D'Arcy,Anne; Mori,Michiyo; Roßbach,Christine

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JOHANN WOLFGANG GOETHE-UNIVERSITÄT
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Anne d'Arcy / Michiyo Mori / Christine Roßbach

The impact of valuation rules for intangible assets in Japanese and German accounts of listed companies

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Anne d'Arcy
Deutsche Bank AG
Corporate Center Controlling
European Accounting and Disclosure Regulation
D 60325 Frankfurt am Main
Germany
anne.darcy@db.com

Michiyo Mori
Prefectural University of Kumamoto
3-1-100 Tsukide
Kumamoto
862-8502 Japan
Faculty of Administration
michiyo@pu-kumamoto.ac.jp

Christine Roßbach
Deutsche Bank AG
Corporate Center Controlling
European Accounting and Disclosure Regulation
D 60325 Frankfurt am Main
Germany
christine.rossbach@db.com

Abstract

Intangible assets as goodwill, licenses, research and development or customer relations become in high technology and service orientated economies more and more important. But comparing the book values of listed companies and their market capitalization the financial reports seems to fail the information needs of market participants regarding the estimate of the proper firm value. Moreover, with the introduction of Anglo-American accounting systems in Europe and Asia we can observe even in the accounts of companies sited in the same jurisdiction diverging accounting practices for intangible assets caused by different accounting standards.

To assess the relevance of intangible assets in Japanese and German accounts of listed companies we therefore measure certain balance sheet and profit and loss relations according to goodwill and self-developed software. We compare and analyze valuation rules for goodwill and software costs according to German GAAP, Japanese GAAP, US GAAP and IAS to determine the possible impact of diverging rules in the comparability of the accounts.

Our results show that the comparability of the accounts is impaired because of different accounting practices. The recognition and valuation of goodwill and self-developed software varies significantly according to the accounting regime applied. However, for the recognition of self-developed software, the effect on the average impact on asset coefficients or profit is not that high. Moreover, an industry bias can only be found for the financial industry. In contrast, for goodwill accounting we found major differences especially between German and Japanese Blue Chips. The introduction of the new goodwill impairment only approach and the prohibition of the pooling method may have a major impact especially for Japanese companies' accounts.

Introduction

Intangible assets as goodwill, licenses, research and development or customer relations become more and more important in high technology and service orientated economies.[1] Nowadays, they affect the firm value in many cases more than material assets.[2] Especially, we highlight goodwill because its portion compared to total assets is regularly high due to high prices paid for companies compared to the book value of the acquired equity.[3] As a consequence of the preceding years take-over wave, net income is often highly charged with goodwill amortization.[4]

Accepting the importance of intangible assets, we immediately ask for proper valuation rules. But comparing the book values of listed companies and their market capitalization, the financial reports seem to fail the information needs of market participants regarding the estimate of the proper firm value.[5] Already in the 70ties *Moxter* named these values as "everlasting problem children of accounting law".[6] Moreover, with the introduction of Anglo-American accounting systems in Europe and Asia, we can observe diverging accounting practices for intangible assets even in the accounts of companies sited in the same jurisdiction, caused by different accounting standards. Accounting rules and standards develop very dynamically. E.g. the US-American Financial Accounting Standards Board (FASB) posed on June 26, 2001 new Statements of Financial Accounting Standards (SFAS) dealing with the accounting for Business Combinations (SFAS 141) and Goodwill and Other Intangible Assets (SFAS 142) that were heavily criticized in Germany, Japan, and elsewhere.[7] In December 2002, the International Accounting Standards Board (IASB) has published an Exposure Draft (ED 3 Business Combinations) addressing the same accounting problems and proposing basically the same accounting methods as the related SFAS.[8] In Germany and Japan, the national standard setters have already addressed to solve this accounting problem.[9]

Germany still with a slightly positive economic growth, Japan with a negative growth rate show certain parallels and seem to qualify for some reasons for a comparable analysis. Fraud,

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1 See Frankfurter Allgemeine Zeitung 2001, p.24.

2 See Küting 2000, p.674.

3 See Ordelheide 1997, p.571.

4 See Pellens/ Sellhorn/ Weinreis 2002.

5 See Haller 1998, p.563.

6 Moxter 1979, p.1102.

7 See Frankfurter Allgemeine Zeitung 2001, Wetzel 2001, Pellens/ Sellhorn 2001, pp.1685-1686, Kleindiek 2001, p.2577.

8 See IASB 2002: ED 3 Business Combinations, London, December.

9 See for Germany www.drsc.de, for Japan www.asb.or.jp.

spectacular insolvencies in connection with manipulation of financial information and unexpected slump in stock market prices have unsettled investors' confidence in capital markets.[10] In the late nineties of the previous century, many small and medium sized companies with a special risk structure explored new possibilities to raise equity capital via new IPO markets as the Neuer Markt of the Frankfurt Stock Exchange or the MOTHERS in Tokyo. However, after some years of successful development, these market segments were more and more confronted with insolvencies, penny stocks and delistings.[11] Nowadays, these experiments seem to be proved as failure as e.g. the Deutsche Börse AG has broken down the Neuer Markt[12] and NASDAQ has decided to quit the Japanese market.[13] Perhaps, the obvious misevaluation of the firm values may be traced back to a great extent to intangible assets that can be found in typical industries such as high technology and media.[14]

This industry focus on high technology and service faces in both countries traditional creditor protecting accounting systems.[15] Prudence as primary accounting principle prohibits very often the recognition of intangible assets or at least allows partial recognition only. As the capital markets become more and more important, companies increasingly change from national GAAP to internationally accepted standards as International Accounting Standards (IAS) or United States Generally Accepted Accounting Principles (US GAAP) with far-reaching effects on the accounting practice. As a consequence, we find a "confusing combination"[16] of group accounts according to national GAAP, IAS and US GAAP.[17]

To analyze the accounting practice, we first describe actual and proposed rules for the valuation of intangible assets according to national GAAPs, IAS and US GAAP in general and especially for goodwill and self-developed software. To isolate possible effects between Blue Chips and growth market companies on the one hand and between Japanese and German companies on the other, we therefore analyze certain balance sheet ratios of group accounts of the German and Japanese Blue Chips Indexes (DAX 30 for German and TOPIX Core 30 for Japan) as well as accounts from the main national growth market companies (NEMAX 50 for German, MOTHERS for Japan).

10 See DAI 2002, Viermetz 2002 and Quitzau 2002.

11 See Wassener 2000.

12 See Deutsche Börse 2002.

13 See Börsen-Zeitung 2002.

14 See for the Neuer Markt Küting/ Zwirner 2001 (a).

15 See for Germany Beisse 1994, p.5, or Ballwieser 1982, p.773, for Japan Sakurai 2001, pp.1711-1714, or Kuroda 2001, pp.1826-1828.

16 See Havermann 2001, p.153.

17 See for Germany also Hommel 1997, for Japan also Flower/ Ebbers 2002, p.190-194

Our results show that the comparability of the accounts is impaired because of different accounting practices. The recognition and valuation of goodwill and self-developed software varies significantly according to the accounting regime applied. However, for the recognition of self-developed software the effect on the average impact on asset coefficients or profit is not that high. In contrast, for goodwill accounting we found major differences especially between German and Japanese Blue Chips.

