THE SIGNIFICANCE OF R&D REPORTING AS AN ELEMENT OF CORPORATE GOVERNANCE - NORMATIVE IMPLICATIONS AND EMPIRICAL EVIDENCE FROM GERMANY -

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Abstract

Investment activity in research and development (R&D) represents a central component of a company policy directed toward shareholder value maximation. This article discusses business reporting about the corporate R&D activity, in which in addition to the depiction in the (consolidated) balance sheet the authors concentrate on the management reporting. As a result of the restrictions on recording R&D expenditures in the balance sheet according to the German law ("Handelsgesetzbuch" (HGB)) and the International Financial Reporting Standards (IFRS), (consolidated) management reporting as the information interface between financial accounting and voluntary value reporting takes on a key position in corporate governance.

Keywords: research & development, business reporting, corporate governance, shareholder value management

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1. Introduction

The expanding of financial accounting to business reporting which is occurring along with the conversion from the tendering of accounts according to the German "Handelsgesetzbuch" (HGB) to IFRS accounting is according to Freidank/Velte (2008) promoting the definition of the upper-level company objective as increasing shareholder value. In this context tremendous significance must be attached to the reporting about the company R&D activity, since this enables the investors, as the primary targets of the shareholder value policy, to make an improved estimate of the future economic position and a more precise approximation of the enterprise value. Consequently the corporate management's R&D reporting functions as a central indicator of corporate governance, since the investors, if necessary backed up by financial analysts, can carry out an assessment of the reports and orient their decisions about investing to the individual quality and quantity of the reports. The effects of taking the offence in corporate communication on building up or increasing the company's reputation in the capital market has recently been the object of empirical studies. In this connection, according to Weber/Lentfer/Köster (2007), it is possible to prove a significantly positive connection between company-specific corporate governance and capital costs. With the help of value relevant measuring of R&D, the US-capital market research is attempting, as will be outlined below, to reach conclusions about comparable reactions of investors in conformity with corporate objectives (e.g. strengthening of the financial involvement). The significance of internal R&D activities as future strategic value drivers is made clear not least with the help of the amount of the differentiated expenditures in the business reports of German corporate groups (e. g. by Padberg (2006)).

While financial accounting represents the standardised financial reporting in the (consolidated) balance sheet and management report, voluntary value reporting measures the voluntary additional information of the company. Between financial accounting and voluntary value reporting the (consolidated) management report functions as an interface, since in addition to the compulsory information in accordance with §§ 289 and 315 HGB as well as the German "Deutscher Rechnungslegungs Standard" (DRS) No. 15 it can contain voluntary value-oriented information on R&D activity as well, which is then subject to the external audit (§§ 316 f. HGB). Consequently the (consolidated) management report can be, according to Velte (2006), considered as an instrument of value reporting. In addition to R&D reporting in the (consolidated) management report, in recent times there has been discussion of a separate publication of information on selected intangible assets in the part of the business report not subject to the external audit; this is not an object of the present article.

The creation of assets by successfully running through the R&D phase is linked with far-reaching deficits in objectifying, since an unambiguous separation of the R&D expenditures that arise is not possible without an extensive controlling system. This reliability problem was already taken up by Schmalenbach (1962), who, admittedly, wrote in favour of an activation of development expenditures, however in the end "shrank back"[1] from an estimate of research expenditures. The respective weighing up between R&D accounting that is relevant to decision-making and reliable leads to decisions about the respective balance sheet recording of the R&D expenditures that arise and consequently about the necessity of voluntary additional reporting to reduce the information gap between the equity capital on the balance sheet and the value of the firm. The extent to which the R&D reporting as a component of value-oriented corporate communication contributes to clarifying the future capital market return on investment in the view of the investors will be assessed with the help of value relevance research[2], which is the object of the following section. Here the question arises as to the extent to which the information disclosed about the R&D activity influences the decision making of the market participants.

