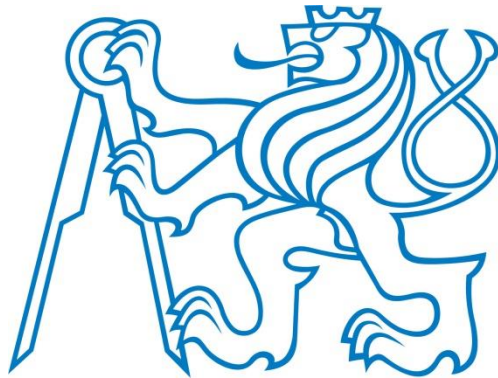


CZECH TECHNICAL UNIVERSITY IN PRAGUE

FACULTY OF CIVIL ENGINEERING

DEPARTMENT OF ECONOMICS AND MANAGEMENT IN CIVIL  
ENGINEERING



# **DIPLOMA THESIS**



## ZADÁNÍ DIPLOMOVÉ PRÁCE

### I. OSOBNÍ A STUDIJNÍ ÚDAJE

Příjmení: Kolečák	Jméno: Lukáš	Osobní číslo: 380536
Zadávací katedra: Katedra ekonomiky a řízení ve stavebnictví		
Studijní program: Stavební inženýrství		
Studijní obor: Projektový management a inženýring		

### II. ÚDAJE K DIPLOMOVÉ PRÁCI

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Pokyny pro vypracování: V rámci diplomové práce bude komplexně zpracována problematika finanční analýzy stavebního podniku a její význam pro jeho řízení. V praktické části práce budou analyzována data mezinárodní společnosti Skanska AB. Výstupem práce bude analýza procesu finanční analýzy a všech jejích aspektů v rámci řízení podniku včetně vyvození konkrétních závěrů a doporučení pro společnost Skanska AB.	
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Jméno vedoucího diplomové práce: Ing. Radan Tomek MSc.	
Datum zadání diplomové práce: 29.6.2016	Termín odevzdání diplomové práce: 8.1.2017
Podpis vedoucího práce	Podpis vedoucího katedry

### III. PŘEVZETÍ ZADÁNÍ

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Datum převzetí zadání	Podpis studenta(ky)
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## **Declaration**

I hereby declare that I elaborated this thesis by myself only with the guidance of my thesis supervisor Ing. RadanTomek MSc. from CTU in Prague and consultant prof. He Tai-Sen from Nanyang Technological University in Singapore.

I also declare that all the documents I used and from which I derived are listed in the bibliography.

In Singapore

07/01/2017

.....

*Lukáš Koleňák*

## **Acknowledgment**

I would like to thank both my supervisors, Ing. RadanTomek MSc. from CTU in Prague and prof. He Tai-Sen from NTU in Singapore, for their valuable advice and continuous support throughout the thesis work.

# **Financial analysis of Skanska AB**

## **Annotation**

Hereby presented diploma thesis "Financial analysis of Skanska AB" is aimed to analyze and describe financial situation of the construction company Skanska AB. The main source of analyzed data and information are Skanska's annual reports whereby we used largely reports from years 2009 to 2015. Both vertical and horizontal analyses are used on data from these reports to provide us with a relevant picture of the financial and nonfinancial position, and overall condition of the Skanska AB company. To get a better perspective of financial development of the company in response to the latest financial crisis, i.e. 2007/2008, some chosen ratios and data are compared with data from annual reports from years 2006 - 2008 as well.

The thesis consists of two main parts - theoretical and practical. The theoretical part deals with a general description of financial analysis methods with a framework for the implementation of the methodology for the practical part of the thesis. It also describes basic elements of accounting together with the interconnectivity of financial statements.

The practical part puts the theoretical principles from the first part into practice, i.e. on the financial statements and data of Skanska AB. This part begins with a brief introduction of the company itself, with its sphere of activity both geographically and professionally. Then Skanska's adequate ratios and indicators are calculated with a comparison of its competitors and general industry benchmarks. The results are then interpreted with recommendations and possible further arising challenges therefrom.

## **Keywords**

Financial analysis, Skanska, statement of income, balance sheet, cash flow statement, vertical analysis, horizontal analysis, liquidity ratios, profitability ratios, debt ratios, activity ratios, market ratios, ratio analysis, EVA, WACC

## **Anotace (CZE)**

Cílem zde představené diplomové práce "Finanční analýza Skansky AB" je analýza a popis finanční situace stavební společnosti Skanska AB. Hlavním zdrojem dat byly výroční zprávy z let 2009 až 2015. Abychom dostali představu o finanční i nefinanční situaci, stabilitě a zdraví společnosti Skanska AB, jak vertikální tak horizontální analýzy jsou aplikovány na data z těchto výročních zpráv. Pro lepší představu o finančním vývoji firmy během a bezprostředně po finanční krizi 2007/2008, vybrané ukazatele a data jsou použity a analyzovány i z předchozích výročních zpráv tj. 2006 až 2008.

Diplomová práce se skládá ze dvou částí- teoretické a praktické. Teoretická část se zabývá základním popisem finanční analýzy a jejích metod včetně vytvoření rámce pro pozdější praktickou část. V rámci teoretické části budou zároveň nastíněny základní elementy účetních výkazů včetně jejich vzájemné provázanosti.

Praktická část aplikuje teorii popsanou v teoretické části na konkrétní data, jmenovitě na data z účetních výkazů stavební společnosti Skanska AB. Nejprve je ve stručnosti představena samotná společnost včetně působnosti jak oblastní tak profesní. Následně jsou vyčísleny jednotlivé ukazatele s porovnáním s vybranou konkurencí a průměry z odvětví. Výsledky jsou poté vysvětleny společně s návrhy opatření jak pro bezproblémový chod společnosti, tak pro zlepšení její výkonnosti.

## **Klíčová slova**

Finanční analýza, Skanska, výkaz zisku a ztrát, rozvaha, výkaz cash flow, vertikální analýza, horizontální analýza, ukazatele likvidity, ukazatele aktivity, ukazatele zadluženosti, ukazatele rentability, tržní ukazatele, analýza ukazatelů, EVA, vážený průměr ceny kapitálu (WACC)

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## Introduction

Since the latest financial crisis hit the markets in 2007/2008, the world has been struggling with aftermath, continuously questioning financial stability of particular companies, industries or even the whole system. Practically all industries were struck by the financial crisis and one of the most damaged industries was construction. Even though the crisis is gone, based on history it seems practically inevitable that there will be sooner or later a new one. We will look at the latest situation in construction industry in order to see if it would be able to withstand such a new possible crisis.

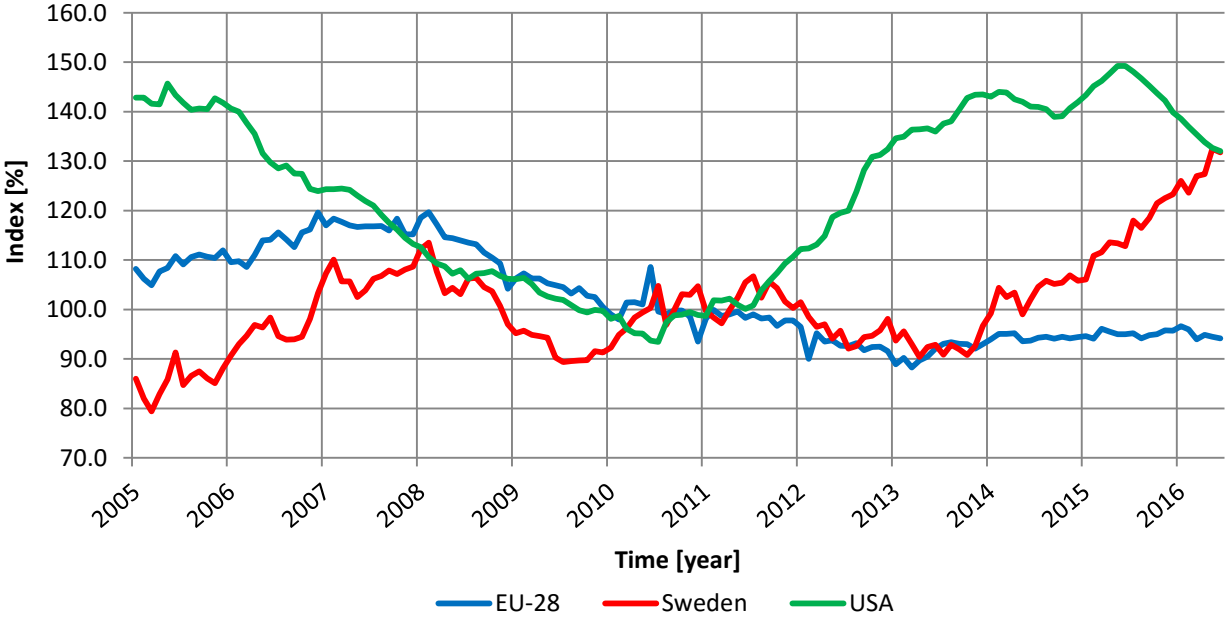
More specifically, the aim of this thesis is to describe a financial condition and health of one of the largest construction company in the world with a sketch of three other large international construction companies. This description will be done as both ex post and possible probable future development with adjusting the company's level of stability. To do that, financial data from the last few years will be analyzed and evaluated after which there shall be a proposal of a possible financial outlook with potential threats and areas to be improved.

Due to the global financial crisis (2007/2008) that hit the markets, construction industry has been globally under a lot of financial pressure as can be for example seen in Chart 1, which represents indexed production in construction industry (seasonally adjusted) from January 2005 till June 2016. Since we are going to analyze Skanska AB, we have intentionally chosen to include statistics separately for European Union, USA and Sweden, because Skanska AB earns about 1/3 of its revenues from each of these three regions. From the Chart 1 we can also see that construction industry in the European Union is still struggling while USA and Sweden erased most of their after-crisis drawdown and they seem to be growing again. In this thesis, we will also look at how this development has influenced company's revenues, profits and overall development.

Basically there were two main reasons of the downfall of construction industry during the crisis. One of them was liquidity crisis that arose from the housing bubble that burst in the USA. That has led to drying of the global money pool from which construction companies (but not only them) fund most of their operations and projects. The second reason was a general decrease of demand both in private sector and public sector (especially in Europe) which can be partially seen also in

Picture 1. In this thesis we will analyze if the construction industry, respectively one of its key players, is in a stable condition with a sufficient liquidity and capability to withstand possible crisis and if it has a potential for a healthy grow under normal market conditions. At the end of the thesis, both partial and overall conclusions and recommendations what to focus on, in order to above mentioned goals, will be offered as well.

Chart 1: Production in construction industry (index, 2010=100)



Source: Own creation based on data from [1] and [2]

As a tool for this goal we are going to use a financial analysis, both vertical and horizontal. We are going to analyze Skanska’s financial reports over the course of past years, to see possible trends, as well as in more detailed look over particular years together with its inner financial structures. For that we will use different financial ratios and indicators, which will be introduced and described in the theoretical part of the thesis.

In our opinion financial analysis is necessary for any company in order to be well managed and ipso facto to grow and remain stable. There are more types and approaches to financial analysis depending on who uses it and what industry it is applied on. In this thesis we will focus mainly on construction industry and its largest participants. That is why some ratios might not be included while there might be very thorough focus on other because we consider them more important for this particular type of business.

## **I. Theoretical part**

In the first part we are going to describe purpose and creation of a financial analysis in general, with its benefits as well as possible obstacles and limitations. We are also going to briefly look at financial statements from which the analysis uses and processes the data. Then we will review basic indicators and ratios, what they represent, how they are calculated, why they are important and in some cases what values they should or should not reach. At the end of the theoretical part we will take a closer look at calculation of economic value added with WACC after which two basic bankruptcy models will be presented and explained as well. Most of these indicators, ratios and models will be then calculated and most importantly evaluated in the second (practical) part of the thesis.

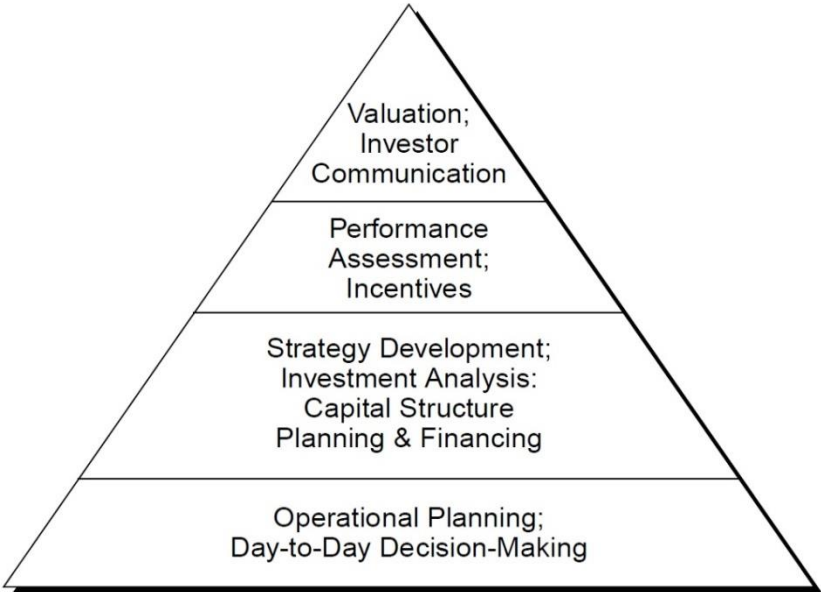
### **1 Financial analysis of a company**

To understand a company's condition, both ex post and possible future development with sustainability, we use a financial analysis. Typically, a financial analysis is used to analyze whether and to what extent an entity is stable, solvent, liquid, or profitable. In other words it examines past performance of a company in order to optimize ratios of individual items as well as it tries to derive company's future. Information gathered from any financial analysis also need to be interpreted correctly because well understood gained data is crucial for an effective managing of any company.

Management of a company is not the only user of a financial analysis; others are for example creditors (typically banks), investors, business owners etc. The diagram in Picture 1 shows four key areas in the typical business where financial analysis is a necessary ingredient. This conceptual pyramid rests on the broadest area: day-to-day decisions and operational planning. It successively rises via strategy development, investment analysis and capital structure planning, on to performance assessment and incentives, and finally to valuation and investor communication [3, p. 35]. Naturally, these areas are not exclusively dependent on a financial analysis and they usually need more inputs and information to make a right decision for the time being.

Since the results of financial analysis are usually dimensionless or just a percentage, an interpretation, via for example comparison, should be made afterwards in contrast either with competitors and their ratios and indicators or in contrast with the industry benchmarks. Another option is to look and interpret trends and movements of the results over time or ideally use a combination of both mentioned methods.

Picture 1: Diagram of areas for financial/economic analysis



Source: [3, p. 35]

### 1.1 Limitations of a financial analysis

Even though financial analysis is a very useful tool, it has its limitations and obstacles. First of all there is a risk of misleading numbers that are provided, which can be caused intentionally or unintentionally hence results of such an analysis are misleading as well. Typical discrepancy of numbers can be caused for example by inflation, which may distort the balance sheet as well as profits over time, by write-offs of assets which may lead to divisions between accounting value and reality, by under/over-estimated reserves or by accelerated recognition of revenues (over/under-billing) etc. [4, p. 38]. Also some items may not be even mentioned in the financial reports, as for example some intangible assets such as R&D and brands, which are not reported on the balance sheet, because accounting rules in most countries specifically prohibit the capitalization of them [4, p. 46].

Another problem arises from a high dependence on assumption of prevailing situation. Since one of the main reasons for creating and interpreting any financial analysis is to predict and improve future outcome, in the form of planning [5, p. 11], while sources for that are exclusively a matter of the past. Problem of expectation of prevailing situation or at least its similar development relates not only to a company itself but to the future behavior of markets and political will as well. Results and forecasts derived from any financial analysis then depend a lot on a stable and predictable political stability and of course on a status of financial markets in general, which should be taken under consideration at interpretation of the results.

As for the more specific problems within a company that can occur, we can name overall uncertainty of the gained result(s). For example a company may have some good and some bad ratios, making it difficult to tell if it's a good or weak company or deciding which ratio is more relevant and by how much [6]. Also it can be sometimes difficult to decide whether a particular ratio is good or bad such as high cash ratios which can be interpreted as a good sign, company is generating large amount of cash, but also it may be seen as a lack of space where to invest or typically for construction company lack of projects which may lead to a devaluation of the whole company in time. Plus every company is unique with a lot of specifics and what might appear as a good sign for one company can be very problematic for another. So it is necessary to always consider all aspects of a company, not just its accounting figures and numbers from the financial analysis alone.

Despite of all the limitations and problems mentioned above, financial analysis remains one of the key areas for any management to look after. In general, ratio analysis conducted in a mechanical, unthinking manner is dangerous. On the other hand, if used intelligently, financial analysis can provide insightful information [6].

## **2 Sources of information**

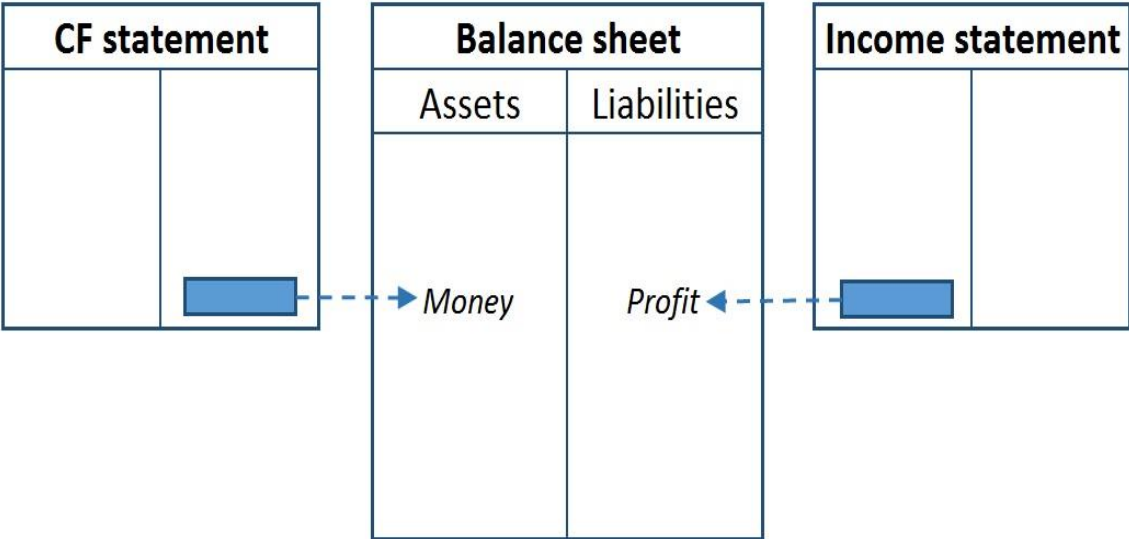
There are three main sources of data for the financial analysis: *balance sheet* (also known as “statement of financial position”), *statement of income* (sometimes referred to as “the profit and loss account”) and *cash flow statement*. These financial statements and related disclosures inform us about the four major activities of the company: planning, financing, investing, and operating [7, p. 15]. They are interconnected as can be seen in Picture 2. This interconnectivity is important for

valid interpretation and understanding of any financial analysis, including our results given further in this thesis.

Reliability and accuracy of data from these statements are crucial for further usage and should be guaranteed by a relevant authority, most typically by an auditor. Although, neither auditor’s guarantee is not always assurance of correct numbers, as we could have seen for example in cases of Enron, WorldCom, Tyco or Parmalat in Europe [8, p. 15].

Also, to support the accuracy, the reports should be in order with an adequate and relevant accounting standards such as IAS, IFRS or GAAP (or combination), depending on the country and partially on the management decision. Purpose of these standards can be interpreted by IAS 1 as “...to prescribe the basis for presentation of general purpose financial statements to ensure comparability both with the entity’s financial statements of previous periods and with the financial statements of other entities. It sets out overall requirements for the presentation of financial statements, guidelines for their structure and minimum requirements for their content.” [9].

Picture 2: Interaction between financial statements



Source: Own creation

### 2.1 Balance sheet

It consists of two sides- assets (on the left or at the top) and liabilities with shareholder’s equity (on the right or at the bottom). The name “balance sheet” is



derived from the fact that the two sides of it have to always balance out. Balance sheet gives us information about what the company owns (assets) and where the resources for it come from (equity and debt) at a specific point in time.

### **2.1.1 Assets**

Accountants define assets as resources that a firm owns or controls as a result of past business transactions, and which are expected to produce future economic benefits that can be measured with a reasonable degree of certainty [4, p. 37], [10]. Assets are usually further divided into two subsections: *fixed* or *non-current* (long-term) and *current* (short-term) assets. An asset is regarded as a current asset if it is expected to be realized within twelve months from the closing day or within the company's operating cycle [11, p. 74], which are typically for example cash, inventories or receivables. Another possible subdivision is into *tangible* and *intangible* assets.

### **2.1.2 Liabilities**

A liability is defined as "a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits" [10, p. 24]. In other words liabilities represent sources of some assets funding in form of debt. Liabilities include obligations to customers that have paid in advance for products or services (in construction industry typically overbilling); commitments to public and private providers of debt financing; obligations to federal and local governments for taxes; commitments to employees for unpaid wages, pensions, and other retirement benefits; and obligations from court or government fines or environmental cleanup orders [4, p. 53]. Liabilities are as well as assets divided into *current* and *non-current* liabilities, with analogical rules as for assets mentioned in 2.1.1.

### **2.1.3 Equity**

Equity represents the owners' share of business. Together with liabilities they sum up to the same number as total assets, creating the balance of statement of financial position. From there we can quantify Equity for example as (1).

$$\text{Equity} = \text{Total assets} - \text{Total liabilities} \quad (1)$$

In our case (Skanska AB), the company's equity is allocated between "Share capital", "Paid-in capital", "Reserves", "Retained earnings" and "Non-controlling interests" [11, p. 75].

From another, non-accountant's, perspective the term equity generally refers to the present value of future cash flows accruing to the firm's owners [12, p. 56]. Difference between these two points of view can be significant, especially in a case of negative value of equity.

## **2.2 Statement of income**

The income statement reflects the effect of management's operating decisions on business performance and the resulting accounting profit or loss for the owners of the business over a specified period of time [3, p. 65]. It displays revenues (recognized for a specific period) on one side, and the costs and expenses charged against these revenues, including write-offs (e.g., depreciation and amortization of various assets) and taxes on the other side [3, p. 65-67].

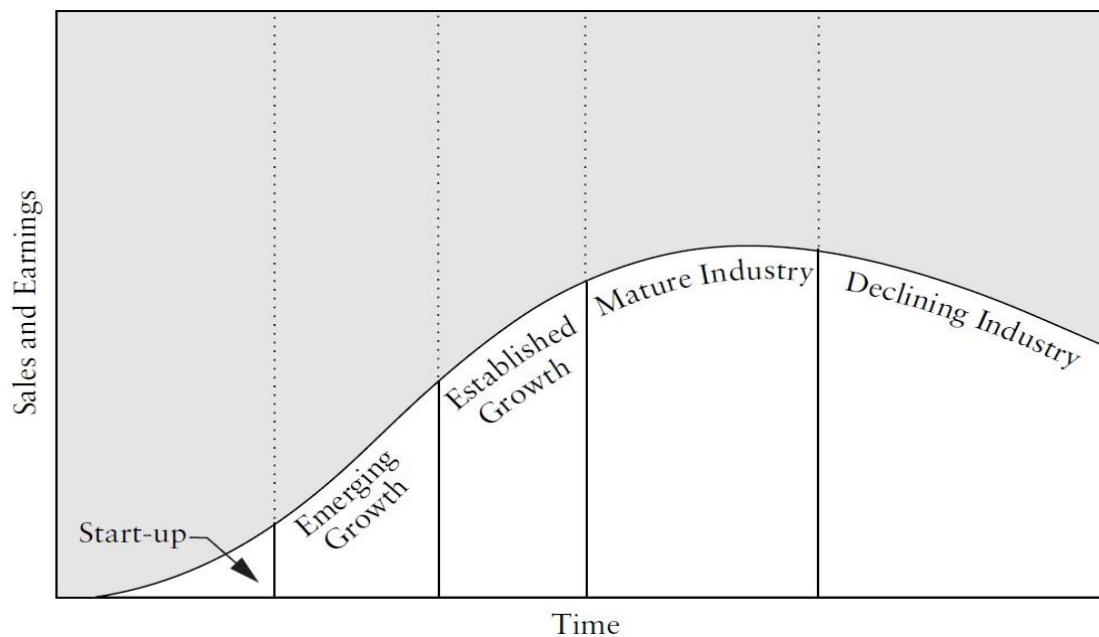
## **2.3 Cash flow statement**

Unlike the statement of income, numbers in the CF statement represent real and final money movements. Cash flow statement provides aggregated data regarding all cash inflows a company receives from its ongoing operations and external investment sources, as well as all cash outflows that pay for business activities and investments during a given period [6]. Cash flows can be classified as *operating*, *investing* or *financing*.

Even though the cash flow statement is useful in general analysis, it is the key statement to examine when analyzing a troubled company [12, p. 116]. Also the cash flow in any year (or short period of years) is "meaningless" and easy to manipulate. A company can delay capital spending or cut back on advertising or research to improve short-term cash flow. Large negative cash flow is not a bad thing if the company is investing to generate even larger cash flows in the future [13, p. 82].

Analysis of statement of cash flow together with income statement, respectively their development over time, can also help us with “...determining where a company is in its life cycle, that is, whether it is “taking off,” growing rapidly, maturing, or declining” [12, p. 115]. General life cycle of a company is usually similar to Picture 3.

Picture 3: Life cycle of a business



Source: [12, p.117]

## 2.4 Horizontal analysis

In general there are two main approaches to analyze a company’s accounting. One of them is a horizontal analysis, also known as “comparative financial statement analysis” [7, p. 28]. It focuses on data, their development and trend over time, usually years (from there the name “horizontal”).

Horizontal analysis involves comparing of financial statements from different periods as well as from different companies. The most important information revealed from comparative financial statement analysis is trend [7, p. 28]. Horizontal analysis does not focus only on trend of a particular item, but it also focuses on trends in related items. For example, in year-to-year comparison, if sales increase by 5% and freight-out costs increase by 20% it should be examined and explained. In such cases we look for reasons behind differences in these interrelated rates and any implications for our analysis [7, p. 28]. So analysis (in this case both horizontal and

vertical) should be seen as a complex interconnected process, where almost no number is relevant by itself and without a context.

## **2.5 Vertical analysis**

Second approach is focused on calculating data from one particular year and is called “vertical analysis” or “Common-Size Financial Statement Analysis” [7, p. 31]. It explores movements and ratios of individual items in the financial statements. It also describes composition of particular items (for example composition of assets) and sources of financing including the distribution of financing across liabilities.

Vertical analysis is helpful in disclosing the internal structure of the business and potential areas [14, p. 575]. Since average values of particular ratios gained from a vertical analysis are easily accessible (even for most of the specific industries), almost all really problematic results can be then rather simply spotted.

## **3 Ratios analysis**

Generally speaking, ratio is a mathematical relation between two quantities [15, p. 262], usually in a form of a difference or a quotient. In financial analysis, there are many ratios but in general they can be divided into five main groups: profitability ratios, market ratios, liquidity ratios, activity ratios and debt ratios. This division isn't the only one possible as well as these categories are not mutual exclusive. For example activity ratio such as payables turnover may also provide information about the liquidity of a company. Also there is not one standard set of ratios for financial analysis and different analysts use different ratios and even different calculation methods for similar ratios [5, p. 149].

### **3.1 Profitability ratios**

The first category is profitability ratios. Generally speaking, for the profitability ratios apply the higher the better. Profitability ratios focus on different kind of economic gains (typically profits) related to another accounting item, because absolute dollar profit alone “...is of minimal significance unless it is compared to the assets generating it” [14, p. 630].

### 3.1.1 Return on assets

ROA is an indicator of how profitable a company is relative to its assets. In other words how well does a company generate earnings from usage of its assets. Comparison of this ratio with other companies is useful mainly with companies in the same industry but not so much in cross-industry comparison. Reason for that is simply a vast variability of assets needed for different businesses as well as a divergence in usual profits. ROA is defined as (2).

$$ROA = \frac{Net\ profit}{Assets} \quad (2)$$

Alternatively we can also use RONA (return on net assets) or RNOA (return on net operating assets). In these cases we just replace “Assets” (i.e. denominator) with “Net assets” respectively “Net operating assets”.

