TALLINN UNIVERSITY OF TECHNOLOGY

Tallinn School of Economics and Business Administration

Department of Accounting

Chair of Financial Accounting

Nikolai Lotorev

ANALYSIS OF IMPLEMENTATION OF IFRS 3 AND IAS 36 BY LISTED COMPANIES ON THE NASDAQ TALLINN STOCK EXCHANGE IN THE PERIOD 2007–2014

Master‘s Thesis

Supervisor: Professor Lehte Alver

Tallinn 2016

I declare I have written the master's thesis independently.

All works and major viewpoints of the other authors, data from other sources of literature and elsewhere used for writing this paper have been referenced.

Nikolai Lotorev ……

(Signature, date)

Student's code: 104630TARMM

Student's e-mail address: nikolai.lotorev@gmail.com

Supervisor: Professor Lehte Alver:

The thesis conforms to the requirements set for the master's thesis.

……

(Signature, date)

Chairman of defense committee:

Permitted to defense

……

(Title, name, signature, date)

CONTENT

ABBREVIATIONS

BC	Business combinations
BMPP	Business Process Maturity Models
CAPM	Capital Asset Pricing Model
CGU	Cash-generating units
DCF model	Discounted cash flow model
EFRAG	European Financial Reporting Advisory Group
ESMA	European Security and Markets Authority
EY	Ernst & Young
FASB	Financial Accounting Standards Board
FVLCS	Fair value less cost to sell
FX rates	Foreign exchange rate, forex rate
GAAP	Generally Accepted Accounting Principles
IA	Identifiable intangible assets
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
M&A	Mergers and acquisitions
NCI	Non-controlling interest
PPA	Purchase price allocation
PwC	PriceWaterhouseCoopers
R&D	Research and Development
SFAS	Statement of Financial Accounting Standards
TNA	Tangible net assets
VIU	Value in use
WACC	Weighted Average Cost of Capital

ABSTRACT

In the last decades the importance of business combinations, goodwill accounting and fair value measurement have been significantly increased as a result of knowledge-driven and technology-based global economy. In such environment the high quality of financial reporting and disclosure became more important. As a result, it has become crucial to revise and implement new regulations and guidelines for goodwill accounting, its subsequent impairment testing and relevant disclosures.

The purpose of this study is to perform the detailed analysis over the implementation of IFRS 3 *Business Combinations* and IAS 36 *Impairment of Assets* by listed companies on the NASDAQ Tallinn stock exchange. The analysis is performed in order to examine trends in business combinations, assess purchase price allocation to goodwill and identifiable intangible assets, analyze subsequent impairment testing of goodwill and verify compliance with IFRS 3 and IAS 36 disclosure requirements. The author analyzed in details 118 financial statements under IFRS of all existing 15 listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014.

The results of this study show that the number of business combinations in listed companies on the NASDAQ Tallinn stock exchange, respectively the amount of cost of acquisition, positive goodwill/negative goodwill and/or identifiable intangible assets, and also the amount of goodwill impairment significantly decreased after the global financial crisis in 2008. In addition, the identification and measurement of intangible assets improved only partially after issuing the revised IFRS 3 and amendments to IAS 38 in July 2009. Furthermore, this study provides evidence supporting that if companies allocate goodwill to more numerous and/or to the lower level of cash-generating units, those companies perform more impairment tests and, as a result identify more impairment losses. Finally, the thesis confirms that listed companies comply partially with IFRS 3 and IAS 36 disclosure requirements in the tested period, as there were companies that did not fulfill the relevant disclosure requirements or fulfilled it partially.

Keywords: Business combinations, Goodwill, Goodwill impairment, IFRS 3, IAS 36, Purchase price allocation, Disclosure, Intangible assets.

INTRODUCTION

In the last decades the amount of business combinations has been rapidly increased. The importance of business combinations, goodwill accounting and fair value measurement have been significantly increased as a result of knowledge-driven and technology-based global economy. The discussion over treatment of business combinations, fair value measurement and goodwill accounting became more intensive after the global financial crisis in 2008.

Nowadays it is necessary to focus on business combinations, to understand reasons and drivers for mergers and acquisitions, and also assess potential failures as a result of business combinations. It is also essential to pay attention on the due diligence process and purchase price allocation. The most complex areas with opportunities for subjectivity are managerial decisions based on judgments, especially in the fields of business combinations and goodwill accounting.

In such environment the high quality of financial reporting and disclosure became more critical. As a result, it has become crucial to revise and implement new regulations and guidelines for goodwill accounting, its subsequent impairment testing and relevant disclosures.

Two meaningful standards for business combinations, goodwill and its subsequent impairment testing are IFRS 3 *Business Combinations* and IAS 36 *Impairment of Assets* introduced by IASB. The challenge of this master thesis is to investigate the implementation of aforementioned standards on the example of listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014.

The purpose of this study is to perform the detailed analysis over the implementation of IFRS 3 *Business Combinations* and IAS 36 *Impairment of Assets* by all existing listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014. The detailed analysis is performed in order to examine trends in business combinations and assess purchase price allocation to goodwill and identifiable intangible assets. In addition, the author analyzed subsequent impairment testing of goodwill. Furthermore, the author verified how listed companies comply with IFRS 3 and IAS 36 disclosure requirements in the tested period.

The research is divided into two main chapters. The chapter one provides the description of the relevant accounting regulations, concepts and prior research. The chapter one is focused on IFRS 3 *Business Combinations* and IAS 36 *Impairment of Assets;* concepts and accounting methods related to business combinations; purchase price allocation; recognition and measurement of identifiable intangible assets and goodwill; concepts and accounting methods related to positive and negative goodwill; subsequent impairment testing of goodwill; disclosure requirements under IFRS 3 and IAS 36. In the chapter one is also provided the information regarding the prior studies conducted in the aforementioned fields.

Based on the concepts, accounting regulations and prior studies discussed and analyzed in the chapter one, the following research questions and hypotheses have evolved:

Research questions

General trends analysis

RQ1.1: How significant is the proportion of total assets attributed to goodwill in the listed companies on the NASDAQ Tallinn stock exchange and how it is changed during the tested period 2007–2014?

RQ1.2: Which are the key listed companies with goodwill, and what are the main reasons for significant amounts of goodwill in their financial statements?

Business combinations and purchase price allocation

RQ2.1: Which types of business combinations and acquiree's countries are the most common in the tested period?

RQ2.2: How changed the number of business combinations with positive/negative goodwill and/or identifiable intangible assets during the tested period?

RQ2.3: What are the total cost of acquisition, amount of positive and negative goodwill, and also intangible assets identified in business combinations, and how it is changed during the tested period?

RQ2.4: What are the main types of identifiable intangible assets in the tested period?

RQ2.5: What is the proportion of purchased assets (goodwill, identifiable intangible assets) from the total cost of acquisition in the tested period?

RQ2.6: How the acquirer allocates the purchase price to goodwill and identifiable intangible assets?

RQ2.7: How changed the proportion of total intangible assets attributed to goodwill and identifiable intangible assets after the implementation of revised IFRS 3 in 2009?

Subsequent impairment testing of goodwill and cash-generating units

RQ3.1: What is the total value of goodwill impairment, and how it is changed during the tested period?

RQ3.2: What is the relation between the level and number of cash-generating units and the amount of goodwill impairments?

RQ3.3: Which valuation concepts and models are used for subsequent impairment testing of goodwill?

RQ3.4: Which main input factors (such as future cash flows projections and discount rates), are used in the DCF model for determination of VIU?

Disclosure requirements

RQ4.1: How listed companies comply with the main disclosures requirements of IFRS 3 and IAS 36 during the tested period?

Hypotheses

H1: The number of business combinations, respectively the amount of cost of acquisition, positive/negative goodwill and/or identifiable intangible assets significantly decreased after the global financial crisis in 2008.

H2: The proportion of total intangible assets attributed to positive goodwill decreased, and hence the relevant proportion attributed to identifiable intangible assets increased after issuing in

July 2009 the revised IFRS 3 and amendments to IAS 38 related to measurement of intangible assets in business combinations.

H3: The amount of goodwill impairments significantly decreased after the global financial crisis in 2008.

H4: If companies allocate goodwill to smaller and/or more numerous CGUs, they perform more impairment tests and, as a result identify more impairment losses.

H5: Listed companies on the NASDAQ Tallinn stock exchange in the tested period 2007–2014 comply significantly with IFRS 3 and IAS 36 requirements.

The chapter two outlines the research design and methodology used in the research. The author analyzes in details 118 financial statements under IFRS of sampled listed companies in the tested period in order to answer to research questions and confirm hypotheses mentioned above. The chapter two also contains the description of the sample selection, data collection, empirical analysis and findings. The empirical research and findings are divided into four sections: general trends analysis; business combinations and purchase price allocation; subsequent impairment testing of goodwill and cash-generating units; disclosures.

After that are presented conclusions and suggestions for future research.

1. BACKGROUND FOR BUSINESS COMBINATIONS AND GOODWILL

1.1. BUSINESS COMBINATIONS

1.1.1. Treatment of business combinations

Research questions and hypotheses of this master thesis are related to business combinations and goodwill acquired in business combinations. Therefore, in the opinion of the author it is important to define a business combination, provide information regarding the most common types of business combinations and also treatment of business combinations. The relevant information is disclosed in this study in order to give a general understanding of the concept, provide background to the relevant accounting regulations, and hence to develop research questions and hypotheses of this research.

Hartwell C. Herring III (2003, 1) states that "a business combination occurs when two or more companies come under common ownership". It could happen when one company acquires all assets and assumes all liabilities of another company, or when one company acquires a controlling interest in the outstanding common stock of another company, creating parent-subsidiary relationships.

According to Zyla (2013, 79) and Lubbe *et al* (2014, 560) a business combination is a legal and accounting term used in the financial reporting for a broad range of various transactions where one company acquires another. For example, the most common forms of business combinations are mergers and acquisitions (M&A) transactions. However, the term of a business combination also covers such expressions as "amalgamation", "takeover" and "reorganization".

IFRS 3 defines a business combination as a "transaction or other event in which an acquirer obtains control of one or more businesses". The important part of a business combination's definition refers to a business combination as to a transaction or event when a business is acquired.

According to Lubbe *et al* (2014, 561) the assets acquired and the liabilities assumed must constitute a business. Therefore, in this case it is important to define a business to be able to distinguish the acquisition of assets or group of assets (for example, fixed assets, inventory etc.) from acquiring the entity that could produce output and provide economic benefits as stated in IFRS 3 (Alexander *et al* 2009, 308, 664).

The most common types of business combinations in practice are mergers and acquisitions. Zyla (2013, 79) states that mergers occur when two or more separate companies combine to form a single legal entity. Hartwell C. Herring III (2003, 4-5) specifies that in a merger companies are merged into an existing company or into a new company organized to facilitate the combination.

In case of mergers one company issues shares in exchange for shares or assets and liabilities of another company. Generally, mergers involve companies of relatively equal size. However, it could happen that one company is larger. In this case the larger company takes control over the smaller company's assets and liabilities (Zyla, 2013, 79). According to Hassan, Ghauri (2014, 20) it could happen that after the merger the formed company could be considerably different organization; however, even in this case it retains its original identity.

On the one hand, Hartwell C. Herring III (2003, 4-5) states when a new company is formed from the merger of two or more companies, the combination is usually called a consolidation. However, in this case, both a merger and a consolidation are essentially the same type of a combination: one in which assets and liabilities of two or more companies are combined into a single company. Therefore, Hartwell C. Herring III (2003, 4-5) puts a consolidation under mergers.

On the other hand, Hassan, Ghauri (2014, 20-21) and Zyla (2013, 80) use the other term instead of a consolidation – an amalgamation, and separate it from mergers. An amalgamation takes place when two companies combine their businesses by forming a new legal entity. Assets and liabilities of both companies are taken over by a new company. In this case the new value of both companies determined separately and agreed upon both the parties. The shareholders of both companies become the shareholders of the new one (*Ibid*).

Acquisitions occur when one company buys another company. In this case one company purchases a controlling number of company's shares directly from the shareholders in exchange

for cash, shares or their combination. As a result, the control of assets is transferred from one company to another (Zyla, 2013, 79).

In an acquisition one company (a parent) could acquire more than 50% of the outstanding voting common stock of another company (a subsidiary). Both companies remain separate entities, but their financial statements are combined. In this case the combined financial statements of a parent company and its subsidiaries are called as consolidated financial statements (Hartwell C. Herring III, 2003, 4).

According to Hassan, Ghauri (2014, 22-24) acquisitions could split to a purchase of business and a takeover:

In the case of purchase of business, assets and liabilities are taken over. The purchase cost (the consideration transferred) for such acquisitions could be in the form of cash or issuance of stocks in the acquiring company (that is an example of settlement of M&A transactions).

Takeovers occur in the case of acquiring the management of a company by the way of purchase of controlling shares. The hostile takeover could happen if such transactions are carried out in manner to avoid essential legal procedures. For example, one company could be acquired not through an agreement with management of the target company, but by contacting directly shareholders of this company, or even by taking actions to replace the management of the target company in order to get approval for a transaction.

Taking into account the types of business combinations and also definitions described above, the author concludes that the main types of business combinations are mergers and acquisitions. It is also important to split acquisitions into the purchase of business and takeovers. Based on that information in the empirical section of this research it was analyzed which types of business combinations and also which acquiree's countries are the most common in the period 2007–2014 on the example of listed companies on the NASDAQ Tallinn stock exchange. The author also analyzed the general trends of business combinations in the listed companies in the tested period.

Furthermore, it is also necessary to understand motives and pitfalls for mergers and acquisitions in order to develop appropriate research questions and hypotheses. There were many

debates regarding motives for mergers and acquisitions over the past decades. In the academic literature were discussed the following key motives: economic efficiency, managerial self-interest, a market for corporate control. There was also debate if acquisitions are more driven by profit motives or by managerial self-interest (for example, as justification to increase the compensation (Hassan, Ghauri 2014, 34).

Zyla (2013, 82) states that the most important reason and driver for M&A transactions may be "the desire to profit from opportunities represented by attractive target valuations". It means, that the market could misprice a listed company, and the value of the company could be even higher than its price.

Hassan, Ghauri (2014, 19) mentioned also that M&A transactions could be mostly performed in the hope of realizing an economic gain – to create such value when two companies involved in the M&A transaction must be worth more together than they were apart.

Acquisitions are mainly undertaken in order to improve performance of a company and shareholder value. By acquiring companies in different industries and on different markets the acquirer tries to reduce company's specific risks, and increase the value through financial and operating synergies such as economies of scale, increased pricing power, complementary functional efficiencies, higher growth, new markets, tax advantages, elimination of inefficiencies (Hassan, Ghauri 2014, 19; Zyla 2013, 82).

Some large corporations consider growing through M&A transactions obtaining proprietary rights to specific products or services, increasing market power by purchasing competitors, widening to new geographic regions (Hassan, Ghauri 2014, 19).

Theoretically acquisitions could be successful when they are unique, when significant financial and operating synergies appear, when the value of acquired company is actually higher than its purchased price, and when the acquirer is an industry leader (Zyla, 2013, 83).

According to the author of this thesis one of the aforementioned motives, such as performance of a company and shareholder value, may significantly influence the treatment and accounting for business combinations, especially in the fields of post-deal purchase price allocation (PPA) to goodwill and identifiable intangible assets, and also subsequent impairment testing of

goodwill. First of all, accounting standards explain only generally what is the difference between goodwill and other intangible assets. Hence, in some cases without proper analyses it could be difficult to separate identifiable intangible assets from goodwill in the proper way, and hence to perform accurately PPA to those assets. Furthermore, there is a risk of subjectivity, that different experts could achieve different results of analyses. Secondly, in the case of subsequent impairment testing of goodwill, accounting standards give flexibility for identification of cash-generating units (CGUs) and allocation of goodwill to those CGUs. Both topics are discussed in details in the following sections of this research. Hence, taking into account the information above, motives related to performance of a company and shareholder value may be the basis for managerial and accounting decisions. In this case the company could choose most favorable approach for treatment and accounting for business combinations as mentioned above. Such approach could help to keep the value of assets (especially goodwill and intangible assets) acquired in business combinations on the most possible desirable level for the company.

In the opinion of the author of this research managerial decisions and choices of accounting for business combinations could be also significantly influenced by failures as a result of M&A transactions.

According to Zyla (2013, 83) failures could happen when the value of the acquired company is actually lower than the acquisition price. In this case the acquirer could overpay for different reasons such as overoptimistic appraisals, overestimating synergies, overlooked problems and overbidding. As a result, goodwill impairment might be made in the acquirer's financial statements due to the overpayment for the acquisition. The relation between goodwill impairment and the overpayment in acquisitions was analyzed in details by Long (2005).

The failure could aslo happen when the acquirer underestimated processes related to the successful integration of the acquired company (Zyla, 2013, 83). According to the author of this thesis in this case the successful integration depends on the appropriate managerial decisions and also on the necessary co-actions performed by the internal audit, compliance and risk management functions of the acquirer's company. In some organizations to assess processes related to the integration of the acquired company are used so-called Business Process Maturity Models (BMPP),

which are characterized as sets of recommendations and best practices for estimating operation efficiency of processes (Kalinowski 2011, 230).

In the view of the author of this research the acquirer generally have opportunities to avoid such failures when too high price is paid for the acquired company. In this case the acquirer may perform the valuation of target companies internally before the acquisition and could also purchase due diligence analyses from external assurance and advisory companies. In this case the due diligence process could help to gain comfort over a target company's business nature, to estimate its reasonable price and also to validate key assumptions. In addition, it could help to mitigate the risk that the M&A transaction could bring unexpected failures. Hence, it helps management to make better decisions (Rankine at al 2003; Gole, Hilger 2009, 8-9 and 16). Furthermore, according to Zülch at al (2013, 59) could be also performed so-called pre-deal PPA that became a significant part of the due diligence process for some M&A transactions in the recent years. It helps to gather more relevant information on the target company's assets and liabilities as a result of detailed assessment of the accounting impact of the acquisition on the acquirer's financial statements.

However, according to the author of this research, difficulties could mainly appear during post-deal PPA especially to identifiable intangible assets and goodwill acquired in business combinations. As already mentioned above, it could happen due to the lack of analyses and due to subjectivity regarding how to distinguish identifiable intangible assets from goodwill. Therefore, managers could have incentive and flexibility to allocate purchase price to goodwill and identifiable intangible assets in different ways. Furthermore, managers could be also flexible in choosing input factors for subsequent impairment testing of goodwill in order to reduce or postpone the impairment losses arisen from unsuccessful M&A transactions in the certain period.

As a result, in the empirical section of this master thesis the author is mainly analyzing business combinations taken place in listed companies on the NASDAQ Tallinn stock exchange, PPA to identifiable intangible assets and goodwill. The author is also focusing on subsequent impairment testing of goodwill in the period 2007–2014. Concepts of PPA, goodwill and its subsequent impairment testing are explained and discussed in following sections of this study. The research questions and hypotheses are disclosed in the introduction of the study above and evaluated in the empirical section.

1.1.2. Accounting for business combinations

Accounting for business combinations is regulated by IASB and FASB standards. IFRS 3 *Business Combinations* is the result of a joint effort between the IASB and the FASB. Accounting regulations of business combinations had significant divergence within and across jurisdictions. Therefore, work on the topic had been undertaken by national standard-setters to achieve the main purpose of this joint effort, such as an improvement of financial reporting and promotion of an international convergence of accounting standards (IASB 2008, 4-7).

Initially the FASB issued SFAS 141 *Business Combinations* and SFAS 142 *Goodwill and Other Intangibles* in June 2001. By these two standards were introduced a few significant changes. First of all, the pooling of interest method was eliminated. Hence, the purchase accounting became required for all business combinations. Secondly, the amortization of goodwill was replaced by goodwill impairment.

Then the project for business combinations became a part of the IASB initial agenda when the IASB was formed in 2001. The IASB decided to split the project into two phases as described below.

The first phase of the project resulted in the issuance of IFRS 3 *Business Combinations* by the IASB with an effective date of April 1, 2004. In this case the prior standard IAS 22 *Business Combinations* was replaced by IFRS 3. As a result of the first phase it was also issued the revised standard IAS 36 *Impairment of Assets*. In favor of comparability between financial statements IFRS 3 and IAS 36 included the similar changes as SFAS 141 and SFAS 142 mentioned above. First of all, the pooling of interest method was prohibited and the use of the purchase (acquisition) method became only required for business combinations. Secondly, goodwill impairment replaced amortization of goodwill (IASB 2008, 4-7).

The second phase of the project resulted in issuing the revised IFRS 3 standard with the effective date of July 1, 2009. This phase addressed the aspects of mergers and acquisitions activity for which was no guidance before. The purpose of this revised standard was to review issues arising from the application of IFRS 3 and eliminate differences in the application of the acquisition method between IFRS and US GAAP, and as a result, to develop a single high-quality standard of

accounting for business combinations that can be used for both domestic and cross-border financial reporting (IASB 2008, 9; EFRAG 2008). The latest amendments of IFRS 3 were made on 6th May 2010 and 12th December 2013.

As in this master thesis the author is focusing on IASB standards related to accounting for business combinations, IFRS 3 requirements are analyzed in details below. According to IFRS 3.4 the acquisition method should be applied for all business combinations. IFRS 3.5 describes the main principles explaining how the acquirer should recognize and measure a business combination under the acquisition method. In this case it is important to understand that the usage of this method requires each identifiable asset and liability to be measured at its acquisition date at its fair value. Lubbe *at al* (2014, 563) explain that under the acquisition method it is essential to measure the cost of the acquiree (purchase price) and allocate it at the date of the acquisition to the far values of net assets (identifiable assets acquired and liabilities assumed) of the acquiree. Hence, the difference is recognized as goodwill.

According to IFRS 3.5 applying the acquisition method requires to perform the following steps:

- Step 1. Identification of the acquirer;
- Step 2. Determination of the acquisition date;
- Step 3. Recognition and measurement of the identifiable assets acquired, the liabilities assumed and any non-controlling interest in the acquiree;
- Step 4. Recognition and measurement of goodwill or a gain from a bargain purchase.

In the opinion of the author of this thesis the most critical areas are aforementioned steps 3 and 4. As a result, in this research the author is mainly focusing on those two key steps in order develop and analyze the relevant research questions and hypotheses.

The step 3 described above is related to post-deal PPA. According to Zülch *at al* (2013, 60) this step is the most time-consuming and complex part of accounting for business combinations.

It is important to identify the cost of acquisition (consideration transferred) which is the fair value of the consideration given (paid) for the business acquired. As required by IFRS 3 the acquirer needs to identify the cost of acquisition (i.e. all assets acquired, liabilities assumed, and

also equity instruments issued by the acquirer in exchange for control of the acquiree) at the acquisition date at the fair value (Lubbe *at al* 2014, 570; Elliott B & Elliott Jamie 2013, 583).

On the one hand, it is necessary to measure the fair value of assets. Lubbe *at al* (2014, 565) state that the fair value is basically the market value. The process of determining the fair value consists of judgment and estimation. It is required to determine the fair value of each individual item acquired by focusing on their place and condition at the acquisition date. If the acquiring company considers that the fair value of assets purchased and liabilities assumed does not equal to its carrying amounts in the financial statements of the acquiree at the acquisition date, then the acquirer should adjust the carrying amount to its fair value in determining the net assets purchased.

In the recent years, especially after the financial crisis in 2008, there was intensive discussion about the pros and cons of fair value measurement, about using historical cost or fair value, and also about the rational of fair value measurement according to IFRS 13 *Fair Value Measurement*. The relevant debate is still ongoing. However, it is critical that nowadays global economy requires the greater use of fair value measurements in financial reporting, because it generally could provide more relevant, reasonable and sufficient information for users in comparison with historical cost measurements (Laux, Lenz 2009; Dvorakova 2009; Dvorakova 2011; Singh, Uzma, 2011; Enahoro, Jayeoba, 2013, 1177-1178). Nowadays the fair value measurement is described in IFRS 13 (issued by IASB in May, 2011) that adopted several important fair value measurement concepts from SFAS 157 *Fair Value Measurements* (issued by FASB in September, 2006). Taking into account the information above, the author of this thesis agrees with Lubbe *at al* (2014, 565) regarding importance of the fair value measurement of assets in case of business combinations.

On the other hand, it is also essential that IFRS 3 requires the acquirer to recognize the identifiable assets acquired, the liabilities assumed and any non-controlling interest in the acquiree separately from goodwill at the acquisition date. According to Mard *at al* (2011, 53-54) on the acquisition of a business, fair values are attributed to the identifiable assets and liabilities and contingent liabilities unless the fair value cannot be measured reliably. If it cannot be identified separately and measured reliably, it has to be recorded as goodwill. Hence, the identifiable assets (such as fixed assets, trademarks, licenses, inventories etc.) should be separated.

Zülch *at al* (2013, 60-61) state that difficulties could appear when it is required to identify and measure reliably identifiable intangible assets and calculate the goodwill as a residual value. For example, for some intangible assets, such as patents and customer lists there could be no comparable market prices. Therefore, the acquirer should rely on appropriate valuation methods that make the PPA process more complex and expensive.

According to the author of this research PPA is a most complex part of M&A transactions. Flexibility for accounting choices in accounting standards and possible managerial motives related to performance of a company and shareholder value (as described in the section above) may give acquirers incentive to choose different ways especially in the field of recognition of assets under identifiable intangible assets or goodwill.

The fair value of intangible assets at initial recognition is its acquisition date fair value which reflects market expectations about asset's future economic benefits for the acquirer. As mentioned above identifiable intangible assets should be recognized separately from goodwill. In addition, the sufficient information should be used to measure the value of such assets reliably (Lubbe *at al* 2014, 567; Grüber, 2015, 60).

According to the analysis performed by Swiss consultancy company IFBC AG some of the key elements for a successful PPA are the identification of new intangible assets based on the requirements of IFRS 3 *Business Combinations* and IAS 38 *Intangible assets*, and the valuation of newly identifiable intangible assets at their fair values at the acquisition date (IFBC AG 2012, 1).

More details regarding concepts and discussions in the academic literature on the relevant topic are provided below in the section 1.2.2 related to PPA to goodwill and identifiable intangible assets.

Taking into account the information above, the author of this thesis analyzed in the empirical section how the acquirer allocates the purchase price to goodwill and identifiable intangible assets.

1.2. GOODWILL

1.2.1. Definitions and types of goodwill

Research questions and hypotheses of this master thesis are related to goodwill acquired in business combinations, PPA to goodwill and identifiable intangible assets and subsequent impairment testing of goodwill. Therefore, those topics were discussed in details in the sections below in order to give a general understanding of the concept and provide background to the relevant accounting regulations. Furthermore, the author evaluated the types of goodwill and the difference between goodwill and identifiable intagible assets. Hence, the relevant research questions and hypotheses were developed.

Seetharaman *at al* (2000, 133) mention that one of the earliest definitions of goodwill was written in Bithell's (1882) A Counting House Dictionary, where goodwill was defined as "a willingness of an owner of a business to relinquish the expectation of the business by transferring it for a consideration to someone else".

According to Bloom (2008, 17) the first academic article on goodwill was published in 1884 (Harris). However, before that the first legal decision on goodwill was reported in 1810 (Crutwell vs Lye). In this legal decision was stated: "The goodwill which has been the subject of sale is nothing more than the probability that the old customers will resort to the old place". After that many articles and books have been written with reference to goodwill.

Zanoni (2009, 1) defines goodwill as a part of the company's value that does not appear in financial statements, but that emerges only when acquired individually or in a business combination. According to Zanoni (2009, 1) it is a "hidden value" that the accounting standards define in the following way (SFAS 141, SFAS 142 and IFRS 3):

- The value of the future economic benefits;
- Arising from assets that are not individually identified and separately recognized.

It is also important to mention that goodwill is paid for financial and operational synergistic benefits (economies of scale etc.) (Zyla 2013, 115; Lubbe *at al* 2014, 260).

According to IFRS 3 the acquirer has to identify goodwill acquired after having recognized the identifiable assets, liabilities and any non-controlling interest. IFRS 3 determines goodwill as "an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized" as also mentioned above by Zanoni.

Elliott B & Elliott Jamie (2013, 494) state that goodwill can be internally generated through the normal operations of the existing business, or it can be purchased as a result of a business combination. Those two types of goodwill are discussed in details below.

In the opinion of Bloom (2008, 35) internally generated goodwill is "developed by processes and non-specific expenditures within the entity itself". In this case non-specific expenditures could be advertising, product development, staff recruitment and training etc. The internally generated goodwill is also known as going-concern goodwill (Zanoni, 2009, 1).

According to Lubbe *at al* (2014, 152) internally generated goodwill is accumulated over time. It represents the loyalty of employees and customers, the ethos of a business etc. According to IAS 38 and SFAS 142 it should not be recognized as an asset, because it is not identifiable, it has an indeterminate useful life, and it is not separable from any other assets (Jerman, Manzin 2008, 219).

Goodwill purchased in business combinations is the difference between the fair value of the total consideration paid for acquired business and the fair value of the identifiable net assets acquired (Alexander *at al* 2009, 662-663; Elliott B & Elliott Jamie 2013, 494).

In this thesis the author does not analyze internally generated goodwill as it is not related to the research topic chosen. The author is mainly focusing on the analysis of goodwill purchased in business combinations. As a result, before developing key research questions and hypotheses, the author analyses the types of goodwill acquired in business combinations below. Hereinafter, the author uses a term "Goodwill" as a reference to goodwill purchased in business combinations.

According to IFRS 3 *Business Combinations* any difference between the fair value of net assets acquired and the consideration paid to acquiree could be defined as goodwill (hereinafter "Positive goodwill") or gain from a bargain purchase (hereinafter "Negative goodwill"). The

definitions of positive and negative goodwill are provided by Elliott B & Elliott Jamie (2013, 581) in the context of IASB standards as follows:

On the one hand, positive goodwill appears when the total consideration paid to the acquiree is higher than the fair value of net assets acquired. Such goodwill has to be recognized as an asset without any amortization. Instead of amortization positive goodwill must be a subject to subsequent impairment testing as required by IAS 36.

On the other hand, negative goodwill (bargain purchase) arises when the amount paid to acquiree is less than the fair value of net assets acquired. In this case the business combination is acquired at a so-called bargain price. In this case the acquirer should recognize the resulting gain in the income statement of the acquirer on the acquisition date in accordance with IFRS 3.34.

The detailed study over the development of goodwill concept was performed by Talviste (2014) with a main focus on IFRS 3 requirements. In addition, the leading international independent intangible asset valuation consultancy Intangible Business (2008) performed the analysis of the international application of IFRS 3 *Business Combinations* by the companies outside UK included in the FT Global 500. The aforementioned studies were used as one of the key researches in order to develop research questions and hypotheses of this master thesis. The details regarding those studies and interrelation with this thesis are provided in the section 1.4 "*Previous research"* below.

