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The Allocation Model of Negative Fair Value of Assets at Initial Recognition of Business Combination under IFRS 3*

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Abstract

This paper examines the issue of the initial measurement of assets in a business combination in accordance with IFRS 3. Accounting research focuses mainly on goodwill – its recognition, its treatment as an asset, its subsequent measurement, and the use of goodwill for earnings smoothing. However, they don't address the allocation of assets measured at a negative fair value.

The fundamental models – the Individual Adjusting Factor Model and the Structural Factor Model – require the arbitrary assumption that the adjusting factors are equal to zero. Therefore, the motivation and aim of this paper was to develop alternative allocation models that would allow the measurement of the initial value of a company's assets if some cash-generating units (CGUs) are measured at a negative fair value.

After conducting an extensive literature review, three alternative allocation models were developed. In the General Adjusting Factor Model, a general adjustment factor is assigned to total assets to reflect the total fair value of the cash-generating unit (CGU). In the Decreasing Adjusting Factor Model, each CGU is assigned and sorted in descending order by its fair value. In the Sum-of-Year-Digits Model, the total fair value of the enterprise's assets is recognized in the initial values of the CGUs using the SYD method, where the share of the total positive fair value is based on the number of units.

Keywords: business combination, IFRS 3, initial recognition of assets, negative fair value of assets.

Introduction

Accounting differentiates acquisition of a single asset from acquisition of many items of assets combined with liabilities as organised assets and liabilities. Such organised assets and liabilities in International Standards of Financial Reporting are called "business". Business is defined in IFRS 3 (Appendix A) as an integrated set of activities and assets which can be conducted and managed for the purpose of providing goods or services to customers, generating income as dividends or interest or generating other income for investors. A characteristic of transaction influences on valuation of assets and liabilities and financial outcomes of an entity in case of business combination. The transaction (or other event) is the combination of entities only if concerns to business and as a result the acquirer takes control of the acquiree (IFRS 3 par. 3, B5, Appendix A). A business combination may be structured in a variety of ways for legal, taxation or other reasons (IFRS 3 par. B6). However, if assets are not classified as business, the transaction is allocated as common acquisition of, implicitly assumed, individual item of assets or group of assets (IFRS 3 par. 2, 3). Business combination is accounted for an acquisition method (IFRS 3 par. 4).

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Assets and liabilities of business are valued by an entity at fair values as of the acquisition date and in general each identifiable item of assets and liabilities is measured and accounted for combination in accordance with IFRSs applicable for those items (IFRS 3 par. 18, 54). Fair value is defined as the amount that could be received as to sell an asset or paid to transfer a liability in an orderly transaction between market participants (IFRS Appendix A). Measurement of fair value is established in IFRS 13 if another IFRS requires or permits fair value measurements or disclosures about fair value measurements both as initial and subsequent measurement (IFRS 13 par. 5, 8). The fair value definition of IFRS 13 is the same as in IFRS 3 (IFRS 13 par. 9).

The aim of this paper is the analysis of circumstances determining negative fair value of business assets as of the acquisition date and development of allocation models appropriate for such circumstances. In that circumstances zero value of assets shall be recognised at initial measurement of business combination and appropriate allocation model is necessary because such the model in neither directly nor non-directly established in IFRS 3 or another standard.

The Review of Literature

Research in accounting concerning on business combination are mainly concentrated on two kind of assets: goodwill and intangible assets recognised in case of combination. Research on goodwill were, based on literature review, classified by Boennen and Glaum (2014) for 4 main areas of research: goodwill recognition, goodwill as an asset, subsequent measurement of goodwill and applying goodwill to earnings smoothing. In the area of goodwill as an asset they dividend research on goodwill value relevance and its usefulness in predicting cash flow. In the area of goodwill measurement subsequently to business combination, they divided following research areas relative to: amortisation of goodwill under older set of accounting standards, factors affecting impairment value of goodwill and informative value of writ-off on stock prices. The above classification can be completed about research on faithful measurement of goodwill under combination of particular types of entity according to legal considerations. Research on intangible assets are mainly concerned on their non-recognition as a result of business combination.

Following the above classification a state of research was investigated about a subject of negative fair value allocation at the acquisition date which is presented in Tables 1-4.

