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# 2017 Value added tax rule changes: implication for Finnish and Romanian energy companies.

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Laurea University of Applied Sciences

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implication for Finnish and Romanian energy  
companies.**

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[<Abstract>](#)

The purpose of this thesis was to determine the extent at which the VAT rule changes will impact energy companies within Finland and Romania using an aggregated forecasted financial analysis with currencies converted to Euro. The results showed that the VAT rule change will impact both Finland and Romania in different ways. The extracted data for 10 energy companies (5 per country) were averaged to obtain a singular number to represent each country and were based on balance sheets and income statements. The study was conducted by using a forecasted growth rate based on historical aggregated data from the companies. It was noted that the VAT for Finland was 22% (2015) and 24% (2017), while the VAT for Romania was 24% (2015) and 19% (2017). The VAT rates were applied to revenue in order to see the impact of VAT on the countries. Using a financial ratio analysis, the impact of VAT was established. Ultimately, it was shown that the VAT rule change is expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data (from 2018 to 2020).

Keywords: Vat, Value added tax, Finland, energy company

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## 1 Introduction and Literature

### 1.1 Background Information

With the exception of within France, VAT was relatively unheard of 50 years ago. Since that time, VAT has been adopted and accounts for about 20 percent of the tax revenue of the world, impacting about 4 billion people (Keen & Lockwood 2010). Not only is VAT utilised in the EU, but also in other developing nations, often considered to be the primary tax reform in these countries. In fact, it has been noted that the adoption of VAT has resulted in the “most significant development in tax policy and administration of recent decades” (Keen & Lockwood 2010, p.138).

### 1.2 Problem and Purpose Statement

The purpose of this quantitative study is to determine the extent that the VAT rule changes will impact energy companies within Finland and Romania using an aggregated forecasted financial analysis, with currencies converted to Euro. The starting data for the forecast will be the sum of the previous three years for the individual companies and the totals for the individual companies will be averaged to obtain a single number for aggregation purposes. Since the VAT reform was set to be enforced in 2017, it is not known how the changes in VAT will impact energy companies in Finland and Romania.

### 1.3 Research Aim, Objectives, Question, and Hypotheses

#### 1.3.1 Research Aim

The aim of this quantitative study is to assess the financial impact held by the VAT rule change on Finnish and Romanian energy companies.

### 1.3.2 Research Objectives

The objectives of this quantitative study are to: (1) compare theoretical information regarding the old and new VAT rules and (2) compare financial information regarding the old and new VAT rules through aggregated data from Finnish and Romanian energy companies.

### 1.3.3 Research Question

To what extent is the VAT rule change expected to impact the financial position of Finnish and Romanian energy companies, including in terms of valuation and financial analyses?

### 1.3.4 Research Hypotheses

The null and alternative hypotheses are:

- H1<sub>0</sub>: The VAT rule change is not expected to have a significant impact on the financial position of Romanian energy companies, based on a maximum  $\pm 5\%$  change in VAT expenses based on the aggregate data on a year-on-year basis.
- H1<sub>A</sub>: The VAT rule change is expected to have a significant impact on the financial position of Romanian energy companies, based on a maximum  $\pm 5\%$  change in VAT expenses based on the aggregate data on a year-on-year basis.
- H2<sub>0</sub>: The VAT rule change is not expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in VAT expenses based on the aggregate data on a year-on-year basis.

- H2<sub>A</sub>: The VAT rule change is expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in VAT expenses based on the aggregate data on a year-on-year basis.
- H3<sub>0</sub>: The VAT rule change is not expected to have a significant impact on the valuation of Romanian energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data on a year-on-year basis.
- H3<sub>A</sub>: The VAT rule change is expected to have a significant impact on the valuation of Romanian energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data on a year-on-year basis.
- H4<sub>0</sub>: The VAT rule change is not expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data on a year-on-year basis.
- H4<sub>A</sub>: The VAT rule change is expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data on a year-on-year basis.
- H5<sub>0</sub>: The VAT rule change is not expected to have a significant impact on the valuation of Romanian energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data (from 2018 to 2020).

- H5<sub>A</sub>: The VAT rule change is expected to have a significant impact on the valuation of Romanian energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data (from 2018 to 2020).
- H6<sub>0</sub>: The VAT rule change is not expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data (from 2018 to 2020).
- H6<sub>A</sub>: The VAT rule change is expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data (from 2018 to 2020).

