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**TAX-COMPLIANT TRANSFER PRICING AND
RESPONSIBILITY ACCOUNTING**

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ABSTRACT

While the accounting literature has extensively studied the role of transfer pricing (TP) within the management control system (MCS) of companies, MCS issues related to cross-border transfers have received far less attention. In this case study, we investigate how TP tax compliance influences responsibility accounting when one multinational enterprise (MNE) uses a single set of transfer prices for both tax compliance and management control. First, the MNE eliminated TP negotiation, leading to psychologically disagreeable and sometimes also economically harmful situations. Second, the firm administratively simplified the determination of profit margins to such an extent that it could lead to suboptimal business decisions. Third, tax compliance induced a profit center designation for business units that were primarily responsible for costs or revenues. The firm first coped with a mixed treatment of these responsibility centers, allowing them to be profit centers for tax purposes and cost or revenue centers for MCS purposes. Later, top management became convinced of the benefits of a profit-center treatment for all purposes and started to convert the pro-forma profit centers into real profit centers. Overall, this study contributes to the stream of research documenting and explaining how MCSs are designed and used under environmental pressures.

Keywords: international transfer pricing, management control system, responsibility accounting, multinational enterprise.

INTRODUCTION

In this transfer pricing (TP) paper we empirically investigate how tax compliance influences responsibility accounting in one multinational enterprise (MNE) that uses a single set of transfer prices. International tax law is a crucial determinant of cross-border TP in MNEs. It imposes the arm's length principle as the yardstick to judge the fairness and correctness of the TP system (Art. 9 OECD Model Tax Convention). The tax authorities take a 'separate entity approach' to investigate an MNE's adherence to the arm's length principle. This approach implies that MNEs need to be prepared to demonstrate that intercompany prices are in line with what would have been charged had the two companies not been related (OECD TP Guidelines 1995). The potential penalties, the risk of encountering economic double taxation, and the significant financial and reputation consequences in case of non-compliance motivate MNEs to give high priority to TP tax compliance¹ (Cools and Emmanuel 2007; The Economist 2004; Wright 2004, 2007). Under these regulatory constraints the majority of MNEs opt for a single set of transfer prices (also called one set of books) for both tax compliance and management control purposes (Ernst & Young 2003, 2005).

The arm's length principle refers to the concept of profit centers, but it is not clear to what degree international tax law actually forces MNE subunits to behave as profit centers for all purposes. Management accounting and control textbooks tend to highlight the management control role of TP in profit centers, reflecting in this way the scarcity of TP research in other types of responsibility centers (Anthony and Govindarajan 2006; Hilton 2005; Horngren et al. 2006; Simons 2000; Zimmerman 2003). Eccles (1985, 1986) is the only researcher who distinguishes between the degrees to which so-called profit centers display various responsibility center characteristics in a domestic setting, linking them to the use of different TP methods. International TP studies mention the relevance of responsibility accounting for cross-border TP without providing any explanation or illustration (Borkowski 1992a; Emmanuel and Mehafdi 1994), or treat responsibility accounting merely as the degree of (de)centralization of the organizational structure without addressing related management control system (MCS) aspects (Narayanan and Smith 2000). Since empirical data on this topic are scarce, we use an in-depth case study in one MNE to identify and describe specific influences of tax compliance on the MNE's responsibility center set-up and related management control issues.

First, we find that the MNE eliminated TP negotiation as part of its tax-compliance efforts. The consequent reduction in the sense of autonomy was mainly experienced as psychologically disagreeable and the loss of negotiation power sometimes also led to economically harmful situations. Second, tax compliance led the MNE to install uniform profit margins and mark-ups for all similar stages in the firm's value chain. It was a simplification for administrative reasons, which made the MNE more confident that the tax authorities would fully understand and accept the TP policy in place. The uniform profit margins resulted in suboptimal decisions at some places in the firm. Third, tax compliance induced a profit center designation for business units that were primarily responsible for costs or revenues. The MNE initially coped with a mixed treatment of the responsibility centers, allowing them to be profit centers for tax purposes and another type of responsibility center for MCS purposes. A secondary effect was that top management started to see the benefits of profit-center treatment for all purposes. Consequently, they started to convert the pro-forma profit centers into real profit centers.

This case study aims at contributing to the stream of research documenting and explaining how a company's MCS is designed and used under environmental pressures, in this case caused by the arm's length principle. It responds to the call for studies explaining how TP processes within the MCS are managed in practice (Spicer 1988; Colbert and Spicer 1995; Cravens and Shearon 1996; Cravens 1997). Our research approach allows us to uncover aspects of TP that are typically not captured in analytic or survey studies. By generating new insights into the diverse policy issues underlying international TP, our study also contributes to enhancing understanding between tax, financial, and human resource managers within MNEs as well as between MNE senior management and the tax authorities.

The remainder of the paper is structured as follows. In the next section we review the TP literature on the MCS and tax compliance objectives of TP and conclude by formulating a number of empirical questions. After describing the research method, we introduce the case company in terms of its organizational structure and TP policy. In the analysis section we identify specific influences of tax compliance on management control at our research site. We focus on subunit managers' preferences and the MNE's choices in terms of the responsibility accounting set-up and related performance measurement and evaluation system. The resulting tensions are discussed in terms of the negative and positive effects of TP tax compliance on the MNE's MCS and, where relevant, related to the extant literature. Finally, we identify the limitations of this study and make suggestions for future research.

LITERATURE REVIEW

We start by reviewing the survey literature to document the importance of the different TP objectives. Since the tax compliance objective is central to our study, we next look at international tax law to examine the reach of the arm's length principle. This principle explicitly refers to profit centers, which leads us to review the MCS literature on responsibility accounting in relation to TP. Finally, we turn to the analytic TP literature that raises questions related to the trade-offs between tax and MCS TP objectives. Focusing on responsibility accounting choices under the constraint of tax compliant TP, we will study these questions in practice in one particular MNE.

Management Control versus Tax Compliance Objectives of TP

TP systems fulfill a variety of objectives in multi-divisional firms, which implies that trade-offs need to be made. The MCS literature has traditionally studied the role of TP in achieving goal congruence and in measuring and evaluating managerial performance (Abdallah 1989; Emmanuel and Mehafdi 1994). Within the MCS, transfer prices help value and coordinate the workflows of interdependent organizational units that are each held accountable for their financial performance (Simons 2000). In MNEs the design of the TP system can help achieve an additional set of goals, including profit maximization, cash flow, sales and marketing goals; minimizing taxes, duties, and tariffs; and achieving socio-political goals related to financial restrictions, currency fluctuations, and host country relations (Leitch and Barrett 1992; Dunning 1980). Over the last decades, TP regulations have become much more detailed and a growing number of national tax authorities have increased scrutiny of the TP policies implemented by local and foreign MNEs (Cools and Emmanuel 2007). This trend leads to an additional goal, TP tax compliance. The pressure MNEs feel today to comply with TP tax regulations is evidenced by the biennial Ernst & Young TP surveys (conducted since 1995) that document regulatory activities and enforcement practices and describe MNEs' experiences with TP audits around the world.

Studying the trade-offs between different TP objectives, other surveys indicate that MCS objectives continue to be taken into account when MNEs set their TP policies. In Tang and Chan's (1979) study, US and Japanese MNEs ranked divisional performance evaluation as the fifth most important factor when deciding on their TP policy. Yunker (1982) found that MNEs using TP to increase overall profits place less emphasis on profit-oriented measures in divisional performance evaluation. Larger MNEs tend towards market-based transfer prices and use profit-oriented measures in the evaluation of subsidiary performance while cost-based firms are more concerned with budgetary and goal-oriented performance criteria. Borkowski (1992a) identified the use of subsidiary profits for performance evaluation and degree of decentralization amongst the organizational determinants of international TP. In Tang's 1992 survey of large US corporations, the importance of performance evaluation of foreign subsidiaries dropped from the fifth to the tenth place compared with his 1979 survey, while Tang's 2002 survey confirms the role of divisional performance evaluation among the most important TP objectives of US MNEs.