2. International comparison of valuation rules for intangible assets

2.1. Accounting for intangible assets according to Japanese GAAP

2.1.1. Regulatory environment of financial reporting in Japan

The regulatory environment of financial reporting in Japan is comparable to that of many of the code law based European countries. There are three different laws, which prescribe financial accounting and reporting in Japan: Commercial Code, Corporate Income Tax Law and Securities and Exchange Law. These three laws are firmly interrelated in their accounting objectives with the Commercial Code in the center[18], and often referred to as the Triangular Legal System.[19] The Commercial Code, enacted in 1899, introduced into Japan a financial reporting system modeled after the German commercial code oriented towards creditor protection and the calculation of taxable income. It applies to all companies and provides the basic recognition and measurement principles for the annual report and supplementary schedules on a non-consolidated basis. Because of the tie between tax accounts and Commercial Code accounts and the "principle of final accounts (Kakutei Kessan Shugi)" – similar to the "Maßgeblichkeitsprinzip" in Germany - the adoption of corporate tax rules for the general purpose financial reporting – respectively the calculation of taxable income under the Commercial Code - is relatively common in Japan.[20]

The Securities and Exchange Law applies only to listed companies and those about to go public. The law's provisions - supplemented by regulations set out by the Ministry of Finance - require both consolidated and non-consolidated financial statements (together so-called "security reports") of the registrant. Furthermore, since the financial year 2000, the registrants are required to file semi-annual financial statements - on a consolidated basis - with the

18 See Kikuya 2001, p.365.

19 See Arai/ Shiratori 1991, p.3.

20 See Sakurai 2001, pp.1723-1725.

Financial Services Agency (FSA)[21] and the stock exchanges. The financial statements to be included in security registration statements and annual reports must comply with a wide range of formats and contents relating to disclosures prescribed in the regulations.[22]

Until 2001, the Business Accounting Deliberation Council (BADC), an advisory body to Japan's Ministry of Finance, held the primary responsibility for issuing accounting standards in Japan. The BADC, whose members consisted of representatives from the Japanese Institute of Certified Public Accountants (JICPA), academics, government and industry, published various opinions in order to supplement the different law provisions. Since 1997, significant new accounting standards have been introduced, in response to the financial big bang in Japan[23] and the globalization of accounting standards, which basically followed or were harmonized with IAS. Standards released by the BADC were in the form of opinions and have no legal standing. However, they were usually reflected by revision in the Securities Exchange Law. The main effect of the recent changes is that Japanese financial statements are more transparent and more comparable with those of other industrialized countries. However, some important differences still remain.

In July 2001, the accounting standard-setting process itself underwent a profound change, with the establishment of a private standard setting body, the Accounting Standards Board of Japan (ASBJ).[24] ASB's role is - in order to assume the work from the BADC - to independently develop standards and implementation guidance for financial reporting towards harmonization with IAS/IFRS. The new body has been formed to ensure that Japan will have a voice on the IASB, its structure ensuring that it is in line with other major standard-setting bodies. Clearly, another aim is to enhance the credibility of Japanese accounting standards and disclosure by Japanese companies, long seen to be inadequate in comparison with the rest of the world.

2.1.2. Accounting for self-developed software according to Japanese GAAP

In March 1998, the BADC issued a new accounting standard “Accounting for Research and Development Costs”, first applied in the fiscal years beginning on or after April 1, 1999. There

21 For more information see www.fsa.go.jp.

22 See Sakurai 2001, for a detailed and comprehensive treatment of Japanese financial reporting.

23 The “Japanese Big Bang” - the financial system reform - was commenced in November 1996 to be completed by 2001 aiming to revitalize the Japanese financial market and recover from the recession. One of the main steps leading up to the “Accounting Big Bang” was the presentation of the “review of the consolidated accounting system” by the BADC on February 7, 1997. For background information see Lincoln/ Litan 1998, pp. 37-40, Choy 1997 and Otto 2000, p. 179.

24 See Otto 2002, pp. 576-577. For more information about the ASBJ see http://www.asb.or.jp.

was no specific accounting rule for software until that date, so accounting generally followed the prescribed tax treatment.[25] In general, purchased software was capitalized as part of intangible assets and written off over a period not exceeding 5 years, whereas for internally developed software an option existed to either expense or capitalize all costs usually from the stage of technical feasibility. The dominant practice prior to the new BADC standard was to expense all costs.[26]

Under the new rules, research and development costs principally should be charged to expenses when incurred. This rule is not in line with the requirement under IAS to capitalize research and development costs when certain criteria are met. However, for software production costs, different accounting methods are applied depending on the purposes of using software (internal development or external purchase):[27]

1 Elements of software production costs for the activities that meet the definition of research and development should be charged to expenses as research and development costs.

2 Software ordered by customers should be accounted for in a manner similar to accounting for contract constructions. Currently, there is an option to use the completed-contract-method or the percentage-of-completion-method.

3 As for software for market sales, the production costs for the master product should be capitalized, except for the part that meets the definition of research and development. Maintenance cost of the master product must not be capitalized.

4 As for software for internal use, if it is certain that the software brings future profitability or cost reductions as does the finished software purchased, the acquisition costs for the software should be capitalized.

Capitalized software production costs should be shown under intangible assets in the balance sheet and depreciated over the useful lives of the assets based on unit-of-production method or other appropriate methods. However, the depreciation expenses should not be less than the average amount allocated over the remaining useful lives. The total amount of research and development costs that are included in the current administration and production expenses should be noted to the financial statements.

On March 17, 1999, the JICPA issued Accounting Standards Committee Report No. 12,

25 See Otto 2000, p.182.

26 See Scarbrough/ Mc Gee/ Sakurai 1993, p.319.

27 See Otto 2000, pp. 181-182.

"Practical guidance for accounting for research and development costs and software". The Report provides practical guidance and addresses issues that are not specifically addressed by the BADC's accounting standard for research and development costs. Among others, it provides detailed explanations and examples concerning amortization of costs of software to be marketed and internally used. The Report was effective for fiscal years beginning after March 31, 1999 except for certain transitional provisions.

2.1.3. Goodwill Accounting according to Japanese GAAP

According to the Commercial Code, Goodwill originated from an asset deal or a legal merger may be recognized as an intangible asset on the balance sheet in the individual accounts only if it is acquired. For internally generated goodwill capitalization is not allowed. If the option to capitalize goodwill on the balance sheet is used, goodwill must be written of over a period not exceeding 5 years. Companies also have the option for an immediate write-off of goodwill against income.[28] Goodwill amortization is tax deductible in the year it is deducted on the financial statements, regardless of whether immediate write-off or capitalization is chosen. This follows the requirement that goodwill is treated the same for both financial statement and tax purposes. According to Kuroda (1989), the predominant accounting treatment prior to the Japanese Big Bang was not to capitalize goodwill.[29]

The Commercial Code also prescribes the accounting rule for a negative goodwill. Negative goodwill should be directly released to retained earnings, whereas separate disclosure within retained earnings is not mandatory.[30]

On June 6, 1997, the BADC issued completely revised accounting rules for consolidated financial statements ("Opinion Relating to the Revision of Consolidated Financial Reporting System"). The new requirements became effective for fiscal years on or after April 1, 1999, after several amendments. According to the revised rules, goodwill recognized on acquired subsidiaries in consolidated financial statements by using the purchase method has to be shown under intangible assets or in the case of a negative goodwill under long-term liabilities. In general, goodwill should be amortized over a period not exceeding 20 years using the straight-line method or any other rational method. The rules do not go into further detail as to the treatment of a negative goodwill. Apparently, the detailed IAS 22 provisions from1997 for the

28 See Sakurai 2001, p.1757.
29 See Kuroda 1989. p.7.
30 See Sakurai 2001, p.1757.

treatment of negative goodwill have not been considered by the BADC.[31]

If the consolidation difference is not material, it may be directly released to revenues or expenses. However, in contrast to German HGB, it is not allowed to directly set-off goodwill against the Group's reserves.