#### 1.4 VAT Development in the European Union

To begin with, a key claim made by defenders of the VAT, particularly to developing nations, has been that it would improve efforts to create necessary tax revenue. However, it is recognised that these are not the only needs. In fact, developing nations would benefit from establishing more extensive changes in relation to organisation and consistency. In some cases, this is circumvented by the utilisation of extra income by the government. This political economy concern has been particularly compelling in the United States, and was a key motivation behind why the current presidential board could not achieve concurrence on regardless of whether the reception of a VAT there (the main OECD nation without a VAT) would be attractive (Keen & Lockwood 2010).



The basis of the two perspectives—of the VAT as a gainful development of the arsenal of expense instruments accessible to governments, or as, quite simply, a wellspring of income, is a typical assumption of actuality: that selection of a VAT makes it less demanding to raise income, and in that sense, enhances the productivity of the general assessment framework. VAT research is inadequate, which is surprising, given that it has now turned into a center piece of most nations' tax revenue generation. On theoretical perspectives, while there is obviously expansive work on the ideal outline of duties on definite utilisation, there are some concerns relating to crediting and discount instruments (and their potential defects) that have the basic effect between a VAT and, for instance, a retail deals duty—and which are in this manner the unmistakable wellspring of any effectiveness pick up or misfortune related with the VAT. Observational work on the VAT is likewise insufficient. A couple of papers have looked to show the income raised by, and consistence with, the VAT, regularly with a view to evaluating a revenue maximising rate (Keen & Lockwood 2010).

VAT, referred to in a few nations as a merchandise and enterprises impose (GST), is a kind of general utilisation charge that is gathered incrementally, in light of the surplus value, included to the value the work at each phase of generation, which is normally executed as a goal based duty, where the expense rate depends on the area of the client. VATs raise about a fifth of aggregate assessment incomes both worldwide and among the individuals from the Organisation for Economic Co-operation and Development (OECD). As of 2016, 166 of the world's roughly 193 nations utilise a VAT, including all OECD individuals with the exception of the United States, which utilises a business

charge framework (Du Preez & Klein 2014). There are two principle strategies for figuring VAT: the credit-receipt or receipt based technique, and the subtraction or records based strategy. Utilising the credit-receipt technique, deals exchanges are burdened, with the client educated of the VAT on the exchange, and organisations may get a kudos for VAT paid on input materials and administrations. The credit-receipt strategy is the most broadly utilised technique, utilised by every single national VAT aside from Japan. Utilising the subtraction technique, toward the finish of a detailing period, a business computes the estimation of every single assessable deal at that point subtracts the aggregate of every assessable buy and the VAT rate is connected to the distinction. The subtraction technique VAT is presently just utilised by Japan, despite the fact that subtraction strategy VATs, frequently utilising the name "level duty", have been a piece of numerous current expense change proposition by US politicians. With the two strategies, there are exemptions in the estimation technique for specific merchandise and exchanges, made for either down to earth gathering reasons or to counter assessment extortion and avoidance (Du Preez & Klein 2014).

#### **1.4.1 Early Adopters of VAT**

Germany and France were the primary nations to execute VAT, doing as such as a general utilisation assess amid World War I. The advanced variety of VAT was first actualised by France in the 1950s. Maurice Lauré, Joint Director of the France Tax Authority, the Direction Générale des Impôts executed the VAT on 10 April 1954, albeit German industrialist Dr. Wilhelm von Siemens proposed the idea in 1918. At first coordinated everywhere organisations, it

was reached out after some time to incorporate all business segments. In France, it is the most essential wellspring of state fund, representing almost half of state revenues (Du Preez & Klein 2014). A recent report found that the reception of VAT is emphatically connected to nations with corporatist institutions. The measure of VAT is chosen by the state as level of the end-showcase cost. As its name recommends, value added assess is intended to impose just the value included by a business best of the administrations and merchandise it can buy from the market. To comprehend what this implies, consider a creation procedure (e.g., take-away espresso beginning from espresso beans) where items get progressively more profitable at each phase of the procedure. At the point when an end-shopper makes a buy, they are not just paying for the VAT for the current item (e.g., some espresso), yet as a result, the VAT for the whole creation process (e.g., the buy of the espresso beans, their transportation, preparing, development, and so on.), since VAT is constantly incorporated into the costs (Du Preez & Klein 2014).

