). T-values are given in parentheses.

Table 5 shows that when the principal is the parent, the effect of BONUS on HOURS is positive and significant ( $p < 0.05$ ). A significant negative effect ( $p < 0.10$ ) is found when the principal is the CEO. An intermediate effect is found when the principal is the board of directors. The combined results corroborate H<sub>3</sub>. Finally, I also tested models with the variable SLOPE instead of BONUS, and with size variables. These estimates did not lead to different conclusions.

#### V. PUZZLES

Methodologists (KUHN, 1964; LAKATOS, 1970) and economists (FRIEDMAN, 1953) have argued that the main reason for changing assumptions at the core of a paradigm is that it leads to better predictions, and to rationalisations of 'stylised facts' that are puzzling for the old paradigm. The previous section presented evidence on three predictions from the eclectic perspective. This section shows that this perspective also can rationalise various 'stylised facts' that are puzzling for principal-agent theory.



*1 Weak Pay-performance Sensitivities for Top Managers*

Top managers often receive large bonuses, sometimes in the order of magnitude of their salaries. However, JENSEN and MURPHY (1990) found that the *sensitivity* of these bonuses and other pay elements of Fortune top-500 CEOs to performance is so weak that it is inconsistent with principal-agent theory (see also, WEISBACH (1988), GILSON (1889), and KAPLAN (1994a, b)). JENSEN and MURPHY rationalise this puzzle with the story that political forces operating in both the organization and the public sector prevent efficient contracts implying strong pay-performance sensitivities. However, this explanation is unsatisfactory because then it is hard to understand why competitive forces on the product, labour and control markets are not sufficient to induce economically efficient compensation policies (BAKER et al., 1988).

JENSEN and MURPHY's evidence is not puzzling from the perspective of eclectic theory. This perspective implies that top managers are, at least to some extent, motivated by social exchange contracts with the board of directors. Monitoring of individual performance and contingent pay may not be optimal in this setting. The evidence in this paper is consistent with this view. Alternatively, top managers could be motivated by bonuses and other pay (through shares, stock options) conditional on market or accounting measures of firm performance. However, especially in large firms, these are noisy signals of individual work effort, and pay systems that rely exclusively on them will likely imply much risk and little work effort for managers. Thus, it is not surprising that 'surviving' corporations have internal control systems that imply weak pay-performance sensitivities for top managers.

Top managers may also be motivated by other forces, such as managerial labour markets (FAMA, 1980), product markets (HART, 1983), and the market for corporate control (JENSEN and RUBACK, 1983). However, these are crude mechanisms for disciplining individual managers, and do not explain why top managers are not subjected to strong pay-performance sensitivities as well. Alternatively, weak pay-performance sensitivities can be rationalised from the eclectic perspective in this paper.<sup>15</sup>

<sup>15</sup> For other rationalisations of weak pay-performance sensitivities, see HOI MSTROM and MILGROM (1990), BAKER (1992), JOHN and JOHN (1993), and PERRI (1994).

## 2 *Weak Pay-performance Sensitivities for Lower Managers and Workers*

The weak pay-performance sensitivities measured in JENSEN and MURPHY (1990) imply that CEOs are not principals in the sense usually modelled in agency theory, since they share only modestly in the gains from their supervising, while they bear all the costs. Agency theory predicts that this leads, top down, to layers of agency problems, where each successive layer has fewer incentives to supervise the next<sup>16</sup>. It is a puzzle why market forces allow the survival of such inefficient structures (BAKER et al., 1988).

However, suppose that most managers and lower level workers are motivated by social exchange contracts with their superiors, and that monitoring and associated pecuniary pay is suboptimal. My evidence shows that monitoring and bonuses lead to less work effort when the principal of executives is the CEO (a fellow-executive). Similar results may apply in other settings where principals and agents interact closely – perhaps the typical setting in hierarchies. In that case, it is not surprising that most managers and other workers in hierarchies have pay packages that imply weak pay-performance sensitivities, unless the principal works at headquarters and the manager at a subsidiary, and social exchange contracts are expected to be less developed.

