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Résumé:

Abstract: This paper investigates the properties of EVA® compensation schemes, which were considered as a major managerial innovation of the 90's. The analysis is carried on in the framework of contract theory and based on a six year longitudinal case study. Such schemes induce highly volatile bonuses compared to more traditional ones. This is interpreted as a loss of controllability, where controllability is defined as the controllability of their performance measured by managers. The role of the target setting, based on external standards, and the absence of renegotiation are of particular significance in explaining this loss. This analysis explains the difficulties encountered in the implementation of these schemes and their relative decline.

Mots clés :

Key Words :   Incentive schemes, EVA, controllability, external compensation standards

Classification JEL: D8, J33, M52

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1. Introduction

In the nineties many publicly traded companies adopted value based management under the growing pressure of Wall Street (Martin and Petty, 2000). A collection of new metrics to be used as performance measures appeared (Myers, 1996). New compensation plans for managers were designed. The EVA system (Stewart, 1991, Stern et al., 1995) emerged as a leading approach.[1] The underlying ideas, far from new in many aspects, were considered as "*sufficiently thoughtful and arresting to warrant being included amongst the most significant contributions of recent years to management accounting*" (O'Hanlon and Peasnell, 1998, p. 442). As is common with management innovations, after a hot time, there are more firms that drop these approaches than there are new adopters. Rankings of companies based on EVA and MVA have progressively disappeared from business magazines. This paper provides some evidence to interpret this historical trend.

The motivation put forward by the protagonists of EVA is to make managers run their business units as owners. EVA is assumed to be aligned with market values. As a performance measure, it is said to be decomposable within the organization thus providing more controllable incentives to operational managers than stock options based on the market value of the entire company. Some of these assertions have been questioned. Is it really the case that EVA is better correlated to excess returns than more traditional accounting measures such as earnings per share (Biddle et al., 1996, Bacidore et al., 1997, Stark and Thomas, 1998)? Can it be demonstrated that an annual performance measure can meaningfully summarize the multi-period value of investment (Reichelstein, 1997, Rogerson, 1997, Bromwitch and Walker, 1998, Mouritsen, 1998)? Is it the case that EVA promotes alignment with the shareholders' objective (Lovata and Costigan, 2002) or within the firm (Riceman et al., 2002)? Pragmatically, is it the case EVA adopters generate higher returns (Wallace, 1997, Kleiman, 1999)? After all, what is really known about the empirical reasons for adopting EVA and the ways it has been implemented (Haspeslagh et ali., 2001, Mottis and Ponssard, 2001-2002, Malmi and Ikäheimo, 2003)?

This previous literature will be discussed using the framework of contract theory (Lambert, 2001, Prendergast, 1999). Two dimensions of analysis are investigated in details: congruity (alignment of the performance measure with the objectives of the principal) and controllability (the presence in the performance indicator of noisy factors out of control of the agent). It will be shown that the previous literature on EVA focuses on the congruity dimension and completely neglects the controllability one. This paper shows that it should not. An in depth field study of an EVA compensation scheme, over a 6 year period, points to a large loss in controllability, where controllability is defined as the controllability of their performance measured by the managers. Several hypothesis are tested to explain that loss. Does it come from the performance measure because of noisy factors? does it come from the target setting process? or does it come from the implementation process and the lack of negotiation that goes with it? Note that our discussion is not limited on the EVA performance measure as such but encompasses the whole EVA compensation system.

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[1] EVA® is a trademark of Stern & Stewart Co.

The main conclusion is that the loss of controllability comes from the target setting process and from the lack of negotiation, and not from the performance measure as such. The standards (targets) in EVA are to be derived from "external" market expectations, and not from "internal" goals such as budget.[2] Determining of an annual short term standard from share prices that represent the long term market value of the company requires a set of *ad hoc* assumptions. Furthermore, that external global standard has to be decomposed within the organization into local standards for many "EVA centers". Setting such local standards in a consistent way again requires *ad hoc* assumptions. Altogether this process makes local managers resent the target setting process as a "black box" which they can influence neither *ex-ante* nor *ex-post* through negotiations. Relevant local information, *i.e.* the "noise" about which the local managers may know about, cannot be introduced into the target or into the performance measure. On the contrary, this local information can often be introduced into an internal process, the construction of which is understood by the managers. While Jensen (2001) sees the use of external standards in EVA has an important theoretical reason to encourage its diffusion (in particular to avoid gaming with internal budget targets, a point that needs to be kept in mind as well), this paper shows that in practice the external EVA target setting has drawbacks of its own. The case study will show how these drawbacks are mitigated through successive changes in the EVA incentive plans to partly restore the controllability of the performance measure for the managers. Altogether these changes will be interpreted as a relative departure from the pure EVA scheme towards more traditional ones.

The paper is organized as follows. Section 2 discusses EVA along the lines of contract theory, reviews the literature and elaborates the research hypotheses. Section 3 describes the methodological conditions under which the longitudinal study was carried out. The case study is presented in section 4 and the hypotheses tested in section 5. The results are put in a broader perspective in section 6 by discussing their relevance with respect to the emergence and decline of EVA as a compensation system.

2. EVA and contract theory: review of the literature and research hypotheses

The two dimensions of contract theory, congruity and controllability, and their potential links, are discussed in sequence. The insights provided by the current literature on EVA are reviewed. Some new ideas are introduced along the way. This leads to the research hypotheses which are detailed in the last part of this section.

2.1. Is EVA a congruent performance measure?

From a conceptual point of view (Lambert, 2001, section 3) the congruity issue (some authors use the term congruence) concerns the bias between the value function pursued by the firm (for instance the maximization of its long term market value) and the aggregated performance measure used for incentive purposes (for instance an accounting measure). The value function may be neither observable nor contractible while the performance measure should be. It may incorporate a lot of noise making it

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[2] The classification of standards as external versus internal is discussed in Murphy, 2001.

inappropriate for incentive purposes. As a consequence, the performance measure may only be imperfectly aligned with the value function. The degree of alignment between the objective of the shareholders and the objective of the managers is a major issue to clarify in a compensation system.

EVA schemes address this issue in four steps (O'Hanlon and Peasnell, 1998):
a) the design of a yearly performance measure, the well known notion of residual income is used as a starting point
b) the introduction of adjustments regarding accounting conservatism relative to goodwill, R&D expenses…, earnings management relative to provisions for bad debt, warranties… , methods to value assets … to derive economic value added from residual income
c) the determination of appropriate benchmarks to evaluate value creation, through a methodology that in principle makes the variation of EVA from previous year to this year related to the excess return expected by the shareholders
d) the introduction of a bonus bank.

In this process, the ultimate goal is (a) to collapse performance management into a robust, single-period accounting measure, (b) to use present value preserving adjustments to make this yearly measure unaffected by inappropriate accounting rules, (c) to introduce non zero benchmarks to allow for growing or declining environments whenever a steady state is inappropriate, (d) to use the bonus bank "*as a last line of defense*" (O'Hanlon and Peasnell, p. 410) to induce managers to have a long term perspective.

The literature has discussed the first point in details. Then a number of studies have discussed the general idea of congruence at the empirical level.

Can it be demonstrated that an annual performance measure can meaningfully summarize the multi-period value of investment? Using simple multi-period frameworks, Reichelstein (1997) and Rogerson (1997) prove that this can be done. But this formal result depends on assumptions which may seem quite restrictive. They focus on the investment decision, the effort choice problem is not explicitly analyzed and is solved independently. As a result, there is no mention that an increased congruity on the investment decision side could lead to a less controllable monitoring on the effort side.

