

On the Virtues of Transparency and Simplicity

An Empirical Analysis of the Value Relevance of Targets

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SPECIAL ISSUE

1 Introduction and Motivation

Managerial actions and even the opportunities set remain largely unobserved to investors of public corporations due to the separation of ownership and control. Therefore, investors have an incentive to align the level and type of management effort with their own interest, i.e. they benefit from incentives for management that lead the executives to pursue shareholder value creation at the cost of inefficient risk sharing. This explains the importance of incentive contracts for management.¹ However, it might also be a beneficial strategy for the agent (management) in order to decrease agency costs to bond himself, i.e. to expend resources to guarantee and to signal that he will take actions that will benefit the principal (Jensen and Meckling, 1976). For example, this can be done by communicating self-imposed targets to which management 'voluntarily' commits itself. The same targets can then also be applied in the incentive contracts that management uses to limit aberrant activities of their subordinates.

Incentive contracts consist of three basic components: performance measures, targets (performance standards), and the relationship between pay and performance.² This paper empirically examines the value-relevance of targets that are communicated by top management. We describe which targets firms disclose in their annual reports and examine the relationship with value creation.

We classify a firm's target-setting practice along three dimensions:

- 1 The *number* of measures for which a target is defined.
- 2 The *type* of measures for which targets are defined. We consider financial versus non-financial measures. Financial measures are split into a group of (simple) accounting measures and a group of (more complex) value-oriented meas-

ures. Three categories of non-financial measures are distinguished: operational, growth-oriented, and stakeholder-oriented measures.

- 3 The *specificity* of the target, i.e. the extent to which the target is quantified.

A firm's target-setting practice can be characterized in terms of these three criteria. The evaluation of target-setting practices along these specific criteria is shown to be relevant to current discussions in the literature on performance measurement and agency theory.

Our evidence on the value relevance of target-setting is obtained by analyzing the relationship between targets mentioned in annual company reports and value creation. We examined in detail the 1993 and 1997 annual reports of the 70 largest Dutch quoted companies to assess which measures and targets are disclosed by each individual company. Regular accounting data, industry data and stock market data are used as control variables.

We study the value relevance of measures and targets that are *voluntarily* disclosed in the annual company reports. The external disclosure of company information is a very important management decision. Relative to survey data, our data source is therefore quite reliable and our results cannot contain any non-response biases. We actually examine the value effects of measures and targets that are used *and communicated*; i.e. we analyze target-setting practices that managers use *and* perceive to be value relevant. We argue, however, that there will be few measures and targets that

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are used but not communicated. It has often been shown that firms benefit from increased disclosure (cf. Botosan, 1997). Increased disclosure increases transparency, and thereby lowers the cost of capital leading to increased firm value. Due to these benefits of disclosure, firms will probably also have incentives to disclose measures and targets they use for contracting.

It should be noticed that we study company-wide targets, not those of individual managers. We treat company-wide and management targets as equivalent throughout the study.

We obtain our research results about the value-relevance of target-setting by means of simple regressions. However this does not imply necessarily a causal relationship between targets and value creation.

Our study is one of the first contributions to an ignored dimension in the research in incentive contracting: the target or performance standards (cf. Murphy, 1999b). In addition, it is a first attempt to fill a gap in the finance and accounting literature on disclosure. Although the finance and accounting literature has extensively analyzed the value relevance of disclosing all kinds of company information, the disclosure of performance measures and targets has not been studied in that literature before.

Our most important finding is that there is an optimal number of exactly one quantified target. There is a consistent and significant positive relationship between value creation and communicating one target, controlled for the (significant) effects of changes in return and profitable growth. Both a higher and a lower number of quantified targets are suboptimal. Apparently, maximizing accountability in this manner is value relevant. Simplicity and transparency are called for. Targets that are not quantitatively specified are found to be value irrelevant. With respect to the value-relevance of the type of targets used, we found weak evidence in favor of targets correlated with organizational objectives rather than with individual managerial effort.

The paper proceeds as follows. Section 2 develops the research questions of the study that are derived from the recent literature on incentive contracts and performance measures. Section 3 deals with the concept of shareholder value creation, and develops the simple regression model. Section 4 describes the sample and the methods for data collection. Section 5 discusses the descriptive statistics, i.e. the practice of setting and communicating targets. Section 6 discusses the estimation results, i.e. the value relevance of setting and communicating targets. Section 7 concludes.

2 Research Questions

A large body of literature on performance measures and pay-performance sensitivities has emerged, both theoretical and empirical, and both in management accounting and personnel economics (See the overviews by Prendergast, 1999, Murphy, 1999, and Ittner and Larcker, 1999; from the personnel economics and accounting perspectives, respectively).

The discussion about the *number* of measures and targets that should be employed has not yet been conclusive. Based on the *Informativeness Principle* (Holmstrom, 1979), one stream of research argues that in order to minimize the agency problem between employer and employee, a reward system should incorporate any performance measure that cost-efficiently provides incremental information about effort. Hence, it should exclude all measures that do not provide this incremental information. This view can also be applied to the agency relation between shareholders and management. We can infer that management should communicate many measures and targets to provide as much information as possible. In that way executives bond themselves vis-à-vis their shareholders and simultaneously reinforce implicit or explicit incentive contracts with their subordinates.

An alternative view stresses the disadvantages of incorporating a large number of explicit measures in incentive contracts. Some tasks of 'multi-task' agents are more difficult to define and/or to accurately measure an agent's task-related effort for than other tasks of the same agents. Explicit measures on this first set of tasks would dilute the benefits that can be generated from the other set of tasks (Holmstrom and Milgrom, 1991). According to Heneman et al (1999, forthcoming), a larger number of performance measures may also reduce the incentive effect by spreading efforts over too many objectives. Too many targets might distract the agent from the most important tasks (an agent might have difficulty in weighing tasks adequately). Multiple targets are more complex to understand, which lowers their incentive effect as well. Administrative costs pertaining to too many targets can be prohibitive. Moreover, multiple targets can be even inconsistent with each other, which reduces the agent's motivation.

We would like to add one other consequence of multiple targets. Multiple targets might induce agents to 'hide' in case not all targets are met. Targets that have been met will be focused on and

stressed and maybe used as an excuse for not meeting the other targets. Writing multiple-target contracts, monitoring and enforcing them will become increasingly complex and costly. As a consequence, the possibility for individual accountability will be reduced. The more targets, the more difficult and costly it becomes to measure performance and therefore the less obvious will be failure or success after realization. Steering a company efficiently implies that agents should effectively be as accountable as possible for their individual actions. We call this alternative view the *Accountability Principle*.

