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THE USE OF CASH FLOW RATIOS FOR RISK EVALUATION IN AN ORGANISATION

Bachelor's thesis
Programme TVTB, specialisation finance & accounting

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Tallinn 2021

I hereby declare that I have compiled the thesis independently and all works, important standpoints, and data by other authors have been properly referenced, and the same thesis has not been previously presented for grading.
The document length is 9,437 words from the introduction to the end of the conclusion.

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ABSTRACT

It is germane that risks are quickly discovered in an organization, and if necessary, actions taken to prevent such risks from causing irreversible damages. Over the years, there has been a huge focus on the balance sheet and income statements for financial analysis and less emphasis on the use of cash flow ratios even though cash flow ratios are good financial distress predictors that could help safeguard the future existence of an organization. This study examines the use of cash flow ratios in evaluating risks in organizations in Estonia. The study involves a survey of Estonia's main water provider, AS Tallinna Vesi. The author used a quantitative method of analysis for the research. Data were obtained from the financial reports of AS Tallinna Vesi for five operational years, 2015 to 2019.

The data were subjected to analysis using the various cash flow ratios discussed in the study. The results of the study showed that the company, AS Tallinna Vesi, is at both credit risk and operational risk using the efficiency ratios and also, at liquidity risk using the sufficiency ratios. This revealed that with the use of cash flow ratios, an organization’s potential risks could be identified. It was also discovered that cash flow ratios could signal the evolution of an organization's health from year to year. Among the recommendations of the author is that As Tallinna Vesi’s cash flow should be monitored to ensure that there is still enough cash on hand to make timely interest payments, and caution should be used when taking out new loans to avoid adding too much debt.

Keywords: Cash flow ratios, risks, financial analysis, efficiency ratios, sufficiency ratios

INTRODUCTION

As a result of the recent global COVID-19 pandemic, many countries have experienced severe economic challenges. Businesses particularly have been faced with a high risk of insolvency (Zhang, Hu & Ji, 2020), which is dangerous for businesses that seek to thrive and expand. As Lassoued et al. (2016) explained, high levels of risk are deemed to be the reason for the financial crisis, and organizations that lack knowledge about risks are likely to fail. A lot of businesses go bankrupt not because they are low in productivity, poor in performance, or do not have the required skill to create and sell a viable product or service but because they lack the technical know-how to analyze relevant business ratios that would be a pointer to the company's level of risks, productivity, and performance.

It is worthy of note that while profit can be declared, it is possible for the organization declaring the profit to still go bankrupt if there is no cash (McLaren, 2017). The inability to sell and collect cash can also pose a greater threat to businesses. Therefore, there is a need for a proper evaluation to be done through the use of cash flow ratios. As Bhandari and Iyer (2013) opined, cash flow ratios help to evaluate risk and also forecast the failure of an organization. Though different ratios have been used to determine business financial performance as well as risk evaluation, most of the calculated ratios usually concentrate only on income statements and balance sheets. This is in agreement with Güleç & Bektaş (2019), who stated that "ratio analysis of the cash flow statement is not as popular as the ratio analysis of other primary financial statements, balance sheets, and income statements."

Auditors have relied more on the transaction cycle or a balance sheet approach (Epstein et al., 2007), an approach that does not emphasize cash flow statements or cash itself, rather than the use of cash flow ratios. Educators also refrain from using cash flow ratios. Rather, they prefer to rely on other forms of financial analysis, probably the traditional current ratios (Bodie et al., 2004). All these without the use of cash-based ratios might be inadequate since cash-based ratios help not just to influence an assessment's credit rating but also to foresee a company's failure. As

Kirkham(2012) noted, the calculation of cash flow ratios provides a more holistic approach to analyzing a company's liquidity position, which as a result, becomes a tool for making better data-driven decisions.

Although there has been literature to show that financial ratios explain the financial information and economic situation of a company, organizations still fail at risk evaluation (Ittner & Larcker, 2000). Despite the number of studies that have been conducted on the use of financial ratios to forecast corporate failure, and those done on the question of if accrual accounting ratios or cash flow ratios are better predictors of financial distress, a common ground is not still achieved (Rizzo, Valentinuz, Obratil, & Pediroda, 2020). There is, therefore, a need to address this issue. This study will focus on the use of cash flow ratios in evaluating risks in an organization.

Research Problem

Although cash flow ratios have proven to be a good tool for the evaluation of the risk of a business entity (Güleç & Bektaş, 2019), the cash flow statement analysis and a good cash flow ratio analysis are not given much recognition in organizations. As a result, there is a need to carry out more studies on the use of cash flow ratios in evaluating risks in an organization.

Research questions

1. How do cash flow ratios reveal various potential risks in an organization?

2. How possible is it for cash flow ratios to predict the evolution of an organization's performance?

Aims of the study

The study aims to find answers to the question of how cash flow ratios reveal various potential risks of an organization several years before the final cessation of business activity. It also intends to ascertain whether cash flow ratios have the ability to signal the evolution of the organization's health or not. Overall, this study is aimed at showing the usefulness of cash flow ratios in evaluating risks in an organization.

Research Design

This study uses a mixed-method research design. Drawing from the mix of qualitative and quantitative approaches inherent in the mixed-method research design, the researcher made use of secondary data, which was collected from the internet.

Overview of the structure

The following is the order in which this thesis is organized. The first chapter gives a brief introduction explaining why the topic was chosen; it also states the research problem, the aim of the study, and the research questions. The second chapter provided definitions of business risk, financial risk, and its types. Also, a brief description of financial performance, cash flow ratios, and the importance of cash flow ratios are provided. The purpose of preparing cash flow ratios is explained as well as the nature of cash-based ratios as a tool of financial planning. Explanations are given on their interpretation and how they can be used for risk evaluation. The third chapter includes the financial data analysis of the company selected, while the fourth chapter discusses the summary of findings, conclusion, and recommendations.

1. ORGANIZATION RISK

Most definitions of risk vary based on perspectives and experiences. While some scholars view risk to be a threat, others see it not just as a threat but as an opportunity. Geyser (1999) defined risk as a situation where the result is unknown, but the probability of alternative results is known. Organization risk, otherwise called business risk, alludes to the danger of an organization achieving its objectives affected by uncertain factors later on (Zhao & Zhao, 2020). All businesses are exposed to a wide range of risks that arise from various sources, be it the conjunction of opportunities, difficulties, or an organization's attempt to take advantage of the chance to get a higher profit. Sometimes, organizations, being under the impression that they have got their risks under control or well managed, face higher risks that trigger crises and even compromise their survival. Some do not even know that they are under threat due to the presence of risks. Meanwhile, as opined by Adabenege et.al. (2015), "the essence of risk and how a firm responds to it will determine whether it will survive and succeed or not''.

For this study, it is important to look into various risks that are common to organizations and also delve into how cash flow ratios can be used to evaluate such risks. The various risks that are associated with the business are hereby discussed.

1.1. Financial risk

According to Selmier II, Penikas & Vasilyeva (2014), financial risk consists of potential instability or changes in returns that are not expected and estimation of the values, which can be both positive and negative depending on risk consumers' preferences. Wani & Dar (2015) defined financial risk as the probability that shareholders may lose their funds because of the company's use of debt where the company's cash balance is inadequate to satisfy its financial commitments. Financial risk occurs as a result of uncertainties of loan defaults, liquidity management, volatility of interest rate, and changes in foreign currency rates. Decisions involving these activities, therefore, have an element of risk which in turn affects the overall financial performance of an organization.

It is worth noting that a business is likely to fail if the financial risk is not appropriately dealt with, particularly by financial institution undertakings whose fundamental concern is everyday risk management (Tan, Samuel & Ding (2019). Since companies encounter various financial risks in their operations, there are likely effects on their financial performance one way or the other. With the numerous contradictory discussions on financial risk and its relation to financial performance, it has been difficult to make definite conclusions on them hence, the need for more studies.

1.1.1 Credit risk

Credit risk is the risk of loss arising as a result of an inability to fulfill a debt obligation under the conditions of a contract and thus causing the holders of creditor's loss. These obligations arise from lending activities, trade and investment activities, payment, and settlement of securities trading on its own and foreign account (Jílek, 2000). In other words, credit risk is the risk of loss arising from nonpayment of installments due by a debtor to a creditor following the terms agreed. Credit risk arises by entering into derivative transactions, securities lending, repurchase transactions, and negotiation.

According to Spuchľáková, Valaškováb & Adamko (2015), credit risk includes credit risk default, risk of the guarantor or counterparties of the derivatives. The failure of a small number of critical clients may result in very large losses and, in the worst-case scenario, lead to an organization's insolvency. Credit risk does not only refer to the possibility that creditors will be unable to pay; it also covers the possibility that payments will be postponed, which may cause problems for the organization. As a result of these risks, businesses must exercise caution and conduct a reasonable assessment of the default risks associated with borrowers. In order to protect against credit risks in general, practices such as maintaining high credit standards, proper diversification, a good understanding of the borrower's affairs, correct monitoring and collection are encouraged, among other things. A lot of studies have been conducted to look into the effect of credit risk on an organization's financial performance. Some have found a negative relationship between credit risk and profitability (Ekinci & Poyraz, 2019; Kargi, 2014; Chen et al., 2018; Arif & Anees, 2012; Saleh & Afifa, 2020). It is, therefore, necessary to examine how credit risk can be detected in an organization.

1.1.2. Liquidity risk

The willingness of a financial firm to function normally and keep a balance between financial inflows and outflows over time is measured by liquidity. According to Effiong and Enya (2020), liquidity risk comes from a lack of funding for routine business operations, limiting a company's ability to cover its unpaid obligations when they become due. In other words, liquidity risk refers to the possibility that a company's finances may be unable to fulfill its financial obligations on time. Liquidity risk may come from a variety of sources. One of which could be the maturity mismatch between loans and deposits. Because financial institutions must honor depositors' withdrawals, a liquidity deficit may occur since funds have not been repaid. Another source of liquidity risk is deposit collection's random nature. The lack of liquidity is worsened by the illiquid nature of long-term assets (Cook, Fu, & Tang, 2014).

Also, short-term cash flow risk and long-term financing risk are the two main components of liquidity risk. The challenge of long-term debt entails the possibility that loans will not be available when "the company needs them, or that they will not be available for the desired term or at a reasonable rate" (CPA, 2010). As cash flow is an essential aspect of every business's day-to-day activities, a shortage of sufficient cash capital when needed, poor cash flow control, or a lack of access to suitable lending facilities are the root causes of many companies' failures.

1.1.3. Operational risk

Operational risk is the risk that a company faces daily that is not related to its revenue-generating operations. It excludes risks that lead to losses as a result of bad business decisions. A breakdown in a business's information systems will likely lead to the business missing out on opportunities. Various unfavorable issues may arise, such as an employee defrauding an organization of funds, loss of client's information, and many more.

Operational risk losses are associated with the problems of correctly processing, settling, and taking or making a delivery on cash trades. These losses are usually caused by poor management, outsourcing non-strategic tasks, or external factors. Recordkeeping, processing system failures, and regulatory compliance are all examples of this. Though individual operational issues are rare occurrences in well-run companies, when present, they expose a company to potentially expensive outcomes. (Santomero, 1995). Hence, there is a need for proper monitoring.