Can it be said that EVA is adopted to increase congruity? Lovata and Costigan (2002) investigate the EVA adoption rate in an agency context. They consider that a combination of high institutional ownership and low insider ownership may create a congruity issue between shareholders and managers. They show that EVA is a possible answer: the more the firms are subject to agency issues the more they tend to use EVA. They also show that the R&D ratio is a limiting factor to this tendency, which they relate to the difficulty to construct adjustments to obtain an economic meaningful performance indicator, both timely and through the organization. Riceman et al. (2002) evaluate the comparative efficiency of managers in relation to the incentive schemes set up within a firm that had selectively adopted EVA. This case study is based on questionnaires in which managers are asked to evaluate the relationship between the compensatory scheme that applied to them (EVA or not) and their own performance.

Findings show that the higher level of congruity that goes with EVA is an important factor to explain the higher efficiency of the managers involved. The authors point out that the choice of a single indicator along hierarchical lines facilitates organizational congruity, but that indicators others than EVA may do as well in this respect.

Some econometric studies relate the actual value creation for the firm (through its stock price) to the adoption of EVA, and see this as an indirect proof of the better congruity of EVA than traditional accounting indicators. For instance, Wallace (1997) and Kleiman (1999) provide some support that firms that adopt EVA obtain better excess returns than non adopters, and that the actual use of EVA for incentive purposes is key to obtain the result. This reasoning has been questioned along two lines. Firstly, Biddle et al. (1996) showed that excess returns are better explained by earnings than by residual incomes, so why use EVA? But this comparative analysis do not use the actual adjusted "house made" EVA which may still be a better indicator than earnings. Secondly, such market studies may be subject to many more influential factors than the change in the incentive schemes for the managers.

Indeed, empirical studies such as Haspeslagh et ali. (2001), Mottis and Ponssard (2001-2002), Malmi and Ikäheimo (2003) do point out the large variance in implementing EVA: what is the involvement of top management, to what extent EVA is part of a more radical strategic change, to which extent is EVA cascaded down in the organization, what is the target process...Yet, all these studies share the fact that the motivation of the top management is to promote value creation all through the organization, *i.e.* to align the objective of the managers on the objective of the stakeholders.

This review of literature makes clear that congruity is seen as a key feature by the protagonists of EVA and by the top managers that implement EVA in their company. The theoretical and empirical research has reinforced this view, no strong arguments against it have been provided. Consultants have designed a number of tools and procedures to implement this feature of EVA.

2.2. Why EVA may not be controllable

Controllability issues are related to the noisy factors that affect the performance measure and are not under the control of the managers. Intuitively, it seems reasonable that a manager should be accountable only for outcomes that are under his control. Contract theory makes this more precise through the informativeness principle (Holmstrom, 1979). Traditional variance analysis as discussed in accounting analysis need to be more sophisticated (Baiman and Demski, 1980). Relative performance evaluation may be used (Antle and Demski, 1988, and Lambert, 2001, section 2.6).

The literature on controllability ordinarily focuses on the noise in the performance measure itself. This noise may come from external sources (environment) or from internal ones (decisions made in the firm, *i.e.* by the corporate, but not controlled by the managers). In this respect, it is reasonably easy to compare measures actually used firms such as NOPAT or ROCE with EVA. The explicit linkage of EVA with accounting figures makes it as easily decomposable in the organization as these traditional measures.[3] Adjustments to derive EVA from residual income are transparent.

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[3] The information process for EVA is usually monitored by an "EVA administrator" who typically belongs to the control department.

Consequently, substituting EVA for these accounting measures should not induce a relative loss of controllability.

This relative assessment does not mean that there is no intrinsic controllability issue when decomposing a global performance measure to business units. Bromwich and Walker (1998) review EVA schemes in the light of the early implementations of residual incomes (Solomons, 1965). For these authors, the important (controllability) issues which appeared at that time remain relevant for EVA: the question of decentralization within the firm, the fact that some decisions depend more on corporate than on divisional decision making, the need to distinguish between managers evaluation and the assessment of divisional performance. The question to keep in mind is how severe are these qualifications in the context of the application under study.

Checking all these considerations to see whether EVA as a performance measure generates a loss of controllability relative to traditional measures such as NOPAT or ROCE provides a first line of investigation.

To these well known sources of noise, two other indirect sources should be added: firstly, the existence of noise in the target setting process (arbitrariness in setting standards) and, secondly, the absence of negotiation when going from the performance outcome to the bonus payment itself. These two factors will be discussed in sequence.

The standards of an EVA scheme are derived from market expectations and not from internal negotiations. Does a noise in this target setting generates a possible loss of controllability? From a theoretical standpoint, and as an illustrative example, consider the case of linear bonus schemes. A noisier target does not affect the intensity (slope) of the scheme but it increases the risk premium to be paid to the agent. This risk premium is usually interpreted as the loss of controllability of the scheme, which consequently is increased.

To carry on the argument for EVA, it is necessary to review in some detail the methodology used to generate its standards. This presentation draws from O'Byrne (1997), a former partner in S&S (see also O'Byrne and Young, 2006, for a recent article that introduces some variants).

- Start from the formal equality between the discounted value of future residual incomes and the discounted value of future cash flows; since the EVA adjustments preserve this relationship, and since from standard finance the value of the firm is the discounted value of its future cash flows, one gets:

$$MVA_0 = \Sigma_n\ EVA_n\ /(1+wacc)^n$$

in which MVA stands for the excess of market value over invested capital (equity and debt claims) and wacc for the weighted average cost of capital

- EVA_0 is known, MVA_0 can be measured from the stock price of the company
- The future benchmarks for the EVA_n are defined as increments of EVA_n relative to EVA_{n-1}, these increments are called the "expected improvements" and noted EI_n

- Assume stationary EI_n's for a number of years, and then posit the leveling off towards zero, the above relationship can be solved to identify the value for this stationary EI [4]
- This procedure generates the standard for next year (the EVA of the current year plus EI, the so called expected improvement); this standard setting is unchanged for a number of years, the current EVA being plugged in year after year; the whole evaluation process (the calculation of the EI through the MVA) is repeated after a number of years.

This method was in use in the early 90s and applied in medium size companies operating in stable environments, such as Briggs&Stratton, a primer on EVA interviewed by one of the author in 1999 (see methodology section for details).

- In the mid 90's, S&S developed more elaborate econometric methods based on longitudinal analyses at industry level. In this case they talk of "industry curve". For a given year k in the past and for a given firm i in the industry a constant preliminary EI_{ik} is determined using an initial EVA_{ik-1} and the market value added at year k through the methodology described earlier
- This generates a data base (EI_{ik} and EVA_{ik-1}) over a number of recent years and a number of quoted firms in the same sector. A regression is tested between EI and EVA. Ordinarily this produces a negative linear relationship which defines the industry curve ($EI = aEVA + b$, in which a and b are two constants and $a < 0$)
- Each year n, the actual EI_n to be used as the benchmark is obtained from the industry curve, *i.e.* $EI_n = aEVA_{n-1} + b$.

This method was proposed as a way to extend the previous methodology from stable to more cyclical environments.

One may have doubts on the conceptual and operational validity of this methodology to set up standards.[5] The relationship between MVA and the discounted value of future EVA's is only valid with a perfect financial market, the adopted profile for future EVA's is highly questionable, and the attempts to introduce some form of relative performance evaluation through an industry curve accumulates these questionable assumptions with potential measurement errors. The way to proceed from this "corporate EI" to the EI's of the "EVA centers" of the firm is not detailed and stands as a potential source of problems for implementation, since EVA centers ordinarily are not quoted. This provides our second line of investigation for an eventual loss of controllability: managers may be subject to targets which contain noisy factors the origins of which they neither understand nor control.