This discussion leads to research question A:

A. What is the association, if any, between value creation and the number of measures and targets set? Is there an optimal number of targets? What is the relative importance of the *Informativeness Principle* and the *Accountability Principles*³?

Different strands of thought are also reflected in the discussion of what *type* of measures should be used for target-setting. First of all, there is a discussion of whether financial measures should be value-oriented and rather complex (e.g. TSR, CFROI, EVA, CVA and so on), or whether they can be less complex, more conventional, accounting-oriented (ROI, RONA, ROS, margin and so on). An overview of the literature can be found in Biddle (1997). Value-oriented targets would apply to non-diversified companies and top management accounting-oriented measures would be more suitable for conglomerates and middle management. Additional arguments in the discussion are that accounting-oriented measures can be more easily gamed, whereas value-oriented measures are more complex and difficult to understand and implement.

The second discussion of what type of performance measures and targets should be used distinguishes financial and non-financial performance measures. The question in this type of discussion is whether financial measures should be accompanied by additional non-financial performance measures (Ittner and Larcker, 1999, Ittner et al., 1997, Amir and Lev, 1996). Calls for non-financial performance measures can also be heard in

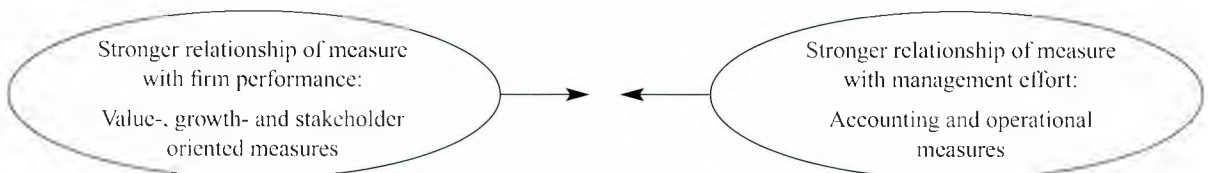
practice. The increasingly popular ‘balanced scorecard’ (Kaplan and Norton, 1992) advocates the implementation of non-financial measures due to the incompleteness of financial measures as indicators of a firm’s success in achieving strategic goals (such as brand awareness, selective growth, and building strategic assets such as knowledge). Another argument for the usage of non-financial measures is that individual employee effort is often more aligned with operational measures than with financial measures.

Economic theory guiding this discussion can be found in Baker (1992) and Cools and Van Praag (2000). Baker argues that performance measures will be chosen such that they efficiently maximize the relationship between the measure and company objective and simultaneously maximize the relationship between the measure and the individual effort of the worker. Cools and van Praag (2000) indicate that in choosing performance measures a trade-off will exist between both relationships, entailing for example that lower-level workers will have performance measures and targets that will be more related to individual effort than those of top management. In the class of non-financial measures, growth and stakeholder-oriented targets would heavier weigh the company goal, whereas operations oriented targets heavier weigh the relationship with individual effort.

This leads to research question B (see Figure 1):

B. What is the relationship, if any, between the type of targets and value creation? Are both non-financial and financial measures value-relevant? And if the category is relevant, what type of each should be used in the optimal contract? Are value-oriented measures more value-relevant than accounting oriented measures? And for the non-financial measures, to what extent do growth, operational and stakeholder oriented targets contribute to the explanation of inter-firm variances in value creation? And, building on Baker (1992) and Van Praag and Cools (2000): is the alignment of a target with firm objectives more important than its alignment with individual managerial effort or the other way around?

Figure 1: Weighing the requirements of performance measures



Finally, we consider the extent to which a target should be specified or left vague. Based on our *Accountability Principle* we argue that more specific targets should always be preferred. Specificity increases the accountability of the agent which results in more transparency, lower monitoring costs and a better enforceable contract. The third research question follows:

- C. Can we empirically establish a relationship between the specificity of targets and value creation? Can we maintain the hypothesis that more specific measures show higher correlation with value creation?

3 Value Creation and Targets Disclosure

We investigate the relationship between the disclosure of targets and value creation. This section addresses the following: a) the disclosure of company targets in annual reports; b) why value creation is assumed to be the company goal; c) a definition of value creation and d) the way our empirical model controls for the most common drivers of value creation.

3.1 Disclosure of Company Targets in Annual Reports

Disclosure of information through annual reports is an important management decision. This is especially true when company targets are involved since they bond and commit management to realize a certain future performance. There are two other ways in which management can disclose targets: press conferences or press releases and meetings with analysts. We have analyzed press articles in *Het Financieele Dagblad* (the Dutch equivalent of the Wall Street Journal) for the year 1997 and found no evidence that newly set targets which are not disclosed in the annual report are reported there. In discussions with analysts and CFOs we have neither found evidence that there are corporate targets which are exclusively disclosed to analysts.

As an alternative to examining the value relevance of targets mentioned in annual reports, the announcement effects of targets could be analyzed. However, we have found only very few instances where newly set targets are announced through newspapers. And in those few cases that it happened there were always multiple news items: the disclosure of a (new) target was never the main reason for sending out a press release. Disclosing a target was mostly part of the disclos-

ure of last year's results and of the future strategy. Therefore, the annual report seems to be the best data source for examining the value relevance of disclosing corporate targets.

3.2 Motivating the Shareholder Value Creation Criterion

Creating (shareholder) value is a central task and challenge for senior management. This seems to be widely accepted both in the business community and in the literature. Whether the shareholder ranks highest among the various stakeholders is not relevant. It does not affect the central role of shareholder value creation as performance measure, since shareholders are the residual claimants of the company. If managers do not balance and efficiently manage the various stakeholders' interests, shareholders will suffer the burden and pay the price.⁴

3.3 Shareholder Value Creation Measurement: RTSR

Total Shareholder Return (TSR) is the most commonly used measure of value creation. TSR measures dividends and capital gains relative to the initial purchase price and is defined as follows

$$TSR = \left(\frac{P_1 - P_0 + DIV}{P_0} \right) \times 100\%$$

Where

TSR = Total Shareholder Return

P_0 = Share price at $t=0$ (Beginning of period)

P_1 = Share price at $t=1$ (End of period)

DIV = Dividend paid between $t=0$ and $t=1$

TSR accurately measures all shareholder benefits in a specified period.