Against this background, the observed widespread use of the pooling-of-interests method in Japan seems obvious. Until today, there is no explicit accounting rule with respect to the measurement of goodwill. Generally, the costs are represented by the excess of expenditures for acquiring other operation or entity over the book value of such operation or entity. Business combinations therefore can be accounted for according to the purchase method as well as the pooling-of-interests method. Based on a survey from KPMG Japan about "Japan GAAP as applied in the banking sector", most of the banks used the pooling-of-interests method in their business combinations.[32] The pooling-of-interests method meets the typical Japanese corporate culture environment. Assets and liabilities as well as retained earnings are carried forward at book values, because the merger is seen as a joined agreement to share control over the whole new company.[33]

Moreover, even though there are no explicit rules neither allowing nor prohibiting the pooling-of-interests method, the Japanese standard setter implicitly supports the use of this accounting method for business combinations. According to a letter dated November 2, 2001, addressed to the chairmen of the IASB and the different national liaison standard setters, the chairman of the ASB Japan has expressed his concern about the intended deletion of the pooling-of-interests method.[34]

2.2. Accounting for intangible assets according to the German Commercial Code and German Accounting Standards (GAS)

2.2.1. Regulatory environment of financial reporting in Germany

German financial reporting is part of the German legal system. The legal framework can be divided into general principles for all forms of business organizations and in specific rules relating to legal form, size, industry, or listing. The First Section of the Third Book of the German Commercial Code (§§ 238-263 Handelsgesetzbuch, HGB) deals with general accounting

31 See Otto 2000, p.191.

32 KPMG 2002, p.2.

33 See Sakurai 2001, p.1757.

34 For further details see http://www.asb.or.jp/e_asbj/comments/20011130_01.pdf.

principles.[35] Listed companies also must follow the Second Section (HGB §§ 264-335) relating to limited companies, that also includes consolidation rules.[36] Additionally, the Stock Corporation Act (Aktiengesetz, AktG) and other special laws set certain disclosure rules. Commercial and tax accounting are closely connected as individual accounts are the legal basis for tax payments. So also tax accounting rules play in important role.

Along with the Commercial Code Reform of 1998 (Gesetz zur Kontrolle und Transparenz im Unternehmensbereich, KonTraG) the German legislator introduced according to HGB § 342 the possibility to contractually approve a body of private law and delegate the development of recommendations about the application of group accounting principles to this body. In the same year, the German Accounting Standards Board (GASB) started to develop and issue those standards (German Accounting Standards, GAS). Since now the GASB has published 13 standards that are binding for listed companies.[37] As these standards cannot change German accounting law, they restrict options and fill loopholes. However, some critics pose considerable doubts as to whether the recommendations of a private standard setting body are binding on the grounds of the German constitution and as the recommendations are binding for non-listed groups.[38]

The Commercial Code Reform from 1998 additionally modified HGB § 292. According to this rule, companies that are both parent company of a group and listed on a stock exchange are not required to provide commercial code group accounts if they publish group accounts according to “international standards”, that is IAS or US GAAP. This option is widely used in Germany.[39] For that reason we describe in the following valuation rules for intangible assets according to IAS and US GAAP, too. Additionally, the EU Regulation on the application of accounting standards requires capital market oriented companies domiciled in the EU to prepare their group financial statements according to IAS, with effect from 2005. So more than 7000 companies have to change from national GAAP to IAS in their group accounts.[40]

35 See Ballwieser 2001, p.1223.

36 The Fourth Section deals with special rules for banks (§ 340 HGB) and insurances (§ 341 HGB).

37 See www.drsc.de.

38 See Budde/ Steuber 1998, pp.1184-1186

39 E.g., for the fiscal year 2001 28 of the 30 DAX companies provided group accounts according to IAS or US GAAP.

40 See d’Arcy 2003.

2.2.2. Accounting for self-developed software according to HGB and GAS

As a consequence of the prudence and the realization principle, for asset recognition the independent marketability and financial tangibility have to be considered.[41] Besides these abstract definitions, an asset can only be recognized if concrete rules are observed.[42] According to the HGB, intangible assets consist of concessions, trading and similar rights and values, and licenses in such rights and values, goodwill and related payments on account. Intangible assets, which have not been acquired for a consideration, must not be capitalized (HGB § 248). Accordingly, commercial accounting recognize intangible assets only if they are acquired. This applies to self-developed software so that related expenses may never be capitalized. The same is true for all kinds of research and development costs.

The HGB interpretation of self-developed intangible assets as "misinvestment" is heavily criticized as this impairs the information content of commercial code financial statements.[43] In July 2002, the GASB has adopted GAS 12 that deals with the accounting for non-current intangible assets. The Federal Ministry of Justice published this standard in October 2002. Already the draft version has experienced severe criticisms from academics and practitioners.[44]

According to GAS 12-8 intangible assets should be recognized if

- it has been purchased for consideration,
- it is probable that the future economic benefits that are attributable to the asset will flow to the enterprise and
- the cost of the asset can be measured reliably.

As a GAS cannot overrule specific HGB regulation, intangible assets, which have not been acquired for a consideration, must still not be capitalized. However, the standard contains in its appendix a recommendation for changes to existing legislation, namely to delete HGB § 248 para. 2. The new concept would introduce a new asset concept following basically IAS 38. According to GAS 12-A8, an intangible asset should be recognized irrespectively of whether it is purchased for consideration or self generated if the last two above already mentioned criteria are met. This applies also to development expenditures including self-developed software that

41 See Baetge 1996, pp.146-157.

42 See Pellens / Fülbier/ Sellhorn 2001, p.84.

43 See Arbeitskreis Immaterielle Werte 2001.

44 See the commentaries on http://www.drsc.de/ger/standards/index.html.

generally should be recognized as expense but should be capitalized if the following conditions are met:[45]

- Its intention and ability to complete the intangible asset so that it will be available for use or sale;
- the basis for realization of future economic benefits (either internally or externally) can be demonstrated and is probable;
- reliable allocation of the expenditures during the development phase;
- availability of resources necessary to complete the development and to use or sell the intangible assets.