Finally, our third line of investigation is related to the actual process that leads from the performance measure and the target setting to the actual payment of the bonus, *i.e.* the negotiation issue. EVA methodology provides very little ability to eliminate uncontrollable factors through negotiation. Greater freedom is available if one has in mind the process in the case of internal benchmarks. Merchant (1989) provides an

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[4] Start from the case of no leveling towards zero, $MVA_0 = \Sigma_n EVA_n /(1+wacc)^n = \Sigma_n (EVA_0 + nEI)/(1+wacc)^n = EVA_0 / wacc + EI (1+wacc)/ wacc^2$, which can be solved to get EI. A standard way to make a leveling towards zero is to assume that after some year N, EVA_n is constant. The corresponding EI can be computed accordingly.

[5] Bromwich (1973) points out a potential flaw in using the present value of future cash flows for setting standards, it introduces a closed loop between the future cash flows and the standard, the quality of management cannot be rewarded since it is expected. This comment applies as well to the SIT adjustment (section 4.3.).

insightful discussion of such negotiations. The budget is usually a bottom up construction based on explicit environmental factors (demand volumes, input and output prices, corporate agreement on a specific investment project…). This allows for a sensitivity analysis which provides an objective playing field for *ex-ante* and *ex-post* negotiations. This is impossible with EVA because of the "black box" methodology used to generate its external benchmarks.

2.3. The research hypotheses

Ideally, best compensation schemes should be both congruent and controllable. As a matter of fact, it seems difficult to design a scheme that optimally combines both dimensions (Feltham and Xie, 1994, Datar et al, 2001). Many compensation schemes encountered in practice favor one dimension or the other. Baker (2002) illustrates the tradeoff and discusses the pitfalls for neglecting this fact: for example focusing on cost (easily controllable) while neglecting quality (important for congruity but harder to control), and focusing on short term measures (easily controllable) while neglecting long term ones (more congruent but harder to control), etc. Ittner et al. (2003) provide evidence on the difficulties to properly balance multiple measures.

The preceding discussion suggests that EVA may be viewed as favoring congruity over controllability. Our hypotheses can then be summarized as follows.

Hypothesis 1: The introduction of EVA schemes induces a loss of controllability relative to more traditional compensation schemes.

Assuming that this hypothesis is validated, three possible explanations are put forward for further testing.

Hypothesis 2: The loss of controllability comes from the introduction of internal and/or external noisy factors in the performance measure.

Hypothesis 3: The loss of controllability comes from the introduction of unpredictable factors by external target setting.

Hypothesis 4: The loss of controllability comes from the absence of renegotiation that determines the actual bonus from the performance measure and the target.

The clarification of these various hypotheses should cast some light on the reasons for introducing EVA and on its relative decline. The following hypothesis is proposed.

Hypothesis 5: Given the confirmation of hypothesis 1, if the top management is to keep EVA for congruity reasons, it will address the controllability issues either
• by revising the EVA scheme (to introduce more controllability)
• or by keeping the EVA scheme but reducing its weight in the global compensation scheme (so as to introduce other more "controllable" components).

3. Research methodology

The longitudinal study took place between 1999 and 2006. This section reviews the interactions the authors had with the company, where the data come from, who has been interviewed and what the questions were.

Several interactions with the company XYZ took place over the period. In 1999, Ponssard (in collaboration with the EVA project leader at XYZ), made a survey of the implementations of value based management as a consulting job for XYZ. A dozen companies in the US and in Europe were identified as "EVA companies". Typically the H&R and the Finance managers in these companies were interviewed for a couple of hours. The questions covered the following topics: why and how was EVA implemented, what was the involvement of the top management, what were the main adjustments, what was the target setting process, how far down the organization were EVA centers defined, what assessments could be made about the benefits and pitfalls of the implementation. An independent research project used that survey as a starting point to provide a taxonomy of implementations of value based management (Mottis and Ponssard, 2001-2002).

In 2002, Larmande and Ponssard worked on a consulting assignment for XYZ. The objective was to provide an assessment of the first three years of operations of the EVA compensation plan. Information was collected regarding the specifics of the plan implemented at XYZ and on the motivation for these characteristics. A hard ("archival") data base was constructed on the actual performance measures used for all the EVA centers of the company, their calibration with respect to bonuses and the bonuses that were indeed paid in 2000, 2001 and 2002. Exceptions to the general formula were identified and analyzed. Systematic interviews were carried on with the heads of the four divisional HR departments. Each interview would typically go on for two hours and be based on an in depth discussion of the actual outcomes for the division and of its BU's using the data base. Preliminary conclusions were discussed with the head of corporate control, the manager that had been in charge of the EVA project and some senior executives.

Our analysis of the EVA compensation scheme over 2000, 2001 and 2002 pointed out some important deficiencies. Based on this assessment, our role was not to advocate for precise recommendations but to simulate various proposals discussed at the top management level, using the data base that had been constructed.

In 2006, an in depth interview with a senior H&R executive was made to have his analysis of the changes made on 2003. Further changes that had been implemented in 2006 were also discussed. We obtained access to the company EVA data base, that now included the years 2003, 2004 and 2005, for research purposes.

This research project is unusual from a methodological point of view. We do not start from well stated research questions and go in the field to test them. In a way we observed the implementation of a compensation scheme over a long period of time and we use contract theory to interpret the findings that seem to emerge. In our opinion, the fact that these findings primarily come from hard data and that we had no vested interest in advocating for or against the actual incentive schemes being implemented make the discussion fairly objective.

The informational content of this article has been cleared by XYZ as far as confidentiality is concerned. The interpretation of the results remains our sole responsibility.

4. The longitudinal study (XYZ 2000-2006)

4.1. The context

In 2000 XYZ operated in over 70 countries with a 12 billion dollar turnover and 65,000 employees. In 2005, the turnover had grown to around 20 billion dollar mostly through acquisitions.

The activity of XYZ is in the construction material business. This business has two important economic characteristics: (i) high capital intensity, due to high investment costs relative to annual input costs (ii) high delivery costs of its products relative to their prices. XYZ's organizational structure reflects these two characteristics: it is a collection of investment centers (to be referred as business units and abbreviated as BU) managed through four divisions corresponding to four major lines of business. In 2001 it had around 60 BU's and more than 100 in 2005. Note for further discussion that the divisions are unequal in size, revenue and profit. One division may be called the core business of the company.

The decentralized structure makes the business quite different from global ones such as telecoms or pharmaceuticals in which many decisions are centralized. In XYZ local managers have a large spectrum of responsibility. Business units are in charge of operational decisions, including pricing, product mix, operating costs and maintenance. They have the responsibility of generating profits on a given set of assets operating over a given geographic area. However they may not control all capital expenditures relative to their investment center: very large capital investment projects such as plant restructuring and acquisitions or divestitures are made at the divisional level or even at the corporate level, depending on their magnitude.

During the 1990s several initiatives were taken to introduce the concept of "value creation". Reports on investment choices had to show value created more explicitly. Analyses of net discounted value had to be quantified in relation to key performance indicators that could be updated. Acquisitions had to explain the associated synergies and economies. But most of these cases involved only a handful of senior executives in each division, and most of the capital expenditures were still determined by organizational routines. At operational level attention remained focused on the income statement.

The top management decided that another way had to be found to mobilize all members of the executive committees of all business units, *i.e.* about 1,000 to 1,200 managers in 2000, around the notion of value creation. The EVA approach, based on a new performance measure combined with a radical change in the compensation system, appeared as an appropriate way to achieve this goal. The decision to adopt it was taken in 1998. In 2000 the new compensation system had been established and gradually applied throughout the firm. The system was revised in 2003 and again in 2006.

The next sections describe the successive compensation plans starting from what was in place prior to 2000.

4.2. The variable compensation system before 2000

Before the year 2000 several variable compensation schemes existed in the XYZ Group. The information is scattered in the divisions. Practice depended on the product line and on the country.