### 3.1.2 Return on equity

Shareholders are rather interested in the return the firm can generate on their investment. The ROE is the ratio of the net income shareholders receive to their equity in the stock [15, p. 267]. Value of ROE in construction industry, which is defined as (3), is in average around 15%-20% [16], [17], but it is affected by many aspects typical for the particular company, mainly by financial leverage (as can be seen in 3.2).

$$ROE = \frac{Net\ income}{Book\ value\ of\ shareholder's\ equity} \quad (3)$$

It can be also calculated by (4), meaning multiplying ROI with equity multiplier which “...reflects the impact of the leverage (use of debt) on stockholders’ return” [14, p. 383].

$$ROE = ROI * Equity\ multiplier \quad (4)$$

Where:

$$Equity\ multiplier = \frac{Total\ assets}{Stockholders'equity} \quad (5)$$

$$= \frac{1}{(1 - Debt\ ratio)}$$

The return on equity is often more thoroughly analyzed using the DuPont decomposition, which is described in part 3.2 of this thesis. A similar ratio to ROE is the return on common equity, in which we deduct preferred dividends from net income. A result of that ratio measures accounting profits available to common stockholders, instead of common and preferred stockholders [5, p. 158].

### **3.1.3 Return on investment**

Every company pursues a number of activities in a desire to provide a salable product or service and to yield a satisfactory return on investment [7, p. 15]. Indicator ROI (also known as ROIC; return on invested capital) provides a "...standard for evaluating how efficiently management employs the average dollar invested in a firm's assets, whether that dollar came from owners or creditors" [6]. Furthermore, a better ROI can also translate directly into a higher return on the stockholders' equity [14, p. 375]. General formula is (6), which is eventually very similar to (2), because numerator at (6) represents net profit from investment. Also if there are no loans, meaning there is only equity, value of ROI is then identical to the value of ROE.

$$ROI = \frac{Gain\ from\ Investment - Cost\ of\ Investment}{Cost\ of\ Investment} \quad (6)$$

Even though ROI is very similar to ROA, comparison of different ROAs, as we have mentioned at 3.1.2, is usable only when comparing companies within the same industry. However if an investor wants to decide which company will probably generate the highest profit, regardless of allocation of his capital, he can use ROI instead of ROA across all industries and still get relevant results.

### **3.1.4 Return on sales**

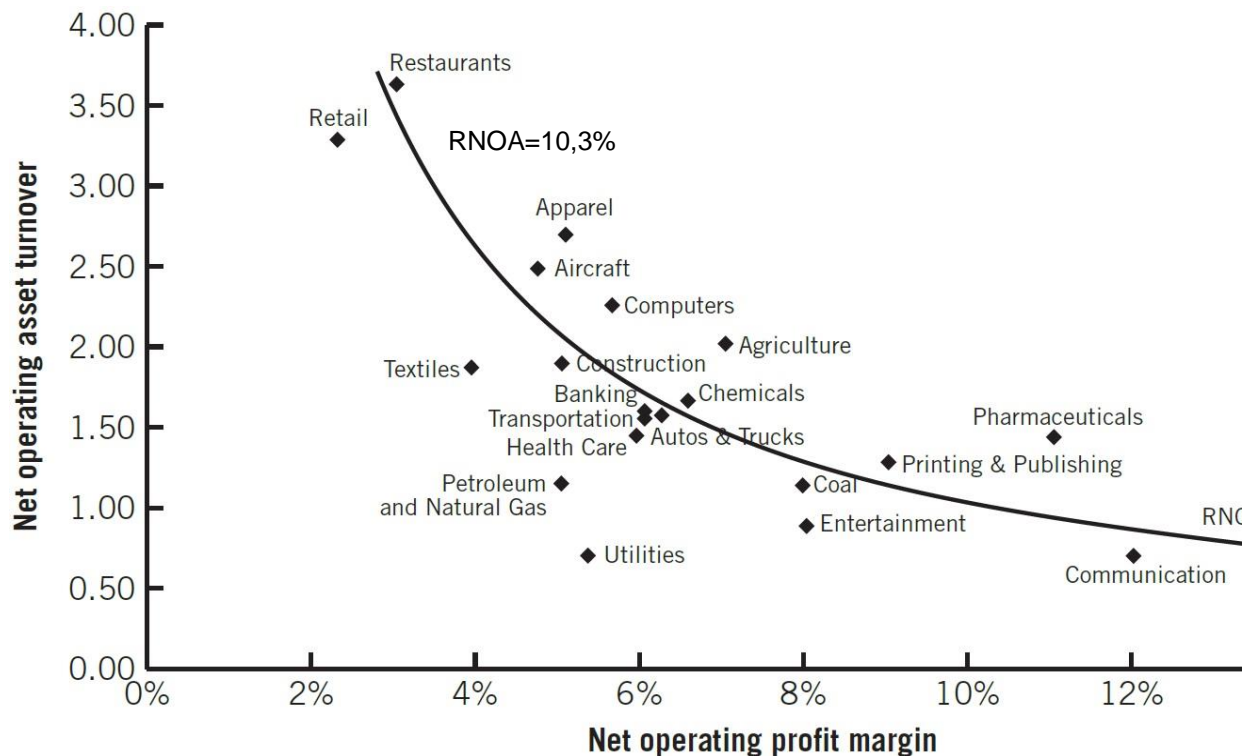
Also known as "Profit margin" or "Profit margin on sales" (PMOS) [18, p. 59] shows the profitability of the company's operating activities. It gives us information, how much money the company generates from revenues.

$$ROS = \frac{NOPAT}{Sales\ revenue} \quad (7)$$

$$ROS = \frac{Gross\ profit - operating\ and\ other\ expenses - interest - taxes}{Sales\ revenue} \quad (8)$$

There are basically two types: gross and net profit margin. Gross profit margin represents total revenues without COGS divided by revenues. On the other hand net profit margin also considers all other expenses (all overhead). The net profit margin is a more accurate measure of a company's profitability, as it reveals the percentage of revenue that actually reflects a company's profit per dollar of sales [6]. For example in construction industry gross profit margin is usually around 5-12% depending on the size of a company, meaning the ratios above 10% are usually for the smallest companies [19]. Formula for net operating profit margin is defined as (7) or as a derivation from gross profit as (8). Sometimes EBIT is used as numerator instead of NOPAT in (7) respectively interest and taxes may not be subtracted from the numerator in (8).

Chart 2: Interconnectivity of margins and asset turnover



Source: [7, p. 458]

ROS differs from sector to sector and higher percentage does not have to necessarily mean a better company. That is why it is desirable to look at profit margins together with net operating assets turnover as can be seen in Chart 2 (the value of RNOA=10,3% represents median for publicly traded companies). We can see that profit margins for construction business are around 5% which is slightly below the RNOA curve, which correlates with statistics from CFMA 2011 Financial survey, where the net operating profit margins for the most successful and largest construction companies were 5.1% [16]. As another example, to show how important it is to put particular ratios in comparison, we can mention a supermarket, which "...can operate with margins around 1%-2% because of its very high turnover with relatively low asset investment" [7, p. 458].

### **3.1.5 Return on capital employed**

ROCE indicates how many dollars of profit are obtained from every dollar of resource under management's control [20, p. 720]. It is a measurement of efficiency of usable capital and is defined as (9).

$$ROCE = \frac{EBIT}{Capital\ Employed} \quad (9)$$

Capital employed includes all the long-term funds in the balance sheet, that are shareholders' funds plus long-term loan plus miscellaneous long-term funds which in other words means total assets minus current liabilities. Since it includes long-term loan, corresponding interest on these loans should be added back into the numerator [21, p. 471].

Final value of ROCE should be higher than average interest rate [22, p. 80] (of course with similar rate of risk), because if it was not, creditors would invest somewhere else which would possibly lead to problems with company's operations financing. Also when comparing ROCE, especially its development over period of time, we should be aware of development of assets as well. Since the denominator includes long-term assets, which may change their accounting values over time easily (write-offs or revaluation to market values), due to which the value of ROCE can change dramatically in time without significant changes in overall business.



### 3.1.6 Overhead ratio

Overhead ratio takes under consideration the impact of labor and non-labor expenses that both can or cannot be directly associated with a specific cost area, job, or task (i.e. operating expenses) and compares it with income. Formula for company's overhead ratio is defined as (10).

$$\text{Overhead ratio} = \frac{\text{Operating expenses}}{\text{Taxable net interest income} + \text{operating income}} \quad (10)$$

The higher the ratio is, the more expensive the costs for products are. There are also possible some modifications such as overhead ratio from indirect costs, which are directly unrelated to products. Since construction industry usually has large expanses on site (work force and materials), overhead ratio for indirect costs should be quite low (ideally under 10% [23, p. 3]).

## 3.2 DuPont system

DuPont decomposition uses basic algebra to break down particular profitability ratio into a function of different ratios, so an analyst can see their impact on original ratio. The idea is generally credited to Donaldson Brown, who developed the formula while at E. I. du Pont de Nemours, then applied it during the 1920s as vice president of finance at General Motors [12, p. 351].

Most commonly decomposed ratio is ROE. There are two variants of DuPont decomposition of ROE: the original three-part approach and the extended five-part system.

The original approach begins with ROE multiplied by (*revenue/revenue*) resulting in (11)

$$ROE = \frac{\text{net income}}{\text{revenue}} * \frac{\text{revenue}}{\text{equity}} \quad (11)$$

or in other words (12).

$$ROE = \text{net profit margin} * \text{equity turnover} \quad (12)$$

Then we can expand (12) by multiplying it by (*assets/assets*) which will give us formula (13),

$$ROE = \frac{\textit{net income}}{\textit{sales}} * \frac{\textit{sales}}{\textit{assets}} * \frac{\textit{assets}}{\textit{equity}} \quad (13)$$

which means (14).

$$ROE = \textit{net profit margin} * \textit{asset turnover} * \textit{leverage ratio} \quad (14)$$

Decomposition of ROE into formula (14) provides us with insightful information and helps us to better understand this ratio (what is driving the changes in ROE) through the other three key ratios. Thanks to that we can say, that if ROE is relatively low, it must be "...that at least one of the following is true: the company has a poor profit margin, the company has poor asset turnover, or the firm has too little leverage" [5, p. 164].

The second approach, extended five-part system, provides us at the end with formula (15).

$$ROE = (\textit{tax burden}) * (\textit{interest burden}) * (\textit{EBIT margin}) * (\textit{asset turnover}) * (\textit{financial leverage}) \quad (15)$$

Where: tax burden = (net income) / EBT or (1-tax rate)

interest burden = EBT / EBIT

EBIT margin = EBIT / revenue

Similarly to interpretation of (14), extended five-part formula of ROE (15) gives us further understanding about what may cause movements of the ratio. However, this version of the formula (15) shows that more leverage does not always lead to higher ROE. As leverage rises, so does the interest burden [5, p.166], hence positive effect of leverage can be offset by negative effect of higher interests payments arising from the leverage. Also we can see from formula (15) that the higher taxes the lower level of ROE.

Another popular decomposed ratio is ROA. The return on assets can be broken down into its components in a similar manner and result in (16), [15, p. 270].

$$ROA = (\text{operating profit margin}) * (\text{total asset turnover}) * (\text{equity's share of earnings}) * (\text{tax retention \%}) \quad (16)$$

### 3.3 Market ratios

Since our company is publically traded on a stock market, we can analyze its market value ratios. Also, even if our company was not publicly traded, market ratios analysis of specific industry would be still helpful. Simply because "...the value of companies not publicly quoted will be still greatly influenced by the same market" [21, p. 169].

#### 3.3.1 Earnings per share

EPS is simply the amount of earnings attributable to each share of common stock. In isolation, EPS does not provide adequate information for comparison of one company with another [24, p. 304]. Formula for basic Earnings per share is defined as (17).

$$EPS = \frac{\text{Net profit to common stock}}{\text{Weighted average number of shares outstanding}} \quad (17)$$

Next to the basic EPS as (17), which uses the weighted average number of common shares that were actually outstanding during the period, there is also diluted EPS. It uses diluted shares- "the number of shares that would be outstanding if potentially dilutive claims on common shares (e.g., stock options or warrants) were exercised by their holders" [24, p. 8]. If a company has a simple capital structure (i.e. no potentially dilutive securities) basic EPS equals dilutive EPS. If, however, a company has dilutive securities, its diluted EPS is lower than its basic EPS [24, p. 146], because the denominator in (17) is increased.

#### 3.3.2 Price-to-Earnings ratio

Simply stated, P/E ratio is used to show how much money the investors are willing to pay per dollar of profits which leads to formula (18).

$$P/E \text{ ratio} = \frac{\text{Market price per share}}{EPS} \quad (18)$$

The size of P/E ratios should be positively related to growth and negatively related to interest rates and risk [25, p. 2]. The key point when using this ratio is that a result that varies from the industry average probably indicates a change in investor perceptions from the rest of the industry in regard to a company's ability to continue to generate income [26, p. 154].

### 3.3.3 Book value per share

BVPS can be thought of as the amount of money each share would receive if the company were liquidated, based on balance sheet values [27, p. 26], which is reflected in formula (19).

$$BVPS = \frac{\textit{Common equity}}{\textit{Total outstanding shares}} \quad (19)$$

Under normal conditions, however, book value per share will tend to become increasingly remote from current values, because under current accounting rules, positive changes in the values of existing assets are rarely, if ever, reflected on the books [3, p. 401].

If we divide price of a share by BVPS we get a price-to-book value ratio (or P/B ratio) as can be seen in (20).

$$P/B = \frac{\textit{Market price per share}}{BVPS} \quad (20)$$

P/B ratio is often interpreted as an indicator of market judgment about the relationship between a company's required rate of return and its actual rate of return [24, p. 304]. Value of that ratio greater than one would indicate that the future profitability of the company is expected to exceed the required rate of return.

### 3.3.4 Dividend payout

A dividend is the cash, stock or any type of property a corporation distributes to its shareholders. Unlike interest on debt securities, if a corporation does not pay a dividend, there is no violation of a contract and no legal recourse for shareholders [15, p. 103]. One way of describing cash dividends is in terms of the percentage of earnings paid out in dividends, referred to as the "dividend payout" [15, p. 103]. It can be expressed by (21).

$$\text{Dividend payout} = \frac{\text{Dividends per share}}{\text{Earnings per share}} \quad (21)$$

To get further information we can use formula for the *sustainable growth rate* ( $g$ ), which is how fast the firm can grow without additional external equity issues while holding leverage constant [5, p. 169]. It is defined as (22).

$$g = RR * ROE \quad (22)$$

Where RR (retention rate) represents proportion of reinvested earnings and is defines as  $(1 - \text{Dividend payout})$ . It simply states profitability of earnings left in the company for further use.

### 3.3.5 Dividend yield

The dividend yield ratio is useful for determining the return earned by investors from dividends, based on the current market price of a company's stock [26, p. 143]. Dividend yield is calculated by dividing dividends by price as in (23).

$$\text{Dividend yield} = \frac{\text{Annual dividend per share}}{\text{Average market price per share}} \quad (23)$$

When interpreting value of dividend yield we should take under consideration other market ratios, because dividend yield alone ignores other ways of return to be possibly gained (such as an increase of the stock price). For example companies in very fast growing sectors usually do not pay any dividends and rather invest everything they can to expansion so for most of them dividend yield would equal zero, which investors accept because there is a high potential for the stock price increase and possible higher future dividends.

## 3.4 Liquidity ratios

Liquidity ratios attempt to measure a company's ability to pay off its short-term debt obligations. Efficient liquidity is a necessity for any business survival, meaning that even if a company has every other ratio and indicator in perfect shape, inability to pay majority of mature liabilities will cause most likely bankruptcy of the company.

Basically we use three main liquidity ratios, differing in quickness of changeability of particular accounting item(s), particularly assets, into money.

### 3.4.1 Current ratio

First liquidity ratio is called current ratio and is calculated as (23).

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad (24)$$

Current ratio is also known as “Working capital ratio” (do not confuse with 3.4.4 working capital). Value of current ratio above 1.00 means that the company has enough short term assets to cover its short term debts hence it is desirable. From creditors’ point of view the higher current ratio the better. On the other hand too high value of this ratio may not be a good sign either, especially for shareholders because current assets usually have a lower expected return than fixed assets [28, p. 103]. So the shareholders would like to see that only the minimum amount of the company’s capital is invested in current assets meaning in other words that too high current ratio de facto may reduce potential future gains.

It is difficult to come out with some particular numbers in general context, but generally speaking, usually appropriate values of current ratio at normal market conditions are between 1.2-2.5, depending on industry, size of the company, market situation etc. As for the construction companies, because of general lower turnover ratios, lower levels of current ratio are more often and understandable, so for large companies we should consider their current ratio around 1,1-1,5 as efficient [16], [19], [29].

### 3.4.2 Quick ratio

Second liquidity ratio is called Quick ratio and is defined as (25). It can be seen as more practical since it calculates with current assets without inventory, because, especially in construction industry, changing inventories for usually money can take a long time while some current liabilities do not have so long maturity.

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} \quad (25)$$

Also as for the construction business, we can adjust the formula (25) into a form, where next to “inventory” also prepaids and underbillings are not taken under consideration [30, p. 219]. We can also see from formulas (24) and (25) that quick ratio will always be smaller than current ratio. In case that value of a quick ratio is too low compared to the current ratio, we may suspect that probably the inventories are higher than they should be.

### **3.4.3 Cash ratio**

Cash ratio represents measurement of the highest liquidity. It ignores inventory and receivables, as there are no assurances that they would be converted into cash in a timely matter to meet the liabilities at their maturity date. The equation for cash ratio is defined as (26)

$$\text{Cash ratio} = \frac{\text{Cash} + \text{Cash equivalents} + \text{Invested funds}}{\text{Current liabilities}} \quad (26)$$

Where cash equivalents may be anything with the highest liquidity such as for example checks or publicly traded securities. Cash ratio shows us how well a company would handle an emergency situation rather than how healthy the company actually is.

### **3.4.4 Working capital**

Working capital is a measure of both a company's efficiency and its short-term financial health [6]. It represents the amount of day-to-day operating liquidity available to a business and it is calculated as (27).

$$WC = \text{Current assets} - \text{Current liabilities} \quad (27)$$

Value of WC informs us about how much money or assets with high liquidity does the company have for its operations (including day-to-day operations) that, which is essential, would generate profits. For construction companies having an adequate amount of WC is crucial, because it determines whether they will be able to realize the volume of works or not. Also larger working capital can provide possible help (to significant extent) with time schedule performance if needed.

Working capital can be also used to determine how much backlog the company can carry without overly stressing their financial resources [30, p. 216]. Easiest way how to get an idea about maximum backlog is to multiply WC by reasonable number (between 7 and 15) depending on the size and capital structure of a company hence usually "...10 is a pretty good guideline for many companies" [30, p. 217].

### **3.5 Activity ratios**

Activity ratios (also known as asset utilization ratios or operating efficiency ratios) measure how well a company has been using its resources (i.e. assets) in form of their turnovers [23, p. 2].

#### **3.5.1 Total asset turnover**

The asset turnover ratio, defined as (28), shows how much revenues are generated by each dollar of total assets, and therefore it measures how hard the firm's assets are working [31, p. 713].

$$\text{Total asset turnover} = \frac{\text{Revenue}}{\text{Average total assets}} \quad (28)$$

In general, total asset turnover is very similar to situation from Chart 2, meaning that different types of industries might have considerably different turnover ratios. Low asset turnover ratios, relative to the industry norms, might mean that the company has too much capital tied up in its asset base. On the other hand turnover ratio that is too high from industry norms might imply that the firm has too few assets for potential sales, or that the asset base is outdated [5, p. 151].

The asset turnover ratio measures how efficiently the business is using its entire asset base, nevertheless if we are interested in how hard particular types of assets are being put to use, we can use below mentioned turnovers of specific assets [31, p. 713].

#### **3.5.2 Inventory turnover**

Inventory is frequently the largest component of a company's working capital; in such situations, if inventory is not being used up by operations at a reasonable pace,



then the company has invested a large part of its cash in an asset that may be difficult to liquidate in short order [26, p. 87]. Inventory turnover ratio indicates how many times inventory is created and sold during an analyzed period. In other words it measures the speed by which a company sells its inventories and is calculated as (29).

Because there are costs related to the inventory (cost of placing order, cost of holding inventory, insurance etc.), the goal of a company is to minimize inventory to its minimum acceptable volume to maintain meeting customers' demand and maintain continuous production (so there are no costs of being out of inventory) [20, p. 730]. Also too much capital tied up in inventory lowers potential profits as mentioned in 3.4.1. Of course there are some exceptions in construction industry, such as when a company expects to participate on a large project. In cases like that it is acceptable to increase inventory to a large extent to ensure there will not be any delays during realization due to lack of materials (from which would arise larger costs than costs related to holding larger inventory in advance). Inventory turnover during that period does not have to be adequate to competitors.

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}} \quad (29)$$

Another way how to look at the inventory turnover is by formula (30), which shows the inverse of the inventory turnover times 365 and is called the *average inventory processing period, number of days of inventory, or days of inventory on hand* [5, p. 150].

$$\text{Average inventory processing period} = \frac{365}{\text{Inventory turnover}} \quad (30)$$

### 3.5.3 Accounts receivable turnover

The receivable turnover (or the Debtor's Turnover Ratio) represents speed with which a company can obtain payments from customers for outstanding receivable balances. High levels of the receivable turnover are desirable because they show ability of a fast collection which can be seen in formula (31). If a company is estimating very high sales levels later in the year, it can result in an inordinately large

figure in the numerator, against which average receivables are compared, which can turn results into an inaccurately high level of the turnover [26, p. 79]. In such case, we can for example multiply current month's sales by 12 to derive/estimate annual sales.

$$\text{Receivable turnover} = \frac{\text{Annual sales on credit}}{\text{Average receivables}} \quad (31)$$

The inverse of the receivable turnover times 365 is the *average collection period, or days of sales outstanding*, which is the average number of days it takes for the company's customers to pay their bills and is defined as (32) [5, p. 150]. Logically the shorter the period is the better for the company because it can use these resources sooner for further operations.

$$\text{Average collection period} = \frac{365}{\text{Receivables turnover}} \quad (32)$$

#### **3.5.4 Fixed asset turnover**

This ratio specifically measures how able a company is to generate net sales from fixed-asset investments [6]. In other words it measures how effectively a company is utilizing its fixed assets and it can be defined as (33)

$$\text{Fixed asset turnover} = \frac{\text{Revenue}}{\text{Average net fixed assets}} \quad (33)$$

Like the total asset turnover, the fixed asset turnover ratio should be near the industry norms. Too high level may indicate lack of equipment to create revenues to company's full potential. Too low levels on the other hand warn us about possible insufficient usage of company's long term assets or/and that there is probably too much capital tied up to them.

#### **3.5.5 Working capital turnover**

How efficiently a company uses its working capital (see 3.4.4.) to generate revenue is measured by the working capital turnover ratio which is defined as (34).

$$\text{Working capital turnover} = \frac{\text{Revenue}}{\text{Average working capital}} \quad (34)$$

In other words it indicates the amount of revenue being supported by each \$1 of working capital employed. Even though the same rule applies as in other turnovers i.e. the higher the better, value of this ratio exceeding 30 may indicate a need for increased working capital to support future revenue growth [17, p. 11]

### 3.6 Debt ratios

It is important to understand, that there is nothing inherently wrong with a debt. Many, if not most, construction enterprises borrow money for many reasons, for example: to increase working capital, for equipment purchases, for business acquisition, to leverage equity or to accommodate seasonal or cyclical peaks. In fact, some debt in the capital structure of a company is preferred by some accountants to minimize owner risk or improve return on investment [30, p. 39]. In general and simply stated, debt is useful as long as its costs do not exceed costs of equity or in other words the weighted average cost of capital (see 4.1) is maintained at lowest levels.

Debt ratios (or sometimes referred to as “Solvency ratios”) show us the company’s overall debt load as well as its mix of equity and debt also known as capital structure. Unlike liquidity ratios from 3.4., debt ratios focus more on solvency i.e. long term ability of a company to finance its obligations.

The term “total debt” in the following ratios could be interpreted in some cases as a synonym to “total liabilities” but sometimes a better interpretation would be that it is any interest bearing obligation i.e. long-term debt plus interest-bearing short-term debt (without for example payables). It will be mentioned which is better in each ratio.

#### 3.6.1 Total debt ratio

Also known as *Debt-to-assets ratio* represents relationship between what a company owns and how much resources were borrowed to purchase it. In case of formula (35), “total debt” represents total liabilities.

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}} \quad (35)$$

Value of this ratio is usually between 0 and 1, while 0 means no debt and 1 meaning that all assets are covered by debt. It is an analogical value to the financial leverage which is described in 3.6.4.

### 3.6.2 Debt to capital ratio

The Debt to capital ratio (or debt to capitalization) refers to the ratio of long-term debt to the total of external and internal funds i.e. total debt + shareholders' equity. It is computed as (36).

$$\text{Debt to capitalization} = \frac{\text{Total debt}}{\text{Total debt} + \text{Total shareholders' equity}} \quad (36)$$

To get a different result than from formula (34), in debt to capital ratio the “total debt” corresponds only to a sum of interest bearing liabilities. Unlike total debt ratio, this ratio ignores liabilities such as for example common receivables or tax liabilities and gives a better view of the capitalization according to a company's financing while taking under consideration only resources which burden its performance with interest.

### 3.6.3 Debt-to-equity ratio

Debt-to-equity ratio (defined as (37)) provides an indication of a company's capital structure and reveals the extent to which management of the company is willing to fund its operations with debt, rather than equity [26, p. 118]. Ideal value of this ratio differs from company to company and is affected not only by industry but also for example by company policy, credit availability, after-tax cost of financing etc. [14, p. 504].

$$\text{Debt to equity} = \frac{\text{Total debt}}{\text{Total shareholders' equity}} \quad (37)$$

In case of (37), “total debt” can be considered as sum of either exclusively interest bearing liabilities or total liabilities.

Debt-to-equity ratio should be watched especially together with ROE. Because management of a company can obtain more debt which is then used to buy back shares which leads to a decrease of equity hence increase of ROE without any change in incomes. In that scenario management should watch for after-tax interest

costs of the created debt in relation with EPS. This strategy works as long as these costs do not exceed the benefits of increased EPS [26, p. 119].

### 3.6.4 Financial leverage

Financial leverage in this context is very similar to the previously mentioned debt-to-equity ratio (sometimes also referred to as leverage ratio). It informs us about how many times company's assets exceed its equity while capturing the impact of all obligations, both interest bearing and non-interest bearing" [5, p. 102]. It can be calculated as (38).

$$\text{Financial leverage} = \frac{\text{Average total assets}}{\text{Average total equity}} \quad (38)$$

As we have mentioned in 3.6.1, the total debt ratio is the same thing as leverage only from a different perspective. Practically reciprocal value of leverage corresponds with difference between total debt ratio and number one as can be seen in formula (39).

$$\frac{1}{1 - \text{Total debt ratio}} = \text{Financial leverage} \quad (39)$$

Sometimes financial leverage is also referred to as a "financial leverage index", defined by formula (40), which obviously gives us the same result as (38) at the end.

$$\text{Financial leverage index} = \frac{ROE}{ROA} \quad (40)$$

From formula (40) we might see better some aspects of a financial structure of a business. If the rate of ROE is significantly higher than the ROA (i.e. higher leverage), then the equity base is comparatively small in relation to the base of assets, which inherently means that the difference between the two is composed of non-equity sources of funding [26, p. 135]. From that we can see that shifting away from debt to more equity, or vice versa, which is in other words changing leverage, has a great impact on return on equity (as was also shown in formulas (14) and (15)).

### 3.6.5 Interest coverage

The interest coverage ratio, calculated as (41), practically measures how many times over a company could pay its current interest payment with its available earnings [6].

$$\text{Interest coverage} = \frac{EBIT}{\text{Interest payments}} \quad (41)$$

The lower the interest coverage ratio is the worse for a company because it means that the costs of debts burden the company more. In general, value of this ratio around 1.5 or lower is considered as dangerous, meaning that 33% decreases of EBIT would automatically lead the company to a situation where it does not create any profit for shareholders respectively for further growth and all earnings are used exclusively for the debt expenses instead.

## 4 Economic value added

The EVA is becoming more popular lately because it eliminates two main problems of the profitability ratios. With profitability ratios, there is a possibility to greatly affect reported profit through legal accounting methods hence affect the ratios. Also, the profitability ratios do not consider value of money in time. This leads to not unusual low correlation between these ratios and prices of stocks on the capital markets [32]. The aim of EVA is to correlate with shareholder value. It can be calculated as can be seen in (42),

$$EVA = NOPAT - \text{Capital} * WACC \quad (42)$$

where: NOPAT = net operating profit after taxes

Capital = capital bound to assets which are used for operating activities

WACC = weighted average cost of capital

Basically, we can see how managers can reach higher values of EVA as (42); in general it can be done "...either by investing additional capital that produces returns above WACC, by reducing capital employed in a business, by improving returns by growing revenues or reducing expenses or by reducing the cost of capital" [6].