2.2.3. Goodwill accounting according to HGB and GAS

The general prohibition to recognize self generated assets applies accordingly to self-produced goodwill (HGB § 255, para. 4). Accounting for acquired goodwill is regulated by a system of individual rules whereas according to IAS or US GAAP, goodwill accounting rules follow the economic content of the transaction. Therewith, the commercial code does not underlie a continuous conception.[46]

According to HGB § 255 para. 4, goodwill originated from an asset deal may be taken up into the balance sheet. It represents the difference between the consideration paid on the acquisition of an enterprise and the current value of the individual assets less its liabilities at the date of acquisition. This rule enables preparers to invest significant amounts in goodwill without rendering an account.[47]

If the goodwill is capitalized it must be either amortized in each succeeding year by at lease 25 percent or be distributed systematically over the years that are likely to benefit (HGB § 255, para. 4). If not recognized, the corresponding amount must be expensed. It is not allowed to charge goodwill directly against reserves. Although HGB § 255 para. 4 keeps silent on conditions for exceptional depreciation, it is accepted that for permanent decrease in value the goodwill should be written down to the lower attributable value and can or should be written-back if the reason for the write-down has ceased to exist.

45 GAS 12-A5.d.

46 See Ordelheide 1997, p.574.

47 See Ordelheide 1997, p.579, with a detailed critic on this option.

According to § 24 Umwandlungsgesetz (UmwG), the preparer has the option either to merge the assets and liabilities taking the book values (Buchwertfortführung) or the current values. The fusion surplus should be treated in accordance with HGB § 255 para. 4, as described above.[48]

Goodwill accounting in connection with the consolidation of capital varies in certain aspects from the individual accounting rules. According to HGB § 301 para. 1 and 3, the difference between the consolidation difference and the allocated current and book value differences must be capitalized as goodwill. HGB § 309 para. 1 offers the following options for the treatment of goodwill in group accounts:

- Amortization over the four years following the first consolidation at a rate of at least a quarter each year;
- amortization over its economic life without definition of a maximum period;
- set-off against the group's reserves.

Additionally, in practice combinations of these options and also a proportional set-off against reserves can be observed.

GAS 4 Acquisition Accounting in Consolidated Financial Statements limits these options and also fills some of the loopholes, effective since the financial year 2001.[49] Goodwill arising on the consolidation should be recognized as an asset and should be amortized over its expected life. As a general rule, the goodwill should be amortized using the straight-line method and the amortization period can exceed 20 years in justified cases only.[50] The recoverability of goodwill and the remaining useful life should be reviewed annually. Unscheduled amortization should be recognized in the case of impairment.[51]

The standard also sets out rules for accounting for negative goodwill. Negative goodwill should be shown separately in the balance sheet. It should be released to income when future expenses or losses relating to the acquisition are incurred. If there is no connection to future expenses or losses, the amount by which the negative goodwill is lower than the fair values of the non-monetary assets acquired should be recognized on a systematic basis over the weighted average of the remaining useful life of the depreciable assets. The remaining

48 IDW 1995, pp.359-365.
49 GAS 4-62.
50 GAS 4-27 and 4-31.
51 GAS 4-34.

difference should be recognized as income immediately at first consolidation.[52] Overall, GAS 4 is intensely influenced by IAS 22.[53]

2.3. Accounting for intangible assets according to IAS

2.3.1. Accounting for self-developed software according to IAS

IAS follows a more dynamic asset concept as the German Commercial Code. According to IAS 38.7, an intangible asset is an identifiable non-monetary asset without physical substance that is held for use in the production or supply of goods or services, for rental to others, or for administrative purposes. The Standard excludes the following intangible values from recognition as asset in the first place:

- Internally generated goodwill (IAS 38.36),
- research costs (IAS 38.42),
- internally generated brands, mastheads, publishing titles, customer lists and items similar in substance (IAS 38.51).

An intangible asset should be recognized if it is probable that the future economic benefits will flow to the enterprise and the cost can be measured reliably. Furthermore, the intangible asset must be identifiable to distinguish clearly from goodwill and the enterprise controls the asset.[54]

IAS 38.45 specifies the conditions for the recognition of development expenses as follows:

- Technical feasibility of completing the asset,
- ability and intention to complete and then to use or sell the asset,
- existence of a market for the output or the demonstration of the usefulness of the asset if internally used,
- availability of adequate technical, financial and other resources to complete the development and use or sell the output,
- measure the expenditure during its development reliably.

Consequently, development expenses for software should be recognized, if the above-mentioned conditions are cumulatively fulfilled. The amount is limited to future net revenues less further development, production and marketing expenses. In the following the depreciable amount should be allocated on a systematic basis over the useful life in general not exceeding

52 GAS 4-38-41.
53 See section 2.3.2.
54 IAS 38.10-17.

20 years.[55] Additionally, the amortization period and method should be reviewed and if necessary adjusted annually as well as an impairment test should be applied.[56] IAS 38.64 allows as alternative treatment also revaluation of the intangible asset. However, as an active market is needed as reference, this alternative may be practically seen as of minor importance.[57]

In December 2002, the IASB issued an exposure draft (ED) of proposed amendment to IAS 36 Impairment of Assets, and IAS 38 Intangible Assets. The comment period will close in April 2003. The ED amends the definition of an intangible asset. First it proposes to remove the requirement that an asset should be held for use in the production or supply of goods or services, for rental to others, or for administration purposes.[58] Second, it proposes rules that clarify the identifiability criterion. According to ED 38.11, an asset meets the criterion when it is separable and arises from contractual and other legal rights. Additionally, the ED gives some more guidance on the criteria for initial recognition. Especially, it clarifies that the criteria are always fulfilled for separately acquired intangible assets and for intangible assets acquired in a business combination.[59] Furthermore, the ED makes clear that expenditure on an in-process research and development project acquired in a business combination should only be recognized as an asset if it is in the nature of development expenditure that satisfies the criteria in IAS 38.45.[60]

Certainly, the most important proposed change is the removal of the assumption that the useful life of an intangible asset will always be finite. If there is no foreseeable limit on the periods over which the asset is expected to generate net cash inflows for the entity, the asset should not be amortized. The carrying amount of that asset and the reasons supporting the indefinite useful life assumption should be disclosed.[61] Additionally, the useful life should be reviewed each reporting period. A change to a finite life should be accounted for as a change in an accounting estimate. Furthermore, it is proposed to relocate the impairment test rules to IAS 36. These proposals are very much influenced by the related US GAAP rules and can be seen in the light of the IAS/ US GAAP convergence project.[62]

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55 IAS 38.88-90.
56 IAS 38.94-96 and 97-102.
57 See Pellens/ Fülbier/ Sellhorn 2001, p.89.
58 ED 38.7.
59 ED 38.17-32.
60 ED 38.32.
61 ED 38.85-91, 103, 117
62 See IASB 2003.