• the performance indicator on which the bonus was calculated was EBITDA or EBIT, or exceptionally ROCE; in some countries there were no individual variable bonus

• standards (targets) were determined internally, BU by BU

• this determination of the standard consisted in a negotiation between the head of the BU and her/his superior (division manager), that took into account the current year's budget and the previous year's result

• the calibration could be linear or not linear but always included caps and floors

• this "financial" component regarding the performance of the BU was then integrated into a larger assessment of indicators which involved personal objectives associated to each BU manager

• though the bonus could theoretically vary on a scale from 0% to 100%, 50% being the fair bonus, the observed bonus would usually be established at between 65% and 85%.

4.3. The initial compensation plan: 2000-2002

The approach followed the general S&S framework as summarized in section 2: the four steps identified by O'Hanlon and Peasnell (1998) and the target setting process detailed in O'Byrne (1997). The main differences will be emphasized.

(i) Defining the EVA performance measure for each BU

The general idea was to push the EVA performance measure as far down the organization as possible: the Group level, the four divisions, the BU's. The case study focuses on the BU level.

The economic characteristics of the business make it fairly easy to break down the NOPAT in full and the capital employed from the company level to divisional and then business unit levels. The cost of capital is defined at the corporate level and this cost taken identical all through the company. This allows the computation of the residual income (RI) for all BU's.

From this RI measure, two adjustments were made to define EVA. An "economic adjusted asset" value was preferred to the book value to reflect the market value of the BU. For a recently acquired business, the economic adjusted asset is the acquisition price (including goodwill); for older BU's, value judgments were made at the corporate level. According to the EVA project leader, the main reason for this adjustment was to avoid highly positive EVA for older assets and low or negative EVA for recent assets. Such accounting distortions would otherwise trigger unfair internal value judgments. The adjustment was not made for portfolio analysis purposes.

The other adjustment concerned a "strategic investment treatment" (SIT), as recommended by Stern and Stewart's methodology. Given that certain major

investments in the firm can have deferred returns and in order not to discourage this type of investment through the bonus scheme, the negative EVA's of the first years (e.g. for three years), as forecasted in the business plan, are capitalized and charged uniformly over time later in the future. Over the next three years, only the gap between the observed EVA and the expected EVA in the business plan will impact the bonus.[6] Only large investments would be eligible for a SIT.

All the EVA calculations for a business unit, whatever its geographical location, would take place in the currency used by XYZ for its financial statements. This is important since many BU's have their reporting statements in local currencies. The reason for this is to encourage the BU's to be accountable for capital employed in the currency used to get the funds.

(ii) Calibration: the standard and the strength of the bonus scheme

From the EVA indicators, the following yearly performance indexes (PI) were constructed at all levels of the organization:

PI = 1 + (this year EVA – previous year EVA – EI)/Interval EVA

A PI of 100% is to be interpreted as a fair bonus (50% of the maximal bonus), it means that the target (previous year EVA + EI) is achieved. Achieving the target and the Interval EVA gets a PI of 200% (presumably an outstanding performance) while achieving the target minus the Interval EVA gets a PI of 0% (presumably a poor performance). By calibrating the Interval EVA one can calibrate the "strength" of the bonus scheme. The selection of the intervals were considered to be the responsibility of the divisions, they were determined by taking into account the business units projected results and the subjective appreciation of their volatility.

The target setting to obtain the EI was as follows:
• The industry curve was used to set the EI at the group level in 2000
• The EI at the group level was first broken down on each division, then within each division on each BU, so that the sum of EIs at each level (BU or divisions) would equal the EI at the higher level (divisions or group, respectively). In this cascading down process two considerations were used. First, the estimated industry curve was applied mechanically at each disaggregated level. Second, these initial EI proposals were submitted to BU managers and compared to their respective strategic five-year plans. Since most of these EIs would lead to lower projections than the internal forecast, they were seldom challenged
• It was decided that these EI's, as calculated by the above process, would remain constant over the next three years and then would be updated.

(iii) The bonus scheme: annual and multi-year bonuses

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[6] As an example, take an investment CE that has a positive NPV but that generates no NOPAT over the next three years. To encourage the BU manager to make that investment, the first three years projected EVA's resulting from the investment, *i.e.* – *wacc*CE, are capitalized as if the investment started in year 3 and excluded from the BU EVA calculation. Then only the differences in NOPAT and in CE (as long as they differ from the planned ones) matter for bonus purposes at year 1 to 3.

From the performance indexes two bonuses were determined for each organizational level: a yearly bonus and a three year bonus to be paid over the period 2000-2001-2002.

The yearly bonus is zero if the PI is less or equal to 0%, linear from 0% to 200% and constant over 200%. This is a standard system with cap and floor.

The three-year bonus is also a cap and floor system: (i) the average value of the three PI's, one for each year, is computed, (ii) the floor is at 100% while the cap remains at 200%. The three year bonus is more challenging than the annual one. According to the EVA project manager, this approach was preferred to a bonus bank to allow managers to obtain a positive yearly bonus whatever their past results would be. With a bonus bank, it may take several years to overcome an exceptionally bad year.

The size of the variable fair annual bonus (roughly between 12% and 30% of the basic salary, depending on the level of responsibility) was harmonized throughout the group. Half of this annual bonus was to depend automatically on the EVA. The other half was determined in relation to quantified personal objectives, this part remained to be monitored at the decentralized hierarchical level.

On top of these two components, the three-year bonus was to be considered as an exceptional bonus for outstanding performance, it would only applied to managers high enough in the organizational ranking.

A manager who belongs to the executive committee of a BU would typically get the yearly EVA bonus of his or her unit. The manager in charge of the BU would get a EVA bonus calculated as two thirds on the results of his or her unit and one-third on the results of the division to which this BU is affiliated. Depending on their ranking, he or she may also get the three year EVA bonus.

At the divisional level, the same procedure applies. The managers at the corporate level have EVA bonuses that only depend on the results of the company as such.

The performance measure process (keeping track of EVA calculations, of the adjustments, introducing further standard adjustments for change in scope, computing the PI's, …) was administered by the corporate control department. The human resources departments of each division would determine the actual individual EVA bonuses from the PI's.

4.4. The updated plan: 2003-2005

The main changes implemented from 2003 concerned three aspects of the compensation plan.

(i) The EVA calculations

A number of simplifications were introduced. The calculations of NOPAT would omit exceptional non recurring items. A direct change in the EI was substituted for the SIT

adjustment.[7] The impact of currency changes was simplified and no longer followed the detailed accounting treatments for such matters. At the BU level, local currency would be used for lower level managers eligible for EVA bonuses. The corporate level provided a reassessment of the "economic adjusted assets" for each BU.

(ii) The Expected Improvements and the Intervals

An internal note issued by the top management to motivate the changes says: "*We keep the basic principle of a financial bonus tied to actual EVA variation, compared with an "external" target not related to budget. The second half of the bonus, tied to personal objectives, ensures that the quality of efforts made is rewarded, even if the environment has been so tough that financial results have not been achieved*."

This is an important statement put forward by the top management, it clearly advocates that the main objective for the EVA system at XYZ is to make managers aware of the financial "objective" performance of the company at all levels. It was not announced so clearly to the organization in 2000.

However, a certain margin of flexibility in the objective-setting mechanism to recognize specially difficult situations was introduced in 2003. Firstly, external standards for expected improvements would be set each year for the following year (while in the initial plan the same EI were to be used for three years). The reference to the "industry curve" approach is abandoned and replaced by a simple principle: (i) a BU with negative EVA must be able to go back to positive EVA in k years, (ii) a BU with a positive EVA must generate at least some percentage m of capital employed, which means the return on capital is expected to increase by this percentage.[8] Secondly, the actual EI may differ from this external standard,[9] the divisions can modulate them to recognize different situations in their different BU's, provided the sum of their units EI's corresponds at least to the division EI. Thirdly, a simple consistency check with market expectations is done at the group level, without further reference to an industry curve.