Table 1. Goodwill recognition area

No.	Authors	Research issues
1	Bohusova, H. and Svoboda, P. (2009)	compared recognition differences of business combinations in financial statement under US GAAP and IFRS 3
2	Mario, C., Baboukardos, D., Cunningham, G.M. and Hassel, L.H. (2011)	compared 8 European telecommunication companies from a quality of mandatory disclosures under IFRS 3
3	Devalle, A. and Rizzato, F. (2013)	assessed a quality of mandatory information about business combination on disclosures, measurement and impairment of Italian stock market companies
4	Ratiu, R.V. and Tiron-Tudor, A. (2013)	discussed a concept of purchased (in an acquisition) and internally generated goodwill and proposed a new classification suitable for small companies
5	Sacui, V. and Szatmary, M.C. (2016)	analysed components of purchased goodwill for acquisition transaction of Nokia by Microsoft
6	Maruszewska, E.W. and Strojek-Filus, M. (2016)	explored a quality of goodwill disclosures. They classified goodwill as goodwill disclosed in financial statement (non-consolidated) and goodwill non-disclosed (consolidated)
7	Klimczak, K.M, Dynel, M. and Pikos, M. (2015, 2016)	assessed a quality of disclosure on uncertainty conditions resulting write-off of assets for several Polish stock market companies
8	Grathwohl, J. and Voeller, D. (2016)	compared measurement and information in financial statement outcomes of purchased full or partial goodwill resulting from non-controlling interests
9	Rupo, D. and Sidoti, S. (2014)	investigated a disclosure quality of goodwill and intangible assets on example of Italian stock market companies
10	Masadesh, W., Mansour, E. and Al Salamat, W. (2017)	summarised 300 publications about implementation of IFRS 3 and described positive and negative aspects of global implementation of this standard

11	Louw, E., Hall, J.H. and Brümmer, L.M. (2024)	considered the role of independent audit committee in quality of compliance with goodwill impairment disclosure at South Africa
12	Amorós-Martinez, A. and Cavero-Rubio, J.A. (2018)	compared a measurement of goodwill before and after implementation of IFRS 3 and stated that standard influenced a quality of information in financial statement
13	Spacić, D. (2018)	investigated Serbian stock market companies from information disclosure point of view about goodwill

Source: own study.

Table 2. Goodwill as an asset area

No.	Authors	Research issues
1	Eloff, A.M. and De Villiers, Ch. (2015)	interested in information relevance about goodwill for financial statement users after IFRS 3 implementation on capital market of South Africa Republic including assets and liabilities assessment at fair value
2	Bugeja, M. and Loyeung, A., (2017)	explored an influence of IFRS 3 implementation on an amount of takeover premium
3	Hillman, M. and Sjösten, L. (2022)	concluded from Swedish acquisition marked that companies applying IFRS have larger degree of value added due to business acquisition comparing to Swedish GAAP
4	D'Arcy, A. and Tarca, A. (2018)	reviewed 42 items of literature from 2008 to 2017 years including research on relevance of goodwill disclosure and impairment as result of IFRS 3 implementation in international context

Source: own study.

Table 3. Goodwill measurement after business combination area

No.	Authors	Research issues
1	Astami, E, Hartadi, E. and Tower, G. (2006)	examined the factors affecting goodwill impairment before the implementation of IFRS 3
2	D'Arcy, A. and Tarca, A. (2018)	listed factors affecting executives' decision choices on goodwill and goodwill impairments
3	AbuGhazaleh, N., Al-Hares, O. and Roberts, C. (2011)	considered a decision choice of managers on goodwill write-off subsequently to IFRS 3 implementation on an example of British stock market companies
4	Quereshi, M. and Ashraf, D. (2013)	examined the change in company value in share prices using the example of British listed companies
5	Hamberg, M. and Beisland, L.A. (2014)	showed on Swedish capital market that after implementation of IFRS 3, a goodwill write-off was not connected with changes of stock prices
6	Paugam, L., Astolfi, P. and Ramond, O. (2015)	explored an impact of abnormal level of purchase price to goodwill on stock prices of acquirer after disclosure following acquisition date
7	Knauer, Th. and Wöhmann, A. (2016)	researched an influence of unexpected goodwill write-offs.
8	Elnahass, M. and Doukakis, L. (2019)	took into consideration rarely explored problem of an influence on stock prices a gain from bargain purchase
9	Amano, Y. (2022)	considered the above problem of gain from bargain purchase for Japanese acquisition market

Source: own study.