2.3.2. Goodwill accounting according to IAS

Goodwill accounting is regulated by IAS 22 Business Combinations. According to IAS 22.41 and 44, goodwill arising from acquisition should be recognized and amortized on a systematic basis over its useful life. There is a rebuttable presumption that the useful life of goodwill will not exceed twenty years from initial recognition. At least each financial year-end the carrying amount should be analyzed, whether it is covered by the expected future economic benefits. If the goodwill is impaired, an impairment loss should be recognized as correction of the acquisition costs. Hence, write-backs, if the reason for the write-down has ceased to exist, will not be allowed.[63]

Different to German law, IAS does not distinguish between accounting methods for goodwill arising from an asset deal, a legal merger or an acquisition as far as the transaction does not fulfill the criteria of a pooling-of-interests. The goodwill is always interpreted as acquired as part of the acquisition costs and must be recognized comparable to any other investment.[64]

The standard also sets out rules for accounting for negative goodwill arising on acquisition. Negative goodwill should be shown as deduction from the assets in the balance sheet, in the same classification as goodwill. It should be released to income when future expenses or losses relating to the acquisition are incurred. If there is no connection to future expenses or losses, the amount by which negative goodwill is lower than the fair values of the non-monetary assets acquired should be recognized on a systematic basis over the weighted average of the remaining useful life of the depreciable assets. The remaining difference should be recognized as income immediately at first consolidation. In case of a “lucky buy”, the gain is recognized immediately as income if monetary assets are concerned. In case of non-monetary assets, income is recognized if the future economic benefits embodied in the identifiable amortizable assets acquired are consumed.[65]

In the framework of the convergence project, the IASB has initiated to amend and improve IAS 22 in order to seek international convergence and to improve the quality of the standard.[66] Quintessence of Exposure Draft (ED) 3 Business Combinations from December 2002 is to forbid the pooling-of-interests method and to prohibit the amortization of goodwill acquired with an acquisition (impairment only approach).[67] This project has previously evoked a lot of

63 IAS 22.47 and IAS 22.55 together with IAS 36.
64 See Ordelheide 1997, p.573.
65 IAS 22.59-64.
66 ED 3.I5.
67 See Section 2.4.2.

controversy. However, as the exemplary standards FAS 141 and 142 are already effective, it is quite probable that the IASB will adopt the new standard without major changes to the draft soon.

2.4. Accounting for intangible assets according to US GAAP

2.4.1. Accounting for self-developed software according to US GAAP

As still US American accounting rules (US GAAP) are more rule than principle based, accounting for intangible assets are regulated in many individual rules. These rules do not always result in a consistent treatment.[68] However, according to SFAS 142, effective since financial year 2002, goodwill and other intangible assets acquired in a business combination should be treated similarly. In general acquired intangible assets should be capitalized. But they should be amortized only, if they have a finite useful life. Intangibles with indefinite useful life shall be evaluated each reporting period to determine whether circumstances continue to support an indefinite useful life assumption. If the asset is impaired, the carrying amount should be corrected.[69]

According to APB 17, internally created intangibles are generally expensed as incurred if they do not meet severe criteria. Especially, research and development costs[70], start-up costs for a new operation[71], franchises and licenses[72], or advertising costs must not be capitalized with minor exceptions.[73] In the contrary, for specific industries or products recognition is required.[74]

According to SFAS 2, the recognition of research and development costs is forbidden in general, although in some cases the criteria of APB 17 may be met. However, for internally developed software – as an exception to an exception – we find special rules. According to SFAS 86, costs incurred in creating a computer software product that is to be sold, leased, or otherwise marketed to third parties should be charged to research and development expense when incurred until technological feasibility has been established. That means that the company

68 See Pellens/ Fülbier/ Sellhorn 2001, p.85.

69 See for an overview Cortese-Danile/ Gornik-Tomaszewski 2002.

70 See SFAS 2/ FIN 4.

71 See SFAS 7/ FIN 7/ SOP 98-5.

72 See SFAS 44.

73 See SOP 93-7.

74 See SFAS 50, SFAS 139 and SPO 00-2, that regulate the capitalization of production costs of sound storage medium masters. See Küting/ Zwirner 2001, pp.20-25, regarding industry specific rules for the movie and media industry.

has completed planning, designing, coding and testing activities necessary to ensure that the product can be produced to meet its design specifications.[75]

According to SOP 98-1, computer software to be internally used should also be capitalized under certain conditions. Once the software is at the application development stage, its future economic benefits become probable and capitalization of costs is required. So expenses according to the design including software set-up and interface, programming, hardware installation, and testing should be capitalized and amortized either over a maximum of three years or the useful life. Upgrade expenses can only be capitalized if it probably improves the functionality of the software. In any case, maintenance costs have to be expensed when incurred.[76]

2.4.2. Goodwill accounting according to US GAAP

Goodwill accounting according to US GAAP follows the economic content of the transaction. So all forms of transactions are treated similarly. Until 2001, that includes the later analyzed annual reports, goodwill accounting was regulated in APB 17 Intangible Assets. Comparable to IAS 22, all acquired goodwill should be recognized and amortized on a straight-line basis over the useful life. Carrying amounts and useful life assumptions should be reviewed on a regular basis and if necessary adjusted.[77] As a major difference to IAS 22, the useful life may amount up to forty years.[78] The US American Securities and Exchange Commission (SEC) has restricted the useful life limit for certain industries due to criticism on the long periods applied in practice.[79]

According to APB Opinion No. 16, an excess of fair value over purchase price should be allocated to reduce proportionately the values assigned to noncurrent assets of the acquired company. If the allocation reduces the noncurrent assets to zero, the remainder of the excess over cost should be classified as a deferred credit and should be amortized systematically to revenue over the period estimated to be benefited but not in excess of forty years.

Late in July 2001, the first phase of the FASB project initiated in 1996 on business combinations culminated in the issuance of SFAS 141 Business Combinations and SFAS 142 Goodwill and Other Intangible Assets. All business combinations initiated after June 30, 2001 must be

75 See Kieso/ Weygandt/ Warfield 2001, pp.623-624.

76 See SOP 98-1.

77 See also for the old rules Sellhorn 2000, p.886.

78 See APB 17.29.

79 See Niehus/ Thyll 1998, Rdn. 1053.

accounted for using the purchase method. The pooling-of-interests method is not longer allowed.[80] In all cases an acquiring and an acquired company must be identified.[81]

SFAS 142 modifies the purchase method of accounting by eliminating the amortization of goodwill and substituting the impairment test. The new standard prescribes an impairment review at the reporting unit level, defined as an operating segment or one level below an operating segment (component).[82] All acquired goodwill should be assigned to reporting units. This impairment test must be applied at least annually and consists of two steps. The first step identifies a potential impairment by comparing the estimated fair value of a reporting unit to its carrying amount. In the second step the estimated fair value of the reporting unit determined in step one is allocated to all assets and liabilities of that unit including unrecognized identifiable intangible assets. If the carrying amount of goodwill exceeds the excess of the estimated fair value over the amounts assigned to assets and liabilities, an impairment loss is recognized as charge to income from operation.[83] As the impairment loss can be interpreted as a correction of the acquisition costs, a later write-back is not possible.

In comparison to the other systems under review, US GAAP provides the only accounting method without goodwill amortization in the P&L. This means that over time the goodwill changes from a purely acquired item to an item including original elements.[84] This makes the annual valuation of the reporting units more complex.[85] Although this standard was criticized in the US[86], in Germany[87] and elsewhere, other standard setters react positively. As already mentioned, the IASB plans to adopt this method; the GASC has announced that this method is complied with recent European accounting directives. Insofar it can be expected that these new standards will influence the comparability and content of corporate financial statements seriously[88]. First investigations on the impact of the new rules show that several companies have announced huge goodwill impairments so far.[89] As companies have an incentive to write off goodwill for 2002 as for the first year the amount will be attributed to accounting changes and

80 See Moehrle/ Reynolds-Moehrle 2001.

81 See for an overview KPMG 2001, DeMark 2002, Waxman 2002.

82 SFAS 131 defines an operating segment as a component of a business that earns revenue and incurs expenses, whose operating results are regularly reviewed by the chief operating decision maker to assess performance and allocate resources, and for which discrete financial information is available. See also Mercer/ Crow/ Patton 2002.