In order to measure management performance, as opposed to economic performance, we eliminate the most important influences that lie beyond the control of an individual company. This is achieved by comparing a company's TSR to the total market (index) return. We use *Relative Total Shareholder Return (RTSR)* to measure value creation and we include it as the dependent variable of the estimation models:

$$RTSR = \left(\frac{1 + TSR_i}{1 + TSR_m} - 1 \right) \times 100\%$$

Where

TSR_i = Company's TSR

TSR_m = Market TSR

3.4 Main Drivers of Value Creation

We derive the 'common' drivers of value creation from the well accepted *Discounted Cash Flow* (DCF) model:

$$Value = \sum_{i=1}^n \left(\frac{FCF_i}{1+WACC_i} \right)$$

Where

FCF = free cash flows,

WACC = weighted average costs of capital,

and *i* refers to years

Hence, management has two generic instruments at her disposal to create value, to increase free cash flow and to decrease the cost of capital.

To increase free cash flows, Copeland (1996, p141) identifies the *return* on the capital base and the *growth* rate (of for instance revenues, profits, capital base) as the two key drivers of free cash flow.

For non-financial firms we use *Cash Flow Return on Investment* (CFROI) to measure return on capital invested. Relative to alternative return measures (e.g. RONA, ROI, ROE) CFROI corrects for distortions caused by differences in asset age and book depreciation. It therefore uses gross investments and economic depreciation instead of net assets and linear depreciation⁵. For banks and insurance companies we use *Bad debt Adjusted Rate of Return on Equity* (BARROE), a risk adjusted return on equity, as a return measure⁶. Consistent with the DCF model, we assume a linear relationship between TSR and percentage *changes* in the level of CFROI or BARROE. Changes in return are much more powerful determinants of value creation than the mere levels of return.

Growth is measured as the annual percentage change in gross investment. Relative to other growth measures, such as growth of earnings, sales, or book value of the assets, this measure reflects the exact additional capital investments that shareholders have to make to create more value in the future. Similarly, for banks and insurance companies growth is measured by the growth of the equity invested in the company.

The expected effect of increased returns on TSR is at any time positive. However, the expected impact of growth on TSR is ambiguous. Positive stock returns are expected as long as the return on the invested capital is higher than the cost of capital employed for discounting the projected free

cash flows. Value destruction is expected whenever a firm is investing (i.e. growing) at return levels below the WACC. For negative growth, contraction, the reverse holds true. Figure 2 illustrates this:

The extent to which growth creates value is determined by the 'excess return', the difference between CFROI/BARROE and WACC. The higher the expected excess return of an investment, the more attractive growth of that business is, and the more the share price will increase.

Figure 2: Profitable growth* should create value

RETURN (CFROI)	>WACC	-	+
	<WACC	+	-
		CONTRACTION	GROWTH

In our empirical model in which we estimate the relationship between value creation and disclosing targets, we control for and quantify the effect of these generic drivers of value creation in the following manner:

3.5 Equation 1

$$RTSR = f(\beta, \text{performance measures and targets}) + \chi_1 * \Delta CFROI + \chi_2 * HCC * (CFROI - WACC) * Growth + \chi_3 * (1 - HCC) * (CFROI - WACC) * Growth$$

The definitions of RTSR, $\Delta CFROI$, WACC, and growth have already been specified; β and χ are parameter vectors to be estimated, and HCC is a dummy variable which takes on the value one if $CFROI > WACC$, and is zero otherwise. The expected signs of χ_1 to χ_3 are all positive. In the empirical analysis, these control variables will appear to sufficiently capture the variation in value creation among firm size classes, industries, as well as between companies with one activity ('mono-firms') and diversified companies ('multi-firms').

Besides increasing free cash flows, management will also attempt to lower the cost of capital in order to create value. Creating value by lowering the cost of capital can be achieved by creating transparency through detailed disclosure of reliable

information and properly managed investor relations. This will reduce the risk premium requested by investors and thus increase stock prices.

Estimates of company-specific costs of equity – and thus WACC – are very imprecise (see for example Fama and French, 1997). We expect that real annual changes in company specific WACC's are much smaller than the average measurement error (average standard errors of more than 3% per year for *industry* costs of equity). Therefore, we do not attempt to explicitly control for the effect of annual company-specific changes in the WACC.

4 Sample Selection and Variables

4.1 Sample Selection and Data Sources

Since our model requires information on firm value creation, the relevant population consists of publicly listed companies. The sample of the 70 largest Dutch listed firms (see Appendix A for a complete list of sample companies in each year) represents 37% of the total number of firms, and 80% of total market capitalization. It is representative of the population distribution of Dutch quoted firms over industries.

We have included companies from one country only since an international sample would introduce various additional sources of heterogeneity and measurement error. Our major source of information is annual reports. The types of measurement error we thus exclude are associated with widely varying accounting principles, standards, and legislation. Moreover, corporate governance structures are country specific. These differences are very likely to affect (uncontrollably for us) whether and in what manner performance measures and targets are included in the annual report.

The drawback of our relatively homogeneous Dutch sample is a rather small sample size of 70 companies. The heterogeneity that still remains is largely caused by differences in firm characteristics, such as size, industry, and degree of diversification. These firm characteristics are included as control variables in the estimation model.⁷ In order to find answers to the research questions

of this study, the 1993 and 1997 annual reports of the 70 firms were analyzed. We analyzed two years for each company to be able to examine the association between *changes* in target-setting behavior and value creation. Moreover, analyzing two periods creates an opportunity to capture trends in target-setting behavior. It enables us also to determine whether our results are time-consistent. The analysis of the 1997 reports is motivated by the fact that this was the most recent year available by the time we started gathering the annual report data (January, 1999). The choice of 1993 resulted from trading off the advantages of a longer time horizon (more real and implemented changes) against the advantages of a shorter time horizon (smaller effect of selection bias due to for example mergers and acquisitions).⁸ Annual reports are the source for all data on performance measures and targets that we use.

From Datastream we used data on stock prices, dividends and stock market indices. The source of all financial accounting data and industry codes is Reach⁹, which is the best known and most complete source of Dutch accounting data available. Table 2 gives an overview of the datasources used.