The Intervals were enlarged to better reflect the relative volatility of the environment for each type of business. Globally, the target spread given by the corporate to each division was that approximately 2/3 of BU's should be in the linear part of the bonus range with 1/6 at no bonus and 1/6 at maximal bonus.

The three year bonus was changed to a revolving long term bonus paid each year but based on the average of the PI's obtained in the last three years. Yet, this bonus remained more demanding as the yearly bonus with a floor set at 100% and not at 0%.

4.5. Further changes: the compensation plan 2006 onwards

In 2005 EVA had still not gained full acceptability on part of many operational managers. An internal study was made to test the feasibility to base part of the bonus on a variance analysis of EVA putting on one side external factors (demand volumes, input prices…) while keeping for internal evaluation factors such as market shares, output

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[7] Using the same example as in footnote 7 this would amount to subtract *wacc*CE in the EI of the corresponding BU for the next three years.

[8] The exact figures for k and the increase in return on capital are confidential.

[9] Such a standard is external in the sense that no specifics of the BU are used to set the target.

prices, productivity… Several controllers at the divisional level made detailed proposals on how to implement such analyses.

The top management refused to pursue this avenue for several reasons. A number of BU's did not have the information systems to carry on such analyses. It was not clear that operational managers could or would make sense of such detailed and sometimes quite sophisticated analyses in their decision making. More importantly, in a number of cases it appeared clearly that these analyses would explain poor financial performance by external factors and good financial performance by internal ones, resulting in high bonuses at all times.

The top management recognized that the level of external variability in the EVA bonus was too high and decided to put on the following changes:
- the long term bonus was abandoned all together
- it was replaced by a "collective performance" bonus based on two parts:
  ▪ a performance indicator of company XYZ relative to its peers, this indicator uniformly applies to all managers whatever their BU or division
  ▪ a key performance indicator specific to each division to be spread down to all its BU's reflecting business priorities (innovation, cash flows, safety…) ; the BU indicators may slightly differ within each division.

From 2006 onwards, the compensation system at XYZ contains three components:
- 1/3 based on the yearly annual increase in EVA as defined in the 2003 plan
- 1/3 based on the newly adopted collective performance measures
- 1/3 based on traditional personal objectives.

5. Analysis of the case study

We now analyze this case study with respect to the research hypotheses stated in section 2.3.
- Are the bonuses generated by EVA objectively more volatile than the previous type of bonuses previously in the organization?
- Do the managers perceived this volatility as a general loss of their controllability?
- Is it possible to relate this subjective loss to the factors identified: the performance measurement, the target setting and/or the absence of renegotiation?

5.1. The initial plan: the loss of controllability (hypothesis 1) is validated

Consider first the actual bonuses paid over the first years of operations of the compensation plan. Table 1 displays the pay-outs associated to all BU's in company XYZ. The classification gives the percentage of zero bonus (floor), intermediate bonus (on the linear range) and maximal bonus (cap) for the successive years as well as the three year bonus paid in 2002 and relative to 2000-2001-2002.

The most striking feature is the spread of the PI's. Take year 2000: 26% of the BU's get a zero EVA annual bonus reflecting a poor performance while 39% of the BU's get the maximal EVA annual bonus (twice the fair bonus). From the record available in the company that had never been observed. Most managers had experienced a system of bonus in which they would always get some positive bonus, the range going from 65% to 85% of the maximal bonus! If one expects to get a bonus in the range of 65% to 85%

of the maximal bonus and one gets 0% (say with probability 26/100) and 100% (say with probability 39/100), the feeling is that the system is intrinsically more volatile. But this can mean two things: either the system is badly calibrated (the Intervals are too large) or, if you expect 85% based on the perception of your effort and you finally get 0%, the controllability of the new scheme may be at stake. Moreover, table 1 says nothing as regards the volatility from one year to the next one (the probability of getting say a large bonus in year 2001 given the bonus obtained in year 2000), except that the (unconditional) spread remains large. Volatility may thus be a problem only for the first year or for every year. These three issues remained implicit in the company. The top management had committed itself, the EVA plan went on without changes for three years. Only after that time period an in depth analysis was to be carried on.

| % of BUs | classification | All BU's | |
		Yearly Bonus	Three year Bonus
2000	bonus max	39%	
	intermediate	35%	
	no bonus	26%	
2001	bonus max	32%	
	intermediate	29%	
	no bonus	39%	
2002	bonus max	27%	23%
	intermediate	45%	30%
	no bonus	28%	47%

Table 1: the spread of bonuses for the initial plan

Here are the comments collected in the 2002 interviews. These comments suggest that the managers perceived a loss of their controllability on the EVA performance measure relative to the traditional internal measures they were used to:

- The large spread of the bonuses observed in the first year was imputed to the volatility of the EVA performance measure as such

- This volatility was itself imputed primarily to external economic conditions (in some cases, a simple variance analysis was put forward to advocate this view). The new system thus seemed to reward results more than managers' efforts, as opposed to their past experience. In certain extreme cases managers felt that it was simply a question of the luck of the draw. Of course, managers with high bonuses did not complain about the system

- From the second and third year of application of the system, several units complained that even before the beginning of the year, all hope of a bonus seemed inaccessible when they compared their budget with the "standard" fixed one or two years earlier. In their opinion the bonus system had lost much of its relevance due to the change of context. They considered that certain BU's were simply "carried" by their environment, something that seemed unfair and caused them to question the rationale of the system

- In some instances managers would be reluctant to accept internal mobility proposals from the perspective of losing a high predictable bonus

- The time dependence of the bonuses was indeed checked for some of these units while the time volatility appeared as the general rule

- The origin of the largest observed volatilities (*i.e.* the lowest PI's) somewhat differed, depending on whether the BU belonged to the firm for some time or to entities that had recently been acquired. In the former case, unexpected moves by competitors were put forward as an environmental factor that made the initial standard totally obsolete. In the

latter case, the price paid for the acquisition, to which the managers in charge were not responsible, was considered as imposing unrealistic capital charges for their BU.

To remedy this situation, but only in extreme cases, the top management had decided to "neutralize" the bonus system of certain BU's. This neutralization operated as follows: (i) an *ex-post* re-evaluation of the bonus parameters so that the BU obtained the fair bonus anyway, (ii) the elimination of the BU in the calculations of the bonus for the division, so that the divisional managers would not be penalized by a unit whose results were too bad.

The volatility of the bonus payments, the answers to the interviews and the reaction of the top management (the *ex-post* neutralization of extreme cases and the internal note diffused within the company, see ii) in section in 4.4) altogether validate hypothesis 1: the perceived loss of controllability. Volatility alone would not mean much, otherwise a multiplication by 2 of a performance measure would lead to a loss of controllability, which it clearly does not, a proper calibration of the bonus scheme would eliminate this kind of volatility. In the case study, the Intervals were indeed not selected carefully enough to avoid this calibration problem. Yet, the detailed answers of the managers prove that there is something more. Then the successive plans demonstrate that controllability remained a rampant subject of concern that had to be mitigated.

5.2. Explaining this loss of controllability with the initial plan: hypotheses 2 and 3 may have some bite

Can one relate the loss of controllability as perceived by the managers to the objective factors envisaged in section 2. Consider first the EVA measure as such.
- some components regarding the treatment of exceptional items in the NOPAT may be less predictable than in an EBIT discussed internally without the rigor of accounting rules as seemed to be the case in XYZ
- Some managers insisted on the unpredictability of exchange rates and on the arbitrary rules associated with some accounting operations such as the treatment of pensions.

These are valid reasons for some loss of controllability, but their relevance should be limited to some BU's (exchange rates) and can be easily corrected (pensions).