The extant survey literature documents the importance of the tax minimization objective and, as detailed in the previous paragraph, it points out that management control is not ignored. However, the dominance of the TP tax compliance objective has become significantly more important in recent years than these surveys suggest. Therefore, we now discuss the reach of the arm's length principle, which guides national tax authorities when assessing the correctness and fairness of international TP systems.

Tax Compliance: the Arm's Length Principle

Compliance with the arm's length principle means that intra-firm transactions should be treated and priced as if they were undertaken under open market conditions under similar circumstances (OECD 1995). Tax authorities check the application of the arm's length principle by investigating whether the financial results of the MNE's divisions are comparable to those of independent enterprises. When they observe distortions in terms of tax liabilities of the associated enterprises and tax revenues of the host countries, tax authorities may adjust the profits of the associated enterprises². Membership in a broader group - the MNE - is disregarded in taxation: each legal entity is treated as a separate and independent tax subject, which is presumed to strive for a profit of its own (OECD Model Tax Convention). The OECD Guidelines therefore explicitly assume that all local MNE subunits behave as profit centers and other types of responsibility centers are not mentioned.

In addition, the tax authorities become particularly suspicious when MNE subunits consistently realize losses (OECD 1995).

In contrast to what we might expect based on the MCS literature, the OECD Guidelines do not accept negotiated transfer prices as a sufficient and valid proof of tax compliance:

“Sometimes, it may occur that the relationship between associated enterprises may influence the outcome of the bargaining. Therefore, evidence of hard bargaining alone is not sufficient to establish that the dealings are at arm’s length.” (OECD 1995 §1.5)

Instead, the OECD Guidelines recognize five TP methods that, depending on the circumstances and the characteristics of the transfer, provide a suitable application of the arm’s length principle: the comparable uncontrolled price, the cost-plus method, the resale-minus method, the transactional net margin or comparable profit method, and the profit split method.

The current TP rules entail extensive documentation requirements, urging MNEs to explicitly demonstrate how their TP policy respects the arm’s length principle. The functional analysis is a crucial part of the documentation, requiring a detailed analysis of the various functions undertaken, the assets used, and the risks taken by the different parties involved in the intra-firm transactions (IRS 1994; OECD 1995). However, national tax authorities interpret and implement the fluid arm’s length principle in different ways, reflecting long-established domestic tax practices (Eden et al. 2001; Picciotto 1992). The resulting diverging approach to TP by different tax authorities worldwide is a growing concern for MNEs (Ernst & Young 2003). Finally, it is worthwhile to mention that the OECD Guidelines do not provide any recommendation about whether the arm’s length principle needs to be fulfilled using one versus two sets of TP books³. In addition, there are no statutory requirements in the US and in many other countries that stipulate that the incentive and tax TP be the same (Hyde and Choe 2005).

Management Control: Responsibility Accounting

While the OECD TP Guidelines only acknowledge the existence of profit centers, the MCS literature on responsibility accounting identifies a variety of responsibility centers. Responsibility accounting refers to multi-divisional firms installing different types of responsibility centers to promote alignment between individual and corporate goals, depending on the decision rights delegated to the subunit managers (Vancil 1979; Horngren et al. 2006). It determines the range of performance measures used to evaluate a manager's achievements under the imperative that this evaluation should best be based on what the manager controls (Demski and Sappington 1989; Zimmerman 2003). The 'span of accountability' (Simons 2000) might range from a narrow focus on spending or revenues in cost and revenue centers respectively to profit centers holding managers accountable for the impact of spending levels or even the efficient utilization of assets on revenues and profit⁴. Responsibility accounting has been an under-researched area, investigated primarily through principal-agent modeling of the link between controllability and informativeness (Holmstrom 1979, 1982; Baiman and Demski 1980; Antle and Demski 1988). With the exceptions of Merchant (1987) and Rowe et al. (2007), empirical studies are scarce.

In a domestic context, Eccles (1986) investigated the organization's architecture in terms of three types of decision rights, possibly delegated to subunit managers : 1) partitioning of subunit managers' decision rights related to sourcing, i.e. the choice of a division's suppliers and customers, and pricing, i.e. the setting of a transfer price for internal transactions, 2) measurement and evaluation of the subunit's performance, and 3) rewarding and punishing the subunit managers for performance so as to achieve both efficiency and fairness objectives (Jensen 1983; Jensen and Meckling 1992; Zimmerman 2003). Eccles (1986) found that in companies following a vertical integration strategy, issues of TP and divisional role definition are interrelated. He concluded that subunits in real life are not simply cost centers or profit centers, and that the term 'profit center' covers various degrees of authority and autonomy of subunit managers (Eccles 1986; Vancil 1979).

Given the scarcity of empirical studies, we set out to further explore how an MNE manages the requirements of the arm's length principle – with its explicit focus on profit centers - versus management control preferences for different types of responsibility centers. We now first turn to the analytic TP literature, which can provide guidance to our study since it identifies a number of economically important questions in this context.

Trade-Offs between Tax Compliance and MCS Objectives of TP

The analytic TP literature⁵ provides interesting insights into the trade-offs MNEs face when seeking to achieve both tax-related and management control objectives. More in particular, this research stream raises three important questions for which the models have to make explicit assumptions since a priori it is not clear how they are dealt with in practice. The first issue is whether one versus two or more sets of transfer prices should be used. Halpirin and Srinidhi (1991), Sansing (1999), Narayanan and Smith (2000), and Smith (2002a) derive one set of optimal transfer prices that reconciles managerial and tax objectives under certain static circumstances. In contrast, Smith (2002b), Baldenius et al. (2004), and Hyde and Choe (2005) model two distinct transfer prices, one to serve incentive purposes and the other to serve tax purposes. To prove that decoupling the internal transfer price from the arm's length transfer price leads to the best overall firm results -- because tax regulations frequently do not capture the underlying economics of internal transfers -- Baldenius et al. (2004) calculate the 'cost of conformity' (i.e. resulting from using one set of books)⁶. Hyde and Choe (2005) examine the interdependence between the tax transfer price and the incentive transfer price, both when the incentive transfer price is negotiated and when it is dictated by the parent company. Even the analytic researchers modeling two sets of books recognize the common use of one set of transfer prices for reasons of simplicity, time and cost savings, and for preventing multiple transfer prices from becoming evidence in disputes with the tax authorities (Baldenius et al. 2004; Smith 2002b).

The second issue is whether tax compliance is a (given) constraint or a decision variable. In Smith (2002b) and Hyde and Choe (2005) tax compliance is not assumed: the models take into account that the domestic division risks a penalty when a TP audit finds out that it deviated from arm's length tax-admissible prices. By contrast, Baldenius et al. (2004) take tax compliance as given.

The third issue is whether performance measures other than profit should be used. As an alternative to modeling separate sets of transfer prices to disentangle the tax and MCS objectives of TP, Smith (2002b) relaxes the common assumption that aggregate profit is used as the performance measure. Instead, he examines the use of performance measures independent of the transfer price. He finds that attaching different weights to performance versus other effort measures eliminates tax and incentive trade-offs even when the firm uses a single transfer price.

The economic relevance of the three TP questions identified above, calls for an investigation on how they are dealt with in practice. First, in terms of the number of TP books, Durst (2002) and the Ernst & Young surveys indicate that a single set of books for management and tax purposes prevails. 80 percent of the parent companies surveyed report using one set of transfer prices because

“Alignment of transfer prices with management views of the business can enhance the defensibility of the transfer prices, ease the administrative burden, and add to the effectiveness of the TP program. In fact, in many countries, management accounts are the primary starting point in the determination of tax liability and differences between tax and management accounts are closely scrutinized.” (Ernst and Young 2003, 17)

The prevalence of a single set of transfer prices is therefore reflected in the selection criteria for our research site. The second issue—whether tax compliance is a constraint or a decision variable—and the third issue—the performance measures used and the related responsibility center set-up—are the subject of our empirical investigation.