1.2. Financial performance

Having established the presence of various risks in a business, it is important to consider the aspect of a business's financial performance. Financial performance is defined as the extent to which a company's financial health over some time is measured (Naz, Ijaz, and Naqvi, 2016). It is made up of different strategies for assessing how well an organization is utilizing its assets to generate income. In other words, it is an evaluation of a business' improvement in sales, profits, value, creditworthiness, liquidity, and cost-effectiveness or otherwise.

For a business to properly adjust to changing market conditions and for responses to be given to potential issues in the business, it is important to have a financial performance analysis. Financial performance analysis also helps stakeholders and shareholders in businesses to make the right decisions as well as fulfill their planning and controlling functions effectively. The financial performance analysis of a business is critical to achieving its goals, some of which are to maximize value, to make a profit, to be socially accountable, to be sustainable, etc. The analysis helps to provide comprehensive and direct information to shareholders and stakeholders of an organization which will assist them in making decisions.

Businesses analyze their financial performance by calculating and evaluating financial ratios through statistical and econometric analysis with data they obtain from statements such as balance sheets, income statements, and cash flow statements.

1.3. Cash flow and cash flow ratios

Cash is the lifeblood of any business. The movement of cash into an organization by customers and out of business through payments is known as cash flow. To compare cash flows to other elements of an entity's financial statement, cash flow ratios are used. A higher level of cash flow indicates a better ability to withstand declines in operating performance, as well as a better ability to pay dividends to investors. They are essential elements of any analysis that seek to understand the liquidity of a business. Cash flow ratios are especially important when evaluating companies whose cash flows diverge substantially from their reported profits.

There is a misguided judgment that profits and cash flow are synonymous however, they are not. A business ought to make a profit while additionally working with positive cash flow. The two terms address diverse monetary boundaries. However, to flourish, a business visionary should have a strong framework to monitor both (McLaren, 2017). While profits refer to financial gain, which is revenue exceeding expenses, cash flow refers to transactions in terms of their impact on cash, that is, the amount of cash that is generated or consumed within a specific period. In other words, cash flow reveals the amount of money going in and out of business, which is referred to as cash inflow and cash outflow.

1.4. Importance and purpose of cash flow ratios

For a long time, investors and analysts were accustomed to trusting ratios computed based on a company's earnings as reported in the Income Statement. However, this is no longer the case as there have been a huge number of frauds and malpractice instances. These malpractices have shown investors that corporate income statements and balance sheets are susceptible to fraud (Dimitrijevic, 2015). There is this possibility because the numbers in the income statements are based on the policies that the management sets. However, in the event of fraud, it is easy to find truth in cash flow ratios. This is one reason why cash flow ratios are important and form the backbone of any financial analysis conducted.

Since cash flows from operations are a key component of the financial ratios, they remove the impact of non-cash flow items like depreciation expenses and gains or losses on the selling of operational assets. Cash flow ratios can be a better indicator of company success than financial ratios extracted from income statements and balance sheets. (Kelly and O'Connor, 1997; Plewa and Friedlob, 2002). This is so since cash flow ratios show data and results for a continuous period while balance sheets and income statements present results only for a specific time.

Another importance of cash flow ratios is that though traditional financial ratios analysis helps to evaluate the business in terms of an accrual basis accounting procedure such as net profit, cash flow ratios analysis gives a different perspective to financial statement users about how solvent, liquid, and viable the company is (Hertenstein and McKinnon, 1997). This implies that through

the use of cash flow ratios, it is possible to understand a company's level of stability, liquidity, and viability.

Moreover, when conducting a liquidity or solvency analysis, using the cash flow statement is a better indicator than using the balance sheet or income statement. The balance sheet data are static (Albrecht et al., 2003). That is, they only measure a single point in time, and the income statement contains many arbitrary non-cash numbers like depreciation and amortization, which does not affect cash flow. On the other hand, the cash flow statement records the changes in the other statements and produces the bookkeeping artifice, focusing on what shareholders care about, which are cash available for operations and investments (Mills and Yamamura, 1998). This implies that shareholders are made to understand how much money a company makes and spends.

Another drawback to using balance sheet ratios is that they only look at a company's financial stability at a specific moment in time. In some instances, the balance sheet may appear stable in one quarter but then surprise investors with debts and cash outflows in the next quarter. It's also worth noting that, while gross margins are significant, they don't really indicate whether a business can succeed. It is essential to know that, while gross margins are significant, they do not really show whether or not a business can thrive. On paper and at the top of the financial statement, a business can appear to be earning or losing money, but when depreciation and amortization are taken into account, the actual cash in and outflow can reveal a different image, which can be found using cash flow ratios.

1.5. Cash flow ratios as tools for evaluating risks

Businesses cannot operate in isolation hence the need for them to interact with both their internal and external environment. Unlike the external environment, which cannot be controlled, the internal environment can be controlled. This internal environment covers the organization’s day-to-day activities, such as product transactions and communications, which are prone to risks and, if not detected and well managed, can affect the organization adversely. As OECD/Eurostat (2018) opines, there is usually a measure of uncertainty given to the different activities of various sectors of the economy that could affect a business either directly or indirectly. Therefore, there is a need

to put in place a plan that will adjust for unforeseen situations. This plan starts by having a clear understanding of the cash flow and cash flow ratios.

A higher cash ratio indicates that a corporation would have an easier time repaying its debts. There is no precise figure for how low the cash ratio should be, but a ratio that falls between 0.5 and 1 is acceptable since the cash ratio only sums up cash and cash equivalents. This thesis explains different cash-based ratios that can be used to detect and mitigate potential risks in an organization.

2. Key Cash-Based Ratios, their Interpretation, and how they can be used for Risk Evaluation

The information provided by the cash flow statement gives indicators that allow for risk evaluation. Nine (9) cash flow ratios can be used for performance appraisal (Giacomino and Mielke, 1993). Six (6) are discussed in this study. The six cash flow ratios are divided into two main groups; sufficiency and efficiency ratio, with the operating activities. The operating activities are a company's primary operations as a component of each ratio. The ratios are used later in the chapter to assess the sufficiency and efficiency of operating cash flows to analyze possible risks in a business.

2.1. Cash sufficiency ratios

The cash sufficiency ratios describe the relationship between the cash generated from core operations and the different costs and liabilities incurred by a business. These measure the ability of a company to produce enough cash to pay its debts, pay a dividend to shareholders and also reinvest in its activities. It should be noted that a value of 1 over a number of years indicates adequate ability to meet these main cash requirements (Giacomino and Mielke, 1993). Summarily, sufficiency refers to a company's ability to meet its cash requirements, and its ratios can be used to calculate the amount of cash flow that can be used on a budgetary basis. The cash sufficiency ratios discussed in this study are long-term debt payment, debt coverage ratio, and cash flow adequacy ratio.

2.1.1. Long-term Debt Payment

The long-term debt payment formula tracks the adequacy of cash flow to pay off long-term financial obligations and make annual installment payments on the company's debt obligations. The higher the percentage, the more likely the company is to survive the risk of debt forfeiture (Bragg, 2011), which implies that a company can decide to call off specific terms of its lending plan and still be able to finance the company's requisite funds for expansion to further company operations.

Formula:

$$\text{Long term debt payment} = \frac{\text{Long term Debt Payment}}{\text{Operating Cashflow}}$$

2.1.2. Debt Coverage Ratio

This ratio, on the one hand, assesses a company's ability to pay its debt's annual interest and principal. This is a widely used benchmark that assesses an asset's ability to meet monthly financial commitments. It is calculated by dividing a property's net operating income by the annual liability of the asset or property. This ratio, on the other hand, stands out because it shows lenders whether the company can afford to pay interest or not since most lenders are most interested in the company's ability to pay its interest reliably. If the calculated ratio is less than 1, it means that the revenue earned by the company's asset is insufficient to offset the payments and operational expenses associated with that asset. The higher the ratio, the better.

Formula

$$\text{Debt Coverage Ratio} = \frac{\text{Total Operating Income}}{\text{Total Debt Service}}$$

2.1.3. Cash Flow Adequacy Ratio

This ratio assesses a company's ability to meet its current obligations, especially in the areas of asset acquisition, dividend payment, and financial obligations. A ratio greater than 1 indicates that the company is in good financial health, while a ratio less than one may suggest that the company is experiencing liquidity issues. Lenders may use this ratio to assess a company's willingness to pay off its existing and future obligations as a business that is unable to fulfill its existing contractual obligations would find it difficult, if not impossible, to repay a new loan. As a result, the cash flow adequacy ratio is used to assess a company's credit rating.

The formula includes the operating cash flow, long-term debt, fixed assets, and cash dividend. The operating cash flow is the company's profits from the selling of its goods and services. Long-term debt refers to money owed to a corporation that must be paid back for an extended period, while fixed assets are the capital investments that would be used to boost demand. A cash dividend is a payment made by a company to its shareholders.

Formula:

$$\text{Cash Flow Adequacy Ratio } = \frac{\text{Operating Cash Flow}}{\text{Fixed Assets } + \text{ Long} - \text{ term Debt paid } + \text{Cash Dividend}}$$

2.2. Cash Efficiency Ratios

The efficiency ratios, also referred to as activity ratios, are often used to assess how effectively a corporation manages its assets and liabilities daily. The turnover of receivables, the repayment of liabilities, the quantity and use of equity, and the general usage of inventory and machines can all be calculated using an efficiency ratio. These ratios can help to monitor and assess the performance of business enterprises. Analysts use efficiency ratios to assess a company's short-term or existing performance. All of these ratios calculate a company's activities by using numbers from its current assets or current liabilities. The cash efficiency ratios that are explained in this study are cash flow to sales ratio, cash flow return on assets, and operations index.

2.2.1. Cash Flow to Sales Ratio

The cash flow is expressed as a percentage of the sales ratio of this ratio. Here, sales refer to net sales. The operating cash flow to revenue ratio can be used to determine how effective a company is at receiving money from consumers. If revenues increase as a result of an increase in sales but cash flow does not increase, then it should be a red flag that the company is having difficulty receiving revenue from its clients. As important as a large sales volume is, a large cash flow figure is considered much better as this means that the firm has generated ample cash flow from its revenues. No universally accepted number is deemed to be ideal for businesses; but, the higher the percentage, the better.

Formula:

$$\text{Cash flow to Sales ratio } = \frac{\text{Operating Cash Flow}}{\text{Net Sales Revenue}}$$

2.2.2. Cash Flow Return on Assets

Cash Flow Return on Assets (CFROA) can be used to calculate the performance of a company's asset creation using capital generated from operations that is, it determines how much income is generated by the assets that are being used. This metric determines how much operational cash flow you produce per dollar of assets you own. The higher the percentage, the more effectively your funds are used. The ratio is calculated as net cash flows from financial operations divided by average total assets multiplied by 100. Total assets at the end of the current period plus total assets at the end of the previous period, separated by two, equals average total assets. Complete reserves can be found on the balance sheet. The calculation uses cumulative net assets as an estimation of the assets retained during the cycle since the balance sheet only lists assets at the end of the period.

Formula:

$$\text{Cash flow return on Assets} = \frac{\text{Operating Cash Flow}}{\text{Average Total Assets}}$$

2.2.3. Operations index

The operations index, which is also known as the cash to income ratio, relates the company's operating cash flow to its earnings before income taxes. The operations index of a business compared to cash generated by operations to profits generated by ongoing operations. The cash-to-income ratio is a cash-flow ratio that compares the dollar amount of cash flows from financial operations to the dollar amount of operating income. It is determined by dividing the operating cash flow by Operating profit before income tax. Earnings before interest and tax are approximately equivalent to operating income. For this ratio, a healthy value is one, and above that is, the higher, the better.