83 See Casabona 2003.

84 See Pellens/ Sellhorn 2001, S.1685.

85 See Mercer/ Crow/ Patton 2002.

86 See Siegel 2002.

87 See Wetzel 2001, Mertens 2001, Kleindiek 2001, Pellens/ Sellhorn/ Weinreis 2002, Hommel 2001.

88 See Casabona 2003.

89 See Harbert 2002, Frankfurter Allgemeine Zeitung 2002.

not operating expenses, still the challenging market environment may constrain to an increasing demand for write-offs in 2003 and later on.

3. Hypotheses and Research Data

3.1. Hypotheses

In all four accounting regimes under review acquired software should be capitalized. According to IAS and US GAAP self-developed software should be recognized under certain conditions; German GAAP forbid to capitalize those costs. Japan GAAP allow capitalizing those costs under certain conditions. However, as Japan GAAP still follow the prudence principle as the predominant accounting concept, it is unlikely that Japanese firms apply this option. So we expect to find in Germany, where more companies follow international standards,[90] a higher percentage of capitalized self-developed software as in Japan. Moreover, high-tech firms are expected to deal more with software as the old economy. As we find more old-economy industries in the Blue Chip indices as in growth markets, we expect a higher proportion of software firms in the growth markets. Additionally, international standards deal explicitly with detailed disclosure requirements for intangible assets. So we expect to find more information on this aspect in annual reports following IAS or US GAAP.

For goodwill accounting the situation is more complex. In general, not every kind of group combination or conglomerate may lead to the recognition of goodwill. Analyzing goodwill stakes in group accounts requires an investigation in the development of group structures. In Germany, most joint stock corporations are members of groups.[91] Typically, a holding or an operating parent company controls the group. So acquisitions, either as share, cash or asset deals are common transactions. The purchase method is apparently always chosen in practice. The pooling-of-interests method is unusual for the following reason: German GAAP allows charging goodwill against reserves. So income is not charged by goodwill amortization. Accordingly, most transactions were designed without consideration of the preconditions for the choice of the pooling-of-interests method. As most groups have changed from German GAAP to IAS or US GAAP recently in the late nineties, we expect to find big proportions of goodwill in their 2001 accounts.

90 See Section 3.2.

91 See Görling, 1993.

In contrast we find different structures of business groups in Japan. Typically, as far as shareholdings are concerned, any definitely dominant or controlling company can by no means be identified. So we do not find a controlling parent company but horizontal structures. This is especially valid for the so-called big six type of groups. These groups consist of highly diversified member companies and coordinate the group interest not by explicit control organization rather than regular informal meetings by the companies' directors only.[92] We suppose that under these circumstances we will find fewer acquisitions with the raise of goodwill. The actual accounting practices employed in almost all cases of mergers are consistent with the pooling method. So, the pooling-of-interests method meets the typical Japanese corporate culture environment, that a merger is not a basket purchase of net assets but an agreement that two companies would be better off combining. Although it is forbidden to charge goodwill against reserves in the case of acquisition accounting, in practice no goodwill arises.

For German growth companies we expect a higher portion of goodwill in their accounts as for blue chips because we had a great volume of mergers and acquisition activities in those markets. Often the deals were not designed to meet the criteria of the pooling method and the application of international standards leads to the recognition of goodwill. In Japan new growth companies typically do not belong to traditional big six group structures as described above. Therefore, we expect a higher goodwill portion in the accounts of those companies as for Japanese Blue Chips.

The hypotheses can be summarized as follows:

H1: Portion of recognized self-developed software in German accounts is higher than in Japanese accounts.

H2: Portion of recognized self-developed software in growth company accounts is higher than in Blue Chips accounts.

H3: Portion of goodwill in German accounts is higher than in Japanese accounts.

H4: Portion of goodwill in growth company accounts is higher than in Blue Chips accounts.

92 See Kuroda 2001, pp.1839-1843 and Kuwamoto 2001, p.332.

3.2 Sample and Research Data[93]

For Germany, this study is based on a research of all DAX 30-companies admitted to the Official Market or the Regulated Market at the Frankfurt Stock Exchange (FWB) as of March 31, 2002 as well as 38 NEMAX 50-companies domiciled in Germany and listed on the Neuer Markt end of March 2002.[94] [95] The DAX reflects the German Blue Chip segment comprising the largest and most actively traded German companies that are listed at the Frankfurt Stock Exchange (FWB). The Neuer Markt, launched in March 1997, was an independent trading segment for young and innovative companies from the growth and technology sectors, open to German as well as to foreign companies. Upon admission to Neuer Markt, these companies undertook to comply with very high standards regarding transparency and liquidity. The sample of the DAX 30-companies and the 38 NEMAX 50-companies according to the accounting standards applied and the usage of reconciliation instead of full set of financial statements can be described as follows:

Table 1: Accounting standards applied and usage of reconciliation by the DAX 30-companies and by the 38 NEMAX 50-companies domiciled in Germany

Accounting System	DAX 30	German NEMAX 50
HGB	2	0
HGB/ Reconciliation to US GAAP	2	0
IAS	13	15
IAS/ Reconciliation to US GAAP	3	0
US GAAP	10	23
Total	**30**	**38**

For Japan, we use a sample of all TOPIX Core 30-companies listed on the Tokyo Stock Exchange (TKC) and all 30 companies listed on the MOTHERS Market as of March 31, 2002.

93 For the full list of companies see Annex.

94 On October 31, 2002, Deutsche Börse presented its new index model for the equity market. The entire market is to be divided into two segments that differ from each other with regard to their various transparency standards. The amended Exchange Rules have gone go into effect as of January 1, 2003. The new indices have come into effect on 24 March 2003. Upon implementation of the new market segmentation, the Neuer Markt is to be subsumed into the new segments and therefore will no longer be required, and will be discontinued after a transition period at the end of 2003.

95 We have reduced our sample of German NEMAX 50-companies at of March 31, 2002 by one company, which is ComROAD AG. ComROAD AG was de-listed from Neuer Markt on April 19, 2002, due to accounting fraud. As the

The TKC is one of five stock exchanges in Japan. The TKC domestic stock market is divided into two sections - the First and Second Sections. In simple terms, the First Section is the market place for stocks of larger companies, and the Second Section is for those of smaller and newly listed companies. The TOPIX stock price indices are classified according to market capitalization and liquidity, and are based on all stocks listed on the TKC first section. The TOPIX Core 30 includes the 30 most liquid stocks with largest market capitalization. In response to the 1997 financial system reform, on November 11, 1999, the Tokyo Stock Exchange established a new market named MOTHERS (market of the high-growth and emerging stocks). Listing criteria for foreign companies seeking a listing on MOTHERS were introduced on November 1, 2000.