Taking into account the concept of goodwill described and prior studies mentioned above, the author of this thesis is focusing in the empirical section on business combinations itself, goodwill recognition under IFRS 3, on analyzing PPA to goodwill and identifiable intangible assets. The author is analyzing how changed the number of business combinations with positive/negative goodwill and/or identifiable intangible assets during 2007–2014 in the sampled listed companies, and what is the total cost of acquisition, amount of positive and negative goodwill, and also intangible assets identified in business combinations, and how it is changed during the tested period. Taking into account aforementioned prior studies the author expended this research focusing also on PPA on goodwill and identifiable intangible assets, subsequent impairment testing of goodwill under IAS 36 and also on key disclosure requirements under IFRS

3 and IAS 36 (those topics are discussed in details in the sections below). The relevant research questions and hypotheses are provided in the introduction of this study.

1.2.2. Purchase price allocation to goodwill and identifiable intangible assets

As mentioned in the section above, it is also important to distinguish goodwill and identifiable intangible assets, and also to understand how PPA to goodwill and identifiable intangible assets is performed. Hence, analyzing of these topics helps the author of the thesis to develop research questions and hypotheses of this research. Therefore, these topics are presented in details below.

As was already described in the section above, goodwill is arising from assets that cannot be individually identified and separately recognized. Goodwill is lack of physical substance as any other intangible assets; however, the main difference is that an intangible asset is "an *identifiable* non-monetary asset without physical substance" in accordance with IAS 38.

Elliott B & Elliott Jamie (2013, 488) define intangible assets as identifiable non-monetary assets that cannot be seen, touched or physically measured, but are identifiable as separate assets (for example, computer software, patents, copyrights, advertising, brands and trademarks, customer loyalty, intellectual property, development costs on new products, market knowledge etc.).

Grüber (2015, 60) states in his research that identifiability is the prevailing criteria which could help distinguish an intangible asset from goodwill. It is necessary to understand that an asset could be identifiable if it is separable and also arises from contractual-legal rights. Such assets could be sold separately from the business, and therefore could be used to generate revenue separately. However, goodwill cannot be sold without selling a business (Lubbe *at al* 2014, 561).

Below are presented the most common groups of identifiable intangible assets that should be recognized and reported in the statement of financial position rather than goodwill (Zyla, 2013, 112-113):

- **Marketing related** intangible assets (trademarks, brand names, in-process R&D etc.);
- **Technology-related** intangible assets (patented and unpatented technology, recipes, computer software etc.);
- **Customer or supplier-related** intangible assets (customer or supplier lists/relationships/contracts etc.);
- **Artistic-related** intangible assets (books, plays, films etc.);
- **Contract-based** intangible assets (license agreements, royalty agreements, permits etc.).

If goodwill is a subject to subsequent impairment testing on annually basis in accordance with IFRS 3 and IAS 36, then identifiable intangible assets should be amortized over their expected useful life to their expected residual value using the relevant amortization method according to IAS 38. The amortization of identifiable intangible assets is conceptually the same as the depreciation of tangible assets (Lubbe *at al* 2014, 157). In addition, in case of identifiable intangible assets an impairment test should be performed only if evidence exists indicating that an intangible asset has been impaired. If an intangible asset has an indefinite useful life, an impairment test must be performed also annually as it is required for goodwill, even if there is no indication for impairment (Zyla 2013, 132-133).

As described in the section 1.1.2 above one of the key topics of this research is related to PPA to goodwill and identifiable intangible assets.

In the opinion of the author of this research it is necessary to understand that goodwill could be also related to some intangible assets that have been acquired, but have not been previously recognized in the statement of financial position (for example, good customer relationships, brands, market share etc.). According to Catty (2010, 311) during PPA such assets should be identified and recognized separately from goodwill at the fair value at the date of acquisition.

Elliott B & Elliott Jamie (2013, 495) explain that IASB expects from companies to identify any intangible assets purchased during the acquisition of another company instead of including it within goodwill. There are two main reasons for such approach. On the one hand, it gives greater transparency and control over assets acquired. On the other hand, in comparison with subsequent

impairment testing of goodwill, amortization of intangible assets reduces the volatility in the reported operating profits.

Furthermore, in the opinion of Elliott B & Elliott Jamie (2013, 495) greater transparency should be achieved after issuing in July 2009 the revised IFRS 3 and amendments to IAS 38 related to measurement of intangible assets in business combinations. According to those changes if an intangible asset can be separately identified, then it can be measured reliably. As a result, such changes should put more pressure on companies to consider more properly the nature and value of intangible assets purchased during business combinations.

According to the author of this thesis nowadays companies still have greater flexibility in the field of PPA to goodwill and identifiable intangible assets due to accounting choices in accounting standards and possible managerial motives related to performance of a company and shareholder value. Hence, companies still could have incentives to recognize more goodwill then identifiable intangible assets. Therefore, a greater transparency could not be achieved yet.

The author of this research took into account the difference of goodwill and identifiable intangible assets, concepts related to PPA to goodwill and identifiable intangible assets described above, and also Talviste (2014) and Intangible Business (2008) prior studies mentioned in the section 1.2.1. Hence, the author was focusing in the empirical research on analyzing the proportion of purchased assets (goodwill, identifiable intangible assets) from the total cost of acquisition, and on PPA to goodwill and identifiable intangible assets. In addition, the author is evaluating what are the main types of identifiable intangible assets acquired in business combinations in the period 2007–2014 according to the most common groups of such assets described in this section above. Furthermore, the author is also investigating how changed the proportion of total intangible assets attributed to goodwill and identifiable intangible assets after the implementation of revised IFRS 3 in 2009. The relevant research questions and hypotheses are provided in the introduction of this study.

1.2.3. Subsequent impairment testing of goodwill

According to Seetharaman *at al* (2000, 133-137), Tran (2011, 51) and Elliott B & Elliott Jamie (2013, 496-497) over the past decades were used different methods for accounting of goodwill, especially in the field of appropriate adjustments for goodwill subsequent to acquisition. The major of those methods are write-off the cost of the goodwill directly to reserves in the year of acquisition; reporting goodwill at cost in the statement of financial position; reporting goodwill at cost and amortizing over its expected life; reporting goodwill at cost and performing annual impairment testing. In this research the author is focusing on the latest accounting method related to subsequent impairment testing of goodwill. Subsequently, it helps the author to develop research questions and hypotheses of this research.

Impairment testing of goodwill is mainly regulated by IASB and FASB. The revised IAS 36 *Impairment of Assets* was issued by the IASB as of 31st March 2004, as a part of the project for business combinations, as mentioned in the section 1.1.2 above. The revised standard applies to goodwill and intangible assets acquired in business combinations with the agreement date on or after 31st March 2004. The standard regulates impairment testing of goodwill and intangible assets acquired in business combinations. IAS 36 has partially the same resolutions as SFAS *142 Goodwill and Other Intangible Assets.* It eliminates the amortization of goodwill and stipulates goodwill should be tested for impairment annually (Kuna *et al* 2005, 9-10). The latest amendments of IAS 36 were made on 22nd May 2008, 16th April 2009 and 29th May 2013.

As in this master thesis the author is focusing on IASB standards related to accounting for business combinations, IAS 36 requirements are analyzed in details below. Nowadays IASB prohibits the amortization of goodwill, and requires its subsequent annual impairment testing in compliance with IAS 36. According to Catty (2010, 201-202) impairment testing became important after IFRS 3 was introduced in 2004 and the pooling of interest method for business combinations was prohibited. As a result, under the acquisition method goodwill has to be recognized in all business combinations.

The step to subsequent impairment testing of goodwill was driven by moving towards fair value measurement (Bloom 2008, 102-120; Singh, Uzma 2011, 121; Zyla 2013, 12). According to

Catty (2010, 7-8 and 19-81) fair value measurement requires valuation techniques that are consistent with market approach, income approach and cost approach. These valuation techniques are also described under IFRS 13. In this case it is essential to understand that income approach (incl. present value technique such as Discounted Cash Flow (DCF) model) and the market approach (incl. valuation techniques that estimate fair value based on market transactions for similar assets) are the most common and important approaches for goodwill's subsequent impairment testing that is consistently applied on the basis of fair value accounting (Catty 2010, 7-8 and 19-81; Mard *at al* 2011, 11-12; Zyla, 2013, 52-54).

Singh & Uzma (2011, 115) explain that the greater need for fair value measurement in the financial reporting was driven by growing importance of intangible assets and goodwill. As stated by Baboukardos & Rimmel (2014, 1) the goodwill accounting is heavily influenced by fair value accounting at goodwill's initial recognition and measurement (IFRS 3) and also at its subsequent impairment testing (IAS 36). However, also according to them, the accounting treatment for goodwill under IFRS has been criticized due to extensive use of fair value measurement.

Elliott B & Elliott Jamie (2013, 497) explain that IFRS 3 treats goodwill as if it has an indefinite life and its amount has to be reviewed annually for impairment. If the carrying value is greater than the recoverable value of the goodwill, then the difference has to be written off. This is so-called a "statement of financial position" approach to accounting, as the write off is made only if the value falls below its original cost.

The statement of financial positon approach and subsequent impairment testing of goodwill are criticized in the academic literature. In the opinion of opponents this approach is not conceptually correct because the charge occurs only when there is loss in value, rather than when profits are being made. Therefore, it could be very difficult to estimate the future economic benefit of goodwill, or estimates could be very optimistic. Another point for criticism is that the accounting treatment for goodwill under IFRS 3 is different from the treatment for intangible assets under IAS 38. In the view of opponents of this method IFRS 3 and IAS 38 should be consistent. It means that one single accounting treatment should be applied – either IAS 38 amortization method or IFRS 3 impairment testing (Elliott B & Elliott Jamie 2013, 497).

Nowadays after the initial recognition of goodwill in compliance with IFRS 3 the acquirer should measure goodwill at cost less any accumulated impairment losses.

In the following sections are presented discussions and explanations related to the main five steps which must be followed to perform the subsequent impairment testing of goodwill in accordance with IAS 36. The author of this thesis is focusing on those five steps in order to develop the relevant research questions and hypotheses of this research.

Identification of cash-generating units (Step 1)

Goodwill does not generate cash flows independently from other assets. In this case it cannot be tested separately for impairment, and should be allocated to CGUs in accordance with IAS 36. Therefore, in the first step it is important to identify CGUs to which goodwill has to be allocated. According to IAS 36.6 CGU should be "the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets". In addition, a CGU should not be larger than an operating segment defined under IFRS 8 *Operating Segments* (IAS 36.80). However, in the opinion of the author of this thesis, in practice the operating segment could not be always the smallest identifiable group of assets.

According to IAS 36.68 the identification of CGUs requires judgments. However, in the opinion of the author of this research, it could be difficult in practice to identify CGUs appropriately, and the ability to determine CGUs judgmentally creates opportunities for subjectivity. As a result, in this case could be used not the smallest group of assets to identify a CGU and could be created some opportunities for manipulation with results of subsequent impairment testing. Johansson and Wiklund (2013, 9-10) explain that the group of assets of CGU has to be identified on the lowest possible level to reduce the risk of illegal offsets when CGUs are being test for impairment.

The detailed research over advantages and disadvantages for subsequent impairment testing of goodwill was performed by Qasim *at al* (2013). Furthermore, the aforementioned research was also focused on managerial incentives and choices related to identification of CGUs and goodwill allocation to those identified CGUs. The details regarding the study of Qasim *at al* (2013) and interrelation with this thesis are provided in the section 1.4 "*Previous research"* below.

In the opinion of Qasim *at al* (2013, 72) as CGU definition has lack of specificity, it could provide managers with flexibility to identify CGUs for impairment testing. In such situation managers could have incentives to manipulate future impairment losses according to their own incentives. The identification of CGUs has a large impact on goodwill allocation to identified CGUs. In the academic literature identification of CGUs correctly defined a very important step for subsequent impairment testing of goodwill, as it reflects if impairments loss is being recognized (Tran 2011, 66-70).

Allocation of goodwill to identified cash-generating units (Step 2)

In the second step it is important to allocate goodwill to identified CGUs or group of CGUs "that is expected to benefit from the synergies of the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units or groups of units" (IAS 36.80).

According to the analysis performed by Swiss consultancy company IFBC AG one of the key elements of a successful PPA is a calculation of goodwill and allocation of newly identifiable intangible assets to the preferred CGUs (IFBC AG 2012, 1).

Tran (2011, 71-74) mentioned in his research that allocation of goodwill to identify CGUs correctly is also a challenge for financial statement preparers as the identification of relevant CGUs described in the section above. Debate in the academic literature is still ongoing. There are many opportunities for management to have its own subjective judgment regarding allocation of goodwill to CGUs. If allocation is done inappropriately, in this case it has direct impact to the results of subsequent impairment testing of goodwill, and hence impairment loss being recognized.

As mentioned in the previous section, the detailed research of Qasim at al (2013) was also focused on goodwill allocation to identified CGUs. It is important to understand that identification of CGUs has a great impact on goodwill allocation to those units. In the research of Qasim *at al* (2013, 72-73) it was explained that if companies allocate goodwill to smaller CGUs instead of one larger CGU, they are expected to perform more impairment tests and, as a result to identify more impairment losses. The reason for that was already described in the previous section: if it is identified more CGUs on the lowest possible level instead of one CGU consisting of a larger group of assets, then the loss in one unit cannot be netted against an increase in another one.

Taking into account the prior research performed by Qasim *at al* (2013), the author of this thesis states that the allocation of goodwill to smaller and/or numerous CGUs gives a greater transparency over subsequent impairment testing of goodwill. However, accounting standards still give companies more flexibility and incentives to manipulate with the level and number of CGUs in order to reduce or postpone the identification of impairment losses in the certain period.

In addition to the research of Qasim *at al* (2013), it was also performed the goodwill impairment study (Duff & Phelps, 2013) in the European companies in order to examine general goodwill impairment trends across countries and industries within the European market taking into account the identification of CGUs, recognition of goodwill impairment and also IAS 36 disclosure requirements. The details regarding the study of Duff & Phelps (2013) and interrelation with this thesis are provided in the section 1.4 "*Previous research"* below.

Taking into account discussions regarding identification of CGUs and allocation of goodwill to those CGUs, also Qasim *at al* (2013) and Duff & Phelps (2013) prior studies mentioned above, the author of this thesis is focusing in the empirical research on analyzing what is the total value of goodwill impairment, and how it is changed during the tested period. In addition, it was evaluated the relation between the level and number of CGUs and the amount of goodwill impairments in the period 2007–2014 on the example of listed companies on the NASDAQ Tallinn stock exchange. The relevant research questions and hypotheses are provided in the introduction of this study.

Determination of each cash-generating unit's carrying amount (Step 3)

In the third step it is necessary to calculate the carrying amount of a CGU on a basis consistent with the determination of the recoverable amount of this CGU (IAS 36.75). According to IAS 36.76 for calculating the carrying amount of a CGU it is important to include in the carrying amount all assets that can be attributed directly or allocated on a reasonable and consistent basis to a CGU, and will generate the future cash flows used for determination a recoverable amount of a CGU. However, all recognized liabilities should be excluded from the carrying amount of a CGU, unless the recoverable amount of this CGU cannot be determined without consideration of those liabilities.

Determination of each cash-generating unit's recoverable amount (Step 4)

In the fourth step for measuring the recoverable amount of CGUs (incl. goodwill) the company should choose the higher of CGUs "fair value less cost to sell" (FVLCS) and its "value in use" (VIU). If FVLCS cannot be reliably estimated, then VIU of an asset or a CGU should be used as recoverable amount. Before developing the relevant research questions and hypotheses the author of this thesis describes those two concepts in more details below.

According to Catty (2010, 203-213) FVLCS is "the value of an asset or a CGU from observable prices in an active market or observable comparable transactions". Market-based valuation methods are used to determine FVLCS. For example, in such cases could be used a DCF model to obtain reliable information and determine expected cash flows. IAS 36.6 and IAS 36.25-36.29 provide subsequently the definition of FVLCS and guidance for determining FVLCS for an asset or a CGU.

Catty (2010, 204-213) explains also VIU which is the present value of a company over its economic useful life. This concept represents the company's internal assessment of the value of an asset or a CGU and its potential to generate cash flows. IAS 36.6 defines VIU as "the present value of the future cash flows expected to be derived from using and ultimately selling an asset or a CGU". It is also important to mention that determination of VIU requires the application of DCF model that reflects in calculation of VIU elements described under IAS 36.30.

In the goodwill impairment study (Duff & Phelps, 2013) mentioned in the section related to allocation of goodwill to CGUs, was also analyzed in details the usage of FVLCS and VIU methods for subsequent impairment testing of goodwill.

According to the author of this thesis the most common valuation concept used in companies in practice is VIU. In order to confirm or reject this statement the author evaluates in the empirical section of this thesis which valuation concepts and models are used for subsequent impairment testing of goodwill.

Furthermore, in order to develop also research questions related to DCF model and its main input factors, the detailed discussions regarding that are provided in the sections below.

Discounted Cash Flow model

As mentioned in the section above for subsequent impairment testing of goodwill is generally applied in practice the valuation technique of income approach such as a DCF model.

According to Zyla (2013, 254-255) this model could be defined as the "present value of the future expected cash flows calculated using a discount rate". Tran (2011, 82-83) gives more detailed definition: "the DCF model is based on the estimation of the future cash flows and then discounting them at a discount rate after considering the risk of financing sources used to acquire those cash flows".

In addition, as described in the previous section, the DCF model could be also used for determination of FVLCS of an asset or a CGU. However, in most cases the DCF model is used for VIU determination (Camodeca *at al* 2013, 17).

For the DCF model is very crucial to identify reliably and correctly relevant input factors that subsequently can be used for VIU or FVLCS determination. In this case FVLCS determination input factors have to represent the general market assessment of an asset or a CGU. It means that general views of market participants should be reflected in cash flows and applicable discount rate (Catty 2010, 210-213). In case of VIU the key criteria are mentioned under IAS 36.30.

Qasim *at al* (2013, 73) and Tran (2011, 80-82) state in own studies that for determination of VIU the management of company should also use judgment as in case of identification of CGUs. This professional judgment is required for determination of input factors needed for the DCF model (such as future cash flows, discount rates, long-term growth rates and forecast periods). The DCF model requires to make assumptions such as sales and operating expense projections, taxes, working capital etc. In the view of the author of this thesis, due to the usage of judgment by management, and also due to the complexity of determination variables for the DCF model, there is a higher risk of subjectivity, and different experts could achieve different results of valuation, especially depending a lot on assumptions regarding input factors such as future cash flows and discount rates.

Taking into account prior studies performed by Qasim *at al* (2013) and Tran (2011), the author of this thesis decided to focus on two main input factors of the DCF model, such as future cash flows and discount rates.

Future Cash Flows

In the DCF model, an input factor such as future cash flows should be measured and then discounted to the present value through other input factors such as a relevant discount rate, a forecast period and a long-term growth rate (Tran 2011, 83).

According to IAS 36.33 the following basis is important for estimation future cash flows by management:

- Cash flow projections should be based on reasonable and supportable assumptions that represent management's best estimations of economic conditions that will exist over the remaining useful life of the asset;
- Cash flow projections should be based on the most up-to-date financial budgets or forecast approved by management, and these projections should cover a maximum period of five years, unless there is no justification for a longer period;
- Estimation of cash flow projections for years beyond the period covered, it is necessary to rely on steady or declining growth rate for subsequent years, unless an increasing rate can be justified. This growth rate should not be higher than the long-term growth rate for the products, industries or country in which the entity operates.

Discount rate

Future cash flows described above should be estimated on a pre-tax basis. It means that future cash flows should be discounted at the pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the future cash flows estimates have not been adjusted. If the basis used to estimate the discount rate is post-tax, that basis should be adjusted to reflect a pre-tax rate (IAS 36.51, 36.55, 36.A20).

In the goodwill impairment study (Duff & Phelps, 2013) mentioned in the section related to allocation of goodwill to CGUs, was also analyzed in details the usage of pre-tax and post-tax discount rates in the DCF model for determination of VIU.

IAS 36.55 states that the discount rate is the return that investors if they were to choose an investment that would generate cash flows of amount with timing and risk profiles equivalent to those that the company expects to derive from an asset or a CGU.

According to IAS 36.A17 to start determine an appropriate discount rate, the company could take into account the following rates:

- The entity's Weighted Average Cost of Capital (WACC) determined using techniques such as the Capital Asset Pricing Model (CAPM);
- The entity's incremental borrowing rate;
- Other market borrowing rates.

According to Catty (2010, 210) and Mard *at al* (2011, 12) the most common choice in practice for a discount rate applied in the DCF model is the company's WACC which is the weighted average of the return on equity capital and the return on debt capital.

In the opinion of the author of this thesis both input factors, such as future cash flows and discount rates, could be crucial in determining any impairment loss. Therefore, appropriate and reliable managerial assumptions should be made. According to Jamaliah (2013, 72-73) in this case it is necessary to understand that even small changes in discount rates could have a large impact on the recoverable amount (i.e. on the present value discounted from future cash flows).

Taking into account discussions regarding determination of each CGU's recoverable amount, FVLCS and VIU methods, the DCF model and its main input factors, and also Duff & Phelps (2013) prior research mentioned above, the author of this thesis is analyzing in the empirical research the usage of FVLCS and VIU methods for subsequent impairment testing of goodwill. The author is also investigating which main input factors (such as future cash flow projections and discount rates) are used in the DCF model for determination of VIU in the period 2007–2014 on the example of listed companies on the NASDAQ Tallinn stock exchange.

Recognition of any impairment loss (Step 5)

In the final fifth step the carrying amount of CGU assets (incl. goodwill) should be compared to the recoverable amount of the relevant CGU to measure any impairment loss. If the recoverable amount of the CGU is less than the carrying amount of CGU assets (incl. goodwill), then some assets are impaired. In this case the carrying amount has to be reduced to the recoverable amount, and the difference should be recognized as impairment loss. The impairment loss needs to be allocated to the different assets in a CGU. Initially should be reduced the carrying amount of any goodwill allocated to a CGU. After that if goodwill is written down to nil, then measured impairment loss should be allocated to other assets in a CGU. It is also important to know that any impairment loss allocated to goodwill can never be reversed (Lubbe *at al* 2014, 260).

In the empirical research of this thesis the general goodwill impairment trends were analyzed in the period 2007–2014 on the example of listed companies on the NASDAQ Tallinn stock exchange.

1.3. DISCLOSURE REQUIREMENTS

As research questions and hypotheses of this master thesis are also related to IFRS 3 and IAS 36 main disclosures, those topics are discussed in details in the sections below in order to provide background to the relevant accounting regulations, and hence to develop research questions and hypotheses of this research.

1.3.1. Disclosure under IFRS 3 Business Combinations

IFRS 3 requires that acquirer discloses the information that helps investors and other users of financial statements to evaluate the nature and financial effect of business combinations that occurred during the current reporting period or after the reporting date, but before the financial statements are approved. The following key information should be disclosed (IFRS 3.B64, Lubbe *at al* 2014, 575):

a) The name and the description of the acquiree;

b) The acquisition date;

c) The percentage of voting interest acquired;

d) The primary reasons for the business combination and description of how the acquirer obtained control of the acquiree;

e) A qualitative description of the factors that make up the goodwill recognized, such as expected synergies from combining operations of the acquiree and the acquirer, intangible assets that do not qualify for separate recognition or other factors;

f) The acquisition date fair value of the total consideration transferred and the acquisition date fair value of each major class of consideration, such as cash, or other tangible or intangible assets, liabilities incurred, equity interests of the acquirer etc.;

g) Goodwill or bargain purchases (with description and reasons) and the total amount of goodwill that is expected to be deductible for tax purposes;

h) Where the acquirer holds less than 100% of the equity interests, the amount of the non-controlling interest.

According to the author of this research the aforementioned criteria for disclosure gives a greater transparency and provides the necessary information to users of the financial statements. Therefore, it is important to investigate whether companies are compliant with necessary disclosure requirements in practice.

It was also performed the research by European Securities and Markets Authority (ESMA, 2014) in order to evaluate the consistency of application of key requirements of IFRS 3 Business Combinations and to understand how compliant and entity-specific IFRS 3 disclosures are in the 2012 annual IFRS financial statements of 56 sampled European Union companies. The details regarding the ESMA research (2014) and interrelation with this thesis are provided in the section 1.4 "*Previous research"* below.

Taking into account IFRS 3 key disclosure requirements and the ESMA research (2014) mentioned above, the author of this thesis is focusing in the empirical research on analyzing how listed companies on the NASDAQ Tallinn stock exchange comply with disclosure requirements of IFRS 3 *Business Combinations* in the period 2007–2014.

1.3.2. Disclosure under IAS 36 Impairment of Assets

Impairment of assets should be disclosed in the financial statements, because it is also significant information for decision-making process of users. IAS 36 requires extensive disclosures on subsequent impairment testing of goodwill. However, such requirements could create difficulties for companies, because those companies have to decide how much information they still can disclose without presenting any sensitive and confidential information to competitors. The following key information related to CGUs and goodwill impairment testing should be disclosed in accordance with IAS 36 (IAS 36.126-131, Lubbe *at al* 2014, 261-262):

For CGUs (a-e & h):

a) A description of CGU, for example, whether it is product line, plant, business operation, geographical area or reportable segment as defined in IFRS 8;

b) If the aggregation of assets for the identification of the CGU has changed since the previous estimate of the CGU recoverable amount, a description of the current and former way of aggregating assets and the reason for the changing the way the CGU is identified;

c) Whether the recoverable amount of the asset or CGU is its fair value less costs to sell or its value in use.

d) If the recoverable amount is fair value less costs to sell, the basis used to determine fair value less costs to sell;

e) If the recoverable amount is value in use, the discount rates used in the current estimate and previous estimates of value in use;

f) The event and circumstances that led to the recognition or the reversal of the impairment loss;

g) The amount of the impairment loss recognized or reversed;

h) In case of CGU the amount of the impairment loss recognized or reversed by the class of assets and based on the entity's primary reporting format.

Disclosure requirements became more extensive in the recent years as a result of global financial crisis started in 2008. Economic conditions have worsened, and hence more attention were paid by IASB to disclosure about risks and uncertainty. As a result, the revised IAS 36

requires companies, who recognize goodwill in the financial statements, to disclose the key assumptions (and related approach for them) when the DCF model is applied for subsequent impairment testing of goodwill (Camodeca *at al* 2013, 18).

Taking into account the information and IAS 36 key disclosure requirements mentioned above, in the empirical research of this thesis it was analyzed how listed companies on the NASDAQ Tallinn stock exchange comply with disclosure requirements of IAS 36 *Impairment of Assets* in the period 2007–2014.

1.4. PREVIOUS RESEARCH

Business combinations, goodwill, its subsequent impairment testing and the relevant disclosure requirements were analyzed in several prior studies which were already mentioned in the sections above and which are described in more details below.

Talviste (2014) has written his master thesis on the topic "The development of the concept of goodwill and its recognition in the annual reports of Estonian companies during 2004–2013 (an IFRS 3 approach)". Talviste looked in details through goodwill key definitions and concepts and the recognition of goodwill in the financial statements over the time. Talviste tested a hypothesis that it is easier to threat the whole access payment over net assets as goodwill, a treatment in controversy with meaning of the standard IFRS 3. The author has surveyed 850 financial statements of Estonian companies for the period 2004–2013 under IFRS principles. The key indicators to support Talviste claim were the share of goodwill and new identifiable intangible assets recognized in respect to the consideration paid for the business combination and also the frequency of business combinations where new assets were recognized. The results of Talviste empirical research confirmed the aforementioned hypothesis. According to the author the ratio of recognized goodwill to consideration paid exceeded the new intangible assets ratio by 5–7 times. Furthermore, the necessary disclosure requirements were met in many aspects for less than 50 percent of the cases.

The author of this master thesis decided to expand the research of Talviste. First of all, the author was expanding the scope of analysis focusing not only on goodwill recognition under IFRS

3, but also focusing on business combinations itself, analyzing in more details PPA to goodwill and identifiable intangible assets, assessing also subsequent impairment testing of goodwill under IAS 36 and broader disclosure requirements under IFRS 3 and IAS 36. Furthermore, the author decided to narrow the testing sample of companies evaluating only the listed companies on the NASDAQ stock exchange in the period 2007–2014 in order to provide conclusion for the listed companies applying IFRS standards. The author of this thesis also performed more detailed analysis for the most significant listed companies over the time.

In addition, the leading international independent intangible asset valuation consultancy Intangible Business (2008) performed the analysis of the international application of IFRS 3 *Business Combinations* by the companies outside UK included in the FT Global 500 (European Union countries, Australia, Hong Kong & China, South Africa and Switzerland). During the research were analyzed such indicators and ratios as amount spent on business combinations, number of business combinations, average acquisition value, total allocation to tangible assets, total allocation to goodwill, total allocation to identifiable intangible assets, proportion of total intangible assets attributed to goodwill. In the research was analyzed total assets allocation to goodwill, identifiable intangible assets and tangible assets. In addition, were analyzed whether company met IFRS disclosure requirements related to a separate disclosure of goodwill and identifiable intangible assets. As a result of the research, it was identified that in business combinations of companies outside US and UK goodwill was amounted to 47% and identifiable intangible assets to 32% of total assets allocation. Furthermore, for those business combinations no description regarding the nature of goodwill and identifiable intangible assets were provided in the case of 57% of sampled companies outside US and UK, 16% had limited description and only 31% had good description. The proportion of total intangible assets attributed to goodwill in those companies was 68%. According to authors of the research there is a tendency to understate the value of identifiable intangible assets through a failure to identify such assets separately from goodwill. As a result, goodwill acquired in business combinations is overstated.

The aforementioned Intangible Business (2008) research was used as one of the key studies in order to develop research questions and hypotheses in the fields of total cost of acquisitions, PPA to goodwill and identifiable intangible assets and the relevant IFRS disclosure requirements.

Furthermore, the author of this master thesis was using aforementioned indicators and ratios as a basis for developing similar factors in order to analyze listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014.

Qasim *at al* (2013) were perfromed the research which was examining the change in accounting treatment for goodwill pursuant to IFRS standards by reference to the UK accounting standards. The research discussed and compared the former UK and new IFRS policies for goodwill accounting higlighting advantages and disadvantages of impairment approach to goodwill. Furthermore, the research highlighted the sources for managerial discretion in testing goodwill for impairment. The research was focusing on managerial incentives and choices related to identification of CGUs and goodwill allocation to those identified CGUs. Aforementioned incentives and choices could significantly impact subsequent impairment testing of goodwill and hence the performance of the company in the certain finacial period.

The aforementioned Qasim *at al* (2013) research was used as one of the key studies in order to develop research questions and hypotheses in the fields of subsequent impairment testing of goodwill, identification of CGUs and goodwill allocation to those CGUs.