Table 4. Goodwill and income smoothing area

No.	Authors	Research issues
1	Amano, Y. (2022)	considered the above problem of gain from bargain purchase for Japanese acquisition market
2	Alves, S. (2013)	investigated whether Portuguese stock market companies smoothed their profits using goodwill write-off as a tool
3	Giner, B. and Pardo, F. (2014)	examined the ethical aspect of profit smoothing using company values

Source: own study.

The next section is about the measurement problem at negative fair value for business assets valuation.

The problem of negative fair value at business combination

Business acquisition according to IFRS 3 is the transfer of the sum of assets at their fair values what means that identifiable part of the business obtains its individual fair value and that this fair value of business is the sum of fair values of acquired assets. Business according to IFRS 3 contains of sum of individual assets or group of assets e.g. cash generating unit.

If the measurement of business assets is at fair value then it could lead to negative fair value of these assets only if input data used to set acquisition price is that of level 3. Inputs of level 1 and 2 as obtained from market or external sources of information cannot lead to negative fair value (according to IAS 13). In case of level 3 input data, the market approach and cost approach also cannot result in negative fair value because of valuation technique excluding such a possibility. For example market multipliers or market prices will never be negative and also replacement cost will never be negative. Nevertheless, the income approach may provide to negative fair value. The relations between income value of business assets and accounting value of that assets are presented in the table 5.

Table 5. Possible cases of income value approach of business assets

The case		Valuation as of acquisition date	Allocation of acquisition		Subsequent measurement after acquisition date	
1	Positive income value of business assets	$D > 0 \rightarrow A > 0$	1A	$D' > 0 \rightarrow A' > 0$	1Aa	$D'' > 0 \rightarrow A'' > 0$
					1Ab	$D'' < 0 \rightarrow A'' = 0$
			1B	$D' < 0 \rightarrow A' = 0$		
2	Negative income value of business assets	$D < 0 \rightarrow A = 0$	2A	$D' > 0 \rightarrow A' > 0$	2Aa	$D'' > 0 \rightarrow A'' > 0$
					2Ab	$D'' < 0 \rightarrow A'' = 0$
			2B	$D' < 0 \rightarrow A' = 0$		

Source: own study.

Basic case is case 1 from table 1 in which business assets are measured as of acquisition date at positive fair value in income approach ($D > 0$) and they obtain positive initial values at the acquisition date ($A > 0$). If during the period of accounting for business acquisition acquirer obtains information about facts and circumstances affecting the fair value of business assets (case 1A), income value of that assets may change, but will be positive ($D' > 0$), therefore as a result of retrospective adjustment of provisional amount of that assets in the financial statement of the acquirer, the initial value of that assets will be positive ($A' > 0$). After completing accounting for business acquisition according to impairment testing, a revised income value of business assets is measured. As a consequence of impairment test income value may be reduced, however it is positive ($D'' > 0$). Therefore some value adjustment is necessary of that business assets resulting in some value reduction of that assets, however this value is still positive ($A'' > 0$). It is case 1Aa from Table 5.

Particular case not explained by standards is the case that the business may be valued at negative income value approach if the seller of business is subjected to GAAP under which seller may value the business at another than fair value measurement e.g. historical cost. Case 2 in Table 5 describes that situation in which income value of business assets as of the acquisition date is negative ($D < 0$), therefore initial value of assets should be zero ($A = 0$).

Negative fair value in income approach may also appear in the period of accounting for business combination which should not be longer than one year or in the subsequent period of impairment testing. In case of obtaining by acquirer the additional information about facts and circumstances affecting the negative value of business assets, the acquirer is obligated to retrospective adjustment of provisional amounts of business assets. Retrospective adjustment of provisional amounts means the adjustment of initial value of business assets. Such the situation is likely at the acquisition date while income value of assets is as well negative (the case 2B) as positive (the case 1B), but in the period of accounting for business combination as a result of information about facts and circumstances obtained affecting the income value of business assets, the income value of that assets will be measured as negative ($D' < 0$). Therefore as the retrospective adjustment of provisional amounts, the initial value of that assets in the financial statement will be disclosed at zero value ($A' = 0$).