Yet there is a problem with this formula of EVA defined as (42) as well. Since the EVA is an absolute indicator, it is affected by the size of the company [32, p. 291]. From there arises the question, how big EVA should be compared to the size of the company. That is why it is more practical to use “Value spread” defined as (43),

$$\begin{aligned} \text{Value spread} &= \frac{EVA}{NOA} \\ &= r - WACC \end{aligned} \quad (43)$$

where: NOA = net operating assets (equivalent to “Capital” from formula (42))  
 r = profitability of net operating assets

Unlike ROE, value spread allows us to compare companies of different size, capital structure and mainly with a different level of risk. Unfortunately a typical construction business is dependable on plenty of work forces (human capital) and a lot of financial capital, which are not included in typical NOA. That leads to lowering the costs of capital, and that is why it is more practical to rather use “Relative EVA by London Business School”, which is defined as (44). Authors of the model EVA also described how to calculate NOA properly, which means 164 accounting adjustments [33, p. 65].

$$\text{Relative EVA} = EVA / (\text{Personal costs} + WACC * NOA) \quad (44)$$

Relative EVA allows us to compare companies with a different work and capital intensity [34, p. 80]. It describes what proportion of created value in a company is for shareholders.

## 4.1 Weighted average cost of capital

Costs of capital correspond with income which investors expect to gain from their investment to the company with an appropriate risk. Still a priori we are not talking about real incomes but opportunity costs [32, p. 206]. And since there are opportunity costs bound to not only external debt from creditors but also to capital of the firm itself i.e. equity, they all need to be taken under consideration. Costs of these capitals, as well as their amount, usually differ from each other, which is why a weighted average is used. Formula for WACC is defined as (45),

$$WACC = (E / V) * R_e + (D / V) * R_d * (1 - T_c) \quad (45)$$

where:  $R_e$  = cost of equity (expected profitability of equity)

$R_d$  = cost of debt

$E$  = market value of the firm's equity

$D$  = market value of the firm's debt (only the interest bearing)

$V$  = total market value of the firm's financing,  $V = E + D$

$T_c$  = corporate tax rate (if applicable [32, p. 207])

To avoid misleading results, capital structure should be determined from market values and not from accounting values [35], [36]. The cost of debt should be calculated as weighted average of effective interest rates which are paid for the debt [32, p. 212]. To calculate effective interest rate we can use formula (46).

$$D = \sum_{t=1}^n \frac{U_t * (1 - d) + S_t}{(1 + i)^t} \quad (46)$$

Where:  $D$  = net amount of debt

$U_t$  = interest payments

$d$  = taxation

$S_t$  = debt payment (debt amortization)

$n$  = number of periods of debt payment

$i$  = interest rate at which the equation equals

If we use this formula (46), we must not use the "tax shield" at (45), because it is already included. In other words, it means that formula (45) will not be in this case reduced by " $(1 - T_c)$ " anymore.

As for the cost of equity, we can determine that by formula (47), which is based on CAPM (capital asset pricing model),

$$R_e = R_f + \beta * (R_m - R_f) \quad (47)$$

where:  $R_f$  = risk free rate

$\beta$  = Beta of the security

$R_m$  = expected market return



If the beta of a security equals number 1, it indicates that the security has the same volatility as the market. If the beta coefficient is lower than 1 the security tends to have lower movements compared to the whole market and analogically if the beta is larger it indicates bigger volatility. There are more methods how to determine  $\beta$ , but since it is not the aim of the thesis, we just recommend seeing for example [32, p. 217-233] or [37, p. 424] for further understanding. As for the risk free rate, yield of long term (with 5 or 10 years maturity) treasury bills are usually used.

## 5 R-Score model

R-Score was developed by Dr. Tom Schleifer and it represents a single formula that determines whether a construction company's financial condition is improving or deteriorating, and to what degree [30, p. 224]. This indicator measures the ability of a company to produce a profit from its business while effectively utilizing its financial resources and is defined as (48).

$$R = [1 - NP/S - (10 * (TL/(TL + TA)) * (NP/S))] * (S/TA) * (TL/E) \quad (48)$$

Where: NP = net profit

S = sales (revenue)

TL = total liabilities

TA = total assets

E = equity

Generally speaking, the higher R-Score is, the higher the risk. Nevertheless there is no specific value which it shouldn't exceed, so usage of this score is rather in a sense of watching its development over years, avoiding steep unprecedented increases.

## 6 Z-Score model

The Z-score model was developed by Edward Altman in 1968 by using a statistical technique known as Multiple Discriminant Analysis [28, p. 122]. It is also sometimes referred to, after its creator, as Altman's model. It combines together

some ratios mentioned above with assigning weights to them to estimate the likelihood of a financial distress. It is defined as (49).

$$Z = 1,2 * X_1 + 1,4 * X_2 + 3,3 * X_3 + 0,6 * X_4 + X_5 \quad (49)$$

Where:  $X_1$  = net working capital / total assets

$X_2$  = retained earnings / total assets

$X_3$  = EBIT/total assets

$X_4$  = market value of all equity / book value of total liabilities

$X_5$  = sales / total assets

As can be seen, each  $X$ , except for  $X_4$ , in formula (49) reflects profitability of the company in some way. In general, the lower the Z-Score is, the higher the risk of a financial distress or bankruptcy. Altman reports that this model is between 80%-90% accurate if we use a cutoff point of 2.675. That is, a firm with a Z-score below 2.675 points can reasonably be expected to experience severe financial distress, and possibly bankruptcy, within the next year [28, p. 122]. Nevertheless usually literature mentions three so called "zones" of Z-Score. If the score is higher than 2,99 it is called "safe zone; between values 1,81 and 2,99 it is considerate as "grey zone" and below 1,81 it is "red zone" or "distress zone" [38].

It is worth mentioning that formula for Z-Score defined as (49) works only for publicly traded companies. The problem lies at variable  $X_4$  which requires knowledge of the firm's market capitalization. To calculate a market value of all equity we need to multiply number of shares outstanding with the market price for these shares. In case of not having shares on market i.e. non-publicly traded company, we can redefine formula (49) into the form of (50) [28, p. 123].

$$Z' = 0,717 * X_1 + 0,847 * X_2 + 3,107 * X_3 + 0,420 * X_4 + 0,998 * X_5 \quad (50)$$

## II. Practical part

In the practical part we are going to apply the above mentioned theories into practice. Concretely we will analyze a specific construction company, i.e. Skanska AB, with its particular financial statements for the whole group mostly from the last 7 years respectively last 10 years in some cases. Since we are interested in the whole company, we will be working mainly with consolidated financial statements which by IFRS 10 "...cover the accounts of the Parent Company and the companies in which the Parent Company has a direct or indirect controlling interest..." [10].

Firstly, in this part, we are going to introduce the company itself with some of its basic statistics, spheres of activity, business models and regions where it operates. Then we are going to focus on a development and trend analysis of all three financial statements together with highlighted considerable aspects after which we are going to calculate most of the ratios and indicators mentioned in the theoretical part. To get a better idea about the particular results in a broader context, relevant ratios and indicators and selected parts of financial statements analysis will be compared with either industry averages or with three other large construction companies or both. Basic bankruptcy models will be calculated and evaluated too, as well as an economic value added. Finally, at the end we are going to make overall conclusions and comparisons of the recent and current financial situation together with possible threats and risks arising from the financial structure. These will be naturally also combined with some recommendations and suggestions for a possible future improvement of financial performance of the analyzed company.

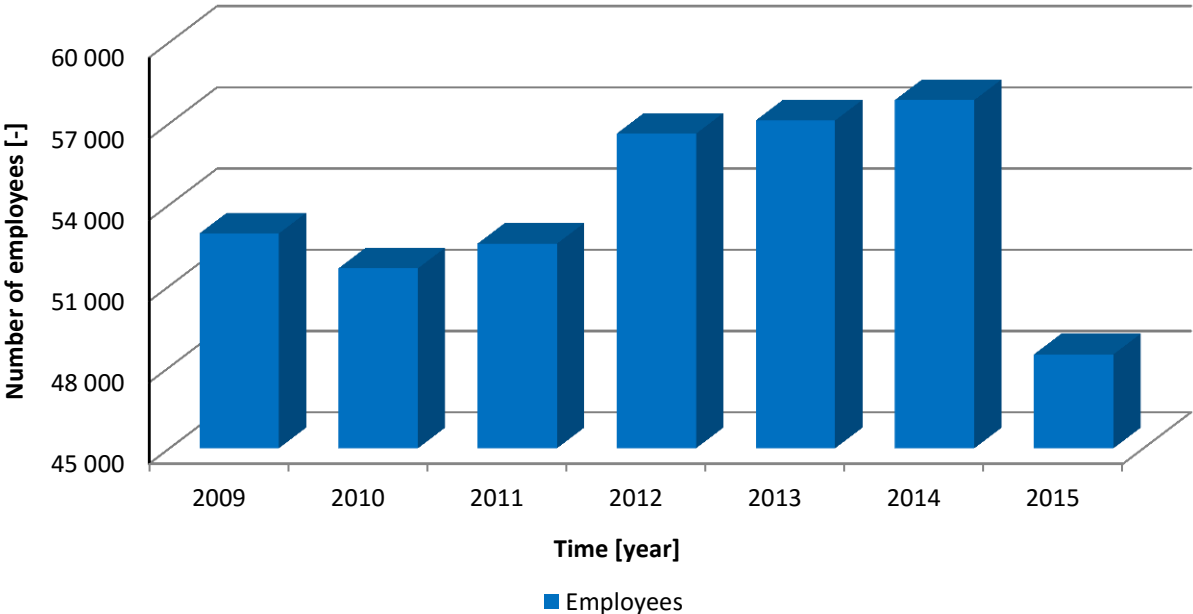
### 7 Skanska AB

Skanska AB is a multinational, mainly construction and development company, based in Stockholm, Sweden. It was founded in 1887 by Rudolf Fredrik Berg in Sweden and it is currently one of the largest construction companies in the whole world. According to *Construction global magazine* it is on the fifth place [39] as for the size and according to *Engineering News-Record* it is the eighth largest company in its industry in terms of revenues [40].

The company has had in average 48 470 employees in 2015. Development of number of employees is shown in Chart 3, from which we can see quite a dramatic

reduction in the last year (2015). The difference between number of employees in 2014 and 2015 has been 9 388 which represents 16.23% drop, leading to the lowest number of employees in the last 7 years. According to the annual report the “...decrease is a result of the winding down and sale of the Latin American operations” [11]. To get a comparison, the largest construction industry employer in 2015 was French company VINCI with 185 452 employees, exceeding Skanska AB over more than 3 times in terms of employees, while as another example Hochtief company had approximately the same number of employees as Skanska AB (in 2015 Hochtief had more than 47 000, decreasing dramatically from 81 000 in 2013).

Chart 3: Average number of Skanska’s AB employees

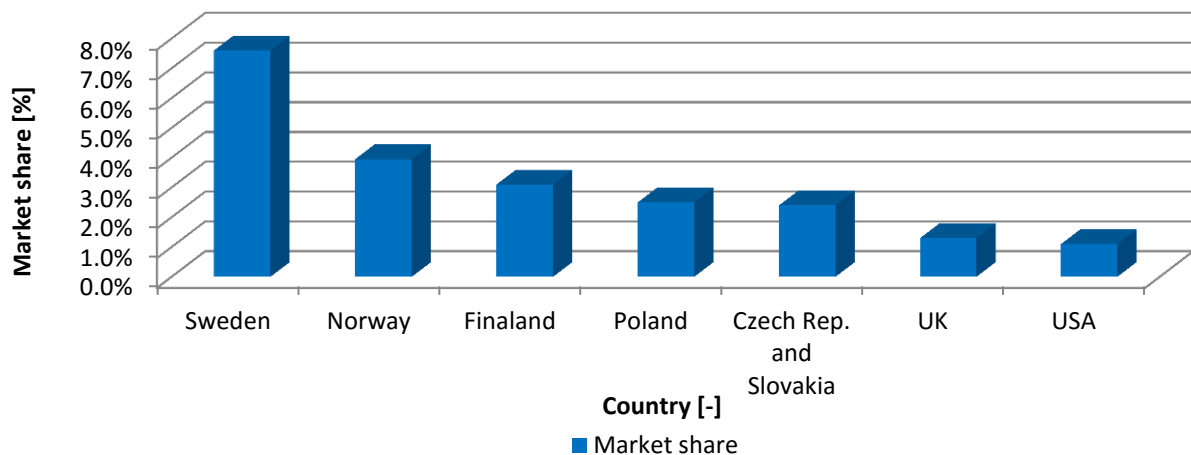


Source: Own creation based on data from [11] and [41]

### 7.1 Sphere of activity

Skanska AB currently operates in 11 countries in four main business streams. These are construction, residential development, commercial property development and infrastructure development. Its markets are North America, Nordic region of Europe (Scandinavia with Denmark), Middle Europe (Czech Republic, Slovakia, Hungary, Romania and Poland) and United Kingdom. The company also used to operate in Latin America until year 2014 after which all construction projects were concluded and most of the operations and maintenance units were divested.

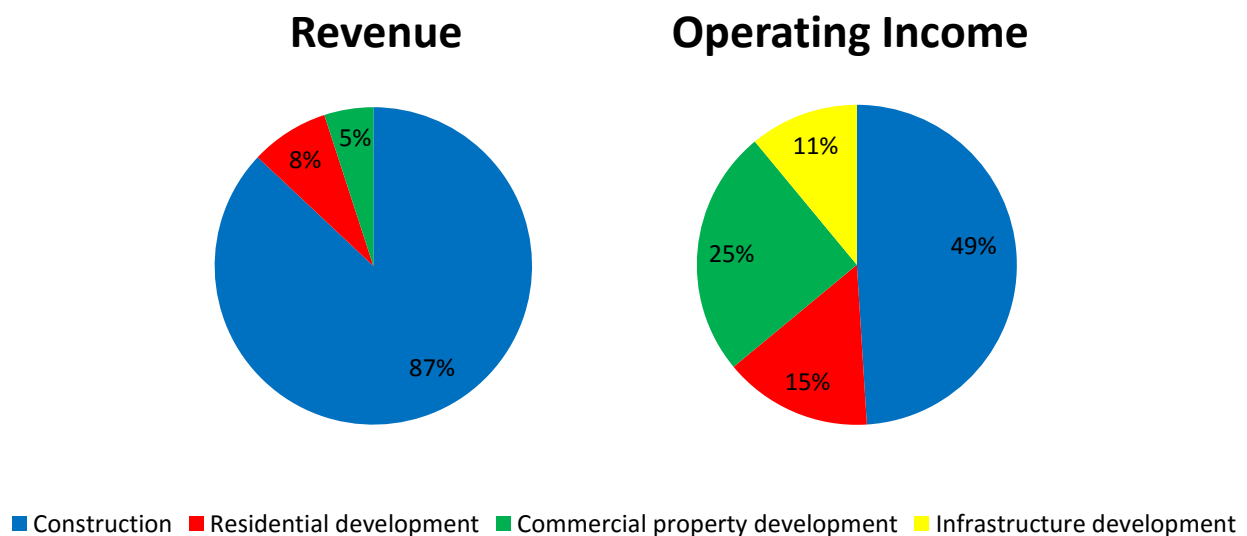
Chart 4: Market share of Skanska's construction business



Source: Own creation based on [11]

In Chart 4 we can see some market shares of Skanska's construction business stream which has a key role and represents 87% of total revenues and 49% of total operating income for the company (for other shares, see Chart 5). It is clear that Scandinavian countries are dominant markets for the company. In Sweden the market share exceeds 7% and in Norway it represents practically 4%. On the other hand Skanska generates very similar revenues and profits from the U.S. and the UK markets and the low market share is mainly due to higher market fragmentation and competition [11].

Chart 5: Share of business streams on overall results

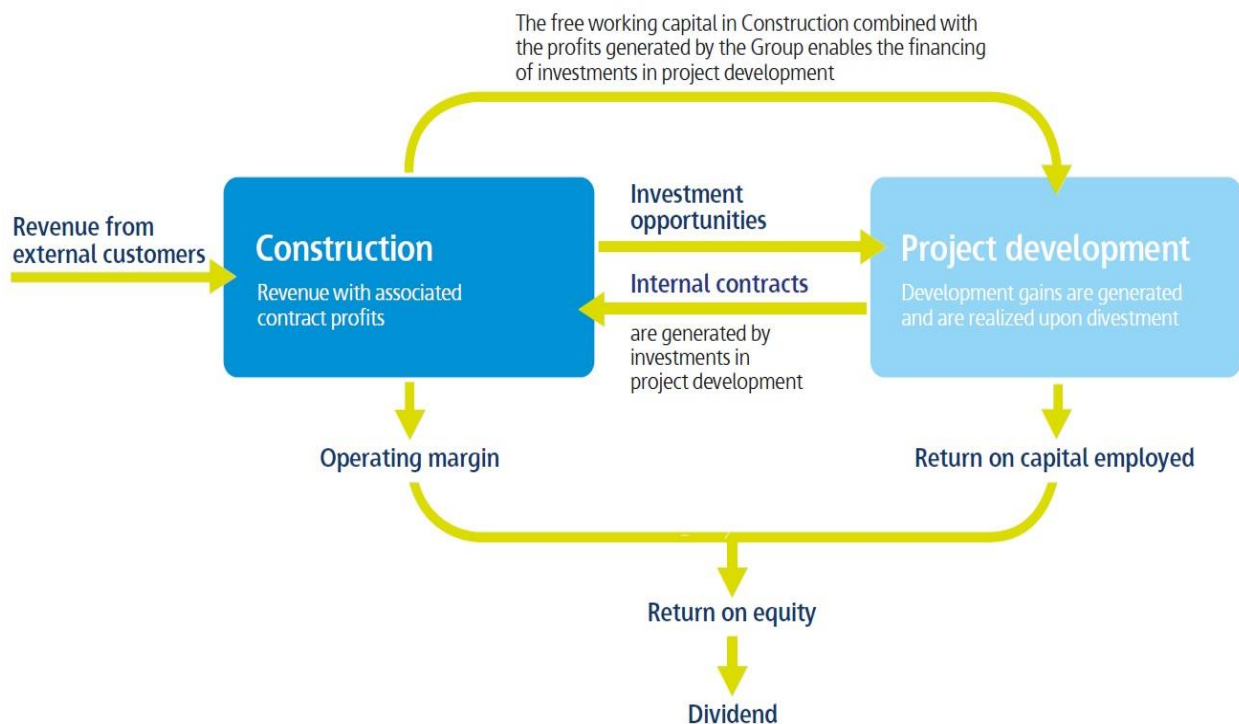


Source: Own creation based on [11]

## 7.2 Business model

Projects are the core of Skanska's operations. Company's main business lies in two areas- construction projects and development projects. The business units within the two respectively four (mentioned above at 7.1) business streams collaborate in various ways, creating operational and financial synergies that generate increased value [11]. The interconnectivity and potential synergies of these areas create company's business model as can be seen in Picture 4.

Picture 4: Business model of Skanska AB



Source: [11]

We can see that earnings are practically created by operating margins from construction business and returns on "investments" (meaning from development projects). These two are closely connected because construction business gets contracts from development projects and the development uses earnings from construction to finance the projects themselves. Of course the imaginary connection joint is represented by working capital (respectively cash flows) which flows between these two main business streams to increase the overall value of the company at the end in a sense of the mentioned synergies.

## **8 Financial analysis**

We have decided to analyze development of Skanska's accounting items mostly over the last 7 years because we believe it is a sufficient amount of data for a good understanding and deriving conclusions. We are going to look at the structures of both balance sheet, statement of income and cash flow statement.

In the balance sheet analysis we will focus on internal structure in particular years as well as development of particular items during the studied period. The overall structure will be also compared to structures of chosen competitors. In the statement of income analysis we will give a closer look at structure of both revenues and expenses together with structure and development of profits. Similarly, an analysis of cash flows will be given after as well.

After the horizontal analysis and vertical analysis of financial statements, we will look at the relations between particular items, mainly in a form of ratios described in the theoretical part of this thesis, which will serve as a framework. That means profitability, activity, market, debt and liquidity ratios will be calculated and evaluated in a comparison with the chosen competitors and industry.

To avoid misleading results, especially in trends, caused due to changing exchange rates, we are going to use mainly accounting values reported in Swedish Krona, respectively domestic currencies for other companies (VINCI and Hochtief-EUR, Balfour Beatty- GBP) unless stated otherwise. It is because Skanska AB, and analogically other companies, primary emit financial reports at these currencies and other reports are derived from them afterwards. Nevertheless, for a practical purpose and easier orientation and understanding, in the list of appendixes at the end of this thesis we display financial reports denominated in USD. Also to get a comparable data, when making comparisons of money based indicators with other companies or industry averages where the result is also somehow expressed in a currency, USD currency will be used as well.

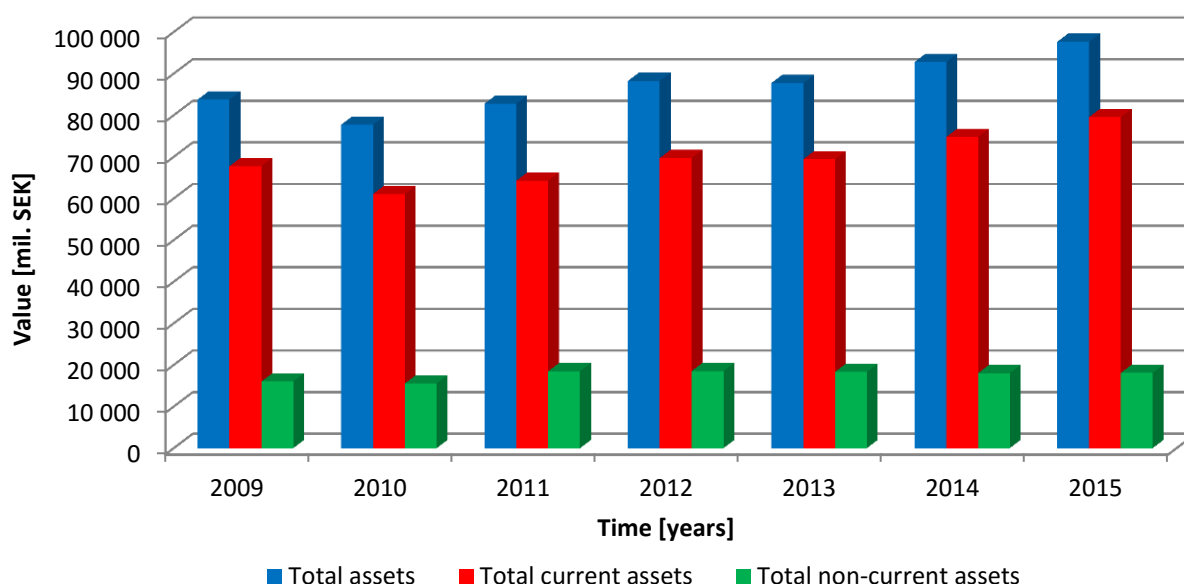
### **8.1 Balance sheet analysis**

In balance sheet analysis we will look at trends and movements in statement of financial position through horizontal and vertical analysis.

### 8.1.1 Horizontal analysis of the balance sheet

First of all, in Chart 6, the overall development of total balance sum (total assets) is displayed together with the basic structure of these assets over the last 7 years. There is a visible uptrend from 2010 representing an average increase of the balance sum by 4.7% per year, leading to the total balance sum of 97 667 mil. SEK in 2015. On the side of assets, this increase has been caused almost exclusively by rising amount of current assets which created 79 560 mil. SEK (81.5%) in the last year.

Chart 6: Structure of left side of the balance sheet



Source: Own creation based on [11] and [41]

Closer and numerated look on some particular movements of selected (most significant as for the value or movements) assets in the balance sheet are given in Table 1. The differences of values between two consecutive years are shown as both absolute amounts in millions of SEK as well as percentages of change.

Except for some dramatic movements around year 2011, which will be explained later in the thesis, we can see quite stable development of most of the assets. Understandably, bigger movements are presented at current assets (6.41% overall increase in 2015) because of the nature of a construction business, while long term assets remain stable with only slight movements lower than 2% in the last 4 years. Value of goodwill, which is very important for any construction company



because its ability to finance operations from debt respectively cost of debt is derived from that, has either risen significantly or dropped by a small amount leading to an after all rising trend (overall 20.4% increase from 2009 until 2015). Also, if we look at the differences from after crisis years (2010/2009) and latest development (2015/2014), we can clearly see that the situation is much more stable and assets in general are rising or stabilized. The only significant decrease during the 2015 was 8.68% drop of long term “property, plant and equipment” which was compensated by a similar increase in joint ventures investments in non-current assets (8.94%).

Table 1: Movements on the left side of the balance sheet (in mil. SEK)

Item/year	2010/2009	2011/2010	2012/2011	2013/2012	2014/2013	2015/2014
<b>Non-current assets</b>	<b>-466</b>	<b>2 948</b>	<b>26</b>	<b>-191</b>	<b>-322</b>	<b>100</b>
	<b>-2.91%</b>	<b>18.96%</b>	<b>0.14%</b>	<b>-1.03%</b>	<b>-1.76%</b>	<b>0.56%</b>
<i>Property, plant and equipment</i>	<i>-397</i>	<i>1 112</i>	<i>920</i>	<i>-489</i>	<i>-327</i>	<i>-618</i>
	<i>-6.30%</i>	<i>18.83%</i>	<i>13.11%</i>	<i>-6.16%</i>	<i>-4.39%</i>	<i>-8.68%</i>
<i>Goodwill</i>	<i>-446</i>	<i>1 095</i>	<i>-130</i>	<i>-33</i>	<i>427</i>	<i>-20</i>
	<i>-10.22%</i>	<i>27.96%</i>	<i>-2.59%</i>	<i>-0.68%</i>	<i>8.81%</i>	<i>-0.38%</i>
<i>Investments in joint ventures</i>	<i>-766</i>	<i>751</i>	<i>-109</i>	<i>317</i>	<i>-116</i>	<i>234</i>
	<i>-30.15%</i>	<i>42.31%</i>	<i>-4.32%</i>	<i>13.12%</i>	<i>-4.24%</i>	<i>8.94%</i>
<i>Financial non-current assets</i>	<i>1 080</i>	<i>-14</i>	<i>-266</i>	<i>50</i>	<i>-590</i>	<i>55</i>
	<i>103.65%</i>	<i>-0.66%</i>	<i>-12.62%</i>	<i>2.71%</i>	<i>-31.18%</i>	<i>4.22%</i>
<b>Current assets</b>	<b>-6 695</b>	<b>3 218</b>	<b>5 439</b>	<b>-313</b>	<b>5 365</b>	<b>4 793</b>
	<b>-9.88%</b>	<b>5.27%</b>	<b>8.46%</b>	<b>-0.45%</b>	<b>7.73%</b>	<b>6.41%</b>
<i>Current-asset properties</i>	<i>-2 563</i>	<i>3 004</i>	<i>3 493</i>	<i>-1 147</i>	<i>358</i>	<i>905</i>
	<i>-11.16%</i>	<i>14.72%</i>	<i>14.92%</i>	<i>-4.26%</i>	<i>1.39%</i>	<i>3.47%</i>
<i>Financial current assets</i>	<i>728</i>	<i>40</i>	<i>-523</i>	<i>117</i>	<i>-116</i>	<i>1 657</i>
	<i>13.02%</i>	<i>0.63%</i>	<i>-8.22%</i>	<i>2.00%</i>	<i>-1.95%</i>	<i>28.38%</i>
<i>Gross amount due from customers</i>	<i>324</i>	<i>167</i>	<i>883</i>	<i>241</i>	<i>-760</i>	<i>220</i>
	<i>7.02%</i>	<i>3.38%</i>	<i>17.29%</i>	<i>4.02%</i>	<i>-12.20%</i>	<i>4.02%</i>
<i>Trade and other receivables</i>	<i>-2 491</i>	<i>1 334</i>	<i>927</i>	<i>-1 338</i>	<i>4 061</i>	<i>-411</i>
	<i>-10.47%</i>	<i>6.26%</i>	<i>4.09%</i>	<i>-5.68%</i>	<i>18.27%</i>	<i>-1.56%</i>
<i>Cash</i>	<i>-2 755</i>	<i>-1 347</i>	<i>463</i>	<i>1 533</i>	<i>1 804</i>	<i>2 733</i>
	<i>-29.28%</i>	<i>-20.24%</i>	<i>8.72%</i>	<i>26.57%</i>	<i>24.70%</i>	<i>30.01%</i>
<b>Total assets</b>	<b>-6 053</b>	<b>5 058</b>	<b>5 465</b>	<b>-504</b>	<b>5 043</b>	<b>4 893</b>
	<b>-7.23%</b>	<b>6.51%</b>	<b>6.60%</b>	<b>-0.57%</b>	<b>5.75%</b>	<b>5.27%</b>

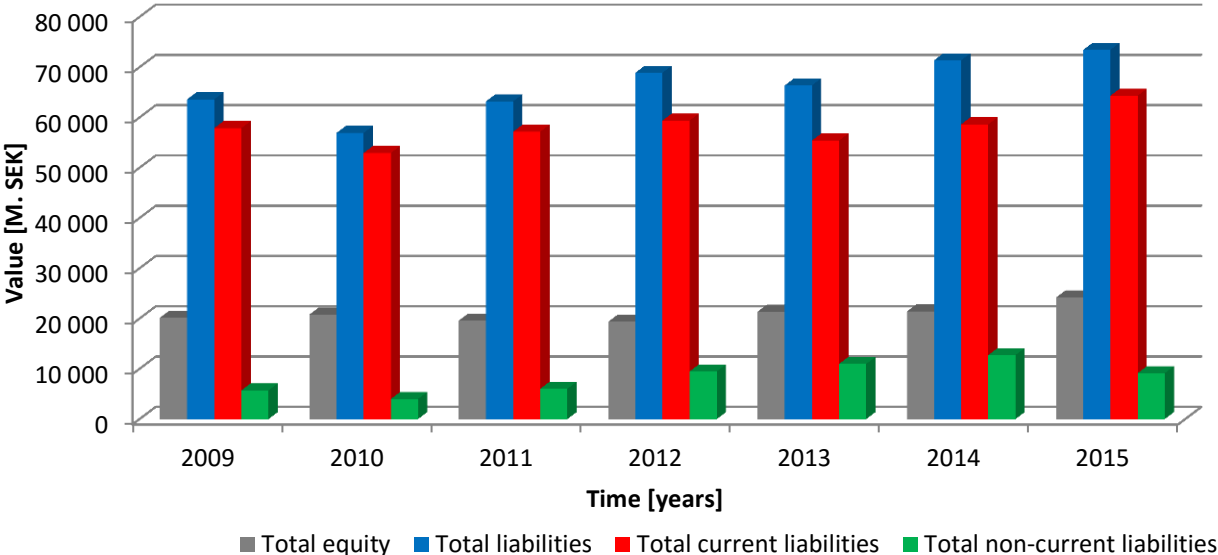
Source: Own creation based on [11] and [41]

Another look at balance sum, in this case from position of liabilities and equity, is offered through Chart 7. Above mentioned increase of balance sum (on the side of liabilities and equity) has been driven more by increasing the amount of total liabilities

which represented in average 5.4% increase per year while the average increase of equity was about 3.3% per year as can be also seen in Chart 7. As for the liabilities increase, current liabilities took about 69% of the total increase while non-current liabilities the remaining 31%, which is in general well correlated to the mentioned current asset average increase.