It was also performed the goodwill impairment study (Duff & Phelps, 2013) in the European companies in order to examine general goodwill impairment trends across countries and industries within the European market taking into account IAS 36 disclosure requirements. The study analyzes companies in the STOXX Europe 600 Index which represents large, mid and small capitalization companies across 18 countries of the European region. As a result of the researh, it was idetified that 41% of European companies responding to the survey recognized goodwill impairment in 2012. Geographically, impairments were concentrated in the Southern Europe region and the United Kingdom. Overall, market conditions and general industry downturns were the most common reasons for the goodwill impairments. 62% of companies surveyed were impairing goodwill between 20% and 50% of their goodwill balance in 2012. In addition, were carried out telephone interviews with 150 European financial executives accross a variety of industries and geographic regions. It was identified that the most significant challenges related to goodwill impairment testing are the identification of indicators that CGUs may be impaired, the development of cash flow projections, and the identification of CGUs itself. Respondents were also

asked about recognized impairment of goodwill in 2012 and reasons for impairment. Furthermore, respondents were questioned how many CGUs were used in the most recent reporting period. 55% of tested companies had 2 to 5 CGUs, 27% had 6 to 10 CGUs, 17% of sampled companies had more than 10 CGUs. It was analyzed whether for determining the recoverable amount of CGUs is used FVLCS or VIU method. As a result of the research, 58% of companies used FVLCS, 23% used VIU and 19% used both methods. It was also identified that 71% of sampled companies were using post-tax and 29% were using pre-tax discount rates.

The aforementioned Duff & Phelps (2013) research was used as one of the key studies in order to develop research questions and hypotheses in the field of subsequent impairment testing of goodwill, identification of CGUs, allocation of goodwill to identified CGUs, the usage of FVLCS and VIU methods for subsequent impairment testing of goodwill, and also the usage of pre-tax and post-tax discount rates in the DCF model for determination of VIU.

Furthermore, it was conducted the research by European Securities and Markets Authority (ESMA, 2014) in order to evaluate the consistency of application of key requirements of IFRS 3 Business Combinations, and to understand how compliant and entity-specific IFRS 3 disclosures are in the 2012 annual IFRS financial statements of 56 sampled European Union companies. Overall, the results of this review have shown that companies are mainly compliant with IFRS 3 disclosure requirements. However, ESMA identified certain areas where improvements are required. It was also analyzed recognition of goodwill and identifiable intangible assets in business combinations per company's industry, and types of goodwill (positive and negative) and identifiable intangible assets.

The aforementioned ESMA research was used as one of the key studies in order to develop research questions and hypotheses in the field of disclosure requirements focusing not only on IFRS 3, but also on IAS 36 disclosure requirements. Furthermore, the author was analyzed in details the recognition of goodwill (positive and negative) acquired in business combinations, types of identifiable intangible assets purchased. The author was also evaluating the PPA to goodwill and identifiable intangible assets.

2. EMPIRICAL RESEARCH AND RESULTS

2.1. METHODOLOGY

In order to investigate the implementation of IFRS 3 and IAS 36 in the area of PPA to goodwill and its subsequent impairment testing, and also to answer on research questions and confirm evolved hypotheses described in the introduction of this study, the author of this thesis focused on analyzing the financial statements under IFRS of all existing listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014.

The author analyzed in details 118 financial statements under IFRS of all existing 15 listed companies on the NASDAQ Tallinn stock exchange in the tested period. Most of the financial statements for the tested period were obtained from the NASDAQ Tallinn stock exchange website www.nasdaqomxbaltic.com. The reports of one company (Pro Kapital Grupp AS) in the period 2008–2009 were gathered from the Estonian E-business register (https://ariregister.rik.ee/). The list of tested companies is detailed in the Appendix 1 of this research.

The information was taken from the audited financial statements, the notes related to business combinations and intangible assets, and also from the relevant managerial reports.

In order to analyze all essential information, the author gathered the empirical data in tables for general trends analysis, for business combinations with goodwill and/or identifiable intangible assets, subsequent impairment testing and CGUs, valuation concepts, models and main input factors used, and also for analysis of key disclosures in accordance with IFRS 3 and IAS 36. In addition, the author prepared detailed tables with all business combinations identified during analyzing 118 financial statements in the tested period.

2.2. EMPIRICAL ANALYSIS AND FINDINGS

2.2.1. GENERAL TRENDS ANALYSIS

In the first part of the empirical research the author performs the general trends analysis of business combinations and goodwill in the listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014 in order to answer on the research questions **RQ1.1** and **RQ1.2** disclosed in the introduction of this study.

During testing of 15 listed companies in the tested period, it was identified that positive goodwill was disclosed in the statement of financial position in the case of 12 out of 15 companies. The remained 3 companies (Tallinna Vesi AS, Trigon Property Development AS and Skano Group AS) did not have any goodwill in the tested period. Therefore, those 3 companies were excluded from the further testing. In order to answer to the research question **RQ1.1**, the author analyzed the proportion of total assets attributed to goodwill in the aforementioned 12 listed companies with positive goodwill (Figure 1).

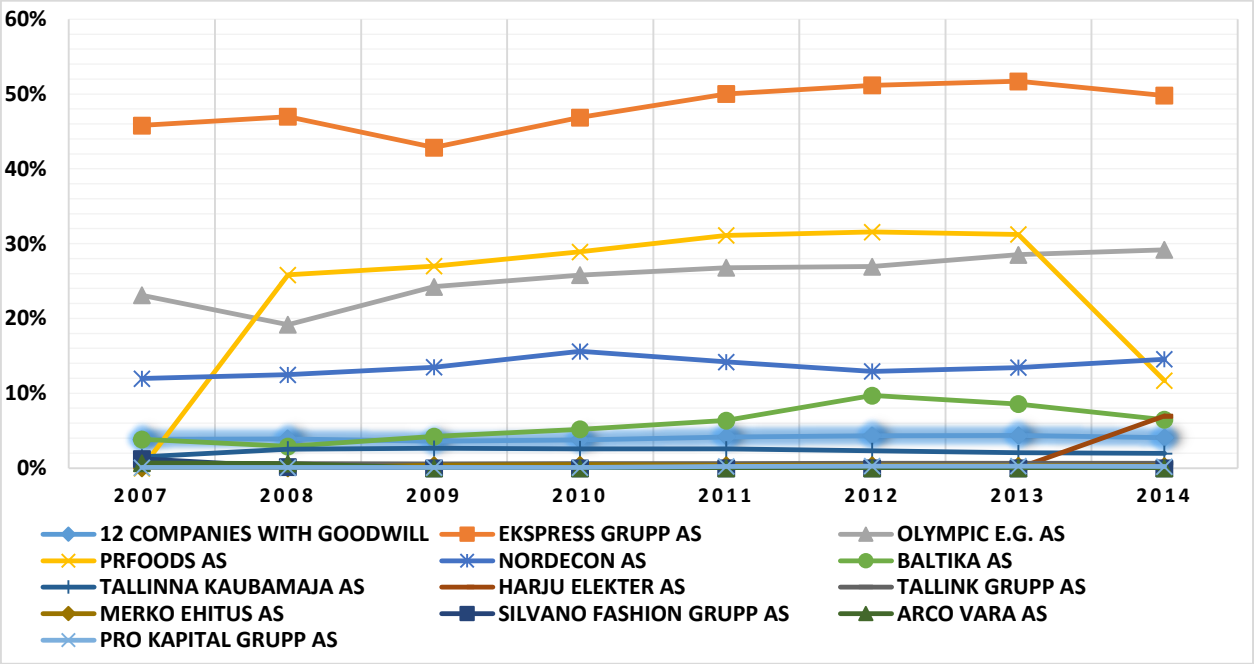


Figure 1. The proportion of total assets attributed to goodwill in the period 2007–2014

Source: (Prepared by the author)

From the Figure 1 and the table in the Appendix 2 of this research it is possible to see that the average proportion of total assets attributed to goodwill for 12 listed companies in the tested period is 4%. For the period 2007–2010 this average percentage was in the range 3.6%–3.9%. In the period 2011–2014 it was in the range 4.1%–4.4%. Overall, the proportion of total assets attributed to goodwill in the listed companies on the NASDAQ Tallinn stock exchange increased during the period 2007–2014.

However, it is important to understand the main reasons why increased the proportion of total assets attributed to goodwill in the tested period. In order to understand those reasons, key listed companies of goodwill should be identified. Therefore, in order to answer to the research question **RQ1.2**, the author of this thesis analyzed in details all 12 companies with positive goodwill and identified companies with small (below 1%), medium (range 1%–20%) and large (above 20%) proportions of total assets attributed to goodwill (Figure 1).

Companies with a small proportion (below 1%) of total assets attributed to goodwill

In total, 6 companies (Pro Kapital Grupp AS, Arco Vara AS, Silvano Fashion Grupp AS, Merko Ehitus AS, Tallink Grupp AS and Harju Elekter AS) out of 12 have the average proportion of total assets attributed to goodwill below 1%. Those 6 companies respectively operate in the fields of real estate services and development (Pro Kapital Grupp AS, Arco Vara AS), lingerie distribution, construction, cruise and passenger transportation, manufacturing of electrical equipment.

In the case of the lingerie distributor Silvano Fashion Grupp AS the proportion of goodwill to total assets was greater than 1% in 2007. However, goodwill in this company was fully impaired in 2008.

Positive goodwill of the manufacturer of electrical equipment Harju Elekter AS was recognized as a result of a business combination in 2014. The average proportion of goodwill in the tested period was 0.9%. However, as goodwill was recognized only in 2014, the actual proportion of total assets attributed to goodwill was 7%.

Companies with a medium proportion (range 1%–20%) of total assets attributed to goodwill

In total, 3 companies (Tallinna Kaubamaja AS, Baltika AS and Nordecon AS), operating respectively in the fields of retail and wholesale trade, fashion and construction, have the average proportion of goodwill in the range of 1%–15%.

In the case of the fashion retailer Baltika AS for the period 2007–2010 this average percentage was in the range 2.9%–5.2%. In the period 2011–2014 it was in the range 6.4%–9.7%. The reason for a greater proportion after 2011 was a significant decrease of Baltika AS total assets. However, the amount of goodwill did not change significantly, except in the period 2013–2014 when the amount of goodwill decreased by 782 TEUR due to fluctuations of EUR/RUB exchange rate.

In the period 2007–2010 the average percentage in the construction company Nordecon AS was in the range 12%–15.6%. In the period 2011–2014 it was in the range 12.9%–14.6%.

Companies with a large proportion (above 20%) of total assets attributed to goodwill

In total, the key 3 companies (Ekspress Grupp AS, Olympic E.G. AS and PRFOODS AS), operating respectively in the fields of media, entertainment and food production, have the average proportion of total assets attributed to goodwill in the range of 21%–50%.

Ekspress Grupp AS, who is dealing with publishing, printing service and online media content production, has the largest proportion of goodwill. The average percentage for the tested period was 48.2%. In the period 2007–2010 it was in the range 42.9%–47%. The lower proportion was 42.9% in 2009, when the total amount of assets significantly decreased in comparison with the prior 2008 year. In addition, goodwill was significantly impaired in 2009. Goodwill was larger in the period 2011–2014, accordingly in the range 49.9%–51.7%. After 2009 goodwill amount remained approximately on the same level; however, the proportion of total assets attributed to goodwill increased due to decrease of total assets of the company.

The provider of gaming services and operator of casinos Olympic E.G. AS had the average proportion of goodwill 25.5%. In the period 2007–2010 it was in the range 19.2%–25.8%, and in the period 2011–2014 it was in the range 26.8%–29.2%. The lower proportion of goodwill 19.2%

was in the year of global financial crisis, 2008, when the total amount of assets of the company decreased and goodwill was significantly impaired. In 2009 the proportion of goodwill became greater due to a significant decrease of total assets. After 2010 the proportion of goodwill started to increase as a result of many business combinations on the new markets.

PRFOODS AS, dealing in the field of production and sale of fish products, had the average proportion of goodwill 23.4%. As the company was made its first proforma financial statements in 2008, the period before 2008 was excluded from the testing. In the period 2008–2010 the proportion of goodwill was in the range 25.8%–28.9%. In 2011–2013 it was larger, accordingly in the range 31.1%–31.6%. However, in 2014 it decreased significantly due to the sale of the part of company's business related to ice cream and frozen goods operations in Russia and Baltic states.

The detailed empirical data regarding the proportion of total assets attributed to goodwill in the period 2007–2014 is disclosed in the Appendix 2 of this research.

2.2.2. BUSINESS COMBINATIONS AND PURCHASE PRICE ALLOCATION

In the second part of the empirical research the author performs the detailed analysis of business combinations, types of business combinations, PPA to positive goodwill and identifiable intangible assets. The author is also evaluating the proportion of total intangible assets attributed to goodwill and identifiable intangible assets. Author assumes that after issuing the revised IFRS 3 in July 2009 a greater transparency was achieved by increasing the identification of intangible assets separately rather than including them within goodwill. As a result, the proportion of goodwill should decrease, and the proportion of identified intangible assets should increase. In this part were also tested separately business combinations with negative goodwill. This detailed analysis is performed in order to answer to the research questions **RQ2.1**–**RQ2.7** and test hypotheses **H1** and **H2** disclosed in the introduction of this study.

During testing of 15 listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014, were identified business combinations in the case of 13 listed companies (incl. 12 listed companies with positive goodwill from the section 2.2.1 of the empirical research, plus Skano Group AS). The remained 2 companies (Tallinna Vesi AS and Trigon Property Development AS)

did not have any business combinations in the tested period. Therefore, those 2 companies were excluded from the testing related to business combinations.

In this part were analyzed all business combinations of aforementioned 13 companies in the tested period. During analyzing the financial statements of those companies, the author identified 79 business combinations in the period 2007–2014.

As one part of those 79 business combinations, 58 have positive goodwill and/or identifiable intangible assets. The detailed analysis is performed in the section 2.2.2.1.

As other part of those 79 business combinations, 10 have negative goodwill. These business combinations with negative goodwill are tested separately in the section 2.2.2.2.

The remained 11 business combinations out of those 79 were excluded from the testing in the section 2.2.2 of the empirical research for the following reasons:

- It consists of 4 business combinations which did not have any goodwill or identifiable intangible assets. Therefore, they were excluded from the further testing. The list of excluded transactions is disclosed in the Appendix 4 of this research;
- It also consists of 7 business combinations without significant disclosure. Those 7 business combinations were excluded from the testing in the section 2.2.2, as they were tested separately in the section 2.2.4 of this empirical research, where the separate testing of IFRS 3 and IAS 36 disclosure requirements was performed.

2.2.2.1. Business combinations with positive goodwill and/or other intangible assets

In this section of the research the author analyzed business combinations with positive goodwill and/or other intangible assets in order to answer to the research questions **RQ2.1**–**RQ2.7** and test hypotheses **H1** and **H2** disclosed in the introduction of this study.

As mentioned in the section 2.2.2 above, in this particular section were analyzed 58 business combinations with positive goodwill and/or identifiable intangible assets in the period 2007–2014. In the case of 53 out of those 58 business combinations, positive goodwill was identified. In the case of remained 5 business combinations, identifiable intangible assets were recognized.

The detailed empirical data from the financial statements used for the analysis is disclosed in the Appendix 4 of this research.

RQ2.1: Which types of business combinations and acquiree's countries are the most common in the tested period?

During testing of 58 business combinations with positive goodwill and/or identifiable intangible assets, were identified the following types of business combinations (Figure 2).

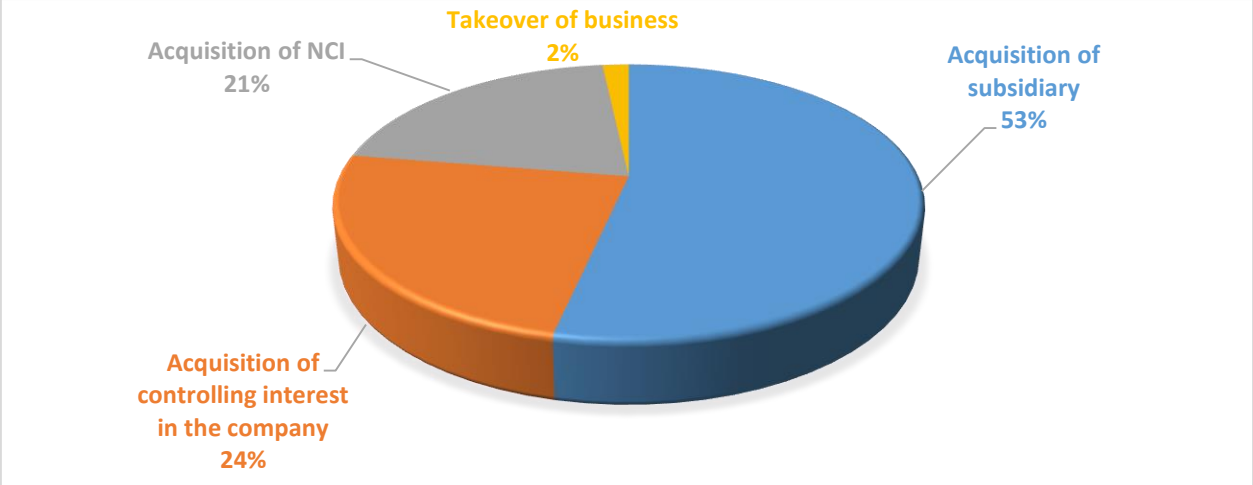


Figure 2. Types of business combinations with positive goodwill or/and identifiable intangible assets

Source: (Prepared by the author)

Overall, 31 business combinations (53%) were related to the acquisition of the entire business and 100% of subsidiary's shares. The controlling interest in the acquiree in the range of 50%–98% was acquired in the case of 14 business combinations (24%). In addition, the NCI in the acquiree in the range of 2%–34% was acquired in the case of 12 business combinations (21%), hence achieving the control in the acquiree. Furthermore, 1 business combination (2%) was related to a takeover of business. In the case of this takeover Baltika AS signed an agreement to take over stores of the wholesale partner in Russia. The takeover took place in accordance with the strategic decision of Baltika AS to reduce the risk coming from the wholesale partner and to move retail sales to Siberian-Ural region in Russia.

In addition, were identified the following acquiree's countries (Figure 3).

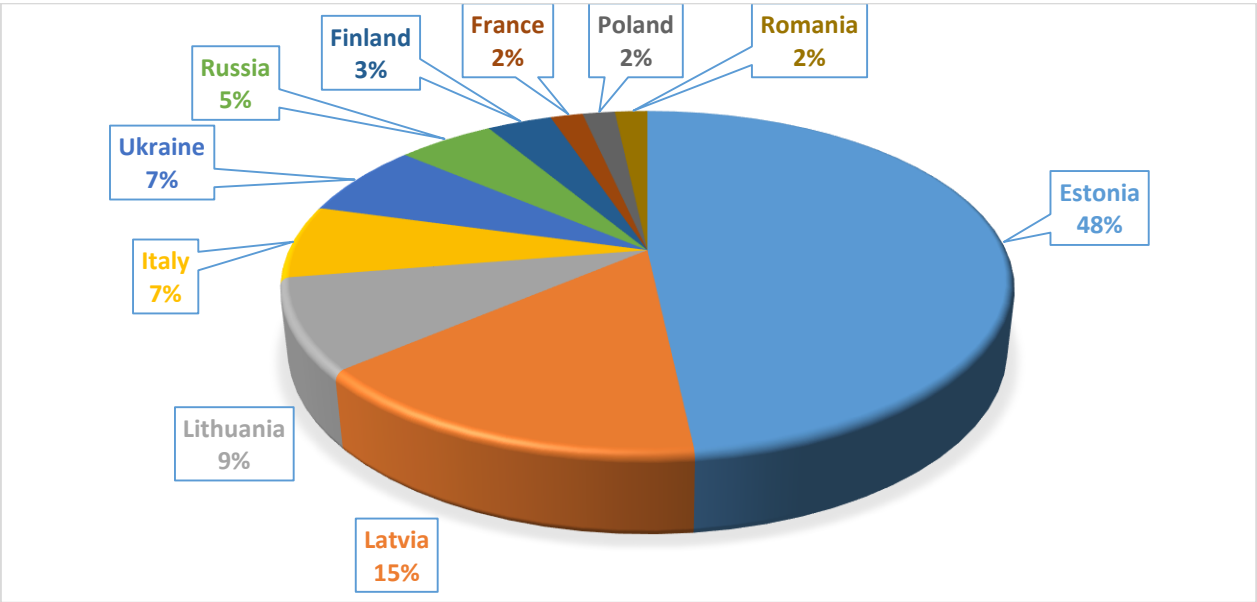


Figure 3. Acquiree's country

Source: (Prepared by the author)

The main part (72%) of the aforementioned business combinations was related to acquirees located in Baltic States. Business combinations in Estonia occurred in 9 listed companies: Arco Vara AS, Ekspress Grupp AS, Nordecon AS, Baltika AS, Merko Ehitus AS, Olympic E.G. AS, PRFOODS AS, Tallinna Kaubamaja AS and Tallink Grupp AS. Business combinations in Latvia were disclosed by 7 listed companies: Tallinna Kaubamaja AS, Baltika AS, Ekspress Group AS, Pro Kapital Grupp AS, Olympic E.G. AS, Nordecon AS and Arco Vara AS. Business combinations in Lithuania occurred in 5 listed companies: Ekspress Group AS, Nordecon AS, Arco Vara AS, Silvano Fashion Grupp AS and PRFOODS AS.

The remained part (28%) of tested business combinations was related to acquirees located mainly in other European countries, also in Russia and Ukraine. Business combinations in Italy and Ukraine were disclosed by Olympic E.G. AS and Pro Kapital Grupp AS. Business combinations in Russia occurred in Baltika AS and PRFOODS AS. The remained business combinations in Finland, France, Poland and Romania were disclosed by 4 listed companies: Harju Elekter AS, Skano Grupp AS, Silvano Fashion Grupp AS and Olympic E.G. AS.

RQ2.2: How changed the number of business combinations with positive goodwill and/or identifiable intangible assets during the tested period?

The author analyzed 58 business combination with positive goodwill and/or identifiable intangible assets. In order to answer to the research question **RQ2.2**, the author prepared the Figure 4 and also the detailed Table 1 presented in the Appendix 5 of this research.

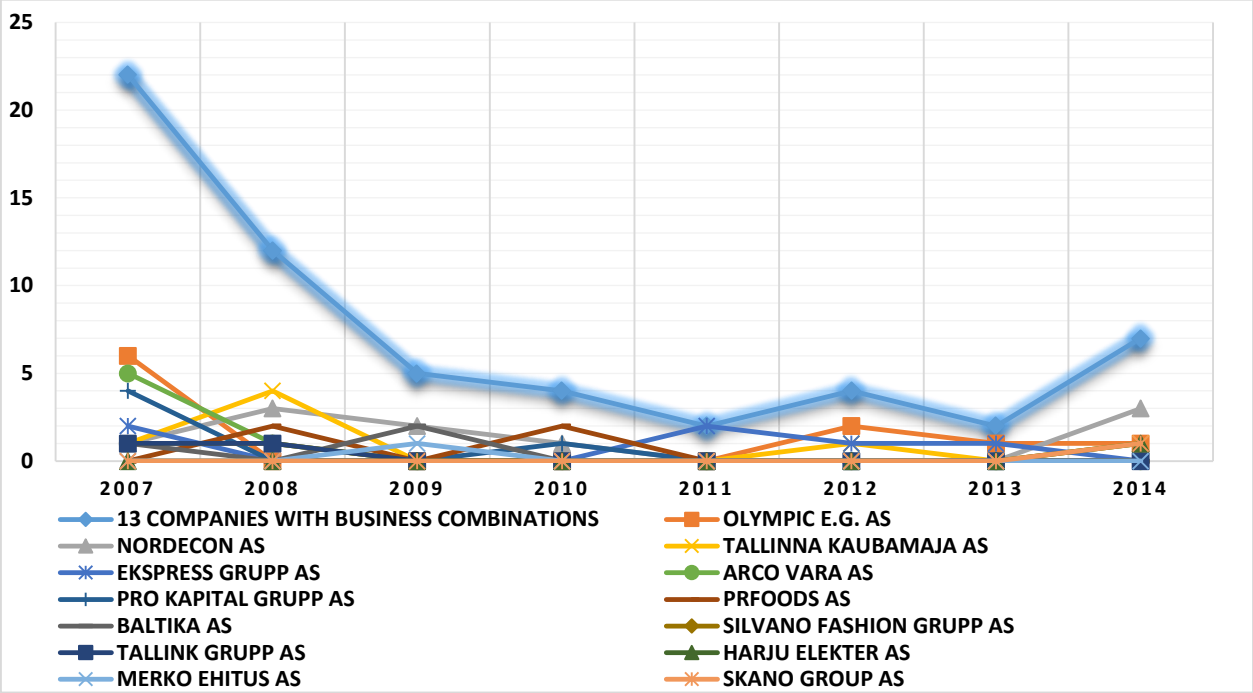


Figure 4. Total number of business combinations with positive goodwill and/or identifiable intangible assets in the period 2007–2014

Source: (Prepared by the author)

Overall, the total number of business combinations with positive goodwill and/or identifiable intangible assets significantly decreased during the period 2007–2014. The main part (62%, 36 out of 58) of tested business combinations occurred in the period 2007–2008, accordingly 22 business combinations in 2007 and 12 in 2008. As a possible impact of global financial crisis, the number of business combinations significantly decreased in 2008 in comparison with 2007, and it also continually decreased to 2 business combinations in 2011. After that the situation started to improve, and the number of business combinations increased to 7 in 2014.

In addition, the author of this thesis analyzed in details 5 key listed companies which presented the main part (66%) from the total number of business combinations in the tested period 2007–2014 (Table 1 in Appendix 5). Details regarding those 5 key companies are presented below.

Olympic E.G. AS – in the tested period this company disclosed 10 business combinations (17%). The main part, 6 business combinations out of 10, occurred in 2007 before the global financial crisis in 2008. There were no business combinations in the period 2008–2011. From 2012 the economic situation became better, and the company had 4 new business combinations in the period 2012–2014. Overall, in the case of Olympic E.G. AS the number of business combinations significantly decreased during the period 2007–2014.

Nordecon AS had also 10 business combinations (17%) in the tested period. The main part, 7 business combinations out of 10, occurred in the period 2007–2010. The remained 3 business combination occurred in 2014.

Tallinna Kaubamaja AS disclosed 7 business combinations (12%) in the tested period. The main part, 5 business combinations out of 7, occurred in 2007–2008. The remained 2 business combinations were disclosed in the period 2012–2014. In the case of Tallinna Kaubamaja AS the conclusion is the same as for Olympic E.G. AS mentioned above.

Ekspress Grupp AS – in the tested period this company had 6 business combinations (10%). In 2007 occurred 2 out of 6 business combinations. The remained 4 business combinations were disclosed in the period 2011–2013.

Arco Vara AS had in total also 6 business combinations (10%) in the tested period. All those 6 business combinations occurred in the period 2007–2008. There were no any new business combinations disclosed in the financial statements in the period 2009–2014.

The detailed empirical data regarding each company and business combination with goodwill and/or identifiable intangible assets in the tested period are disclosed accordingly in Appendices 4 and 6 of this research.

Furthermore, the author of this thesis also analyzed the cost of acquisition and total amounts of assets acquired in business combinations in the tested period. The detailed analysis is performed in the following section of this research.

RQ2.3: What are the total cost of acquisition, amount of positive goodwill, and also intangible assets identified in business combinations, and how it is changed during the tested period?

In order to answer to the first part of the research question **RQ2.3** related to the total cost of acquisition and positive goodwill, the author prepared Figures 5 and 6 and also the detailed Table 2 presented in the Appendix 5 of this research.

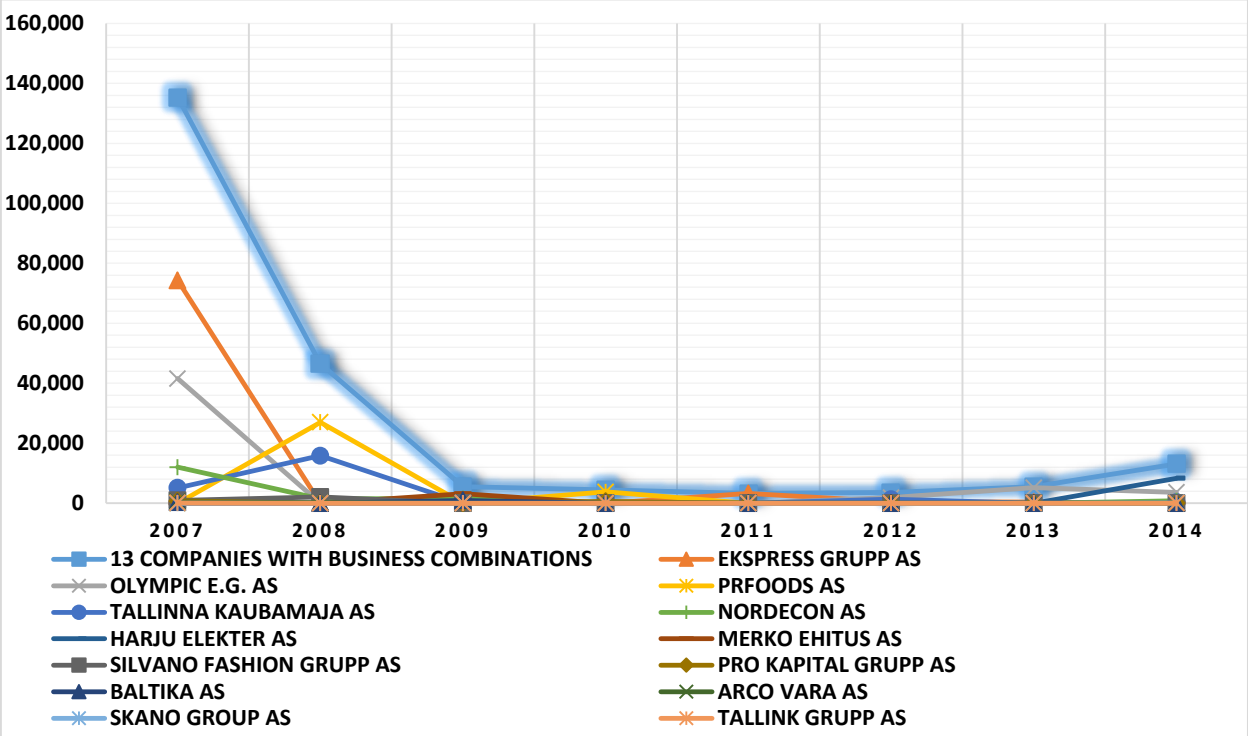


Figure 5. Total cost of acquisition (TEUR) of business combinations with positive goodwill and/or identifiable intangible assets in the period 2007–2014

Source: (Prepared by the author)

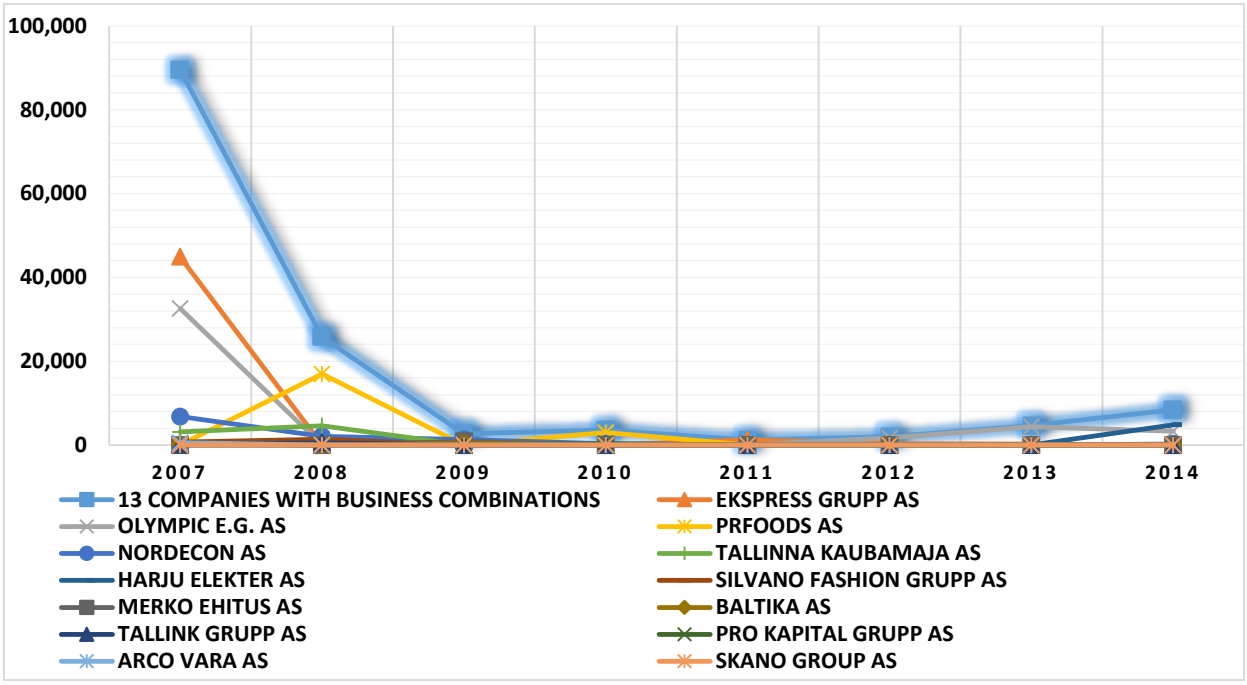


Figure 6. Total amount of positive goodwill (TEUR) in business combinations in the period 2007–2014

Source: (Prepared by the author)

Overall, the total cost of business combinations, hence the total amount of positive goodwill identified in business combinations significantly decreased during the period 2007–2014. The main decrease was taken place in the period 2007–2009. The situation started to improve after 2011. The aforementioned decrease was consistent with decrease of the total number of business combinations analyzed in the prior section above.