Consider now the impact of the external target setting. This factor is directly connected to some of the comments made by the managers. Their arguments amount to this: "*given the cap and floor structure of the bonus, if from the very start the objective is too stretched (the EI is too high), I have no way to get a fair bonus*". This means that the bonus scheme is out of the control of the manager in the following sense: there is no way to get some bonus through the effort deployed. As reported by the H&R managers, the vast majority of operational managers recommended to revert to an internal standard in which the EI would be set with reference to the budget.

To objectively test whether the target setting is responsible for the loss of control as defined above we have computed what the performance indexes would have been for year 2002, had the budget been used as target instead of using the external EI. To be precise, let EVA_0 be the current year EVA and B_1 be the budget of the BU for next year. From this budget one can infer a forecasted EVA for the coming year EVA_{1B}. Define the expected improvement derived from the budget as $EI_{1B} = EVA_{1B} - EVA_0$. Making one's

budget would generate a PI of 100% if EI_{1B} had been used as a target instead of using the actual EI.

(insert graph 1 about here)

Graph 1 displays the differences between the two PI's, the actual one in the x axis and the budget one in the y axis. A point on the diagonal means that the two coincide. It can be observed that there are almost no correlation between internal (budget based) and external (EI based) PI (the R^2 coefficient is .241). As long as making one's budget means something to a manager, and generally it does, the actual EVA bonus has no relationship with this sense of satisfaction. This suggests that the change is indeed drastic and may very well be the main factor for the perceived loss of controllability.

5.3. The second plan (2003-2005): hypothesis 1 remains valid and it is shown that hypotheses 2 and 3 have little bite after all

Consider now the changes introduced in 2003. They enlarge the Intervals to take account of the volatility of the EVA performance measure, simplify the adjustments and allow for some flexibility in the target setting process (while keeping an external standard).

The first change should get rid of the eventual calibration problem. The second change reduces the eventual impact of external noise explicitly due to the difference between EVA and traditional accounting measures.

The volatility of bonuses declined but, in spite of these changes, the volatility remains high relative what is usually obtained with traditional bonus schemes (see table 2). The subjective perception of the loss of controllability persists among managers as confirmed by the 2006 interviews and the further changes that occurred at that time.

% of BUs	classification	All BU's	
		Yearly Bonus	Three year Bonus
2003	bonus max	18%	18%
	intermediate	61%	38%
	no bonus	21%	45%
2004	bonus max	19%	13%
	intermediate	60%	39%
	no bonus	21%	48%
2005	bonus max	21%	11%
	intermediate	55%	31%
	no bonus	24%	58%

Table 2: the spread of bonuses for the second plan

The 2005 results are now used to test whether the new target setting generates targets that are closer to the ones obtained from the budget. The results are displayed in graph 2. The alignment on the diagonal is striking, as compared to graph 1. This means that the two target setting, both the internal and the external one, give similar targets. The R^2 coefficient is now .60, which is quite significant. Yet the external standard plays a dominant role: graph 3 depicts the actual PI relative to what it would have been had the

simple formula been used.[10] The R^2 coefficient climbs to .93 so that one can infer that the adjustments towards the budget remain minimal.

<center>(insert graphs 2 and 3 about here)</center>

This analysis can be made more precise through a multifactor regression analysis in which the actual PI is explained through the PI in which the simple formula is used as a target and the PI in which it is the budget which is used. The regression is highly significant and both factors are as well. However the coefficient of the formula based PI is much larger (.827) than the one coming form the budget (.138). This proves that the actual target setting is closer to the external one (formula based) than internal (budget based). These results are displayed in table 3.

All BU's 2005 Observed PI	R-squared	0.94	Number of ob	118
	Regression Coeff.		*Signif*	
PI_budget	.138		*0.000*	
PI_formula	.827		*0.000*	
Constant	-1.5		*0.732*	

<center>Table 3: the regression of observed PI with respect to budget and formula for all BU's</center>

How can one explain that the observed EI moves from the external standard towards the budget EI? Two explanations are to be considered: (i) the budget process itself is strongly influenced by the external target, (ii) the divisional managers use the flexibility offered by the new target setting to adjust the external standards to the environmental specificities of the BU's, specificities which are already embedded in the budget. The second explanation seems more plausible. The budget is made in November of the previous year while the target setting is made in March of the current year, once the actual EVA of the previous year is definitely known. This timing rules out the assumption (i). Our explanation is that assumption (ii) holds: the adjustment goes in the direction of the budget (and of the current year results observed through the first quarter) but the external standard remains a strong anchoring target.

Since the two standards are close to each other, and since the intervals are now more meaningfully calibrated, the relative spreads in bonuses would have been similar with an internal standard based on budget as with EVA (table 4). In terms of mean values and standard deviations, the two series are statistically not distinguishable.

All BU's 2005	Observed PI	Budget as EI
mean value	91%	87%
st deviation	1,79	1,72

<center>Table 4: comparisons of the spreads obtained with the actual EI and with budget</center>

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[10] EI = Max (-EVA $_{n-1}$ / k; m EVA $_{n-1}$), see ii) in section 4.4.

It is interesting to run this analysis only for the BU's which belong to the core business of company XYZ. One would expect that the corresponding managers have more power relative to corporate than those of non core BU's. Does this mean that they can influence the target setting to their own benefit? The regression of the actual PI with respect to PI in which the simple formula is used as a target and the PI in which it is the budget which is used is again highly significant but the relative weights are different (see table 5). In this case, the actual target setting appears almost equally balanced between the external (.506) and internal setting (.484). The managers of the BU's in the core business of XYZ have indeed more power to draw the target towards budget. To some extent, this materializes through higher bonuses (see table 6 for the 2005 bonuses of core versus non core BU's).

Core BU's 2005 Observed PI	R-squared	0.98	Number of ob	45
	Regression Coeff.		*Signif*	
PI_budget	.484		*0.000*	
PI_formula	.506		*0.000*	
Constant	3.07		*0.43*	

Table 5: the regression of observed PI for the core business BU's

% of BUs	classification	45 core BU's	73 non core BU's
	bonus max	27%	18%
2005	intermediate	62%	51%
	no bonus	11%	32%

Table 6: the actual bonuses for the core versus non core BU's in 2005

5.4. Putting everything together: the non-controllability comes from the lack of renegotiation (hypothesis 4)

At this point, we have a system based on a performance measure: (i) that is not much noisier than previous measures used in the company (thanks in particular to the changes made in EVA calculations), (ii) in which some limited negotiation can take place *ex-ante* at the target setting phase, (iii) but in which no *ex-post* renegotiation is feasible. A loss of controllability is perceived, significant enough to induce further search for a better scheme. We discuss the resilience on the loss of controllability and then comment on the adopted plan.

In our opinion the loss of controllability mainly comes from the lack of renegotiation. The fact that EVA is conceptually associated to market expectations and that it is administered through a heavy accounting process by the control department, reduces the flexibility for operational managers to make the appropriate *ex-post* adjustments to eliminate relevant out of control environmental factors. Comments regarding the system prior to 2000 are illustrative of the difference "*budget was made under this and this assumption, ex-post let us recalculate the true reference to assess the bonus*". Such adjustments cannot be made with an external standard. The limited changes available

ex-post, such as the neutralization reported in section 4.3, exemplify the unsatisfactory process to face extreme situations with an EVA scheme.