2. Empirical evidence of the value relevance of R&D

The empirical findings on the value relevance of R&D have until now been predominantly geared to the US-capital market. Since taking R&D expenditures into account in the balance sheet is prohibited according to US-GAAP (SFAS 2.12), Oswald/Zarowin (2004), among others, researched the extent to which a hypothetical activation would be value relevant for the investors. Their result was positive and highly significant. This became clear in the high correlation calculated between the R&D activity and the market value of the equity capital.

The empirical study by Chan/Lakonishok/Sougiannis (2001) pursued a similar objective. The departure point of the research was the question as to the extent to which the capital market appropriately takes the R&D activity of firms into account in the stock market rate. They researched the influence of R&D reporting on the volatility of the return on investment of the shares. The background of this test was the hypothesis that the additional company information allows the degree of uncertainty of the investors to lessen, and this goes along with lower capital costs and a more constant return on investment for the shares. In the end it was not possible to determine a significantly positive connection. A chronological delay on the capital markets which was not taken into consideration sufficiently in the analysis was the decisive factor for this, though. The time delay with a short-term undervaluing reaction of the capital market was explained as the result of possible temporary effects. Only continuous maintaining of the R&D strategy adopted could serve as an indicator for a sustained investment activity of the firm. In an overall view the R&D reporting was classified as "economically important"[3].

A further empirical study by Healy/Myers/Howe (1999), which was carried out by means of a Monte-Carlo simulation with the example of a pharmaceutical research programme for the marketing of medications, simulated three distinct identification procedures. In addition to the cash expense method, which assumed a directly successful identification of the R&D expenditures, a distinction took place with the full cost method as well as the successful efforts method. Both the two latter methods led to an activation and scheduled or respectively lump sum amortisation as from the clinical test phase. The successful efforts method provided in contrast to this a completely unscheduled amortisation of the full activated investment volume, to the extent that the product did not pass the development phase. The degree of certainty as the guideline for the correlation between the return on investment of the shares and the R&D expenditures turned out to be the lowest with the cash expense method and the highest with the successful efforts method. This implies that an immediate recording in terms of expenses is not in harmony with the information needs of the capital market. The meaningfulness is presumably estimated to be the highest with the successful efforts method because the unscheduled amortisation represents a degree of success for the assessment of the state of progress of the project. The present study by Healy/Myers/Howe (1999) as a result confirmed not only a value relevance of R&D reporting off the balance sheet, but likewise an activation of this kind of expenditures.

With the background that in a majority of cases no essential effects can be expected on the share price, insofar as the information only confirms the expectations of the shareholders (confirmative reporting), the study by Chan/Kensinger/Martin (1992) focussed on the announcement of higher R&D expenditures in comparison with the previous year. The research results confirmed the significant positive connection between the announcement of additional R&D information and the return on investment of the shares. Chan/Kensinger/Martin (1992) succeeded in addition in proving that precisely in times of a profit recession an increased R&D investment activity is honoured by

1 Hartmann (1997), p. 84.

2 „[…] an accounting amount is deemed as value relevant, if it has a predicted association with equity market values", Barth/Beaver/Landsman (2001), p. 79. „If the coefficient on a particular financial statement variable is significant and of the predicted sign, market prices act as if that variable is being priced conditional on the other variables of the equation and that item is defined as value relevant", Beaver (1998), p. 116

3 Chan/Lakonishok/Sougiannis (2001), p. 2453.

the capital market.
On the basis of the results of the empirical capital market research presented above, the majority of which determined a value relevance of R&D expenditures as well as of R&D reporting off the balance sheet, in the following section a brief stocktaking of the R&D presentation in the (consolidated) balance sheet according to HGB and IFRS must be undertaken with special consideration of the planned modernisation of German commercial law ("Bilanzrechtsmodernisierungsgesetz"; HGB (draft)), before the (consolidated) management reporting will be focused.

3 R&D in the (consolidated) balance sheet

3.1 German commercial law ("Handelsgesetzbuch")

3.1.1 (Consolidated) balance sheet

According to § 255 Para. 2 a Sentence 3 HGB (draft), the independent and scheduled search for new scientific and technological knowledge or experience of a general kind must be subsumed in the concept of research. Since the expenditures that arise, based on the lack of reliable usability, cannot yet be attributed to an identifiable asset, the balance sheet approach was ruled out in the past and is still prohibited for the future. The expenditures represent purely economic advantages and contribute to the creation or respectively the increasing of original goodwill that cannot be formulated. Although the transition from the research to the development phase increases the chances for project completion and the development expenditures can be unambiguously ascribed to an asset object, from the German commercial law point of view until now their recording in the balance sheet has also not been permitted.