It is clear from Chart 7 that current liabilities are in general dominant in Skanska’s structure. Three largest parts of current liabilities that make them so significant are *Gross amount due to customers for contract work*, *Trade accounts payable* and *Accrued expenses and prepaid income*. These three parts are very similar as for the size and they represent core liabilities of any construction business. Combined they form about 80% of the total current liabilities.

Chart 7: Structure of right side of the balance sheet



Source: Own creation based on [11] and [41]

Numerically expressed movements (both as absolute values and percentage values) of some particular items from the right side of the balance sheet of Skanska AB are shown in Table 2. It represents as the previous table differences between two consecutive years.

From Table 2 we can see a large (13.09%) increase of equity in 2015 while non-current liabilities decreased by 28.3% mainly due to a significant 45.53% decrease of financial non-current liabilities. Non-current liabilities has experienced in general very dramatic movements during the last 6 years with a rise of 51.32%

between 2010 and 2011 respectively 57.34% in the following year, which together with financial liabilities naturally correlate with increases of assets from Table 1 during these years. Overall situation of liabilities and equity during the 2015 seems stable with very low movements except for mentioned financial non-current liabilities drop which was compensate by an increase of current liabilities (9.71%). Also during the last year, unlike the average of the last seven years, the rising amount of balance sum, from the right side of balance sheet perspective, was driven clearly by increase of equity by 13.09% while total liabilities rose only by 2.93%.

Table 2: Movements on right side of the balance sheet (in mil. SEK)

Item/year	2010/2009	2011/2010	2012/2011	2013/2012	2014/2013	2015/2014
<b>Total equity</b>	<b>626</b>	<b>-1 209</b>	<b>-231</b>	<b>2 011</b>	<b>41</b>	<b>2 801</b>
	<b>3.10%</b>	<b>-5.81%</b>	<b>-1.18%</b>	<b>10.39%</b>	<b>0.19%</b>	<b>13.09%</b>
<b>Non-current liabilities</b>	<b>-1 729</b>	<b>2 047</b>	<b>3 461</b>	<b>1 474</b>	<b>1 762</b>	<b>-3 604</b>
	<b>-30.24%</b>	<b>51.32%</b>	<b>57.34%</b>	<b>15.52%</b>	<b>16.06%</b>	<b>-28.30%</b>
<i>Financial non-current liabilities</i>	<i>-806</i>	<i>225</i>	<i>3 488</i>	<i>1 736</i>	<i>556</i>	<i>-3 238</i>
	<i>-42.13%</i>	<i>20.33%</i>	<i>261.86%</i>	<i>36.02%</i>	<i>8.48%</i>	<i>-45.53%</i>
<b>Current liabilities</b>	<b>-4 948</b>	<b>4 219</b>	<b>2 235</b>	<b>-3 989</b>	<b>3 240</b>	<b>5 696</b>
	<b>-8.55%</b>	<b>7.97%</b>	<b>3.91%</b>	<b>-6.72%</b>	<b>5.85%</b>	<b>9.71%</b>
<i>Financial current liabilities</i>	<i>-920</i>	<i>2 776</i>	<i>721</i>	<i>-2 165</i>	<i>-32</i>	<i>2 469</i>
	<i>-24.82%</i>	<i>99.64%</i>	<i>12.96%</i>	<i>-34.46%</i>	<i>-0.78%</i>	<i>60.43%</i>
<i>Gross amount due to customers</i>	<i>38</i>	<i>-110</i>	<i>-1 067</i>	<i>-747</i>	<i>-468</i>	<i>1 276</i>
	<i>0.22%</i>	<i>-0.65%</i>	<i>-6.34%</i>	<i>-4.74%</i>	<i>-3.12%</i>	<i>8.77%</i>
<i>Trade and other payables</i>	<i>-4 030</i>	<i>1 400</i>	<i>2 518</i>	<i>-1 092</i>	<i>3 502</i>	<i>1 468</i>
	<i>-12.92%</i>	<i>5.15%</i>	<i>8.81%</i>	<i>-3.51%</i>	<i>11.68%</i>	<i>4.38%</i>
<b>Total liabilities</b>	<b>-6 677</b>	<b>6 266</b>	<b>5 696</b>	<b>-2 515</b>	<b>5 002</b>	<b>2 092</b>
	<b>-10.50%</b>	<b>11.01%</b>	<b>9.01%</b>	<b>-3.65%</b>	<b>7.54%</b>	<b>2.93%</b>

Source: Own creation based on [11] and [41]

### 8.1.2 Vertical analysis of the balance sheet

Another way how to look at the balance sheet and its structure is through vertical analysis. That is why Table 3 is presented for assets and Table 4 for liabilities with equity. Both represent internal structure of particular items as a percentage relative to the total sum.

Firstly, there is Table 3, where the overall internal structure seems stable in course of the last 7 years. There is only a slight decrease in property, plant and equipment item from 2012 (9.00%) till 2015 (6.66%) which correlated with similar decrease of total non-current assets (from 20.99% to 18.54%). We can also see that

two main items in the current assets (and it total assets as well) are properties (27.67% last year) and receivables (26.50% for the same year). Third largest item is cash, which has increased in the last 5 years quite significantly from 6.41% in 2011 to 12.12% in 2015. “Gross amount due to customers” represents the difference between accrued project revenue and an amount not yet invoiced. Under “Other non-current assets” are included for example intangible assets or deferred tax assets; under “Other current assets” we have tax assets, assets held for sale and most importantly inventories which as visible from the table have been very low.

Table 3: Vertical analysis of assets

<i>Item/year</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b><i>Non-current assets</i></b>	<b>19.12%</b>	<b>20.29%</b>	<b>22.34%</b>	<b>20.99%</b>	<b>20.89%</b>	<b>19.41%</b>	<b>18.54%</b>
<i>Property, plant and equipment</i>	7.52%	7.71%	8.48%	9.00%	8.49%	7.68%	6.66%
<i>Goodwill</i>	5.21%	5.11%	6.06%	5.53%	5.53%	5.69%	5.38%
<i>Investments in joint ventures</i>	3.03%	2.32%	3.05%	2.74%	3.12%	2.82%	2.92%
<i>Financial non-current assets</i>	1.24%	2.77%	2.55%	2.09%	2.16%	1.40%	1.39%
<i>Other non-current assets</i>	2.10%	2.38%	2.21%	1.63%	1.60%	1.82%	2.19%
<b><i>Current assets</i></b>	<b>80.88%</b>	<b>79.71%</b>	<b>77.66%</b>	<b>79.01%</b>	<b>79.11%</b>	<b>80.59%</b>	<b>81.46%</b>
<i>Current-asset properties</i>	27.42%	26.64%	28.28%	30.49%	29.36%	28.15%	27.67%
<i>Financial current assets</i>	6.68%	8.25%	7.69%	6.62%	6.79%	6.29%	7.68%
<i>Gross amount due from customers</i>	5.51%	6.45%	6.17%	6.79%	7.10%	5.90%	5.83%
<i>Trade and other receivables</i>	28.41%	27.81%	27.35%	26.71%	25.34%	28.34%	26.50%
<i>Cash</i>	11.23%	8.69%	6.41%	6.54%	8.32%	9.82%	12.12%
<i>Other current assets</i>	1.63%	1.87%	1.75%	1.87%	2.20%	2.10%	1.67%
<b><i>Total assets</i></b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: Own creation based on [11] and [41]

For a view from the other side of the balance sheet, there is Table 4. Total equity has created around 24% (24.78% last year, which has been the highest share for the last 5 years) of the right side of the balance sheet. Current liabilities have created 65.87% of the balance sum in 2015 which is more than six times higher than the portion of company’s non-current liabilities which decreased to the remaining 9.35% in the last year. The largest single item is “Trade and other payables”, which have composed 35.8% of the balance sum which is higher than receivables that have

constituted 26.5% in the same year. “Gross amount due to customers” represents, analogically from the asset side, a difference between an invoiced amount and yet-to-be-accrued project revenue. The overall increase of current liabilities between 2014 and 2015 by 2.67% was accompanied with a similar increase of cash from the previous table, as mentioned above, which means company’s liquidity is probably under a comprehensive control.

For a comparison and to get a better idea about a deeper internal structure of assets and liabilities with equity altogether, Chart 8 is being mentioned. It shows some particular items from balance sheets as a portion of the total balance sums as for the 2015. We are putting them in a context with structures of another three large construction companies, which will be also used later for other comparisons.

Table 4: Vertical analysis of liabilities and equity

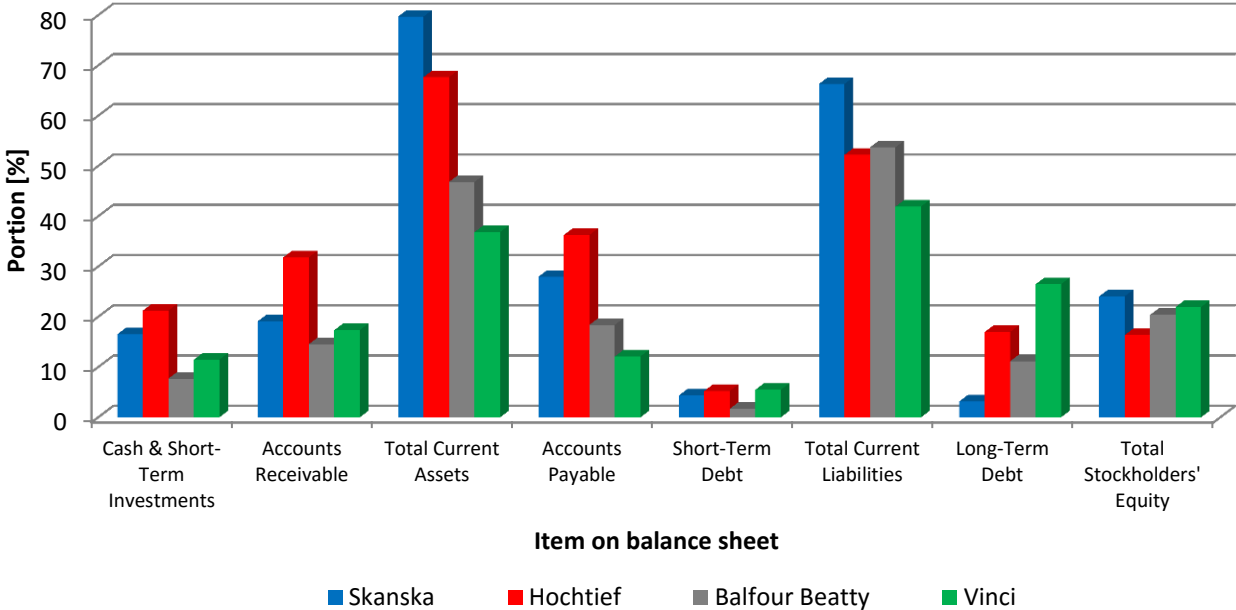
<i>Item/year</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<b>Total equity</b>	<b>24.08%</b>	<b>26.76%</b>	<b>23.66%</b>	<b>21.93%</b>	<b>24.35%</b>	<b>23.07%</b>	<b>24.78%</b>
<b>Non-current liabilities</b>	<b>6.83%</b>	<b>5.13%</b>	<b>7.29%</b>	<b>10.76%</b>	<b>12.51%</b>	<b>13.72%</b>	<b>9.35%</b>
<i>Pensions</i>	2.65%	1.56%	4.54%	4.64%	3.89%	5.02%	4.06%
<i>Financial non-current liabilities</i>	2.28%	1.42%	1.61%	5.46%	7.47%	7.67%	3.97%
<i>Other non-current liab.</i>	1.89%	2.14%	1.14%	0.66%	1.14%	1.04%	1.32%
<b>Current liabilities</b>	<b>69.10%</b>	<b>68.11%</b>	<b>69.05%</b>	<b>67.30%</b>	<b>63.14%</b>	<b>63.20%</b>	<b>65.87%</b>
<i>Financial current liabilities</i>	4.42%	3.58%	6.72%	7.12%	4.69%	4.40%	6.71%
<i>Gross amount due to customers</i>	20.17%	21.79%	20.33%	17.86%	17.11%	15.68%	16.20%
<i>Trade and other payables</i>	37.25%	34.96%	34.51%	35.23%	34.19%	36.10%	35.80%
<i>Other current liabilities</i>	7.25%	7.77%	7.48%	7.09%	7.15%	7.02%	7.16%
<b>Total liabilities</b>	<b>75.92%</b>	<b>73.24%</b>	<b>76.34%</b>	<b>78.07%</b>	<b>75.65%</b>	<b>76.93%</b>	<b>75.22%</b>
<b>Total liabilities + equity</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: Own creation based on [11] and [41]

Chart 8 shows that Skanska AB has had very large portion of current assets and current liabilities compared to the chosen competitors. It is caused by more reasons but one of the main reasons for the low levels of non-current assets is generally low level of long term intangible assets owned by Skanska AB (around 5%). For example in Vinci’s intangible long term assets create around 50% of their total balance sheet sum. Also portions of debt in Skanska AB, especially long-term debt, are very low compared to chosen competitors (long-term debt equals to 3.16%

of balance sum, short-term debt to 4.34%). Still, overall structure of Skanska AB seems very similar to structures of competitors and we believe it correspond with construction industry structures in general hence we consider the whole structure in general as a valid and reasonable.

Chart 8: Internal structure of balance sheet

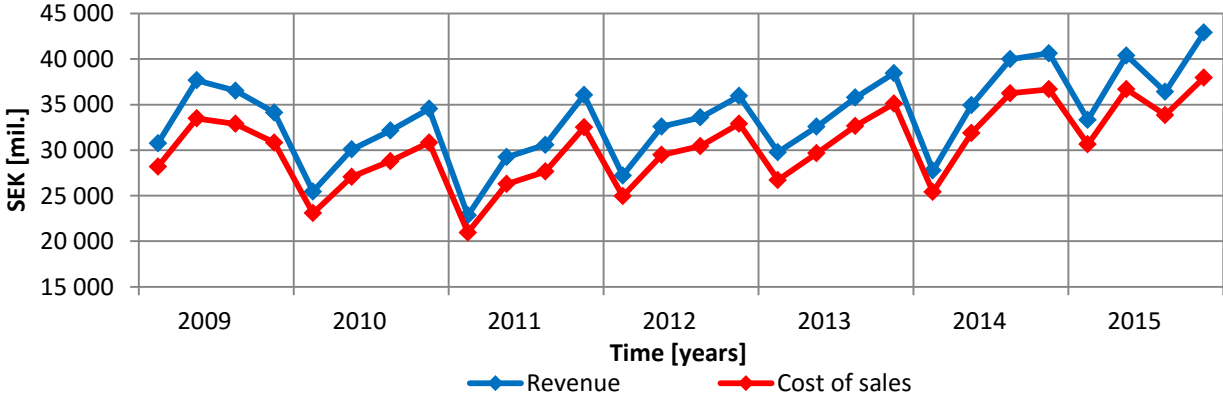


Source: Own creation based on [11], [42], [43], [44]

## 8.2 Analysis of the income statement

The next part of our horizontal analysis is the analysis of statement of income. We are going to take a closer look at both revenues with expenses and profits.

Chart 9: Revenues and costs of sales (quarterly)

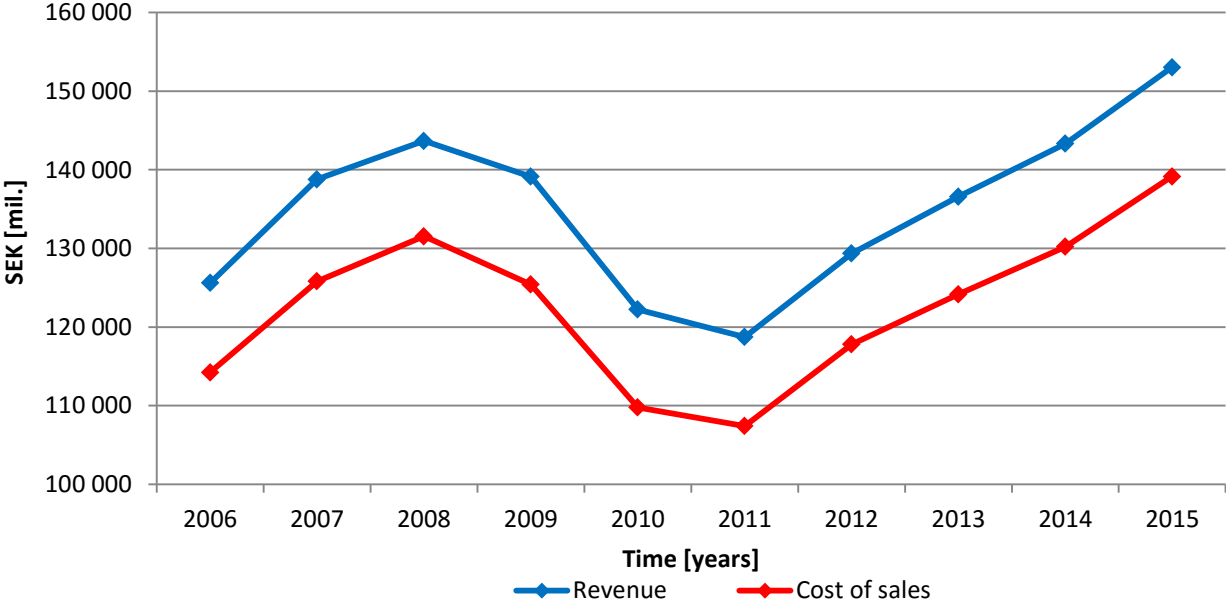


Source: Own creation

In Chart 9 we can see quarterly development of revenues and costs associated with them. We are mentioning quarterly statistics intentionally to show how important the impact of seasons is for a construction business. We can clearly see that at the beginning of a year revenues are always lowest while at the end of a year they are at their highest levels.

To see the trend in revenues and costs bound to them over the course of last years more clearly, Chart 10 is given, from which we can see a distinct downtrend from 2008 to 2011 caused mainly by the financial crisis. Nevertheless there is a stable and almost constant uptrend in revenues from year 2011 indicating that the crisis (for the company) has probably ended. Although it is worth mentioning that due to a dramatical increase of USD/SEK exchange rate during the analyzed period revenues reported in USD have slightly declined between 2013 and 2015.

Chart 10: Revenues and costs of sales (yearly)



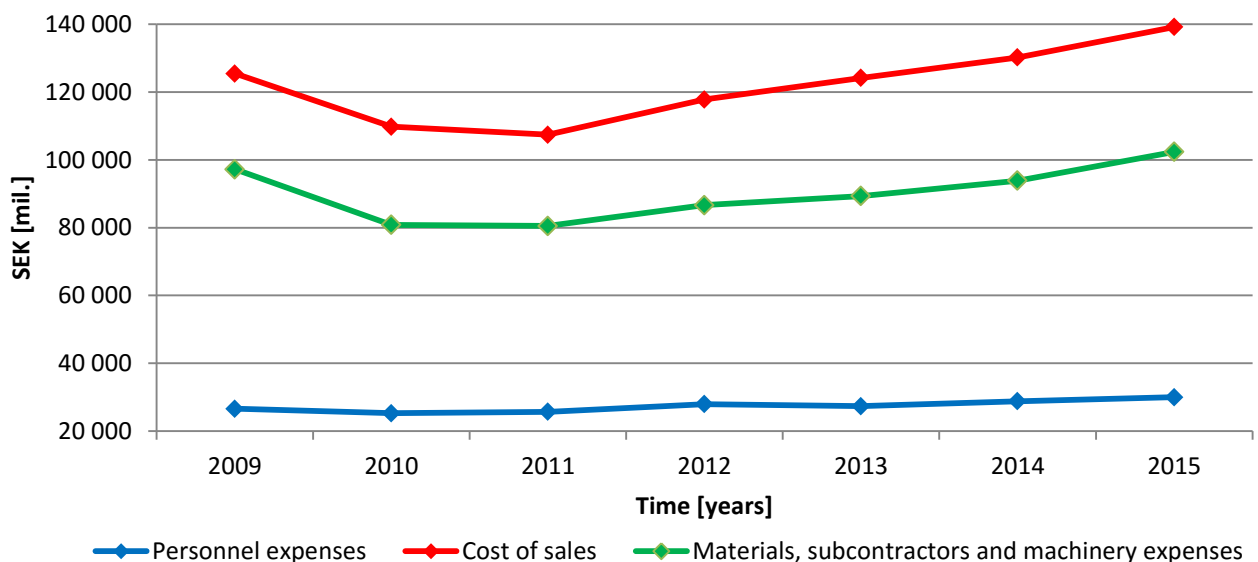
Source: Own creation

From correlated development of *costs of sales* and *revenues* in Chart 10 we can also de facto see a stable development of values of gross margin which in other words means that every increase of costs is accompanied with a similar and adequate increase of revenue (particular values are calculated in part 8.5.1 of this thesis). In the next two chapters we are going to take a closer look at these costs respectively revenues and how they are created.

## 8.2.1 Analysis of the expenses

Chart 11 represents two main expenses that our company has had. They are “Personnel expenses” and expenses connected with structures themselves, meaning material, machinery expenses and liabilities due to subcontractors. The second one has represented more than 70% of all costs of sales (73.5% in 2015) and its development is understandably very similar to the development of these costs. On the other hand, personnel expenses relatively to the cost of sales have decreased in 2015 to 21.5% (lowest ratio since 2009), which in other words means that personnel expenses do not grow as quickly as other costs with increasing revenues.

Chart 11: Main expenses



Source: Own creation

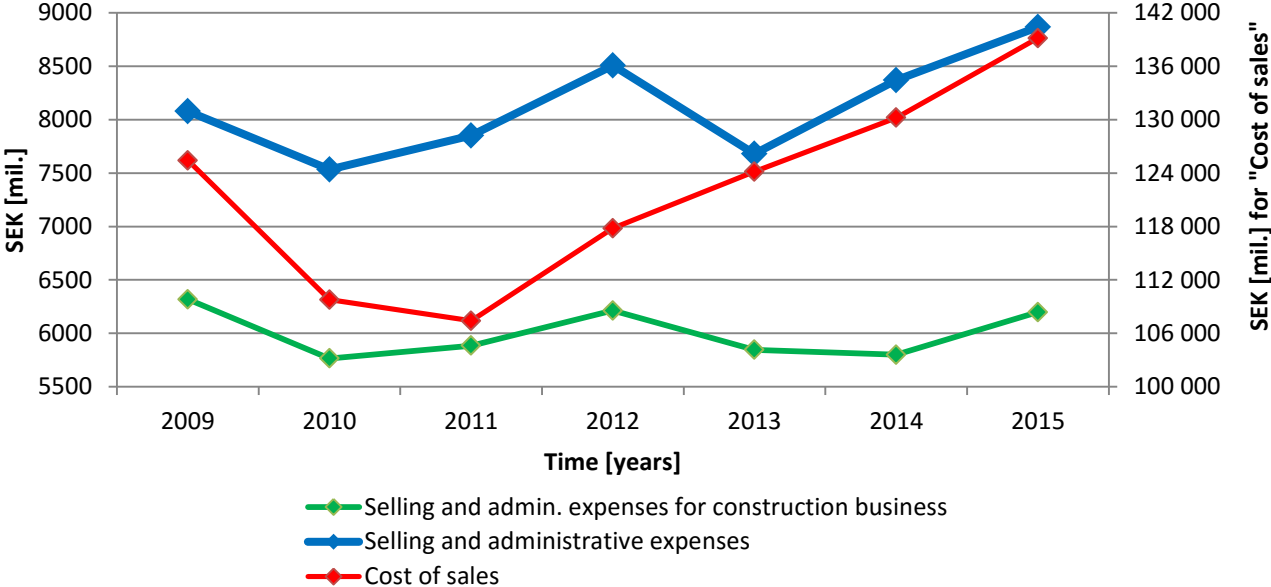
Data shown in Chart 12 represent development of expenses derived from sales i.e. selling and administrative expenses relative to the cost of sales which include “... customary administrative expenses, technical expenses and selling expenses, as well as depreciation of machinery and equipment that have been used in selling and administration processes” [11].

Since there is a different axis for each time series our focus should be put to the trend between them rather than absolute value comparisons. There is a visible correlation between cost of sales and administrative expenses which is in general a good sign. Overall increase of cost of sales visible from Chart 12 has led to an overall



increase of selling expenses during the last 3 years resulting into the value of 8 869 mil. SEK in 2015, which is also the highest value for the analyzed period. In the last year these selling and administrative expenses equaled to 6% of revenues. As visible from Chart 12, most of these expenses have originated from construction business stream (69.9% in 2015).

Chart 12: Selling and administrative expenses

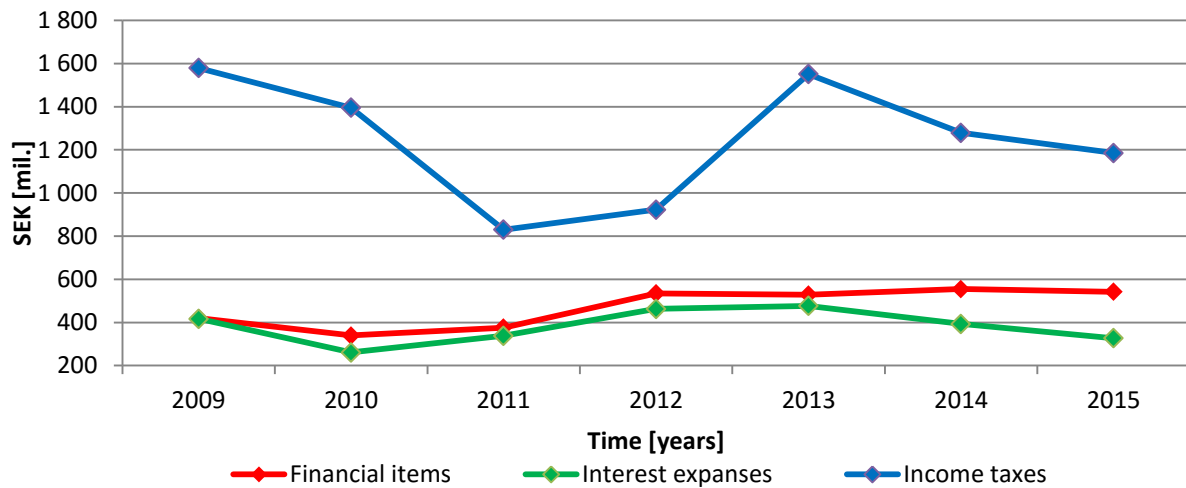


Source: Own creation

Chart 13 shows other selected expenses, namely expenses from financial items, from interests and from taxes. Interest expenses create the largest portion of “Financial items” which also include for example changes in market values or exchange-rate differences. We can see that their development is very stable without any unprecedented movements while interest rates have been rather decreasing slightly for the last 2 years. Income taxes visible in the same chart are composed by both current taxes (1 003 mil. SEK in 2015) and taxes in joint ventures plus deferred taxes.