In case of the impairment test resulted in negative income value of business assets (D" < 0), them as well the income value at the acquisition date or during the period of accounting for business combination was positive (the case 1Ab), as the income value of business assets was negative at the acquisition date but in the period of accounting for business combination has become positive (the case 2Ab), the initial amount of business assets is measured at zero value (A" = 0).

The cases 1Ab or 2Ab where income value of business assets are negative as the result of impairment test, are not considered in this paper because the zero-valued recognition will not produce the difficulties in measurement of initial value of business assets what is subject of this paper.

In the case that at least a stand-alone, identifiable asset or cash generating unit is negatively valued at income approach, the following scenarios according to value of business assets are possible:

- negative fair values are assigned to cash generating units or single asset and positive fair values are assigned to other units or assets but the amounts are at level that, as the result, the sum of fair values of business assets is positive, or
- negative fair values which are significant as to the amount are assigned to cash generating unit and negative fair values are assigned to other units but the amounts are low, therefore as the result the sum of fair values of business assets is negative.

The above problem is not considered by ISFR 3 or other standards, so it is important to raise following, concrete questions:

- may it be recognised a zero value of business assets as of acquisition date ?,
- may it be recognised and disclosed a zero value of initial and finishing assets in the period of accounting for business combination in a financial statement according to quality characteristic of financial statement ?

Summing up, because of negative fair value of business assets that assets do not fulfil the definition of assets according to Conceptual Framework as long as they produce negative income value. From disclosure point of view, it is reasonable as to disclose information about the assets that are expected to obtain positive income in future. However, that assets should be disclosed at zero value until positive income value become likely. According to situation described in the table 1 presentation of business assets in financial statement is as follows:

- The situation 1. At the acquisition date the value of business assets is equal zero, because their fair value at income approach is negative. At the end of reporting period for business acquisition, the value of business assets is zero, because in period of accounting for acquisition facts and circumstances included in the transaction are unchanged from the acquisition date, therefore income value of business assets is still negative.
- The situation 2. At the acquisition date the value of business assets is equal zero, because their fair value at income approach is negative, but at the end of reporting period their ending value is positive as the result of making commitments on business assets by acquirer. Because the commitment was made in the period of accounting for business, initial value of business assets as the result of retrospective adjustment of amounts is positive and their value at the end of reporting period is also positive.
- The situation 3. At the acquisition date the value of business assets is equal zero, because its fair value at income approach is negative. If the commitments of acquirer on restructuring or other management activities referring to business assets is not made up to the end of reporting period for business acquisition, the ending value of these assets is still zero, because negative income value of assets is continued.

The next subject of value transfer for business combination is to choose the technique of transfer the fair values of business assets into their initial values at the acquirer. ISFR 3 with regard to a technique of acquisition and accounting for combination does not establish any technique of value transfer. However, this technique should be appropriate as for stand-alone, identifiable asset as cash generating unit as group of assets.

In the case of value transfer of stand-alone asset if the fair value is negative, the initial value of this asset will be zero. In the case of value transfer of cash generating unit, the most of assets included in that units will be of negative income value, but it is almost certain that some assets shall obtain positive income values. IFRS 3 does not include technique of value transfer in case of negative fair value as for the stand-alone asset as the cash generating unit. IAS 36, according to impairment validation test, requires as to writing off individual and concrete

asset belonging to the cash generating unit after reducing goodwill proportionally to participation of this asset in the accounting value of that unit. As it was said, the standard does not explain the characteristics of this proportion. Therefore it can be concluded that the technique of establishing of this proportion is the part of accounting policy of the acquirer.

The next section it is considered the techniques of fair value transfer from a seller into the initial value of business assets of acquirer.

1. Development of allocation models for business combination at negative income value

In this section it is developed the allocation models which are based on the relation of accounting value of business assets, their fair values and the initial values recognised by acquirer.

The initial value of business assets is the sum at least two cash generating units (CGUa), where the number of unit is a, where a = 1,…b ($\sum_{a=1}^{b} CGU_a$). Every cash generating unit consists of at least two single assets (Ai), where the number of these assets is i, where i = 1,…j ($\sum_{i=1}^{j} A_i$). The fair value of the sum of cash generating units is the sum of their fair values ($\sum_{a=1}^{b} GC_a$) and, per analogy, the fair value of the sum of single assets is the sum of their fair values ($\sum_{i=1}^{j} G_i$).