4.2 Variables

The dependent variable RTSR has been defined and discussed in section 3. The independent variables that we study, the company targets mentioned in the annual reports, are listed in Table 3. This framework has been utilized to count all targets mentioned. One characteristic of the targets disclosed in annual reports is the degree of specificity. We distinguish qualitative targets from quantified targets.¹⁰ A qualitative target, for instance 'We aim to grow by acquisition' reveals the type of objective of the firm. However, it gives no clue of what should exactly be achieved and when. It is often stated like 'we should like to invest in the safety of our employees' or 'steering on a higher product quality is important'. The accountability pertaining to a qualitative target is minimal, unlike the accountability pertaining to a quantified target such as 'We aim at a 12% growth of the net asset base within 3 years'. The average total number of targets mentioned by a company is 22. On average

Table 2: Information sources by type of variable

(R)TSR	Datastream
Control variables*	Reach
Performance measures and targets	Annual reports*

*Return, profitable growth, size, industry, and diversity of firm activities ('mono-firms' versus 'multi-firms')

Table 3: Type of targets encountered in the annual reports

Financial targets	<i>Category</i>	Non-financial targets	<i>Cat.</i>
Dividend percentage	1	Market position/growth	3
Net profit per share	1	Turnover	3
Return on working capital	1	Alliances	3
ROA	1	Splitting up/Independency	3
ROE	1		
ROS	1	Credit-rating	4
Solvability	1	IT	4
Profit/Operating income	1	Customer orientation/service	4
		Product quality	4
Shareholder value	2	Cost control	4
CFROI	2	Logistics/distribution	4
CVA	2	Develop employees	4
EVA	2	Improving productivity/efficiency	4
Price earnings ratio	2	Risk management	4
		Technological/knowledge improvement	4
Non-financial targets		Security/quality/reliability	4
Growth (general)	3	Working environment	4
Growth (autonomous)	3		
Growth (by acquisition)	3	Corporate Governance/transparency	5
Other growth	3	Social responsibility	5
Globalization	3	Environment	5

only two quantified targets can be found in each annual report.

To characterize these measures in a way that enables us to answer our research questions, we have formed five categories. The first category ‘accounting measures’ consists of measures based on traditional, financial performance measures, such as measures of return and profit numbers. The second category ‘value-oriented measures’ consists of financial measures that are related to value creation, such as Economic Value Added (*EVA*), Cash Value Added (*CVA*) and shareholder value. Most of these measures include indicators of return as well as of (profitable) growth.

The third category includes ‘operational’ non-financial targets such as logistics, security, product quality, cost control, and risk management. The fourth category of ‘growth-related’ measures consists of non-financial targets, based on growth-related measures. Globalization, mergers, alliances, and other types of selective growth targets are included in this category. The fifth category of targets is related to stakeholder management and social responsibility. The targets mentioned in the annual reports that are assigned to this category are ‘corporate governance and transparency’, ‘social responsibility’ and ‘environmental responsibility’.

In order to be fully able to answer the second research question, we made a judgmental decision about which category of targets (for management)

is more related to the organization’s objectives and which tend more towards measuring individual managerial effort (see Figure 1 above). Table 4 shows an overview of the five categories and their assignment to more aggregated classes of targets. Value oriented measures are financial and supposed to be direct proxies for stock returns. Therefore we characterize them as related to ‘overall organizational objectives’. Although it is possible to define growth in financial terms, our category ‘growth related measures’ only includes non-financial targets that were found in the annual reports. Growth refers to value creating growth. Such growth results from increases of asset productivity (resulting in a *decrease* of gross assets) on the one hand, and making additional, but cost efficient, investments (real growth) on the other. Since such encompassing, value creating growth can only be managed on the highest, overall corporate level it is categorized as a target that primarily measures organizational objectives. Operational targets on the other hand are always set for measures that can be specified on quite detailed levels, directly related to the output and effort of individual employees.

As control variables we include change in return, growth, firm size, industry segment and degree of diversification. As discussed in paragraph 3, we used *CFROI* as return measure and the percentage change of gross investment during the fiscal year as measure for growth. Firm size is measured by gross investment. The control variable *INDUSTRY*

Table 4: Categories of targets in relationship to research question B

Financial Targets	Non-Financial Targets	
Targets primarily measuring individual managerial effort		1. Accounting targets
Targets primarily measuring organizational objectives		2. Operational targets
		3. Value-oriented targets
		4. Growth-related targets
		5. Stakeholder-related targets

distinguishes five industry categories (with the number of sample firms (1997) per category in brackets):

- Manufacturing (31)
- High-tech (3)
- Trade (14)
- Financial Services (8)
- (Other) Services (19)

Finally, the control variable *MONO/MULTI* partitions the sample over two categories: single activity and multiple activity (diversified) firms. The 1997 sample includes 58 ‘mono-firms’, and 17 ‘multi-firms’. This distinction is relevant because we assume that the more activities a firm employs, the more targets it needs in order to efficiently steer the company, and transparently inform investors.

5 Descriptive Statistics: the Practice of Communicating Corporate Targets

5.1 Number and Specificity of Targets

The average number of performance measures mentioned without a quantification of any kind is remarkably high. Slightly more than ten percent of all targets mentioned (average of 22 targets per company) is quantified (2.1). The number of measures mentioned has increased by more than 36% between 1993 and 1997; the number of quantified targets has more than tripled. Quantified targets seem to gain importance.

No consistent variation between groups with respect to the total number of measures used was found: neither share performance, nor the degree of diversification, nor the number of quantified targets used (zero, one or more) seem to be a consistent discriminating factor.

However, some inter-group differences seem to be present when explicitly looking at the number of quantified targets used. First of all, there has been a very strong increase between 1993 and 1997 in the number of firms that use one or more quantified targets: 45% of firms in 1993 versus 67% in 1997. Interestingly, there is a trend among those firms that use more than one quantified target into the direction of using more of them: on average four in 1997, versus almost two in 1993.

Moreover, the percentage of firms using exactly one quantified target is larger in the group of high performers than in the group of lower performing firms: 30% versus 22% in 1997, and 30% versus 18% in 1993. Finally, ‘mono-firms’ seem to be somewhat more specific when mentioning measures: these firms specify more than the average number of quantitative targets.