Even though the company reported the highest profits in 2011, their income taxes for that year remains at the lowest level for the shown period while the aggregation of nominal tax rates remained unchanged between 2010 and 2011 (29%). This paradox is mainly explained by the effect of the tax-free *Autopista* divestment which lowered the tax expenses by 1 305 mil. SEK in 2011 together with other property divestments at the value of 293 mil. SEK [47].

Chart 13: Other expenses

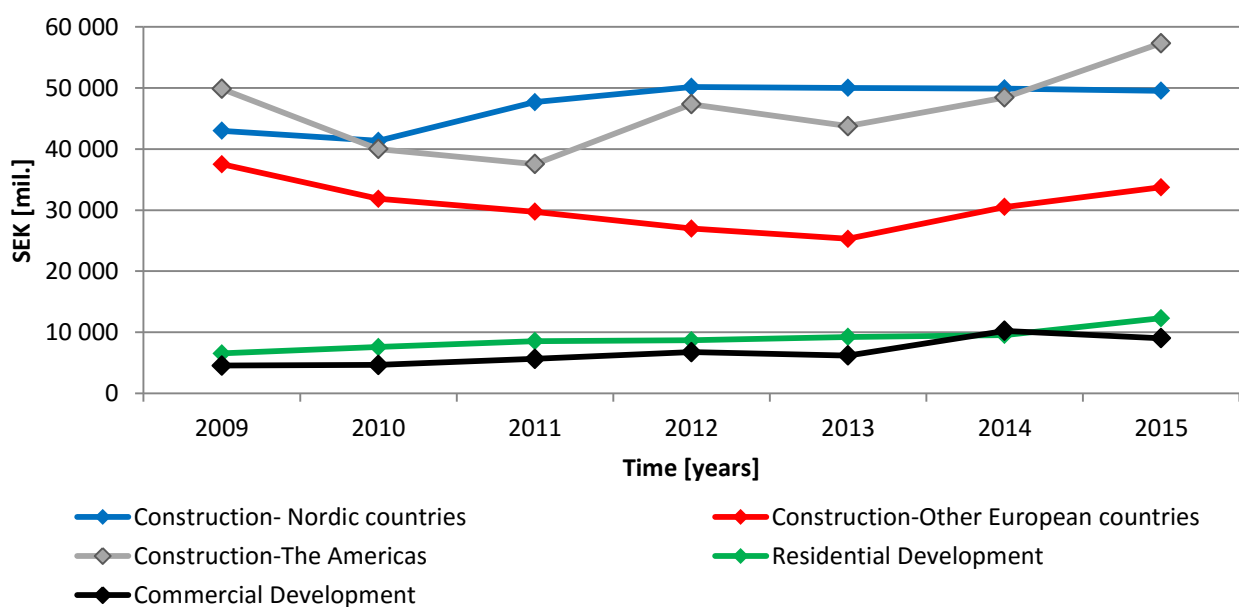


Source: Own creation

## 8.2.2 Analysis of the revenues

In this part we are going to focus on particular inputs of revenues. As mentioned above, main business of Skanska AB lays in construction, which is why Chart 14 is provided, where the construction business is divided into 3 separated markets based on revenues. To get a better idea about company's residential and commercial development activities relatively to construction stream we are mentioning them in the same chart.

Chart 14: Structure of revenues

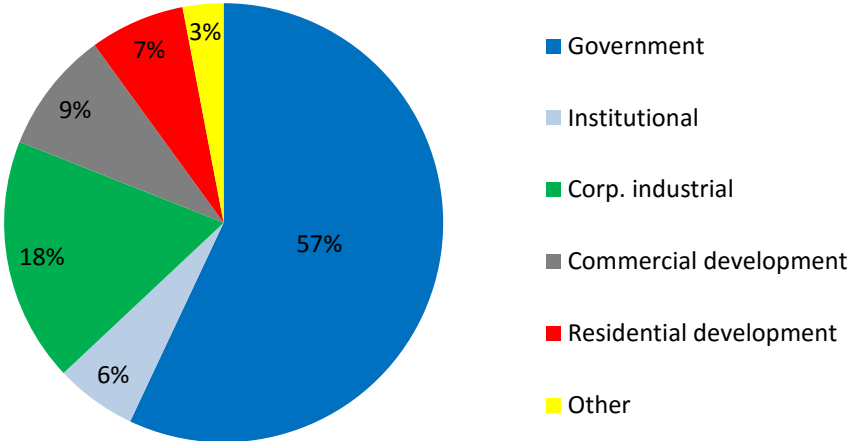


Source: Own creation

It is clearly visible from Chart 14 that Skanska AB truly gains most of its revenues from construction business as was mentioned above in Chart 5. Revenues from development are significantly lower, but very stable for the period which represents constant and sustainable politics of development in general. We are intentionally not mentioning “Infrastructure development” in Chart 14, because its values are very low (less than 200 mil. SEK in average, i.e. 0.07% of all revenues from the last year) and would not be clearly visible in the chart. We can also see that revenues from the construction business in „other European countries“ are still not at the levels of 2009, while other countries managed to gained higher revenues in the last year compared to 2009. Especially Nordic region seems to be very stable and under control, because during the last five years the revenues are almost constant, which gives management space to improve margins and overheads which represent in this sense company’s potential profits.

As already mentioned, revenues from construction represent the vast majority of overall revenues (87%), that is why we can take a closer look at the structure of company’s customers in this business stream through the Chart 15. As it is shown, most construction contracts respectively most revenues come from governments (57%), which is a good sign because government is usually the most credible customer. Second largest customers with 18% share are industrial corporations. “Institutional” customers are mostly represented by private healthcare and educational institutions.

Chart 15: Customer structure in construction

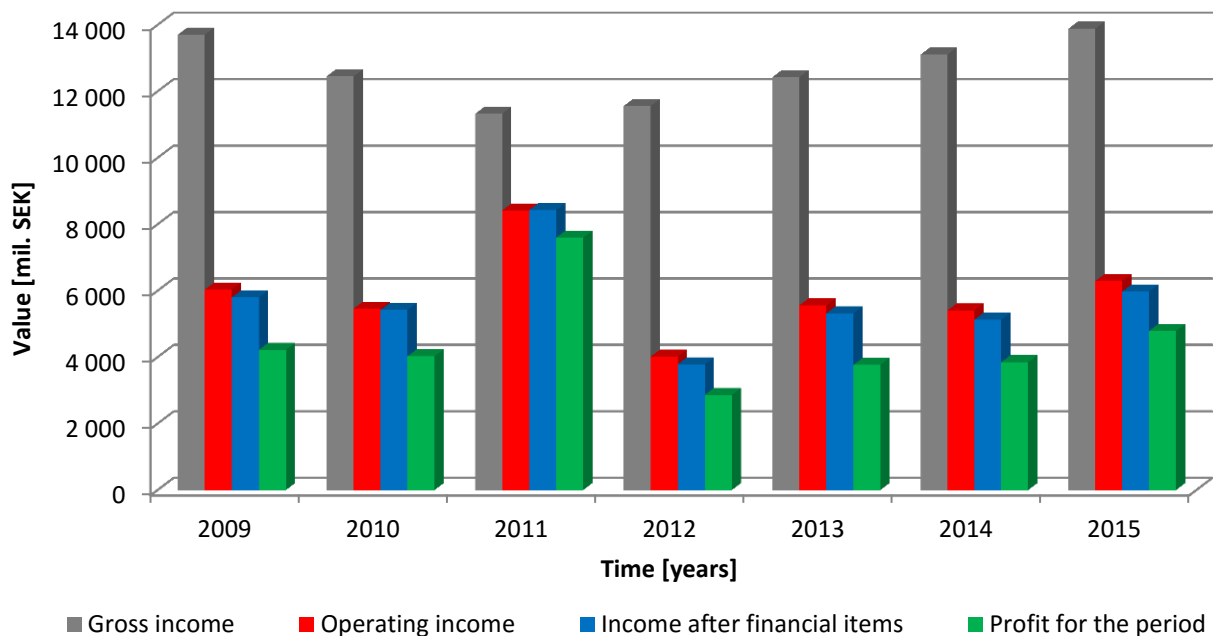


Source: Own creation based on [11]

### 8.2.3 Analysis of the profit

Probably the most important thing in income statement is understandably profit (its value, structure and development). Development and structure of profit is visible in Chart 16. There is an overall increasing trend from 2012. In 2011 we can see much smaller difference between gross income and other incomes, created mainly because of the increased revenues from joint ventures (see 8.4.1 ROA).

Chart 16: Structure of profits



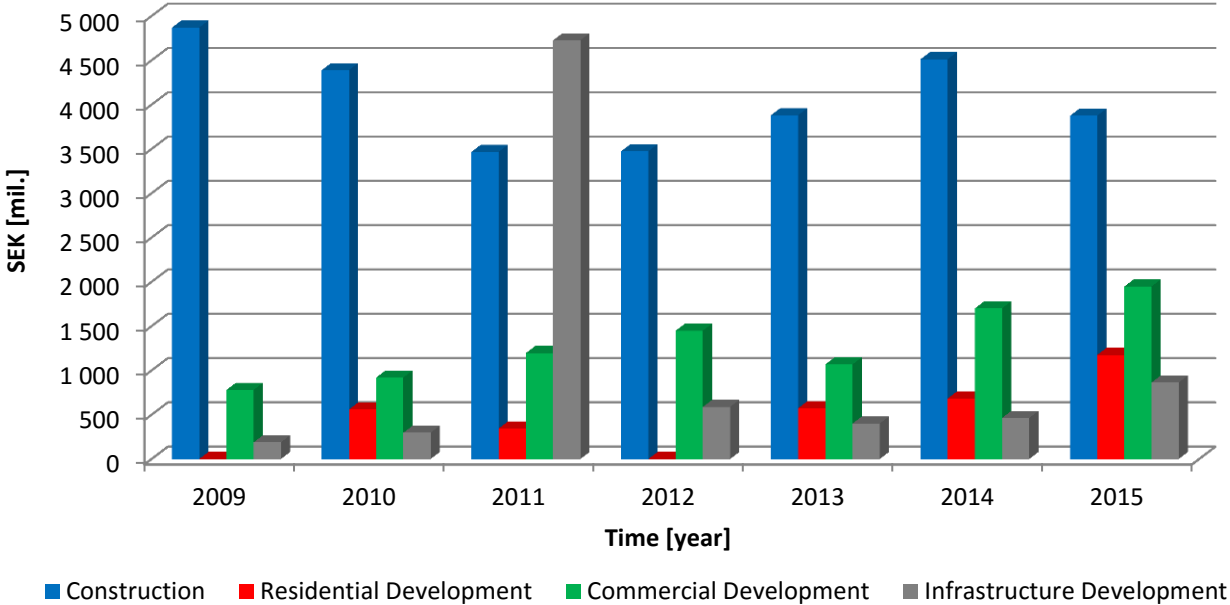
Source: Own creation

Even though revenues are mainly created from construction business, profits are generated in more diversified way as can be seen in Chart 17. We can see that for example in 2015 operating incomes from *construction* practically equaled operating incomes from other activities or in other words created around 49% of company's total operating incomes. P

Profits from commercial and residential development have had clear uptrend during the last three years, while construction does not seem to have any particular trend during the last 7 years. Distinct increase of infrastructure development in 2011 was caused by already mentioned reasons due to unprecedented incomes from joint ventures. If we compare the overall development, we can see that in 2009 almost all incomes (94.1% with "Central and eliminations", 83.7% without it) were generated

from construction business while in 2015 it was as mentioned above just 49%. It is clear that the management is focused on increasing diversity of incomes which we consider as practical, because of the higher margins, and helpful for the overall financial stability of the company.

Chart 17: Operating incomes from business streams



Source: Own creation

### 8.3 Cash flow analysis

The last part of our horizontal analysis of financial statements is focused on the cash flows of Skanska AB. As we have mentioned in theoretical part of this thesis, reasonable cash flows are absolutely crucial for any construction business. That is why we are offering historical data of cash flows from year 2006 in Chart 18, to see trends and development of our company in most relevant way.

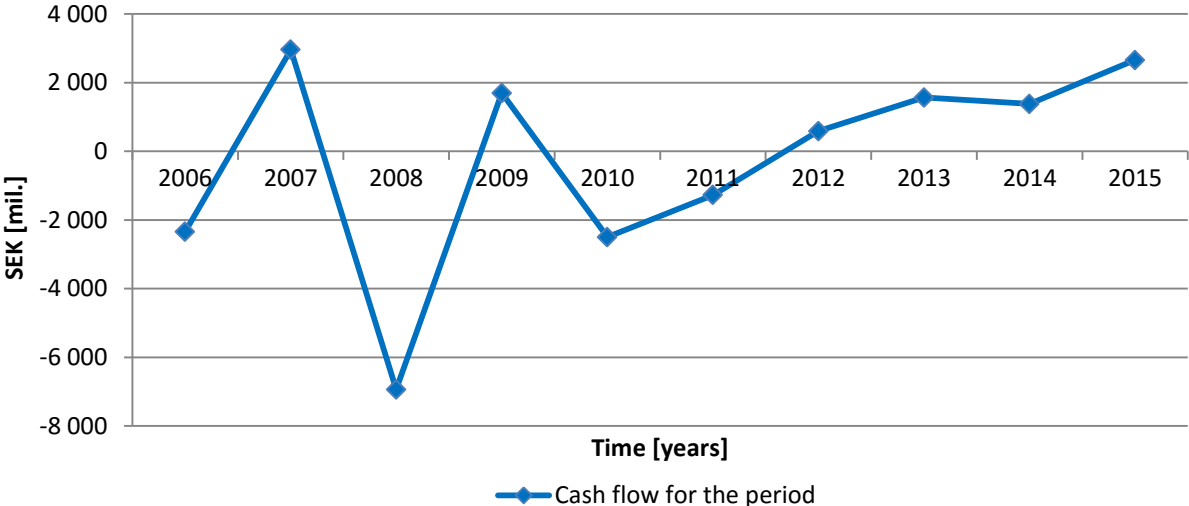
From turbulent movements of cash flows between 2006 and 2010 visible in Chart 18 we can read how hard the financial crisis hit the company. The lowest cash flow was in 2008, when it reached minus 7 billion SEK (in that time equivalent of approximately minus 1 billion USD) which represents more than 330% drop compared to the previous year (2007). After that the cash flows increased to significant positive values (1.7 billion SEK) to just drop again below zero in 2010 (-2.5 billion SEK). Nevertheless from year 2010 on, there is a visible clear and stable

uptrend in cash flows which has led to overall positive values in the last 4 years (2.65 billion in 2015).

To see the structure of cash flows of the company respectively its individual components, Chart 19 is offered. It shows development of the three key cash flow components: CF from operating, investment and financing activities. It is clear that the development of particular parts of CF is much less stable than the overall movement.

Even though the cash flow of our company has been raising stably, cash flows especially from financing activities and from operating activities has had high volatility. We can see that in 2011 and 2012 cash flows from the company's core business were practically zero and what kept positive flows of money were mainly financing activities. On the other hand these financing activities have been lowering company's cash flows for the last 3 years. There is a clear negative correlation between these two activities, mostly because a large part of the financing activities includes dividend payouts and repayments of debts which understandably increase (i.e. reduce the cash flows) with higher incomes from operating activities.

Chart 18: Cash flow



Source: Own creation

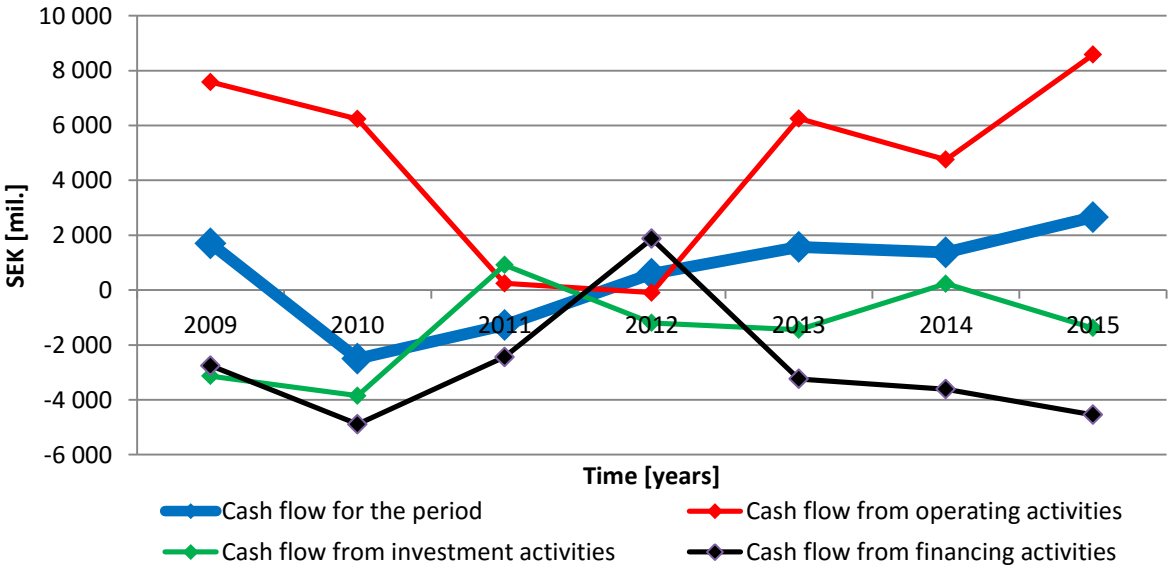
In the last year, cash flows from operating activities before change in working capital (6 404 mil. SEK) were 2 180 mil. SEK (a 30% decrease compared to 2014). Total cash flow from operating activities (after change in working capital) was then driven mainly by the change in operating liabilities (+3 638 mil. SEK) and a larger

divestment of current-asset properties compared to the investment in them (+18 524-15 432= 3 092 mil. SEK). The change in operating liabilities was crucial for the increased operating income in 2015, because in previous year the change in current liabilities caused negative cash flow of 1 390 mil. SEK (-5 028 mil. SEK difference compared to 2015).

As for the CF from investment activities, the largest movements could have been seen in interest bearing loans/receivables. Movements in these loans were represented by both an increase of provided loans as negative CF (-3 279 mil. SEK) and receiving of repayments for previous loans as positive CF (+1 982 mil. SEK). Other important items in investment CF were investments and divestments, which were almost at the same levels meaning that in the end their total CF practically equaled zero (-2 247 mil. SEK respectively +2 228 mil. SEK). From there we can see that the company's investments did not burden CF because they were covered by simultaneous divestments.

Cash flow from financing activities was decreased mostly by repayments of debt (-2 578 mil. SEK) and by dividends paid (-2775 mil. SEK). The only positive cash flows in this category were borrowings (+1 640 mil. SEK) and income tax paid (+162 mil. SEK). As mentioned above, CF from financing activities has negative correlation with the overall CF and in this sense the company's negative values of it are regular and proper.

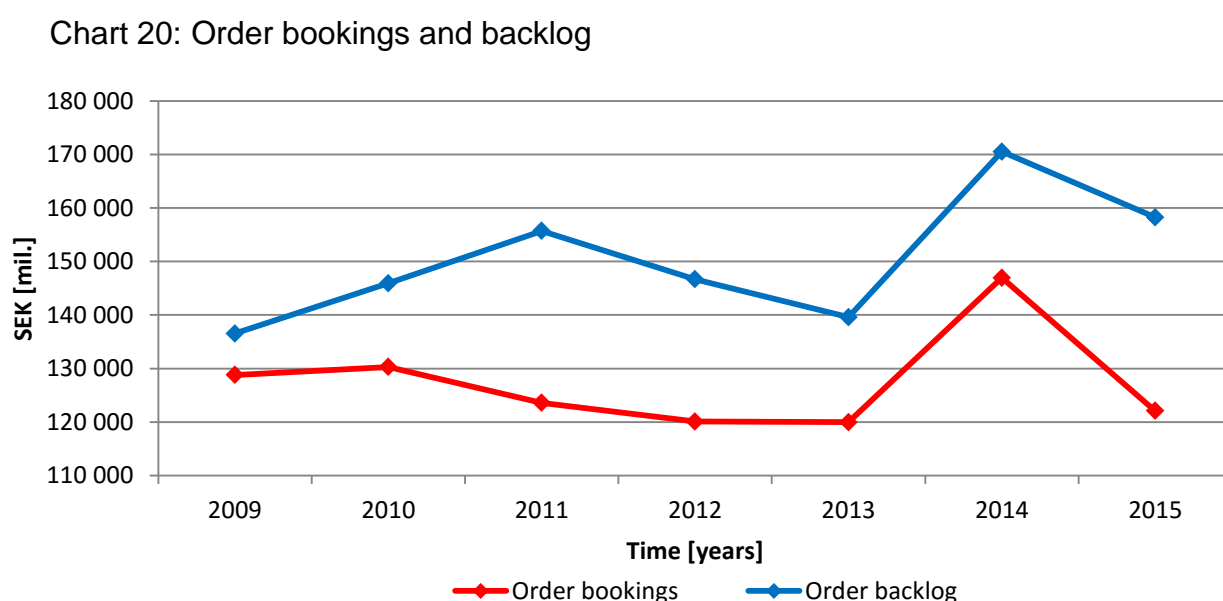
Chart 19: Components of cash flow



Source: Own creation

## 8.4 Order bookings and order backlog

To get a better idea about a near future development of our company we can take a look at their order bookings and amount of backlog (difference between order bookings for a period and accrued revenue). These two indicators will help us to see and determine if there will be enough business and thus revenues and profits in upcoming months or even a year. Development of the order bookings and backlog is shown in Chart 20. To see the inner structure of them in the last three years, Table 5 is being offered.



Source: Own creation

There is naturally a visible strong correlation between order bookings and backlog with an overall slight uptrend over the last 7 years. Despite the overall light increasing trend, year there was quite a large drop during the last. In order bookings the drop represented 24 835 mil. SEK (16.9% drop relatively to the previous year) and as for order backlog the drop was 12 250 mil. SEK (7.2% decrease). This drop as can be seen in Table 5 was almost exclusively caused by the drop in USA markets. Order bookings dropped by 35.8% in “USA Building” respectively by 54.6% in “USA Civil”. Such sufficient decrease of backlog was visible only in USA because, except for Poland, which is the second smallest market for Skanska, all other markets increased their backlog. The largest order bookings remain stable in Sweden, company’s home market, where they reached 32 989 mil. SEK in 2015.



Table 5: Structure of order bookings and backlog (in mil. SEK)

<i>Country/year</i>	Order bookings			Order backlog		
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Sweden	29 822	31 922	32 989	27 458	29 775	31 398
Norway	13 098	14 198	13 207	9 458	9 986	10 268
Finland	6 780	5 976	7 208	5 943	5 589	6 341
Poland	8 323	9 974	9 348	5 687	5 493	4 851
Czech Rep.	3 184	4 624	5 685	4 459	4 476	4 716
UK	10 350	19 019	19 250	19 729	26 259	27 705
USA Building	30 782	35 192	22 592	36 026	47 486	36 789
USA Civil	11 522	26 034	11 825	25 772	41 434	36 180
Other	6 107	-	-	5 070	-	-

Source: Own creation

The current overall order backlog amounts 158.25 bn. SEK (18.85 bn. USD) which is equivalent to approximately 14 months of production [11], which is generally considered as sufficient and effective, giving the company enough time to prepare for new contracts while safely managing ongoing projects.

## 8.5 Ratios and benchmarking

In this chapter, our focus will be given on the ratios and basically on the vertical analysis of the company. For a better understanding of the later calculated values, in relevant situations the average values of the particular ratios for the construction industry will be quantified with a use of CFMA annual reports [16], [17], [19], [29], and Valuation handbook [49]. Plus in calculations of mainly market ratios, data from reuters.com [45] will be used as well.

It is very important to notice, that these “benchmarks” will be usually calculated from a vast spectrum of companies of different sizes and from different sectors (heavy and highways contractors, residential contractors, specialty trade contractors, industrial contractors etc.). That is why these averages should be taken as examples rather than strict guidelines. These industry averages were mostly calculated from companies with revenues higher than 100 mil. USD per year, which is the “highest” category stated by the CFMA but it is still far from revenues of Skanska AB (around 18 000 – 20 000 mil. USD p.a.). The reason for unavailable statistics from larger companies is simply lack of such companies. That is why particular ratios for three other companies will be also calculated. These companies are Balfour Beatty,

Hochtief and VINCI. We have chosen these, because they all are closer to our company as for the overall size plus they are from Europe as well, hence they share some markets. Comparing the ratios with them will help us not only to get a better perspective about Skanska’s stability but also about its position in comparison with relevant competitors.

**8.5.1 Profitability ratios analysis**

Structure and order of calculated ratios will correspond with the theoretical part and so we are beginning with profitability ratios, particularly with return on asset ratio.

**ROA**

The values of ROA over the past 7 years are displayed in Table 6. We can clearly see that Skanska AB has reported the highest returns on assets during the whole period (except for the 2012) exceeding even the industry average in (and not only) the last year with value of 4.91%.

Table 6: Return on assets

ROA/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>5,04%</b>	<b>5,18%</b>	<b>9,18%</b>	3,24%	<b>4,29%</b>	<b>4,15%</b>	<b>4,91%</b>	4,50%
VINCI	3,34%	3,37%	3,30%	<b>3,33%</b>	3,24%	3,99%	3,35%	
Hochtief	3,25%	3,65%	<b>-1,06%</b>	2,26%	3,70%	2,67%	2,51%	
Balfour Beatty	3,89%	2,66%	3,22%	0,60%	<b>-0,61%</b>	<b>-1,13%</b>	<b>-4,48%</b>	

Source: Own creation

The high value of our company’s ROA in the last year, compared to the competitors, together with its stable development over the last few years can be interpreted as a very effective usage of assets by the management of the company. In other words, Skanska AB has been allocating its resources (from equity and debt) in a very effective way so far, which gives it a large potential to further grow. Also since the ROA calculates with all assets, their different structure mentioned in balance sheet analysis does not affect value of this ratio, therefore the values are very relevant.

The highest value over the last 7 years was reported in 2011 (9.18%), which was caused by uniquely high value of income from joint ventures during that year. To better see the difference we are offering Table 7, from which we can see that income

from joint venture in 2011 was more than 10 times larger than in the previous year, creating the largest operating income during the displayed period. Income from joint ventures is one of the inputs of operating income, which leads to the movements of values of all kinds of profits. In 2011, joint ventures income took up 58.7% of the overall operating income, while this component has decreased to 20.2% in 2015. Due to this exceptionally high level, all other ratios mainly working with profits will be disproportionately larger for 2011 as well.

Table 7: Skanska's incomes (in mil. USD)

Item/year	2009	2010	2011	2012	2013	2014	2015
Income from joint ventures	52.9	75.1	<b>761.1</b>	142.6	124.8	97.0	150.6
Operating income	788.4	757.2	<b>1 295.7</b>	593.3	853.4	784.1	745.7
Portion	6.71%	9.92%	<b>58.74%</b>	24.04%	14.62%	12.37%	20.20%

Source: Own creation

## ROE

The development of return on equity is shown in Table 8. Except for 2009, Skanska AB has had the highest values of this ratio compared to its competitors and very close values to the industry average during the analyzed period with a slightly increasing trend from 2012 (from 14.79% to 19.97%). As mentioned above, high value of ROE for 2011 (38.78%) is caused by the very high value of income from joint ventures for that year.