As the result of business combination, seller sells to the acquirer at least one cash generating unit at their accounting values ($\sum_{a=1}^{b} CGU_{k,a}$) which consist of at least two single assets at their accounting values ($\sum_{i=1}^{j} A_{k,i}$). IFRS 3 establishes that the initial value of business assets arises as the sum of fair values of cash generating units and for cash generating unit as the sum of fair values of stand-alone assets so:
$\sum_{a=1}^{b} GC_a = \sum_{a=1}^{b} CGU_a$ and $\sum_{i=1}^{j} G_i = \sum_{i=1}^{j} A_i$
The above compatibility equation shows the equality between fair values and initial values.

At the acquisition date the accounting values of cash generating units ($CGU_{k,a}$) transfer into the initial values of that units (CGU_a) and the drivers of this transfer are fair values of that units (GC_a). Because of cash generating unit consist of stand-alone assets, the accounting value of single assets of cash generating unit ($A_{k,i}$) transfers into the initial value of assets (A_i) via fair values of single assets ($A_{g,i}$) as the driver. The allocation model links following relations:

$$A_k = \sum_{a=1}^{b} CGU_{k,a} \rightarrow A_g = \sum_{a=1}^{b} GC_a \rightarrow A = \sum_{a=1}^{b} CGU_a \quad \text{and}$$
$$CGU_{k,a} = \sum_{i=1}^{j} A_{k,i} \rightarrow GC_a = \sum_{i=1}^{j} A_{g,i} \rightarrow CGU_a = \sum_{i=1}^{j} A_i$$

A combination of cash generating units and single assets is also possible, but it is not considered because it is included in aforementioned cases.

The sum of assets at fair values (as cash generating units sold by seller) as of the acquisition date and the sum of assets at their initial values as the business (as cash generating units or single assets acquired by acquirer) should be equal according to IFRS 3. Therefore for all the assets as cash generating units the equality $A_G = A$ (or $\sum_{a=1}^{b} GC_a = \sum_{a=1}^{b} CGU_a$) is satisfied.

The allocation model of fair value of business assets for acquirer into initial values includes:

- the transfer of fair value of *a-th* cash generating unit of seller into initial value of *a-th* cash generating units of acquirer, and
- the transfer of fair value of *i-th* single asset for *a-th* cash generating unit of seller into initial value of *i-th* single asset for *a-th* cash generating unit of acquirer.

If the fair value of *a-th* cash generating unit is measured, then according to IFRS 3 this value is initial value of cash generating unit. The allocation of initial value of cash generating unit into initial value of single assets of this unit uses the same model as for allocation of fair value into initial value of that unit.

If the income value of *a-th* cash generating unit is negative, therefore the fair value is negative and the aforementioned problem arise of initial value measurement.

According to allocation of fair value into initial value, IFRS 3 assumes a value transfer for identifiable stand-alone asset. In case of group of assets e.g. cash generating unit, IFRS 3 does not impose any allocation model. However,

IAS 36 for impairment testing requests to account fair value proportionally for book value. Characteristics of this proportion, i.e. linear or non-linear, is not explained in standard. Therefore first of all, linear model of transformation might be considered.

Linear transformation of fair value into initial value can be named as Individual Adjusting Factor Model. In this model it is calculated the factor (F_a) as the relation of fair value of *a-th* cash generating unit (GC_a) to its book value as of the acquisition date ($CGU_{k,a}$). Adjusting factor is used to calculate initial value of *i-th* alone-asset of *a-th* cash generating unit as adjusting the accounting values ($A_{k,i}$) by the factor of *a-th* unit. The calculation formula is as follows:

$$F_a = \frac{CGU_{g,a}}{CGU_{k,a}} \quad \text{and} \quad F_a * A_{k,i} = A_i$$

If fair value of *a-th* cash generating unit is positive for Individual Adjusting Factor Model, the compatibility equality of fair value and initial value is satisfied as for the units as single assets. Moreover, to the unit and the single asset is assigned its individual factor what results in the perfect transfer of individual accounting value of business asset into individual initial value of this asset via individual fair value of asset.