## 3 *Internal Labour Markets*

According to BAKER et al. (1988), it is a puzzle that firms use internal labour markets to create work incentives for managers, since pecuniary incentives can be ‘mimicked’ using pay packages, and labour markets as incentive mechanisms have the additional disadvantage that they lead to sub-optimal career paths, since the best middle manager is not necessarily the best top manager.

Alternatively, from an eclectic perspective, it may be *feasible* to mimic pecuniary incentives of labour markets with pay packages, but it is not necessarily *optimal*, if it requires monitoring and breach of valuable social exchange contracts. Moreover, internal promotions imply increases in power, status, and so on, which are difficult to mimic with compensation alone. Thus, it could still be valuable to create additional work incentives using internal labour markets.

<sup>16</sup> BAKER et al. (1988) also observe that in practice the pay of most workers consists largely of salary, holiday payments and other fixed benefits.

*4 Biased Evaluations of Work Effort*

Another puzzle for agency theory is that principals typically overestimate the performance of workers, giving them good ratings rather than bad ratings (BAKER et al 1988). BAKER et al rationalise this puzzle with the 'stylised fact' that managers typically overestimate their own performance. Therefore, BAKER et al expect them to overrate the performance of lower level workers as well.

An alternative story is that workers interpret bad ratings by their superiors as a breach of contract (a breach of loyalty, a denial of recognition), to which they respond by breaking their part of the contract – by lowering their effort level. Especially when pecuniary incentives based on ratings are small, it seems economically efficient for principals to support the exchange relation with 'gifts' in the form of good ratings and bonuses, rather than break the contract, even if the worker is mediocre and a less favourable rating would be closer to the truth – that is, unless the worker provides no effort at all, but this situation happens rarely in practice.

Consistent with this story, University of Rochester professors, when given the freedom to reward their secretaries with a small bonus, virtually all awarded the maximum bonus, only deviating somewhat from this practice when the variable portion of the secretaries' income raised over time. The outcome of this experiment would be hard to understand from the perspective of traditional agency theory, but seems economically efficient from the eclectic perspective in this paper.

VI CONCLUSIONS

A key assumption of this paper was that principals are not 'autistic,' but are able to develop and maintain valuable social exchange relations with workers, implying that principals give trust, loyalty and recognition to workers, and workers give effort in return. Principals were assumed to design efficient control systems with these social exchange contracts in mind, including the possible damaging effects of monitoring on social exchange contracts.

The eclectic approach was used to rationalise various 'stylised facts' that are puzzling for agency theory (BAKER et al , 1988, JENSEN and MURPHY, 1990) that top managers face weak pay-performance sensitivities, that sensitivities for most lower level workers are even weaker, that principals give biased appraisals of work effort, and that internal labour markets are used to discipline workers. The eclectic perspective was also used to sharpen predictions from WILLIAMSON (1975), on differences in monitoring and pecuniary incentives to which

executive board members are subjected. Consistent with predictions, it was found that when social exchange contracts are expected to be important, such as when the principal is the board or the CFO, monitoring is *not* the important control instrument suggested by principal-agent theory<sup>17</sup>. When the principal is the CEO, such monitoring is even detrimental. In contrast, when social exchange contracts are less likely to develop, such as when headquarters is supervising SBU-managers, monitoring seems more valuable.

The econometric evidence should be interpreted with some care. The evidence consistent with hypothesis 2 could also be explained from a different perspective. Agency theory provides little guidance in operationalising variables such as monitoring and individual work effort. The combined evidence (stylised facts + econometric evidence) nevertheless suggests that the eclectic perspective is an interesting research avenue, worth further exploration by researchers in economics and management. The following suggestions are made for further research.

First, this paper explores one way economists can learn from non-economic disciplines. Another interesting research route concerns the worker's identification with the firm (SIMON, 1947, 1990, 1991). KIDWELL and BENNETT (1993) review still other approaches. Second, it was found that monitoring and contingent pay are non-optimal when principals and agents interact closely, such as when CEOs supervise fellow-executives. Similar results may apply in other settings where principals and agents interact closely, perhaps the typical setting in hierarchies. Alternatively, monitoring and pecuniary incentives seem more important when headquarters is supervising SBU-managers, and perhaps in similar settings in conglomerates, multidivisional firms, and in case of absentee ownership. Future studies may provide more insight here.