Far reaching changes will result in this connection due to the German commercial law reform. While for research expenditures the prohibition on inclusion in the balance sheet in § 255 Para. 2 Sentence 4 HGB (draft) is explicitly stressed, in the future development expenditures will be compulsory under some conditions. Development is defined as the application of research results or other knowledge for the new or significantly extended development of goods or processes. The commercial law legislator refers in § 255 Para. 2 a Sentence 4 HGB (draft) to the fact that taking the development expenditures under discussion into account is permitted only with a reliable distinction between the research and the development phase. Otherwise none of the R&D expenditures can be activated. In contrast with the IFRS that still have to be explained, no prerequisites are set out for the facts to make a future activation of development expenditures concrete. The vague legal concept of "reliable" differentiation or respectively the present gap in concrete terms in the German laws create room for earnings management.

An empirical survey was performed by Velte (2008) at German firms in the German Prime Standard ("Deutscher Aktienindex (DAX)" and "Deutscher Technologie Aktienindex (TecDAX)". By asking financial analysts, auditors of the so-called "Big Four" as well as university professors, the majority (62.36% complete and extensive satisfaction) were rather positively disposed toward a hypothetical uptake of the formulation criteria according to IAS 38.57 in the German HGB. This result emerges as well after a group-specific analysis.

3.1.2 (Consolidated) statement of earnings

With a structure of the statement of earnings according to the commercial law total cost accounting the R&D expenditures must be subsumed, depending upon their content, in the material or personnel expenses or in the other operational expenditures (§ 275 Para. 2 Items 5., 6. or 8. HGB). The German cost of sales method on the other hand stipulates only an unstructured R&D identification under the other operational expenditures (§ 275 Para. 3 Item 7. HGB). However, in accordance with § 265 Para. 5 Sentence 2 HGB there is a possibility of extending the information viewpoints in the breakdown given in § 275 Para. 3 HGB with an item "expenditures for research and development".

3.1.3 (Consolidated) notes

According to the uncoupling thesis of Moxter (1984) the (consolidated) notes fulfil a supplemental function, since as a result of the restrictive consideration of R&D in the balance sheet the general standard of a true and fair view is violated. Owing to the German commercial law reform an obligation to give information for the total amount of the R&D expenditures of the financial year as well as the amount apportioned to self-created intangible asset objects of the fixed assets, in each case broken down into R&D expenditures, will be implemented (§ 285 No. 22 and § 314 Para. 1 No. 14 HGB (draft)). Taking into account the confidentiality interests of the economy, the explanation of individual research results, in the view of the legislators, is not favourable however. In spite of this restriction, through the future obligation to give R&D data the information function of the financial statement will be taken into account. However, this does not release the company from making the R&D activity as an object of (consolidated) management reporting.

3.2 IFRS

3.2.1 (Consolidated) balance sheet

As a result of the fact that self-created intangible assets are characterised by a lack of objectivity, in analogy with the further developed HGB in accordance with IAS 38.52 f., a clear separation into a R&D phase will be necessary as a basic criterion. Insofar as the expenditures that arise are not amenable to separation, taking them into consideration in the balance sheet likewise does not come into question. While an activation of research expenditures is prohibited (IAS 38.54), there is a conditional duty to activate development activities, insofar as the firm provides the cumulative proof for the prerequisites for the facts listed in IAS 38.57 (a) to (f). An activation of development expenditures assumes

- the technical feasibility of completing the intangible asset so that it will be available for use or sale,
- its intention to complete the intangible asset and use or sell it,
- the ability to use or sell the intangible asset,
- how the intangible asset will generate probable future economic benefits,
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset, and
- the ability to measure reliably the expenditure attributable to the intangible asset during its development.