RESEARCH METHOD

We examined the impact of tax-compliant TP on responsibility accounting by conducting a case study at one MNE. Limiting the field study to a single MNE allowed us to examine in depth the complexity of the TP system in relation to its context (Otley 1999). To ensure comparability with the mainstream MCS literature on TP, this study focuses on the transfers of products, even though the internal provision of services will be mentioned for completeness where appropriate. The field study was conducted between 1999 and 2002 in the 'Semiconductors' Product Division of a large, mature, multi-divisional MNE. The MNE's corporate tax department had expended significant efforts to motivate all product divisions to comply with the tax regulations in the different countries where the MNE was present. Theoretical sampling (Eisenhardt 1989) guided our choice of the research site, which was selected based on the following criteria:

- Global presence: The MNE operated Semiconductors units worldwide, each subject to country-specific tax rules; it had an important presence in the US, the country with the most stringent tax legislation in the world (Eden et al. 2001; Cools and Emmanuel 2007).
- A large number of cross-border transactions: TP was particularly relevant in the complex domestic and international transaction environment of Semiconductors.
- One set of TP books: Semiconductors implemented one set of TP books, which is in line with common TP practice today (Baldeuius et al. 2004; Ernst & Young 2003).
- Tax compliance: The MNE felt comfortable with the tax compliance aspects of its TP policy. Having been subjected to TP audits in various countries it had not encountered any major problems with the tax authorities involved.
- Management control: A multidisciplinary workgroup had been involved to ensure compliance of Semiconductor's TP policy with the tax rules. Controllers at different managerial levels played an important role during this process, to make sure MCS issues were not overlooked (Cools et al. 2008).

The case MNE provided access to management at all levels in the company. Access to top management was crucial to collect information on the company's global TP policy and the division's organization structure. Access to Semiconductors managers was important in order to gather information about the implementation of TP, the responsibility center structure and the related performance and reward issues.

We designed our case study protocol and data analysis protocol (Yin 1994) to maximize the traceability of the research process (Ryan et al. 2002). We interviewed 23 people at different levels in the organization between 1999 and 2002 for a total of 47 hours. An overview of the number of people involved at the different levels is provided in Table 1. The semi-structured interviews were guided by open-ended questions that were based on the domestic MCS TP literature and the TP tax literature. The questions were kept open enough so that unexpected findings could inform the data collection and theory development process. The interviews were completely transcribed⁷, giving us an overall view of the TP process. In addition, we collected 111 internal company documents related to TP. Table 2 provides an overview of the types of documents analyzed.

Insert Table 1 and 2 About Here

We followed Miles and Huberman's (1998) recommendations for data reduction, data display, and conclusion drawing and verification. The data were reduced by preparing contact and document summaries. These summaries, together with all interview transcripts, were introduced into NUDIST, a qualitative data analysis software package. The software facilitated the coding of the data and enabled the systematic retrieval of all bits of information coded in the same way. Further analysis consisted of structuring the data by displaying them in thematic conceptual matrices. Verification consisted of cross-validating both the documents and oral stories and the different oral stories amongst each other. This triangulation was necessary to address potential problems of construct validity and to make our case study findings more accurate and convincing (Yin 2003; Miles and Huberman 1998).

THE RESEARCH SITE

In this section we introduce the Semiconductors Product Division of the selected MNE. In the semiconductor industry, the MNE was not among the largest global players in terms of volume, but by offering its customers tailor-made solutions in addition to standard products it had gained an important market position. In order to guarantee tax compliance, Semiconductors had gradually been reorganized along a matrix structure involving different stages and a profound consideration of the MCS objectives of the TP policy. Semiconductors implemented its TP policy along strict monitoring requirements (Cools et al. 2008).

The Matrix Structure

Semiconductors' matrix structure involved a two-way flow of authority and responsibility (Mullins 2002; Haberberg and Rieple 2001; Bartlett and Ghoshal 1990).

Insert Figure 1 and 2 About Here

The first axis of the matrix structure, i.e. the segmentation of the organization into functional departments, provided a stable basis for specialized activities and a permanent location for staff members. Key activities along the functional axis of the matrix were (see Figure 1):

- *Operations:* The main activities consisted of production, pre-testing, and storage in the product bank. From there the products moved to assembly and another testing phase. Production took place in semiconductor plants in the US and Europe. Assembly and testing often took place in low-cost labor countries in Asia but also in the production plants themselves.
- *Marketing and Sales:* Regional sales organizations were responsible for distribution and storage of the semiconductors in the different continents, while national sales organizations represented the MNE in the customer's country. The semiconductors went straight from the warehouse at the regional sales organization to the customer and did not physically pass through the national sales organizations.

- *Other organizations* involved were the Corporate Center, Technical Support Centers, and Application Laboratories. They took care of all activities not directly related to the goods flow⁸.

The second flow of authority and responsibility in the matrix structure involved the product axis, along which Semiconductors was organized into groups of strategic business units (SBUs), either focusing on similar products or on operational activities and processes (see Figure 2):

- The *product SBUs* were grouped into different business areas according to their market focus (e.g. Consumer Businesses or Communications Businesses) and divided into smaller business lines (BLs) of similar products. The SBUs formulated the product's global strategy and allocated resources in line with the targets agreed by divisional management. Moreover, they communicated with key executives from strategic customers and suppliers. The BLs' responsibility was more operational in nature: they implemented the SBU strategy in a designated product or market segment, and were responsible for product management, new product development, quality and logistics, production, and global marketing. The SBUs and BLs were physically active in the various functional facilities of Semiconductors all over the world, with SBU and BL staff members physically located there.
- The *process SBUs* consisted of two SBUs with a specific focus on operations: Production, on the one hand, and Assembly and Testing, on the other. The Production SBU grouped together most production plants, while most assembly and test facilities belonged to the Assembly and Testing SBU. When capacity was limited, the Production SBUs and the Assembly and Testing SBU tried to find suitable external subcontracting parties. Besides these two operational SBUs, there was also a third central unit, the International Marketing and Sales Organization, which consisted of the regional and national sales organizations.

In the matrix organization the BLs made use of the various functional facilities of Semiconductors by subcontracting operational tasks to the production plants and the assembly and test facilities. Similarly, the BLs subcontracted sales to the various sales organizations around the world and organized marketing together with the International Marketing and Sales Organization. Planning and coordination were essential: as soon as the volumes were known, the BL contacted the operational SBUs so that product needs could be translated into specific technologies.

The Tax-Compliant TP Policy

The MNE faced different TP regulations in the various countries in which it operated. The Internal Revenue Service (IRS) in the US had created the most stringent and detailed jurisdiction, accompanied by numerous TP audits and heavy penalties for non-compliance. The European and Asian countries in which the MNE operated had also expended efforts to implement the OECD TP Guidelines. However, these countries showed significant differences in the training levels of their tax officials and the intensity with which TP audits were undertaken (Eden 1998; Ernst and Young 2001, 2003, 2005). The MNE's Corporate Tax department responded to the tax compliance pressures in the various countries by adopting a single, comprehensive TP policy. While different TP methods were required at different stages in the value chain, Semiconductors had chosen to apply these methods in a uniform way for all similar transactions, independently of the countries involved in the transfer. By using this uniform policy, the company wanted to demonstrate that it did not leave any room for tax manipulation. The Corporate Tax department justified Semiconductors' TP policy in a substantial document, explaining in detail how, among other things, the TP policy respected the OECD TP Guidelines and the arm's length principle (Cools et al. 2008). Since purely negotiated transfer prices were not allowed for tax compliance reasons, the TP policy was imposed upon the businesses by divisional management. As a proof of the business fundamentals of the TP policy and the absence of tax avoidance, Semiconductors stressed its use of a single set of books, both for tax compliance and for management control issues.

In terms of TP methods, Semiconductors applied the cost-plus method in manufacturing and the resale-minus method in sales (see Figure 3). Since the number of production steps undertaken in a particular plant varied, Semiconductors calculated and used a cost-plus price for every step in the manufacturing process, whether the next activity took place in the same plant or not⁹. The transfer price between operational units was the sum of the prices for all steps already undertaken. ‘Production’ prices consisted of budgeted costs increased by a uniform, fixed profit mark-up. ‘Assembly’ and ‘test’ prices included a uniform, fixed, but lower, profit mark-up on top of the budgeted costs. The transfer price between an assembly and test facility and a regional sales organization was the aggregate of production, assembly and test costs plus profit mark-ups. The transfer price between regional and national sales organizations was the resale price minus a uniform, fixed profit margin. ‘Resale’ transfer prices used the lowest profit margin percentage since the sales activities involved the lowest levels of investment, risk, and complexity of the functions undertaken. The profit percentages were based on a detailed functional analysis applied to the interacting parties.