The author of this thesis analyzed in more details changes related to positive goodwill. The total amount of positive goodwill identified in business combinations in 2007–2014 (before any subsequent impairment testing) was 138,054 TEUR. The main part, 115,329 TEUR (84%), was identified in the period 2007–2008, accordingly 89,549 TEUR (65%) in 2007 and 25,771 TEUR (19%) in 2008. In the period 2009–2012 the average positive goodwill per year was 2,404 TEUR (2% per year). The situation improved in 2013–2014, when the total amount of goodwill reached 13,123 TEUR (9.5%), respectively it was disclosed 4,679 TEUR (3.4%) in 2013 and 8,444 TEUR (6.1%) in 2014.

In addition, the author of this thesis analyzed in details 5 key listed companies with the most significant amounts of positive goodwill in the tested period. Those 5 companies had 127,386 TEUR (92%) from the total amount of positive goodwill (138,054 TEUR) in business combination in the tested period (Table 2 in Appendix 5). Furthermore, 4 key companies with the number of business combinations tested in the prior section had also the significant value of positive goodwill: Ekspress Grupp AS, Olympic E.G. AS, Nordecon AS and Tallinna Kaubamaja AS. The remained key company with significant amount of positive goodwill was PRFOODS AS. Details regarding those 5 key companies are presented below.

Ekspress Grupp AS – in the tested period this company had 46,772 TEUR (34%) from the total positive goodwill. The main part of this goodwill, 44,948 TEUR, was disclosed in 2007, before the global financial crisis was started. This goodwill was related to 2 major business combinations – the acquisition of companies Delfi Holding OU (with goodwill 43,133 TEUR) and Maaleht AS (with goodwill 1,815 TEUR) in Estonia. The remained part of goodwill, 1,824 TEUR, was disclosed in the period 2011–2013. Overall, in the case of Ekspress Grupp AS the amount of positive goodwill significantly decreased during the period 2007–2014.

Olympic E.G. AS – in the tested period this company disclosed in the financial statements 42,034 TEUR (30%) from the total positive goodwill. The main part, 32,605 TEUR, was identified in 2007. This goodwill was related to 5 major business combinations – the acquisition of subsidiaries in Estonia, Romania, Poland and Ukraine. The remained part of goodwill, 9,429 TEUR, was recognized in the period 2012–2014. In the case of Olympic E.G. AS the conclusion is the same as for Ekspress Grupp AS mentioned above.

PRFOODS AS had 19,943 TEUR (14%) from the total goodwill before any subsequent impairment testing. The main part, 16,971 TEUR, was identified in 2008. This goodwill was recognized from the acquisition of companies Saaremere Kala AS (Estonia) and AB PREEMIA KPC (Lithuania). As a result of this acquisition, PRFOODS AS (that time PREEMIA Foods AS) was formed. The remained part of goodwill, 2,972 TEUR, was recognized in 2010 as a result of the acquisition of two subsidiaries in Russia. In the case of PRFOODS AS the conclusion is also the same as stated for Ekspress Grupp AS.

Nordecon AS had 10,854 TEUR (8%) from the total positive goodwill in the tested period. The main part, 10,559 TEUR, was disclosed in the period 2007–2010. The largest part, 6,815 TEUR, was disclosed in 2007 as a result of the acquisition of controlling interest in the company Eston Ehitus AS in Estonia. The remained part of goodwill, 285 TEUR, was recognized in 2014. In the case of this company the amount of positive goodwill also significantly decreased during the tested period.

Tallinna Kaubamaja AS had in total 7,783 TEUR (6%) from the total positive goodwill in the tested period. The aforementioned goodwill amount was recognized in the period 2007–2008. This goodwill was related to the following business combinations – the acquisition of companies KIA Auto AS (with goodwill 3,156 TEUR), Suurtuki SA and Suurtuki NK AS (with goodwill 2,833 TEUR), ABC AS and ABC King SIA (with goodwill 1,793 TEUR) in Estonia and Latvia. There was no any goodwill recognized in business combinations in the period 2009–2014.

In order to answer to the second part of the research question **RQ2.3** related to identifiable intangible assets, the author prepared the Figure 7 and also the detailed Table 3 presented in the Appendix 5 of this research.

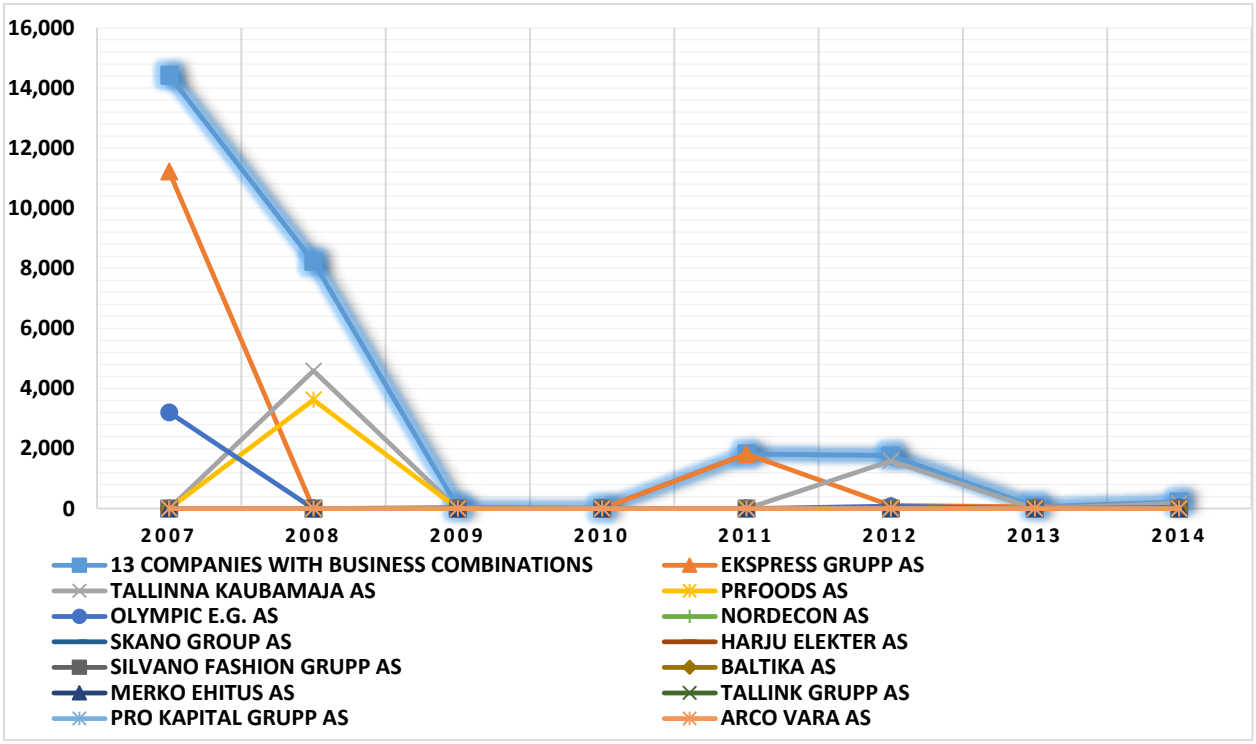


Figure 7. Total amount of identifiable intangible assets (TEUR) in business combinations in the period 2007–2014

Source: (Prepared by the author)

Overall, the total amount of identifiable intangible assets in business combinations significantly decreased during the period 2007–2014, mainly in the same way as the total cost of business combinations, the total amount of positive goodwill and the total number of business combinations analyzed above. The main decrease was taken place in the period 2007–2009. In addition, in the period 2011–2012 the amount of identifiable intangible assets was materially higher in comparison with others years after 2009.

In the period 2007–2014 the total amount of intangible assets identified in business combinations was 26,563 TEUR (Table 3 in Appendix 5). Those identifiable intangible assets were recognized in business combinations in the case of 6 companies out of 13. The author of this thesis analyzed in details 4 key listed companies with the most significant amounts of identifiable intangible assets. Those companies had also the significant value of positive goodwill as was

analyzed above: Ekspress Grupp AS, Tallinna Kaubamaja AS, PRFOODS AS and Olympic E.G. AS. Details regarding those 4 key companies are presented below.

Ekspress Grupp AS – in the tested period this company had 13,200 TEUR (50%) from the total intangible assets identified in business combinations. The main part, 11,213 TEUR, was identified in 2007 as a result of the acquisition of companies Delfi Holding OU (with intangible assets 10,489 TEUR) and Maaleht AS (with intangible assets 724 TEUR) in Estonia. The remained part of identifiable intangible assets, 1,987 TEUR, was recognized in the period 2011–2013. In general, in the case of Ekspress Grupp AS the amount of intangible assets identified in business combinations significantly decreased during the period 2007-2014.

Tallinna Kaubamaja AS disclosed 6,351 TEUR (24%) of identifiable intangible assets. The main part, 4,588 TEUR, was recognized in 2008 as a result of the acquisition of companies (ABC AS and ABC King SIA) in Estonia and Latvia. The remained part of identifiable intangible assets, 1,763 TEUR, was disclosed in the period 2012–2014. In the case of Tallinna Kaubamaja AS the conclusion is the same as stated for Ekspress Grupp AS.

PRFOODS AS had 3,635 TEUR (14%) of identifiable intangible assets. The main part, 3,623 TEUR, was recognized in 2008 as a result of the acquisition of companies Saaremere Kala AS and AB PREEMIA KPC, accordingly in Estonia and Lithuania. In the case of PRFOODS AS the conclusion is also the same as for Ekspress Grupp AS mentioned above.

Olympic E.G. AS recognized 3,326 TEUR (12%) of identifiable intangible assets in the tested period. The main part, 3,203 TEUR, was recognized in 2007 as a result of the acquisition of subsidiaries in Estonia, Poland and Ukraine. The remained part, 123 TEUR, was disclosed in the period 2012–2014. In the case of this company the amount of identifiable intangible assets also significantly decreased during the tested period.

The detailed empirical data regarding each company and business combination with goodwill and/or identifiable intangible assets in the tested period are disclosed accordingly in Appendices 4 and 6 of this research.

Hypothesis H1 confirmation or rejection

The detailed analysis in the sections above related to research questions **RQ2.2** and **RQ2.3** confirms the hypothesis **H1** of this research that the number of business combinations, respectively the amount of cost of acquisition, positive goodwill and/or identifiable intangible assets significantly decreased after the global financial crisis in 2008.

RQ2.4: What are the main types of identifiable intangible assets in the tested period?

The author analyzed 58 business combination with positive goodwill and/or identifiable intangible assets. In order to answer to the research question **RQ2.4**, the author prepared the Figure 8.

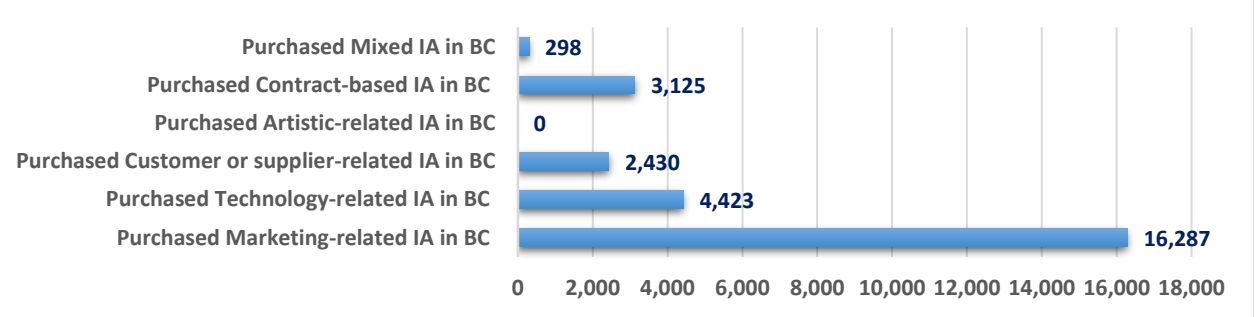


Figure 8. Value (TEUR) of intangible assets identified in business combinations in the period 2007–2014 (per type)

Source: (Prepared by the author)

The author of this thesis focused on 3 key types of identified intangible assets presented in the Figure 8 above, and provided details for the main listed companies with the most significant amounts of such assets below.

The main part, 16,287 TEUR (61%) from the total intangible assets identified in business combinations, were marketing related intangible assets, such as trademarks and in-process research and development. In total, 16 161 TEUR of trademarks and 126 TEUR of in-process research and development were recognized by 3 listed companies (Ekspress Grupp AS, Tallinna Kaubamaja AS and PRFOODS AS) in the tested period.

In addition, 4,423 TEUR (17%) were technology related intangible assets, such as software, licenses and subscription fees. Those assets were recognized by 4 listed companies (Ekspress Grupp AS, Olympic E.G. AS, PRFOODS AS and Nordecon AS) in the tested period.

Furthermore, 3,125 TEUR (12%) were contract-based intangible assets, such as useful rental agreements. Those assets were disclosed in the financial statements of 2 listed companies (Olympic E.G. AS and Tallinna Kaubamaja AS) in the tested period.

RQ2.5: What is the proportion of purchased assets (goodwill, identifiable intangible assets) from the total cost of acquisition in the tested period?

In order to answer to the research question **RQ2.5**, the author prepared the Figure 9.

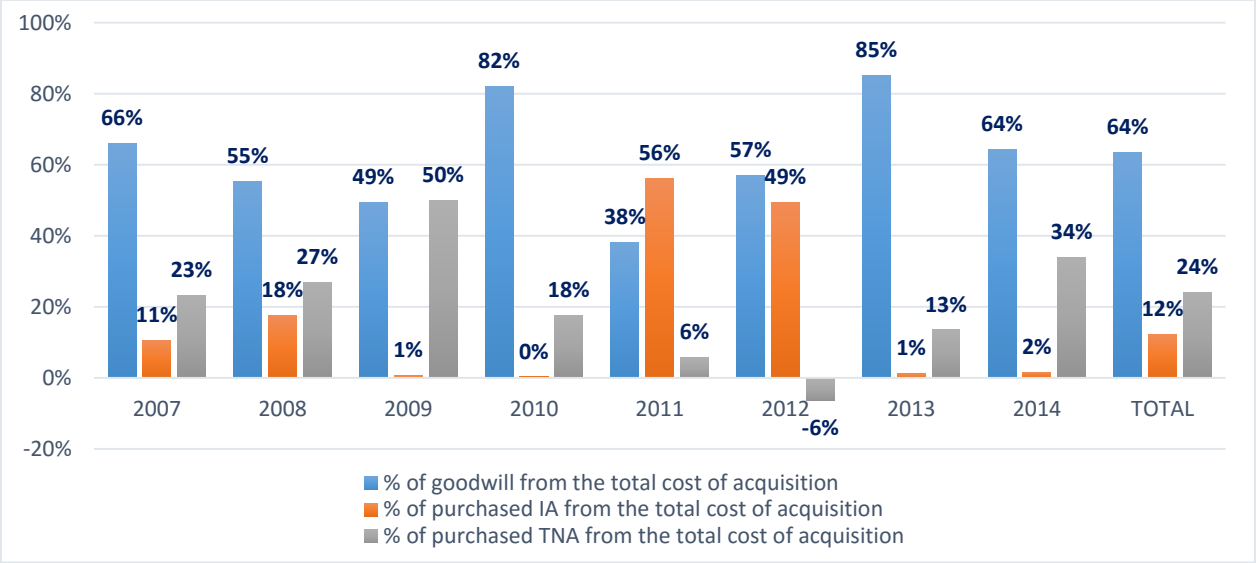


Figure 9. Percentage of purchased assets from the total cost of acquisition in the period 2007–2014

Source: (Prepared by the author)

Overall, in average positive goodwill was 64% and identifiable intangible assets (hereinafter, IA) were 12% from the total cost of acquisition in the period 2007–2014. The remained 24% were related to tangible net assets less liabilities (hereinafter, TNA).

In addition, the proportion of positive goodwill from the total cost of acquisition was mainly the largest part during the tested period, except years 2009 and 2012. In 2009 the proportion of

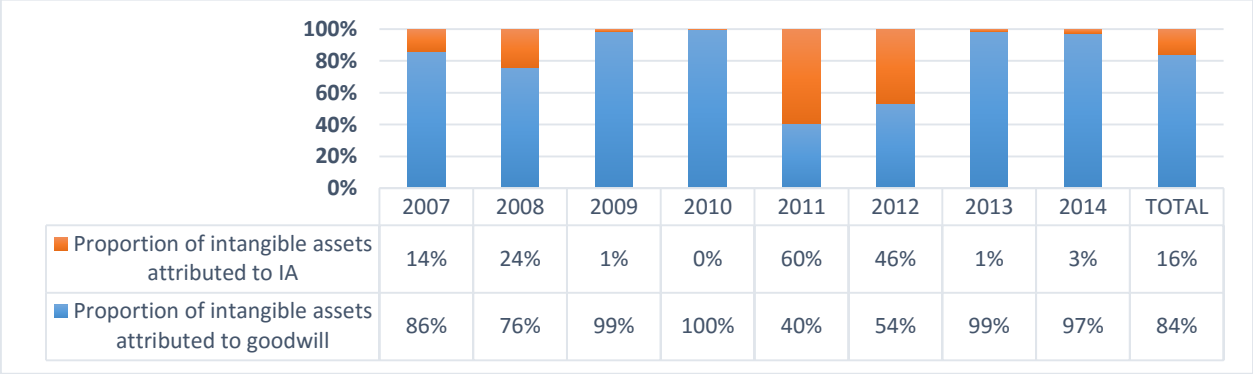
goodwill was 49% against 50% of TNA. In 2011 the proportion of goodwill was 38% against 56% of IA. In years 2010 and 2013 was the largest proportion of goodwill from the total cost of acquisition, respectively 82% and 85%.

Furthermore, during the tested period the proportion of positive goodwill from the total cost of acquisition was mainly larger than the proportion of IA, except year 2011. As mentioned above, in 2011 the proportion of goodwill was only 38% against 56% of IA. However, in other years the proportion of IA was consistently lower, respectively in the range 0%–18%.

Taking into account the proportion of positive goodwill and intangible assets from the total cost of acquisition in the tested period, the author of this thesis analyzed in more details the proportion of total intangible assets attributed to goodwill and identifiable intangible assets. The detailed analysis is performed in the following section of this research.

RQ2.6–RQ2.7: How the acquirer allocates the purchase price to goodwill and identifiable intangible assets? How changed the proportion of total intangible assets attributed to positive goodwill and identifiable intangible assets after the implementation of revised IFRS 3 in 2009?

In order to answer to the research questions **RQ2.6**–**RQ2.7** and test the hypothesis **H2** of this research, the author prepared the Figure 10.



	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
Proportion of intangible assets attributed to IA	14%	24%	1%	0%	60%	46%	1%	3%	16%
Proportion of intangible assets attributed to goodwill	86%	76%	99%	100%	40%	54%	99%	97%	84%

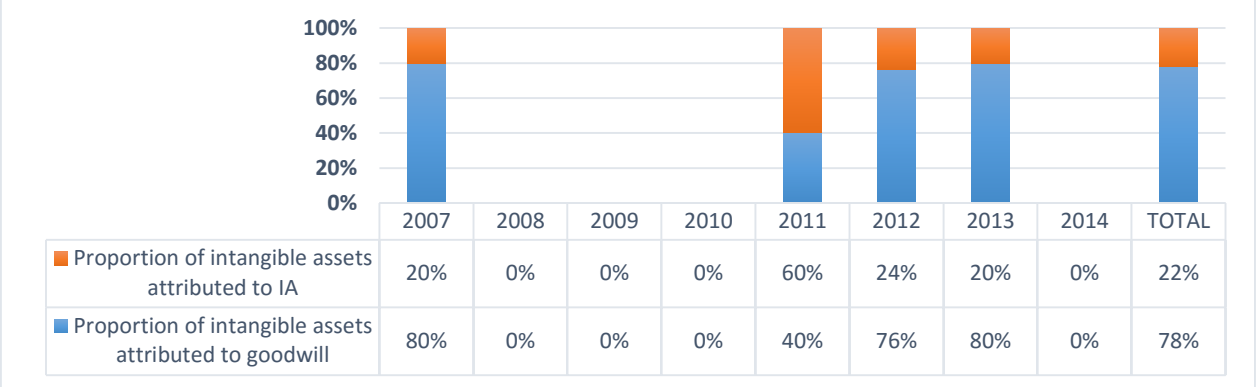
Figure 10. The average proportion of total intangible assets attributed to positive goodwill and identifiable intangible assets in the period 2007–2014

Source: (Prepared by the author)

Overall, in average the proportion of total intangible assets attributed to positive goodwill was 84% and to identifiable intangible assets (hereinafter, IA) was 16% in the period 2007–2014. During the tested period the proportion of total intangible assets attributed to goodwill was consistently larger than the relevant proportion attributed to IA, except year 2011. In comparison with other years, the situation for IA improved significantly in the period 2011–2012, when the proportion attributed to IA was in the range 46%–60% against 40%–54% of goodwill. However, in other years the proportion of IA was consistently lower, respectively in the range 0%–24%.

The author of this thesis performed more detailed analysis in order to understand how the situation changed after issuing the revised IFRS 3 and amendments to IAS 38 in July 2009, and hence to answer to the research question **RQ2.7**. Therefore, the author focused on the comparison per key company between two periods: 2007–2009 and 2010–2014 (Tables 4 and 5 in Appendix 5), and analyzed in details 4 key listed companies with the most significant amounts of intangibles: Ekspress Grupp AS, Tallinna Kaubamaja AS, Olympic E.G. AS and PRFOODS AS. Details regarding those 4 key companies are presented below.

Ekspress Grupp AS – From the Figure 11 it is possible to see that before 2010 this company had the proportion of total intangible assets attributed to positive goodwill and IA in average accordingly 80% and 20%. After issuing the revised IFRS 3 and amendments to IAS 38 in July 2009, the situation significantly improved in 2011, when the proportion of IA was 60% against 40% of goodwill. However, in the period 2012–2014 the proportion of goodwill was fallen mainly to the same level as it was before 2010. Overall, in the case of this company the revised accounting standards improved the situation only partially in the field of identification of IA in business combinations.

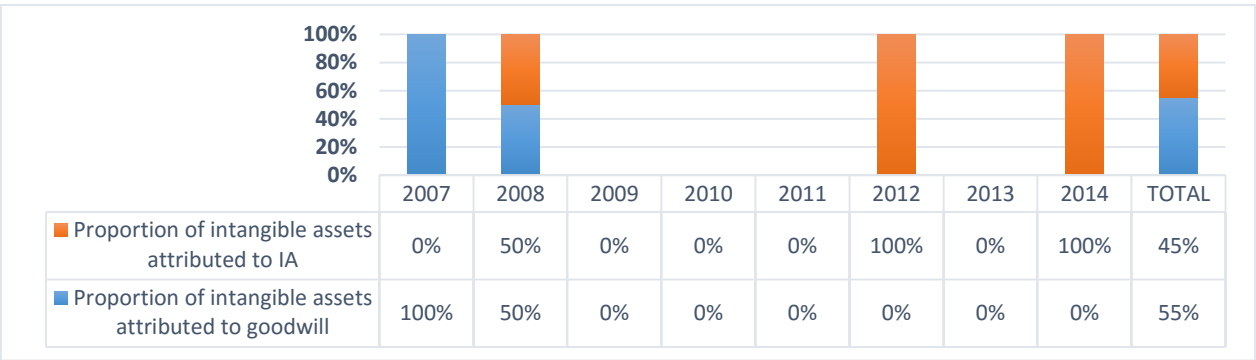


	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
Proportion of intangible assets attributed to IA	20%	0%	0%	0%	60%	24%	20%	0%	22%
Proportion of intangible assets attributed to goodwill	80%	0%	0%	0%	40%	76%	80%	0%	78%

Figure 11. Ekspress Grupp AS. The average proportion of total intangible assets attributed to positive goodwill and identifiable intangible assets in the period 2007–2014

Source: (Prepared by the author)

Tallinna Kaubamaja AS – From the Figure 12 it is possible to see that before 2010 this company had the proportion of total intangible assets attributed to goodwill and IA in average accordingly 63% and 37%. After 2010 the situation significantly improved – the entire proportion was attributed to IA. In general, in the case of Tallinna Kaubamaja AS the revised accounting standards significantly improved the situation in the field of identification of IA in business combinations.



	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
Proportion of intangible assets attributed to IA	0%	50%	0%	0%	0%	100%	0%	100%	45%
Proportion of intangible assets attributed to goodwill	100%	50%	0%	0%	0%	0%	0%	0%	55%

Figure 12. Tallinna Kaubamaja AS. The average proportion of total intangible assets attributed to positive goodwill and identifiable intangible assets in the period 2007–2014

Source: (Prepared by the author)

Olympic E.G. AS – before 2010 this company had the proportion of total intangible assets attributed to goodwill and IA in average accordingly 91% and 9%. After 2010 the situation became even worse – the average proportion of total intangible assets attributed to goodwill increased to 99% against the proportion of IA 1%. In the case of Olympic E.G. AS the situation in the field of IA identification did not improve after the implementation of revised IFRS 3 in 2009.

PRFOODS AS – before 2010 this company had the proportion of total intangible assets attributed to goodwill and IA in average accordingly 82% and 18%. After 2010 the entire proportion was attributed to goodwill. In the case of this company the conclusion is the same as stated for Olympic E.G. AS above.

Hypothesis H2 confirmation or rejection

The detailed analysis in the section above related to the research question **RQ2.7** confirms partially the hypothesis **H2** of this research. After issuing the revised IFRS 3 and amendments to IAS 38 in July 2009 the identification and measurement of intangible assets improved only in the case of 2 out of 4 key companies with the most significant amounts of intangibles.

2.2.2.2. Business combinations with negative goodwill

In this section of the research the author analyzed business combinations with negative goodwill in order to answer to the research questions **RQ2.1**–**RQ2.3** and test hypothesis **H1** disclosed in the introduction of this study.

As mentioned in the section 2.2.2 above, in this particular section were analyzed 10 business combinations with negative goodwill in the period 2007–2014. Negative goodwill was identified in 10 business combinations of 6 listed companies in the tested period. In the case of 1 business combination, negative goodwill and also the cost of acquisition were not disclosed in the financial statements (Baltika AS, 2012).

The detailed empirical data regarding each company and business combination with negative goodwill in the tested period are disclosed accordingly in Appendices 7 and 8 of this research.

RQ2.1: Which types of business combinations and acquiree's countries are the most common in the tested period?

During testing of 10 business combinations with negative goodwill, were identified the following types of business combinations (Figure 16).

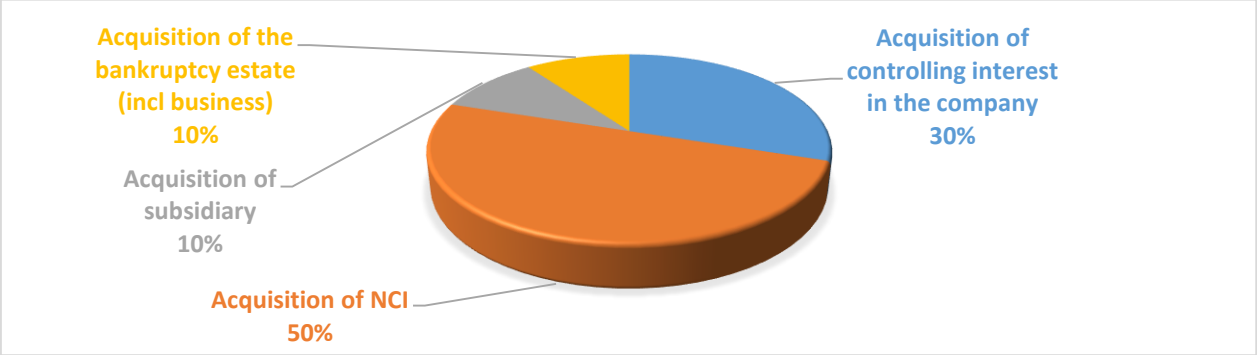


Figure 16. Types of business combinations with negative goodwill

Source: (Prepared by the author)

Overall, 5 business combinations (50%) were related to the acquisition of NCI in the acquiree in the range 4%–49%, hence achieving the control in the acquiree. In addition, the controlling interest in the acquiree in the range 56%–75% was acquired in the case of 3 business combinations (30%). Furthermore, 1 business combination (10%) was related to the acquisition of the entire business and 100% of subsidiary's shares, and 1 business combination was related to the acquisition of the bankruptcy estate with business on auction.