To conclude, more and more firms tend to formulate quantified targets. An increasing number of firms tend to quantify exactly one target and the firms that quantify more than one target tend to quantify a higher number of them (above one). Hence, there is a clear tendency towards formulating quantified targets.

5.2 Type of Measures Used for Target-setting

Growth and operations oriented types of measures enjoy great popularity in all subgroups considered and in a time-consistent way: in 1997 they accounted for 39% and 35% respectively, averaged over firms. Fourteen percent of the measures used is accounting-oriented, 4% value-oriented and eight percent refers to stakeholders or society at large.

However, the popularity of both the growth and operational-oriented measures decreases significantly when solely considering quantified targets. The majority of the quantified targets are accounting oriented (62% on average). Twenty three percent is growth-oriented and only six percent is operational-oriented. Over time, accounting and return-oriented targets have gained popularity at the cost of growth-oriented targets: the usage of accounting related targets has increased from 42% in 1993 to 62% in 1997, while growth-oriented targets have lost share from 43% to 23%. Accounting- and return-oriented targets have a particular high share in the group of companies that use exactly one quantified target. This unique target is accounting-oriented in more than eighty percent of cases in 1997. The trend to use this type of single target has been strongly positive as this percentage was only 44% in 1993 (again at the cost of growth-oriented targets). Moreover, accounting-oriented targets are slightly more common in the group of high performing firms (63% versus 57%). This was especially the case in 1993 (54% versus 24%).

The penetration of value oriented targets is remarkably low as compared to both the extent in which this type of measures should be related with shareholders' interests and their popularity in the business press and amongst management consultants. However, their penetration used to be even lower: no single firm in the sample used value-oriented targets in 1993.

We will explicitly quantify the relationship between value creation and the disclosure of specific fashionable targets such as steering on shareholder value, social and environmental responsibility. The potential value creating effect of a firm's special interest for these items is suggested by the large number of more or less academic and popular studies. Another reason for the inclusion of these qualitative targets in the analysis is that the rate of penetration, also in 1997, of quantified targets related to shareholder and to society at large is so limited. Due to that, we are not in a position to statistically find support for a relationship of this type of quantified targets and value creation. Therefore, these qualitative items too are included in Table 5.

In 1997, 32% of the quoted firms mention shareholder value as a company goal and steering objective, a much higher percentage than the 11% in 1993. In both years the percentage is higher among better performing companies (36% and 15%) than among worse performing companies (25% and 9%). Thirteen percent of firms explicitly mentions their social responsibility as a company objective in 1997, and fourteen percent in 1993. No consistent patterns of deviation seem to be present within subgroups. Almost half the firms explicitly focus on environmental responsibilities. This percentage is even higher in 'multi-firms', 65%, and in firms that use exactly one quantified target (53%). These inter-group differences relate to 1997. However, they were also observed in 1993.

6 Empirical Results: the Value-relevance of Communicated Targets

Table 6 shows the estimation results. The shaded rows show the findings that in our opinion include the 'time-consistent' results.¹¹ The variables in these rows have been included in every regression

**Table 5: Means of the targets variables
-By subgroups, 1997(1993)-**

<i>Variable</i>	<i>Total</i>	<i>RTSR < median*</i>	<i>RTSR > median*</i>	<i>Mono</i>	<i>Multi</i>	<i>Quantified Targets</i>		
						<i>No</i>	<i>One</i>	<i>More</i>
Number of companies	72 (66)	50% (50%)	50% (50%)	58(54)	17(17)	23(39)	19(16)	33(16)
<u>Total # of measures</u>	22.4 (16.4)	16.4(16.8)	25.8(13.2)	23.2(16.0)	19.8(17.8)	21.7(14.2)	22.5(20.8)	22.9(17.3)
% account.	14 (12)	14 (10)	14 (14)	15 (12)	12 (11)	8 (10)	15 (12)	18 (17)
% value	4 (5)	3 (5)	5 (5)	4 (6)	3 (3)	3 (4)	7 (4)	3 (8)
% growth	39 (37)	41 (36)	38 (37)	39 (37)	39 (37)	40 (37)	34 (37)	42 (36)
% efficiency	35 (40)	33 (41)	36 (38)	35 (40)	35 (41)	41 (43)	36 (37)	30 (35)
% stakeh.	8 (6)	9 (7)	7 (6)	7 (5)	11 (8)	8 (5)	8 (9)	7 (4)
<u># quant. Targets</u>	2.1 (.65)	2.3(.73)	1.8(.61)	2.1(.67)	1.9(.59)	0(.0)	1.0(1.0)	4.0(1.9)
% account.	62 (42)	57 (24)	63 (54)	68 (44)	43 (33)	-	83 (44)	49 (39)
% value	2 (0)	0 (0)	4 (0)	0 (0)	8 (0)	-	6 (0)	0 (0)
% growth	23 (43)	25 (62)	23 (30)	21 (40)	30 (55)	-	6 (38)	33 (51)
% efficiency	6 (8)	8 (6)	5 (9)	5 (6)	11 (12)	-	0 (6)	10 (10)
% stakeh.	7 (7)	10 (8)	5 (7)	6 (10)	8 (0)	-	5 (13)	8 (0)
<u># quantified targets</u>								
% 0	33 (55)	31 (58)	35 (48)	34 (54)	29 (59)	100	0	0
% 1	25 (23)	22 (18)	30 (30)	25 (20)	24 (29)	0	1	0
% >1	42 (23)	47 (24)	35 (21)	41 (26)	47 (12)	0	0	1
<u>Mentioned item to be important:</u>								
Shareh. Value	32 (11)	25 (9)	36 (15)	34 (9)	24 (18)	22 (8)	26 (25)	42 (6)
Social resp.	13 (14)	17 (6)	11 (21)	14 (13)	12 (18)	13 (10)	16 (19)	12 (19)
Environm. resp.	49 (42)	50 (48)	53 (42)	45 (37)	65 (59)	48 (33)	53 (69)	48 (38)

*Some RTSRs are missing, 6 in 1993, 3 in 1997 (See the Appendix). Due to these missing values, the averages in the RTSR < median column and the RTSR > median column do not exactly sum to the average of the total set of companies as represented in the first column of the Table. The industry segmentation is not included in this Table. The motivation of this omission is given in section 6.

equation, whether the resulting coefficient was significant or not. All other insignificant effects have been omitted.