The obligations for proof presented above in IAS 38.57 for the activation of development expenditures contain a significant potential for accounting policy ("earnings management") for the company, because the criteria for the facts of the case, in view of their insufficient degree of detail, represent vague legal terms. Freidank/Velte (2007) therefore assumes an implicit right to choose the approach of development expenditures according to IAS 38. With this background in mind, the German commercial law legislators had expressly refrained from taking over the corresponding prerequisites of the IFRS. It must be assessed with a critical eye, though, that - as already set out above - through the apparently conscious gap in concrete terms in the amended German HGB likewise room for manoeuvring is created for earnings management.

Empirical studies for the German capital market certify extremely heterogeneous behaviour in respect of the activation of development expenditures according to IAS 38. Leibfried/Pfanzelt (2004) found, that two-thirds of the joint-stock companies they investigated made use of the possibility of a balance sheet inclusion of development expenditures. A further analysis by Padberg (2006) led to diverging results, since according to it as a rule the companies refrained from taking development expenditures into consideration on the balance sheet. A lack of objectivity is advanced as the reason for a restrictive activation of development expenditures according to the IFRS, so that an activation is according to Entwistle (1999) connected with a negative signalling character at the capital market. With special consideration of the signalling theory of Spence (1973) the firms would refrain from an activation of the expenditures in question, possibly voluntarily. As a consequence of the inclusion of development expenditures in the production costs a high rate of asset activation must not always be desirable from a total view in the firm's policy, although this is considered likely in a shareholder value oriented management.

3.2.2 (Consolidated) statement of earnings

In contrast with German commercial law, the IFRS do not prescribe a rigid structuring plan for the statement of earnings, so that analogous to the German cost of sales method there is a possibility of designating a separate line "Expenditures for research and development", in order to increase the information function of the financial statement.

3.2.3 (Consolidated) notes

According to IAS 38.126 - in correspondence with the amended German commercial law - companies must report on the amount of the R&D expenditures in the (consolidated) notes. However, with reference to the empirical research results of Hager/Hitz (2007), this obligation is often not followed in German practice.

4 R&D in the German (Consolidated) management report

4.1 Obligatory and optional information

The conversion from HGB to IFRS has not until now meant a release from (consolidated) management reporting, because the IASB has not adopted any standard yet that stipulates a similar reporting instrument. Until now in IAS 1.13 only the drawing up of a Financial Review by Management is recommended outside of the IFRS balance sheet. In view of this gap in the regulations, in 2005 the IASB put forward a discussion paper for a management commentary.

The German (consolidated) management reporting on the R&D activity is regulated in § 289 Para. 2 No. 3 and § 315 Para. 2 HGB, according to which the firm should also go into the R&D area. Since the German commercial law (HGB) do not contain any concrete terms about R&D reporting, the appropriate passages in DRS 15 must be taken into account, which is part of the generally accepted (consolidated) accounting principles. In accordance with DRS 15.41 the readers should receive an insight into the overall orientation of the R&D activities, as well as their intensity over the course of time. Furthermore in accordance with DRS 15.101 essential activity focal points and results, such as for example the number and time of newly registered patents or respectively of similar protective rights and new products or processes should be described. The reporting obligation is primarily directed at firms that carry out internal R&D to a great extent. Belonging to a specific branch for which an above-average intensity is assumed (e.g. pharmacy, gene technology), does not, however, serve as a decisive criterion for or against R&D-related (consolidated) management reporting. Rather the individual status in the firm is the deciding factor. To the extent that the relevant firm does not perform any own R&D activity and this at the same time is not usual for the branch, explanations that lead further can be refrained from.

There is no delimitation of the report content, so that in addition to the (consolidated) balance sheet, in the management report as well the management has material possibilities for individual presentation. According to general opinion, information is recommended about the number of employees working in the development departments, about the equipment that is used for R&D purposes, and about overall objectives that are pursued with the activity, as well as about the research programmes that are under way or planned.