Formula:

$$\text{Operations Index} = \frac{\text{Operating Cash Flow}}{\text{Operating profit before Income Tax}}$$

2.3. Advantages of using cash flow ratios

Cash flow ratios have a number of benefits. One is that cash flow ratios are accurate measures of an organization's liquidity. They offer a more systematic approach to assessing a company's liquidity status, thereby allowing for more precise data-driven decisions. Another advantage is that cash flow ratios provide further insight into a company's ability to meet its payment commitments. That is, they examine how much cash has been accumulated over time and compare it to short-term commitments, providing insight into the company's ability to meet its obligations (Mills, and Yamamura, 1998). Also, cash-based ratios not only impact a credit rating but also forecast a company's failure.

2.4. Disadvantage of using cash flow ratios

Cash flow ratios, though they have various benefits, are not without drawbacks. Cash flow ratios are useless on their own. Their usage is restricted because they require other financial statements such as profit and loss and balance sheets to be accurate. Another drawback is the difficulty of calculating cash flow ratios. This is because not only must adjustments in each account be measured and classified, actual transactions must be reviewed as well. Lastly, cash flow ratios derived for one industry cannot be used to compare a different industry

3. About the AS Tallinna Vesi

AS Tallinna Vesi is Estonia's primary water provider, serving over 460,000 residents in Tallinn and other surrounding municipalities with drinking water and wastewater disposal. The company gathers freshwater from a 2,000-square-kilometer catchment area and manages and maintains all of the assets needed to process and distribute water, as well as capture and dispose of wastewater and stormwater. With a low operating risk, the company can offer high-quality service to its clients. AS Tallinna Vesi's facilities follow all relevant criteria, and the firm has an exclusive right to work in the region as a water and sanitation undertaking until 2025. The company retains all of its properties and does not rely on a concession deal to operate.

The company aims to be open in its business practices, knowledge disclosure, and shareholder relations. Several titles in the Tallinn Stock Exchange's "Baltic Market Awards" competition have been presented to the firm for excellent customer relations. AS Tallinna Vesi remains in contact with its main shareholders daily, offering twice-yearly presentations and posting a calendar of investor meetings and presentation materials on the company's website. The corporation also informs shareholders at the annual general meeting of shareholders, where each shareholder has the opportunity to challenge members of the Management Board and Supervisory Board.

AS Tallinna Vesi constantly assesses and controls their operating and financial risks as a precautionary concept. They also built an efficient system to handle threats, even though they cannot be eliminated. Risk assessment is carried out by AS Tallinna Vesi with the aim of better identifying, evaluating, and handling risks and uncertainties to maximize the likelihood of meeting the company's overall goals while reducing shortcomings and uncertainties. They've identified the risk management process's functions, duties, and elements, which is also following the Emergency Act. AS Tallinna Vesi's risk assessment process is ingrained in the company's ethos and procedures, and it aids in the achievement of the company's strategic objectives. Risk coordination is part of the company's preparation process, and risks are assessed daily and reported to the whole organization.

AS Tallinna Vesi's everyday operations have a significant effect on the quality of life of Estonian people and the local community. They work in an environmentally sustainable way as a conscientious organization, reducing the detrimental effects of the company's operations on the environment, and thus the motivation behind choosing the company as a case study of this thesis. Five years' annual financial statements of the company have been extracted from AS Tallinna Vesi Consolidated Annual and Sustainability Report between the year 2015 to 2019, upon which all relevant ratios are calculated, analyzed, and interpreted.

3.1. Data Analysis, Results, and Recommendation

After obtaining the consolidated annual report for the financial year ended of AS Tallinna Vesi over a five years' period that consists of the Income statement, Balance sheet, and Cash flow statement, the cash flow ratios were calculated and evaluated for risk. The analysis of the data is presented below.

Long term debt payment

Long-term debt is mainly financed by cash flow, and the long-term debt payment ratio is used to assess a company's ability to meet its obligations. The calculated long-term debt payment ratio for 2015 is approximately 3.25, which is considered to be high. This result implies that the company is in a good position and not likely to default on its interest payments. In 2016, the ratio decreased from 3.25 to 3.14. There was a further decline from the year 2017 to 2019 to 2.99, 2.86, and 2.78, respectively.

Figure 1. Long-Term Debt Payment Analysis of As Tallinna Vesi
Source: Author's calculations based on data from Appendix 3

Figure 1 above shows that although AS Tallinna Vesi has a healthy ratio over the five years, there is still a need for improvement because it can be seen that there was a continuous decline in the ratio. As seen in figure 1, if the current trend continues, the company is more likely to default on its interest payment which could lead to a negative remark on the company's credit report and a reduction in its credit score, that is, a numerical rating or indicator of the company's creditworthiness thereby reducing the odds of accessing credit in the future, as well as higher interest rates on both current and new loans. The reason for the decrease in ratio can be seen from the financial statement, which shows that the long-term debt payment by the company in 2015 is €101,109. This decreased over the five years and amounted to €94,721 in 2019. Overall, the long-term debt payment of AS Tallinna Vesi shows a significant decrease of €6,388 without any significant change in the operating cash flow generated by the organization in the same period. Despite the decrease in the ratio, the company still seems healthy since the ratio is still greater than 1.

AS Tallinna Vesi refinanced its long-term debt in 2017 and 2019, as shown in the financial report, this led to a decrease in the risk margin of the business with regards to its average loan interest. The author recommends that the cash flow should be monitored to ensure that there is enough cash in hand to make prompt debt payments every time, as the financial statement reveals that the operating cash flow for the five years was relatively low when compared to the long-term debt payment amount. Often, finding a stable line of credit that allows the company easy access to funds when they are needed is advisable to boost cash flow, as this may be a convenient way to overcome

the problem of cash flow shortage. Short-term business loans, corporate credit cards, overdrafts, and invoice financing will also help to get cash quickly. Overall, it is essential to find a source of financing that is a good match for the company and to make sure that the company can handle the interest charges now and in the future so as not to overextend the cash flow.

Debt coverage ratio

Like the long-term debt payment ratio, the debt coverage ratio is used to calculate if a company's income is sufficient to cover its debt obligations. This shows if the income earned by a company's asset will be sufficient to pay off debt. The ratio divides the total operating income to the total debt service, and a number greater than or equal to one is considered good. From the calculation in 2015, AS Tallinna Vesi had an approximate debt coverage ratio of 0.20, and the figure reduced a bit in 2016 to 0.18. In 2017 there was a significant rise in the value to 0.73, which further decreased in the following year to 0.25. Although there was a rise in the result in the year 2019 to 0.29, this cannot be considered as a significant increase.

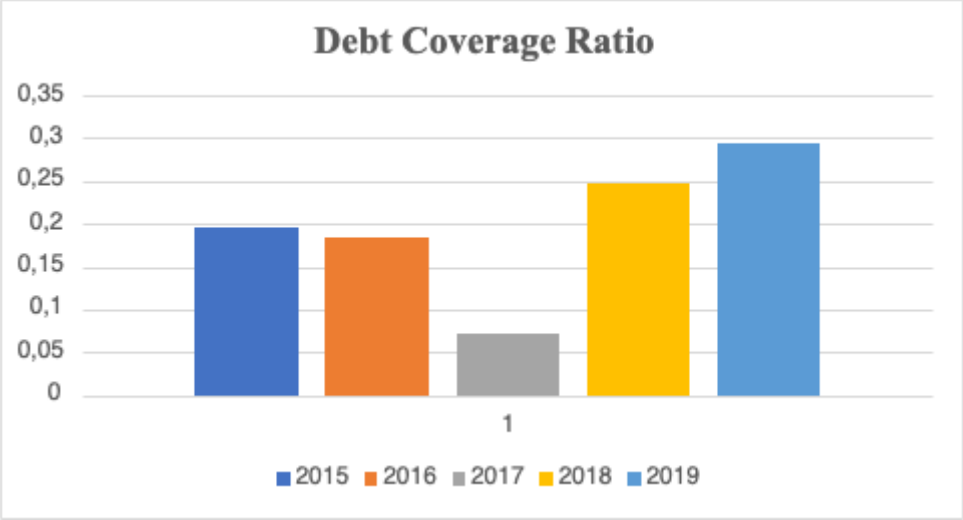

Figure 2. Long-Term Debt Payment Analysis of As Tallinna Vesi
Source: Author's calculations based on data from Appendix 4

As seen in figure 2 above, the result shows that in 2015, assets were only enough to produce revenue to meet 20% of the year's financial obligations, 18% in 2016, 72% in 2017, which is relatively high, 25% in 2018, and 29% in 2019. An analysis by SimplyWall.st, suggests that AS Tallinna Vesi is operating on a high level of debt, and for the five years calculated, the ratio was below 1. This reveals that there is a risk that needs urgent attention since having a high debt coverage ratio prompts lenders to trust in the company's ability to make timely payments. The debt

coverage ratio result also shows that the operating income earned by AS Tallinna Vesi was not sufficient to pay off debts. The financial statement further reveals that the operating income generated was relatively low when compared to the amount used in servicing the debt over the years, hitting a low in 2017 that had a total operating income of €7,221 and a total debt service amount of €99,253. The reason was that the operating expenses incurred in the year 2017 were very high as they amounted to €23,225. The high expenses incurred were due to the provision made by AS Tallinna Vesi for a possible third-party indemnity claim. The increase in expenses reduced the total income for the period.

It is therefore recommended that AS Tallinna Vesi should work on reducing its costs or any expenses that could result in borrowings. Since the company already has issues with high levels of water leakages, sewer blockages, and sewer collapses, as reported by AS Tallinna Vesi's operational performance report, the company should look for ways to address and mitigate these to reduce the extra cost or debt that could be incurred. Furthermore, since the denominator of the debt coverage ratio calculation includes the sum of interests, it is recommended that AS Tallinna Vesi should bargain for a lower interest rate on any loan taken. This will result in a reduction in the interest amount as well as in the installment amount, which will lower the denominator thereby, increasing the ratio.

Cash flow adequacy ratio

The cash flow adequacy ratio is used to compare AS Tallinna Vesi's performance over time. If the cash flow adequacy ratio rises with time, it indicates that the firm is raising its operating cash flow or cutting costs, but if otherwise, this would indicate that the firm is increasing its costs or losing cash flow from operations. From the calculation, it can be seen that even though the ratio was not up to 1, it kept on falling through the period from 2017 to 2019. The cash flow adequacy ratio for 2015 was 0.121, in 2016, it was 0.120 and 0.112 in 2017, while from 2018 to 2019, the company had 0.180 and 0.110, respectively.