Is it possible to eliminate this drawback through an *ex-post* variance analysis? The route followed in the case study is illustrative of the usual pitfalls encountered with variance analysis. Testing in XYZ showed that these variances analyses may become a complicated scheme in the hands of the controller, may have no managerial relevance, may be manipulated to explain that poor performance is due to the environment and good performance to wise decisions. The limited range of bonuses observed previously was precisely attributed by the top management to such renegotiations based on such informal variance analyses. The lack of confidence of the top management in the objectivity of the past internal process, with its gaming around budget and the informal renegotiation that goes with it, had triggered the adoption of a more "objective" system based on an external standard. It seems fair to conclude that the subjective controllability of the earlier system perceived by the managers comes partly from their past ability to manipulate the internal standard to obtain (large) predictable bonuses. No wonder that the route followed to eliminate the loss of controllability through a variance analysis appeared as a dead end.[11]

The changes made in 2006 may be seen as indirect evidence that in spite of the changes made in 2003 EVA still induces a lack of controllability detrimental to its acceptability by operational managers. To remedy this drawback the route that was followed is in line with hypothesis 5 part 2: a reduction in the weight of EVA in the total scheme and the introduction of other more "controllable" performance measures. More precisely, the more uncontrollable part, *i.e.* the long term EVA bonus, was abandoned and replaced by more traditional performance indicators constructed either on benchmarks relative to peers and on internal standards.

6. Discussion: explaining the decline of EVA

This concluding section reviews the results of the case study in a broader perspective, in particular as a contribution to an understanding of the emergence and relative decline of EVA.

6.1. Is EVA efficient after all: a question that remains open

A question that often comes to mind and is not addressed in the paper is the eventual better performance obtained at XYZ through the introduction of EVA. This question cannot be answered easily. The case study does not overcome this difficulty.

The stock price of XYZ did not outperformed the index of the sector over the 2000-2006 period. Observe however that such evidence would have left open the role of many other factors such as the impact of geographic and product differences in the portfolio of firms as well as changes (through acquisitions or divestitures) in these portfolios. Empirical studies such as Mottis and Ponssard (2001-2002) point out that the introduction of EVA often coincides with the change of CEO and the adoption of a turnaround in strategy, two things which did not occurred in XYZ, as well as many differences from firm to

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[11] This can be demonstrated in a formal model (Larmande and Ponssard, 2007). The sophisticated variance analysis, when the manager is privately informed and consequently can mitigate the impact of the uncertain environmental factor, does not eliminate this factor from the performance measure.

firm in implementing EVA (Malmi and Ikäheimo, 2003). Such factors may be more decisive in explaining changes in stock prices than compensation plans as such (see for instance Dial and Murphy, 1995, for an analysis in which many such factors are closely intertwined). This sheds some doubts on the interpretations of the correlations discussed in Wallace (1997) and Kleiman (1999).

A better focused analysis could concentrate on the evolution of investment and maintenance expenses at the BU level. Anecdotal evidence suggests that operational managers got into the habit of analyzing their balance sheet and no longer only their income statement, and managed their assets more efficiently, at least the part over which they had real decision-making powers. This enhanced analytical capability applied mainly to strategic reviews and budgets. For monthly control, on the other hand, EVA calculations required precise accounting data that were available too late, so that control continued to be based on EBIT. Quantitative assessments of these changes are not available due to the absence of consistent historical data on BU's due to frequent changes in perimeters.

6.2. The results at XYZ are in line with contract theory

Compensation schemes are analyzed through the congruity/controllability grid. The EVA scheme implemented at XYZ suffers from a lack of controllability. Firstly, EVA calculations cannot completely eliminate complex and arbitrary accounting treatments which introduce an internal administrative noise in the process. Secondly, the way targets are set within the organizational structure introduces further volatility. Thirdly, and more importantly, the external process for setting target excludes (re)negotiation. The very idea to use an external standard in order to dissociate the target definition from the budget process, as suggested in Jensen (2001), generates standards down the organization which may not be understood by the operational managers and that cannot be readjusted in face of uncontrollable events through either *ex-ante* or *ex-post* negotiation. The successive EVA plans implemented at XYZ over the period 2000-2006 mitigated the first two drawbacks but not the third one.

The overall trend observed at XYZ is one of a relative decline in the use of EVA. This is consistent with contract theory: highly uncontrollable performance measures should be replaced by more controllable ones. The fact that XYZ kept EVA along with these other measures can clearly be interpreted as a way to preserve congruity with the stock market. The top management repeatedly recalled that operational managers at the BU level should be made aware of the performance of their unit as seen by the financial community and that EVA was the appropriate measure for that. Altogether the scheme in 2006 illustrates a pragmatic balance between congruity and controllability.

6.3. To what extent are the conclusions case specific?

Company XYZ qualifies as a good representative of what is meant by "EVA companies" as coined by Stern&Stewart. The reliance on accounting data, the introduction of adjustments, the use of external standards, the use of a long term perspective for the bonus, all these features have been implemented at XYZ.

Observations coming from other companies conform with the conclusions of the case study, even if the actual outcomes may be somehow different. As in Lovata and

Costigan (2002) or in Riceman et al. (2002) external financial pressure appears as the main reason for adopting EVA. The ATT story as reported in Ittner et al. (1998) is illustrative of controllability issues. The commitment to a "pure" EVA scheme was quickly followed by the introduction of measures of customer and employee satisfaction that we interpret as a way to enhance controllability. Technical difficulties appeared: the fact that the EI's and the Intervals are absolute numbers made updating tedious in face of numerous structural changes. This reduced the adhesion of managers to an indicator which was complex to follow, again a controllability issue. On top of that, the disconnection that appeared between EVA and MVA made the congruity questionable to the shareholders, which led to a change in CEO.

6.4. Other interpretations for the decline of EVA?

Two other sources of explanation may be worth exploring further. Compensation may also be analyzed through indirect views such as fairness, a way to provide a sense of being good, of being a member of the company… (Merchant, 1989). In this respect it may be considered as extremely difficult to sustain a bonus scheme with such large spreads as the ones encountered with EVA in XYZ. Recall that the scheme previously in place resulted in bonus payments in the range of 65 % to 85% . Many managers resented very badly a zero bonus, which sometimes occurred twice in a row. To attribute this bonus to environmental factors is a way to avoid cognitive dissonance. To press for a change of the system is a way to encourage bonus schemes that would be more comfortable to live with.

The other consideration may come from the relationship between management control systems and compensation. Simons (1995) introduces major differences between diagnostic and interactive control systems. One could argue that EVA fits well with diagnostic systems: it is objectively defined and based on external benchmarks, it is quite adequate for remote control. The adoption of EVA would coincide with the need to show that Wall Street pressure is taken seriously by the top management. But it can be argued that EVA is inadequate to promote change within a company through an interactive involvement of top managers, more subjective performance measures are needed to accompany specific goals and create a learning attitude. The pretence of EVA to be the unique performance measure that is needed generates a contradiction and triggers the questioning of its incentive value even at the top management level. The fact that EVA has never been adopted by financial analysts further explain the decline.