Insert Figure 3 About Here

The delivery of services was covered by a cost-plus transfer price under a General Services Agreement, which also covered the costs of the BLs. Semiconductors used budgeted costs to prevent manufacturing inefficiencies from being passed on to other parts of the value chain (Horngren et al. 2006). Because most tax authorities require the use of actual costs, an explicitly documented adjustment was made at the end of the fiscal year¹⁰. Divisional management explained that the differences in the underlying processes were reflected in the different cost bases to which the mark-up percentages were applied. Similarly, they argued that applying different percentages to the same sales function in the different countries would be impossible to manage:

“We are convinced that a TP system that used a specific mark-up for every different product would become too confusing given the wide variety of semiconductors produced and sold.” (Semiconductors divisional controller)

The tax-compliant transfer prices were most visible along the functional axis of Semiconductors' matrix structure, where they determined the invoice prices between the functional entities. At an aggregate level, they contributed to the results of the geographical sites, which were of particular interest to the national tax authorities. Along the product axis, transfer prices influenced the results of the SBUs and BLs, which were responsible for steering the semiconductors through the value chain. From the moment the products were sent from the product bank to an assembly and test facility, the production transfer price became a cost for the BL. Similarly, the BLs paid for the assembly and test activities, for the sales efforts, and for the use of particular services. As such, TP played a role in performance measurement and evaluation, as will be explained below.

RESPONSIBILITY ACCOUNTING AT SEMICONDUCTORS

In this section we analyze responsibility accounting issues in terms of the different aspects of organizational architecture: 1) decision rights related to sourcing and pricing, 2) measurement and evaluation of subunit managers' performance, and 3) rewarding and punishment system (Jensen 1983; Eccles 1986; Jensen and Meckling 1992; Zimmerman 2003). We will pay attention to managerial preferences in light of the actual set-up of the responsibility centers for the BLs, the different plants, and the sales organizations. The uniform, tax-compliant transfer prices of the Product Division Semiconductors incorporated a profit margin to ensure that the arm's length principle was respected. As a consequence all units were formally presented as profit centers. From a management control point of view, however, we observed that these organizational units were not all actually treated as profit centers. Table 3 summarizes our discussion for the different organizational units.

Insert Table 3 About Here

Business Lines

The BLs acted as “entrepreneurs” along the product axis – they managed their supply chain and had some degree of autonomy to look for outside suppliers. They received a market price for their products and were responsible for the costs incurred. In line with managerial preferences, the BLs were evaluated as profit centers related to their global profits:

“EBIT is the profit level measured at the BL and calculated as: sales, deducting selling costs, deducting BL costs, deducting production transfer prices, test transfer prices, and assembly transfer prices. So TP comes in, but it is usually fixed anyway.” (BL controller)

BL managers explained that a single transfer price did not have a major impact on their financial performance, as it was only one of the many factors influencing their bottom line result. As in the other Semiconductors subunits, the Balanced Scorecard (BSC) played a central role in the BL’s managerial performance measurement and reward system. Financial and customer-related measures were imposed by divisional management while internal process measures and competence measures were managed at SBU level. The BSC influenced target setting¹¹ and managerial bonuses. As for all subunits, if a BL manager did not meet his financial targets, he would not receive the related bonus. If he did not reach his non-financial targets but could provide a reasonable explanation, he would still get that part of the bonus (cf. Bonus System manual). The tax-compliant TP policy did not fundamentally alter the BL’s organizational structure but BL managers stressed that the strict monitoring of the TP policy by Corporate Tax had taken away their freedom to negotiate transfer prices with other Semiconductors subunits.

Along the functional axis the BLs were only virtual organizations since BL managers physically worked at the different functional entities. Since this meant that the BLs were not incorporated as separate legal entities, they were not scrutinized by the tax authorities. Along the functional axis, the charges for BL activities were determined on the basis of the General Services Agreement: their R&D and overhead expenses were covered as a profit mark-up on the transfer prices between the production plants and the assembly and test plants.

Production Plants

Two different types of plants operated in Semiconductors' production environment: the older plants, characterized by mature technological processes, and newer plants using the most advanced technology. Most plants were 'mature' in that they had been in use for a long time. Before the implementation of the matrix structure, these plants used to be part of one particular BL:

“We used to feel responsible for providing our BL with the best possible quality at the lowest possible price.” (plant manager)

They were used to acting as cost centers and a transfer price covering their full costs was their logical choice. In contrast, the factories with the most advanced and unique processes, undertaking their own R&D activities, had only been built and used over a shorter period of time.

“We are not as closely linked to a particular BL as the mature plants ... We operate in a more independent way.” (manager of an advanced plant)

In fact, they acted like profit centers and preferred a transfer price that allowed them to cover their costs while also adding a profit margin. Under the tax-compliant TP policy, both types of plants received a cost-plus transfer price for the semiconductors-in-progress. Consequently, each production plant showed a profit margin being realized along both the functional and the product axes.

With the introduction of the matrix structure, the mature plants were decoupled from the BLs and grouped together under the Production SBU. We observe two phases since the set-up of the Production SBU. In a first phase, the Production SBU continued to evaluate the older plants as cost centers. Since the profit mark-ups were identical for all similar stages within the production process, they had no particular meaning for evaluating the plants' performance. By stimulating the mature plants to lower the transfer price by a given percentage per year, Semiconductors actually asked them to lower manufacturing costs. Semiconductors management used global benchmarks to drive the plants towards worldwide competitive manufacturing costs.

Except for their cost responsibilities, the older plants had limited autonomy: they had no freedom to serve external customers, modify their product mix or change prices towards their BL customers.

In a second phase, Semiconductors management modified these plants' responsibility center designation into profit centers. The introduction of the profit mark-ups inspired a number of senior managers to turn all plants into real profit centers, also for MCS purposes:

“Plants are just not properly motivated if they are only evaluated based on costs.” (industrial planner at the Production SBU)

Furthermore,

“...the contribution margin also creates a surplus for future investment projects. A narrow focus on reducing transfer prices would lead the mature plants to squeeze out costs without paying sufficient attention to technological innovation.” (Semiconductors divisional controller)

Unlike the older plants, the newer plants had immediately been treated as profit centers. These plants were called “foundries,” having more freedom and acting more like independent plants. The value added created with their technology led to intellectual property guarded at the plant. Managers of these plants further reported they had some freedom in taking make-or-buy decisions. As long as technology was not mature, the plant's ability to deliver a certain technology was of primary importance. As the cost structure changed constantly, it became difficult to use transfer prices for setting cost reduction targets or for benchmarking the different plants – which was the case for the mature plants.

In contrast to the situation in the BLs, particular transfer prices had a significant influence on the revenue of the plants. All production plants had their own income statement and balance sheets. Divisional management followed up on the bottom line results. However, in the first phase, they focused on the cost and related operational targets when evaluating the managers of the mature plants and on profit and operational targets when evaluating the managers of the newer plant. In the second phase, profit also received a much higher weight among the bonus targets of the mature plants.

Assembly and Test Plants

Due to the cost-plus method, the assembly and test plants formed—at least pro-forma—profit centers. But as for the mature production plants, Semiconductors management treated assembly and test plants as cost centers for management control. This set-up was in line with their treatment in the past and conformed to managerial preferences. Assembly and test facilities received sourcing and pricing instructions from their Chief Operational Officer. The plants were evaluated based on their achievement of assembly and test cost targets measured as indices. At the end of the year their cost reduction performance was compared to the budgeted, benchmarked costs used in the TP model. Plants with an index of less than 100 percent were performing well (they had incurred lower than budgeted costs), while plants with an index of more than 100 percent had exceeded the budget. The same system was in place as in the mature production plants:

“Once the plant is built and the technological base installed, we just use the TP models to calculate the prices. The better the plant is managed, the more the costs can decrease, and the transfer prices will then decrease, too. And I am in favor of low transfer prices because they imply that the underlying costs are low.” (BL manager)

In other words, assembly and test transfer prices had to be reduced continuously¹². In the financial statements that were prepared for the assembly and test plants, TP had a significant influence on revenue and cost of transferred-in components. Following up on the developments in the mature plants, divisional management was considering the conversion of these pro-forma profit centers into real profit centers at the time of the interviews.