The first column explains inter-firm variation in Relative Total Shareholder Returns in 1997 by

6.1 Number and Specificity of Targets: Support for the Accountability Principle

The estimates show that there is a non-linear rela-

Table 6: Estimation Results

<i>Determinants of Value Creation</i>	<i>RTSR 1997*</i>	<i>RTSR 1993*</i>	<i>RTSR97-RTSR93*</i>	<i>TSR9397</i>
Constant	-0.18** (4.0)	0.04 (1.0)	-0.12** (2.6)	0.20** (8.9)
<i>Number of quantified targets</i>				
• Log(# quantified targets + 1)	-0.26** (2.9)	-0.12 (0.8)	-0.23** (2.2)	-0.03 (0.5)
• Exactly one quantified target	0.14** (3.0)	0.13* (1.9)	0.14* (1.8)	0.03 (0.7)
<i>Total number of (qualitative) measures</i>				
		-0.01** (2.1)	0.01** (2.4)	
<i>Type of quantified targets</i>				
• Growth-oriented	0.04** (2.9)			
<i>Specific steering items</i>				
• Shareholder value	0.07* (1.7)			
• Social responsibility	-0.13** (2.2)	0.02 (0.2)	-0.18** (2.4)	0.01 (0.4)
• Environmental responsibility	0.12** (3.1)			
<i>Controls for return and profitable growth</i>				
• ΔCFROI	0.46** (5.7)	0.49** (3.8)	2.58** (2.7)	2.78** (5.9)
• HCC(CFROI-WACC)*growth	1.77** (2.7)	0.69 (0.3)	0.22 (0.6)	0.65** (3.8)
• LCC(CFROI-WACC)*growth	7.8** (2.2)	0.98 (0.2)	3.07 (1.5)	0.25 (0.3)
N	63	59	60	52
Adjusted R ²	46%	25%	20%	43%
*Explanatory variables pertain to the same year, or to the same difference between years. ** refers to a level of significance. Absolute t-values are given in parentheses.				

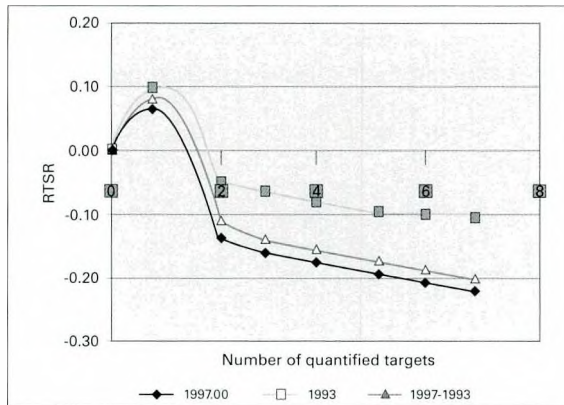
means of a set of regressors defined for the same calendar year. The second column presents the estimation results of the explanation of RTSR variances in 1993 with 1993 regressor values. The third column, 'RTSR97-RTSR93' explains the difference in shareholder return between these two years by means of the differences between the regressor values for these two years examined. The last column of Table 6 shows explanatory evidence for the inter-firm variances of total shareholder value created in the entire period of the study.¹² The explanatory variables in this equation are the same as in the third equation: differences between 1993 regressor values and 1997 regressor values. This last measure of value creation is somewhat noisy since it includes all value creation in the years 1994-1996 whereas we do not know what happened to the set of explanatory variables in these years. We estimated all four equations. All estimates aim at finding more basis for (consistent) exploratory answers to the research questions of our study. All results are simple OLS-Estimates.

relationship between the number of (quantified) targets and value creation. The optimal number of targets is exactly one clearly specified target. Figure 3 shows the non-linear concave relationship that we estimated. It shows the combined effect of the logarithmic specification of number of targets and the dummy 'exactly one quantified target' which takes on the value one whenever a company specifies exactly one quantified target.¹³

The number of qualitative targets has no consistent or large effect on stock return. Apparently, only quantified targets are perceived as informative signals to investors.

These results quite convincingly support the *Accountability Principle*: One target, clearly specified, easily understandable, assigning and communicating responsibilities in a one-dimensional and transparent manner, is strongly related with value creation. Communicating exactly one specified target is associated with value creation of 13 to 14 percent.¹⁴

Figure 3: Exactly one quantified target coincides with highest value creation Estimates



6.2 Type of Targets

Interestingly, the relationship between type of targets used and value creation is of little significance. In 1993, the type of quantified target was not value-relevant. However, comparing the results of 1997 and 1993, the value-relevance of the type of (quantified) targets seems to increase. Growth-oriented (non-financial) targets are positively valued. Unfortunately, a test of the value-relevance of quantified value-oriented financial targets and targets related to stakeholder management and social responsibility (see Table 3) is hindered by the low occurrence of these categories of quantified targets, two and seven percent respectively.

However, as the Table shows, qualitative targets from the categories of value-oriented and stakeholder related targets are valued by shareholders in 1997. The mere mentioning of shareholder value and environmental responsibility as company goals are associated with an increase of value creation by a significant percentage of seven and twelve percent. Value creation is negatively associated with the qualitative target 'social responsibility', both in 1997 and 1993. We have no clear explanation for this time-consistent finding.

These results weakly indicate the value-relevance of targets correlated with the organizational objective. In 1997, growth-oriented quantified targets as well as some qualitative targets related to shareholders and society at large are value-relevant. And none of the targets set on measures which have a strong relationship with management effort are value-relevant.

6.3 Effect of Control Variables

The coefficients of the control variables that reflect

changes in return and profitable growth (or contraction), in other words the 'common' drivers of value creation, show the expected signs. All effects are significant in 1997. However, profitable growth (or contraction) is not a significant determinant of value creation in 1993. Apparently, these control variables also capture the variation of value creation between firms that is related to other control variables: firm size, industry, and degree of diversification are all insignificant in the regressions.

The explanatory power of the regressions is relatively satisfactory: the adjusted R-squares vary from 20% to 46% in 1997. The results are invariant to a (non-linear) transformation (log) of the dependent variable, *RTSR*.¹⁵

The higher number of significant target-related regressors in 1997 indicates that the communication of targets has certainly become more value-relevant in the past few years.