In addition, it was identified that the main part (70%) of the aforementioned business combinations was related to acquirees located in Estonia. Business combinations in Estonia were disclosed by 5 listed companies: Baltika AS, Merko Ehitus AS, Skano Grupp AS, PRFOODS AS and Nordecon AS. The remained part (30%) of tested business combinations were related to acquirees located in Belarus and Ukraine. Business combinations in those 2 countries occurred in Silvano Fashion Grupp AS and Nordecon AS.

RQ2.2: How changed the number of business combinations with negative goodwill during the tested period?

The author analyzed 10 business combination with negative goodwill. In order to answer to the research question **RQ2.2**, the author prepared the Figure 17 and also the detailed Table 6 presented in the Appendix 5 of this research.

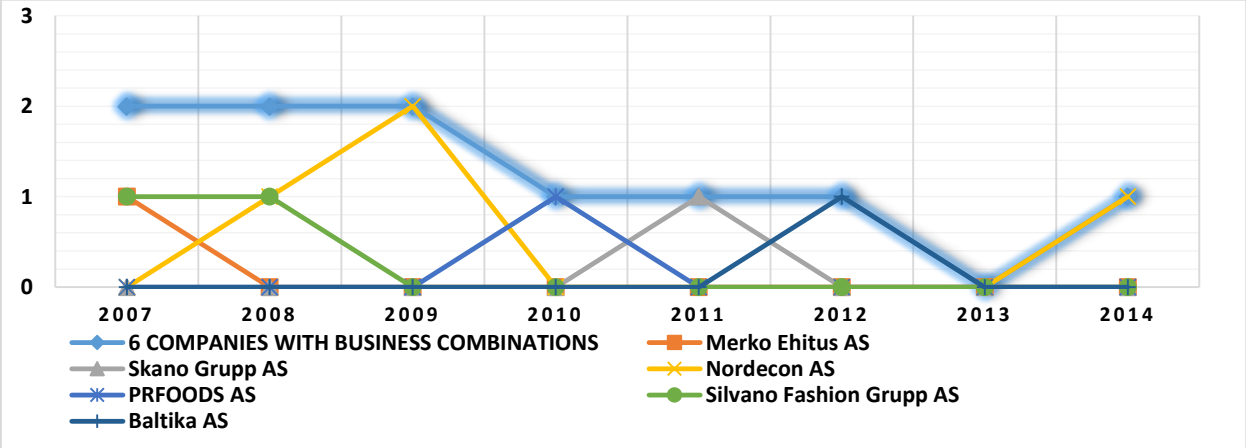


Figure 17. Total number of business combinations with negative goodwill in the period 2007–2014

Source: (Prepared by the author)

Overall, the total number of business combinations with negative goodwill significantly decreased during the period 2007–2014. The main part (60%, 6 out of 10) of tested business combinations occurred in the period 2007–2009, accordingly 2 business combinations each year. After that the number of business combinations per year decreased.

In addition, the author of this thesis analyzed in details 2 key listed companies which presented the main part (60%) from the total number of business combinations in the tested period 2007–2014 (Table 6 in Appendix 5). Details regarding those 2 companies are presented below.

Nordecon AS – in the tested period this company disclosed 4 business combinations (40%) with negative goodwill. The main part, 3 business combinations out of 4, occurred in the period 2008–2009. The remained 1 business combination was disclosed in 2014. The number of business combinations of this company significantly decreased during the tested period.

Silvano Fashion Grupp AS had 2 (20%) business combinations in the tested period. Those business combinations occurred in the period 2007–2008. There were no any new business combinations with negative goodwill disclosed in the financial statements in the period 2009–2014.

The detailed empirical data regarding each company and business combination with negative goodwill in the tested period are disclosed accordingly in Appendices 7 and 8 of this research.

Furthermore, the author of this thesis also analyzed total amounts of assets acquired in business combinations in the tested period. The detailed analysis is performed in the following section of this research.

RQ2.3: What are the total amount of negative goodwill, and also intangible assets identified in business combinations, and how it is changed during the tested period?

In order to answer to the first part of the research question **RQ2.3** related to negative goodwill, the author prepared the Figure 19 and also the detailed Table 7 presented in the Appendix 5 of this research. From the Figure 19 and Table 7 was excluded Baltika AS 2012-year business combination with negative goodwill, because the cost of acquisition and negative goodwill of this business combination were not disclosed in the financial statements. This business combination of Baltika AS was tested separately. In the aforementioned Figure 19 and Table 7 were analyzed 5 remained sampled companies.

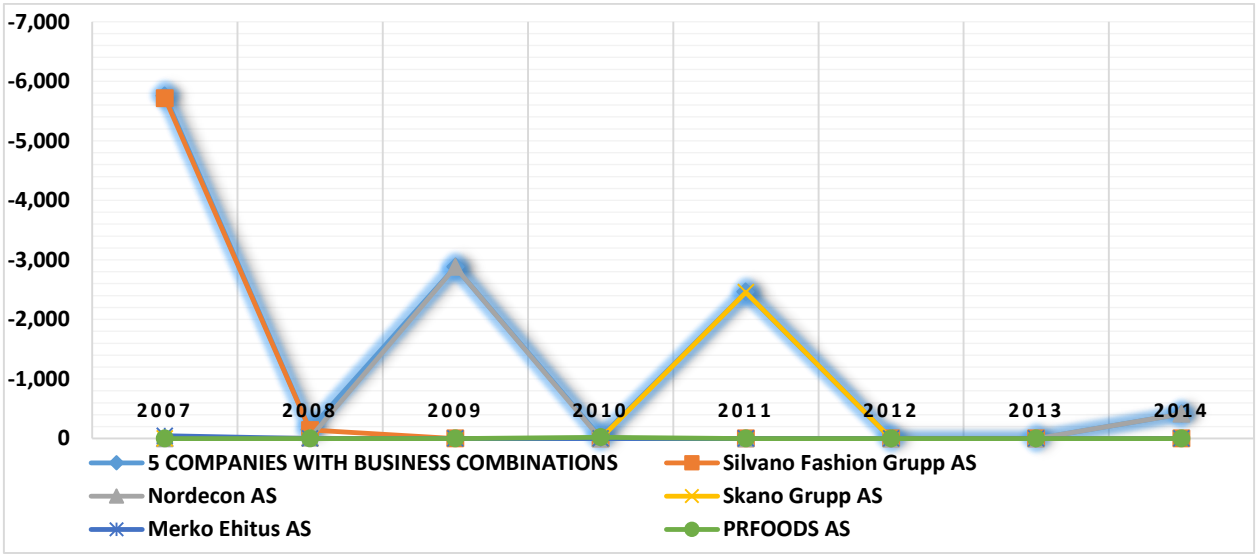


Figure 19. Total amount of negative goodwill (TEUR) in business combinations in the period 2007–2014

Source: (Prepared by the author)

Overall, the total amount of negative goodwill identified in business combinations significantly decreased during the period 2007–2014. The total amount of negative goodwill identified in business combinations in the tested period was 11,865 TEUR. The main part, 5,761 TEUR (49%), was identified in 2007. However, in the year of the financial crisis, 2008, negative goodwill significantly decreased achieving 153 TEUR. In the period 2009–2011 was recognized negative goodwill 5,357 TEUR (46%). In the period 2012–2014 identified negative goodwill amounted only to 414 TEUR (3.5%).

In addition, the author of this thesis analyzed in details 3 key listed companies with the most significant amounts of negative goodwill in the tested period. Those 3 companies had 11,618 TEUR (99%) from the total amount of negative goodwill (11,685 TEUR) in business combinations in the tested period 2007–2014 (Table 7 in Appendix 5). Furthermore, 2 key companies with the number of business combinations tested in the prior section had also the significant value of negative goodwill: Silvano Fashion Grupp AS and Nordecon AS. The remained key company with the significant amount of negative goodwill is PRFOODS AS. Details regarding those 3 key companies are presented below.

Silvano Fashion Grupp AS – in the tested period this company had 5,858 TEUR (50%) from the total negative goodwill. The main part of this goodwill, 5,715 TEUR, was disclosed in 2007, before the global financial crisis was started. This goodwill was related to the acquisition of the subsidiary SP ZAO Milavitsa in Belarus. The remained part of negative goodwill, 143 TEUR, was disclosed in 2008. In general, the amount of negative goodwill identified in business combinations of this company significantly decreased during the tested period.

Nordecon AS had 3,305 TEUR (28%) from the total negative goodwill in the tested period. The main part, 2 881 TEUR, was disclosed in 2009 a result of the acquisition of NCI 46% in the company Eston Ehitus AS in Estonia, hence achieving 98% of controlling interest in the subsidiary after the acquisition. The other part of negative goodwill, 414 TEUR, was recognized in 2014 as a result of the acquisition of NCI 18% in the company Eurocon OU in Estonia, hence achieving 96% of controlling interest in the subsidiary after the acquisition. In the case of Nordecon AS the author reached the same conclusion as for Silvano Fashion Grupp AS mentioned above.

Skano Grupp AS had 2,455 TEUR (21%) from the total negative goodwill. The aforementioned goodwill was recognized in 2011. This goodwill was related to the acquisition of the bankruptcy estate (factory) with entire business on auction. In this case acquired assets of the factory were mainly fixed assets (such as production line and real estate). Valuation of the production line was performed by the external consulting company Poyry Management Consulting OY. Real estate was valued by the real estate company Uus Maa. As a result of the valuation, it was identified the bargain purchase. There was no any negative goodwill recognized in business combinations in other tested years.

In addition, **Baltika AS** 2012-year business combination with negative goodwill was tested separately in this section, as mentioned above. In 2012 Baltika AS signed agreements for the acquisition of 7 operating stores under Bastion trademark. According to those agreements it was decided not to disclose the total cost of acquisition and hence negative goodwill identified.

In order to answer to the second part of the research question **RQ2.3** related to identifiable intangible assets, the author of this thesis continued analyzing 10 business combinations with negative goodwill. The author identified that only 1 business combination with negative goodwill

had disclosed identifiable intangible assets in the tested period (such as Baltika AS 2012-year business combination mentioned above). In the financial statements of Baltika AS were disclosed identifiable intangible assets amounted to 709 TEUR. The main part, 600 TEUR, were marketing related intangible assets, such as trademarks. The remained part, 109 TEUR, were purchased contract-base intangible assets, such as licenses. There were no any intangible assets identified in business combinations with negative goodwill in other tested years.

Hypothesis H1 confirmation or rejection

The detailed analysis in the sections above related to research questions **RQ2.2** and **RQ2.3** confirms the hypothesis **H1** of this research that the number of business combinations, respectively the amount of negative goodwill significantly decreased after the global financial crisis in 2008. In the case of business combinations with negative goodwill, the author excluded from this hypothesis the statement related to the total cost of acquisition and identifiable intangible assets. This statement was tested in details only in the case of business combinations with positive goodwill in the section 2.2.2.1 above.

2.2.3. SUBSEQUENT IMPAIRMENT TESTING OF GOODWILL AND CASH-GENERATING UNITS

In the third part of the empirical research the author performs the detailed analysis related to subsequent impairment testing of positive goodwill. The author analyzes the relation between levels and numbers of CGUs and the amount of goodwill impairments. In addition, the author evaluates the usage of FVLCS or VIU methods for subsequent impairment testing of goodwill. Furthermore, the author investigates which main input factors (such as future cash flow projections and discount rates) used in the DCF model for determination of VIU by listed companies on the NASDAQ Tallinn stock exchange in the tested period. This detailed analysis is performed in order to answer to the research questions **RQ3.1**–**RQ3.4** and test hypotheses **H3** and **H4** disclosed in the introduction of this study.

RQ3.1: What is the total value of goodwill impairment, and how it is changed during the tested period?

The author analyzed 9 listed companies with goodwill impairments. In order to answer to the research question **RQ3.1** and test the hypothesis **H3** of this research, the author prepared the Figure 20 and also the detailed Table 8 presented in the Appendix 9 of this research.

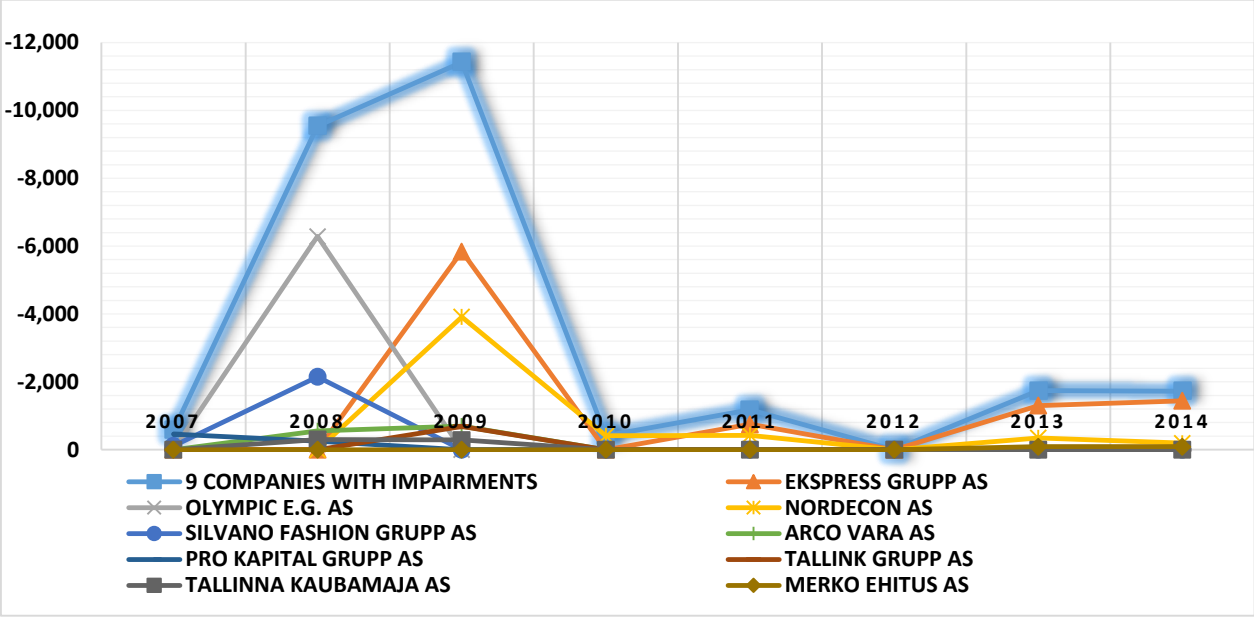


Figure 21. The total amount of goodwill impairment (TEUR) in the period 2007–2014

Source: (Prepared by the author)

Overall, the total amount of goodwill impairment significantly decreased during the tested period. The main decrease was taken place in the period 2009–2010. The total amount of goodwill impairment in the period 2007–2014 was 26,585 TEUR. The main part, 20,694 TEUR (79%), was identified in the period 2008–2009. Goodwill impairment was made in the case of 9 out of 12 listed companies with positive goodwill in the tested period.

In addition, the author of this thesis analyzed in details 4 key listed companies with the most significant amounts of goodwill impairments in the tested period. Those 4 companies had 23,177 TEUR (88%) from the total amount of goodwill impairments (26,585 TEUR) in the tested period (Table 8 in Appendix 9). Furthermore, 3 key companies, with the larger number of business

combinations and significant amounts of positive goodwill tested in the section 2.2.2.1 above, had also significant goodwill impairments in the tested period: Ekspress Grupp AS, Olympic E.G. AS and Nordecon AS. The remained key company with a significant amount of goodwill impairments was Silvano Fashion Grupp AS. Details regarding those 4 key companies are presented below.

Ekspress Grupp AS – in the tested period this company had 9,338 TEUR (35%) from the total goodwill impairment. The main part, 5,844 TEUR, was disclosed in 2009. This goodwill impairment was related to the impairment of Delfi Group CGUs, respectively 528 TEUR in the subsidiary in Estonia and 5,316 TEUR in the subsidiary in Latvia. Based on the financial statements of Ekspress Grupp AS, the reasons for this impairment were worsened economic conditions due to the financial crisis. In addition, in 2011 was made the impairment of goodwill in 3 CGUs on a legal entity level in Estonia, Latvia and Lithuania in the total amount 750 TEUR. The remained goodwill impairment, 2,744 TEUR, was disclosed in the period 2013–2014. In 2013 was impaired goodwill allocated to 2 CGUs on a legal entity level in Estonia and Lithuania. In 2014 was impaired goodwill allocated to 1 CGU (subsidiary in Latvia). Overall, in the case of this company the amount of goodwill impairments significantly decreased during the tested period.

Olympic E.G. AS had 6,287 TEUR (24%) from the total goodwill impairment in the tested period. The aforementioned goodwill impairment was recognized in 2008 in legal entities in Ukraine and Romania. Based on the financial statements of Olympic E.G. AS, the reasons for this impairment were worsened economic conditions due to the financial crisis. There were no any goodwill impairments made in the period 2009–2014. In the case of Olympic E.G. AS the author derived the same conclusion as for Ekspress Grupp AS mentioned above.

Nordecon AS had 5,288 TEUR (20%) from the total goodwill impairment in the tested period. The main part, 3,912 TEUR, was disclosed in 2009 as a result of goodwill impairment in 3 CGUs on a legal entity level in Estonia and Latvia. Based on the financial statements of Nordecon AS, the reasons for the impairment were worsened economic environment and decreased profitability in the field of utility networks' construction in subsidiaries in Latvia, also worsened economic conditions on the construction market and decreased operating cash flows in subsidiaries in Estonia. In addition, in the period 2010–2011 was made the impairment of goodwill of CGUs on a legal entity level in Estonia and Latvia in the total amount 836 TEUR. The remained goodwill

impairment, 540 TEUR, was disclosed in the period 2013–2014. In 2013 was impaired goodwill allocated to 1 CGU (subsidiary in Estonia). In 2014 was impaired goodwill allocated to 2 CGUs on a legal entity level in Estonia and Lithuania. In the case of Nordecon AS the conclusion is also the same as stated for Ekspress Grupp AS.

Silvano Fashion Grupp AS had in total 2,264 TEUR (9%) from the total goodwill impairment in the tested period. The main part, 2,149 TEUR, was disclosed in 2008 as a result of goodwill impairment in 2 CGUs on a legal entity level in Belarus and Lithuania. In Belarus was impaired goodwill 1,417 TEUR of the new business combination France Style Lingerie s.a.r.l subsidiary "Torgovaja Kompanija Milavitsa". In Lithuania was impaired goodwill 732 TEUR of the subsidiary Linret LT UAB. There were no any goodwill impairments made in the period 2010–2014.

Hypothesis H3 confirmation or rejection

The detailed analysis in the section above related to the research question **RQ3.1** confirms the hypothesis **H3** of this research that the amount of goodwill impairments significantly decreased after the global financial crisis in 2008.

RQ3.2: What is the relation between the level and number of cash-generating units and the amount of goodwill impairments?

In order to answer to the research question **RQ3.2** and test the hypothesis **H4** of this research, the author of this thesis performs the detailed analysis below. First of all, it was analyzed the relation between the number of CGUs and the amount of goodwill impairments. Then was also evaluated the relation between the level of CGUs and the amount of goodwill impairments. Finally, was made conclusion whether the hypothesis **H4** is confirmed or rejected.

Relation between the number of CGUs and the amount of goodwill impairments

In order to answer to the research question mentioned above and test the first part of the hypothesis **H4** related to the number of CGUs, the author analyzed how many CGUs had listed companies with positive goodwill in the period 2007–2014, and then evaluated the relation between the number of CGUs and the amount of goodwill impairments.

During analyzing of 12 companies with positive goodwill, were identified the following numbers of CGUs in the tested companies (Tables 9 and 10 in Appendix 9):

- In the tested period in average 5–6 listed companies allocated goodwill to 1–3 CGUs. Companies with consistent number of CGUs in this range were Tallink Grupp AS, Merko Ehitus AS, Tallinna Kaubamaja AS, Silvano Fashion Grupp AS and Baltika AS;
- The number of companies with 4–7 CGUs significantly increased after 2011. In the period 2007–2010 there was in average only 1 company per year with 4–7 CGUs. However, the number of companies with CGUs in this range increased to 3 in the period 2011–2014;
- In the period 2007–2010 in average 2–3 listed companies allocated goodwill to 8–10 CGUs. Those companies were Nordecon AS, Olympic E.G. AS and Ekspress Grupp AS. After 2010 there were no companies with CGUs in this range;
- In the case of 2 companies no disclosures regarding GGUs were provided. Pro Kapital Grupp AS did not dislose any information during the entire tested period. Arco Vara AS did not disclose the relevant information in 2009;
- In average 2–3 companies did not reguire to disclose the information related to CGUs, as those companies did not have any goodwill in the tested period.

In order to analyze the relation between the number of CGUs and the amount of goodwill impairments in the tested period, the author of this thesis prepared the Table 11 presented in the Appendix 9 of this research. During the detailed analysis, the following relations between the number of CGUs and the amount of goodwill impairments were identified:

- The main part of goodwill impairments, 16,454 TEUR (62%), was identified in companies with the number of CGUs in the range 8–10 in the period 2008–2010. Those companies were Nordecon AS, Olympic E.G. AS and Ekspress Grupp AS;
- In addition, 4,459 TEUR (17%) of goodwill impairment was identified in companies with 4–7 CGUs in the tested period;
- In total 4,268 TEUR (16%) of goodwill impairment was recognized in companies with 1–3 CGUs in the tested period;

- Furthermore, 1,404 TEUR (5%) of goodwill impairment was recognized in the period 2007–2009 without any information regarding CGUs. The detailed analysis of disclosures is performed separately in the section 2.2.4 of this research.

Overall, the detailed analysis above confirms the first part of the hypothesis **H4** that companies with more numerous CGUs perform more impairment tests and, as a result identify more impairment losses. However, in this case it also important to take into account that the main part of such impairments was recognized in the period 2008–2009 related to the global financial crisis.

Relation between the level of CGUs and the amount of goodwill impairments

In order to answer to the research question mentioned above and test the second part of the hypothesis **H4** related to the level of CGUs, the author analyzed CGUs on which levels had listed companies with positive goodwill in the period 2007–2014, and then evaluated the relation between the level of CGUs and the amount of goodwill impairments.

During analyzing of 12 companies with positive goodwill, were identified the following levels of CGUs in the tested companies (Table 12 in Appendix 9):

- In the tested period in average 5–6 listed companies used CGUs on the level of a legal entity that was generally lower than the operating segment. Companies who used consistently this level of CGUs were Nordecon AS, Ekspress Grupp AS, Merko Ehitus AS, Silvano Fashion Grupp AS, PRFOODS AS and Harju Elekter AS;
- In average 2–3 companies used CGUs on the level of operating segments in the tested period. The key companies used this level of CGUs were Tallink Grupp AS and Arco Vara AS;
- In the case of 2 companies no disclosures regarding GGUs were provided. Pro Kapital Grupp AS did not dislose any information during the entire tested period. Arco Vara AS did not disclose the relevant information in 2009;
- In average 2–3 companies did not reguire to disclose the information related to CGUs, as those companies did not have any goodwill in the tested period.

Furthermore, before analyzing the relation between the level of CGUs and the amount of goodwill impairments, it is important to understand whether companies changed the level of CGUs in the tested period. The author identified that 2 companies (Olympic E.G. AS and Tallinna Kaubamaja AS) changed the level of CGUs in the period 2008–2009.

Tallinna Kaubamaja AS changed the level of CGUs in 2008 from the legal entity to the operating segment level. In 2007 applied CGU was one legal entity in Estonia (KIA Auto AS). In 2008 Tallinna Kaubamaja AS used 2 CGUs on the level of operating segments – car trade segment (incl. one legal entity KIA Auto AS mentioned above) and footwear segment (incl. 4 legal entities Suurtuki SA, Suurtuki NK AS, ABC AS and ABC King SIA).

Olympic E.G. AS changed the level of CGUs in 2009 from the legal entity to the level of geographical locations. As a result, the number of CGUs significantly decreased – from 8 legal entities in the period 2007–2008 to 3–4 geographical locations in the period 2010–2014.

The details regarding CGUs in the listed companies in the tested period are disclosed in the Appendix 10 of this research.

In order to analyze the relation between the level of CGUs and the amount of goodwill impairments in the tested period, the author of this thesis prepared the Table 13 presented in the Appendix 9 of this research. During the detailed analysis, the following relations between the level of CGUs and the amount of goodwill impairments were identified:

- The main part of goodwill impairments, 23,355 TEUR (88%), was identified in companies with CGUs on the level of a legal entity. In total, 18,192 TEUR of it, was disclosed in the period 2008–2009;
- In addition, 1,826 TEUR (7%) of goodwill impairment was recognized in companies with CGUs on the level of operating segments. The entire amount was dislosed in the period 2008–2009;
- In total, 1,404 TEUR (5%) of goodwill impairment was recognized in the period 2007–2009 without any information regarding CGUs. The detailed analysis of disclosures is performed separately in the section 2.2.4 of this research;

- No any goodwill impairments were made in the companies which used CGUs on the level of geographical locations (operating segment).

Furthermore, the relation between the level of CGUs and the amount of goodwill impairments was analyzed in more details in the case of 2 aforementioned companies (Olympic E.G. AS and Tallinna Kaubamaja AS) where changes were taken place on the level of CGUs in the tested period.

Tallinna Kaubamaja AS – in 2007 this company used the level of a legal entity as a CGU. In 2008 the company changed a CGU to the level of a car trade operating segment, which included only one legal entity already used as a CGU in 2007. As a result, there was no any impact of this change in CGU levels in 2008.

Olympic E.G. AS – in the case of this company the entire amount of goodwill impairment, 6,287 TEUR, was identified in 2008, when CGUs were on the level of a legal entity that is lower than the operating segment. However, after changing the level of CGUs in 2009 from a legal entity to a larger level such as geographical locations (operating segment), no any goodwill impairments were identified in the following period 2009–2014. Hence, in the case of Olympic E.G. AS there was a significant impact of this change in CGU levels on the recognition of goodwill impairments.

Overall, the detailed analysis above confirms the second part of the hypothesis **H4** that companies with CGUs on a lower level (such as a legal entity) perform more impairment tests and, as a result identify more impairment losses. However, in this case it also important to take into account that the main part of such impairments was recognized in the period 2008–2009 related to the global financial crisis.

Hypothesis H4 confirmation or rejection

The detailed analysis in the section above related to the research question **RQ3.2** confirms the hypothesis **H4** of this research that if companies allocate goodwill to smaller and/or more numerous CGUs, they perform more impairment tests and, as a result identify more impairment losses.

RQ3.3: Which valuation concepts and models are used for subsequent impairment testing of goodwill?

The author analyzed 12 companies with positive goodwill. In order to answer to the research question **RQ3.3**, the author prepared the detailed Table 14 presented in the Appendix 9 of this research.

Overall, the main part, in average 6–8 listed companies, were using consistently the VIU method in the tested period. Only one listed company (PRFOODS AS) was consistently using the FVCLS method for subsequent impairment testing of goodwill. In addition, in the case of 1 company (Pro Kapital Grupp AS) no disclosures regarding methods used were provided in the tested period. Furthermore, in average 2–3 companies did not reguire to disclose the information related to valuation methods used, as those companies did not have any goodwill in the tested period.

The details regarding valuation methods used by the listed companies in the tested period are disclosed in Appendix 11 of this research.

RQ3.4: Which main input factors (such as future cash flows projections and discount rates), are used in Discounted Cash Flow model for determination of Value in Use?

In order to answer to the research question **RQ3.4**, the author of this thesis performs the detailed analysis below. The details regarding main input factors used by the listed companies in the DCF model for determination of VIU in the tested period are disclosed in Appendix 12 of this research.

Future cash flow projections

The author prepared the Table 15 in the Appendix 9 in order to analyze which future cash flows projections were used in the DCF model for determination of VIU in sampled companies in the period 2007–2014. During analyzing of 10 companies which used the DCF model for determination of VIU (excl. PRFOODS AS which used the FVLCS method, and Pro Kapital Grupp AS without relevant disclosures) it was identified the following that the main part, in average 5–7

listed companies, were using consistently 5 years' future cash flow projections plus a terminal year. In addition, 3 companies were using 4 years' future cash flow projections plus a terminal year in the certain years. Those 3 companies were Nordecon AS (2010–2014), Silvano Fashion Grupp AS (2007–2008) and Tallink Grupp AS (2008). Furthermore, 1 company Nordecon AS used 3 years' future cash flow projections plus a terminal year in the period 2007–2009. In the case of 2 companies no disclosures regarding future cash flows projections were provided in the tested period. Tallink Grupp AS did not disclose any information in the period 2009–2010. Arco Vara AS did not disclose the relevant information in 2009.

Discount rates

The author prepared Tables 16 and 17 in the Appendix 9 in order to analyze which discount rates were used in the DCF model for determination of VIU in sampled companies in the period 2007–2014. During analyzing of 10 companies which used the DCF model for determination of VIU it was identified that the main part, in average 7–8 listed companies, were using consistently the discount rate WACC in the tested period. In addition, in average 5–6 companies were using pre-tax WACC. In the case of 2–3 companies no disclosures regarding discount rates and WACC basis were provided in the certain years. Those companies were Ekspress Grupp AS (2007–2014), Arco Vara AS (2007–2009) and Merko Ehitus AS (2009–2014).

Furthermore, the author also analyzed discount rate percentages in listed companies (Table 18 in Appendix 9). The author of this thesis evaluated separately periods 2007–2009 and 2010–2014.

In the period 2007–2009 the most common discount rates used by companies were in the range 11%–15% (in average applied by 5–6 companies). In average 1–2 companies (Baltika AS and Tallink AS) were using discount rates in the range 6%–10%. Furthermore, in average 2–3 companies (Olympic E.G. AS, Silvano Fashion Grupp AS and Tallinna Kaubamaja AS) used discount rates in the range 16%–21%.

In the period 2010–2014 the most common discount rates used by companies were lower – in the range 6%–10% (in average applied by 3–6 companies). Discount rates in the range 11%–

15% were used only in average by 2–4 companies. Furthermore, discount rates larger than 15% were not used by companies in that period.

2.2.4. DISCLOSURES

In the fourth part of the empirical research the author performs the detailed analysis related to disclosure requirements according to IFRS 3 and IAS 36 in order to answer to the research question **RQ4.1** and test the hypothesis **H5** disclosed in the introduction of this study. In order to perform the detailed analysis, the author evaluates disclosures related to 58 business combinations with positive goodwill and/or identifiable intangible assets plus 7 business combinations without significant disclosures, and also 10 business combinations with negative goodwill. Details related to the sample selection are presented in the section 2.2.2 above, and the detailed analysis is performed in the sections 2.2.4.1 and 2.2.4.2 below.