Regional and National Sales Organizations

Along the functional axis, the regional sales organizations formed the buffer between Semiconductors' large, technology-driven cost basis and the heavily fluctuating sales prices in the semiconductor market. It meant that, along this axis, the entrepreneurial risks were concentrated in the regional sales organizations managing the physical distribution processes and taking responsibility for commercial inventories and related obsolescence risks. The MCS focus, however, became clear from the perspective of the product axis.

Here, the BL acted as the entrepreneur, while the regional sales organization was evaluated in terms of cost efficiency for warehousing and related operational objectives. These cost center targets were in accordance with managerial preferences. Again, TP had a significant influence on the financial BSC measures of the regional sales organizations as it determined its costs and revenues.

The national sales organizations were in a different situation. They used to act as profit centers in the past, with quite a lot of freedom to negotiate transfer prices with the BLs. Under the tax-compliant TP policy, they now received a fixed profit margin based on the resale-minus method. From a management control perspective, the national sales organizations became sales agents whose main responsibility was to achieve predetermined sales volumes and to obtain the highest prices in the market:

“... sales and sales volume are important ... It was different in the past: for years, national sales organizations were evaluated based on EBIT, which put pressure on the TP system. They would ask for lower transfer prices, so that their profit could be increased ... This whole discussion has been stopped, and now every selling organization gets a fixed profit percentage. This means that the confusion between the taxable, local and global results has been resolved and that national sales managers have no interest in manipulation anymore.” (Semiconductors’ vice president/SBU controller)

Since their performance measurement and reward system reflected the revenue center system, national sales managers did not express any dissatisfaction with the situation as it was.

In sum, Semiconductors’ local subunits were presented as profit centers for tax compliance due to the profit mark-up/margin formally attributed to all of them. From a management control perspective, the Product Division maintained a variety of responsibility center types. The positive and negative influences of tax compliance on Semiconductors’ responsibility accounting system are discussed below.

DISCUSSION

In this section, we analyze our field observations in light of the questions raised by the analytical TP literature. More specifically, we focus on the use of one versus multiple sets of books, tax compliance as a constraint or a decision variable, and the use of alternative performance measures. Semiconductors had decided to use one set of TP books for both tax compliance and management control, and this primarily for two reasons. The main reason was to facilitate justification of the TP policy towards the tax authorities. Like many MNEs (Ernst and Young 2003), the MNE in our study was convinced that in case of a TP audit it would be in a better position to defend its TP policy if it could prove that the level of its transfer prices was based on managerial and business considerations. The second reason was to promote simplicity and avoid the confusion that managers might experience if two separate sets of books were used. Because of the geographical spread and the size of this MNE, administrative manageability (Eccles 1985), transparency, and ease of understanding the TP policy (Borkowski 1990, 1992a, b) turned out to be even more relevant than what we know from the TP literature on domestically operating firms. Further, tax compliance was considered as a constraint in the case MNE. While analytic TP studies take a static approach and search for optimal transfer prices (e.g. Narayanan and Smith 2000; Baldenius et al. 2004; Hyde and Choe 2005), the case observations directed our attention to the dynamics: the TP policy was continuously challenged and the MNE kept searching for the right way to cope with the different TP objectives. They designed their TP policy in terms of tax minimization, management control and other objectives within the boundaries of what was allowed by TP tax regulations worldwide. While Semiconductors management stressed the importance of management control and took it into account in the various rounds of designing its tax-compliant TP policy (Cools et al. 2008), the MCS objective was subordinate to tax compliance. In this sense, the survey results by Tang and Chan (1979), Yunker (1982), and Tang (1992) indicating the high importance of tax issues among transfer pricing objectives are still relevant today. To shed light on the importance of alternative performance measures in this MNE, we touch upon the issue of responsibility accounting. Textbooks and the extant literature tend to present responsibility center designation as a consistent choice: if a business unit is a profit center, then it must be a profit center for all purposes. We observed, however, that the MNE was able to formally present its local subunits as profit centers while at the same time treating them as mixed responsibility centers.

In the context of this mixed responsibility center treatment at our research site, we identify four key influences of tax compliance on management control. Table 4 summarizes this discussion.

Insert Table 4 About Here

Elimination of Negotiation in Transfer Pricing

Since negotiating transfer prices does not provide a sufficient and valid proof of arm's length TP, Corporate Tax no longer allowed Semiconductors subunits managers to negotiate transfer prices. They wanted to avoid giving any signal of potential TP manipulations towards the tax authorities. The ban on TP negotiation is striking, since the extant literature (cf. Hyde and Choe 2005) does not take into account this potential consequence of tax compliance. All interviewees becoming subject to a full profit center treatment complained that they experienced the inability to negotiate transfer prices as incompatible with their responsibility to behave as autonomous profit centers. We observed that managers of the former real profit centers suffered most from the change. National sales managers explained that they missed their former entrepreneurial freedom to negotiate transfer prices within a certain range. Similarly, the BL managers would have preferred to be able to continue to negotiate transfer prices with the factories and the sales organizations

“A closer co-operation between the businesses and the manufacturing plants would have been preferred, involving negotiation in determining TP. This structure should be aligned to the business axis in a pro-active way.” (BL manager)

These undesirable motivational effects caused by the tax compliance requirement shed a different light on the importance attached to the role of inter- and intra-firm negotiations related to TP and organizational form (Holmstrom and Tirole 1991) and on the recommendation to let all BL managers enter into TP negotiations so that “no one is unfairly burdened by internal transfers of goods and services” (Simons 2000). So, clearly, on the one hand, profit center managers experienced the reduction in their sense of autonomy as psychologically disagreeable.

On the other hand, the lack of negotiation power was sometimes even economically harmful. One BL manager explained how he had felt discouraged from entering the Chinese market with one type of semiconductor, since the manufacturing transfer prices induced too high a price for the region. Having been allowed to negotiate, he would have been able to reduce his cost, to enter the Chinese market while displaying a reasonable result, and the MNE could have benefitted from a first mover advantage. Under the tax compliant TP policy, adjustments in the official transfer prices were not allowed, except after thorough consultation with Corporate Tax and Semiconductors management based on a documented motivation. Despite these two negative influences on the MCS, divisional management stressed the positive impact of the abolishment of negotiation in terms of significantly reduced bargaining costs. Negotiations between BLs and sales organizations used to lead to continuous discussions, which were now avoided.

The Use of Uniform Profit Mark-Ups and Margins

Supported by Corporate Tax, Semiconductors had chosen to build uniform profit mark-ups and margins in its global TP policy. Again, the trigger was tax compliance: the uniform TP policy allowed Semiconductors to increase the defensibility of its TP policy worldwide. It was meant to prove that transfer prices were not manipulated in the context of different national corporate income tax rates. It also enhanced the understandability to the tax authorities and the traceability of the transfer prices along the value chain. In addition, from a MCS perspective, administrative simplification was welcomed in the complex Semiconductors environment.

“The TP policy would become confusing both to explain to the tax authorities and for internal use.” (Corporate Tax director)

On the other hand, the implementation of the global, uniform TP policy triggered considerable debate in the context of the national sales organizations. Acting as profit centers in the past, they were now evaluated as revenue centers, with sales and sales volume as the major financial performance measures. The fixed profit percentage in the resale-minus transfer price eliminated any need for sales managers to put pressure on the TP system, but it also hid the distinction between higher and lower margin products, as reflected in this interview with Semiconductors’ vice president, also SBU controller:

“We are currently discussing whether it is good to evaluate national sales organizations based on sales volume, and whether the evaluation should not be based on margins, on product mix. From a managerial point of view it makes sense to investigate whether the sales parties get the maximum value out of the market. I stress this is a managerial, not a tax-related issue ... This current discussion would again open up the way towards more dialogue between the BL and the national sales organizations, so that a higher margin can be squeezed out of the market. It would lead to different margin targets in the countries and in the regions. However, the consequence is that sales managers might ask again for the transfer prices to be adapted. But such an adjustment of transfer prices is what we at SBU level want to avoid.”