The alternative for the above model is Structure Factor Model. In that model the structure of *b-th* number of cash generating units is calculated and that structure is used to account for the sum of fair values of cash generating unit. The model is as follows:

$$\frac{A_{k,i}}{CGU_{k,a}} * CGU_{g,a} = A_i$$

The model is very similar to Individual Adjusting Factor Model in that if fair value of *a-th* is positive, the compatibility equality of fair value and initial value is satisfied. Structure Factor Model has also the same fault according to valuation and disclosure in case of negative fair value of *a-th* cash generating unit. In such the case, the value of that unit shall be measured at zero and as the result *i-th* stand-alone asset of that unit shall also be measured at zero.

Because of above problems with allocation models, it is further developed the models that are able to account for initial value of business assets if these assets are measured at negative fair value.

The alternative allocation models are characterised by capacity to account for negative fair value of business assets. They are based on the assumption that rational entity expects to obtain positive cash flows from that assets as the result of future restructuring, however at the acquisition date and in the period of accounting for business combination, the acquirer is incapable to prove its intention as to make commitments on restructuring or to make economic benefits more likely.

Because *a-th* cash generating unit and *i-th* single asset is the part of business, the acquirer may expect positive income value of all acquired assets including the identifiable assets producing negative income values at the acquisition day and in subsequent period. Therefore it should be expected from allocation model a capability to account for such the case. Individual Adjusting Factor Model or Structure Factor Model are ineffective because they need to assign arbitrary individual adjusting factor or structure factor equal zero for cash generating units measured at negative fair value. It can be developed alternative and more effective allocation models.

The first developed model is Overall Adjusting Factor Model in which it is compared the sum of fair values of all cash generating unit (*b-th* number of the units) and the sum of fair values of all single assets (*j-th* number of the assets) to the sum of book values of these units or the assets, respectively. Next, the overall factor is used to adjust the accounting value of *i-th* single asset of *a-th* cash generating unit according to formula:

$$\frac{A_g}{A_k} * A_{k,i} = A_i$$

In Overall Adjusting Factor Model positive and negative fair values of *b-th* number cash generating unit are summed up and obtained adjusting factor is positive therefore, as the result, initial value of *a-th* cash generating unit and *i-th* single asset is positive although at least one unit is characterised by negative fair value.

The additional benefit of the model is capability to measure initial value of single assets included in the business if cash generating units consist of assets which fair values are not known (e.g. because of technical obstacles to measure single assets as in coal mining). However, according to adjusting factor for *a-th* cash generating unit, the initial value of business assets depend mainly on the accounting value of that assets. It is possible that fair values

are essentially different from respective accounting values, but in Overall Adjusting Factor Model the proportion of accounting values of cash generating units is fixed and transferred on the initial values of business assets. This aspect of the model may be seen as its weakness.

The second developed model which is a variant of the above model is Decreasing Adjusting Factor Model. In this model, at first, fair values of cash generating unit are put in order from the lowest to the highest amount. The amounts for the units of the lowest fair value are summed up in such the way as the total amount is positive. The result are cash generating units (CG_a^+) sorted in decreasing order and corresponding to them cash generating units ($CGU_{k,a}^+$) in accounting values, for each of them the individual adjusting factors are calculated. Based on these individual factor of *a-th* cash generating unit, the *i-th* single asset of that unit is adjusted into initial values of single assets (A_i). Calculation formulas are as follows:

$$\text{for } CG_a > 0 \qquad \frac{CG_a}{CGU_{k,a}} * A_{k,i} = A_i$$

$$\text{for } CG_a < 0 \qquad \frac{CG_a^+}{\sum_{a=1}^{b} CGU_{k,a}^+} * A_{k,i} = A_i$$

In Decreasing Adjusting Factor Model the sum of fair values of cash generating unit or single assets is equal to the sum of initial values of these units or assets. Moreover, individual initial values depends on as well accounting values as fair values for all of the cash generating unit except that units at negative fair values for which adjusting factor is unified i.e. the same for all such the units (as in Overall Adjusting Factor Model).