2.2.4.1. IFRS 3 disclosures

In the section below and in Tables 19–29 in the Appendix 13 of this research were disclosed analysis and conclusions related to disclosure requirements under IFRS 3 *Business Combinations*. The relevant disclosure requirements a)–h) were presented in the section 1.3.1 above.

Hypothesis H5 confirmation or rejection

The detailed analysis of IFRS 3 disclosure requirements confirms only partially the first part of the hypothesis **H5** of this research that listed companies on the NASDAQ Tallinn stock exchange in the tested period 2007–2014 comply significantly with IFRS 3 requirements. In the case of each tested disclosure requirement there were companies that did not fulfill the relevant requirement or fulfilled it partially. Details regarding business combinations with positive goodwill and/or identifiable intangible assets, and also negative goodwill are presented below.

Business combinations with positive goodwill and/or identifiable intangible assets

Overall, IFRS 3 disclosure requirements a), b), c), d), f) and h) (6 disclosure requirements out of 8 tested) were fully or significantly fulfilled in the case of business combinations with positive goodwill and/or identifiable intangible assets in the period 2007–2014. However, there are two disclosure requirements e) and g) that were not fulfilled or were fulfilled partially.

Disclosure requirement e) was not fulfilled in the case of 45 out of 65 business combinations in the tested period. Furthermore, no disclosures were in the case of 58,040 TEUR (42%) from the total amount of positive goodwill. In addition, this disclosure requirement was partially fulfilled in the case of 2 out 65 business combinations in the tested period. Partial disclosure was in the case of 17,011 TEUR (12%) from the total amount of positive goodwill.

Disclosure requirement g) was partially fulfilled in the case of 38 out 65 business combinations in the tested period. Partial disclosure was in the case of 53,766 TEUR (39%) from the total amount of positive goodwill.

Business combinations with negative goodwill

IFRS 3 disclosure requirements b), c), d), h) (4 disclosure requirements out of 8 tested) were fully or significantly fulfilled in the case of business combinations with negative goodwill in the period 2007–2014. The disclosure requirement e) was not applicable. However, there are 3 disclosure requirements a), f) and g) that were not fulfilled or were fulfilled partially.

Disclosure requirement a) was not fulfilled in the case of 1 out of 10 business combinations with negative goodwill in the tested period. No disclosure was in the case of 2,455 TEUR (21%) from the total amount of negative goodwill.

Disclosure requirement f) was not fulfilled in the case of 4 out of 10 business combinations with negative goodwill in the tested period. No disclosure was in the case of 9,030 TEUR (77%) from the total amount of negative goodwill.

Disclosure requirement g) was partially fulfilled in the case of 8 out 10 business combinations with negative goodwill in the tested period. Partial disclosure was in the case of 6,350 TEUR (54%) from the total amount of negative goodwill.

2.2.4.2. IAS 36 disclosures

In the section below and in Tables 30–36 in the Appendix 13 of this research were disclosed analysis and conclusions related to disclosure requirements under IAS 36 *Impairment of Assets*. The relevant disclosure requirements a)–h) were presented in the section 1.3.2 above.

Overall, IAS 36 disclosure requirements from a) to h) were not completely fulfilled by listed companies in the tested period. There were in average 1–3 listed companies which did not fulfill the relevant disclosure requirements of fulfilled it partially during the entire tested period.

Hypothesis H5 confirmation or rejection

The detailed analysis of IAS 36 disclosure requirements confirms only partially the second part of the hypothesis **H5** of this research that listed companies on the NASDAQ Tallinn stock exchange in the tested period 2007–2014 comply significantly with IAS 36 requirements. In the case of each tested disclosure requirement there were companies that did not fulfill the relevant requirement or fulfilled it partially.

CONCLUSION

The purpose of this study was to perform the detailed analysis over the implementation of IFRS 3 *Business Combinations* and IAS 36 *Impairment of Assets* by all existing listed companies on the NASDAQ Tallinn stock exchange in the period 2007–2014. The analysis was performed in order to examine trends in business combinations, assess purchase price allocation to goodwill, analyze subsequent impairment testing of goodwill, and also verify compliance with IFRS 3 and IAS disclosure requirements in the tested period.

The chapter one of the thesis provided background to business combinations and goodwill. This chapter focused on the relevant accounting regulations (IFRS 3, IAS 36), treatment and accounting for business combinations, goodwill accounting, purchase price allocation to goodwill and identifiable intangible assets. In addition, were discussed topics related to subsequent impairment testing of goodwill and also disclosure requirements under IFRS 3 and IAS 36. Furthermore, in the chapter one the author provided details regarding the prior studies conducted in the aforementioned fields and also described interrelation of the previous research with this thesis.

The chapter two outlined the research design and methodology used in the research. The author analyzed in details 118 financial statements under IFRS of sampled listed companies in the period 2007–2014 in order to answer to research questions and confirm hypotheses of this thesis. Below is presented the summary of results based on research questions and hypotheses investigated in the empirical section of this study.

During analyzing general trends, it was identified that 12 out of 15 listed companies on the NASDAQ Tallinn stock exchange disclosed positive goodwill in the financial statements in the period 2007–2014. The key 3 companies with the largest proportion of total assets attributed to goodwill were Ekspress Grupp AS, Olympic E.G. AS and PRFOODS AS.

It was also identified that 13 out of aforementioned 15 listed companies had business combinations. During analyzing the financials statements of those companies were identified 79 business combinations in the period 2007–2014 (incl. 58 business combinations with positive

goodwill and/or identifiable intangible assets, 10 business combinations with negative goodwill, 4 business combinations without any goodwill or other intangible assets and 7 business combinations without significant disclosure).

The major part of business combinations with positive goodwill and/or identifiable intangible assets (31 business combinations out of 58 or 53%) were related to the acquisition of the entire business and 100% of subsidiary's shares. Other types were the acquisition of controlling interest (24%), acquisition of NCI (21%) achieving the control in the acquiree, and also the takeover of business (2%). Those business combinations occurred mainly in Baltic states (72%). The remained part of business combinations (28%) occurred in other European countries, also in Russia and Ukraine.

The key 5 companies with significant amounts of positive goodwill in business combinations were Ekspress Grupp AS, Olympic E.G. AS, PRFOODS AS, Nordecon AS and Tallinna Kaubamaja AS. Those companies had 92% from the total amount of positive goodwill in business combinations in the tested period.

The key 4 companies with significant amounts of identifiable intangible assets in business combinations were Ekspress Grupp AS, Tallinna Kaubamaja AS, PRFOODS AS and Olympic E.G. AS. The major part (61%) of total intangible assets identified in business combinations in the tested period were marketing related intangible assets such as trademarks and in-process research and development. Other key types were technology related intangible assets (17%; such as software, licenses and subscription fees) and contract-based intangible assets (12%; such as useful rental agreements).

The major part of business combinations with negative goodwill (5 business combinations out of 10 or 50%) were related to the acquisition of NCI achieving the control in the acquiree. Other types were the acquisition of controlling interest (30%), the acquisition of the entire business (10%) and the acquisition of bankruptcy estate with business on auction (10%). Those business combinations occurred mainly in Estonia (70%), also in Belarus (20%) and Ukraine (10%). The key 2 companies with significant amounts of negative goodwill in business combinations were Nordecon AS and Silvano Fashion Grupp AS. Those companies had 60% from the total amount of

negative goodwill in business combinations in the tested period. In addition, one listed company Baltika AS did not disclose in the financial statements of 2012 the cost of acquisition and hence negative goodwill identified according to the agreements with the contractual party (acquisition of 7 operating stores under Bastion trademark in 2012).

The detailed testing of the hypothesis **H1** provided evidence supporting that the number of business combinations, respectively the amount of cost of acquisition, positive goodwill/negative goodwill and/or identifiable intangible assets significantly decreased after the global financial crisis in 2008. The detailed analysis performed in the empirical section confirmed the hypothesis **H2** partially, because after issuing the revised IFRS 3 and amendments to IAS 38 in July 2009 the identification and measurement of intangible assets improved only in the case of 2 (Ekspress Grupp AS and Tallinna Kaubamaja AS) out of 4 key companies tested.

During analyzing of 12 listed companies with positive goodwill, it was identified that goodwill impairments were made in the case of 9 out of those 12 companies. The key 4 companies with significant amounts of goodwill impairment in the tested period were Ekspress Grupp AS, Olympic E.G. AS, Nordecon AS and Silvano Fashion Grupp AS. Those companies had 88% from the total amount of goodwill impairments in the tested period.

The detailed testing of the hypothesis **H3** provided evidence supporting that the amount of goodwill impairments significantly decreased after the global financial crisis in 2008. Furthermore, it was confirmed the hypothesis **H4** that if companies allocate goodwill to more numerous CGUs and/or to CGUs on a lower level (such as a legal entity), they perform more impairment tests and, as a result identify more impairment losses. However, in this particular research it is also important to take into account that the main part of such impairments was recognized in the period 2008–2009 related to the global financial crisis.

During analyzing of 12 listed companies with positive goodwill, it was also identified that the major part of companies was consistently using the VIU method for subsequent impairment testing of goodwill in the tested period. Only one company PRFOODS AS was consistently using the FVLCS method. In the case of one company Pro Kapital Grupp AS no disclosures regarding methods used were provided. In addition, the main part of companies, which used the DCF model

for determination of VIU, were consistently using in the tested period 4 or 5 years' future cash flows projections plus a terminal year. Furthermore, major part of those companies were consistently using pre-tax WACC as a discount rate. However, no proper disclosures regarding discount rates and WACC basis were provided in the certain years in average in the case of 2–3 companies (Ekspress Grupp AS, Arco Vara AS and Merko Ehitus AS). In the period 2007–2009 the most common discount rates used by companies were in the range 11%–15%. However, after 2009 the most common discount rates became lower, respectively in the range 6%–10%.

The empirical research confirmed the hypothesis **H5** only partially that listed companies on the NASDAQ Tallinn stock exchange in the tested period 2007–2014 comply significantly with IFRS 3 and IAS 36 disclosure requirements. In the case of some tested disclosure requirements there were companies that did not fulfill the relevant requirements or fulfilled it partially.

The results of this study contribute to the field by providing more information about business combinations, goodwill, its subsequent impairment testing and the relevant disclosures in the financial statements. The author's suggestion for further research is further examination of accounting practices related to goodwill, its subsequent impairment testing and the relevant disclosures. The author recommends to extend the testing period of this research and analyze listed companies on the NASDAQ Tallinn stock exchange in more details. It might be interesting to perform the similar research with a larger number of observations, and assess how the situation would be improved taking into account the results of this thesis.

In addition, the author would suggest to perform further studies to investigate research questions and hypotheses of this thesis on the example of other stock exchanges. It would be interesting to see whether any differences exist depending on the market place and applied standards.

REFERENCES

Alexander, D., Britton A., Jorissen, A. (2009) International Financial Reporting and Analysis. 4th Edition. Andover: Cengage Learning EMEA.

Baboukardos, D., Rimmel, G. (2014) Goodwill under IFRS: Relevance and disclosures in an unfavorable environment. – *Accounting Forum*, March 2014. Vol. 38(1): pp 1-17.

Bloom, M. (2008) Double Accounting for Goodwill. A problem redefined. New York: Routledge.

Camodeca, R., Almici, A., Bernardi, M. (2013) Goodwill impairment testing under IFRS before and after the financial crisis: evidence from the UK large listed companies. – *Problems and Perspectives in Management*, 2013. Vol. 11(3): pp 17-23.

Catty, J. P. (2010) Guide to Fair Value under IFRS. New Jersey: John Willey and Sons, Inc.

Dvorakova, D. (2009) Historical Costs versus Fair Value Measurement in Financial Accounting. – *European* Financial *and Accounting Journal*, 2009. Vol. 3(1): pp 6-18.

Dvorakova, D. (2011) Fair Value Measurement in Financial Reporting. – *European Financial and Accounting Journal*, 2011. Vol. 6(1): pp 60-75.

Duff & Phelps (2013) 2013 European Goodwill Impairment Study. Link: http://www.duffandphelps.com/expertise/publications/Pages/ResearchReportsDetail.aspx?itemid=93&list=ResearchReports

Elliott B., Elliot, J. (2013) Financial Accounting and Reporting. 16th Edition. Edinburgh: Pearson Education Limited.

Enahoro, J. A., Jayeoba, J. (2013) Value Measurement and Disclosures in Fair Value Accounting. - *Asian Economic and Financial Review*, 2013. Vol. 3(9): pp 1770-1179.

European Securities and Markets Authority (ESMA) (2014) ESMA Report. Review on the application of accounting requirements for business combinations in IFRS financial statements. Link: https://www.esma.europa.eu/pl/system/files/2014-643_esma_report_on_the_ifrs_3.pdf

European Financial Reporting Advisory Group (EFRAG) (2008) IFRS 3- Business Combinations Phase II. Link: http://www.efrag.org/Front/p17-8-272/IFRS-3---Business-Combinations-Phase-II.aspx

Grüber, S. (2015) Intangible Values in Financial Accounting and Reporting. An Analysis from the Perspective of Financial Analysts. Wiesbaden: Springer Gabler

Gole, W. J., Hilger, P. J. (2009) Due Diligence. An M&A Value Creation Approach. New Jersey: John Willey and Sons, Inc.

Hartwell C. Herring III (2003) Business Combinations & International Accounting. Mason: Thomson Learning, South-Western.

Hassan, I., Ghauri, P. (2014) Evaluation Companies for Mergers and Acquisitions. Bingley: Emerald Group Publishing Limited.

IFBC AG (2012) Purchase price allocation according to IFRS 3 – main challenges. – White Paper, January 2012. Vol. 18. Link: http://www.ifbc.ch/tl_files/content/file/publikationen/Whitepaper/WP_18_Purchase%20price%20allocation%20IFRS3.pdf

Intangible Business (2008) International IFRS 3. An Analysis of the International Application of IFRS 3, Business Combinations. Link: http://www.intangiblebusiness.com/reports/international-ifrs-3/1175

International Accounting Standards Board (IASB) (2008) Business Combinations Phase II. Project summary, feedback and effect analysis. London: International Accounting Standards Committee Foundation (IASCF). Link: http://www.ifrs.org/Current-Projects/IASB-Projects/Business-Combinations/Documents/BusComb_Effects.pdf

International Accounting Standard (IAS) 36 – Impairment of Assets.

International Financial Reporting Standard (IFRS) 3 – Business Combinations.

International Financial Reporting Standard (IFRS) 8 – Operating Segments.

International Financial Reporting Standard (IFRS) 13 – Fair Value Measurement.

Jamaliah, A. M. (2013) Accounting choices relating to goodwill impairment: Evidence from Malaysia. PhD thesis. Adam smith Business School. College of Social Sciences. University of Glasgow.

Johansson, A., Wiklund, E. (2013) Firms' Behavior Regarding Impairment of Goodwill. Earnings Management & Big Bath Accounting. School of Business Economics and Law. Göteborg University.

Kalinowski, T. B. (2011) Business Process Maturity Assessment – Concept, Methods and Tools. – *Acta Universitatis Lodziensis*, *Folia Oeconomica*, 2011. Vol. 257: pp 229-240.

Kuna, C., Jude, F., Kenneth, E. N. (2005) Goodwill Accounting – An Examination of its Impacts on Mergers and Acquisition Decisions. International Accounting Master Thesis No 2005:24. School of Business Economics and Law. Göteborg University.

Laux, C., Leuz, C. (2009) The Crisis of Fair Value Accounting: Making Sense of the Recent Debate. The Center for Financial Studies Working Paper No. 2009/09.

Long, Y. (2005) Essays on SFAS 142: Adoption Timing Motives, Marker Reaction and Relation between Impairment and Overpayment in Acquisitions. Ann Arbor: ProQuest Information and Learning Company.

Lubbe, I., Modack, G., Watson, A. (2014) Financial Accounting. IFRS Principles. 4th Edition. Cape Town: Oxford University Press Southern Africa (Pty) Limited.

Manzin, M., Jerman, M. (2008) Accounting Treatment of Goodwill in IFRS and US GAAP. – *Organizacija*, November-December 2008. Vol. 41(6): pp 218-225.

Mard, M. J., Hitcher, J. R., Hyden, S. D. (2011) Valuation for Financial Reporting. Fair Value, Business Combinations, Intangible Assets, Goodwill, and Impairment Analysis. 3rd Edition. New Jersey: John Willey and Sons, Inc.

Qasim, A., Haddad, A. E., AbuGhazaleh, N. M. (2013) Goodwill Accounting in the United Kingdom: The Effect of International Financial Reporting Standards. – *Review of Business and Finance Studies*, 2013. Vol. 4(1): pp 63-78.

Rankine, D., Bomer, M., Stedman, G. (2003) Due Diligence. Definitive steps to successful business combinations. London: Pearson Education Limited.

Seetharaman, A., Balachandran, M., Saravanan, A. S. (2000) Accounting treatment of goodwill: yesterday, today and tomorrow. Problems and prospects in the international perspective. – *Journal of Intellectual Capital*, 2000. Vol. 5(1): pp 131-152.

Singh, J. P., Uzma, S. H. (2011) Fair value accounting: virtues and vices. – *International Journal of Managerial and Financial Accounting*, 2011. Vol. 3(2): pp 113-126.

Statement of Financial Accounting Standards (SFAS) 141 – Business Combinations.

Statement of Financial Accounting Standards (SFAS) 142 – Goodwill and Other Intangible Assets.

Statement of Financial Accounting Standards (SFAS) 157 – Fair Value Measurements.

Talviste, R (2014) The development of the concept of goodwill and its recognition in the annual report of Estonian companies during 2004-2013 (an IFRS 3 approach). Master Thesis. Tallinn University of Technology. Link: http://digi.lib.ttu.ee/i/?2400

Tran, D. M. (2011) Goodwill Impairment: The Case of Hong Kong. PhD thesis. Macquarie Graduate School of Management. Macquarie University.

Zanoni, A. B. (2009) Accounting for Goodwill. New York: Routledge.

Zyla, M. L. (2013) Fair Value Measurement. Practical Guidance and Implementation. 2nd Edition. New Jersey: John Willey and Sons, Inc.

Zülch, H., Detzen, D., Wünsch, M., Wulf, T., Meisser, P. (2013) The benefits of a pre-deal purchase price allocation for acquisition decisions: an exploratory analysis. – *Problems and Perspectives in Management*, 2013. Vol. 11(1): pp 59-68.

APPENDICES

Appendix 1. The sample of listed companies on the NASDAQ Tallinn Stock Exchange for the empirical research

Company name	No. of tested financial statements	Period
ARCO VARA AS	8	2007–2014
BALTIKA AS	8	2007–2014
EKSPRESS GRUPP AS	8	2007–2014
HARJU ELEKTER AS	8	2007–2014
MERKO EHITUS AS	8	2007–2014
NORDECON AS (PRIOR NAME EESTI EHITUS AS)	8	2007–2014
OLYMPIC E.G. AS	8	2007–2014
PRFOODS AS (PRIOR NAME PREEMIA FOODS AS)	6	2008–2014. The proforma report was made in 2008. Figures for the period 2008–2009 were taken from the audited financial statements of 2009.
PRO KAPITAL GRUPP AS	8	2007–2014
SILVANO FASHION GRUPP AS	8	2007–2014
SKANO GROUP AS (PRIOR NAME VIISNURK AS)	8	2007–2014
TALLINK GRUPP AS	8	2007–2014
TALLINNA KAUBAMAJA AS	8	2007–2014
TALLINNA VESI AS	8	2007–2014
TRIGON PROPERTY DEVELOPMENT AS	8	2007–2014
Total sample	**118**	

Source: (Prepared by the author)

Appendix 2. The proportion of total assets attributed to goodwill in the period 2007–2014

CRITERIA TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	Average %
12 COMPANIES WITH GOODWILL									
Total assets	3,288,260	3,526,817	3,390,820	3,288,142	2,960,219	2,909,483	2,948,788	2,930,748	
Total goodwill	126,549	137,895	122,424	123,874	123,332	126,094	128,739	119,013	
% of total goodwill from total assets	*3.85%*	*3.91%*	*3.61%*	*3.77%*	*4.17%*	*4.33%*	*4.37%*	*4.06%*	*4.01%*
EKSPRESS GRUPP AS									
Total assets	111,988	109,066	95,216	85,982	81,509	80,299	77,466	76,595	
Total goodwill	51,297	51,246	40,808	40,304	40,762	41,094	40,053	38,154	
% of total goodwill from total assets	*45.81%*	*46.99%*	*42.86%*	*46.87%*	*50.01%*	*51.18%*	*51.70%*	*49.81%*	*48.15%*
OLYMPIC E.G. AS									
Total assets	172,812	153,616	113,508	107,696	100,964	109,199	118,277	126,231	
Total goodwill	39,926	29,471	27,526	27,800	27,055	29,424	33,743	36,847	
% of total goodwill from total assets	*23.10%*	*19.18%*	*24.25%*	*25.81%*	*26.80%*	*26.95%*	*28.53%*	*29.19%*	*25.48%*
PRFOODS AS									
Total assets	0	65,722	62,828	68,994	64,118	63,183	63,839	40,429	
Total goodwill	0	16,971	16,971	19,942	19,942	19,942	19,942	4,730	
% of total goodwill from total assets	*0.00%*	*25.82%*	*27.01%*	*28.90%*	*31.10%*	*31.56%*	*31.24%*	*11.70%*	*23.42%*

Appendix 2. The proportion of total assets attributed to goodwill in the period 2007–2014 (continued)

CRITERIA TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	Average %
NORDECON AS									
Total assets	140,089	151,295	120,836	95,241	101,581	111,630	104,694	97,458	
Total goodwill	16,765	18,874	16,294	14,851	14,426	14,426	14,078	14,176	
% of total goodwill from total assets	*11.97%*	*12.47%*	*13.48%*	*15.59%*	*14.20%*	*12.92%*	*13.45%*	*14.55%*	*13.58%*
BALTIKA AS									
Total assets	41,949	49,941	44,862	39,452	34,812	23,516	24,340	23,115	
Total goodwill	1,613	1,449	1,895	2,048	2,218	2,279	2,083	1,495	
% of total goodwill from total assets	*3.85%*	*2.90%*	*4.22%*	*5.19%*	*6.37%*	*9.69%*	*8.56%*	*6.47%*	*5.91%*
TALLINNA KAUBAMAJA AS									
Total assets	212,742	277,008	254,435	260,211	262,466	287,840	327,726	342,907	
Total goodwill	3,156	6,998	6,710	6,710	6,710	6,710	6,710	6,710	
% of total goodwill from total assets	*1.48%*	*2.53%*	*2.64%*	*2.58%*	*2.56%*	*2.33%*	*2.05%*	*1.96%*	*2.26%*
HARJU ELEKTER AS									
Total assets	30,630	38,474	39,507	55,114	52,920	59,609	71,071	69,792	
Total goodwill	0	0	0	0	0	0	0	4,860	
% of total goodwill from total assets	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*6.96%*	*0.87%*

Appendix 2. The proportion of total assets attributed to goodwill in the period 2007–2014 (continued)

CRITERIA TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	Average %
TALLINK GRUPP AS									
Total assets	1,698,190	1,898,291	1,947,238	1,871,315	1,799,542	1,741,831	1,722,057	1,685,598	
Total goodwill	11,147	11,747	11,066	11,066	11,066	11,066	11,066	11,066	
% of total goodwill from total assets	*0.66%*	*0.62%*	*0.57%*	*0.59%*	*0.61%*	*0.64%*	*0.64%*	*0.66%*	*0.62%*
MERKO EHITUS AS									
Total assets	250,318	246,768	224,584	195,581	220,337	225,048	239,238	249,250	
Total goodwill	0	0	891	891	891	891	802	713	
% of total goodwill from total assets	*0.00%*	*0.00%*	*0.40%*	*0.46%*	*0.40%*	*0.40%*	*0.34%*	*0.29%*	*0.28%*
SILVANO FASHION GRUPP AS									
Total assets	69,637	77,238	54,352	65,085	68,485	75,837	76,629	67,339	
Total goodwill	852	120	0	0	0	0	0	0	
% of total goodwill from total assets	*1.22%*	*0.16%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.17%*
ARCO VARA AS									
Total assets	227,784	125,942	88,148	70,583	60,013	31,229	25,157	27,003	
Total goodwill	1,531	757	0	0	0	0	0	0	
% of total goodwill from total assets	*0.67%*	*0.60%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.16%*
PRO KAPITAL GRUPP AS									
Total assets	332,121	333,456	345,306	372,888	113,472	100,262	98,294	125,031	
Total goodwill	262	262	262	262	262	262	262	262	
% of total goodwill from total assets	*0.08%*	*0.08%*	*0.08%*	*0.07%*	*0.23%*	*0.26%*	*0.27%*	*0.21%*	*0.16%*

Source: (Prepared by the author)

Appendix 3. The list of business combinations without goodwill and/or identifiable intangible assets excluded from the sample selection

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR
Merko Ehitus AS	Tahelinna Kinnisvara OU	Estonia	2009	100%	Acquisition of subsidiary	3,255	3,255	3,255
Merko Ehitus AS	Mineraal OU	Estonia	2009	100%	Acquisition of subsidiary	3	3	3
Merko Ehitus AS	Timana UAB	Lithuania	2014	100%	Acquisition of subsidiary	319	319	319
Olympic E.G. AS	Slovakia VLT casino operator WINWIN Slovakia S.r.l (new name OlyBet Slovakia S.r.l)	Slovakia	2014	100%	Acquisition of subsidiary	877	837	877

Source: (Prepared by the author)

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
13 COMPANIES WITH BUSINESS COMBINATIONS									
Number of business combinations (BC)	22	12	5	4	2	4	2	7	**58**
Total cost of acquisition	135,363	46,481	5,538	4,392	3,234	3,590	5,486	13,096	**217,181**
Positive goodwill	89,549	25,771	2,731	3,606	1,232	2,043	4,679	8,444	**138,054**
Identifiable intangible assets (IA)	14,422	8,211	40	12	1,819	1,772	67	220	**26,563**
Tangible net assets (TNA)	31,393	12,499	2,767	774	183	-225	740	4,432	**52,564**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*66%*	*55%*	*49%*	*82%*	*38%*	*57%*	*85%*	*64%*	***64%***
% of purchased IA from the total cost of acquisition	*11%*	*18%*	*1%*	*0%*	*56%*	*49%*	*1%*	*2%*	***12%***
% of purchased TNA from the total cost of acquisition	*23%*	*27%*	*50%*	*18%*	*6%*	*-6%*	*13%*	*34%*	***24%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*86%*	*76%*	*99%*	*100%*	*40%*	*54%*	*99%*	*97%*	***84%***
Proportion of intangible assets attributed to IA	*14%*	*24%*	*1%*	*0%*	*60%*	*46%*	*1%*	*3%*	***16%***

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014 (continued)

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
EKSPRESS GRUPP AS									
Number of business combinations (BC)	2	0	0	0	2	1	1	0	**6**
Total cost of acquisition	74,335	0	0	0	3,234	434	327	0	**78,330**
Positive goodwill	44,948	0	0	0	1,232	332	260	0	**46,772**
Identifiable intangible assets (IA)	11,213	0	0	0	1,819	102	66	0	**13,200**
Tangible net assets (TNA)	18,174	0	0	0	183	0	1	0	**18,358**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*60%*	*0%*	*0%*	*0%*	*38%*	*76%*	*80%*	*0%*	***60%***
% of purchased IA from the total cost of acquisition	*15%*	*0%*	*0%*	*0%*	*56%*	*24%*	*20%*	*0%*	***17%***
% of purchased TNA from the total cost of acquisition	*24%*	*0%*	*0%*	*0%*	*6%*	*0%*	*0%*	*0%*	***23%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*80%*	*0%*	*0%*	*0%*	*40%*	*76%*	*80%*	*0%*	***78%***
Proportion of intangible assets attributed to IA	*20%*	*0%*	*0%*	*0%*	*60%*	*24%*	*20%*	*0%*	***22%***
OLYMPIC E.G. AS									
Number of business combinations (BC)	6	0	0	0	0	2	1	1	**10**
Total cost of acquisition	41,535	0	0	0	0	1,830	5,159	3,595	**52,119**
Positive goodwill	32,605	0	0	0	0	1,711	4,419	3,299	**42,034**
Identifiable intangible assets (IA)	3,203	0	0	0	0	82	1	40	**3,326**
Tangible net assets (TNA)	5,727	0	0	0	0	37	739	256	**6,759**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*79%*	*0%*	*0%*	*0%*	*0%*	*93%*	*86%*	*92%*	***81%***
% of purchased IA from the total cost of acquisition	*8%*	*0%*	*0%*	*0%*	*0%*	*4%*	*0%*	*1%*	***6%***
% of purchased TNA from the total cost of acquisition	*14%*	*0%*	*0%*	*0%*	*0%*	*2%*	*14%*	*7%*	***13%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*91%*	*0%*	*0%*	*0%*	*0%*	*95%*	*100%*	*99%*	***93%***
Proportion of intangible assets attributed to IA	*9%*	*0%*	*0%*	*0%*	*0%*	*5%*	*0%*	*1%*	***7%***

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014 (continued)

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
PRFOODS AS									
Number of business combinations (BC)	0	2	0	2	0	0	0	0	**4**
Total cost of acquisition	0	27,003	0	3,777	0	0	0	0	**30,780**
Positive goodwill	0	16,971	0	2,972	0	0	0	0	**19,943**
Identifiable intangible assets (IA)	0	3,623	0	12	0	0	0	0	**3,635**
Tangible net assets (TNA)	0	6,409	0	793	0	0	0	0	**7,202**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*0%*	*63%*	*0%*	*79%*	*0%*	*0%*	*0%*	*0%*	***65%***
% of purchased IA from the total cost of acquisition	*0%*	*13%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***12%***
% of purchased TNA from the total cost of acquisition									
% split of the total intangible assets	*0%*	*24%*	*0%*	*21%*	*0%*	*0%*	*0%*	*0%*	***23%***
Proportion of intangible assets attributed to goodwill	*0%*	*82%*	*0%*	*100%*	*0%*	*0%*	*0%*	*0%*	***85%***
Proportion of intangible assets attributed to IA	*0%*	*18%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***15%***
NORDECON AS									
Number of business combinations (BC)	1	3	2	1	0	0	0	3	**10**
Total cost of acquisition	11,966	1,482	1,531	2	0	0	0	781	**15,762**
Positive goodwill	6,815	2,116	1,337	301	0	0	0	285	**10,854**
Identifiable intangible assets (IA)	6	0	40	0	0	0	0	0	**46**
Tangible net assets (TNA)	5,145	-634	154	-299	0	0	0	496	**4,862**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*57%*	*143%*	*87%*	*15050%*	*0%*	*0%*	*0%*	*36%*	***69%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*3%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*43%*	*-43%*	*10%*	*-14950%*	*0%*	*0%*	*0%*	*64%*	***31%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*100%*	*100%*	*97%*	*100%*	*0%*	*0%*	*0%*	*100%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*3%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014 (continued)