The use of uniform margins, in combination with the conversion of the national sales organizations from profit centers into revenue centers, gave suboptimal incentives to sales managers and had negative effects in terms of sales effectiveness. It shows that the chosen tax compliant policy could lead to suboptimal business decisions, even when performance measures independent of the transfer price are used as an alternative way to disentangle the tax and MCS objectives of TP (Smith 2002b). Similar examples were not apparent related to the manufacturing environment, in which the cost center structure had been in place for a long time and the conversion into a new type of responsibility center was only about to start.

Mixed Responsibility Center Treatment

The matrix structure and the uniform TP policy, both triggered by tax compliance, allowed Semiconductors to have a mixed responsibility accounting system in place. Corporate and divisional managers were convinced that the formalization using a two-dimensional matrix structure provided them with a solid defense of the dual responsibility treatment towards the tax authorities. The national tax authorities scrutinized the functional axis of the matrix since this axis contained the physical units that were located in their respective countries. The invoices sent along the functional axis respected the OECD TP methods and incorporated an appropriate profit margin, as sustained by the functional analysis documented in the official TP document.

The product axis was not important for the tax authorities because it only represented from a different angle the same activities that were already covered by the functional axis. Along the product axis, SBUs/BLs and their managers could therefore be evaluated on different levels of financial responsibilities. The implementation of the uniform profit mark-ups allowed Semiconductors to introduce the profit center structure with transfer prices that were both internally and externally benchmarked, while still treating mature plants and assembly and test facilities as cost centers for management control. The national sales organizations used to be profit centers. However, given the fluctuating final market prices, the sales agents would constantly try to negotiate the transfer prices. In order to alleviate the pressure on the TP system, the national sales organizations were converted into de facto revenue centers. While subunit managers were satisfied with the dual treatment that respected their responsibility center preferences, higher level management feared that the resulting complexity in the MCS would lead to ambiguity and confusion at the lower levels in the organization. Apart from Eccles' (1986) empirical illustrations that the notion of a 'profit center' can cover a variety of degrees of authority and autonomy of subunit managers (Vancil 1979), the practice of mixed responsibility center structures has not been described in the literature before.

Conversion of Pro-Forma Profit Centers into Real Profit Centers

Under the mixed system, all Semiconductors subunits were presented as profit centers, while most manufacturing plants and the national sales organizations were only profit centers pro forma. Still, a spill-over effect of the arm's length focus turned out to be that divisional management started to consider the implementation of real profit centers for all Semiconductors subunits, even if this was not legally required. Higher-level management became convinced that the elimination of the mixed treatment and the further reduction of complexity would allow them to do a better job in steering subunit managers. Since the profit mark-ups were allocated for tax compliance anyway, divisional management perceived it as a small step to move towards real profit centers, with the aim of creating a shift in subunit mentality. The restructuring towards the matrix structure had meant that the mature plants were detached from the BL to which they used to be dedicated. Now, the plants needed to learn to think further than cost efficiency alone, and consider how they could create value in order to build up a buffer for future investments (cf. Eccles 1986; Holmstrom and Tirole 1991).

A profit center emphasis would help them to evolve towards a mentality of offering their services to different BLs, maybe also to outside customers. Besides, divisional management saw additional tax compliance reasons for the shift towards real profit centers. This conversion would further improve the transparency of the whole TP policy and it would further support the “substance over form” principle, which is relevant in international taxation¹³ (Larking 2005).

Consequently, divisional management started to include an increasing number of profit center characteristics in the subunits’ responsibility center structure. At all levels within the Product Division, the financial measures received the highest weight in the bonus contract, with EBIT and Economic Value Added (EVA¹⁴) becoming increasingly important in the managerial performance measurement and reward system. To stress the significance of these financial aspects, no bonuses were awarded when managers failed to achieve their financial targets, even if these targets were influenced by TP issues beyond their control. When divisional management communicated its decision to reorganize all plants into profit centers, plant managers reacted strongly:

“It cuts up the organization into too many separate departments, each one trying to make as much profit as possible. This could lead to a situation where the plants realize a profit while the BLs do not sell anything and incur losses. It creates a lot of friction in the organization... I am only a producer, I don’t “own” the products. I do not feel like a real entrepreneur.” (plant manager)

“I am against these internal discussions of lowering and raising transfer prices as they are a waste of time. It does not make sense to have a profit model for the manufacturing plants.” (plant manager)

“Semiconductors has gone back and forth between plant models, and under the latest model, there is not really any collaboration with the plants and the BLs, which are restricted from going outside the company.” (BL manager)

While these reactions reflect the managers' fear, we observed that the former cost center managers resisted the change because they did not experience a matching increase in autonomy (in terms of pricing or of sourcing) that would enable them to really act as profit center managers. For them, the shift to profit centers led to a psychologically disagreeable situation.

During the internal debates and the discussions with Corporate Tax, it became clear that the hardest task for divisional management was to find the right balance between the different components of organizational architecture under the tax compliance constraint. This was especially relevant to the issue of matching the decision rights and responsibilities of the subunits managers with the performance measurement and reward system (Jensen 1983; Jensen and Meckling 1992; Zimmerman 2003). While Eccles and White (1988) emphasize the need to let the supplying division earn a share of the total contribution margin for fairness reasons, the managers of the mature plants felt unfairly treated because they were held accountable for elements outside their span of control. Giving the subunits a large amount of authority for pricing and sourcing was impossible because of the rigidity created by tax compliance and because the elimination of the freedom to negotiate transfer prices undermined subunits managers' ability to behave as real profit center managers. We conclude that TP tax compliance provides MNE top management with an incentive to turn all responsibility centers into profit centers despite the fact that this structure does not match the real span of accountability over revenues *and* costs in tax-compliant MNEs.

CONCLUSION

The main goal of our research was to explore how TP tax compliance impacts responsibility accounting choices in an MNE that uses one set of TP books. From a tax point of view, the arm's length principle requires MNEs to treat the different legal entities as if they were independent, profit-maximizing companies. The arm's length approach is, therefore, associated with the profit center organization known from the MCS literature. However, from an MCS point of view, the set-up of different types of responsibility centers might be more desirable. Given the lack of empirical research on this topic, we undertook an in-depth case study in one MNE. A first observation is that negotiation in TP was eliminated, since it could provide signals of TP manipulations towards the tax authorities.

Managers of the profit centers experienced this loss of autonomy as demotivating and sometimes even hindering economically sound decision making. Second, the MNE simplified its tax compliant TP policy to such an extent that it installed uniform profit margins and mark-ups for all similar stages in the firm's value chain. While this simplification was welcomed from an administrative point of view, it could again lead to suboptimal decision making. Third, tax compliance imposed a profit center designation on all subunits, also on the ones that would benefit from a cost or revenue center approach from a MCS point of view. At first, the firm coped with managers' preferences for responsibility centers by a mixed treatment of the pro-forma profit centers, allowing them to be profit centers for tax purposes and cost or revenue centers for MCS purposes. However, top management started to see the benefits of profit-center treatment for all purposes as a way to reduce the complexity of the whole TP policy (both towards subunit managers and towards the tax authorities) and to increase the strength of its "substance over form". Consequently, they started to convert the pro-forma profit centers into real profit centers.

This paper contributes to the literature in various ways. First, it adds to the limited empirical tradition in responsibility accounting research (Merchant 1987; Rowe et al. 2007). Contrary to what we might expect based on the literature, divisional and subunit managers had lively discussions on responsibility accounting in the context of TP. They expended significant effort to find the best way to reconcile the management control versus tax compliance objectives of the TP policy by continuously adjusting the organizational structure. The use of a mixed responsibility center structure observed in our case has not been documented in the literature before. Second, this paper contributes to the research documenting and explaining how the MCS is designed and used under the constraint of external environmental pressures (Chenhall 2003). Previous research on performance evaluation and rewards at the profit center level found indications that managers in profit centers are often dissatisfied with the TP system, but did not provide reasons for this dissatisfaction (Merchant et al. 1995). Our case shows that tax compliance forced the MNE's subunits into a real or pro-forma profit center set-up, while they did not consider themselves to be profit center entrepreneurs. Third, the results of our study are also relevant for policy development. Tax authorities not only wish to stop tax evasion and manipulation, but also prevent double taxation, while MNEs seek to comply with regulations but also to create after-tax shareholder value.