Third, future studies may adopt a more dynamic view. Picture a firm or division in a mature industry with few growth opportunities. It could then be optimal to replace the incentives that top managers of these firms or divisions derive from their social exchange contracts with principals, with 'super-powered' pecuniary incentives through LBOs (see also, KAFLAN 1989, 1991, JENSEN, 1989). This may give top managers sufficient incentives to cut loose social exchange contracts with lower level managers and workers, and lay-off substantial portions of the work force. After the restructuring, firms may return to normal and go public again, with top managers returning to (re)building

17 Moreover, HOLMSTROM and MILGROM (1990, 1991) and BAKER (1992) suggest that 'monitoring' may have a detrimental effect on the *type* of work effort, since it tells managers to chase the measurable objectives in their compensation contracts, rather than the objectives that increase firm value most.

social exchange contracts with the remaining work force. This implies a dynamic theory of the firm, where during certain phases of the life cycle, when major restructurings are required, it is optimal to give top managers 'super-powered' pecuniary incentives through major shareholdings, as a departure from what is optimal in normal settings.

Finally, empirical findings on internal control structures may be idiosyncratic to a particular cultural setting (HOFSTEDE, 1980, 1983, PENNING, 1993). At present, the overwhelming majority of empirical compensation studies is based on Anglo-Saxon data. It is unclear whether these results would apply in other settings as well. Some care is also in order if the results of the present study would be generalized to other cultures, although the eclectic perspective can rationalise various 'stylised facts' identified in Anglo-Saxon studies (BAKER et al., 1988, and JENSEN and MURPHY, 1990).

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## DO TOP MANAGERS WORK HARDER WHEN THEY ARE MONITORED?

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### SUMMARY

This paper explores whether eclectic theory (principal-agent theory incorporating key insights of social exchange theory) leads to better predictions about internal control systems in corporations than does principal-agent theory. Eclectic theory is shown to be able to explain various 'puzzles' for principal-agent theory. Moreover, several predictions are tested on 1985 data on 116 executive board members of medium-sized Dutch firms. Consistent with predictions, the paper finds that when the principal is the board of directors or the CEO, monitoring is not the important control instrument suggested by principal-agent theory. When the principal is the CEO, such monitoring is in fact even detrimental.

### ZUSAMMENFASSUNG

Dieser Artikel untersucht, ob die eklektische Theorie (Principal-Agent-Theorie verbunden mit wesentlichen Erkenntnissen der Theorie des sozialen Tausches) zu besseren Prognosen über interne Kontrollsysteme in Unternehmungen führt, als es die Principal-Agent-Theorie tut. Es wird dargelegt, dass die eklektische Theorie verschiedene 'Rätsel' der Principal-Agent-Theorie zu erklären vermag. Darüber hinaus werden einige Prognosen mit Daten aus dem Jahr 1985 von 116 Verwaltungsratsmitgliedern mittelgrosser holländischer Firmen getestet. In Übereinstimmung mit den Prognosen sagt diese Abhandlung das Folgende aus: Wenn der Verwaltungsrat oder der Generaldirektor der Principal ist, dann ist eine Überwachung nicht das wichtige Kontrollinstrument, das von der Principal-Agent-Theorie her vorgeschlagen wird. Im Gegenteil, wenn der Generaldirektor der Principal ist, dann ist eine solche Überwachung sogar nachteilig.

## HARRY G. BARKFMA

### RESUME

Cette étude se demande si la théorie éclectique (théorie de l'agent principal intégrant des éléments de la théorie de l'échange social) ne conduit pas à de meilleures prédictions sur les systèmes de contrôle interne au sein des sociétés que la théorie de l'agent principal. La théorie éclectique est considérée comme capable d'expliquer les différents 'puzzles' pour la théorie de l'agent principal. De plus, plusieurs estimations ont été réalisées à partir de données de 1985 concernant 116 membres de comité de direction de sociétés hollandaises de taille moyenne. Convergente avec ces estimations, l'étude constate que, quand le responsable fait partie du comité de direction ou du conseil d'administration, le monitoring n'est pas l'instrument de contrôle important suggéré par la théorie de l'agent principal. Quand le responsable fait partie du conseil d'administration, un tel monitoring peut même se révéler préjudiciable.