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
TALLINNA KAUBAMAJA AS									
Number of business combinations (BC)	1	4	0	0	0	1	0	1	**7**
Total cost of acquisition	5,075	15,803	0	0	0	1,326	0	352	**22,556**
Positive goodwill	3,156	4,627	0	0	0	0	0	0	**7,783**
Identifiable intangible assets (IA)	0	4,588	0	0	0	1,588	0	175	**6,351**
Tangible net assets (TNA)	1,918	6,588	0	0	0	-262	0	177	**8,421**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*62%*	*29%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***35%***
% of purchased IA from the total cost of acquisition	*0%*	*29%*	*0%*	*0%*	*0%*	*120%*	*0%*	*50%*	***28%***
% of purchased TNA from the total cost of acquisition	*38%*	*42%*	*0%*	*0%*	*0%*	*-20%*	*0%*	*50%*	***37%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*100%*	*50%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***55%***
Proportion of intangible assets attributed to IA	*0%*	*50%*	*0%*	*0%*	*0%*	*100%*	*0%*	*100%*	***45%***
HARJU ELEKTER AS									
Number of business combinations (BC)	0	0	0	0	0	0	0	1	**1**
Total cost of acquisition	0	0	0	0	0	0	0	8,300	**8,300**
Positive goodwill	0	0	0	0	0	0	0	4,860	**4,860**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	0	0	0	0	0	0	0	3,440	**3,440**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*59%*	***59%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*41%*	***41%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*100%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014 (continued)

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
SILVANO FASHION GRUPP AS									
Number of business combinations (BC)	1	1	0	0	0	0	0	0	**2**
Total cost of acquisition	929	2,059	0	0	0	0	0	0	**2,988**
Positive goodwill	732	1,417	0	0	0	0	0	0	**2,149**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	197	642	0	0	0	0	0	0	**839**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*79%*	*69%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***72%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*21%*	*31%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***28%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*100%*	*100%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
BALTIKA AS									
Number of business combinations (BC)	1	0	2	0	0	0	0	0	**3**
Total cost of acquisition	282	0	910	0	0	0	0	0	**1,192**
Positive goodwill	355	0	503	0	0	0	0	0	**858**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	-73	0	407	0	0	0	0	0	**334**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*126%*	*0%*	*55%*	*0%*	*0%*	*0%*	*0%*	*0%*	***72%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*-26%*	*0%*	*45%*	*0%*	*0%*	*0%*	*0%*	*0%*	***28%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*100%*	*0%*	*100%*	*0%*	*0%*	*0%*	*0%*	*0%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014 (continued)

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
MERKO EHITUS AS									
Number of business combinations (BC)	0	0	1	0	0	0	0	0	**1**
Total cost of acquisition	0	0	3,097	0	0	0	0	0	**3,097**
Positive goodwill	0	0	891	0	0	0	0	0	**891**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	0	0	2,206	0	0	0	0	0	**2,206**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*0%*	*0%*	*29%*	*0%*	*0%*	*0%*	*0%*	*0%*	***29%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*0%*	*0%*	*71%*	*0%*	*0%*	*0%*	*0%*	*0%*	***71%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*0%*	*0%*	*100%*	*0%*	*0%*	*0%*	*0%*	*0%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
TALLINK GRUPP AS									
Number of business combinations (BC)	1	1	0	0	0	0	0	0	**2**
Total cost of acquisition	61	0	0	0	0	0	0	0	**61**
Positive goodwill	81	600	0	0	0	0	0	0	**681**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	-20	-600	0	0	0	0	0	0	**-620**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*133%*	*1000000%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***1115%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*-33%*	*-1000000%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***-1015%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*100%*	*100%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014 (continued)

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
PRO KAPITAL GRUPP AS									
Number of business combinations (BC)	4	0	0	1	0	0	0	0	**5**
Total cost of acquisition	762	0	0	613	0	0	0	0	**1,375**
Positive goodwill	319	0	0	333	0	0	0	0	**652**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	443	0	0	280	0	0	0	0	**723**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*42%*	*0%*	*0%*	*54%*	*0%*	*0%*	*0%*	*0%*	***47%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*58%*	*0%*	*0%*	*46%*	*0%*	*0%*	*0%*	*0%*	***53%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*100%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
ARCO VARA AS									
Number of business combinations (BC)	5	1	0	0	0	0	0	0	**6**
Total cost of acquisition	419	134	0	0	0	0	0	0	**553**
Positive goodwill	537	40	0	0	0	0	0	0	**577**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	-118	94	0	0	0	0	0	0	**-24**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*128%*	*30%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***104%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased TNA from the total cost of acquisition	*-28%*	*70%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***-4%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*100%*	*100%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***100%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***

Appendix 4. The detailed data from the financial statements of companies with positive goodwill and/or identifiable intangible assets in the period 2007–2014 (continued)

CRITERIA No. / TEUR / %	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
SKANO GROUP AS									
Number of business combinations (BC)	0	0	0	0	0	0	0	1	**1**
Total cost of acquisition	0	0	0	0	0	0	0	68	**68**
Positive goodwill	0	0	0	0	0	0	0	0	**0**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	5	**5**
Tangible net assets (TNA)	0	0	0	0	0	0	0	63	**63**
% split of the total cost of acquisition:									
% of goodwill from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
% of purchased IA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*7%*	***7%***
% of purchased TNA from the total cost of acquisition	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*93%*	***93%***
% split of the total intangible assets									
Proportion of intangible assets attributed to goodwill	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	***0%***
Proportion of intangible assets attributed to IA	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*100%*	***100%***

Source: (Prepared by the author)

Appendix 5. Tables for the empirical research performed in the section 2.2.2

Table 1. Total number of business combinations with positive goodwill and/or identifiable intangible assets in the period 2007–2014

CRITERIA (No. of BCs)	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
13 COMPANIES WITH BUSINESS COMBINATIONS	**22**	**12**	**5**	**4**	**2**	**4**	**2**	**7**	**58**
OLYMPIC E.G. AS	6	0	0	0	0	2	1	1	**10**
NORDECON AS	1	3	2	1	0	0	0	3	**10**
TALLINNA KAUBAMAJA AS	1	4	0	0	0	1	0	1	**7**
EKSPRESS GRUPP AS	2	0	0	0	2	1	1	0	**6**
ARCO VARA AS	5	1	0	0	0	0	0	0	**6**
PRO KAPITAL GRUPP AS	4	0	0	1	0	0	0	0	**5**
PRFOODS AS	0	2	0	2	0	0	0	0	**4**
BALTIKA AS	1	0	2	0	0	0	0	0	**3**
SILVANO FASHION GRUPP AS	1	1	0	0	0	0	0	0	**2**
TALLINK GRUPP AS	1	1	0	0	0	0	0	0	**2**
HARJU ELEKTER AS	0	0	0	0	0	0	0	1	**1**
MERKO EHITUS AS	0	0	1	0	0	0	0	0	**1**
SKANO GROUP AS	0	0	0	0	0	0	0	1	**1**

Source: (Prepared by the author)

Table 2. Total amount of positive goodwill in business combinations in the period 2007–2014

CRITERIA (TEUR)	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
13 COMPANIES WITH BUSINESS COMBINATIONS	**89,549**	**25,771**	**2,731**	**3,606**	**1,232**	**2,043**	**4,679**	**8,444**	**138,054**
EKSPRESS GRUPP AS	44,948	0	0	0	1,232	332	260	0	**46,772**
OLYMPIC E.G. AS	32,605	0	0	0	0	1,711	4,419	3,299	**42,034**
PRFOODS AS	0	16,971	0	2,972	0	0	0	0	**19,943**
NORDECON AS	6,815	2,116	1,337	301	0	0	0	285	**10,854**
TALLINNA KAUBAMAJA AS	3,156	4,627	0	0	0	0	0	0	**7,783**
HARJU ELEKTER AS	0	0	0	0	0	0	0	4,860	**4,860**
SILVANO FASHION GRUPP AS	732	1,417	0	0	0	0	0	0	**2,149**
MERKO EHITUS AS	0	0	891	0	0	0	0	0	**891**
BALTIKA AS	355	0	503	0	0	0	0	0	**858**
TALLINK GRUPP AS	81	600	0	0	0	0	0	0	**681**
PRO KAPITAL GRUPP AS	319	0	0	333	0	0	0	0	**652**
ARCO VARA AS	537	40	0	0	0	0	0	0	**577**
SKANO GROUP AS	0	0	0	0	0	0	0	0	**0**

Source: (Prepared by the author)

Appendix 5. Tables for the empirical research performed in the section 2.2.2 (continued)

Table 3. Total amount of identifiable intangible assets in business combinations in the period 2007–2014

CRITERIA (TEUR)	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
6 COMPANIES WITH BUSINESS COMBINATIONS	**14,422**	**8,211**	**40**	**12**	**1,819**	**1,772**	**67**	**220**	**26,563**
EKSPRESS GRUPP AS	11,213	0	0	0	1,819	102	66	0	**13,200**
TALLINNA KAUBAMAJA AS	0	4,588	0	0	0	1,588	0	175	**6,351**
PRFOODS AS	0	3,623	0	12	0	0	0	0	**3,635**
OLYMPIC E.G. AS	3,203	0	0	0	0	82	1	40	**3,326**
NORDECON AS	6	0	40	0	0	0	0	0	**46**
SKANO GROUP AS	0	0	0	0	0	0	0	5	**5**

Source: (Prepared by the author)

Table 4. The proportion of total intangible assets attributed to positive goodwill and identifiable intangible assets in the period 2007–2009

CRITERIA (TEUR)	Positive goodwill 2007-2009	%	IA 2007-2009	%	Total intangible assets TEUR
13 COMPANIES WITH BCs	**118,050**	**84%**	**22,673**	**16%**	**140,723**
EKSPRESS GRUPP AS	44,948	80%	11,213	20%	56,161
TALLINNA KAUBAMAJA AS	7,783	63%	4,588	37%	12,371
OLYMPIC E.G. AS	32,605	91%	3,203	9%	35,808
PRFOODS AS	16,971	82%	3,623	18%	20,594
HARJU ELEKTER AS	0	0%	0	0%	0
SKANO GROUP AS	0	0%	0	0%	0
NORDECON AS	10,268	100%	46	0%	10,314
PRO KAPITAL GRUPP AS	319	100%	0	0%	319
SILVANO FASHION GRUPP AS	2,149	100%	0	0%	2,149
BALTIKA AS	858	100%	0	0%	858
TALLINK GRUPP AS	681	100%	0	0%	681
ARCO VARA AS	577	100%	0	0%	577
MERKO EHITUS AS	891	100%	0	0%	891

Source: (Prepared by the author)

Appendix 5. Tables for the empirical research performed in the section 2.2.2 (continued)

Table 5. The proportion of total intangible assets attributed to positive goodwill and identifiable intangible assets in the period 2010–2014

CRITERIA (TEUR)	Positive goodwill 2010-2014	%	IA 2010-2014	%	Total intangible assets TEUR
13 COMPANIES WITH BCs	**20,004**	**84%**	**3,890**	**16%**	**23,894**
EKSPRESS GRUPP AS	1,824	48%	1,987	52%	3,811
TALLINNA KAUBAMAJA AS	0	0%	1,763	100%	1,763
OLYMPIC E.G. AS	9,429	99%	123	1%	9,552
PRFOODS AS	2,972	100%	12	0%	2,984
HARJU ELEKTER AS	4,860	100%	0	0%	4,860
SKANO GROUP AS	0	0%	5	100%	5
NORDECON AS	586	100%	0	0%	586
PRO KAPITAL GRUPP AS	333	100%	0	0%	333
SILVANO FASHION GRUPP AS	0	0%	0	0%	0
BALTIKA AS	0	0%	0	0%	0
TALLINK GRUPP AS	0	0%	0	0%	0
ARCO VARA AS	0	0%	0	0%	0
MERKO EHITUS AS	0	0%	0	0%	0

Source: (Prepared by the author)

Table 6. Total number of business combinations with negative goodwill in the period 2007–2014

CRITERIA (No. of BCs)	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
6 COMPANIES WITH BCs	**2**	**2**	**2**	**1**	**1**	**1**	**0**	**1**	**10**
NORDECON AS	0	1	2	0	0	0	0	1	**4**
SILVANO FASHION GRUPP AS	1	1	0	0	0	0	0	0	**2**
MERKO EHITUS AS	1	0	0	0	0	0	0	0	**1**
SKANO GROUP AS	0	0	0	0	1	0	0	0	**1**
PRFOODS AS	0	0	0	1	0	0	0	0	**1**
BALTIKA AS	0	0	0	0	0	1	0	0	**1**

Source: (Prepared by the author)

Appendix 5. Tables for the empirical research performed in the section 2.2.2 (continued)

Table 7. Total amount of negative goodwill in business combinations in the period 2007–2014

CRITERIA (TEUR)	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
5 COMPANIES WITH BCs	**-5,761**	**-153**	**-2,881**	**-21**	**-2,455**	**0**	**0**	**-414**	**-11,685**
SILVANO FASHION GRUPP AS	-5,715	-143	0	0	0	0	0	0	-5,858
NORDECON AS	0	-10	-2,881	0	0	0	0	-414	-3,305
SKANO GROUP AS	0	0	0	0	-2,455	0	0	0	-2,455
MERKO EHITUS AS	-46	0	0	0	0	0	0	0	-46
PRFOODS AS	0	0	0	-21	0	0	0	0	-21

Source: (Prepared by the author)

Appendix 6. The list of main business combinations with goodwill and/or identifiable intangible assets included in the sample selection

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR	Allocation to IA TEUR	Allocation to goodwill TEUR
Arco Vara AS	Arco Construction SIA	Latvia	2007	55%	Acquisition of controlling interest in the company	260	45	45	0	215
Arco Vara AS	Arco Rumeenia Valdused OU	Estonia	2007	50%	Acquisition of controlling interest in the company	1	-156	-156	0	157
Arco Vara AS	Arco Vara Riia Valdused Arco Vara Puukool OU Arco Real Estate UAB	Latvia Estonia Lithuania	2007	25% 25% 20%	Acquisition of NCI	158	-7	-7	0	165
Arco Vara AS	Tempera Ehitus OÜ	Estonia	2008	55%	Acquisition of controlling interest in the company	134	94	94	0	40
Baltika AS	Baltika Tailor OU	Estonia	2007	50%	Acquisition of controlling interest in the company	282	-73	-73	0	355
Baltika AS	Baltika Latvija SIA	Latvia	2009	25%	Acquisition of NCI	152	0	0	0	152

Appendix 6. The list of main business combinations with goodwill and/or identifiable intangible assets included in the sample selection (continued)

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR	Allocation to IA TEUR	Allocation to goodwill TEUR
Baltika AS	Takeover of seven stores of wholesale partner in Russia, Ural region	Russia	2009	100%	Takeover of business	758	407	407	0	351
Ekspress Group AS	Delfi Holding OU	Estonia	2007	100%	Acquisition of subsidiary	71,005	27,872	17,383	10,489	43,133
Ekspress Group AS	Maaleht AS	Estonia	2007	100%	Acquisition of subsidiary	3,330	1,515	791	724	1,815
Ekspress Group AS	Eesti Paevaleht	Estonia	2011	50%	Acquisition of controlling interest in the company	3,200	1,968	183	1,785	1,232
Ekspress Group AS	Alio UAB	Lithuania	2012	100%	Acquisition of subsidiary	434	102	0	102	332
Ekspress Group AS	SIA Calis LV	Latvia	2013	100%	Acquisition of subsidiary	327	67	1	66	260
Harju Elekter AS	Finnkumu OY	Finland	2014	100%	Acquisition of subsidiary	8,300	3,440	3,440	0	4,860
Merko Ehitus AS	Vooremaa Teed AS	Estonia	2009	100%	Acquisition of subsidiary	3,097	2,206	2,206	0	891

Appendix 6. The list of main business combinations with goodwill and/or identifiable intangible assets included in the sample selection (continued)

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR	Allocation to IA TEUR	Allocation to goodwill TEUR
Pro Kapital Grupp AS	Pasaules tirdzniecibas centrs Riga SIA	Latvia	2007	10%	Acquisition of NCI	747	435	435	0	312
Pro Kapital Grupp AS	Entities PK-1 TOB, PK-2 TOB, PK-3 TOB	Ukraine	2007	100%	Acquisition of subsidiary	15	8	8	0	7
Pro Kapital Grupp AS	Immobiliare Novate S.p.A	Italy	2010	7%	Acquisition of NCI	613	280	280	0	333
Silvano Fashion Grupp AS	UAB Linret LT	Lithuania	2007	100%	Acquisition of subsidiary	929	197	197	0	732
Silvano Fashion Grupp AS	France Style Lingerie s.a.r.l. (FSL)	France	2008	100%	Acquisition of subsidiary	2,059	642	642	0	1,417
PRFOODS AS	Saaremere Kala AS & AB Premia KPC	Estonia & Lithuania	2008	100%	Acquisition of subsidiary	27,003	10,032	6,409	3,623	16,971
PRFOODS AS	OOO Hladokombinat No 1 & OOO Hladomagija	Russia	2010	100%	Acquisition of subsidiary	3,777	805	793	12	2,972

Appendix 6. The list of main business combinations with goodwill and/or identifiable intangible assets included in the sample selection (continued)

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR	Allocation to IA TEUR	Allocation to goodwill TEUR
Tallinna Kaubamaja AS	KIA Auto AS	Estonia	2007	100%	Acquisition of subsidiary	5,075	1,918	1,918	0	3,156
Tallinna Kaubamaja AS	Suurtuki SA & Suurtuki NK AS	Estonia	2008	100%	Acquisition of subsidiary	4,428	1,594	1,594	0	2,833
Tallinna Kaubamaja AS	ABC AS & ABC King SIA	Estonia Latvia	2008	100%	Acquisition of subsidiary	11,375	9,582	4,994	4,588	1,793
Tallink Grupp AS	Hera Salongid OU	Estonia	2007	100%	Acquisition of subsidiary	61	-20	-20	0	81
Tallink Grupp AS	Delegatsioon OU	Estonia	2008	100%	Acquisition of subsidiary	0	-600	-600	0	600
Olympic E.G. AS	Jokker Poker OU & Casinova OU	Estonia	2007	100%	Acquisition of subsidiary	19,198	6,729	4,684	2,046	12,468
Olympic E.G. AS	Olympic Casino Bucharest s.r.l casino operator Empire International Game World	Romania	2007	100%	Acquisition of subsidiary	3,984	291	291	0	3,693
Olympic E.G. AS	Casino Polonia Wroclaw Sp. Z.o.o	Poland	2007	80%	Acquisition of controlling interest in the company	9,066	1,100	448	652	7,966

Appendix 6. The list of main business combinations with goodwill and/or identifiable intangible assets included in the sample selection (continued)

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR	Allocation to IA TEUR	Allocation to goodwill TEUR
Olympic E.G. AS	Kesklinna Hotelli OU	Estonia	2007	98%	Acquisition of controlling interest in the company	3	2	2	0	1
Olympic E.G. AS	Eldorado casino operator	Ukraine	2007	100%	Acquisition of subsidiary	9,284	807	302	505	8,477
Olympic E.G. AS	Jackpot Game S.R.L.	Italy	2012	50%	Acquisition of controlling interest in the company	1,825	228	114	0	1,711
Olympic E.G. AS	Altea SIA	Latvia	2013	100%	Acquisition of subsidiary	5,159	740	739	1	4,419
Olympic E.G. AS	Slottery S.R.L.	Italy	2014	70%	Acquisition of controlling interest in the company	3,595	423	256	40	3,299
Nordecon AS	Eston Ehitus AS	Estonia	2007	52%	Acquisition of controlling interest in the company	11,966	5,151	5,145	6	6,815
Nordecon AS	SIA Nordecon Infra	Latvia	2008	56%	Acquisition of controlling interest in the company	239	-463	-463	0	702
Nordecon AS	Eurocon OU	Estonia	2008	3%	Acquisition of NCI	476	51	51	0	425

Appendix 6. The list of main business combinations with goodwill and/or identifiable intangible assets included in the sample selection (continued)

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR	Allocation to IA TEUR	Allocation to goodwill TEUR
Nordecon AS	Kaurits OU	Estonia	2008	14%	Acquisition of NCI	767	-222	-222	0	989
Nordecon AS	LCB SIA	Latvia	2009	75%	Acquisition of controlling interest in the company	1,486	152	112	40	1,334
Nordecon AS	DSN Ehitusmasinad OU	Estonia	2009	34%	Acquisition of NCI	45	42	42	0	3
Nordecon AS	Magasini 29 OU	Estonia	2010	66%	Acquisition of controlling interest in the company	2	-299	-299	0	301
Nordecon AS	Eston Ehitus AS	Estonia	2014	2%	Acquisition of NCI	180	87	87	0	93
Nordecon AS	Eurocon OU	Estonia	2014	14%	Acquisition of NCI	539	411	411	0	128
Nordecon AS	Nordecon Statyba UAB	Lithuania	2014	10%	Acquisition of NCI	62	-2	-2	0	64

Source: (Prepared by the author)

Appendix 7. The detailed data from the financial statements of companies with negative goodwill in the period 2007–2014

CRITERIA No. / TEUR	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
6 COMPANIES WITH BUSINESS COMBINATIONS									
Number of business combinations (BC)	2	2	2	1	1	1	0	1	**10**
Total cost of acquisition	2,051	628	0	236	4,000	0	0	18	**6,933**
Negative goodwill	-5,761	-153	-2,881	-21	-2,455	0	0	-414	**-11,685**
Identifiable intangible assets (IA)	0	0	0	0	0	709	0	0	**709**
Tangible net assets (TNA)	7,812	781	2,881	257	6,455	331	0	432	**18,949**
MERKO EHITUS AS									
Number of business combinations (BC)	1	0	0	0	0	0	0	0	**1**
Total cost of acquisition	959	0	0	0	0	0	0	0	**959**
Negative goodwill	-46	0	0	0	0	0	0	0	**-46**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	1,005	0	0	0	0	0	0	0	**1,005**
SKANO GROUP AS									
Number of business combinations (BC)	0	0	0	0	1	0	0	0	**1**
Total cost of acquisition	0	0	0	0	4,000	0	0	0	**4,000**
Negative goodwill	0	0	0	0	-2,455	0	0	0	**-2,455**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	0	0	0	0	6,455	0	0	0	**6,455**
NORDECON AS									
Number of business combinations (BC)	0	1	2	0	0	0	0	1	**4**
Total cost of acquisition	0	47	0	0	0	0	0	18	**65**
Negative goodwill	0	-10	-2,881	0	0	0	0	-414	**-3,305**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	0	57	2,881	0	0	0	0	432	**3,370**

Appendix 7. The detailed data from the financial statements of companies with negative goodwill in the period 2007–2014 (continued)

CRITERIA No. / TEUR	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
PRFOODS AS									
Number of business combinations (BC)	0	0	0	1	0	0	0	0	**1**
Total cost of acquisition	0	0	0	236	0	0	0	0	**236**
Negative goodwill	0	0	0	-21	0	0	0	0	**-21**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	0	0	0	257	0	0	0	0	**257**
SILVANO FASHION GRUPP AS									
Number of business combinations (BC)	1	1	0	0	0	0	0	0	**2**
Total cost of acquisition	1,092	581	0	0	0	0	0	0	**1,673**
Negative goodwill	-5,715	-143	0	0	0	0	0	0	**-5,858**
Identifiable intangible assets (IA)	0	0	0	0	0	0	0	0	**0**
Tangible net assets (TNA)	6,807	724	0	0	0	0	0	0	**7,531**
BALTIKA AS									
Number of business combinations (BC)	0	0	0	0	0	1	0	0	**1**
Total cost of acquisition	0	0	0	0	0	Not disclosed	0	0	**Not disclosed**
Negative goodwill	0	0	0	0	0	Not disclosed	0	0	**Not disclosed**
Identifiable intangible assets (IA)	0	0	0	0	0	709	0	0	**709**
Tangible net assets (TNA)	0	0	0	0	0	331	0	0	**331**

Source: (Prepared by the author)

Appendix 8. The list of business combinations with negative goodwill included in the sample selection

Acquirer	Acquiree	Country of acquiree	Acquisition date	The % of voting interest acquired	Type of Business Combination	The cost of acquisition TEUR	Fair value of net assets acquired TEUR	Allocation to TNA TEUR	Allocation to IA TEUR	Allocation to goodwill TEUR
Baltika AS	Bastion	Estonia	2012	100%	Acquisition of subsidiary	Not disclosed	1,040	331	709	Not disclosed
Merko Ehitus AS	Fort Ehitus OU	Estonia	2007	75%	Acquisition of controlling interest in the company	959	1,005	1,005	0	-46
Skano Group AS	The bankruptcy estate (incl. business) purchase on auction - acquisition of factory	Estonia	2011	100%	Acquisition of the bankruptcy estate (incl. business)	4,000	6,455	6,455	0	-2,455
Silvano Fashion Grupp AS	SP ZAO Milavitsa	Belarus	2007	16%	Acquisition of NCI	1,092	6,807	6,807	0	-5,715
Silvano Fashion Grupp AS	OAO Junona	Belarus	2008	58%	Acquisition of controlling interest in the company	581	724	724	0	-143
PRFOODS AS	Gourmet House OU	Estonia	2010	49%	Acquisition of NCI	236	257	257	0	-21
Nordecon AS	Eurocon Ukraine TOV	Ukraine	2008	4%	Acquisition of NCI	47	57	57	0	-10
Nordecon AS	Kalda Kodu OU	Estonia	2009	56%	Acquisition of controlling interest in the company	0	1	1	0	-1
Nordecon AS	Eston Ehitus AS	Estonia	2009	46%	Acquisition of NCI	0	2,880	2,880	0	-2,880
Nordecon AS	Eurocon OU	Estonia	2014	18%	Acquisition of NCI	18	432	432	0	-414

Appendix 9. Tables for the empirical research performed in the section 2.2.3

Table 8. Goodwill impairments (TEUR) in the period 2007–2014

CRITERIA (TEUR)	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL
9 COMPANIES WITH IMPAIRMENTS	**-573**	**-9,543**	**-11,421**	**-411**	**-1,175**	**0**	**-1,738**	**-1,724**	**-26,585**
EKSPRESS GRUPP AS	0	0	-5,844	0	-750	0	-1,301	-1,443	**-9,338**
OLYMPIC E.G. AS	0	-6,287	0	0	0	0	0	0	**-6,287**
NORDECON AS	0	0	-3,912	-411	-425	0	-348	-192	**-5,288**
SILVANO FASHION GRUPP AS	-115	-2,149	0	0	0	0	0	0	**-2,264**
ARCO VARA AS	0	-557	-696	0	0	0	0	0	**-1,253**
PRO KAPITAL GRUPP AS	-458	-250	0	0	0	0	0	0	**-708**
TALLINK GRUPP AS	0	0	-681	0	0	0	0	0	**-681**
TALLINNA KAUBAMAJA AS	0	-300	-288	0	0	0	0	0	**-588**
MERKO EHITUS AS	0	0	0	0	0	0	-89	-89	**-178**

Source: (Prepared by the author)

Table 9. Number of cash-generation units (per company)

CRITERIA No. of CGUs	2007	2008	2009	2010	2011	2012	2013	2014
NORDECON AS	5	8	9	9	5	4	4	6
OLYMPIC E.G. AS	8	8	4	3	3	4	4	4
EKSPRESS GRUPP AS	10	10	9	8	7	7	7	4
TALLINK GRUPP AS	2	2	2	1	1	1	1	1
ARCO VARA AS	3	3	Not disclosed	N/A	N/A	N/A	N/A	N/A
MERKO EHITUS AS	N/A	N/A	1	1	1	1	1	1
PRO KAPITAL GRUPP AS	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed
TALLINNA KAUBAMAJA AS	1	2	2	2	2	2	2	2
SILVANO FASHION GRUPP AS	3	3	N/A	N/A	N/A	N/A	N/A	N/A
PRFOODS AS	N/A	2	2	3	3	3	3	1
BALTIKA AS	2	2	3	3	3	3	3	3
HARJU ELEKTER AS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1

Source: (Prepared by the author)

Appendix 9. Tables for the empirical research performed in the section 2.2.3 (continued)

Table 10. Numbers of cash-generating units (summary)

CRITERIA **No. of companies**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
1-3 CGUs	5	6	5	6	6	5	5	6
4-7 CGUs	1	0	1	0	2	3	3	3
8-10 CGUs	2	3	2	2	0	0	0	0
Not disclosed	1	1	2	1	1	1	1	1
N/A - no goodwill	3	2	2	3	3	3	3	2
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

Table 11. Relation between number of cash-generating units and the amount of goodwill impairments.