Table 8: Return on equity

ROE/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	20,93%	<b>19,37%</b>	<b>38,78%</b>	<b>14,79%</b>	<b>17,64%</b>	<b>17,99%</b>	<b>19,79%</b>	20,10%
VINCI	16,27%	14,59%	14,66%	14,58%	14,35%	16,92%	13,63%	
Hochtief	12,32%	12,81%	<b>-4,08%</b>	9,02%	16,56%	13,04%	10,59%	
Balfour Beatty	<b>21,12%</b>	12,33%	14,73%	2,67%	<b>-3,38%</b>	<b>-4,80%</b>	<b>-24,82%</b>	

Source: Own creation

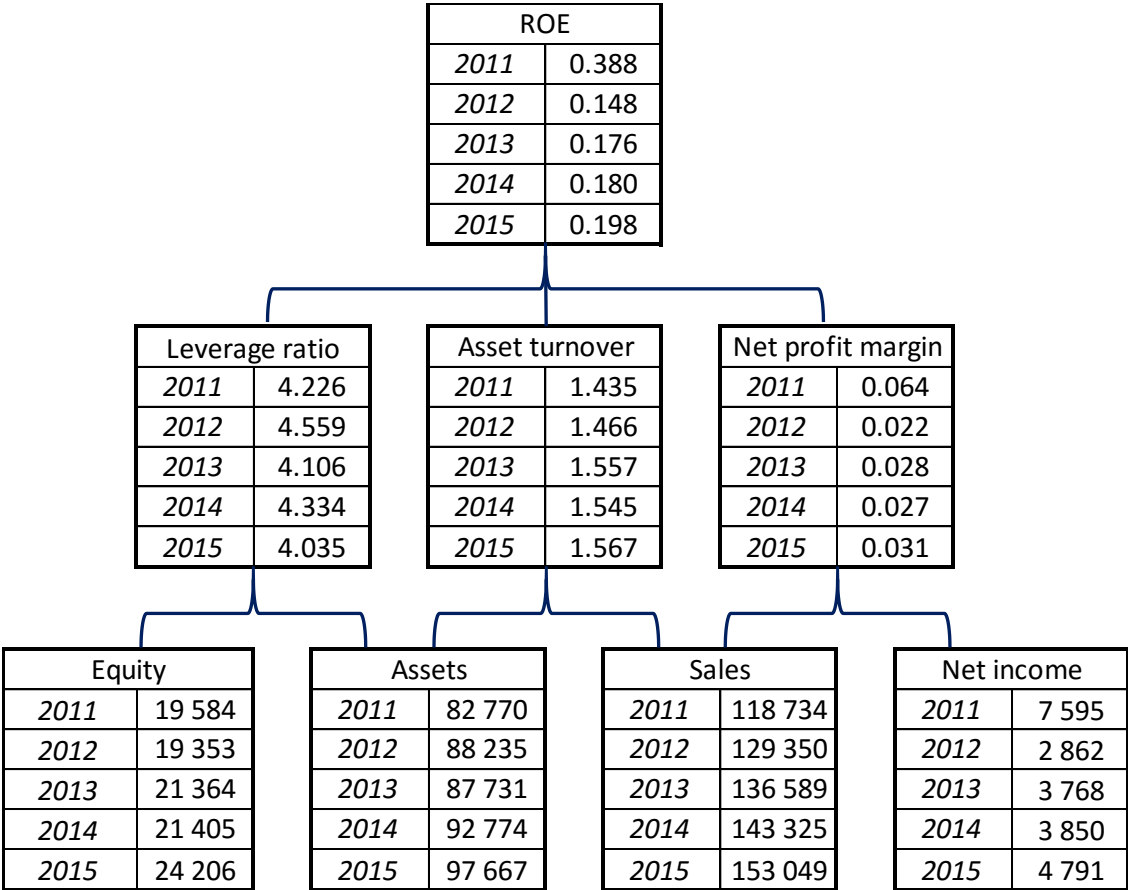
We can see that shareholders are given high returns on their invested capital i.e. equity, which is a good sign and provides the company with rather stable capital structure.

Development of competitors respectively their ROE is very similar to development of their ROA. VINCI and Hochtief from this perspective seem to be

stable while Balfour Beatty is experiencing some distress with negative values of ROE (and ROA) caused by negative values of its incomes. On the other hand, negative values may not necessarily mean financial problems- for example if they are caused by higher depreciations for the period accompanied with overall positive cash flows. It is also worth mentioning that according to Reuters, overall industry average of ROE is significantly lower, at value of 7.55% [45]. In that sense Skanska and both VINCI and Hochtief exceeded this average in the last year.

To get a better idea how the ROE of our company is created and structured, we can look at Chart 21. It represents components of ROE divided by DuPont system as described in the theoretical part of this thesis (see 3.2). Values might slightly differ from the table values shown later in this thesis (for example asset turnover) due to usage of averages for particular ratios also mentioned in the theoretical part.

Chart 21: DuPont of ROE



Source: Own creation

We can see that value of ROE has risen every year since 2012 while not all components have exclusively risen. Even though all components were stable, for

example in 2015 the value of ROE (19.8%) was driven more by margins and asset turnover rather than the leverage compared to the previous year. This was caused by the large increase of both sales and net income while assets compared to equity did not rise that much. On the other hand in 2012 the company had the largest leverage and lowest profit margin and asset turnover, meaning that in that year the ROE was strongly driven by the leverage, which can after exceeding some levels put a company into a financial danger. In this sense, increasing ROE through margins and turnovers is a better option. The highest value of ROE was, as mentioned above, in 2011 which was caused by unprecedented increase of profit margins to 6.4% (due to net income increase) which correlates with calculated gross and operating margins in Tables 9 respectively 11.

**Operating margin**

The overall operating margins, calculated exclusively from operating profits, for Skanska AB together with margins of its competitors and industry average can be seen in Table 9. Skanska’s operating margin has been oscillating around 4%, except for the year 2011 (7.09%), which is a little bit above industry average (3.80%). Since the core business lies within construction, we consider the 4.11% margin from the last year as sufficient and reasonable. It is worth mentioning that VINCI company has had these margins more than twice higher. It is mainly due to the business model of the company, which is more diversified and focused a lot on airports, railways and autoroutes, where the company manages to gain larger margins.

Table 9: Operating margin

Operating margin/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	4,34%	4,47%	7,09%	3,11%	4,07%	3,77%	4,11%	3,80%
VINCI	<b>8,48%</b>	<b>10,27%</b>	<b>9,74%</b>	<b>9,49%</b>	<b>9,34%</b>	<b>10,96%</b>	<b>9,64%</b>	
Hochtief	2,89%	3,55%	2,69%	2,33%	3,34%	-0,34%	2,73%	
Balfour Beatty	3,29%	2,38%	2,56%	1,78%	0,55%	2,55%	0,89%	

Source: Own creation

We are also mentioning Table 10, where we can see how high the operating margins are for the particular business streams of Skanska’s operations or in other words how is the overall operating margin from Table 9 created. Since construction business operates with large contracts as for the value, construction margins are

significantly lower, in our case generally around 3%. Meanwhile the residential development and especially the commercial development have had very high values of margins, which explains the different portions of area between particular parts in Chart 5. While construction business operates with margins around 3%, commercial development oscillates around 20%, making it very important part of the overall business model. By far the highest (814.2% last year) values are for the “Infrastructure Development”, but as we have mentioned for example at chapter 8.2.2 or 7.1, revenues from this stream are very low so the high percentage of margin is not that important in this case.

Table 10: Operating margins by business streams

Segment/year	2009	2010	2011	2012	2013	2014	2015
Construction	3.74%	3.88%	3.02%	2.79%	3.26%	3.50%	2.76%
Residential Development	-0.24%	7.37%	4.04%	-1.31%	6.21%	7.15%	9.55%
Commercial Development	17.16%	19.79%	21.23%	21.48%	17.21%	16.62%	21.55%
Infrastructure Development	124.5%	93.1%	1652.4%	243.0%	460.9%	284.0%	814.2%

Source: Own creation

### Gross margin

In Table 11 we have values of the gross margins. Industry average is at level 5.0% which has been exceeded by our company (together with VINCI) during the whole analyzed period. Values of this margin for Skanska AB have oscillated approximately between 9% and 10% representing the highest results during the last 2 years compared to the competitors.

Table 11: Gross margin

Gross margin/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>9,85%</b>	10,19%	9,54%	8,94%	9,10%	<b>9,15%</b>	<b>9,07%</b>	5,00%
VINCI	8,03%	7,91%	7,48%	7,50%	7,47%	8,14%	7,67%	
Hochtief	1,47%	0,41%	1,16%	0,49%	1,28%	-1,22%	1,75%	
Balfour Beatty	8,72%	<b>11,95%</b>	<b>11,97%</b>	<b>11,43%</b>	<b>9,87%</b>	1,80%	2,26%	

Source: Own creation

Especially Hochtief has had very low levels caused by very low levels of the gross profits derived from revenues (without financial assets profits) compared to operating incomes. That is why for example Hochtief has had operating margins

bigger than gross margins; it is due to the lower profits from operating activities compared to overall profits including profits from financial activities.

**ROCE**

The returns on capital employed are shown in Table 12. We can see that Skanska AB has had the highest values of this ratio over the analyzed period, exceeding even the industry average (17.60%) in the last year (18.87%) with capital employed of 3.3 bn. USD. This value can be seen as very satisfying for investors in a market context (higher returns than risk free securities). Therefore it is unlikely for the investors to withdraw their money from the company hence in case of maintaining debt structure unchanged the costs of debt are not expected to rise in the near future.

As for the development of ROCE during the last 4 years, it has been very stable with a slight uptrend (from 13.93% in 2012 to 18.87% in 2015). The highest values were reached again in 2011 when the ROCE was 32.84%, which was more than three times larger than the company’s competitors. In 2015 Skanska has had values of ROCE higher by 8.17% than the second best competitor (VINCI with 10.7%).

Table 12: Return on capital employed

ROCE/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>23.31%</b>	<b>22.02%</b>	<b>32.84%</b>	<b>13.93%</b>	<b>17.19%</b>	<b>15.84%</b>	<b>18.87%</b>	17.60%
VINCI	8.24%	9.95%	10.34%	10.59%	10.50%	11.69%	10.70%	
Hochtief	8.66%	9.37%	8.57%	7.45%	12.43%	-1.06%	8.99%	
Balfour Beatty	12.56%	9.63%	10.25%	6.09%	1.74%	6.77%	2.77%	

Source: Own creation

**Overhead ratio**

Values of overhead ratios are calculated in Table 13. It practically represents difference between the gross margins from Table 11 and number 1, so the values compared to competitors and their development are analogical to Table 11. Generally speaking, the lower this ratio is the better, meaning the more profit is left from the revenues to the company respectively to its shareholders. On the other hand, too low values can be not ideal, because companies in general should not try to lower their expenses in costs of lowering quality of products [6]. We believe that 90.93% scored by Skanska AB is not too low and it represents very effective level.

The indirect overhead ratios are presented in Table 14. Companies VINCI and Balfour Beatty do not provide values or portions of their indirect costs in their annual reports, hence their overhead ratio of costs directly unrelated to their revenues could not have been calculated.

Table 13: Overhead ratio

Overhead ratio /year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>90.15%</b>	89.81%	90.46%	91.06%	90.90%	<b>90.85%</b>	<b>90.93%</b>	95.00%
VINCI	91.97%	92.09%	92.52%	92.50%	92.53%	91.86%	92.33%	
Hochtief	98.53%	99.59%	98.84%	99.51%	98.72%	101.22%	98.25%	
Balfour Beatty	91.28%	<b>88.05%</b>	<b>88.03%</b>	<b>88.57%</b>	<b>90.13%</b>	98.20%	97.74%	

Source: Own creation

We can see that Skanska has had the ratio values of indirect costs slightly below the industry average (6.10%) during the last 3 years, meaning that the company is well managed with none or very low unnecessary administrative (and similar to administrative) expanses. In this case, there is no need or much space for improvements, which can be also supported by the fact that Hochtief has had almost the same value of this ratio in 2015 (5.70%, meaning 0.09% lower than Skanska AB) while having approximately the same number of employees as mentioned above.

Table 14: Indirect overhead ratio

Overhead ratio /year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>5.81%</b>	<b>6.16%</b>	<b>6.61%</b>	6.58%	<b>5.62%</b>	<b>5.84%</b>	5.79%	6.10%
Hochtief	7.34%	7.71%	7.70%	<b>6.41%</b>	5.75%	8.00%	<b>5.70%</b>	

Source: Own creation

## 8.5.2 Market ratios analysis

Skanska's Series B shares are listed on Nasdaq Stockholm stock exchange, and the market capitalization on December 31, 2015, was 67.7 billion SEK (corresponding to USD 8.1 billion) with 411 036 849 shares outstanding (corresponding with the price 164.07 SEK per share to the date). Together with ratios mentioned in the theoretical part we are also going to look at the price development of shares with their trading volume.



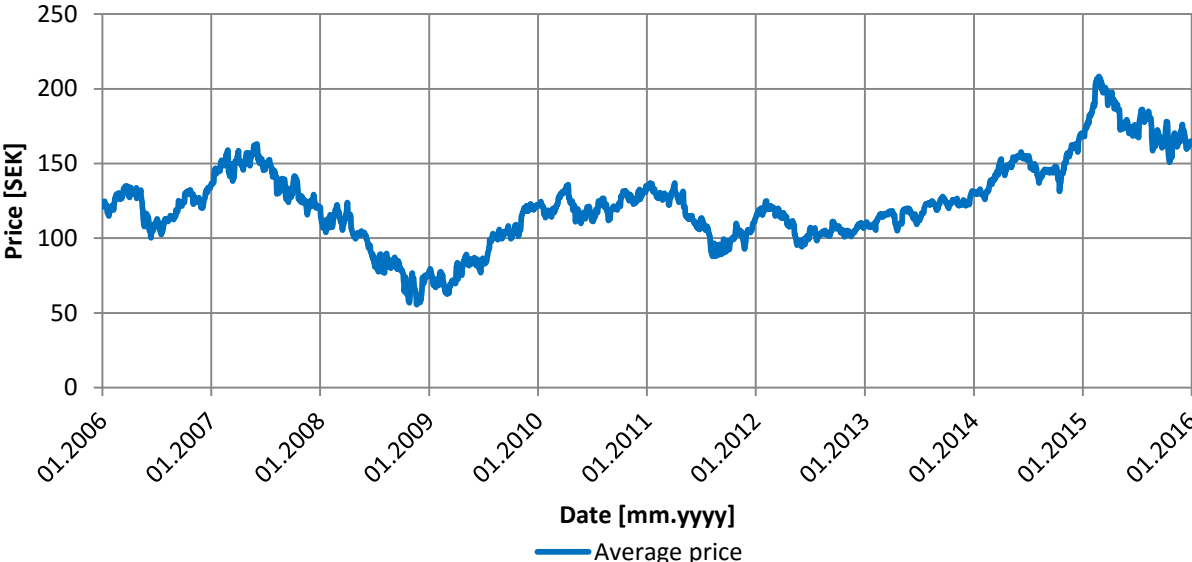
It is worth mentioning, that market capitalization (i.e. market value of equity) of Skanska AB at the end of 2015 was lower than balance sum by approximately 30%. In other words investors have evaluated the group’s equity for 67.7 billion SEK while the total assets the company owns have had book value of 97.7 billion SEK. Since the company uses leverage slightly higher than 4 (portion of equity equals approximately 24% of balance sum), market evaluates the equity approximately 2.9 times higher than its book value. The market evaluation is in this sense rather positive about the company’s outlook and investors are rather confident of its future.

For the competitor’s market ratios calculation we have used data from the particular stock exchanges where they are publicly traded, meaning [50] for VINCI, [51] for Hochtief and [52] for Balfour Beatty.

**Share price**

Price development of Skanska’s shares from 2006 till the end of 2015 is displayed in Chart 22 in which the prices represent the average price (average between opening and closing price, hence not affected by possible short term higher liquidity) per day in SEK. We are mentioning historical data from the last 10 years to get a better perspective about the after crisis development.

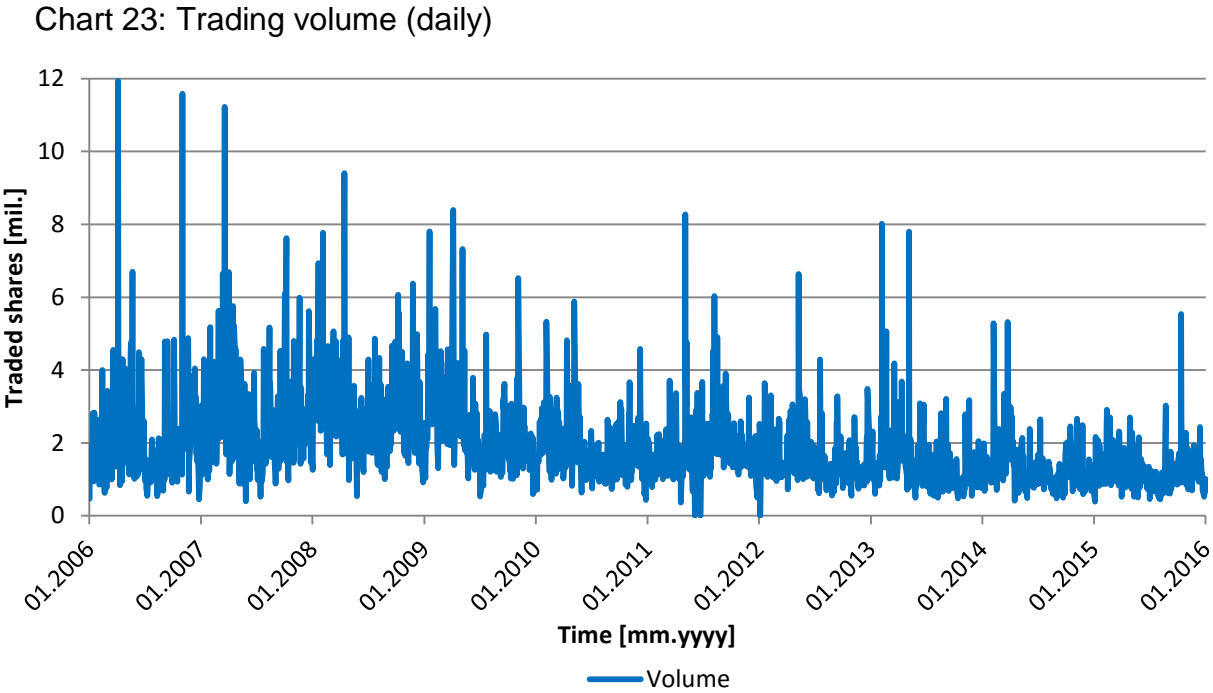
Chart 22: Average share price of Skanska AB



Source: Own creation based on [46]

We can see that there was a clear downtrend during the financial crisis (2007/2008) after which the prices hit their bottom at level 55.42 SEK per share at

the end of 2008, which represented a 66% drop from the previous year's high (163.05 SEK in 2007). The highest values were reached in February 2015 when the stocks were traded for 208.3 at their peak, after which the price slid down to 165.04 at the end of the year which is basically the same price level as immediate before crisis. Nevertheless during the last 4 years there has been a slight uptrend of the price, representing a return of confidence in the company and generally in the construction industry as a whole.



Source: Own creation based on [46]

Volume of trading of the stock and its development is given in Chart 23. We can see larger amounts of shares were traded during the crisis, while from the end of 2009 the volume was lower and rather stable with just few spikes meaning that the overall development is in downtrend. The average amount of stocks traded was 1.95 million per day for the shown period. The maximum amount traded in one day was 11.94 million shares which represents approximately 2.9% of all shares. During the last year the average daily volume was 1.28 million shares (average turnover 227 mil. SEK per day) which means around 0.31% of all shares from which we can say that the liquidity is rather sufficient while not exceeding too high levels. Under normal market conditions shareholders from this perspective can expect stable future development without many steep trends or movements.

## EPS

Diluted earnings per share are shown in Table 15. We are not offering any industry average this time because most of the companies used for calculating previous averages are either not publicly traded or has very different business (usually more specialized and not that complex) and their EPS would be rather irrelevant. Development of the diluted EPS for Skanska AB in home currency (SEK) is different from its development in USD mentioned in Table 15 due to fluctuating exchange rates. In SEK, the EPS in Skanska has been rising every year since 2012, which can be seen from the table at the end of the thesis (List of appendixes).

Table 15: Diluted earnings per share (in USD)

EPS/year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	1,32	1,34	2,82	1,02	1,40	1,34	1,37
VINCI	<b>4,48</b>	4,38	<b>4,85</b>	<b>4,55</b>	<b>4,70</b>	<b>5,89</b>	<b>4,06</b>
Hochtief	4,09	<b>5,72</b>	<b>-3,04</b>	2,71	3,15	4,84	3,45
Balfour Beatty	0,54	0,51	0,57	0,28	0,04	<b>-0,72</b>	<b>-0,46</b>

Source: Own creation

One of the most important things for investors is a stable development, ideally with an upward trend, of earnings per share, rather than the value of it. The value of EPS itself is then reflected in the share price. Skanska AB has had very stable development of EPS in USD except for the year 2011, when it increased by 110.4% relatively to the previous year due to the exceptionally large profit for that year. Still, compared to VINCI and Hochtief the values of Skanska's EPS are in general around three or four times lower. All four companies have had very low differences between diluted and not diluted number of common shares so in this case the non-diluted EPS would have been practically the same as the diluted ones in Table 15.

## P/E

The construction industry average for P/E ratio, according to Reuters, is 21.84 [45]. Development of P/E in our company and its two competitors (VICNCI and Hochtief) has been quite stable during the last 4 years. Especially Skanska AB has had almost identical P/E ratios in 2012, 2014 and 2015 (15.25). The lowest value of 6.11 in 2011 was caused again by the exceptionally large profits for that period as mentioned above. Balfour Beatty respectively its values of P/E are in this comparison irrelevant because in 2013 it scored 103.02 while in the last two years the values are

below zero (-5.46 respectively -8.23). Only the company Hochtief scored higher level of P/E than industry average (24.10 in 2015), which can be seen as very positive outlook from investors' perspective, nevertheless too high levels might indicate creation of a bubble.

Table 16: P/E ratio

P/E ratio /year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	9.00	12.67	6.11	15.67	12.97	15.64	15.25	21.84
VINCI	10.60	11.48	11.29	9.88	11.37	11.22	15.22	
Hochtief	14.29	13.14	-26.16	19.82	23.80	17.05	24.10	
Balfour Beatty	7.33	8.22	8.37	15.78	103.02	-5.46	-8.23	

Source: Own creation

From the recent stable development and values of P/E of Skanska AB we can see that investors basically trust and believe in the company future. Hence price to earnings is stable and if the profits changes we can expect similarly intensive trend in the stock prices. On the other hand the P/E ratio is still lower than the industry average meaning that there are more interesting companies for investors. We believe it is caused by the fact that the average includes much smaller companies which are less complex as for the sphere of activity and more dynamic and specialized in very specific faster growing parts of construction industry, which leads to the higher expectations from the investors therefor willingness to pay more for the business despite the currently lower earnings.

## **BVPS**

To be able to compare our companies' book values per share, all values in Table 17 are denominated in USD, because the BVPS is calculated as a division of money based item (equity) by dimensionless amount of shares. Results of BVPS, as well as other ratios working with forex rates, are greatly influenced by development of the foreign exchange market which is why they should be regarded as a little bit less relevant.

From Table 17 it is clear, that in case of any kind of division of the companies, owners of Hochtief would be given the largest amount of money per their shares (50.39 USD per share), while in Skanska AB it would be only 7.01 USD. Naturally this fact positively and closely correlates with the price of the particular stocks. For

example Hochtief's BVPS is approximately 7 times higher than Skanska's, but Skanska's shares are about 4 times cheaper.

Table 17: Book value per share (in USD)

BVPS/year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	6.80	7.43	6.90	7.22	8.04	6.69	7.01
VINCI	28.02	31.94	35.10	33.73	34.01	35.64	30.55
Hochtief	<b>65.98</b>	<b>73.51</b>	<b>74.34</b>	<b>70.86</b>	<b>56.83</b>	<b>59.68</b>	<b>50.39</b>
Balfour Beatty	2.74	2.62	2.96	3.04	2.36	2.95	1.85

Source: Own creation

The price of a stock can be interpreted practically as the market value of equity. As it has been mentioned in theoretical part, value of equity is taken from accounting and its real value (in a sense of fair price) is probably different for all compared companies. To avoid this misleading fact, Table 18 is given, in which the values of price-to-book ratio are quantified for better comparison. Differences between companies in Table 18 are much lower than in Table 17 and more relevant. In this sense Skanska AB is most expensive company, with 3.01 P/B ratio, meaning that investors are willing to give 3 times more money for the shares (denominated in book value), while Hochtief is the cheapest with P/B ratio 1.65.

Table 18: P/B ratio

P/B ratio/ year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	<b>1.87</b>	<b>2.42</b>	<b>2.35</b>	<b>2.30</b>	<b>2.27</b>	<b>2.81</b>	<b>3.01</b>
VINCI	1.69	1.57	1.56	1.33	1.57	1.85	2.02
Hochtief	0.89	1.02	1.07	0.76	1.32	1.38	1.65
Balfour Beatty	1.44	1.59	1.61	1.47	1.71	1.34	2.05

Source: Own creation

### Dividend payout

Unlike the EPS, dividend payout does not have to be always stable from investors' point of view. Even though stable or constant dividend payout would be easier for planning and discounting, any management should change value of dividends based on the current market situation. If there is a large potential of growth, investments and expansion, management of a company should cut off or at least lower the dividends so it can accumulate capital for the investments in order to provide investors higher returns in the future. On the other hand if there are not many opportunities where to invest (with certain and desirable amount of risk) management

of a company can easily increase the dividends since there is no better use and no probable higher return on them if left inside the company.

Table 19: Dividend payout

Dividend payout/year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	<b>0.52</b>	<b>0.60</b>	0.33	<b>0.87</b>	0.69	<b>0.72</b>	<b>0.64</b>
VINCI	0.50	0.51	<b>0.51</b>	0.50	0.50	0.50	0.50
Hochtief	0.51	0.46	0.00	0.47	0.63	0.52	<b>0.64</b>
Balfour Beatty	0.35	0.39	0.39	0.79	<b>5.64</b>	<b>-0.13</b>	0.00

Source: Own creation

Development of dividend payout in the past 7 years is displayed in Table 19, from where it is visible that Balfour Betty has had zero dividends in 2015 and in the previous year it had even negative value of its dividend payout. Meanwhile another competitor, VINCI, has had almost constant development of their dividend payouts during the whole period (50%). Skanska on the other hand has had more volatile development. For example between 2011 and 2012 it has increased its dividend payouts by more than 100% (from 33% in 2011 to 87% in 2012). Nevertheless during the last 3 years the development of this ratio is stable with a slight decrease of 0.08 in 2015 leading to the value of 0.64 which in other words means that 64% of profit is given back to shareholders and remaining 36% is left in the company for further use. In a course of years and in a sense of above mentioned unnecessary of stable development, Skanska's approach to dividend payout seems very pragmatic and well managed.

Table 20: Sustainable grow rate

SGR / year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	10.11%	<b>7.84%</b>	<b>26.07%</b>	1.93%	5.54%	5.00%	<b>7.03%</b>
VINCI	8.06%	7.21%	7.20%	<b>7.29%</b>	7.17%	<b>8.44%</b>	6.78%
Hochtief	6.01%	6.87%	<b>-4.08%</b>	4.74%	6.08%	6.23%	3.78%
Balfour Beatty	<b>13.75%</b>	7.54%	9.00%	0.57%	<b>15.69%</b>	<b>-5.41%</b>	<b>-24.82%</b>

Source: Own creation

As mentioned in the theoretical part, the dividend payout can be used to calculate the sustainable grow rate (Table 20). Skanska AB has had the highest value of this ratio (7.03%) in the last year, while Balfour Beatty has suffered significantly low value (-24.82%). Nevertheless there is no clear trend for the whole

analyzed period and only VINCI company has managed to keep this ratio more or less stable (around 7%-8%).

Table 21: Dividend per share (in USD)

Dividend per share/year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	0,73	0,89	0,89	0,92	0,91	0,80	0,89
VINCI	<b>2,26</b>	2,22	<b>2,47</b>	<b>2,28</b>	<b>2,35</b>	<b>2,95</b>	2,04
Hochtief	2,09	<b>2,65</b>	0,00	1,29	1,99	2,53	<b>2,22</b>
Balfour Beatty	0,19	0,20	0,22	0,22	0,22	0,09	0,00

Source: Own creation

A different view on dividends is through their ratio towards the amount of outstanding shares. Values for these dividends per share are calculated in Table 21.

We can see that Skanska AB has had values of dividend per share around 0.9 over the past 6 years (0.89 in 2015) which is significantly lower compared to VINCI and Hochtief which have had this value 2.04 respectively 2.22 in the last year. This difference correlates with the share price respectively with division of the equity into shares. Even though Skanska AB has had very similar values for dividend payout, from dividend per share we can see that the company has significantly larger number of shares related to their dividends compared to VINCI and Hochtief. This increased number of shares leads to the lower values and therefore the lower price of shares themselves. Market's view on this fact can be translated through dividend yield.

### Dividend yield

Values of dividend yield can be derived from the dividend per share as shown in Table 22.

Table 22: Dividend yield

Dividend yield/year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	<b>5.74%</b>	4.70%	<b>5.36%</b>	<b>5.55%</b>	<b>5.29%</b>	<b>4.62%</b>	<b>4.23%</b>
VINCI	4.76%	4.41%	4.51%	5.06%	4.40%	4.46%	3.30%
Hochtief	3.58%	3.53%	0.00%	2.39%	2.66%	3.06%	2.67%
Balfour Beatty	4.76%	<b>4.73%</b>	4.65%	4.99%	5.47%	2.33%	0.00%

Source: Own creation

Even though the share price for Skanska AB is lower than for VINCI or Hochtief (as explained above), from Table 22 we can see that from dividend point of

view it is lower by quite significant amount especially compared to Hochtief. Dividend yield of 4.23% for Skanska AB in 2015 practically means that investors would like to have their investment back in form of dividends in approximately 24 years while in Hochtief they are willing to wait for approximately 38 years (without taking under consideration inflation or any kind of discounting). This potential return period is different from the P/E ratio, which compares investors view through earnings per share not dividends paid from it, which in other words mean that dividing P/E ratio by dividend payout gives us a reciprocal value of dividend yield.

In this sense share price of Skanska AB is underrated compared to VINCI and Hochtief. It is also underrated relative to Balfour, but it is again not much relevant since there was no dividend in 2015. It is clear that as for the dividends compared to share price, Skanska AB was the best choice in the last 7 years.