#### **1.4.2 VAT Collection**

The VAT is accomplished by disallowing end-buyers to recoup VAT on buys, however allowing organisations to do as such. The VAT gathered by the state is registered as the contrast between the VAT of offers income and the VAT of those merchandise and ventures whereupon the item depends. The distinction is the expense because of the value included by the business. Along these lines, the aggregate assessment exacted at each phase in the monetary chain of supply is a consistent part (Engel 2016). The standard approach to actualise an VAT includes accepting a business owes some part on the cost of the item

short all duties already paid on the great. By the strategy for accumulation, VAT can be accounts-based, or receipt based. Under the receipt technique for gathering, every dealer charges VAT rate on his yield and passes the purchaser a unique receipt that shows the measure of duty charged. Purchasers who are liable to VAT all alone deals (yield assess), consider the duty on the buy solicitations as information charge and can deduct the total from their own VAT obligation. The contrast between yield assessment and information impose is paid to the administration (or a discount is guaranteed, on account of negative obligation). Under the records based strategy, no such particular solicitations are utilised. Rather, the duty is ascertained on the value included, measured as a distinction amongst incomes and permissible buys. Most nations today utilise the receipt technique, the main exemption being Japan, which utilises the records strategy (Engel 2016).

By the planning of collection VAT (and additionally bookkeeping when all is said in done) can be either gathering or money based. Money premise bookkeeping is an extremely straightforward type of bookkeeping. At the point when an instalment is gotten for the offer of merchandise or administrations, a store is made, and the income is recorded as of the date of the receipt of assets—regardless of when the deal had been made. Checks are composed when stores are accessible to pay bills, and the cost is recorded as of the check date—paying little mind to when the cost had been caused. The essential concentrate is on the measure of trade out the bank, and the auxiliary concentrate is on ensuring all bills are paid. Little exertion is made to coordinate incomes to the day and age in which they are earned, or to coordinate

costs to the era in which they are acquired. Accumulation premise bookkeeping matches incomes to the day and age in which they are earned and coordinates costs to the day and age in which they are acquired. While it is more mind boggling than money premise bookkeeping, it gives considerably more data about your business. The gathering premise enables you to track receivables (sums due from clients using a credit card deals) and payables (sums because of sellers using a loan buys). The gathering premise enables you to coordinate incomes to the costs caused in gaining them, giving you more important budgetary reports (Engel 2016). When all is said in done, nations that have a VAT framework requires a few organisations to be enrolled for VAT purposes. VAT enlisted organisations can be characteristic people or legitimate elements, yet nations have diverse edges or directions determining at which turnover levels enrolment ends up noticeably mandatory. Organisations that are VAT enrolled are obliged to incorporate VAT on products and ventures that they supply to others (with a few special cases, which differ by nation) and record for the VAT to the saddling expert. VAT-enrolled organisations are qualified for a VAT derivation for the VAT they pay on the products and enterprises they obtain from other VAT-enlisted organisations (Engel 2016).

### **1.4.3 VAT Application**

VAT maintains a strategic distance from the course impact of offers charge by exhausting just the value included at each phase of creation. Thus, all through the world, VAT has been picking up support over conventional deals

charges. On a fundamental level, VAT applies to all arrangements of merchandise and ventures. VAT is evaluated and gathered on the estimation of merchandise or administrations that have been given each time there is an exchange (deal/buy). The dealer charges VAT to the purchaser, and the vender pays this VAT to the administration. Assuming, nonetheless, the buyers are not the end clients, but rather the products or administrations obtained are expenses to their business, the assessment they have paid for such buys can be deducted from the duty they charge to their clients. The administration just gets the distinction; at the end of the day, it is paid duty on the gross edge of every exchange, by every member in the business chain (Keen & Lockwood 2010).

#### **1.4.4 VAT in Developing Nations**

In many creating nations, for example, India, deals assess/VAT are key income sources as high joblessness and low per capita wage render other salary sources insufficient. In any case, there is solid restriction to this by many sub-national governments as it prompts a general diminishment in the income they gather and in addition of some self-governance (Du Preez & Klein 2014). In principle, deals assess is regularly charged on end clients (customers). The VAT instrument implies that the end-client impose is the same as it would be with a business assess. The fundamental detriment of VAT is the additional bookkeeping required by those amidst the store network; this is adjusted by the effortlessness of not requiring an arrangement of principles to figure out who is and isn't viewed as an end client. At the point when the VAT frame-

work has hardly any, exclusions, for example, with GST in New Zealand, instalment of VAT is considerably less complex (Du Preez & Klein 2014; Keen & Lockwood 2010).

#### 1.4.5 Disadvantages of VAT

A general monetary thought is that if deals charges are sufficiently high, individuals begin taking part in far reaching charge sidestepping action (like purchasing over the Internet, putting on a show to be a business, purchasing at discount, purchasing items through a business and so forth.). Then again, add up to VAT rates can transcend 10% without across the board avoidance due to the novel gathering mechanism. However, as a result of its specific system of accumulation, VAT turns out to be effectively the objective of particular cheats like merry go round extortion, which can be exceptionally costly as far as loss of expense livelihoods for states (Abramovsky et al. 2015). The benefit of the VAT framework over the business assess framework is that under deals charge, the dealer has no motivation to distrust a buyer who says it isn't a last client. In other words, the payer of the assessment has no motivating force to gather the duty. Under VAT, all merchants gather assessment and pay it to the administration. A buyer has a motivation to deduct input VAT, however should demonstrate it has the privilege to do as such, which is typically accomplished by holding a receipt citing the VAT paid on the buy, and showing the VAT enrolment number of the provider (Abramovsky et al. 2015).