6.4 Limitation of Findings

There are two basic limitations pertaining to this study and the approach taken. The first problem is related to *selectivity*. We do not know to what extent the target-setting behavior that is externally communicated represents real internal target-setting behavior. This ignorance is due to the fact that we have analyzed annual reports as our main data source on target-setting behavior. Management may probably have certain considerations as to whether specific real target-setting behavior is communicated in the annual report or not. In this view, the targets that are communicated will be a subsample of the set of targets used internally. The selectivity bias might be structural. For instance, companies that perform better might communicate in a more transparent manner.

The second problem is related to *causality or endogeneity*. This problem interferes with the problem of selectivity. Suppose the selectivity problem is negligible. In that case, the reported target-setting behavior, now entirely reflecting real target-setting behavior, might still be an effect of performance rather than a cause. The performance measures used for which targets are formulated might be selected based on (expected) realizations.

We completed a very simple analysis to get a first impression of the problems discussed. We estimated the effect of past performance on the decision to communicate exactly one quantified target by means of a probit analysis. The result of this analysis showed that the communication strategy that

is mostly related to value creation, i.e. communicating exactly one quantified target, is not at all related to past performance (of one and two years ago). Neither past (changes in) return, nor past profitable growth or contraction are significant determinants of whether one quantified target is communicated.

7 Conclusion

Performance measurement and target-setting are critical factors that determine how individuals in companies behave. Therefore, it is probable that the external communication of performance measures and targets is value-relevant.

The subject of this study is novel, but firmly rooted in the literature on performance measures. We aim at determining the value relevance of communicated target-setting behavior of firms. We empirically investigate the relationship between the number, type, and specificity of targets and shareholder value creation. We use a sample of the 70 largest Dutch firms. We combine publicly available accounting and market information with data on target-setting behavior collected from the 1993 and 1997 annual reports. The analysis of the value-relevance of the number and specificity of the targets enables us to assess the relative importance of the *Accountability Principle* and the *Informativeness Principle*. The analysis of the type of targets used makes it possible to make inferences about the value-relevance of targets that are closely related to organizational objectives versus targets that are more closely related to individual managerial effort. These inferences provide us with some empirical evidence to support Baker (1992).

Our findings confirm the applicability of the *Accountability Principle*: communicating exactly one transparently specified target significantly and consistently shows a positive relationship with value creation. Apparently, there is a concave relationship between the number of quantified targets and value creation, where the maximum lies at a number of one target. This points at the relevance of simplicity to increase accountability.

No consistent pattern was found in the relationship between value creation and the number of *qualitatively* defined targets. This points at the relevance of transparency to improve accountability.

With respect to the value-relevance of the type of targets used, we found some weak evidence of the relative importance of targets that are correlated

with organizational objectives rather than with individual managerial effort. The weakness of the evidence is due to the low rate of penetration of value and stakeholder oriented targets among the large Dutch companies in the sample.

Overall, our findings strongly support Jensen (2000): 'Multiple objectives is no objective'.

REFERENCES

- Aggarwal, Rajesh K., and Andrew A. Samwick, (1999a), Performance Incentives within Firms: The Effect of Managerial Responsibility, *NBER Working Paper 7334*.
- Aggarwal, Rajesh K., and Andrew A. Samwick, (1999b), Empire-builders and Shirkers: Investment, Firm Performance, and Managerial Incentives, *NBER Working Paper 7335*.
- Amir, Eli, and Baruch Lev, (1996), Value-Relevance of Non-Financial Information: The Wireless Communications Industry, *Journal of Accounting and Economics* 22, pp. 3-30.
- Baker, George P. (1992), Incentive Contracts and Performance Measurement, *Journal of Political Economy* 100(3), pp. 598-614.
- Biddle, Garry C., Robert M. Bowen, and James S. Wallace, (1997), Does EVA[®] Beat Earnings? Evidence on Associations with Stock Returns and Firm Values, *Journal of Accounting and Economics* 24, pp. 301-336.
- Botosan, Christine A., (1997), Disclosure Level and the Cost of Equity Capital, *The Accounting Review* 72 (3), pp. 323-349.
- Cools, Kees and Mirjam van Praag, (2000), Performance Measure selection: aligning the Principal's Objective and the Agent's Effort, Working Paper.
- Garen, John, (1994), Executive Compensation and Principal-Agent Theory, *Journal of Political Economy* 102(6), pp. 1175-1199.
- Fama, Eugene F. and Kenneth R. French, (1997), Industry Costs of Equity, *Journal of Financial Economics* 43, pp. 153-193.
- Heneman, R.L., G. Ledford, and M. Gresham, (forthcoming), The Effects of Changes in the Nature of Work on Compensation, S. Rynes and B. Gerhart (eds.), *Compensation in Organizations: Progress and Prospects*. San Francisco, CA: New Lexington Press.
- Holmstrom, Bengt, and Milgrom, Paul R, (1991), Multi-Task Principal-Agent Analyses: Incentive Contracts, Asset Ownership and Job Design, *Journal of Law, Economics and Organization* 7, pp. 24-52.
- Ittner, Christopher, and David Larcker, (1999), The

Effects of Performance Measure Diversity on Incentive Plan Outcomes, Working Paper, Wharton School, University of Pennsylvania.

Ittner, Christopher, David Larcker, and Madhav Rajan, (1997), The Choice of Performance Measures in Annual Bonus Contracts, *The Accounting Review* 72(2), pp. 231-255.

Jensen, Michael C., (2000), Value Maximization, Stakeholder Theory and the Corporate Objective Function, Harvard Business School, Working Paper, # 00-058.

Jensen, Michael and, Kevin Murphy, (1990), Performance Pay and Top-Management Incentives, *Journal of Political Economy* 98(2), pp. 225-264.

Kaplan, R., and D. Norton, (1992), The Balanced Scorecard – Measures that Drive Performance, *Harvard Business Review* 70, pp. 71-79.

Milgrom, Paul R., and John Roberts, (1992), *Economics, Organization, and Management*, Prentice Hall.

Murphy, Kevin J., (1999a), Executive Compensation, *Handbook of Labor Economics, Vol. 3*, Eds. O. Ashenfelter and D. Card, Elsevier Science.

Murphy, Kevin J., (1999b), Performance Standards in Incentive Contracts, Working Paper, Marshall School of Business, University of Southern California.

Olsen, Eric O. and James A. Knight, (1995), Managing for Value, *Handbook of Modern Finance, 1995 Edition*, Warren, Gorham and Lamont, E10-1 - E10-25.