The sample of the TOPIX Core 30-companies and the 30 MOTHERS-companies according to the accounting standards applied and the usage of dual or parallel accounts can be described as follows:

Table 2: Accounting standards applied and usage of dual or parallel accounts by the TOPIX Core 30-companies and the 30 MOTHERS-companies

Accounting System	**TOPIX Core 30**	**MOTHERS**
Japan GAAP	14	29
US GAAP + Japan GAAP parallel	1	-
US GAAP + Japan GAAP dual	11	1
US GAAP + Japan GAAP dual, separate accounts in Japan GAAP only	4	-
Total	**30**	**30**

The subject of this research is the Annual Report for 2001.[96] The annual reports and/or annual reports on Form 20-F for each sample were obtained from the companies' web pages. All firms in TOPIX Core 30-Index publish English so-called "convenience translations"[97] of their Japanese annual reports. Almost all firms listed on MOTHERS market only provide annual reports in Japanese language, which can be obtained from the Tokyo Stock Exchange.

The English-language financial statements differ from the statutory Japanese reports in some respects, e.g. different information is given or line items are re-classified or re-ordered, even

financial statements of ComROAD had to be re-examined and re-audited, comparability with financial statements of other companies was not given. See Wall Street Journal Europe 2002a and 2002b.

96 Balance sheet dates June 30, 2001 until March 31, 2002.

97 See Flower/ Ebbers 2002, pp. 190-194. The Japanese report is translated into English and the numbers are presented in both Yen and U.S. dollars.

though the reported earnings or equity figures are not affected.[98] Furthermore, since the BADC has decided in 1997 to review the accounting standards in order to bring Japanese accounting more in line with IAS, a number of Japanese companies accounting for in accordance to Japanese GAAP describe the extent to which Japanese accounting rules are currently harmonized with IAS.[99] Almost all companies listed in the U.S., adjust their Japanese financial statements to reflect US GAAP. These reports also include an audit opinion, which states that the information given is in conformity with US GAAP.[100] Following the adoption of the Japanese regulation for consolidated financial statements in 1976, the Ministry of Finance allowed certain companies to submit US GAAP consolidated accounts instead of Japanese GAAP consolidated accounts.[101] Those were companies that were registered with the US Securities and Exchange Commission at that time. Other Japanese companies were still required to prepare consolidated financial statements under Japanese GAAP. The regulation does not allow IAS consolidated financial statements to substitute for Japanese GAAP statements - only US GAAP.[102] According to Kuroda (2001), the Ministry of Finance has already decided in 1992 not to accept US GAAP consolidated financial statements any longer, since the year ending on or after March 31, 2001.[103] This fact is worth mentioning, because half of the TOPIX Core 30-companies still applies US GAAP in their annual report for the financial year 2002.

For all companies described above we have taken the following numbers for our analysis:

- Capitalized self-developed software
- Capitalized Goodwill
- Goodwill amortization
- Total assets
- Total equity (excluding minority interests)
- Income before taxes.

98 See for example Mizuho Holdings, Inc., Annual Report 2002, p. 111.

99 See for example Fujitsu Limited, Annual Report 2002, p. 29.

100 See for example Canon Inc., Annual Report 2001, pp. 48 and 73.

101 See Otto 2002, p.585.

102 The only company in our sample applying full US GAAP accounts is Mitsubishi Tokyo Financial Group, Inc., Annual Report 2002, p. F-7.

103 See Kuroda 2001, p.1819.

4. Results

The distribution of the portion of recognized self-developed software in German and Japanese accounts can be summarized as follows:

Table 3: Portion of recognized self-developed software to total assets and total equity

Index	No.[104]	Sum software/ total assets					Sum software/ total equity				
In %		Mean	St. Dev.	Min	Max	Median	Mean	St. Dev.	Min	Max	Median
DAX 30	17/30	0.06	0.13	0	0.55	0	0.59	0.85	0	2.48	0
NEMAX 50	25/38	0.05	0.16	0	0.74	0	0.20	0.75	0	3.82	0
TOPIX 30											
- Jap. GAAP	5/30	0	0	0	0	0	0	0	0	0	0
- Thereof US GAAP	7/16	0	0	0	0	0	0	0	0	0	0
MOTHERS	0/30	-	-	-	-	-	-	-	-	-	-

H1: Portion of recognized self-developed software in German accounts is higher than in Japanese accounts.

The findings show that in general the portion of recognized self-developed software is low compared to total assets or total equity. Overall, only 13 companies out of our sample of 128 companies show capitalized self-developed software in their accounts. As for Japanese companies we did not find any recognized self-developed software, H1 can be confirmed. However, most Japanese companies do not disclose any information on software. Only those providing US GAAP information indicate in some cases numbers on total capitalized software not differentiating between acquired and self-developed. Others indicate that they do not recognize software costs. So this finding may be impaired by the lack of disclosure.

H2: Portion of recognized self-developed software in growth company accounts is higher than in Blue Chips accounts.

Although, most German companies follow international standards, the recognition of self-developed software is relatively low. More interestingly, the industry bias we have subsumed cannot be approved and must be rejected. Especially, Neuer Markt software companies do not recognize software at all. The capitalization of self-developed software seems to be more important for the financial industry. So we find a significant bias as all German banks or insurance companies in our sample show self-developed software in their accounts if they apply international standards irrespectively of the market segment and of the standard applied. As banks and insurance companies show in average a higher amount of total assets and equity,

104 We have calculated the ratios only for those companies who report respective or zero amounts. Therefore, the number of companies is reduced by those companies not giving any information on the respective line item.

the ratios are relatively seen low. But for example Deutsche Bank capitalized in 2001 circa one billion €.[105] However, in many cases we did not find meaningful related disclosure.

Table 4: Portion of goodwill to total assets and total equity

Index	No.[105]	Goodwill/ total assets					Goodwill/ total equity				
In %		Mean	St. Dev.	Min	Max	Median	Mean	St. Dev.	Min	Max	Median
DAX 30	30/30	9.21	11.05	0	47.60	5.83	37.77	38.84	0	155.70	23.85
NEMAX 50	35/38	12.55	12.63	0	57.93	8.51	29.70	40.38	0	222.10	15.67
TOPIX 30 - Jap. GAAP	14/30	1.54	2.07	(0.16)	6.49	0.10	4.30	5.35	(1.75)	13.66	1.09
- thereof US GAAP	8/16	2.20	2.36	0	6.49	1.18	5.15	5.11	0	13.38	2.38
MOTHERS	4/30	13.78	17.91	0.38	44.63	5.06	22.16	31.40	0.51	76.42	5.86

Table 5: Portion of goodwill amortization to EBIT

Index	No.[105]	Goodwill amortization/ EBIT				
In %		Mean	St. Dev.	Min	Max	Median
DAX 30	30/30	19,17	61,73	(146,29)	269,77	11,46
NEMAX 50	36/38	(78,16)	482,45	(2795,57)	732,99	(0,96)
TOPIX 30 - Jap. GAAP	7/30	(2,34)	6,56	(17,28)	4,92	0
- thereof US GAAP	7/16	(32,02)	78,74	(224,82)	4,92	0
MOTHERS	-	N/A	N/A	N/A	N/A	N/A

H3: Portion of goodwill in German accounts is higher than in Japanese accounts.