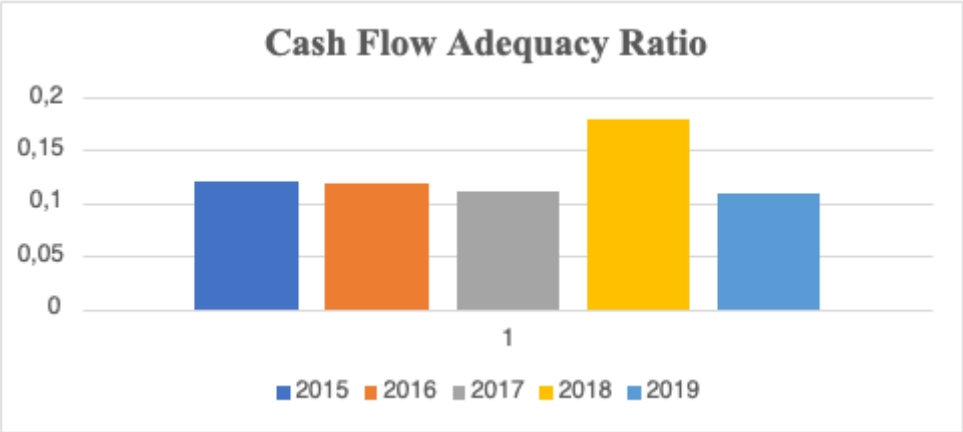

Figure 3. Long-Term Debt Payment Analysis of As Tallinna Vesi
Source: Author's calculations based on data from Appendix 5

From figure 3, it can be deduced that the business is unable to raise sufficient cash to finance its immediate expenses. The result shows that the cash flow adequacy ratio is below one over the five years calculated, which is not favorable for the company as it could be a warning sign to investors that this pattern will persist hence, creating doubt about the Company's potential ability to meet its obligations in the areas of asset acquisition, dividend payment, and financial obligations. The lower ratio might be as a result of AS Tallinna Vesi needing to purchase new equipment that helped in speeding up the identification of leakages, and also they strive to keep up with new technologies. Doing this might be costly, and higher loans are taken to achieve this aim.

From the financial statement, it can be seen that AS Tallinna Vesi invested so much on assets with no significant change in operating cash flow which explains why they operated on so much debt resulting in reducing the ratio. Also, the company's fixed asset in 2015 was €163,632, which increased all through the year, and at the end of 2019, the value of fixed assets increased to €190,337. Also, the long-term debt incurred increased from €111,645 in 2015 to €134,086 in 2019, which was a major contributor to the reduced ratio because there was no relative increase in the operating cash flow. Although the revenue generated over the five years increased, the cost of goods sold also increased. On the one hand, in 2015, the revenue generated was €55,428 thousand, which increased to €63,423 in 2019, giving a total increase of €7,995. On the other hand, the cost of goods sold increased throughout the five years and had a total increase of €5,791, thereby resulting in an insignificant rise in net profit, which, as a result, affected the operating cash flow.

Although AS Tallinna Vesi invested a lot of amount on its assets but this investment did not reflect in the operating cash flow because the cost of goods sold increased as revenue increased. Based on the above analysis, the author recommends that to improve the ratio, AS Tallinna Vesi should liquidate its old machines used for detecting leakages which contributed to the expenses of the business. This machine, when sold as scrap, will generate some cash for the business.

Cash flow to sales ratio

Extracting the operating cash flow data and the net sales revenue of AS Tallinna Vesi for 2015 to 2019 and calculating the cash flow to sales ratio, the result shows a 0.556 for 2015. It slightly fell to 0.540 in 2016, followed by an increase in 2017 to 0.555. From 2018 to 2019, there was a gradual decline to 0.546 in 2018 and 0.536 in 2019. The fall in the ratio means that revenue growth is not mirrored in the company's cash flow. This may indicate that AS Tallinna Vesi is being paid at a slower rate for its products or services or that its receivables are being managed inefficiently.

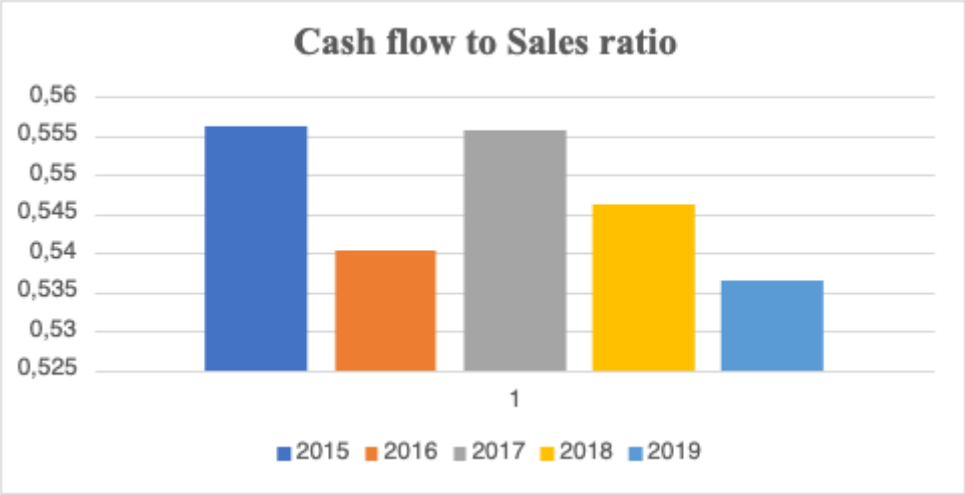

Figure 4. Long-Term Debt Payment Analysis of As Tallinna Vesi
Source: Author's calculations based on data from Appendix 6

From figure 4, the value of 0.556 in 2015 implies that every 1 EUR in revenue generates 55.6 cents in cash flow, which it will use to pay vendors and staff, invest in infrastructure, and allocate as dividends to shareholders, which applies to other years. The results show that the ratio hovers within 0.5. It is important to note that this ratio should preferably be greater than 1.0, as this means that the company has at least achieved break-even and provided ample cash flow from its revenues which, for AS Tallinna Vesi, is not the case.

According to the results, the cash collection scheme is unreliable, and AS Tallinna Vesi is having difficulties collecting money from its customers. This can be seen clearly when the cash flow from operation compared with the net sales revenue generated for the period hovers within the 50% range. In 2015, the net sales revenue of €55,928 was recorded, and approximately 55.6% of the value was generated as an operating cash flow. This declined in 2019, showing a 53.6% operating cash flow even though the net sales revenue generated showed an increase to €63,423. This was because the total trade receivables for AS Tallinna Vesi increased from 2015 to 2018, having a slight decrease in 2019. The trade receivables were €6,684 in 2015, which increased to €7,618 in 2018 and further declined to €7,248 in 2019.

To improve this ratio, customers should be provided with incentives. This is a good way of improving the ratio as giving consumers a discount for early payment of their invoices would serve as a source of motivation to customers to settle their bills quickly. In the same vein, as a discount is given, there should be a penalty for late payment, this can be added to the invoice. Also, AS Tallinna Vesi should make an effort to develop their KYC department that would work on rating customers in terms of their creditworthiness. This would help in knowing what credit option should be given to a customer, which would, in turn, boost the business sustainability and also reduce the risk of bad debt.

Cash flow return on assets

The cash flow return on assets ratio for 2015 was 0.10, implying that 10 cents of cash flow are generated for every dollar of assets owned. The ratio is low, which might mean that AS Tallinna Vesi was underutilizing its asset. In 2016, there was a slight increase in the ratio to 0.145 and a further increase in 2017 to 0.245, after which there was a drastic decrease in the next two years, moving to 0.097 in 2018 and 0.089 in 2019.

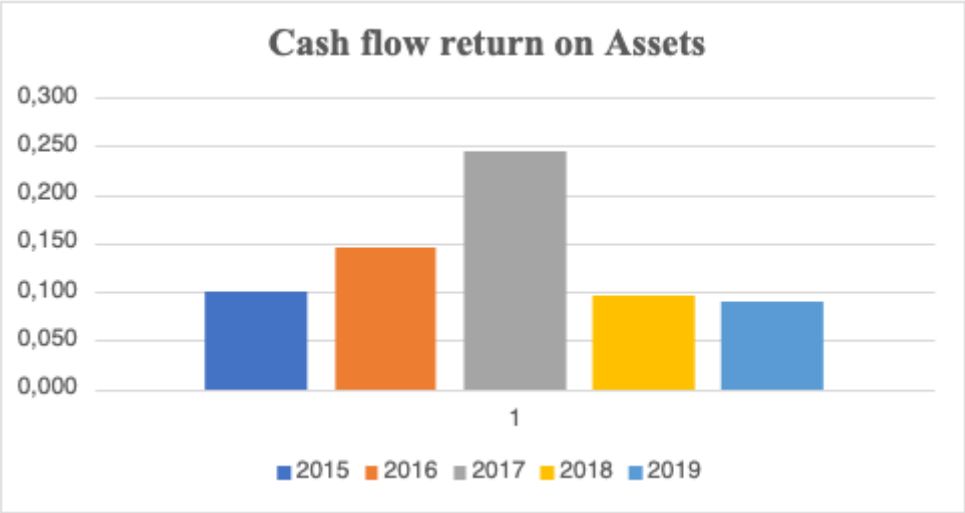

Figure 4. Long-Term Debt Payment Analysis of As Tallinna Vesi
Source: Author's calculations based on data from Appendix 7

A firm with a high cash flow return on asset ratio is a better investment for an investor because the company can extract more cash flows from its investments, resulting in more value for its owners, while a company with a poor cash flow return on asset ratio is a sure indication that the company's asset management is inefficient.

From figure 5 above, it can be seen that AS Tallinna Vesi for the year 2015 to 2017 was effective in maximizing the value of its investments to produce more cash flow as the ratio increased from 10% to 24.5%. The increase might be as a result of an increase in asset efficiency as fewer assets were likely used to generate higher returns. This might be attributed to proper employee training or the introduction of employee motivation schemes. However, from 2018 to 2019, the opposite was the case as assets management efficiency reduced drastically, which left them worse off as the ratio was at 8.9% in 2019 as against 10% in 2015. This might be as a result of using old or worn-out equipment to detect water leakages that could slow production pace and rate, or it could be due to the purchase of new assets without proper employee training on their handling and usage.

As stated in the AS Tallinna Vesi operational performance report in the 1st quarter of 2018, the company experienced a high volume of water leakages which resulted in a slight decline in performance, with the long winter period also serving as a contributor. Also, the report states that new equipment to facilitate a quicker detection of leakages was purchased. It can be seen in 2017

that AS Tallinna Vesi recorded the lowest average total asset of €135,565 and recorded an operating cash flow value of €33,245. This implies that the investments in assets within the years 2016 and 2017 were not much when compared with the average of the other years; however, they still managed to record a high operating cash flow.

As a result, the author recommends that, to improve this ratio further, AS Tallinna Vesi should find a way of reducing the balance of its assets by examining the assets that are not needed. Such assets should be sold since they do not generate any money. Evaluation should be done to determine whether the assets' sporadic use warrants the cost of keeping them. Another option could be leasing out the assets as a piece of equipment that is leased is not considered a capital asset. Also, to improve the ratio, more opportunities to make use of assets should be explored, and this can be done by measuring the productivity of the asset. This would help to know how an asset can be used efficiently without increasing labor costs.

Operations Index

The operating index ratio for AS Tallinna Vesi was at its peak in the year 2017 with a high ratio of 3.4. Analysis from 2015 shows that there was a gradual increase in the ratio from 1.3 to 1.4 in 2016. In the year 2017, from a ratio of 3.4, there was a drastic fall to 1.3 in the year 2018, then it hit the bottom of 1.1 in 2019. It should be noted that despite the rise and the fall in the ratios, AS Tallinna Vesi still maintained a healthy ratio which is above one all through the five years.