Exclusively qualitative reporting cannot be reconciled with the information needs of the firm's target group. Rather, according to DRS 15.102 the use of key numbers is recommended, e.g. information about the research quota and the research efficiency or the new product rate (e. g. shown by Prigge (2006)), in order to contribute to a quantification of the R&D reporting. Writing up a separate R&D report as the own part of the (consolidated) management report is not stipulated; rather the information on the R&D activity in accordance with DRS 15.40 must be incorporated into the presentation of the business activity of the firm. In this way, though, the signalling effect in respect of the capital market can be significantly restricted.

The degree of detail of the R&D reporting may not, however, infringe against the protection of competition, so that in particular a disclosure of special business and operating secrets is avoided. Otherwise, existing competitive advantages could be lost and the future economic earning potential could be endangered (e. g. see Scheele (2007)). Reporting must be omitted in cases where the welfare of the Federal Republic of Germany requires this (so-called "protective clause in the public interest"; § 286 Para. 1 HGB and § 160 Para. 2 AktG). As a result of the scant degree of detail on R&D reporting in German commercial law the drawing of boundaries between obligatory information and voluntary additional information in the sense of value reporting remains unclear. The fulfilment of R&D reporting remains to a large degree within the discretion of the management, due to which in many cases comparability over time and between firms is ruled out.

4.2 Empirical evidence from Germany

Before the adoption of DRS 15 a large number of empirical capital market studies (e. g. Fink/Keck (2004) confirmed a considerable need for improvement in respect of the German R&D presentation in (consolidated) management reporting. Küting/Heiden (2002) investigated the business reports of 2000 and 2001 and arrived at sobering results. Both the branch information given and the reporting on prognoses were classified as tending to be superficial. A more recent investigation among firms in the German Prime Standard for the business year 2005, which focussed on the quality of the (consolidated) management reporting, was undertaken by Schmidt/Wulbrand (2007). According to this study, the firms admittedly made significantly more use of reporting about research results in comparison with the business year 2003, but mostly in the form of a purely verbal presentation. The use of key figures represented the exception, so that the quantification of R&D has been insufficient until now. This result is in agreement with the empirical survey carried out by Velte (2008) from the year 2007 among firms in the German Prime Standard, according to which to date 75% of the company used no supporting key figures for the external R&D reporting.

5 Summary

From the point of view of objectivity, research expenditures may find no consideration in the balance sheet either according to national ("Handelsgesetzbuch") or international standards (IFRS) for the tendering of accounts. This was true for a long time for development expenditures as well in German commercial law (§ 248 Para. 2 HGB). After the German commercial law reform (so called "Bilanzrechtsmodernisierungsgesetz"), which brings the HGB closer to the IFRS, a conditional duty to approach development expenditures is taken into consideration. In addition - in analogy to the IFRS - in the amended German commercial law an obligation to give information about the R&D expenditures activated is being implemented in the (consolidated) notes and as a result the information function of the financial statement is taken into account. In view of the incomplete activation in the balance sheet going beyond the standards, R&D reporting is given central significance in the (consolidated) management report. In addition to the obligations for information according to the standards, this can be filled out with voluntary value reporting. Due to the reduction in the information gap between the equity capital in the balance sheet and the future enterprise value, R&D reporting represents a central element of corporate governance, since the capital market, depending on the qualitative and quantitative formulation of the report can undertake an adjustment of the risk impacts on the capital invested. The present stock-taking from selected empirical research results (primarily from the legal area of the USA) verifies not only a value relevance of R&D for the approximation of the enterprise value, but likewise points to a positive connection between R&D reporting and the reduction of the firm-specific capital costs. The possibilities for individual presentation that results - conditioned by the mixing of obligatory and optional report contents - according to the further developed German commercial law and the IFRS can counteract the reliability of the (consolidated) reporting information. As a result a restriction of corporate governance can be involved, insofar as the investors take a more critical stance toward the relevant published company information and as a result of the lack of verifiability a general mistrust arises in respect of the voluntary additional value-oriented reporting. With this background in mind, the standard setters, in order to produce business reporting useful for decision making, are called upon to close the gaps in concrete terms in the existing (IFRS) or new (HGB) standards arising from the German commercial law reform. In this context the implementation of explicit internal and external documentation obligations by separating between the research- and the development phases should be the focus of further analysis.

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