### 8.5.3 Liquidity ratios analysis

As for the liquidity ratios, we are going to calculate and analyze only current and quick ratio, because cash ratio as mentioned above is not that practical and under normal circumstances not that important.

#### Current ratio

From Table 23, which represents values of the current ratios, we can see that Skanska AB has had very stable and sufficient values of this ratio (between 1.12 and 1.28). It has been very close to the industry average (1.20) and only a little bit lower than the ratio of Hochtief which has shown the highest values in this category (1.33 in 2015).

Table 23: Current ratio

Current ratio/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>1,17</b>	1,15	1,12	1,17	1,25	1,28	1,24	1,20
VINCI	0,96	0,91	0,91	0,87	0,83	0,89	0,83	
Hochtief	1,14	<b>1,24</b>	<b>1,25</b>	<b>1,35</b>	<b>1,42</b>	<b>1,35</b>	<b>1,33</b>	
Balfour Beatty	0,84	0,80	0,81	0,79	0,87	0,99	0,88	

Source: Own creation

In this sense our company has no problems with its liquidity, unlike the VINCI or Balfour Beatty which have had values of this ratio exclusively below 1.00 (0.83



respectively 0.88 in 2015). Value of industry average is lower than generally advised value across all industries (1.5-2.5) due to the fact that construction industry operates with very high volumes of money when realizing contracts together with low turnovers. In this sense having a larger liquidity ratio would mean significantly higher amount of money bound in a company for liquidity purposes with no impact on turnovers while it could be used to generate returns. In this sense we believe that current ratio of 1.24 for Skanska AB is sufficient and practical with no need of increasing it.

### Quick ratio

Industry average for the quick ratio is naturally lower than for the current ratio and is around 1.10. In Table 24 we see the quick ratios for our company and its competitors. It is clear that, similarly to the current ratio, Balfour Beatty and VINCI have suffered some problems with their potential liquidity through the whole period. On the other hand Skanska AB has had very good results with values of this ratio oscillating between 1.11 (2011) and 1.26 (2014). It means that values of the quick ratio for Skanska AB have always been above the industry average and very stable. Hochtief, similarly to Skanska AB, has had also very good liquidity reaching the same value of it in 2015 (1.22).

Table 24: Quick ratio

Quick ratio/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>1,16</b>	<b>1,14</b>	<b>1,11</b>	1,16	1,24	<b>1,26</b>	<b>1,22</b>	1,10
VINCI	0,92	0,87	0,87	0,84	0,80	0,85	0,80	
Hochtief	0,97	1,07	1,10	<b>1,19</b>	<b>1,27</b>	1,24	<b>1,22</b>	
Balfour Beatty	0,81	0,77	0,77	0,74	0,82	0,93	0,82	

Source: Own creation

### 8.5.4 Activity ratios analysis

The next calculated ratios are activity ratios, starting with establishing working capital for our company and its competitors.

#### WC

Since the compared companies report their financial statements in different currencies (Skanska- SEK, VINCI and Hochtief- EUR, Balfour Beatty- GBP) we have

calculated their working capitals through the annual average exchange rates to gain amounts in USD so the values are unified and can be compared. More specifically, we have used averages from sums of daily differences between open and close prices for both *bid* and *ask* quotations on foreign exchange market from [48]. That is why the following numbers in Table 25 should not be exclusively looked at from a trend perspective because they are burdened with currency exchange fluctuations.

Table 25: Working capital (in mil. USD)

WC/year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	1 373,68	1 194,62	1 033,95	1 585,58	2 166,54	2 069,80	1 813,87
VINCI	-1 212,78	-2 593,58	-3 292,63	-4 370,98	-5 987,39	-3 950,28	-5 034,84
Hochtief	1 271,02	2 347,39	2 918,62	4 042,40	4 388,55	3 831,29	2 522,41
Balfour Beatty	-773,30	-968,08	-1 036,26	-1 060,28	-604,00	-23,07	-435,62

Source: Own creation

From Table 25 we can see, that Skanska AB has always had positive working capital, meaning it is capable of covering all short term liabilities with its current assets, so in a need of fast coverage of current liabilities, the company would not have to get rid of machinery, property and other long term assets, which is definitely a good sign. Development of the WC during the studied period can be considered as quite stable, oscillating between approximately 1 000 and 2 000 (1 813.87 in the last year) mil. USD. Also two compared competitors, VINCI and Balfour Beatty, have had exclusively negative values of their WC, which was naturally caused by lower values of current assets compared to current liabilities during the analyzed years.

Table 26: Relation between Backlog and WC for Skanska AB

Item/year	2009	2010	2011	2012	2013	2014	2015
WC	1 373.7	1 194.6	1 034.0	1 585.6	2 166.5	2 069.8	1 813.9
Backlog	18 993.9	21 451.9	22 591.0	22 514.4	20 832.5	21 876.9	18 849.6
Backlog / WC	13.8	18.0	21.8	14.2	9.6	10.6	10.4

Source: Own creation

As we have mentioned in chapter 3.4.4, we can derive and approximate a reasonable values of backlog from the working capital. From Table 26, we can see that in the last 3 years Skanska AB has had the ratio of backlog to WC around number 10 which is considered as stable and reasonable value. Industry average for this value is, according to [19], 11.8 (median 7.2) for all analyzed construction

companies. The development of this ratio in our company over the last 7 years was influenced more by movements of working capital rather than development of the backlog, which is caused by different size of unique projects for every period and the management's strategy in planning.

### Asset turnover

The turnovers of total assets with industry average of 2.77 are calculated in Table 27. All compared companies have scored lower levels of their turnovers with the highest value of 1.61 for Skanska AB in the last year, which is still compared to the industry average lower by 41.9%. This gap is caused mainly by the large size of all compared companies, while companies from the industry average do not in general operate with such high levels of property, machinery and other assets typical for international corporations.

Total asset turnover ratio is not affected by an internal structure of assets, meaning that Skanska AB is literally generating more revenues through its assets than its competitors. It is a positive sign proving that the management allocates its capital effectively, while having the asset base sufficient for its revenues and not outdated. As for the trend, from 2011 there is a very slight uptrend of this ratio in Skanska AB, caused by faster increase of the revenues compared to the increases of company's balance sum. The lowest values were calculated for VINCI, which has had almost constant values slightly above 0.6.

Table 27: Total asset turnover

Total asset turnover/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	1,63	1,51	1,48	1,51	1,55	<b>1,59</b>	<b>1,61</b>	2,77
VINCI	0,60	0,62	0,63	0,63	0,65	0,61	0,62	
Hochtief	1,45	1,46	1,51	<b>1,56</b>	<b>1,62</b>	1,47	1,48	
Balfour Beatty	<b>1,65</b>	<b>1,71</b>	<b>1,70</b>	1,50	1,52	1,33	1,41	

Source: Own creation

### Inventory turnover

As for the inventory turnover, Skanska AB has very large values of that ratio due to in general very low levels of its inventories. Inventories actually created only 0.97% of total assets in the last year (i.e. 2015) and in average from the last 7 years they formed 1.11% of total balance sum. This fact leads the values of the inventory

turnover to exceed 100, meaning that the company's inventory is used more than one hundred times every year (respectively 142 times in the last year). All competitors reported significantly lower values of this ratio, especially Hochtief, whose values were practically at least five times lower.

Table 28: Inventory turnover

Inventory turnover/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>144,49</b>	<b>124,67</b>	<b>110,73</b>	<b>112,56</b>	<b>122,75</b>	<b>132,80</b>	<b>141,93</b>	152,79
VINCI	37,41	38,43	36,95	35,33	37,61	37,40	37,51	
Hochtief	16,04	16,84	18,01	18,73	19,70	21,62	24,57	
Balfour Beatty	81,73	86,05	73,00	49,15	51,35	46,77	43,30	

Source: Own creation

### Receivable turnover

Receivable turnovers for Skanska AB and other companies are shown in Table 29. Development of this turnover in Skanska during the last 3 years is almost constant, leading to the value of 5.87 in 2015, which is a little bit higher than the industry average which has been 5.49. The results can be interpreted that usually our company manages to collect its receivables almost 6 times a year, which is considered as a higher standard.

Table 29: Receivable turnover

Receivables turnover /year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	5,56	5,42	5,40	5,60	5,97	5,91	5,87	5,49
VINCI	2,96	3,48	3,88	3,64	3,67	3,53	3,56	
Hochtief	4,91	4,94	4,83	4,69	4,27	3,42	3,70	
Balfour Beatty	<b>6,74</b>	<b>7,31</b>	<b>7,28</b>	<b>6,53</b>	<b>7,19</b>	<b>6,74</b>	<b>7,51</b>	

Source: Own creation

VINCI on the other hand has had the lowest values which together with its low liquidity may lead to a potentially very large financial distress. Fastest turnover was calculated for the company Balfour Beatty (7.51 in 2015).

### Average collection period

From the previous table we can derive the average collection period which is visible in Table 30. We can see that Skanska AB has had its collection period slightly

above 62 days or in other words approximately 2 months. This level is significantly better than levels of this period in VINCI and Hochtief, which have had values higher than 3 months. In general, this provides our company with easier planning and better liquidity, because the company can turn its receivables into the cash flows very quickly. Industry average is 66.44 days, nevertheless it differs significantly from company to company. The fastest ability of turning revenues into a cash flow has been calculated for Balfour Beatty (48.57 days in 2015).

Table 30: Average collection period

Collection period /year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	65.69	67.34	67.54	65.19	61.18	61.78	62.20	66.44
VINCI	123.12	104.90	94.02	100.15	99.41	103.52	102.61	
Hochtief	74.40	73.91	75.59	77.82	85.57	106.81	98.77	
Balfour Beatty	<b>54.18</b>	<b>49.91</b>	<b>50.11</b>	<b>55.89</b>	<b>50.73</b>	<b>54.17</b>	<b>48.57</b>	

Source: Own creation

### Fixed asset turnover

In Table 31, values for the non-current asset turnover are calculated. We can see that the industry average is much higher compared to the mentioned companies (51.30). It is due to the large portion of smaller companies used in the calculation for the average. Smaller companies usually do not dispose with large amounts of fixed assets such as for example heavy machinery or property. This is why in our comparison the industry average is rather useless.

Table 31: Fixed asset turnover

Fixed asset turnover/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	<b>8.62</b>	<b>7.75</b>	<b>6.98</b>	<b>6.99</b>	<b>7.41</b>	<b>7.89</b>	<b>8.48</b>	51.30
VINCI	0.95	0.97	1.00	1.03	1.03	0.97	0.98	
Hochtief	3.52	3.66	4.20	5.08	6.08	5.65	5.06	
Balfour Beatty	3.15	3.21	3.20	2.79	2.76	2.47	2.64	

Source: Own creation

As we have shown in Chart 8, Skanska AB, compared to our competitors, has had very small portion of fixed assets relatively to the amount of its total assets which has led to the higher values of their (i.e. fixed assets) turnover. The most different ratio between current and non-current assets is between Skanska and VINCI, which

has scored due to this fact the lowest values of fix asset turnover (0.98 in 2015). Meanwhile Skanska AB has had the highest values (8.48 in 2015). This difference is naturally bigger than it has been with total asset turnover from Table 27.

**WC turnover**

The working capital turnover for our and other companies is given in Table 32. Our company has shown decreasing trend in this particular turnover during the last 5 years, when in 2011 it was 15.57 while in 2015 it reached only 9.76 (the second lowest value after 9.51 from 2014). This decrease was mainly caused by the analogical movements of working capital in the company, which increased from 2011 till 2015 by approximately 75% while revenues didn't increase so significantly, leading to the down trend of the turnover. Nevertheless it is still the best result in our comparison, or in other words the fastest turnover compared to the chosen competitors. Our company in this sense can still very well utilize its working capital for supporting the given level of revenues. Still, the latest values are lower than in the past and the industry average (13.50), meaning the company might consider not increasing the WC so fast in the upcoming years unless it will expect some unprecedented large projects.

Negative values for VINCI and Balfour Beatty are caused by the exclusively negative values of their working capital as shown in Table 25, which is inter alia due to too their high investments into accounts receivable. In case of Balfour Beatty this negative value might not be necessarily a bad sign, because its receivable turnover is very fast. That means that even though the company seems to have lack of WC, it can be compensated by very fast collections of receivables so the company does not lack capital. VINCI on the other hand has had very low value of receivable turnover which together with low WC can lead to a possible lack of financing for new or ongoing projects.

Table 32: Working capital turnover

WC turnover/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	14.50	13.58	<b>15.57</b>	<b>14.82</b>	<b>11.23</b>	<b>9.51</b>	<b>9.76</b>	13.50
VINCI	-35.35	-23.64	-17.12	-13.41	-10.20	-10.35	-10.26	
Hochtief	<b>19.93</b>	<b>15.04</b>	12.05	9.74	7.97	7.14	8.18	
Balfour Beatty	-18.13	-16.51	-14.94	-13.17	-16.58	-36.32	-46.52	

Source: Own creation

### 8.5.5 Debt ratios analysis

Since a debt (both interest bearing and nonbearing) is part of a financial structure of practically every larger company, we are going to put it under analyzation for our company as well. It will be looked at through all the ratios mentioned in the theoretical part, beginning with the total debt ratio.

#### Total debt ratio

The debt ratios for particular companies and years are shown in Table 33. We can see that all companies including industry average has had very similar values of this ratio. The highest value in 2015 was in Balfour Beatty (81.96%) while the lowest was for Skanska AB (75.22%). The industry average is at level 69.39%.

Table 33: Debt ratio

Debt ratio /year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	75.92%	73.24%	76.34%	78.07%	75.65%	76.93%	75.22%	69.39%
VINCI	79.47%	76.91%	77.52%	77.16%	77.39%	76.41%	75.45%	
Hochtief	73.61%	71.55%	73.98%	74.98%	77.68%	79.56%	76.29%	
Balfour Beatty	81.56%	78.43%	78.12%	77.33%	81.88%	76.54%	81.96%	

Source: Own creation

Development of the debt ratio in our company over the past 7 years has been very stable with practically no particular trend. The value of 75.22% in 2015 in other words means that the company has approximately 3/4 of its assets financed by debt, which can be considered as reasonable and save level without a significant financial risk. Nevertheless, the portion of debt burdened by interest rates still remains important, and debt ratio should be interpreted in contrast with interest bearing debt structure. That can be done for example through debt to capitalization ratio.

#### Debt to capitalization ratio

Values of debt ratio related to only interest bearing liabilities are given in Table 34. The lowest values over the last three years were measured in Skanska AB (36.96% in the last year), while the highest values were in VINCI (52.70% in 2015).

Compering this table with the previous one, we can see the largest differences for Skanska AB. It means that compared to the competitors, only very small portion of Skanska's debt is burdened by an interest while having very similar total debt ratio.

This fact can be also seen later in Table 39 where the high value of WACC for our company is driven mainly by costs of equity, not debt. In other words, Skanska AB run its business with the capital composed of debt by 75% (similarly to the competitors), but only 37% of the capital bore interest. It means that 80.7% of debt financing is interest free and only 19.3% of debt influences Skanska's costs of debt.

These interest bearing liabilities in Skanska AB are divided equally into current (6 524 mil. SEK, represented almost exclusively by financial liabilities- 99.3%) and non-current (7 670 mil. SEK, represented by pensions and financial liabilities- 51.75% respectively 48.25%).

Table 34: Debt to capital

Debt to capital/ year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	27.58%	19.17%	35.08%	43.87%	39.63%	41.76%	36.96%
VINCI	65.07%	59.02%	58.17%	54.12%	51.92%	55.59%	52.70%
Hochtief	38.21%	37.67%	35.89%	39.32%	45.05%	49.69%	42.81%
Balfour Beatty	22.74%	22.46%	31.73%	40.80%	49.73%	43.76%	51.12%

Source: Own creation

### Debt to equity

Ratios of debt and book value of equity are shown in Table 35. Unlike in the previous table, not only interest bearing liabilities are used as a debt. Skanska AB together with VINCI and Hochtief have had values of this ratio slightly above 3 in the last year which is higher than the industry average (2.28), while Balfour Beatty has had the highest value (4.54).

Table 35: Debt (as liabilities) to equity

D/E ratio /year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	3.15	2.74	3.23	3.56	3.11	3.33	3.03	2.28
VINCI	3.87	3.33	3.45	3.38	3.42	3.24	3.07	
Hochtief	2.79	2.51	2.84	3.00	3.48	3.89	3.22	
Balfour Beatty	4.42	3.64	3.57	3.41	4.52	3.26	4.54	

Source: Own creation

As for D/E ratio calculated exclusively from interest bearing debt, we can look at Table 36. The results for this calculation are more different for all compared companies. The lowest value in the last year was calculated for Skanska AB (0.59)



which is almost two times lower than VINCI (1.11). It means that value of interest bearing debt for Skanska AB is by 40% lower than its financing from equity (as book value). An opposite situation was in VINCI and Balfour Beatty, which have had D/E above 1.00, which means they have higher interest bearing debt than book value of their equity.

Table 36: Debt (as burdened by interests) to equity

D/E ratio/ year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	0.38	0.24	0.54	0.78	0.66	0.72	0.59
VINCI	1.86	1.44	1.39	1.18	1.08	1.25	1.11
Hochtief	0.62	0.60	0.56	0.65	0.82	0.99	0.75
Balfour Beatty	0.29	0.29	0.46	0.69	0.99	0.78	1.05

Source: Own creation

### Leverage

Values of the financial leverages (as defined in the theoretical part) over the last 7 years are shown in Table 37. Industry average is 4.45 which is very close to the compared companies which all have had their leverage between 4.16 (VINCI) and 4.78 (Balfour Beatty). Skanska AB has had its leverage very stable with slight downtrend from 2012 (from 4.39 to 4.18).

Based on competitors and industry average it is obvious that our company is not overleveraged and it can probably easily withstand some potential financial distresses. Also, since the markets have been growing lately, lowering the leverage in Skanska AB would not be wise at this point and the management should maintain or slightly increase the leverage in order to accelerate the profits.

Table 37: Leverage

Leverage/year	2009	2010	2011	2012	2013	2014	2015	Industry average
Skanska AB	4.41	3.94	3.97	4.39	4.32	4.22	4.18	4.45
VINCI	4.87	4.57	4.39	4.41	4.40	4.33	4.16	
Hochtief	3.79	3.63	3.68	3.92	4.21	4.68	4.55	
Balfour Beatty	5.42	5.00	4.60	4.49	4.90	4.84	4.78	

Source: Own creation

### Interest coverage

In calculation of the interest coverage in Table 38, according to the theoretical part, *EBIT* was used as a numerator instead of the net profit, which is why the only negative value has been calculated for Hochtief in 2014 and not for Balfour Beatty as in profitability ratios.

Due to very low level of interest bearing debt, Skanska AB has had much higher interest coverage compared to its competitors over the whole period. While the competitors have had values between 1.22 and 2.39 in 2015, Skanska AB has had 19.24, meaning that its earnings before tax and interest are almost 20 times higher than payment for these interests. In other words, even if the company's EBIT dropped by almost 95%, the company would be still able to pay all the interests. High levels are desirable, nevertheless in this case Skanska AB has had unnecessarily high levels of the coverage, meaning the company can use much more external capital for new projects and therefore for the grow. As it will be shown in the next chapter, this potential external capital can be, also due to the high value of the interest coverage, very cheap, so interests from it would not significantly burden company's costs and cash flows (neither the interest coverage).

Table 38: Interest coverage

Interest coverage/year	2009	2010	2011	2012	2013	2014	2015
Skanska AB	14.47	<b>20.91</b>	<b>24.89</b>	<b>8.68</b>	<b>11.66</b>	<b>13.76</b>	<b>19.24</b>
VINCI	1.69	3.40	7.76	1.76	3.02	2.01	1.19
Hochtief	2.80	2.91	2.51	2.00	2.75	<b>-0.26</b>	2.39
Balfour Beatty	<b>15.53</b>	7.10	5.52	3.28	0.86	3.70	1.22

Source: Own creation

## 8.6 Economic value added

To see how all compared companies has been creating values in the last year with usage of the capital available to them, costs of these capitals, values of EVA respectively Value spread and its components are calculated in Table 39. One of these key components is a cost bound to the disposable capital, expressed as WACC.

## 8.6.1 WACC

For calculation of the weighted average cost of capital we used costs of debt and costs of equity of compared companies from the last year. Costs of debt were taken from the latest annual reports of the companies using the effective average interest rates given for the whole groups through all their markets. As for the values and hence the costs of equity, as mentioned in the theoretical part, the market values of equity were used and determined through the companies' market capitalizations instead of their book values. Costs related to these equities were established through market risk free interest rates and beta coefficients i.e. CAPM. In the CAPM models, USA 10-years treasury bills were used as a risk free figure through all companies and the beta coefficients were taken from both Reuters [45] and Financial Times [53]. For comparison reasons, industry averages for both beta coefficient and costs of capital (both equity and debt) were taken from [49]. Also, different tax shields were used for all companies regarding their effective tax rate for the year to lower the cost of their debt respectively WACC (for example for the Skanska AB group, the effective tax rate/shield for 2015 was 20%).

Table 39: Calculation of EVA and Value spread

Item/company	Skanska AB	VINCI	Hochtief	Balfour Beatty	Industry averages
Cost of debt	<b>2.19%</b>	3.27%	2.42%	2.75%	7.70%
Beta coefficient	1.08	0.91	0.82	<b>0.44</b>	1.20
Cost of equity	10.61%	9.32%	8.63%	<b>5.74%</b>	10.17%
WACC	9.07%	6.77%	6.65%	<b>4.67%</b>	9.20%
EVA (mil. USD)	292	<b>1 276</b>	197	<b>-412</b>	-
Value spread	<b>9.51%</b>	8.37%	7.58%	<b>-19.87%</b>	-

Source: Own creation

From Table 39 we can see that all companies thanks to their size and position have managed to borrow capital for very low costs compared to the industry average (7.70%). The lowest costs of debt were in Skanska AB (2.19%) while the most expensive debt in our comparison was in VINCI (3.27%), which nevertheless had still very low level of these costs.

On the other hand, Skanska AB has had the highest costs for its equity (10.61%) which was caused by high values of the beta coefficient (1.08). It practically means that investors consider the volatility and level of risk of Skanska's AB shares

higher by 8% compared to the market volatility and risk. Whilst other companies have had beta coefficients lower than 1, representing more stable price movements and development compared to the whole market. Especially Balfour Beatty group has had this coefficient particularly low (at level 0.44) leading to the lowest costs of equity within compared companies (5.74%). Naturally, overall situation in construction industry is seen as less stable than stability of the whole capital market which is reflected in beta value of the industry average 1.20. In this sense Skanska AB scored better value than the industry average.

Even though Skanska has had very high costs for its internal financing, thanks to the very low costs of external funding, it has not exceeded industry average of WACC (9.20%). Compared to its competitors, Skanska's WACC (9.07%) has been still very high because only relatively small portion of interest bearing debt of the company (which is very cheap) has been used while most financing is driven by more expensive equity. It means the company has financed its operations more expensively than the chosen competitors and ipso facto had to generate higher profits in order to create similar net profits.

Generally speaking, another limitation arising from the high values of WACC is that the management of the company should not go into any project in which an expected profitability is lower or even close to the WACC i.e. 9.07% in our case.

The high value of WACC can be in our situation lowered by increasing the weight of external debt funding because it has much lower costs than equity (by 8.42%). That would on the other hand naturally lead to an increase of its interest rates, making it more expensive, so the extent of it should be monitored so it would not become contra productive. Plus the extent of such increase itself would be limited by both government and company's internal regulations, because without changing capital structure it would also automatically mean an adequate increase of company's leverage, which would increase company's beta coefficient and therefore the cost of equity. That is why any increase of the external debt, which is desirable, should be accompanied by lowering or at least maintaining the level of equity costs. Another option how to avoid leverage increase while using more external debt is changing proportion of non-bearing and interest bearing liabilities. Because the external debt in this case is exclusively created by interest bearing debt, Skanska AB can increase this debt in expense of other liabilities. The company has plenty of room

for such change of the ratio as it has been shown for example in Table 36. This scenario would have to be again under a control so the lowering of WACC keeps exceeding the increased costs of external debt.

### **8.6.2 EVA and Value spread**

As can be seen in Table 39, calculated values of EVA differ significantly between all the competitors. The largest value added was created by VINCI (1276 mil. USD) while Balfour Beatty with its negative profits reached -412 mil. USD. The large difference between VINCI and Skanska AB (together with Hochtief) can be explained by the difference of overall size between these companies. VINCI operates with more than 3 times larger base of employees and approximately 6 times larger balance sum which automatically leads to the larger amount of *capital* from formula (42).

That is why the Value spread was derived and calculated from EVA. We can see that its values are not that different for all three companies which created profits in the last year. Skanska AB scored the highest value (9.51%) which can be interpreted as creating the largest financial outputs with given resources in this comparison. The second best was VINCI with 8.37% and the third one was Hochtief with Value spread of 7.58%. Balfour Beatty of course had negative Value spread (-19.87%), meaning that instead of creating economic value it has decrease it and the used capital has been lowered.

Despite of the largest WACC, Skanska AB has managed, compared to the chosen competitors, to be the best company in a sense of adding economic value relatively to its size, thus it represents the best investment in this sense. The result is caused by lower level of net operating assets which are burdened by the WACC and by relatively high net operating profits. Nevertheless the company still has lots of reserves and can score even higher score of the Value spread in the future if the management of the company manages to lower the costs of capital the company is provided with. Not only it would mean automatic increase of EVA and the Value spread, because of the smaller subtrahend, but it would also enable the management to accept more projects with lower rates of return (while still exceeding WACC) but with lower risk at the same time as well.

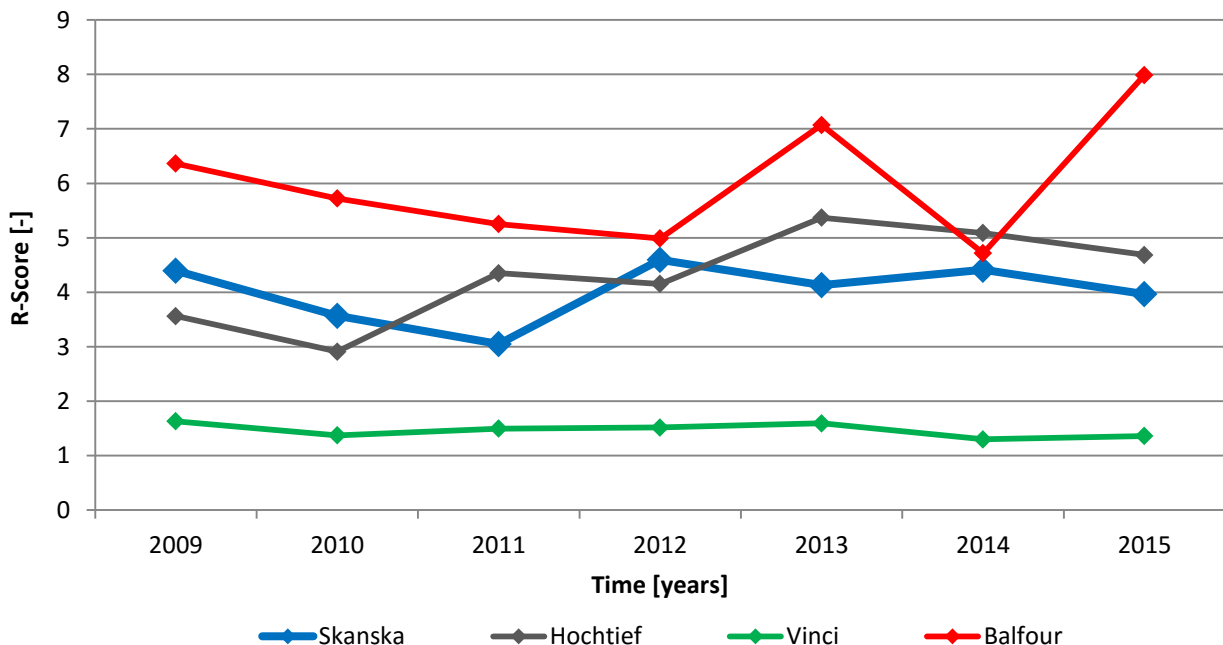
## 8.7 Models

As the last part of the analysis we are going to calculate and evaluate the two score models described in the theoretical part. First one is the R-Score model.

### 8.7.1 R-Score model

Since the R-Score has no predefined values or intervals in which it should ideally be, it has been calculated for other companies as well in order to create a benchmark (Chart 24). Of course one thing still remains true, the lower the level of R-Score the better.

Chart 24: Development of R-Score







Source: Own creation

It is clear that the company VINCI has had very stable development of R-Score and the values (below 1.65 for the whole period) of it have been far better than values of other chosen competitors. Balfour Beatty on the other hand has had significantly high values relatively to the competitors, especially in the last year (7.99), plus the late development has been very volatile. Our company is somewhere in the middle, with the values oscillating between 3.0 and 4.5 (average value has been 4.0), which makes it in the sense of this score better than Hochtief (average 4.3), especially during the last three years (and better than Balfour Beatty as well).