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PI 2002 EI versus Budget
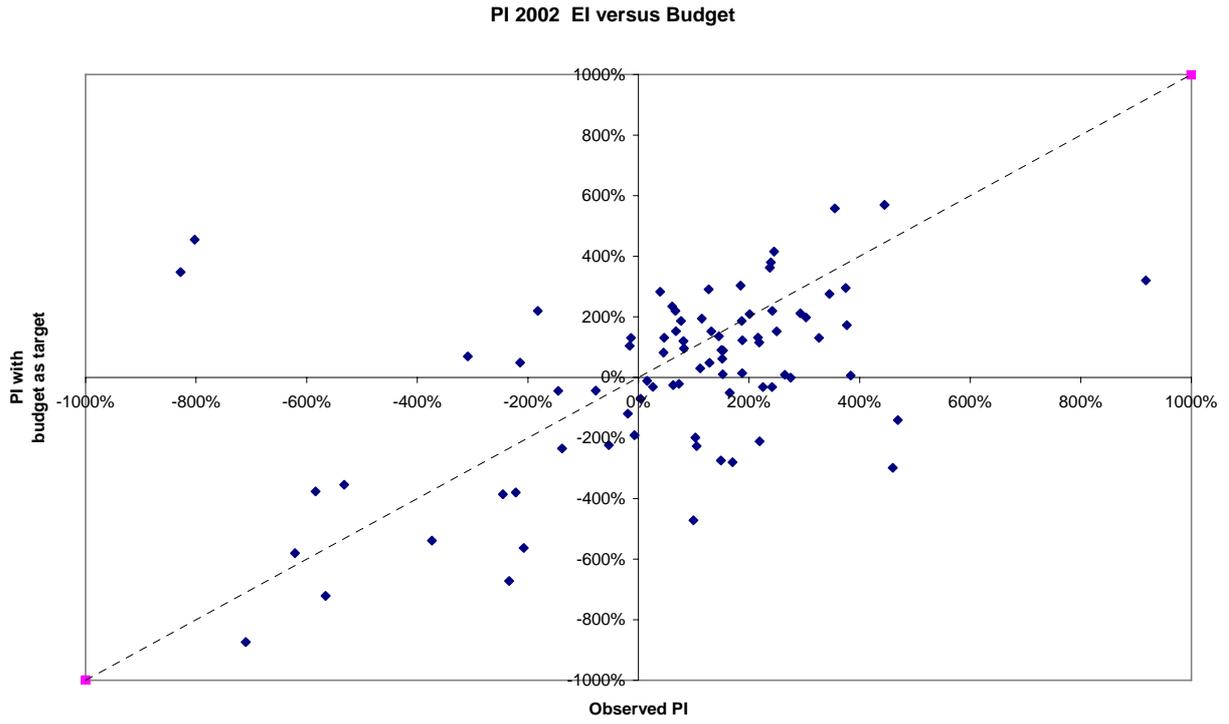
Graph 1: The 2002 performance indexes with EI based on budget versus actual EI

PI 2005 EI versus Budget
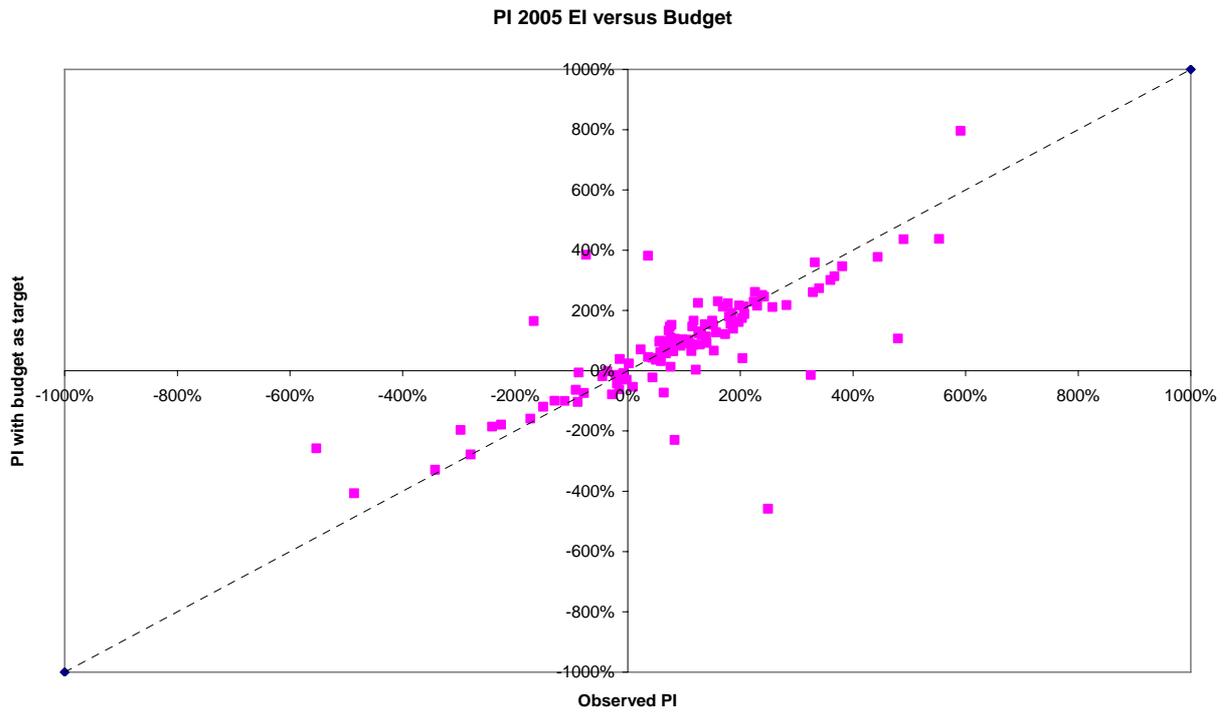
Graph 2: The 2005 performance indexes with EI based on budget versus actual EI

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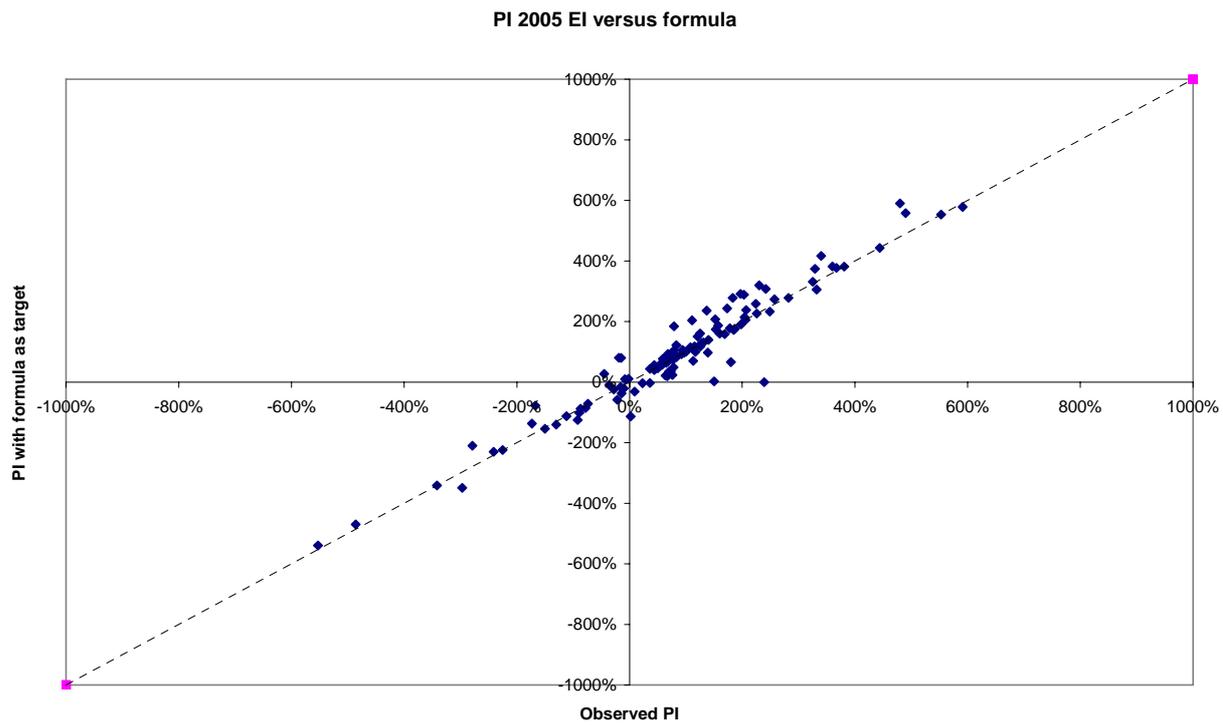
Graph 3: The 2005 performance indexes with EI based on formula versus actual EI