Prendergast, Canice, (1999), The Provision of Incentives in Firms, *Journal of Economic Literature* 37, pp. 7-63.

NOTES

1 Pay tied to the performance of top management is not only widely applied, but also widely studied among economists (both theoretically and empirically). See for instance Aggarwal and Samwick (1999a, 1999b), Baker (1992), Garen (1994), Jensen and Murphy (1990), Milgrom and Roberts (1992), Prendergast (1999) and Murphy (1999a). However, Jensen and Murphy (1990), empirically established that the pay-performance sensitivity (for CEO's) is very low.

2 Pay includes monetary pay, non-monetary pay and merit pay.

3 The relationship between number of targets and value creation might be a concave function: the positive effect of number of targets on value based on the informativeness principle is limited up to a (small) number of (well defined) targets due to the accountability principle. The effect becomes even negative for larger numbers of targets due to this latter principle.

4 This motivation might seem entirely redundant. However, 'noblesse oblige': since the topic of the paper is performance measurement, we should supply the reader with a careful treatment of the performance measure that we employ ourselves.

5 See Olsen and Knight (1995) for a more detailed discussion on CFROI and various other performance metrics.

6 The risk adjustment is based on various risk provisions that are mentioned in Dutch annual reports.

7 Amir and Lev (1996) advocate limiting the effect of inter-industry heterogeneity when non-financial performance measures are considered by analyzing one single industry. We agree that many non-financial performance measures are industry-specific (like the POPS that they study). Nevertheless, many generic non-financial performance measures exist, especially if the event of interest is the type and amount of targets set, rather than the score associated with the target. For example, growth, efficiency, and client satisfaction are important in all industries.

8 The potential selection bias due to mergers, acquisitions, bankruptcies, IPO's or delistings is very limited. During the period 1993 to 1997 only a few firms were newly listed on the Amsterdam Stock Exchange and only a small number of firms were no longer quoted. We could find no selection bias in either category.

9 Reach is a database published by Elsevier Publishers. It includes all accounting information of Dutch companies that have the legal duty to submit their annual report to the Chambers of Commerce.

10 A number of other a priori classifications have been employed during the data gathering process. However, due to a lack of any significant (or otherwise interesting) finding with respect to these classifications, we omitted their presentation entirely.

11 The definition of 'time-consistent' in this case is at least two significant coefficients of the same sign. Profitable contraction is an exception. It has been added to the set of shaded rows in order to give a complete 'shaded' overview of the effects of the 'common' drivers of value creation.

12 The definition of this dependent variable is $\pi_{i=93 \text{ to } 97} (1+TSR)_i$.

13 In our search for the best fit between number of quantified targets and value creation within the linear framework of OLS, we proceeded as follows. In addition to the linear term, we included several transformations of the variable 'number of quantified targets', such as a quadratic and a loglinear term as well as several piece rate dummies (representing exactly one, two, and three targets) in the model. The variable transformations that did not significantly contribute to the explanation of the variance of the dependent variable were omitted subsequently, in order to regain sufficient degrees of freedom. The functional form as

represented in Table 6 and Figure 3 resulted from this procedure.

14 The relationship between number of quantified targets and value creation is not significant in the specification in the fourth column of Table 6.

15 Moreover, the invariance of (the significance of) the results to this transformation of the dependent variable is a signal for the absence of heteroskedasticity. The standard errors presented are not corrected for the potential presence of heteroskedasticity.

Appendix A Complete List of Companies in the Sample

Company	Annual report analyzed*			Annual report analyzed*	
	1993	1997		1993	1997
ABN AMRO	Yes	Yes	Kempen	Yes	Yes
AEGON	n.a.	n.a.	KLM	Yes	Yes
Ahold	Yes	Yes	KNP BT	Yes	Yes
Ahrend	Yes	Yes	KPN	Yes	Yes
Akzo	Yes	Yes	MacIntosh	Yes	Yes
ASM Litography	No	Yes	NBM Amstelland	Yes	Yes
ASR	n.a.	n.a.	Nedlloyd	Yes	Yes
ATAG	Yes	Yes	NIB	n.a.	Yes
ATHLON	Yes	Yes	Numico	Yes	Yes
Ballast Nedam	Yes	Yes	Nutreco	Yes	Yes
Bank Mendes Gans	Yes	Yes	Oce	Yes	Yes
Boskalis	Yes	Yes	Ommeren, Van	Yes	Yes
Wessanen	Yes	Yes	OPG	Yes	Yes
Caland	Yes	Yes	Ordina	Yes	Yes
Cap Gemini	Yes	Yes	Otra	Yes	Yes
Ceteco	No	Yes	Pakhoed	Yes	Yes
CSM	Yes	Yes	Philips Electionics	Yes	Yes
De Boer Unigro	Yes	Yes	Polygram	Yes	Yes
Draka	Yes	Yes	Randstad	Yes	Yes
DSM	Yes	Yes	Roto	Yes	Yes
Econosto	Yes	Yes	Schuitema	Yes	Yes
Endemol	No	Yes	Schuttersveld	Yes	Yes
Frans Maas	Yes	Yes	Sligro	Yes	Yes
Fortis	n.a.	n.a.	Sphinx	Yes	Yes
Fugro	Yes	Yes	Stork	Yes	Yes
Gamma	Yes	Yes	Telegraaf	Yes	Yes
Getronics	Yes	Yes	TenCate	Yes	Yes
Gist	Yes	Yes	Unilever	Yes	Yes
Grolsch	Yes	Yes	VanLeer	Yes	Yes
GTI	Yes	Yes	Vedior	No	Yes
Gucc	No	Yes	Vendex	Yes	Yes
Hagemeyer	Yes	Yes	VNU	Yes	Yes
HBG	Yes	Yes	Volker	Yes	Yes
Heijmans	Yes	Yes	Wegener	Yes	Yes
Heineken	Yes	Yes	Wolters	Yes	Yes
Hoogovens	Yes	Yes			
Hunter	Yes	Yes	# of Valid Observations:		
ING Groep	n.a.	Yes	• Descriptives	71	75
Internatio	Yes	Yes	• Regressions	66	72
KAS	Yes	Yes			
KBB	Yes	Yes			

*For some companies and years, *RTSR*, the measure of value creation used as dependent variable is missing. These are marked with (n.a.)