From values in Chart 24 we can say that our company is probably not in a financial danger in the near future. What is even more important is the development of the score, because "...changes in this indicator are more significant than the actual value. A significant increase in R-Score definitely sends up a red flag well in advance of the company's being in real trouble" [30, p. 244]. For better idea where to make the improvements for lowering the R-Score in Skanska AB, we are offering Table 40.

Table 40: Parts of R-Score

Company/ particular ratio	 TL/(TL+TA)	 NP/S	 S/TA	 TL/E
VINCI	0.4300	0.0540	0.6198	3.0736
Skanska	0.4293	0.0313	1.5670	3.0348

Source: Own creation

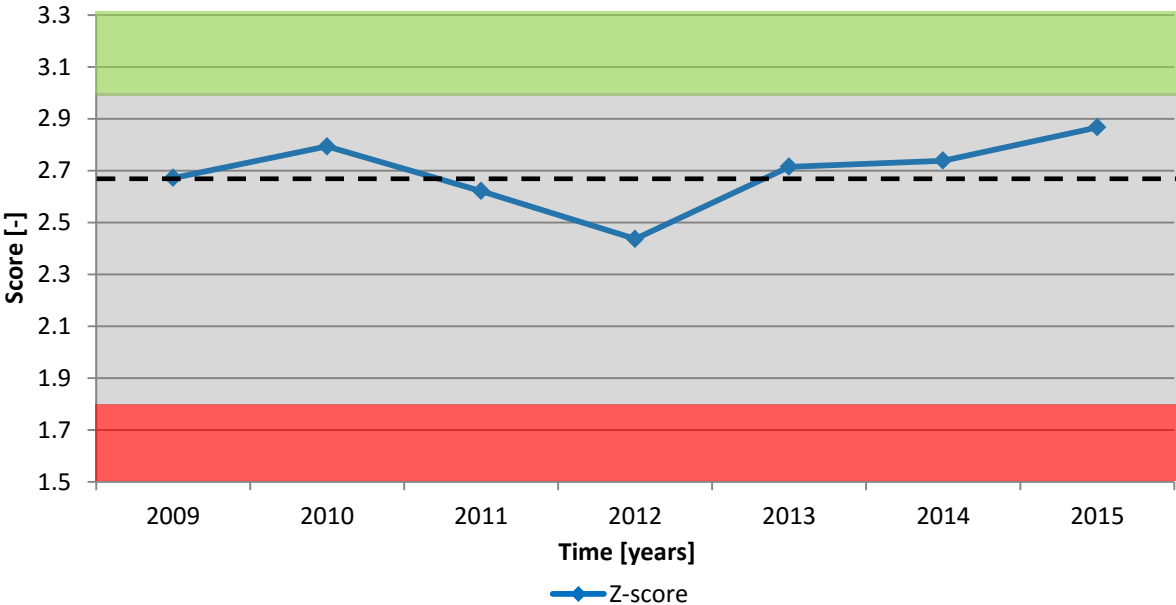
In this table, we can see particular ratios from the last year that affect and create the equation of R-Score. Shortcuts are similar to the equation (47) from the theoretical part. We are stating this table just for our company and its best competitor (as for the R-Score) so we can see where some improvements can be possibly made. The first two ratios should be higher in order to get better R-Score value. The last two ratios on the other hand should be lower or in other words the lower they are the better score a company gets. We can see that ratio of S/TA in our case is particularly different and makes the value of R-Score more than 2.5 times bigger for Skanska compared to VINCI. In this sense, if our company would want to lower this score, it should increase total assets in context of their sales i.e. increase balance sum. In other words this model suggests that Skanska AB does not have its sales efficiently covered with assets compared to VINCI coverage. Also ratio NP/S, which practically represents margins (see Table 9), is a little bit higher for VINCI and makes values of its score better. Remaining two ratios are very similar.

**8.7.2 Z-Score model**

Unlike the R-Score, the Z-Score has predefined values in which it should or rather under which it should not be. That is why we do not need to use any comparisons in this case and the development of this score is being stated on its own as can be seen in Chart 25. As shown in this chart, Z-Score for our company has been in higher levels of the grey zone for the last 7 years. It reached its lowest level

in 2012 when it hit 2.44 points. Average value over the past 7 years is 2.7 which is slightly above the level of 2.675 points mentioned in theoretical part, meaning that the company from this perspective is solid and is unlikely to have some serious financial distresses in the next few years. Also the development of this score seems very stable without any significant volatility. In the last year the score was 2.87, which according to [18, p. 110] can be seen as a very effective result with a positive future outlook. In other words a bankruptcy of Skanska AB is highly unlikely.

Chart 25: Development of Z-Score



Source: Own creation

## 9 Interpretation of overall results

On the previous pages, a description and analysis of Skanska AB were given. Now we are going to summarize it and come up with conclusions and overall interpretation. Since there are many items in the financial statements and many ratios connected to them, coming up with a conclusion is a complex task which requires a complex approach. According to Walsh, we can say that „the biggest issues in business are: assets, profit, growth and cash flow” [21, p. 7]. But they are definitely not the only ones.

Before interpreting financial situation of Skanska AB, we take a brief look at the whole construction industry. Even though the main aim of the thesis was to analyze



Skanska's group, during that we have also practically taken a look at three other large companies in the industry, hence we can make conclusions in broader context of the whole construction industry. Three out of four analyzed companies, including Skanska AB, Hochtief and the largest company VINCI, have all had very good overall results. Most of their ratios, indicators or models have been very positive with stable or rather increasing tendencies. Financial structures (i.e. debt ratios in this sense) and structures of financial reports are very similar in all three companies with a stable development over the last few years. Meaning that the industry has been profitable and it is in general capable of withstanding some potential financial distresses. That can be shown as well for example on R-Score model, where all three companies have had a stable development. The only significant difference between these three companies could have been seen in their balance sheet structure, particularly in the assets distribution, where Skanska AB has had larger portion of capital bound into current assets while VINCI have had more capital bound into non-current assets (structure of Hochtief has been somewhere in the middle).

The fourth analyzed company, Balfour Beatty, have had, despite of the high market confidence in it (visible through for example share price or beta coefficient), in general insufficient results over most of the ratios and indicators due to the negative values of profits in the last two years. On the other hand, these losses have not been so significant in contrast with the overall size of Balfour Beatty, hence we believe the company can handle them and generate profits in upcoming years. After all, between 2009 and 2012 Balfour Beatty had very stable results of most ratios despite the after crisis situation, so it has shown that it is capable of withstanding some financial distresses.

As for our company specifically, overall results for Skanska AB are positive and based on the data, their ratios and development in the past, we think, Skanska AB is very stable and in a financially healthy situation with appropriate potential for grow. The similar view of Skanska is also visible on the capital markets where the price of company's share has been increasing during the last few years, meaning investors are rather positive and believe in company's future and ability to generate profits.

Horizontal and vertical analyses of the financial statements have shown very small changes over the last 7 years. We have seen that the development of assets respectively total balance sum is very stable with a slight uptrend, driven little bit

more by equity rather than debt on the right side of company's balance sheet. This means that the company has no problems with financing and does not need to increase dramatically their debts in order to remain solvent and create values. Also general inner structure of balance sheet is well diversified with a focus on current assets (81.46%) respectively current liabilities (65.87%). We think it is a good structure because it provides the firm with quick maneuvering possibilities without much capital bound in long term assets while the liabilities are mainly interest free. Also the operating financial assets of 13.8 billion SEK ensure the company with a sufficient financial capacity to accept and finance new projects.

The overall profits have been slightly more volatile over the last 7 years but still stable with increasing tendencies. Most revenues have been generated by construction business stream while profits are equally diversified between construction and development activities. This is caused by the company's business model which uses these synergies. Both revenues and profits were under pressure after the financial crisis, nevertheless they have been growing steadily recently with a practically consistent inner structure. It provides the management with very predictable future development and easier planning.

Cash flows have had clear uptrend during the last few years. Nevertheless after the crisis they were also under a large pressure and reached very low values (- 6 940 mil. SEK). Fortunately for the company, in the last 4 years cash flows are exclusively positive and rising hence the company has no problems with financing its day to day operations or with liquidity. On the other hand values of currently positive cash flows can be wiped out in less than one year as it happened between 2007 and 2008. For such a potential future situation, the company has 11 840 mil. SEK in cash which would be enough to cover similar or even a bigger losses and secure company's liquidity i.e. survival without any significant changes in its capital structure.

As for the development of company's order bookings and backlog, there has been a significant decreased in USA market in the last year (-28.5% combined). Nevertheless the overall long term development is stable and the current amount of backlog respectively order bookings are sufficient. Their values should provide the company with enough projects for the near future, meaning securing revenues and cash flows for the next year.

Profitability of Skanska AB respectively all its ratios have been very high thanks to the positive values of all kinds of profits. Especially in the last year the profitability of assets (4.91%) and equity (19.79%) were exceptionally high and reached the highest values compared to the competitors. The same applies for the returns on capital employed where Skanska AB managed to score 18.87% in 2015. As for the margins, the gross margins have been very high (9.07% in 2015) and provided enough space to cushion the possible problems arising from particular projects. The net profit margins (4.11% in 2015) have been slightly above the industry average and are also considered as sufficient, especially when we take under consideration the fact that Skanska AB focuses mainly on very large projects where the margins are typically lower.

Another criteria taken under the consideration for determining whether the company is stable, was its liquidity. Two main liquidity ratios were calculated and Skanska AB scored sufficient results in both (1.24 for the current ratio and 1.22 for the quick ratio). In other words the group has had sufficient liquidity and is able to pay its liabilities without any significant financial structure changes i.e. with no or very low costs. Levels of the liquidity ratios are also not too high. That means the company uses remaining cash flows for investments rather than bounding them into cash or cash equivalents just to increase liquidity which would not have any or much potential to generate further profits.

As mentioned above, the good shape of the analyzed company can be also seen through the market view, which should take all aspects of the company under consideration. Stocks of the company are stable, not much volatile without any abnormal trading volume while the price trend in a long term is increasing. Nevertheless we believe that compared to the competitors, Skanska AB is slightly undervalued and investors should be more interested in its stocks. Especially from dividend point of view, Skanska AB has had better ratios compared to chosen competitors. Meaning that under the normal and predictable market conditions, the price should rise with a stronger uptrend compared to Hochtief, VINCI or Balfour Beatty. This thought is based on currently low price in relation to dividends that the managements have paid (dividend yield 4.13%) and is expected to keep paying together with therefrom derived value of Sustainable grow rate (7.03%), which is the highest in our comparison. However the stock price of Skanska AB should not

exceed or even get too close to the price of Hochtief (or VINCI) because the equity is spread out between 5.9 times more shares. P/E ratio for Skanska AB has been at 15.25 which is lower than industry average hence the share price could be higher even from this perspective. Still, P/E ratio of 15.25 represents expectation of future growth and trust in the company without a visible overvaluation and bubble creation.

Another ratios subjected to the analysis were debt ratios. Overall debt structure of Skanska AB, including leverage and total debt ratio, has been on normal levels and similar to the chosen competitors. Interest bearing debt in Skanska AB has been very low (see Table 36 or 38), thanks to which the company can reach the lowest interest rates to finance its operation with loans. It also provides the company with a potential large cushion of cheap capital it can reach to increase the working capital in case some large projects appear. Leverage used by the company (4.18 in 2015) is rather adequate and does not represent overleveraging; on the contrary it could be moderately increased by few tenths to levels around 4.6.

As for the activity ratios, most of the turnovers in the company were fast. In particular, the receivable turnover of 5.87 provides the company with higher liquidity and ability to operate with higher working capital. Since the company owes little long-term assets compared to the competitors, its turnover of non-current assets is also very high (8.48). According to [54, p.67], based on fixed assets turnover, which is the highest in Skanska AB compared to the competitors (due to the asset structure), the management can increase investments in order to generate higher profits in the future. In WC turnover the company reached 9.57 in the last year, which is together with previous year the lowest value of this turnover (lowest for Skanska AB, but still the highest compared to the competitors). It means the management is not using WC as effectively as in the past and it might consider lowering the current assets base slightly and use the gained capital for long term investments instead, where it can potentially generate larger profits.

To see how the company creates added value with provided capital, EVA respectively Value spread were calculated. We have seen that even though company's capital structure is similar to the competitors, its internal division causes Skanska's financing to be more expensive. Its equity costs exceed costs of the competitors while costs of debt as mentioned above are very cheap. Despite this fact the company uses disproportionately larger amount of equity compared to the

external debt. Even though this fact leads to the highest value of WACC, which harms EVA and Value spread, Skanska AB still has had the highest value spread (9.51%). It means in other words that it uses its capital from all sources most effectively even though it is more expensive.

In the last part, R-Score and Z-Score models were calculated in which Skanska AB has had satisfying results. Values of Z-Score were stable and exclusively in upper layers of the grey zone, meaning that the company is unlikely to go for bankruptcy in the near future. Values of R-Score were put under comparison with chosen competitors and Skanska AB has had the second best results in the last year with stable development over the last 7 years, including after crisis pressures, where it managed to even lower the values of its R-Score, meaning that it is highly unlikely for the company to go bankrupt in a medium term.

## **10 Recommendations**

We believe that the company Skanska AB is in a very good and stable overall condition, with no need for any significant or dramatic structural changes. It has shown increasing trends in both revenues and profits (denominated in SEK), while keeping the internal structure without any unprecedented changes in order to manipulate the financial outputs. In that sense, we believe that with the constant management it has, the company will be able to generate increasing profits and grow in time.

Nevertheless to accelerate the possible grow and maximize outcomes we suggest following recommendations. First of all the company should use more external debt and lower the costs of equity. Beta coefficient which determines the cost of equity and therefor WACC is the highest compared to the competitors. That is why financing from equity should be lowered. Since the costs of external debt are at 2.19%, management of the company should use this cheap capital instead of the equity for either investing or accelerating projects. The interest bearing debt as a portion of debt used for WACC calculation creates 17.3%, while all other companies have more than 30% ratio. In that sense we believe that an increase of interest bearing debt for accelerating new projects to the extent of up to +13.0% (from 14 000 mil. SEK to 25 000 mil. SEK) would be effective and safe. To lower the cost of equity (through lowering beta coefficient), management should try to lower covariance of

market returns and its stock returns, or in other words decrease the correlation between market performance and company's outputs. That could be made for example by increasing diversification of markets, where the company runs its projects, so it is not so vulnerable to particular market movements. While using more external debt the management should of course keep in mind an extent of that, because higher degrees of financial leverage can put a company's long-term cash flow potential at risk [55, p. 135]. Yet a moderate increase of leverage (to levels around 4.6) in Skanska AB is acceptable and it would help not only to lower the WACC, but also to increase the profits.

As for the diversification, the management should focus on the difference between structure of profits and revenues. While revenues are dominantly generated from construction business, profits are divided practically equally between construction and development. Since the company earns more money (i.e. higher margins) from development, it should try to increase their number, while maintaining the construction business on similar levels as a supporting stream for the synergies.

In the last year, there was a significant decrease in order bookings and backlog in USA market. Since the US market creates important part of the company's revenues (37%), the management should focus on that decrease and make sure it will not continue, meaning starting new projects especially in public sector.

A more general recommendation for the management is that it should keep using financial derivatives especially in order to hedge. One of the key areas to hedge against is currency movements due to the operations in different countries. Especially for the currency pair of USD and SEK, where there have been strong movements during the last years, which caused financial reports denominated in USD to give a view of a decrease of company's profits and revenues.

The largest market for Skanska AB remains in Scandinavia, especially Sweden. The management should try to implement the company's knowhow from there onto the markets with a weaker position so they can accelerate the growth and increase their market share, especially in middle Europe. Particularly, the management should focus on getting large PPP project together with joint ventures projects, which can accelerate performance as it happened significantly in 2011, when profits were increased by 88.6% due to the large joint venture contract.

## Conclusion

The aim of the thesis was to analyze the financial condition of a construction company. In the theoretical part we have presented basic ratios, their formulas and a brief description. The theoretical part was then used as a framework for the practical part, where we have analyzed consolidated financial statements of Skanska AB group from the last 7, respectively 10 years. Ratio analysis was made across more than 30 key ratios together with calculation of WACC, Value spread and 2 bankruptcy models, which are all presented together in the List of appendixes at the end of this thesis. Thanks to these indicators and the general analysis of company's financial statements, we got an idea about how financially healthy, stable and potentially endangered Skanska AB is. To get a better perspective about the results gained, most ratios and models were put in a contrast with chosen international competitors (VINCI, Hochtief and Balfour Beatty) and calculated industry averages.

We saw that the crisis has had a significant impact on the group, especially on its cash flows which were very turbulent and got back to desirably stable development after 2010 while reaching positive values from 2012. Revenues and profits were under similar pressure during the crisis and returned to an uptrend in 2012. In this sense, we can see that the management of the company did successfully applicate some measures and regulations to get the company back to a growing trajectory. During the last 4 years most of the ratios and financial structure indicated positive development reflecting that the crisis has ended.

Capability of withstanding these troubles, especially negative cash flows in 2008 and then 2010 and 2011, has proven that the group has had efficient reserves and can survive even very large financial turbulences. These reserves have increased since then, so it is very probable that the company, as for the cash flows, would withstand potential upcoming crisis of similar or even slightly larger size. It also has shown that the management of the company has been sufficient in getting the group's key performance indicators back to desirable values after the crisis. This fact together with the stable current situation of both company itself and the market provides us with a high probability that the management is capable to lead the company for growth and it would be again competent of an efficient action in case of possible future financial distresses. Assuming a predictable market development i.e. without any distinct inconveniences, we believe that the company should grow and

create profits at levels slightly above 20% of ROE and 5% ROA with a healthy increase of its share price and outperform the chosen competitors (especially in profitability).

As for the areas which should be improved and watched over, we came to a conclusion that the company should take these steps. In order to lower WACC, the management should increase the ratio of financing through interest bearing debt and decrease cost of equity by for example lowering company's covariance of profits with market profits. Even though the leverage of Skanska AB is efficient, to increase profits, we suggest elevating it slightly. The management should also try to get more contracts in USA market while paying close attention to the decreasing backlog and order bookings there. Because of the low diversification of revenues and higher margins in development projects, a general focus of the management should be aimed rather on the development projects in all markets while the construction stream can be maintained as a supportive tool with a little need of expansion. The construction business stream should as well try to get more PPP and joint venture projects, so the company can reach higher profits as it happened significantly in 2011.

As a byproduct of this thesis, we also got a perspective about other companies and therefore the large part of construction industry. Except for Balfour Beatty, which has had some moderate financial problems lately, the other companies seem in overall to be stable and without any significant financial problems. Hence we came to a conclusion that the construction industry in general is getting into a good shape and after the troubled years due to the crisis, a financial growth is expected in the near future.



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### Balance sheets

USD M	2015	2014	2013	2012	2011	2010	2009
<b>ASSETS</b>							
<b>Non-current assets</b>							
Property, plant and equipment	774,7	913,8	1 152,3	1 218,4	1 018,3	868,1	876,9
Goodwill	626,1	677,0	750,1	749,3	727,2	575,8	607,0
Intangible assets	89,8	59,5	53,5	28,5	23,1	52,0	29,1
Investments in joint ventures and assoc. companies	339,7	335,9	422,9	371,0	366,5	260,9	353,5
Financial non-current assets	161,6	167,1	292,7	282,7	305,9	311,9	145,0
Deferred tax assets	164,9	157,2	163,8	192,6	242,5	216,4	216,5
<b>Total non-current assets</b>	<b>2 156,8</b>	<b>2 310,5</b>	<b>2 835,2</b>	<b>2 842,7</b>	<b>2 683,4</b>	<b>2 285,2</b>	<b>2 227,6</b>
<b>Current assets</b>							
Current-asset properties	3 218,5	3 350,9	3 984,3	4 129,6	3 396,8	2 999,7	3 195,6
Inventories	112,4	130,5	146,0	165,6	147,1	136,1	116,2
Financial current assets	892,9	749,2	921,2	896,1	923,0	929,1	778,1
Tax assets	82,3	119,2	152,2	87,2	63,3	74,4	74,3
Gross amount due from customers for contract work	678,0	702,1	964,0	919,6	741,2	726,3	642,3
Trade and other receivables	3 082,3	3 373,1	3 438,2	3 617,0	3 284,7	3 131,6	3 310,4
Cash	1 410,3	1 168,5	1 129,7	885,7	770,0	978,1	1 309,0
Assets held for sale	0,0	0,0	0,0	0,0	0,0	162,9	0,0
<b>Total current assets</b>	<b>9 476,7</b>	<b>9 593,5</b>	<b>10 735,6</b>	<b>10 700,7</b>	<b>9 326,2</b>	<b>8 975,2</b>	<b>9 425,8</b>
<b>TOTAL ASSETS</b>	<b>11 633,5</b>	<b>11 904,0</b>	<b>13 570,8</b>	<b>13 543,4</b>	<b>12 009,6</b>	<b>11 423,2</b>	<b>11 653,5</b>
of which interest-bearing	2 443,1	2 059,3	2 319,8	2 027,9	1 960,2	2 182,1	2 193,9
<b>EQUITY</b>							
Equity attributable to equity holders	2 868,1	2 726,8	3 275,8	2 945,1	2 816,7	3 038,4	2 782,0
Minority interest	15,1	19,8	28,9	25,5	24,7	17,9	23,7
<b>Total equity</b>	<b>2 883,3</b>	<b>2 746,5</b>	<b>3 304,7</b>	<b>2 970,5</b>	<b>2 841,6</b>	<b>3 056,4</b>	<b>2 805,6</b>
<b>LIABILITIES</b>							
<b>Non-current liabilities</b>							
Financial non-current liabilities	461,4	912,6	1 014,1	739,8	193,3	162,7	266,1
Pensions	472,8	597,3	527,6	628,2	545,1	178,7	308,6
Deferred tax liabilities	153,2	123,9	155,0	87,8	134,6	240,6	213,6
Non-current provisions	0,0	0,0	0,3	1,8	2,5	4,1	7,4
<b>Total non-current liabilities</b>	<b>1 087,4</b>	<b>1 633,8</b>	<b>1 697,1</b>	<b>1 457,7</b>	<b>875,8</b>	<b>586,4</b>	<b>795,5</b>
<b>Current liabilities</b>							
Financial current liabilities	780,8	524,3	637,0	964,4	807,0	409,5	515,6
Tax liabilities	66,7	64,7	96,2	36,8	38,2	147,4	148,0
Current provisions	766,1	770,5	873,8	923,4	860,4	740,4	697,3
Gross amount due to customers for contract work	1 884,5	1 866,3	2 322,3	2 419,0	2 441,5	2 489,6	2 351,0
Trade and other payables	4 164,7	4 297,9	4 639,7	4 771,5	4 145,1	3 993,5	4 340,3
<b>Total current liabilities</b>	<b>7 662,8</b>	<b>7 523,7</b>	<b>8 569,0</b>	<b>9 115,1</b>	<b>8 292,2</b>	<b>7 780,5</b>	<b>8 052,2</b>
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>11 633,5</b>	<b>11 904,0</b>	<b>13 570,8</b>	<b>13 543,4</b>	<b>12 009,6</b>	<b>11 423,2</b>	<b>11 653,5</b>
of which interest-bearing	1 690,7	1 969,7	2 169,5	2 321,4	1 535,3	724,8	1 068,3

## Income statement

USD M	2015	2014	2013	2012	2011	2010	2009
Revenue	18 144,7	20 776,8	20 965,2	19 100,7	18 286,5	16 956,7	18 179,0
Cost of sales	-16 498,1	-18 876,3	-19 057,6	-17 393,6	-16 542,3	-15 229,5	-16 387,9
<b>Gross income</b>	<b>1 646,6</b>	<b>1 900,5</b>	<b>1 907,6</b>	<b>1 707,1</b>	<b>1 744,0</b>	<b>1 727,2</b>	<b>1 791,1</b>
Selling and administrative expenses	-1 051,5	-1 213,3	-1 179,0	-1 256,4	-1 209,5	-1 045,1	-1 055,5
Income from joint ventures	150,6	97,0	124,8	142,6	761,1	75,1	52,9
<b>Operating income</b>	<b>745,7</b>	<b>784,1</b>	<b>853,4</b>	<b>593,3</b>	<b>1 295,7</b>	<b>757,2</b>	<b>788,4</b>
Net financial items	-37,2	-40,6	-37,0	-34,5	1,8	-4,9	-30,6
<b>Income after financial items</b>	<b>708,5</b>	<b>743,5</b>	<b>816,4</b>	<b>558,8</b>	<b>1 297,6</b>	<b>752,4</b>	<b>757,9</b>
Taxes	-140,5	-185,4	-238,1	-136,2	-127,8	-193,4	-206,3
<b>Profit for the period</b>	<b>568,0</b>	<b>558,1</b>	<b>578,4</b>	<b>422,6</b>	<b>1 169,7</b>	<b>558,8</b>	<b>551,5</b>
<b>Profit attributable to:</b>							
Equity holders	566,7	557,1	577,9	421,4	1 168,6	558,0	550,8
Non-controlling interests	1,3	1,0	0,5	1,2	0,9	0,8	0,7

## Cash flow

USD M	2015	2014	2013	2012	2011	2010	2009
CF from operating activities	1 017,8	689,4	959,6	-13,4	37,7	865,4	991,1
CF from investment activities	-164,2	34,5	-222,1	-176,2	141,4	-534,1	-409,1
CF from financing activities	-538,8	-524,0	-497,0	276,4	-375,5	-678,1	-360,1
<b>Cash flow for the period</b>	<b>314,8</b>	<b>199,9</b>	<b>240,5</b>	<b>86,8</b>	<b>-196,4</b>	<b>-346,8</b>	<b>221,9</b>

## Values of ratios and models for Skanska AB

Indicator/year	2009	2010	2011	2012	2013	2014	2015
ROA	5.04%	5.18%	9.18%	3.24%	4.29%	4.15%	4.91%
ROE	20.93%	19.37%	38.78%	14.79%	17.64%	17.99%	19.79%
Operating margin	4.34%	4.47%	7.09%	3.11%	4.07%	3.77%	4.11%
Gross margin	9.85%	10.19%	9.54%	8.94%	9.10%	9.15%	9.07%
ROCE	23.31%	22.02%	32.84%	13.93%	17.19%	15.84%	18.87%
Overhead ratio	90.15%	89.81%	90.46%	91.06%	90.90%	90.85%	90.93%
Indirect overhead ratio	5.81%	6.16%	6.61%	6.58%	5.62%	5.84%	5.79%
EPS in USD	1.32	1.34	2.82	1.02	1.40	1.34	1.37
EPS in SEK	10.16	9.66	18.31	6.90	9.11	9.35	11.63
P/E	9.00	12.67	6.11	15.67	12.97	15.64	15.25
BVPS in USD	6.80	7.43	6.90	7.22	8.04	6.69	7.01
P/B	1.87	2.42	2.35	2.30	2.27	2.81	3.01
Dividend per share in USD	0.73	0.89	0.89	0.92	0.91	0.80	0.89
Dividend payout	0.52	0.60	0.33	0.87	0.69	0.72	0.64
Sustainable grow rate	10.11%	7.84%	26.07%	1.93%	5.54%	5.00%	7.03%
Dividend yield	5.74%	4.70%	5.36%	5.55%	5.29%	4.62%	4.23%
Current ratio	1.17	1.15	1.12	1.17	1.25	1.28	1.24
Quick ratio	1.16	1.14	1.11	1.16	1.24	1.26	1.22
WC in USD mil.	1 374	1 195	1 034	1 586	2 167	2 070	1 814
WC in SEK mil.	9 874	8 127	7 126	10 330	14 006	16 131	15 228
Asset turnover	1.63	1.51	1.48	1.51	1.55	1.59	1.61
Inventory turnover	144.49	124.67	110.73	112.56	122.75	132.80	141.93
Receivable turnover	5.56	5.42	5.40	5.60	5.97	5.91	5.87
Average collection period	65.69	67.34	67.54	65.19	61.18	61.78	62.20
Fixed asset turnover	8.62	7.75	6.98	6.99	7.41	7.89	8.48
WC turnover	14.50	13.58	15.57	14.82	11.23	9.51	9.76
Total debt ratio	75.92%	73.24%	76.34%	78.07%	75.65%	76.93%	75.22%
Debt to capital	27.58%	19.17%	35.08%	43.87%	39.63%	41.76%	36.96%
Debt to equity	3.15	2.74	3.23	3.56	3.11	3.33	3.03
D/E (interest bearing)	0.38	0.24	0.54	0.78	0.66	0.72	0.59
Leverage	4.41	3.94	3.97	4.39	4.32	4.22	4.18
Interest coverage	14.47	20.91	24.89	8.68	11.66	13.76	19.24
R-Score	4.39	3.56	3.05	4.60	4.13	4.41	3.97
Z-Score	2.67	2.79	2.62	2.44	2.72	2.74	2.87
WACC	9.07%						
EVA in USD mil.	292						
Value spread	9.51%						