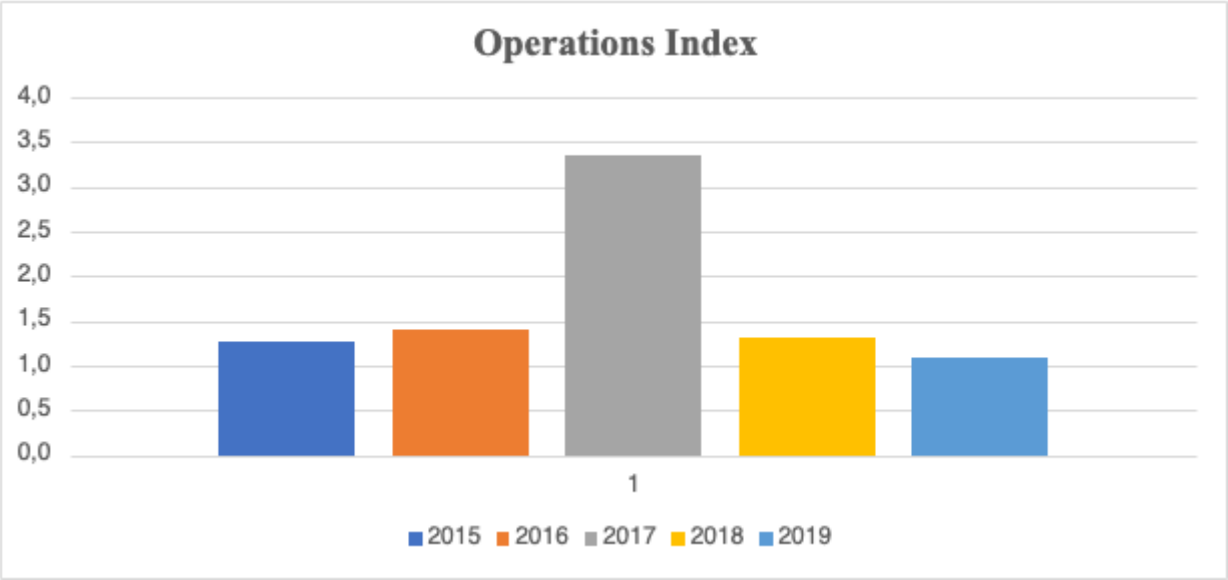

Figure 5: Long-Term Debt Payment Analysis of As Tallinna Vesi
Source: Author's calculations based on data from Appendix 8

The result for the ratio reveals that AS Tallinna Vesi performed well as the ratios across the five years were above one, which is an indicator of a healthy ratio. There was an increase in the ratio between 2015 and 2017, and this might be due to the implementation of revenue management. Revenue management refers to "profit optimization," in which current demand is matched with a set supply (Pinchuk, 2006). This could be achieved by delivering the product to the right customer at the right time with a good price and using the best distribution channel for a good commission efficiency.

From 2018 to 2019, AS Tallinna Vesi experienced a declining ratio which might have been caused by the Management's effort to accelerate revenue recognition. It could be seen that year 2017 has the highest ratio. This was so because, from AS Tallinna Vesi's annual report of 2017, the company increased water quality to 99.93%, and the average interruption time per property in hours was reduced to 3.14. Also, leakages and the number of sewer blockages were reduced to 13.82% and 654 sewer blockages, respectively, which contributed to the high ratio.

Since AS Tallinna Vesi was able to maintain a healthy ratio through the 5years period, it is recommended that the company should continue with the management process that was in place

from 2015 to 2017 as it has proven to be effective. However, more caution should be taken as there was a significant decrease in the ratio in 2018 and 2019.

3.2. Risks Identified through Cash Sufficiency Ratios

The sufficiency ratios reveal that AS Tallinna Vesi is at liquidity risk, which implies that there is the possibility that the company is unable to fulfill its financial obligations on time. To stay solvent, AS Tallinna Vesi has to manage its liquidity risks properly. From the analysis, the long-term debt ratio shows that the organization has enough cash flow to pay off its long-term financial obligations. However, the debt coverage ratio and the cash flow adequacy ratio calculated and analyzed in this study reveal that AS Tallinna Vesi, for the 5year period, is at liquidity risk as they do not have enough cash to meet their obligations. The company is at risk of not having a stable and well-managed cash flow and thus would have a difficult time being sustainable, obtaining attractive lending conditions, attracting new inventors, and being competitive in the long run.

To manage this risk, a steady cash flow forecast is a wise decision for any company to make. Here where cash flow levels are poor, weekly cash flow planning is a good option for ensuring that short-term liquidity management does not place unnecessary strain on company capital as short-term liquidity control will easily reveal any new issues. To ensure that all sources of liquidity risk are established, all business units must adhere to cash flow forecasts. If a cash flow estimate is created to fund a planned project, the cash flow forecast's period should correspond to the project's period.

Another way of managing the risk could be to work out favorable credit terms for their creditors as there would be a cash flow issue if the collection period from customers is longer when compared with the payment period to creditors. If there is a good payment background, creditors will be willing to stretch payment conditions, and this will encourage the keeping of cash on hand for longer and reduce the chance of a cash shortage.

3.3. Risks Identified through Cash Efficiency Ratios

Efficiency ratios are metrics of calculating the nature of a company's receivables and the efficiency with which it uses its assets, together with the accuracy with which the company may resolve contractual contracts with its suppliers. If well managed, efficiency ratios can reveal potential credit risk and operational risk. The cash flow to sales ratio calculated in this study shows that AS Tallinna Vesi is at credit risk. Credit risk refers to the likelihood of a company losing money due to a customer's failure to pay for a credit order (Brown & Moles, 2008).

Credit risk, when properly detected and controlled, maybe turned into a competitive advantage as it would help companies to significantly boost overall efficiency and gain a strategic edge by implementing good credit risk management. To mitigate this risk, credit scores should be carried out on all potential customers as it is an important indicator of the danger that can be faced by customers. Checking customer’s credit scores will assist Tallinna Vesi in increasing collections and reducing fraud. Building a long-term, trusting relationship with customers is one of the ways to handle credit risks. Before extending credit, credit terms should be discussed with prospective customers to get a sense of their credit attitudes.

To improve the efficiency ratio by eliminating operational risk, Tallinna Vesi should keep up with routine repairs and make sure that minor problems are fixed before they become major ones. Also, solid business-to-business relationships should be maintained because no business can function in isolation. When considering how to minimize operating risk in this area, common risks such as accounting mistakes, misinterpretation of information, distribution delays, incomplete or missing legal records, and vendor conflicts should be considered.

CONCLUSION

This study was conducted to determine how cash flow ratios will expose different possible risks that threaten an enterprise several years before the company ceases to operate. The thesis also sought to examine whether cash flow ratios can signal the evolution of an organization's health or not. Having examined the financial statement of an Estonian company, AS Tallinna Vesi, using the cash flow ratios, it was possible to identify different risks that are related to the business. It was discovered that the company was at risk of liquidity using the sufficiency ratios considered in the study, which are long-term debt payment ratio, debt coverage ratio, and cash flow adequacy ratio.

The results obtained from the long-term debt payment ratio showed that if the current trend continues, AS Tallinna Vesi could be unable to fulfill its financial commitments, and the corporation is much more likely to miss interest payments, which may result in a negative rating on its credit report and also a drop in its credit score. For this, it was recommended that cash flow should be monitored to ensure that there is still enough cash on hand to make timely interest payments, and caution should be used when taking out new loans to avoid adding too much debt.

The debt coverage ratio result suggested that Tallinna Vesi does not earn adequate revenue to pay off its debt, and to remedy the situation, it was suggested that loans with lower interest rates should be applied for as the principal rate as well as the payment amount will be reduced through this. The cash flow adequacy ratio revealed that Tallinna Vesi would be unable to meet its obligation in the area of dividend payment, asset acquisition, and financial obligations, and to correct this, and it was recommended that the company should liquidate its old asset that could be contributing to the cost of running the business.

Furthermore, it was discovered that the company is at risk both of credit and operational using the efficiency ratios considered in the study, which are cash flow to sales ratio, cash flow to assets

ratio, and operations index. The use of the cash flow to sales ratio revealed that AS Tallinna Vesi has difficulty collecting money from its customers, and it was suggested that more attention should be given to invoicing, discounting, and also penalty should be applied for late payment. The cash flow to assets ratio shows that AS Tallinna Vesi was able to effectively maximize its investment value as it produced more cash for the first three years, while for the last two years, the opposite was the case.

To have consistent performance, the researcher recommends that AS Tallinna Vesi should identify and let go of assets that are not needed and also place some assets on the lease because leased equipment is not considered as capital assets. Operations index as an efficiency ratio revealed that AS Tallinna Vesi performed well as the dollar sum of cash flows from financial transactions were compared to the dollar amount of net profits.

For further studies, some factors could be considered when evaluating risks in an organization, such as government regulations, customer behavior, and employee motivation. These are qualitative factors that could be looked into alongside cash flow ratios to improve the risk evaluation.

Overall, it is important to note that even though cash flow ratio analysis has proven to be a valuable financial analysis technique for risk evaluation, the study was limited by the fact that, unlike the traditional ratios that have industrial values that can be easily assessed, the researcher could not find any industrial values for cash flow ratios.

Finally, this study was able to show that cash flow ratios are very useful and instrumental in assessing risk in a company. Also, the cash flow ratios have effectively been able to show the cash position of a business, and the evolution of the company's health from year to year. With the use of cash flow ratios, companies can assess their performance as well, and corrective measures can be taken as appropriate.

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APPENDICES

Appendix 1. Long term debt payment calculation

Year	2015	2016	2017	2018	2019
Borrowings	100481	99249	99075	97814	94721
Non-current derivatives	628	715	178	173	0
Total	101109	99964	99253	97987	94721

Source: Sunmola, author's calculations

Appendix 2. Total debt service

Year	2015	2016	2017	2018	2019
Total Debt Service	101109	99964	99253	97987	94721

Source: Sunmola, author's calculations

Appendix 3. Long term debt = Long term debt payment/ operating cash flow

Year	2015	2016	2017	2018	2019
Long term debt payment	101109	99964	99253	97987	94721
Operating cash flow	31111	31872	33245	34292	34018
Ratio	3.25	3.14	2.99	2.86	2.78

Source: Sunmola, author's calculations

Appendix 4. Debt Coverage Ratio = Total operating income/ Total debt service

Year	2015	2016	2017	2018	2019
Total operating incoming	19858	18390	72210	24150	27760
Total debt service	101109	99964	99253	97987	94721
Ratio	0.1964	0.1839	0.7275	0.2465	0.2931

Source: Sunmola, author's calculations

Appendix 5. Cash Flow Adequacy Ratio = Operating cash flow/ Fixed asset + Long-term debt + Cash dividend

Year	2015	2016	2017	2018	2019
Operating Cash Flow	31111	31872	33245	34292	34018
Fixed asset	163632	172007	175262	179850	190337
Long-term debt	111645	113575	132941	17985	134086
Cash dividend	-18001	-18001	-10801	-7201	-14965
Ratio	0.1209	0.1191	0.1118	0.1800	0.1099