We provide the first insights on the consequences of the arm's length principle for internal decision-making, performance evaluation, and managerial motivation against the backdrop of these broad tensions (Eden, 1998; Hamaekers, 2001).

Finally, we would like to acknowledge the limitations of an in-depth case study within a single MNE. A potential extension of this research would be to compare and contrast the TP systems of different MNEs. A large-scale study involving semi-structured interviews in combination with a questionnaire survey might help achieve this goal. In future research our study could be extended not only towards MNEs that are different in terms of organizational structure, sector, size, etc., but also towards MNEs that use two sets of TP books. In his latest analysis of several MNEs using two sets of books, Tang (2002) observed few internal conflicts between the tax and management control objectives of the TP systems. However, given the conflicts identified by Eccles (1985) and Eden (2003), we would like to call for a more comprehensive and detailed study to help us understand under what circumstances the benefits of keeping two sets of books exceed the costs.

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FIGURE 1

Semiconductors' organization along the functional axis

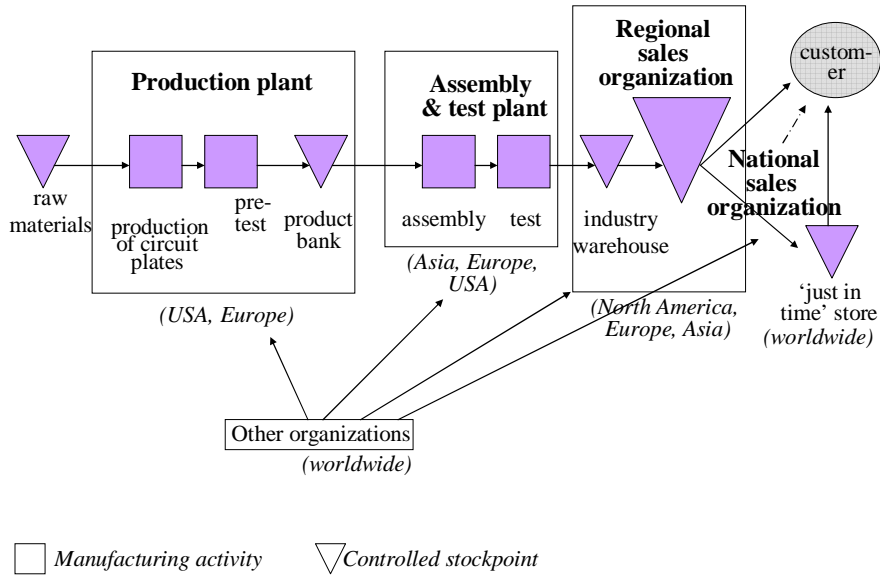


FIGURE 2

Semiconductors' organization along the product axis

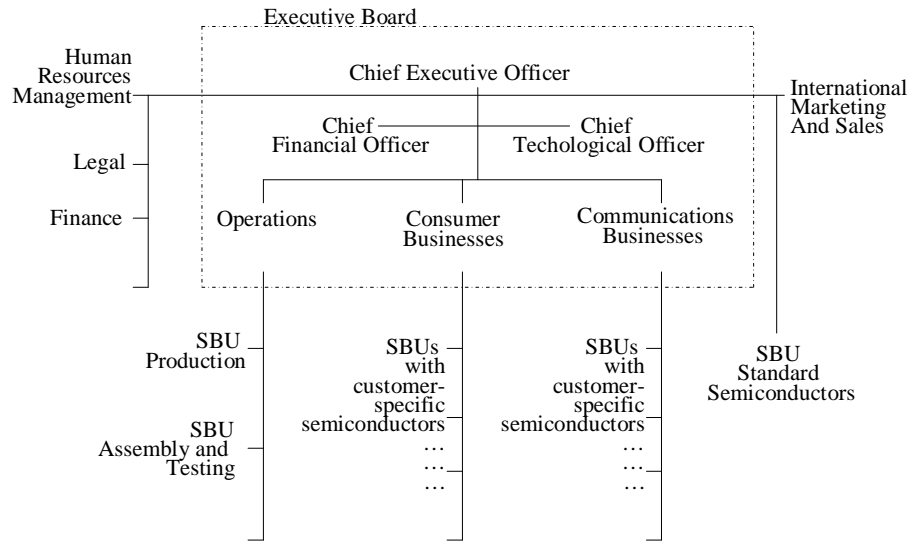
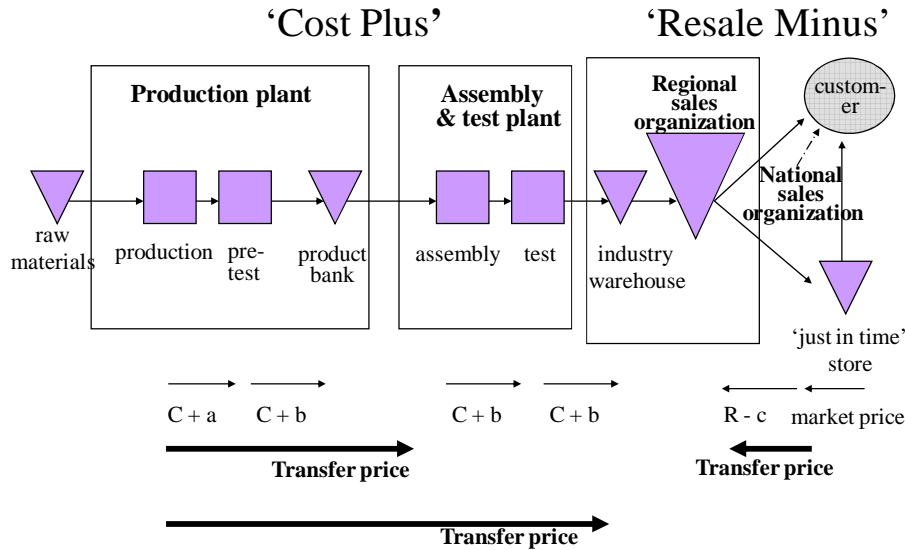


FIGURE 3

Product transfer prices in the Product Division Semiconductors



Manufacturing environment: Cost (C) + uniform, fixed profit mark-up (a^{15} or b^{16})
 Sales environment: Resale price (R) – uniform, fixed profit margin (c^{17})

¹⁵ The mark-up of a% used to calculate production transfer prices reflected the characteristics of the production process: high-risk investment levels, highly volatile product portfolios, a short product lifecycle, a long throughput time, the importance of loading effects, an important increase in the product's value, and the involvement of highly qualified and trained personnel.

¹⁶ The mark-up of b% was determined by the characteristics of the assembly and test activities: a high investment level, a volatile product portfolio, a short product lifecycle, a short throughput time, important loading effects, and a significant added value of the products. Compared to production, assembly and testing involved quite simple processes so that the requirements in terms of personnel were low. The differences in the functional risk profile between production and the assembly and test activities motivated Semiconductors to use a lower profit mark-up for assembly and testing than for production.

¹⁷ The profit margin of c% was a lower percentage than the profit mark-up percentages used for production, assembly and test activities: the national sales organizations bore the currency risk and the debtors' risk from the sales to the final customer but the investment level was low. In addition, since no inventories passed through the national sales organizations, inventory risks were absent.