Overall Adjusting Factor Model and Decreasing Adjusting Factor Model are both useful if the sum of fair values of cash generating unit is positive ($A_g > 0$). However, it is also possible that the negative fair values of cash generating unit is so high that the sum of negative fair values of these units is higher than w the sum of positive fair values of remaining units. It is assumed that acquirer is interested in acquiring all cash generating units measured at as well positive as negative fair values. Of course from pure theoretical point of view it is possible that the business only consists of cash generating units measured at negative fair value. However is not likely as none of cash generating units would obtain positive income value in any alternative use conducted and managed by rationally acting entity (or market participant). In the case of all the fair values negative except at least one that is positive, the useful allocation model is Sum of Years Digits Model.

Sum of Years Digits Model is built in such the way that the initial value of a-th cash generating unit depends on the sum of positive fair values for cash generating units ($\sum_{a=1}^{b} CG_a^+$) accounted for *a-th* cash generating unit according to sum of years digits methods. For *b-th* number of cash generating units, the units are sorted according to the adjusting factors calculated by SYD method, in the proportion only dependant on the number of cash generating units i.e. irrespective of accounting or fair values.

SYD method is built is such the way that provides decreasing structure factors which are assigned in order of decreasing fair values of cash generating units. Therefore, to *a-th* cash generating unit with the highest fair value it is assigned the highest adjusting factor, then the next in line fair value is assigned to adjusting factor and so forth. The adjusted fair value of *a-th* cash generating unit is compared to its accounting value as the ratio which is used to adjust the accounting value of *i-th* stand-alone asset of that unit. The result are the initial value of assets assigned to *b-th* number of cash generating units irrespective. The calculation formula is as follows:

$$\left(\frac{\frac{b-a+1}{\frac{b*(b+1)}{2}} * \sum_{a=1}^{b} CG_a^+}{CGU_{k,a}} \right) * A_{k,i} = A_i$$

The allocation of positive fair values into all initial values of cash generating units (including the units measured at negative income value) may be argued that these units or assets, at the acquisition day, contain intrinsic future income value because acquirer, as the rationally acting entity (or market participant), would not acquire the business assets which never obtain positive fair value. Therefore positive fair value of business assets, at the acquisition day, is accounted for initial values of assets including also the assets measured at negative income value.

Because initial values only result from positive fair values of some cash generating units, fair value of business is lower than the sum of initial values of these units, so $A_G < A$. Therefore in Sum of Years Digits Model the comparability equality of total fair values and total initial values is broken.

Summary

In this paper on business combination according to IFRS 3 it was mentioned that cash generating units included in the business in specific situations may be measured at negative fair values. Because initial value of business combination is measured at fair value, the problem of measurement and disclosure of business assets at negative fair value arises. The assets measured at negative fair value as of the acquisition date do not fulfil the definition of assets, however because these assets are expected to obtain future cash flow, the assets shall be disclosed at zero value. With regard to these assets, the acquirer assumes to undertake restructuring which will result in positive income value from that assets. According to IFRS 3 in the period of accounting for combination it is required a retrospective adjusting of provisional amounts under condition that during this period the acquirer make the commitment to restructuring. On account of time to make this commitment, the initial values of business assets are zero or become positive value in the reporting period for the combination.

In the paper the allocation models are developed which enable to measure the initial value of business assets if some cash generating units are measured at negative income value. It is argued that basic models such as: Individual Adjusting Factor Model and Structure Factor Model need arbitrary assumption of adjusting factors as equal to zero for assets measured at negative fair value. As the result, initial values of business assets should be measured and disclosed at zero value. As to avoid such situation, alternative allocation models are developed: Overall Adjusting Factor Model, Decreasing Adjusting Factor Model and Sum of Years Digits Model.

In Overall Adjusting Factor Model for the sum of assets is assigned the overall adjusting factor as to account for total fair value of cash generating units. The factor is of such characteristic that initial value of stand-alone units depend mainly on accounting values of the assets of that unit. The model provides positive initial values of business assets if total fair value of assets is positive.

In Decreasing Adjusting Factor Model every cash generating unit is assigned and sorted decreasingly according to its fair value. Adjusting factors are calculated for stand-alone cash generating unit excluding cash generating units measured at negative income value for which is calculated separate, overall adjusting ratio of these the units characterised by the lowest but positive fair values. As in previous models it is obtained positive initial values, however they are individual and various for each cash generating unit.

In Sum of Years Digits Model total fair value of business assets is accounted for initial values of cash generating units according to SYD method. The model may be used if the sum of fair values of cash generating units is negative, but at least one cash generating unit is measured at positive fair value.

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