Source: Sunmola, author's calculations

Appendix 6. Cash flow to Sales ratio = Operating Cash Flow/ Net Sales Revenue

Year	2015	2016	2017	2018	2019
Operating Cash Flow	31111	31872	33245	34292	34018
Net Sales Revenue	55928	58982	59815	62780	63423
Ratio	0.5562	0.5404	0.5558	0.5462	0.5364

Source: Sunmola, author's calculations

Appendix 7. Cash flow return on Assets= Operating Cash Flow/ Total Assets

Year	2014	2015	2016	2017	2018	2019
Total Asset	206983	209072	21361	228408	249748	262855
Average	0	311519	219753	135565	353282	381176

Year	2015	2016	2017	2018	2019
Operating Cash Flow	31111	31872	33245	34292	34018
Average Total Assets	311519	219753	135565	353282	381176
Ratio	0.100	0.145	0.245	0.097	0.089

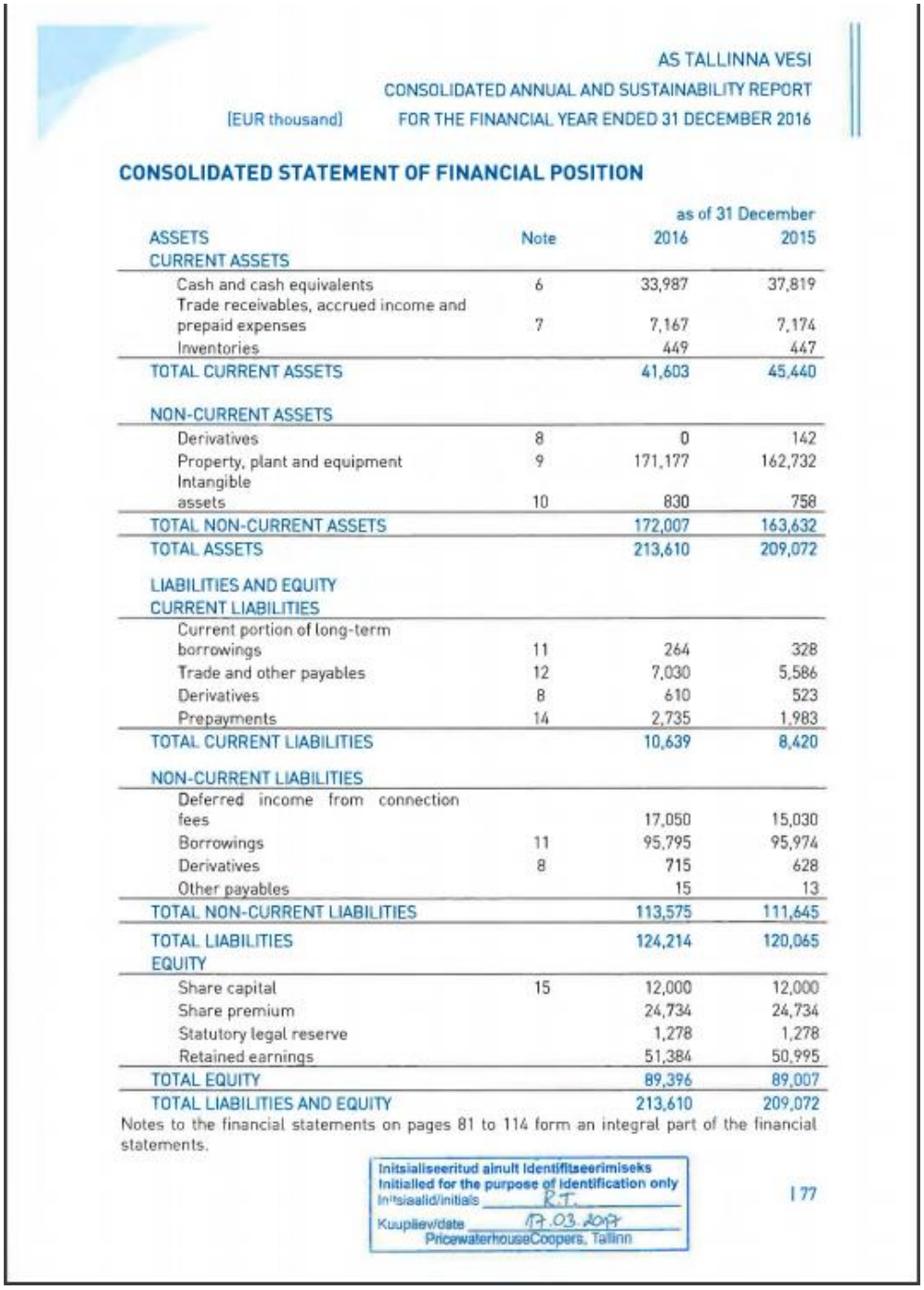
Source: Sunmola, author's calculations

Appendix 8. Operations Index= Operating Cash Flow/ Operating profit before Income Tax

Year	2015	2016	2017	2018	2019
Operating Cash Flow	31111	31872	33245	34292	34018
Operating profit before Income Tax	24358	22890	9921	25950	31304
Ratio	1.3	1.4	3.4	1.3	1.1

Source: Sunmola, author's calculations

Appendix 9. Consolidated statement of financial position 2015/2016



CONSOLIDATED STATEMENT OF FINANCIAL POSITION

		as of 31 December	
ASSETS	Note	2016	2015
CURRENT ASSETS			
Cash and cash equivalents	6	33,987	37,819
Trade receivables, accrued income and prepaid expenses	7	7,167	7,174
Inventories		449	447
TOTAL CURRENT ASSETS		41,603	45,440
NON-CURRENT ASSETS			
Derivatives	8	0	142
Property, plant and equipment	9	171,177	162,732
Intangible assets	10	830	758
TOTAL NON-CURRENT ASSETS		172,007	163,632
TOTAL ASSETS		213,610	209,072
LIABILITIES AND EQUITY			
CURRENT LIABILITIES			
Current portion of long-term borrowings	11	264	328
Trade and other payables	12	7,030	5,586
Derivatives	8	610	523
Prepayments	14	2,735	1,983
TOTAL CURRENT LIABILITIES		10,639	8,420
NON-CURRENT LIABILITIES			
Deferred income from connection fees		17,050	15,030
Borrowings	11	95,795	95,974
Derivatives	8	715	628
Other payables		15	13
TOTAL NON-CURRENT LIABILITIES		113,575	111,645
TOTAL LIABILITIES		124,214	120,065
EQUITY			
Share capital	15	12,000	12,000
Share premium		24,734	24,734
Statutory legal reserve		1,278	1,278
Retained earnings		51,384	50,995
TOTAL EQUITY		89,396	89,007
TOTAL LIABILITIES AND EQUITY		213,610	209,072

Notes to the financial statements on pages 81 to 114 form an integral part of the financial statements.

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PricewaterhouseCoopers, Tallinn

Appendix 10. Comprehensive income statement for 2015/2016

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

	Note	for the year ended 31 December 2016	2015
Revenue	16	58,982	55,928
Costs of goods/services sold	18	-25,721	-23,679
GROSS PROFIT		**33,261**	**32,249**
Marketing expenses	18	-365	-435
General administration expenses	18	-7,799	-6,086
Other income (+)/ expenses (-)	19	-470	-150
OPERATING PROFIT		**24,627**	**25,578**
Financial income	20	41	95
Financial expenses	20	-1,778	-1,315
PROFIT BEFORE TAXES		**22,890**	**24,358**
Income tax on dividends	21	-4,500	-4,500
NET PROFIT FOR THE PERIOD		**18,390**	**19,858**
TOTAL COMPREHENSIVE INCOME FOR THE PERIOD		**18,390**	**19,858**
Attributable profit to:			
Equity holders of A-shares		18,389	19,857
B-share holder		0.60	0.60
Earnings per A-share (in euros)	22	0.92	0.99
Earnings per B-share (in euros)	22	600	600

Notes to the financial statements on pages 81 to 114 form an integral part of the financial statements.

Appendix 11. Cash flow statement for the year 2015/2016

CONSOLIDATED STATEMENT OF CASH FLOWS

	Note	for the year ended 31 December 2016	2015
CASH FLOWS FROM OPERATING ACTIVITIES			
Operating profit		24,627	25,578
Adjustment for depreciation/amortisation	9,10,18,19	6,406	6,184
Adjustment for revenue from connection fees	19	-218	-194
Other non-cash adjustments		-15	-15
Profit (-)/loss (+) from sale of property, plant and equipment, and intangible assets		-42	2
Change in current assets involved in operating activities		41	-897
Change in liabilities involved in operating activities		1,073	453
TOTAL CASH FLOWS FROM OPERATING ACTIVITIES		**31,872**	**31,111**
CASH FLOWS FROM INVESTING ACTIVITIES			
Acquisition of property, plant and equipment, and intangible assets	9,10	-14,526	-13,495
Compensations received for construction of pipelines, incl connection fees		3,002	6,499
Proceeds from sale of property, plant and equipment, and intangible assets		50	30
Interest received		45	99
TOTAL CASH FLOWS USED IN INVESTING ACTIVITIES		**-11,429**	**-6,867**
CASH FLOWS FROM FINANCING ACTIVITIES			
Interest paid and loan financing costs, incl swap interests		-1,510	-2,178
Finance lease payments		-264	-306
Dividends paid	21	-18,001	-18,001
Income tax on dividends	21	-4,500	-4,500
TOTAL CASH FLOWS USED IN FINANCING ACTIVITIES		**-24,275**	**-24,985**
CHANGE IN CASH AND CASH EQUIVALENTS		**-3,832**	**-741**
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE PERIOD	6	**37,819**	**38,560**
CASH AND CASH EQUIVALENTS AT THE END OF THE PERIOD	6	**33,987**	**37,819**

Notes to the financial statements on pages 81 to 114 form an integral part of the financial statements.

Appendix 12. Statement of financial position 2016/2017

Tallinna Vesi

9. CONSOLIDATED STATEMENT OF FINANCIAL POSITION

		as of 31 December EUR thousand	
ASSETS	Note	2017	2016
CURRENT ASSETS			
Cash and cash equivalents	5	44,973	33,987
Trade receivables, accrued income and prepaid expenses	6	7,716	7,167
Inventories		457	449
TOTAL CURRENT ASSETS		53,146	41,603
NON-CURRENT ASSETS			
Property, plant and equipment	8	174,451	171,177
Intangible assets	9	811	830
TOTAL NON-CURRENT ASSETS		175,262	172,007
TOTAL ASSETS		228,408	213,610
LIABILITIES AND EQUITY			
CURRENT LIABILITIES			
Current portion of long-term borrowings	10	264	264
Trade and other payables	11	6,200	7,030
Derivatives	7	578	610
Prepayments	13	2,609	2,735
TOTAL CURRENT LIABILITIES		9,651	10,639
NON-CURRENT LIABILITIES			
Deferred income from connection fees		19,632	17,050
Borrowings	10	95,565	95,795
Derivatives	7	178	715
Provision for possible third party claims	14	17,522	0
Other payables		44	15
TOTAL NON-CURRENT LIABILITIES		132,941	113,575
TOTAL LIABILITIES		142,592	124,214
EQUITY			
Share capital	15	12,000	12,000
Share premium		24,734	24,734
Statutory legal reserve		1,278	1,278
Retained earnings		47,804	51,384
TOTAL EQUITY		85,816	89,396
TOTAL LIABILITIES AND EQUITY		228,408	213,610

Notes to the financial statements on pages 79 to 113 form an integral part of the financial statements.