TABLE 1**Summary of interview data used for analysis**

Interviews		
Type	Number of interview hours	Number of people interviewed
<i>In-depth case interviews:</i>	46.5 hours	23 individuals
at corporate level		
involving Tax director and Tax managers		3
Quality Director		1
Internal auditor for Semiconductors		1
at divisional level		
involving Controller		1
Plant controllers		2
Industrial planner		1
General plant managers		2
at SBU level		
involving Controllers		2
at BL level		
involving General managers		2
Controller		4
Logistics manager		1
HR managers		3

TABLE 2**Types of archival documents used for analysis**

111 documents used, prepared between December 1993 and July 2001

Documents		
Type	MNE document	External document
Organization charts	Internal	
Flow charts of logistics chain	Internal	
Annual report		Published information
Company description		Published in annual report
MNE website		Public information
Official Transfer Pricing documents	Internal	Confidential: only for tax authorities
Memoranda on transfer pricing		Prepared for tax regulatory bodies
Transfer pricing price models	Internal/confidential	
Price calculations	Internal Excel file	
Administrative Transfer Pricing instructions	Internal/confidential	
Memos	Internal	
Minutes of meeting	Internal	
Internal letters	Internal	
Discussion notes	Internal	
Emails	Internal	
Emails: follow-up on interviews		Sent to the researcher
Internal memoranda	Internal/confidential	
Faxes	Internal	
BSC of subunit	Internal	
Performance evaluation of plant	Internal	
Target allocation schemes	Internal/confidential	
Bonus agreements	Internal/confidential	
Performance appraisals	Internal	
Slide shows	Internal	
Market and business outlook		From industry association
Slide show		From consultants
Tax memorandum		From enterprises association

TABLE 3

Types of responsibility centers in the Product Division Semiconductors

	Along the functional axis: tax compliance focus	Along the product axis: MCS focus
BLs	- Invisible to the tax authorities because they were embedded in the functional units. BL costs were compensated under the General Services Agreement.	- Profit centers (in accordance with managerial preferences) with <ol style="list-style-type: none"> 1) limited sourcing autonomy/ no pricing autonomy, 2) evaluation based on bottom line responsibility/ profit targets, 3) bonus paid for strict attainment of financial targets, less strict interpretation of meeting other targets.
Production plants	- Profit centers with their own income statements and balance sheets. - Invoiced the assembly and test plants with cost-plus transfer prices.	- Plants with mature technology were converted from cost centers (managerial preference) into profit centers with <ol style="list-style-type: none"> 1) no sourcing autonomy/ no pricing autonomy, 2) evaluation initially based on cost and related operational targets; recent shift towards profit targets, 3) bonus paid for strict attainment of financial targets, less strict interpretation of meeting other targets. - Plants operating with the latest technology were profit centers (in accordance with managerial preferences) with <ol style="list-style-type: none"> 1) some sourcing autonomy/no pricing autonomy, 2) evaluation based on profit targets, 3) bonus paid for strict attainment of financial targets, less strict interpretation of meeting other targets.
Assembly and test plants	- Profit centers with their own income statements and balance sheets. - invoiced the regional sales organizations with cost-plus transfer prices.	- Cost centers (in accordance with managerial preferences) with <ol style="list-style-type: none"> 1) no sourcing autonomy/ no pricing autonomy, 2) evaluation based on cost and related operational targets, 3) bonus paid for strict attainment of financial targets, less strict interpretation of meeting other targets.
Regional sales organizations	- Profit centers with their own income statements and balance sheets. - paid a cost-plus transfer price to the assembly and test facilities and received the resale-minus transfer price from the national sales organizations.	- Cost centers (in accordance with managerial preferences) with <ol style="list-style-type: none"> 1) no sourcing autonomy/ no pricing autonomy, 2) evaluation based on cost and related operational targets, 3) bonus paid for strict attainment of financial targets, less strict interpretation of meeting other targets.
National sales organizations	- Profit centers with their own income statements and balance sheets. - Received a resale-minus transfer price from the regional sales organizations.	- Converted from profit centers (managerial preference) into revenue centers with <ol style="list-style-type: none"> 1) no sourcing autonomy/ no pricing autonomy, 2) evaluation used to focus on profit and related sales targets; Now strictly on sales and related targets, 3) bonus paid for strict attainment of financial targets, less strict interpretation of meeting other targets.

TABLE 4: Influences of TP tax compliance on responsibility accounting in the Product Division Semiconductors

Influences of tax compliance on responsibility accounting	Resulting effects on management control	
	Negative effects	Positive effects
1. Elimination of negotiation in TP	<p>Reduction in the sense of autonomy - psychologically disagreeable:</p> <ul style="list-style-type: none"> - The profit center managers did not feel like real entrepreneurs when not being able to negotiate their transfer price. <p>Potentially economically harmful:</p> <ul style="list-style-type: none"> - BLs could end up in a situation where it became unattractive for them to enter a particular market. 	<p>Significant reduction in bargaining costs:</p> <ul style="list-style-type: none"> - Negotiation between Semiconductors' subunits used to lead to continuous discussions, which were now avoided.
2. Uniform profit margins/mark-ups	<p>Potentially economically harmful decisions:</p> <ul style="list-style-type: none"> - The loss of differentiation in product profitability led to suboptimal business decisions at the national sales organizations. 	<p>Significant administrative simplification:</p> <ul style="list-style-type: none"> - The administrative simplification of TP determination was not only welcome for tax compliance, but also for management control in the complex Semiconductors environment.
3. Mixed responsibility center treatment	<p>Ambiguous situation:</p> <ul style="list-style-type: none"> - The dual situation increased the complexity of Semiconductors' organizational structure. This was thought to be confusing especially by higher-level management (not so much by lower-level management). 	<p>Respecting manager's preferences for various types of responsibility centers:</p> <ul style="list-style-type: none"> - Semiconductors was able to hold its managers accountable along the responsibility structure of their choice, while respecting the profit center designation in terms of the legal entities.
4. Conversion of mixed responsibility centers (pro-forma profit centers) into real profit centers	<p>Resistance by managers who were satisfied with the previous mixed responsibility center structure:</p> <ul style="list-style-type: none"> - Psychologically disagreeable situation: The managers of the new profit centers did not experience a consistent increase in autonomy. 	<p>Resolving the ambiguity that stemmed from the mixed responsibility center structure:</p> <ul style="list-style-type: none"> - Higher-level management was convinced that the elimination of ambiguity was beneficial to further reduce the complexity of the TP policy and to increase 'substance over form'.

¹¹ GlaxoSmithKline and Xilinx have recently experienced how large the impact of charges for non-compliance by the IRS can be (The Economist 2004; Wright 2004, 2007).

² At the same time, the OECD Member States realize that the arm's length principle has inherent flaws, in that the separate entity approach may not always account for the economies of scale and interrelation of diverse activities created by integrated businesses (OECD 1995 §1.9). In addition, associated enterprises may engage in transactions that independent enterprises would not undertake and that are not motivated by tax avoidance: members of an MNE group face different commercial circumstances than would independent enterprises (OECD 1995 §1.10).

³ Definitions of what is understood by one versus two sets of books are also lacking.

⁴ Hilton (2005), Horngren et al. (2006), and Zimmerman (2000) refer to this highest degree of accountability by means of the term 'investment center'. Following Simons (2000) and others, however, we use the term 'profit center' for both profit and investment centers.

⁵ Most analytic studies are based on agency theory and usually assume that a central agent takes the TP decisions. This modeling approach was originally aimed at investigating the consequences of tax minimization, but more recent analytic studies incorporate the MCS role of TP.

⁶ The cost of conformity is expressed in quantitative terms as the expected after-tax profit with decoupled transfer prices less the expected after-tax profit under conformity (Baldenius et al. 2004, 600).

⁷ The interviewer, one of the researchers, audiotaped all face-to-face interviews and wrote down literally what was said during the two telephone interviews.

⁸ As indicated above, a detailed study of these services centers falls outside the scope of this paper.

⁹ As indicated above, production and pre-testing mostly - but not always - took place in the same plant. Assembly and testing could take place in the production plant, or in another plant.

¹⁰ Although the OECD Guidelines list a variety of possibilities for determining the cost basis of the transfer prices, they recommend using 'historical costs' (OECD 1995 § 2.5) out of fear that budgeted costs might be influenced by tax manipulations.

¹¹ Targets could be formulated at site or departmental levels and could be either individually or group based, in line with the intentions of the BSC.

¹² Assembly involved mature technologies. However, testing reflected the differences in technology of the various production processes, meaning that testing could be quite complex for the more advanced products. These testing activities were therefore less rigorously evaluated in terms of cost reduction.

¹³ "Substance over form" refers to an anti-avoidance doctrine under which the legal form of an arrangement or transaction is ignored, tax being levied in accordance with the economic substance (Larking 2005: 333).

¹⁴ EVA was calculated by applying a number of corrections to EBIT, particularly for working capital and notably tax. Both corrections were determined centrally and could not be influenced locally by the managers under evaluation.