CRITERIA **TEUR**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**TOTAL**
1-3 CGUs	-115	-3,006	-969	0	0	0	-89	-89	**-4,268**
4-7 CGUs	0	0	0	0	-1,175	0	-1,649	-1,635	**-4,459**
8-10 CGUs	0	-6,287	-9,756	-411	0	0	0	0	**-16,454**
Not disclosed	-458	-250	-696	N/A	N/A	N/A	N/A	N/A	**-1,404**
TOTAL	**-573**	**-9,543**	**-11,421**	**-411**	**-1,175**	**0**	**-1,738**	**-1,724**	**-26,585**

Source: (Prepared by the author)

Appendix 9. Tables for the empirical research performed in the section 2.2.3 (continued)

Table 12. The level of cash-generating units (per company)

CRITERIA Levels of CGUs / No. of companies*	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***
Geographical locations (Operating segment)	0	0	1	1	1	1	1	1
Major business lines:	8	9	7	7	7	7	7	8
Operating segment	*2*	*3*	*2*	*2*	*2*	*2*	*2*	*2*
Legal entity (lower then operating segment)	*6*	*6*	*5*	*5*	*5*	*5*	*5*	*6*
Type of goods or services provided	0	0	0	0	0	0	0	0
Not disclosed	1	1	2	1	1	1	1	1
N/A - no goodwill	3	2	2	3	3	3	3	2
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

Table 13. Relation between the level of cash-generating units and the amount of goodwill impairments

CRITERIA Levels of CGUs / TEUR*	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**TOTAL**
Geographical locations (Operating segment)	N/A	N/A	0	0	0	0	0	0	**0**
Major business lines:									
Operating segment	*0*	*-857*	*-969*	*0*	*0*	*0*	*0*	*0*	**-1,826**
Legal entity (lower then operating segment)	*-115*	*-8,436*	*-9,756*	*-411*	*-1,175*	*0*	*-1,738*	*-1,724*	**-23,355**
Not disclosed	-458	-250	-696	N/A	N/A	N/A	N/A	N/A	**-1,404**
TOTAL	**-573**	**-9,543**	**-11,421**	**-411**	**-1,175**	**0**	**-1,738**	**-1,724**	**-26,585**

Source: (Prepared by the author)

Appendix 9. Tables for the empirical research performed in the section 2.2.3 (continued)

Table 14. Valuation methods used by sampled companies in the period 2007–2014

CRITERIA **Method / No. of companies***	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***
VIU	7	7	6	7	6	7	7	8
FVLCS	0	1	1	1	1	1	1	1
VIU was applied consistently. FVLCS was used in the case of purchase or sale of entities	1	1	1	0	1	0	0	0
Not disclosed	1	1	2	1	1	1	1	1
N/A	3	2	2	3	3	3	3	2
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

Table 15. Future cash flow projections used by sampled companies in the period 2007–2014

CRITERIA **Future cash flows projections / No. of companies***	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***
5 years + terminal year	6	5	5	5	6	6	6	7
4 years + terminal year	1	2	0	1	1	1	1	1
3 years + terminal year	1	1	1	0	0	0	0	0
Not disclosed	0	0	2	1	0	0	0	0
N/A	2	2	2	3	3	3	3	2
TOTAL	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**

Source: (Prepared by the author)

Table 16. Discount rate types used by companies in the period 2007–2014

CRITERIA **Discount rate type / No. of companies***	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***
WACC	8	8	7	7	7	7	7	8
Not disclosed	0	0	1	0	0	0	0	0
N/A	2	2	2	3	3	3	3	2
TOTAL	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**

Source: (Prepared by the author)

Appendix 9. Tables for the empirical research performed in the section 2.2.3 (continued)

Table 17. Discount rate basis used by companies in the period 2007–2014

CRITERIA **Discount rate basis / No. of companies***	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***
Pre-tax	5	6	5	5	5	5	5	6
Post-tax	0	0	0	0	0	0	0	0
Not disclosed	3	2	3	2	2	2	2	2
N/A	2	2	2	3	3	3	3	2
TOTAL	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**

Source: (Prepared by the author)

Table 18. Discount rate average percentage used by companies in the period 2007–2014

CRITERIA **Discount rate average % / No. of companies***	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***
6%–10%	1	0	2	3	4	5	5	6
11%–15%	5	6	5	4	2	2	2	2
16%–21%	2	2	0	0	0	0	0	0
Not disclosed	0	0	1	0	1	0	0	0
N/A	2	2	2	3	3	3	3	2
TOTAL	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**

Source: (Prepared by the author)

Appendix 10. The detailed data from the financial statements of companies regarding CGUs in the period 2007–2014

CRITERIA	2007	2008	2009	2010	2011	2012	2013	2014
NORDECON AS								
Major business lines	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity
OLYMPIC E.G. AS								
Geographical locations	-	-	Level of CGUs was changed from the legal entity to the operating segment level of geographical locations. As a result, the number of CGUs decreased from 8 to 4. There were 4 CGUs in 2009: Estonia, Latvia, Poland, Ukraine	CGUs: 3 Operating segments: Estonia, Latvia, Poland	CGUs: 3 Operating segments: Estonia, Latvia, Poland	CGUs: 4 Operating segments: Estonia, Latvia, Poland, Italy	CGUs: 4 Operating segments: Estonia, Latvia, Poland, Italy	CGUs: 4 Operating segments: Estonia, Latvia, Poland, Italy
Major business lines	Legal entity	Legal entity	-	N/A	N/A	N/A	N/A	N/A
EKSPRESS GRUPP AS								
Major business lines	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity
HARJU ELEKTER AS								
Major business lines	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Legal entity

Appendix 10. The detailed data from the financial statements of companies regarding CGUs in the period 2007–2014 (continued)

CRITERIA	2007	2008	2009	2010	2011	2012	2013	2014
TALLINK GRUPP AS								
Major business lines	CGUs: 2 operating segments: Estonian-Finnish line segment and Onshore business segment	CGUs: 2 operating segments: Estonian-Finnish line segment and Onshore business segment	CGUs: 2 operating segments: Estonian-Finnish line segment and Onshore business segment	CGU: 1 operating segment: Estonian-Finnish line	CGU: 1 operating segment: Estonian-Finnish line	CGU: 1 operating segment: Estonian-Finnish line	CGU: 1 operating segment: Estonian-Finnish line	CGU: 1 operating segment: Estonian-Finnish line
ARCO VARA AS								
Major business lines	CGUs: 3 operating segments Service, Development, Construction	CGUs: 3 operating segments Service, Development, Construction	Not disclosed	N/A	N/A	N/A	N/A	N/A
MERKO EHITUS AS								
Major business lines	N/A	N/A	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity
BALTIKA AS								
Major business lines	CGUs: 2 legal entities Baltika Tailor OU and Baltman RUS	CGUs: 2 legal entities Baltika Tailor OU and Baltman RUS	CGUs: 3 legal entities Baltika Tailor OU, Baltman RUS, Baltika Latvija SIA	CGUs: 3 legal entities Baltika Tailor OU, Baltman RUS, Baltika Latvija SIA	CGUs: 3 legal entities Baltika Tailor OU, Baltman RUS, Baltika Latvija SIA	CGUs: 3 legal entities Baltika Tailor OU, Baltman RUS, Baltika Latvija SIA	CGUs: 3 legal entities Baltika Tailor OU, Baltman RUS, Baltika Latvija SIA	CGUs: 3 legal entities Baltika Tailor OU, Baltman RUS, Baltika Latvija SIA

Appendix 10. The detailed data from the financial statements of companies regarding CGUs in the period 2007–2014 (continued)

CRITERIA	2007	2008	2009	2010	2011	2012	2013	2014
TALLINNA KAUBAMAJA AS								
Major business lines	CGU: Legal entity KIA Auto AS	Level of CGUs was changed from the legal entity to the operating segment level. CGUs: 2 operating segments - car trade segment (incl. one legal entity KIA Auto AS) and footwear segment (incl. 4 legal entities Suurtuki SA, Suurtuki NK AS, ABC AS, ABC King SIA)	CGUs: 2 operating segments - car trade segment (incl. one legal entity KIA Auto AS) and footwear segment (incl. 4 legal entities Suurtuki SA, Suurtuki NK AS, ABC AS, ABC King SIA)	2 operating segments - car trade segment and footwear segment	2 operating segments - car trade segment and footwear segment	2 operating segments - car trade segment and footwear segment	2 operating segments - car trade segment and footwear segment	2 operating segments - car trade segment and footwear segment
SILVANO FASHION GRUPP AS								
Major business lines	2 CGU: Legal entities "SIA Vision" (PTA Grupp AS subsidiary) & "UAB Linret LT" + 1 CGU: "Other" (incl. 2 entities Polska Sp zoo & ZAO Linret)	3 CGU: Legal entities: "SIA Vision" (PTA Grupp AS subsidiary) & "UAB Linret LT" and Torgovaja Kompanija Milavitsa (FSL acquisition)	N/A	N/A	N/A	N/A	N/A	N/A
PRFOODS AS								
Major business lines	N/A	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity	Legal entity
PRO KAPITAL GRUPP AS								
Identification of CGU levels	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed

Appendix 11. The detailed data from the financial statements of companies regarding valuation methods in the period 2007–2014

CRITERIA	2007	2008	2009	2010	2011	2012	2013	2014
NORDECON AS	VIU in case of 4 CGUs. FVLCS in case of 1 CGU - legal entity Eston Ehitus AS that was acquired in 2007 at market price from the third party. This market price was the basis for value determination	VIU	VIU	VIU	VIU	VIU	VIU	VIU
OLYMPIC E.G. AS	VIU	VIU	VIU	VIU	VIU	VIU	VIU	VIU
EKSPRESS GRUPP AS	VIU	VIU in case of 9 CGUs. FVLCS in case of 1 CGU - legal entity Ekspress Hotline OU that was sold in the following 2009 according to the sales agreement. The sales price was the basis for value determination.	VIU in case of 8 CGUs. FVLCS in case of 1 CGU - legal entity Rahva Raamat that was sold in the following 2009 according to the sales agreement. The sales price was the basis for value determination.	VIU	VIU in case of 7 CGUs. FVLCS in case of 1 CGU - legal entity Ekspress Leidyba that was based on signed sales agreement. The sales price was the basis for value determination; however, the relevant sale remained unrealized.	VIU	VIU	VIU
TALLINK GRUPP AS	VIU	VIU	VIU	VIU	VIU	VIU	VIU	VIU
ARCO VARA AS	VIU	VIU	Not disclosed	N/A	N/A	N/A	N/A	N/A
MERKO EHITUS AS	N/A	N/A	VIU	VIU	VIU	VIU	VIU	VIU
PRO KAPITAL GRUPP AS	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed
TALLINNA KAUBAMAJA AS	VIU	VIU	VIU	VIU	VIU	VIU	VIU	VIU
SILVANO FASHION GRUPP AS	VIU	VIU	N/A	N/A	N/A	N/A	N/A	N/A
PRFOODS AS	N/A	FVLCS	FVLCS	FVLCS	FVLCS	FVLCS	FVLCS	FVLCS
BALTIKA AS	VIU	VIU	VIU	VIU	VIU	VIU	VIU	VIU
HARJU ELEKTER AS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	VIU

Source: (Prepared by the author)

Appendix 12. The detailed data from the financial statements of companies regarding main input factors used in the DCF model for determination of VIU in the period 2007–2014

CRITERIA	2007	2008	2009	2010	2011	2012	2013	2014
NORDECON AS								
Future cash flows projections	3 years + terminal year	3 years + terminal year	3 years + terminal year	4 years + terminal year	4 years + terminal year	4 years + terminal year	4 years + terminal year	4 years + terminal year
Discount rate type	WACC	WACC	WACC	WACC	WACC	WACC	WACC	WACC
WACC (pre-tax or post-tax basis)	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax
Discount rate average %	11	11	11	11	10	9	9	10
OLYMPIC E.G. AS								
Future cash flows projections	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year
Discount rate type	WACC	WACC	WACC	WACC	WACC	WACC	WACC	WACC
WACC (pre-tax or post-tax basis)	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax
Discount rate average %	17	21	15	15	13	14	13	11
EKSPRESS GRUPP AS								
Future cash flows projections	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year
Discount rate type	WACC	WACC	WACC	WACC	WACC	WACC	WACC	WACC
WACC (pre-tax or post-tax basis)	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed
Discount rate average %	12	13	11	9	10	8	10	9
TALLINK GRUPP AS								
Future cash flows projections	5 years + terminal year	4 years + terminal year	Not disclosed	Not disclosed	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year
Discount rate type	WACC	WACC	WACC	WACC	WACC	WACC	WACC	WACC
WACC (pre-tax or post-tax basis)	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax
Discount rate average %	12	12	6	6	6	6	6	6

Appendix 12. The detailed data from the financial statements of companies regarding main input factors used in the DCF model for determination of VIU in the period 2007–2014 (continued)

CRITERIA	2007	2008	2009	2010	2011	2012	2013	2014
ARCO VARA AS								
Future cash flows projections	5 years + terminal year	5 years + terminal year	Not disclosed	N/A	N/A	N/A	N/A	N/A
Discount rate type	WACC	WACC	Not disclosed	N/A	N/A	N/A	N/A	N/A
WACC (pre-tax or post-tax basis)	Not disclosed	Not disclosed	Not disclosed	N/A	N/A	N/A	N/A	N/A
Discount rate average %	13	15	Not disclosed	N/A	N/A	N/A	N/A	N/A
MERKO EHITUS AS								
Future cash flows projections	N/A	N/A	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year
Discount rate type	N/A	N/A	WACC	WACC	WACC	WACC	WACC	WACC
WACC (pre-tax or post-tax basis)	N/A	N/A	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed	Not disclosed
Discount rate average %	N/A	N/A	14	14	Not disclosed	9	9	9
TALLINNA KAUBAMAJA AS								
Future cash flows projections	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year
Discount rate type	WACC	WACC	WACC	WACC	WACC	WACC	WACC	WACC
WACC (pre-tax or post-tax basis)	Not disclosed	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax	pre-tax
Discount rate average %	16	13	11	7	8	6	8	7

Appendix 12. The detailed data from the financial statements of companies regarding main input factors used in the DCF model for determination of VIU in the period 2007–2014 (continued)

CRITERIA	2007	2008	2009	2010	2011	2012	2013	2014
SILVANO FASHION GRUPP AS								
Future cash flows projections	4 years + terminal year	4 years + terminal year	N/A	N/A	N/A	N/A	N/A	N/A
Discount rate type	WACC	WACC	N/A	N/A	N/A	N/A	N/A	N/A
WACC (pre-tax or post-tax basis)	pre-tax	pre-tax	N/A	N/A	N/A	N/A	N/A	N/A
Discount rate average %	15	20	N/A	N/A	N/A	N/A	N/A	N/A
BALTIKA AS								
Future cash flows projections	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year	5 years + terminal year
Discount rate type	WACC	WACC	WACC	WACC	WACC	WACC	WACC	WACC
WACC (pre-tax or post-tax basis)	Pre-tax	Pre-tax	Pre-tax	Pre-tax	Pre-tax	Pre-tax	Pre-tax	Pre-tax
Discount rate average %	10	12	9	11	12	11	12	15
HARJU ELEKTER AS								
Future cash flows projections	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5 years + terminal year
Discount rate type	N/A	N/A	N/A	N/A	N/A	N/A	N/A	WACC
WACC (pre-tax or post-tax basis)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	pre-tax
Discount rate average %	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8

Source: (Prepared by the author)

Appendix 13. Tables for the empirical research performed in the section 2.2.4

Table 19. IFRS 3 disclosure requirement a) (positive goodwill)

The name and the description of the acquiree:

Positive goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	59	91%	137,703	99%
Not Disclosed	6	9%	714	1%
Partially disclosed	0	0%	0	0%
N/A - no goodwill	0	0%	0	0%
TOTAL	**65**	**100%**	**138,417**	**100%**

Source: (Prepared by the author)

There were no relevant disclosures in the case of 714 TEUR of positive goodwill. The main part of it, 605 TEUR, was identified in 3 business combinations of Baltika AS related to the takeover of stores of wholesale partner in Russia in the period 2009–2011.

Table 20. IFRS 3 disclosure requirement a) (negative goodwill)

The name and the description of the acquiree:

Negative goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	9	90%	-9,230	79%
Not Disclosed	1	10%	-2,455	21%
Partially disclosed	0	0%	0	0%
N/A	0	0%	0	0%
TOTAL	**10**	**100%**	**-11,685**	**100%**

Source: (Prepared by the author)

There were no relevant disclosures in the case of -2 455 TEUR of negative goodwill. This negative goodwill was identified in 1 business combination of Skano Group AS related to the acquisition of the bankruptcy estate (factory) with business on auction in 2011.

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Table 21. IFRS 3 disclosure requirements b) & c) (positive goodwill)

The acquisition date and the percentage of voting interest acquired:

Positive goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	62	95%	138,308	99.92%
Not Disclosed	3	5%	109	0.08%
Partially disclosed	0	0%	0	0%
N/A - no goodwill	0	0%	0	0%
TOTAL	**65**	**100%**	**138,417**	**100%**

Source: (Prepared by the author)

There were no relevant disclosures in the case of 109 TEUR of positive goodwill. The main part, 104 TEUR, was identified in 2 business combinations of Olympic. E.G. AS.

The acquisition date of business combination and the percentage of voting interest acquired were fully disclosed in the case of all 10 business combinations with negative goodwill in the tested period. Therefore, no separate table was prepared by the author in the Appendix 13.

Table 22. IFRS 3 disclosure requirement d) (positive goodwill)

The primary reasons for the business combination and description of how the acquirer obtained control of the acquiree:

Positive goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	61	94%	138,268	99.89%
Not Disclosed	3	5%	109	0.08%
Partially disclosed	1	1%	40	0.03%
N/A - no goodwill	0	0%	0	0%
TOTAL	**65**	**100%**	**138,417**	**100%**

Source: (Prepared by the author)

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

There were no relevant disclosures in the case of 109 TEUR of positive goodwill. The main part, 104 TEUR, was identified in 2 business combinations of Olympic. E.G. AS.

There were partial disclosures in the case of 40 TEUR of positive goodwill. This positive goodwill was identified in the case of 1 business combination of Arco Vara AS related to the acquisition of the controlling interest in the company Tempers Ehitus OU in Estonia in 2008.

The primary reasons for business combinations and description of how the acquirer obtained control of the acquiree were fully disclosed in the case of all 10 business combinations with negative goodwill in the tested period. Therefore, no separate table was prepared by the author in the Appendix 13.

Table 23. IFRS 3 disclosure requirement e) (positive goodwill)

A qualitative description of the factors that make up the goodwill recognized, such as expected synergies from combining operations of the acquiree and the acquirer, intangible assets that do not qualify for separate recognition or other factors:

Positive goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	10	15%	63,366	46%
Not Disclosed	48	74%	58,040	42%
Partially disclosed	2	3%	17,011	12%
N/A - no goodwill	5	8%	0	0%
TOTAL	**65**	**100%**	**138,417**	**100%**

Source: (Prepared by the author)

There were no relevant disclosures in the case of 58,040 TEUR of positive goodwill. The main part, 45,519 TEUR, was identified in 9 business combinations occurred in the following companies: Harju Elekter AS (1 business combination with goodwill 4,860 TEUR), Tallinna Kaubamaja AS (2 business combinations with goodwill 5,990 TEUR), Olympic E.G. AS (5 business combinations with goodwill 27,854 TEUR) and Nordecon AS (1 business combination with goodwill 6,815 TEUR).

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

There were partial disclosures in the case of 17,011 TEUR of positive goodwill. This positive goodwill was identified in 2 business combinations of Arco Vara AS and PRFOODS AS. Arco Vara AS acquired in 2008 the controlling interest in the company Tempera Ehitus OU as mentioned under the point d) above. PRFOODS AS acquired two companies Saaremere Kala AS (Estonia) and AB PREEMIA KPC (Lithuania) in 2008. As a result of this acquisition PRFOODS AS (prior name PREEMIA Foods AS) was formed.

This disclosure requirement was not applicable in the case of 10 business combinations with negative goodwill in the tested period. Therefore, no separate table was prepared by the author in the Appendix 13.

Table 24. IFRS 3 disclosure requirement f) (positive goodwill)

The acquisition date fair value of the total consideration transferred and the acquisition date fair value of each major class of consideration, such as cash, or other tangible or intangible assets, liabilities incurred, equity interests of the acquirer etc.:

Positive goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	48	74%	136,962	99%
Not Disclosed	17	26%	1,455	1%
Partially disclosed	0	0%	0	0%
N/A - no goodwill	0	0%	0	0%
TOTAL	**65**	**100%**	**138,417**	**100%**

Source: (Prepared by the author)

There were no relevant disclosures in the case of 1,455 TEUR of positive goodwill. This positive goodwill was identified in 17 business combinations occurred in the following companies: Baltika AS (4 business combinations with goodwill 406 TEUR), Pro Kapital Grupp AS (3 business combinations with goodwill 652 TEUR), Nordecon AS (5 business combinations with goodwill 293 TEUR), Olympic E.G. AS (2 business combinations with goodwill 104 TEUR) and Silvano Fashion Grupp AS (1 business combination without disclosures regarding the amount of goodwill).

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Table 25. IFRS 3 disclosure requirement f) (negative goodwill)

The acquisition date fair value of the total consideration transferred and the acquisition date fair value of each major class of consideration, such as cash, or other tangible or intangible assets, liabilities incurred, equity interests of the acquirer etc.:

Negative goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	6	60%	-2,655	23%
Not Disclosed	4	40%	-9,030	77%
Partially disclosed	0	0%	0	0%
N/A	0	0%	0	0%
TOTAL	**10**	**100%**	**-11,685**	**100%**

Source: (Prepared by the author)

There were no relevant disclosures in the case of -9,030 TEUR of negative goodwill. The main part of it was identified in 2 business combinations of Silvano Fashion Grupp AS and Nordecon AS. Silvano Fashion Grupp AS acquired NCI of SP ZAO Milavitsa in Belarus in 2007 (with negative goodwill -5,715 TEUR). Nordecon AS acquired NCI of Eston Ehitus AS in Estonia in 2009 (with negative goodwill -2,880 TEUR).

Table 26. IFRS 3 disclosure requirement g) (positive goodwill)

Goodwill or bargain purchases (with description and reasons) and the total amount of goodwill that is expected to be deductible for tax purposes:

Positive goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	18	28%	84,639	61%
Not Disclosed	4	6%	12	0%
Partially disclosed	38	58%	53,766	39%
N/A - no goodwill	5	8%	0	0%
TOTAL	**65**	**100%**	**138,417**	**100%**

Source: (Prepared by the author)

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

There were no relevant disclosures in the case of 12 TEUR of positive goodwill. This goodwill was identified in 4 business combinations occurred in the following companies: Baltika AS, Silvano Fashion Grupp AS, Olympic E.G. AS and Nordecon AS.

There were partial disclosures in the case of 53,766 TEUR of positive goodwill. The main part of it, 42,354 TEUR, was identified in 9 business combinations occurred in the following companies: PRFOODS AS, Nordecon AS, Olympic E.G AS, Tallinna Kaubamaja AS and Harju Elekter AS. Details regarding main business combinations are presented below.

PRFOODS AS acquired in 2008 two companies Saaremere AS (Estonia) and AB PREEMIA KPC (Lithuania). As a result of the acquisition PRFOODS AS (prior name PREEMIA Foods AS) was formed, as mentioned under the point e) above. During this acquisition was identified positive goodwill in the total amount 16,971 TEUR.

Nordecon AS acquired in 2007 the controlling interest in the company Eston Ehitus AS in Estonia. Positive goodwill was recognized in the amount 6,815 TEUR. No reasons and description of positive goodwill were disclosed.

Olympic E.G AS acquired in 2013 100% of voting interest in the company Altea SIA in Latvia (with goodwill 4,419 TEUR). It was also acquired in 2014 the controlling interest in the company Slottery S.R.L in Italy (with goodwill 3,299 TEUR). It was disclosed in the financial statements that positive goodwill was related to new market shares in Latvia and Italia. However, there were no more reasons and description of goodwill disclosed in those financial statements.

Tallinna Kaubamaja AS acquired in 2007 the company KIA Auto AS (with goodwill 3,156 TEUR) in Estonia. Tallinna Kaubamaja AS also acquired 2 companies Suurtuki SA and Suurtuki NK AS in Estonia (with goodwill 2,833 TEUR) in 2008. In the financial statements was generally mentioned that goodwill was related to capability of subsidiaries to generate future cash flows. However, there were no more reasons and description of goodwill disclosed in those financial statements.

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Harju Elekter AS acquired in 2014 the company Finnkumu OY in Finland. Positive goodwill was recognized in the amount 4,860 TEUR. In the financial statements was generally mentioned that goodwill was related to capability of subsidiaries to generate future cash flows. However, there were no more reasons and description of goodwill disclosed in those financial statements.

Table 27. IFRS 3 disclosure requirement g) (negative goodwill)

Goodwill or bargain purchases (with description and reasons) and the total amount of goodwill that is expected to be deductible for tax purposes:

Negative goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	2	20%	-5,335	46%
Not Disclosed	0	0%	0	0%
Partially disclosed	8	80%	-6,350	54%
N/A	0	0%	0	0%
TOTAL	**10**	**100%**	**-11,685**	**100%**

Source: (Prepared by the author)

There were partial disclosures in the case of -6,350 TEUR of negative goodwill. The main part of it, -5,715 TEUR, was identified in 1 business combination of Silvano Fashion Grupp AS. In addition, in the case of 1 business combination of Baltika AS the amount of negative goodwill was not disclosed in the financial statements. Details are presented below.

Silvano Fashion Grupp AS acquired in 2007 NCI in the company SP ZAO Milavitsa in Belarus. Negative goodwill was recognized in the amount -5 715 TEUR. However, there were no more reasons and description of negative goodwill disclosed in those financial statements.

Baltika AS signed in 2012 agreements for the acquisition of 7 operating stores under Bastion trademark. According to those agreements it was decided not to disclose the cost of acquisition and hence negative goodwill identified. Details are presented in the section 2.2.2.2 of this research.

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Table 28. IFRS 3 disclosure requirement h) (positive goodwill)

Where the acquirer holds less than 100% of the equity interests, the amount of the non-controlling interest:

Positive goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	20	31%	24,642	17.9%
Not Disclosed	3	4%	109	0.1%
Partially disclosed	0	0%	0	0%
N/A	42	65%	113,666	82%
TOTAL	**65**	**100%**	**138,417**	**100%**

Source: (Prepared by the author)

There were no relevant disclosures in the case of 109 TEUR of positive goodwill. This goodwill was identified in 3 business combinations disclosed by Olympic E.G. AS and Nordecon AS.

Table 29. IFRS 3 disclosure requirement h) (negative goodwill)

Where the acquirer holds less than 100% of the equity interests, the amount of the non-controlling interest:

Negative goodwill	No. of BCs	%	Total Goodwill TEUR	%
Disclosed	6	60%	-9,199	79%
Not Disclosed	0	0%	0	0%
Partially disclosed	0	0%	0	0%
N/A	4	40%	-2,486	21%
TOTAL	**10**	**100%**	**-11,685**	**100%**

Source: (Prepared by the author)

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Table 30. IAS 36 disclosure requirement a)

A description of CGU, for example, whether it is product line, plant, business operation, geographical area or reportable segment as defined in IFRS 8:

***No. of companies**	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**Average**
Disclosed	8	9	8	8	8	8	8	9	8
Not Disclosed	1	1	2	1	1	1	1	1	1
Partially disclosed	0	0	0	0	0	0	0	0	0
N/A	3	2	2	3	3	3	3	2	3
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

In average, in the case of 1 company no relevant disclosures were provided. Pro Kapital Grupp AS did not dislose any information during the entire tested period. Arco Vara AS did not disclose the relevant information in 2009.

Table 31. IAS 36 disclosure requirement b)

If the aggregation of assets for the identification of the CGU has changed since the previous estimate of the CGU recoverable amount, a description of the current and former way of aggregating assets and the reason for the changing the way the CGU is identified:

***No. of companies**	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**Average**
Disclosed	0	0	0	0	0	0	0	0	0
Not Disclosed	1	2	3	1	1	1	1	1	1
Partially disclosed	0	0	0	0	0	0	0	0	0
N/A	11	10	9	11	11	11	11	11	11
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

In average, in the case of 1 company no relevant disclosures were provided. Pro Kapital Grupp AS did not dislose any information during the entire tested period. Arco Vara AS did not disclose the relevant information in 2009. Tallinna Kaubamaja AS changed the level of CGUs in 2008 from the legal entity to the operating segment level. In 2007 applied CGU was one legal entity in Estonia (KIA Auto AS). In 2008 Tallinna Kaubamaja AS used 2 CGUs on the level of operating segments – car trade segment (incl. one legal entity KIA Auto AS mentioned above) and footwear segment (incl. 4 legal entities Suurtuki SA, Suurtuki NK AS, ABC AS and ABC King SIA). There were no descriptions of the current and former way of aggregating assets and the reason for the changing CGUs in the financial statements.

For IAS 36 disclosure requirement c) was made the same conclusion as for aforementioned IAS 36 disclosure requirement a). Therefore, no separate table was prepared by the author in the Appendix 13.

Table 32. IAS 36 disclosure requirement d)

If the recoverable amount is fair value less costs to sell, the basis used to determine fair value less costs to sell:

***No. of companies**	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**Average**
Disclosed	0	1	1	1	1	1	1	1	1
Not Disclosed	1	1	2	1	1	1	1	1	1
Partially disclosed	0	0	0	0	0	0	0	0	0
N/A	11	10	9	10	10	10	10	10	10
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

The relevant comments are presented under the Table 30. *IAS 36 disclosure requirement a)* above.

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Table 33. IAS 36 disclosure requirement e)

If the recoverable amount is value in use, the discount rates used in the current estimate and previous estimates of value in use:

***No. of companies**	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**Average**
Disclosed	7	8	6	6	5	5	7	8	7
Not Disclosed	1	1	2	1	2	1	1	1	1
Partially disclosed	1	0	1	1	1	2	0	0	1
N/A - no goodwill	3	3	3	4	4	4	4	3	4
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

In average, in the case of 1 company no relevant disclosures were provided. Pro Kapital Grupp AS did not dislose any information during the entire tested period. Arco Vara AS did not disclose the relevant information in 2009. Merko Ehitus AS did not disclose discount rates used in 2011.

There were partial disclosures in the case of 3 companies (in average, 1 company per year). Ekspress Grupp AS disclosed discount rates partially in 2007. Discount rates (for CGUs of Delfi Grupp companies) for subsequent impairment testing of goodwill were disclosed for business combinations after 2007. However, the relevant discount rates were not disclosed for business combinations before 2007. Tallink Grupp AS did not disclose prior year discount rates in the period 2007–2012. Merko Ehitus AS did not prior year discount rates in 2012.

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Table 34. IAS 36 disclosure requirement f)

The event and circumstances that led to the recognition or the reversal of the impairment loss:

***No. of companies**	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**Average**
Disclosed	0	2	3	1	2	0	3	3	2
Not Disclosed	2	2	3	1	1	1	1	1	2
Partially disclosed	0	1	0	0	0	0	0	0	0
N/A	10	7	6	10	9	11	8	8	9
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

In the case of 4 company no relevant disclosures were provided (in average, 2 companies per year). Pro Kapital Grupp AS did not dislose any information during the entire tested period. Arco Vara AS and Tallink Grupp AS did not disclose the relevant information in 2009. Silvano Fashion Grupp AS did not disclose the relevant information in the period 2007–2008.

There were partial disclosures in the case of 1 company Arco Vara AS. In the case of this company two subsidiaries (CGU Service segment) with goodwill impairments out of 3 companies had negative equity in 2008. Those 2 companies were sold at the end of 2008. However, there were no explanation regarding the impairment of goodwill of the third company (CGU Construction segment) provided in the financial statements.

Appendix 13. Tables for the empirical research performed in the section 2.2.4 (continued)

Table 35. IAS 36 disclosure requirement g)

The amount of the impairment loss recognized or reversed:

***No. of companies**	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**Average**
Disclosed	2	5	5	1	2	0	3	3	3
Not Disclosed	0	0	1	1	1	1	1	1	1
Partially disclosed	0	0	0	0	0	0	0	0	0
N/A	10	7	6	10	9	11	8	8	9
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

In the case of 1 company no relevant disclosures were provided. Pro Kapital Grupp AS did not dislose any information during the entire tested period.

Table 36. IAS 36 disclosure requirement h)

In case of CGU the amount of the impairment loss recognized or reversed by the class of assets and based on the entity's primary reporting format:

***No. of companies**	**2007***	**2008***	**2009***	**2010***	**2011***	**2012***	**2013***	**2014***	**Average**
Disclosed	2	5	4	1	2	0	3	3	3
Not Disclosed	0	0	2	1	1	1	1	1	1
Partially disclosed	0	0	0	0	0	0	0	0	0
N/A	10	7	6	10	9	11	8	8	9
TOTAL	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**

Source: (Prepared by the author)

The relevant comments are presented under the Table 30. *IAS 36 disclosure requirement a)* above.