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Appendix 13. Comprehensive income statement for 2016/2017

Tallinna Vesi

10. CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

	Note	for the year ended 31 December EUR thousand 2017	2016
Revenue	16	59,815	58,982
Costs of goods/services sold	18	-25,725	-25,721
GROSS PROFIT		34,090	33,261
Marketing expenses	18	-356	-365
General administration expenses	18	-5,028	-7,799
Other income (+)/ expenses (-)	19	-17,841	-470
OPERATING PROFIT		10,865	24,627
Financial income	20	15	41
Financial expenses	20	-959	-1,778
PROFIT BEFORE TAXES		9,921	22,890
Income tax on dividends	21	-2,700	-4,500
NET PROFIT FOR THE PERIOD		7,221	18,390
TOTAL COMPREHENSIVE INCOME FOR THE PERIOD		7,221	18,390
Attributable profit to:			
Equity holders of A-shares		7,220	18,389
B-share holder		0.60	0.60
Earnings per A-share (in euros)	22	0.36	0.92
Earnings per B-share (in euros)	22	600	600

Notes to the financial statements on pages 79 to 113 form an integral part of the financial statements.

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Appendix 14. Cash flow statement for the year 2016/2017

Tallinna Vesi

11. CONSOLIDATED STATEMENT OF CASH FLOWS

	Note	for the year ended 31 December EUR thousand 2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES			
Operating profit		10,865	24,627
Adjustment for depreciation/amortisation	8,9,18,19	6,170	6,406
Adjustment for revenue from connection fees	19	-258	-218
Other non-cash adjustments		-26	-15
Profit (-)/loss (+) from sale of property, plant and equipment, and intangible assets		-12	-42
Change in current assets involved in operating activities		-558	41
Change in liabilities involved in operating activities		17,064	1,073
TOTAL CASH FLOWS FROM OPERATING ACTIVITIES		33,245	31,872
CASH FLOWS FROM INVESTING ACTIVITIES			
Acquisition of property, plant and equipment, and intangible assets		-9,761	-14,526
Compensations received for construction of pipelines, incl connection fees		2,698	3,002
Proceeds from sale of property, plant and equipment, and intangible assets		62	50
Interest received		15	45
TOTAL CASH FLOWS USED IN INVESTING ACTIVITIES		-6,986	-11,429
CASH FLOWS FROM FINANCING ACTIVITIES			
Interest paid and loan financing costs, incl swap interests		-1,512	-1,510
Finance lease payments		-260	-264
Received loans	10	37,500	0
Repayment of loans	10	-37,500	0
Dividends paid	21	-10,801	-18,001
Income tax on dividends	21	-2,700	-4,500
TOTAL CASH FLOWS USED IN FINANCING ACTIVITIES		-15,273	-24,275
CHANGE IN CASH AND CASH EQUIVALENTS		10,986	-3,832
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE PERIOD	5	33,987	37,819
CASH AND CASH EQUIVALENTS AT THE END OF THE PERIOD	5	44,973	33,987

Notes to the financial statements on pages 79 to 113 form an integral part of the financial statements.

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Appendix 15. Statement of financial position 2017/2018

Statement of financial position

as of 31 December (EUR thousand)	2018	2017
ASSETS		
Current assets		
Cash and cash equivalents	60,529	43,826
Trade receivables, accrued income and prepaid expenses	6,537	6,911
Receivables from subsidiary	65	45
Inventories	495	455
Total current assets	**67,626**	**51,237**
Non-current assets		
Investment in subsidiary	527	527
Property, plant and equipment	184,188	178,728
Intangible assets	662	811
Total non-current assets	**185,377**	**180,066**
TOTAL ASSETS	**253,003**	**231,303**

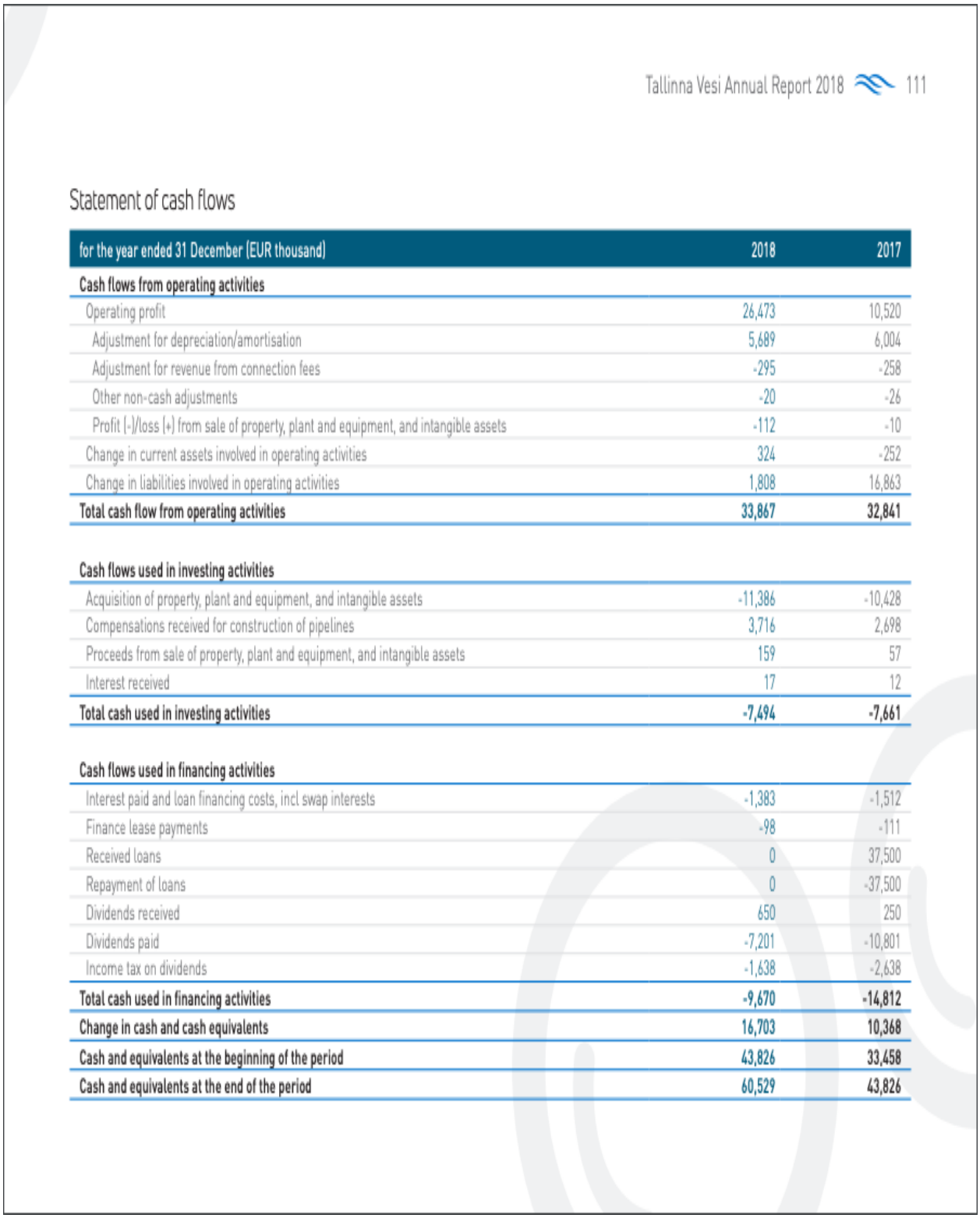
as of 31 December (EUR thousand)	2018	2017
LIABILITIES AND EQUITY		
Current liabilities		
Current portion of long-term borrowings	3,672	104
Trade and other payables	4,569	4,887
Derivatives	207	578
Payables to subsidiary	735	701
Prepayments and deferred income	2,953	2,606
Total current liabilities	**12,136**	**8,876**
Non-current liabilities		
Deferred income from connection fees	22,745	19,632
Borrowings	91,410	94,930
Derivatives	173	178
Provision for possible third party claims	19,068	17,522
Other payables	31	31
Total non-current liabilities	**133,427**	**132,293**
Total liabilities	**145,563**	**141,169**
Equity		
Share capital	12,000	12,000
Share premium	24,734	24,734
Statutory legal reserve	1,278	1,278
Retained earnings	69,428	52,122
Total equity	**107,440**	**90,134**
TOTAL LIABILITIES AND EQUITY	**253,003**	**231,303**

Appendix 16. Comprehensive income statement for 2017/2018

Statement of comprehensive income

for the year ended 31 December (EUR thousand)	2018	2017
Revenue	56,632	55,440
Costs of goods and services sold	-23,190	-21,950
Gross profit	**33,442**	**33,490**
Marketing expenses	-386	-365
General administration expenses	-4,801	-4,833
Other income (+)/expenses (-)	-1,782	-17,781
Operating profit	**26,473**	**10,520**
Financial income	21	265
Financial expenses	-349	-945
Profit before taxes	**26,145**	**9,840**
Income tax on dividends	-1,638	-2,638
Net profit for the period	**24,507**	**7,202**
Total comprehensive income for the period	**24,507**	**7,202**
Attributable profit to:		
Equity holders of A-shares	24,506	7,201
B-share holder	0.60	0.60
Earnings per A-share (in euros)	1,23	0,36
Earnings per B-share (in euros)	600	600

Appendix 17. Cash flow statement for the year 2017/2018



Statement of cash flows

for the year ended 31 December (EUR thousand)	2018	2017
Cash flows from operating activities		
Operating profit	26,473	10,520
Adjustment for depreciation/amortisation	5,689	6,004
Adjustment for revenue from connection fees	-295	-258
Other non-cash adjustments	-20	-26
Profit (-)/loss (+) from sale of property, plant and equipment, and intangible assets	-112	-10
Change in current assets involved in operating activities	324	-252
Change in liabilities involved in operating activities	1,808	16,863
Total cash flow from operating activities	**33,867**	**32,841**
Cash flows used in investing activities		
Acquisition of property, plant and equipment, and intangible assets	-11,386	-10,428
Compensations received for construction of pipelines	3,716	2,698
Proceeds from sale of property, plant and equipment, and intangible assets	159	57
Interest received	17	12
Total cash used in investing activities	**-7,494**	**-7,661**
Cash flows used in financing activities		
Interest paid and loan financing costs, incl swap interests	-1,383	-1,512
Finance lease payments	-98	-111
Received loans	0	37,500
Repayment of loans	0	-37,500
Dividends received	650	250
Dividends paid	-7,201	-10,801
Income tax on dividends	-1,638	-2,638
Total cash used in financing activities	**-9,670**	**-14,812**
Change in cash and cash equivalents	**16,703**	**10,368**
Cash and equivalents at the beginning of the period	**43,826**	**33,458**
Cash and equivalents at the end of the period	**60,529**	**43,826**

Appendix 18. Statement of financial position 2018/2019

Tallinna Vesi

9. CONSOLIDATED STATEMENT OF FINANCIAL POSITION

€ thousand		as of 31 December	
ASSETS	**Note**	**2019**	**2018**
CURRENT ASSETS			
Cash and cash equivalents	6	64,775	61,769
Trade receivables, accrued income and prepaid expenses	7	7,239	7,631
Inventories		504	498
TOTAL CURRENT ASSETS		**72,518**	**69,898**
NON-CURRENT ASSETS			
Property, plant and equipment	9	189,627	179,185
Intangible assets	10	710	665
TOTAL NON-CURRENT ASSETS		**190,337**	**179,850**
TOTAL ASSETS		**262,855**	**249,748**
LIABILITIES AND EQUITY			
CURRENT LIABILITIES			
Current portion of long-term lease liabilities	11	352	191
Current portion of long-term bank loans	11	3,631	3,632
Trade and other payables	12	6,718	6,047
Derivatives	8	221	207
Prepayments	14	2,323	2,955
TOTAL CURRENT LIABILITIES		**13,245**	**13,032**
NON-CURRENT LIABILITIES			
Deferred income from connection fees		31,070	22,745
Leases	11	964	624
Bank loans	11	87,592	91,295
Derivatives	8	0	173
Provision for possible third-party claims	15	14,442	19,068
Other payables		18	46
TOTAL NON-CURRENT LIABILITIES		**134,086**	**133,951**
TOTAL LIABILITIES		**147,331**	**146,983**
EQUITY			
Share capital	16	12,000	12,000
Share premium		24,734	24,734
Statutory legal reserve		1,278	1,278
Retained earnings		77,512	64,753
TOTAL EQUITY		**115,524**	**102,765**
TOTAL LIABILITIES AND EQUITY		**262,855**	**249,748**

Notes to the financial statements on pages 78 to 119 form an integral part of the financial statements.