In general we find in German group accounts higher portions of goodwill compared to total assets as in Japan. Even more obvious is the finding regarding the equity ratios, as German companies seem to have lower equity as Japanese companies. The last decade has seen many takeovers that are now reflected in the goodwill amounts, for example Deutsche Bank with Banker's Trust and Allianz with Dresdner Bank. The most spectacular takeover with a goodwill amount in 2001 of 23.6 billion € of VoiceStream/ Powertel by Deutsche Telekom leads to a portion of goodwill in the Telecom accounts of circa a quarter. Fresenius Medical Care as a smaller Blue Chip shows the maximum ratio for DAX companies of 48 %. This means that the equity does not cover the goodwill amount. Not surprisingly, the income before taxes is very influenced by goodwill amortization, in average of 19%. For example, the Deutsche Telekom expensed in 2001 goodwill of 3.7 billion € compared to a loss before taxes of 2.5 billion €. So without goodwill amortization – as required by SFAS 142 – Deutsche Telekom would have disclosed a gain.

105 See Deutsche Bank, Annual Report 2001, p.123.

As expected, TOPIX 30 companies show on average low goodwill amounts. Even 18 companies do not disclose any goodwill amounts at all. However, those companies applying US GAAP show slightly higher amounts but still do not reach the level of German companies. So, due to the widely used pooling approach H3 can be confirmed.

H4: Portion of goodwill in growth company accounts is higher than in Blue Chips accounts.

Even more relevant is the goodwill for the accounts of NEMAX 50 companies. EVOTEC OAI for example shows the highest value of the whole sample with a relation from goodwill to total assets of 58 %. Pixelpark shows extreme effects, as the goodwill amount is more than two times higher then the whole equity. Still on average more than one tenth of total assets is goodwill. The impact of goodwill amortization on earnings is more difficult to analyze because most NEMAX companies disclose losses or only slightly gains for the financial year 2001. However, goodwill amortization has a serious impact on earnings.

We have faced several problems analyzing accounts of MOTHERS market companies. In many cases we did not find web-based information. Only four companies disclosed information on goodwill accounting. So our ratios should be interpreted with caution. Especially, only one company, CYBER Music Entertainment, shows a goodwill amount comparable to the level of Neuer Markt companies. So we can reject H4 for Japanese companies. But our results could be impaired because of inadequate disclosure.

5. Conclusion

Our results show that the comparability of the accounts is impaired because of different accounting practices. The recognition and valuation of goodwill and self-developed software varies significantly according to the accounting regime applied. However, for the recognition of self-developed software, the effect on the average impact on asset coefficients or profit is not that high. Moreover, an industry bias can only be found for the financial industry. The introduction of international standards – either US GAAP or IAS – may introduce more frequent capitalization of those expenses. But relying on our findings, major effects cannot be expected.

In contrast, for goodwill accounting we found major differences especially between German and Japanese Blue Chips. The introduction of the new goodwill impairment only approach and the prohibition of the pooling method may have a major impact on German and Japanese companies' accounts. However, as German companies have already adopted international

accounting practices, goodwill impairment instead of amortization is not understood as an accounting revolution.

In contrary, if Japan is willing to adopt the new US GAAP or the planned IAS rules accordingly, Japanese accounts will be confronted for the first time with acquisition accounting. This development of accounting rules would comply with the changing socio-economic environment in Japan and with the demand for internationalization in accounting. But Japan's attitude of maintaining its intrinsic accounting concepts seems still to oppose to the elimination of the pooling method. In fact, first reactions on the IAS project on business combinations from the Japanese standard setter support this estimate.[106]

106 For further details see http://www.asb.or.jp/e_asbj/comments/20011130_01.pdf.

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Annex:

List of companies

German NEMAX 50

ACG AG
ADVA AG
AIXTRON AG
Balda AG
ce CONSUMER ELECTRONIC AG
comdirect bank AG
ConSors Discount-Broker AG
7D.Logistics AG
DAB bank AG
EM.TV & Merchandising AG
EVOTEC OAI AG
FJA AG
Funkwerk AG
GPC Biotech AG
IDS Scheer AG
IM Internationalmedia AG
INTERSHOP COMMUNICATIONS AG
IXOS SOFTWARE AG
Kontron embedded computers AG
Lambda Physik AG
LION Bioscience AG
MediGene AG
Medion AG
MobilCom AG
MorphoSys AG
Nordex AG
Pandatel AG
Pfeiffer Vacuum Technology AG
Pixelpark AG
Plambeck Neue Energien AG
SAP Systems Integration AG
SENATOR Entertainment AG
SINGULUS TECHNOLOGIES AG
STEAG HamaTech AG
Süss MicroTec AG
T-Online International AG
Umweltkontor Renewable Energy AG
United Internet AG

German DAX 30

ADIDAS-SALOMON AG
Allianz AG
BASF AG
Bayer AG
BMW AG
Commerzbank AG
Deutsche Bank AG
DaimlerChrysler AG
Degussa AG
Deutsche Post AG
Deutsche Telekom AG
E.ON AG
EPCOS AG
Fresenius Medical Care AG
Henkel KGaA
Bayerische Hypo- und Vereinsbank AG
Infineon Technologies AG
Deutsche Lufthansa AG
Linde AG
MAN AG
Metro AG
MLP AG
Münchener Rückvers.-Gesellschaft AG
Preussag AG
RWE AG
SAP AG
Schering AG
Siemens AG
ThyssenKrupp AG
VOLKSWAGEN AG

Japan TOPIX Core 30

Canon Inc.
DENSO CORPORATION
East Japan Railway Company
Fuji Photo Film Co., Ltd.
FUJITSU LIMITED
Hitachi Ltd.
Honda Motor Co., Ltd.
Ito-Yokado Co., Ltd.
K D D I
Kyocera Corporation
Matsushita Electric Industrial Co., Ltd.
Mitsubishi Tokyo Financial Group, Inc.
Mizuho Holdings, Inc.
Murata Manufacturing Co., Ltd.
NEC Corporation
Nintendo Co., Ltd.
Nippon Telegraph and Telephone Corporation
Nissan Motor Co., Ltd.
Nomura Holdings, Inc.
NTT DoCoMo, Inc.
ROHM COMPANY LIMITED
SEVEN-ELEVEN JAPAN CO., LTD
Shin-Etsu Chemical Co., Ltd.
Sony Corporation
Sumitomo Mitsui Banking Corporation
Takeda Chemical Industries, Ltd.
The Tokyo Electric Power Company, Incorporated
Toshiba Corporation
Toyota Motor Corporation
UFJ Holdings, Inc.

Japan MOTHERS

ACCESS
Artiza Network
Crayfish
csi.INC
CYBER Music Entertainment
CyberAgent
designexchange
Dream Incubator.INC
Elmic Systems
Forvaltelcom, Inc.
I-cf Internet
Intec Action
INTEC Communication
INTERNET Research Institute, Inc.
Japan Digital Contents
J-Stream. Inc.
KUBO Tec
Media Seek
MET's
MONEX
NCG
On THE EDGE
PACo., Ltd.
Plat's Home
RealVision, Inc.
Site Design
SKY Perfect Communications Inc.
Snovd
SOFTBRAIN,Co., Ltd.
Valueclik Japan

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Kontaktadresse für Bestellungen:

Professor Dr. Reinhard H. Schmidt
Wilhelm Merton Professur für
Internationales Bank- und Finanzwesen
Mertonstr. 17
Postfach 11 19 32 / HPF66
D-60054 Frankfurt/Main

Tel.: +49-69-798-28269
Fax: +49-69-798-28272
e-mail: rschmidt@wiwi.uni-frankfurt.de
http://www.finance.uni-frankfurt.de/schmidt/WPs/wp/wpliste.html

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