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Appendix 19. Comprehensive income statement for 2018/2019

10. CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

		for the year ended 31 December	
€ thousand	Note	2019	2018
Revenue	17	63,423	62,780
Costs of goods and services sold	19	-29,470	-28,594
GROSS PROFIT		**33,953**	**34,186**
Marketing expenses	19	-390	-386
General administration expenses	19	-5,689	-5,025
Other income (+)/ expenses (-)	20	4,201	-1,836
OPERATING PROFIT		**32,075**	**26,939**
Financial income	21	38	21
Financial expenses	21	-809	-1,010
PROFIT BEFORE TAXES		**31,304**	**25,950**
Income tax on dividends	22	-3,544	-1,800
NET PROFIT FOR THE PERIOD		**27,760**	**24,150**
TOTAL COMPREHENSIVE INCOME FOR THE PERIOD		**27,760**	**24,150**
Attributable profit to:			
Equity holders of A shares		27,759	24,149
B share holder		0.60	0.60
Earnings per A share (in euros)	23	1.39	1.21
Earnings per B share (in euros)	23	600	600

Notes to the financial statements on pages 78 to 119 form an integral part of the financial statements.

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Appendix 20. Cash flow statement for the year 2018/2019

Tallinna Vesi

11. CONSOLIDATED STATEMENT OF CASH FLOWS

		for the year ended 31 December	
€ thousand	Note	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES			
Operating profit		32,075	26,939
Adjustment for depreciation/amortisation	9,10,19,20	6,109	5,790
Adjustment for revenues from connection fees	20	-389	-295
Other non-cash adjustments	15,20	-4,624	1,526
Profit (-)/loss (+) from sale of property, plant and equipment, and intangible assets		138	-115
Change in current assets involved in operating activities		391	54
Change in liabilities involved in operating activities		318	393
TOTAL CASH FLOWS FROM OPERATING ACTIVITIES		**34,018**	**34,292**
CASH FLOWS USED IN INVESTING ACTIVITIES			
Acquisition of property, plant and equipment, and intangible assets		-10,441	-10,736
Compensations received for construction of pipelines, incl connection fees		3,010	3,716
Proceeds from sale of property, plant and equipment, and intangible assets		24	160
Interest received		36	17
TOTAL CASH FLOWS USED IN INVESTING ACTIVITIES		**-7,371**	**-6,843**
CASH FLOWS USED IN FINANCING ACTIVITIES			
Interest paid and loan financing costs, incl swap interests		-1,056	-1,394
Lease payments		-404	-258
Received loans	11	37,500	0
Repayment of loans	11	-41,136	0
Dividends paid	22	-14,965	-7,201
Withheld income tax paid on dividends	22	-36	0
Income tax on dividends	22	-3,544	-1,800
TOTAL CASH FLOWS USED IN FINANCING ACTIVITIES		**-23,641**	**-10,653**
CHANGE IN CASH AND CASH EQUIVALENTS		**3,006**	**16,796**
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE PERIOD	**6**	**61,769**	**44,973**
CASH AND CASH EQUIVALENTS AT THE END OF THE PERIOD	**6**	**64,775**	**61,769**

Notes to the financial statements on pages 78 to 119 form an integral part of the financial statements.

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Appendix 21. Trade receivables 2015/2016

NOTE 7. TRADE RECEIVABLES, ACCRUED INCOME AND PREPAID EXPENSES

	as of 31 December	
	2016	2015
Accounts receivable	7,167	6,784
Allowance for doubtful receivables	-412	-100
Total trade receivables	**6,755**	**6,684**
Allowance for doubtful receivables at the beginning of the period	**-100**	**-94**
Proceeds from doubtful receivables during the period	7	9
Allowance for doubtful receivables recognised during the period	-328	-22
Receivables written off balance sheet during the period	9	7
Allowance for doubtful receivables at the end of the period	**-412**	**-100**

Impairment losses recognised during the period are reported in profit or loss as 'Other income (+)/expenses (-)'. For further information on ageing of receivables (including overdue receivables), please see Note 5.

	as of 31 December	
	2016	2015
Accrued interest	1	5
Other accrued income	125	254
Prepaid expenses	286	231
Total accrued income and prepaid expenses	**412**	**490**
Total trade receivables, accrued income and prepaid expenses	**7,167**	**7,174**

The Company's current assets (incl. trade receivables, accruals and inventory) in the amount of EUR 7,142 thousand (31 December 2015: EUR 7,056 thousand) have been pledged as a security for the bank loans (Note 11), as a part of commercial pledge.

Appendix 22. Trade receivables 2016/2017

NOTE 6. TRADE RECEIVABLES, ACCRUED INCOME AND PREPAID EXPENSES

	as of 31 December EUR thousand	
	2017	2016
Accounts receivable	7,746	7,167
Allowance for doubtful receivables	-420	-412
Total trade receivables	7,326	6,755
Allowance for doubtful receivables at the beginning of the period	-412	-100
Proceeds from doubtful receivables during the period	10	7
Allowance for doubtful receivables recognised during the period	-31	-328
Receivables written off balance sheet during the period	13	9
Allowance for doubtful receivables at the end of the period	-420	-412

Impairment losses recognised during the period are reported in profit or loss as 'Other income (+)/expenses (-)'. For further information on ageing of receivables (including overdue receivables), please see Note 4.

	as of 31 December EUR thousand	
	2017	*2016*
Accrued interest	1	1
Other accrued income	125	125
Prepaid expenses	264	286
Total accrued income and prepaid expenses	390	412
Total trade receivables, accrued income and prepaid expenses	7,716	7,167

The Company's current assets (incl. trade receivables, accruals and inventory) in the amount of EUR 7,410 thousand (31 December 2016: EUR 7,142 thousand) have been pledged as a security for the bank loans (Note 10), as a part of commercial pledge.

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Appendix 23. Trade receivables 2018/2019

NOTE 7. TRADE RECEIVABLES, ACCRUED INCOME AND PREPAID EXPENSES

	as of 31 December	
€ thousand	2019	2018
Accounts receivable	7,248	7,618
Allowance for doubtful receivables	-428	-450
Total trade receivables	**6,820**	**7,168**
Allowance for doubtful receivables at the beginning of the period	**-450**	**-420**
Proceeds from doubtful receivables during the period	37	27
Allowance for doubtful receivables recognised during the period	-15	-57
Allowance for doubtful receivables at the end of the period	**-428**	**-450**

Impairment losses recognised during the period are reported in profit or loss as 'Other income (+)/expenses (-)'. For further information on ageing of receivables (including overdue receivables), please see note 5.

	as of 31 December	
€ thousand	2019	2018
Accrued interest	7	4
Other accrued income	107	132
Prepaid expenses	304	327
Total accrued income and prepaid expenses	**418**	**463**
Total trade receivables, accrued income and prepaid expenses	**7,238**	**7,631**

The Company's current assets (incl. trade receivables, accruals and inventory) in the amount of € 6,595 thousand (31 December 2018: € 7,097 thousand) have been pledged as a security for the bank loans (Note 11), as a part of commercial pledge.

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Appendix 24. Financial liabilities in terms of payment 2015/2016

Financial liabilities in terms of payment* as of 31 December 2016	Up to 1 month	1 - 3 months	3 - 12 months	1 - 5 years	Over 5 years	Total
Trade and other payables (Note 12)	3,796	283	0	0	0	4,079
Derivatives (Note 8)	609	0	0	715	0	1,324
Borrowings (incl finance lease)	77	153	897	87,029	11,093	99,249
Total	4,482	436	897	87,744	11,093	104,652

Financial liabilities in terms of payment* as of 31 December 2015	Up to 1 month	1 - 3 months	3 - 12 months	1 - 5 years	Over 5 years	Total
Trade and other payables (Note 12)	2,149	436	0	0	0	2,585
Derivatives (Note 8)	523	0	0	628	0	1,151
Borrowings (incl finance lease)	76	172	996	84,377	14,860	100,481
Total	2,748	608	996	85,005	14,860	104,217

*All amounts above are undiscounted

Appendix 25. Financial liabilities in terms of payment 2016/2017

Financial liabilities in terms of payment* as of 31 December 2017 EUR thousand	Up to 1 month	1 - 3 months	3 - 12 months	1 - 5 years	Over 5 years	Total
Trade and other payables (Note 11)	2,354	539	0	0	0	2,893
Derivatives (Note 7)	578	0	0	178	0	756
Borrowings (incl finance lease)	77	166	928	86,811	11,093	99,075
Total	3,009	705	928	86,989	11,093	102,724

Financial liabilities in terms of payment* as of 31 December 2016 EUR thousand	Up to 1 month	1 - 3 months	3 - 12 months	1 - 5 years	Over 5 years	Total
Trade and other payables (Note 11)	3,796	283	0	0	0	4,079
Derivatives (Note 7)	609	0	0	715	0	1,324
Borrowings (incl finance lease)	77	153	897	87,029	11,093	99,249
Total	4,482	436	897	87,744	11,093	104,652

*All amounts above are undiscounted

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Appendix 26. Financial liabilities in terms of payment 2018/2019

Financial liabilities in terms of payment* € thousand	Up to 1 month	1 - 3 months	3 - 12 months	1 - 5 years	Over 5 years	Total
as of 31 December 2019						
Trade and other payables (Note 12)	3,149	168	31	0	0	3,348
Derivatives (Note 8)	221	0	0	0	0	221
Bank loans	0	102	3,979	52,997	36,251	93,329
Leases	34	65	265	1,028	0	1,392
Total	**3,404**	**335**	**4,275**	**54,025**	**36,251**	**98,290**
as of 31 December 2018						
Trade and other payables (Note 12)	2,636	147	0	31	0	2,814
Derivatives (Note 8)	207	0	0	173	0	380
Bank loans	28	106	4,178	90,815	1,827	96,954
Finance leases	20	32	149	659	0	860
Total	**2,891**	**285**	**4,327**	**91,678**	**1,827**	**101,008**