A VAT, as most assessments, contorts what might have occurred without it. Since the cost for somebody rises, the number of products exchanged declines. Correspondingly, a few people are more awful off by more than the

legislature is improved off by assess salary. That is, more is lost because of free market activity shifts than is picked up in impose. This is known as a deadweight misfortune. In the event that the pay lost by the economy is more noteworthy than the administration's wage; the duty is wasteful. It must be noticed that a VAT and a Non-VAT have similar ramifications on the microeconomic model (Engel 2016). The whole measure of the administration's salary (the assessment income) may not be a deadweight drag, if the expense income is utilised for profitable spending or has positive externalities - as it were, governments may accomplish more than just expend the duty wage. While contortions happen, utilisation charges like VAT are frequently viewed as better since they mutilate motivations than contribute, spare and work not as much as most different sorts of tax assessment - at the end of the day, a VAT demoralises utilisation as opposed to generation (Engel 2016).

#### **1.4.6 Perceptions of VAT**

Being a utilisation impose, VAT is typically utilised as a trade for deals charge. Eventually, it charges similar individuals and organisations similar measures of cash, regardless of its inside system being extraordinary. There is a noteworthy distinction amongst VAT and Sales Tax for merchandise that are transported in and traded: VAT is charged for a ware that is sent out while deals impose is not. Deals impose is paid at the full cost of the foreign ware, while VAT is relied upon to be charged just for value added to this ware by the merchant and the affiliate (Abramovsky et al. 2015). This implies, without extraordinary measures, products will be saddled twice in the event that they are traded from one nation that has VAT to another nation that has deals assess.



Then again, products that are foreign made from a sans VAT nation into another nation with VAT will bring about no business assess and just a small amount of the typical VAT. There are likewise huge contrasts in tax assessment for products that are being foreign made/traded between nations with various frameworks or rates of VAT. Deals impose does not have those issues - it is charged similarly for both foreign made and local merchandise, and it is never charged twice (Keen & Lockwood 2010). To settle this issue, almost all nations that utilisation VAT utilise extraordinary standards for imported and traded merchandise: Every single imported great are charged VAT impose at their full cost when they are sold out of the blue. All sent out products are exempted from any VAT instalments. Therefore VAT on imports and VAT refunds on sends out frame a typical practice endorsed by the World Trade Organisation (WTO) (Abramovsky et al. 2015).

#### **1.4.7 Finland VAT**

In Finland, the standard rate of VAT is 24% starting at 1 January 2013 (raised from past 23%), alongside all other VAT rates, barring the sera rate. Moreover, two diminished rates are being used: 14% (up from past 13% beginning 1 January 2013), which is connected on nourishment and creature sustain, and 10%, (expanded from 9% 1 January 2013) which is connected on traveller transportation administrations, silver screen exhibitions, physical exercise administrations, books, pharmaceuticals, extra charges to business social and stimulation occasions and offices (Du Preez & Klein 2014). Supplies of a few products and ventures are absolved under the conditions characterised in the Finnish VAT Act: healing facility and therapeutic care; social welfare administrations;

instructive, budgetary and protection administrations; lotteries and cash diversions; exchanges concerning monetary certificates and coins utilised as legitimate delicate; genuine property including building land; certain exchanges completed by daze people and elucidation administrations for hard of hearing people. The vender of these expense absolved administrations or merchandise isn't liable to VAT and does not pay assess on deals. Such dealers in this way may not deduct VAT incorporated into the buy costs of his sources of info. Åland, an independent region, is thought to be outside the EU VAT range, regardless of the possibility that its VAT rate is the same concerning Finland. Products conveyed from Åland to Finland or other EU nations is thought to be send out/import. This empowers tax exempt deals locally available traveller ships (European Commission 2017).

#### **1.4.8 Romania VAT**

EU VAT (known as "yield VAT", that is, VAT on its yield supplies) is charged by a business and paid by its clients. VAT that is paid by a business to different organisations on the provisions that it gets is known as "input VAT" (that is, VAT on its information supplies). A business is by and large ready to recoup input VAT to the degree that the information VAT is inferable from (that is, utilised to make) its assessable yields. Info VAT is recouped by balancing it against the yield VAT for which the business is required to record to the administration, or, if there is an overabundance, by guaranteeing a reimbursement from the legislature. The last shopper does not get a kudos for the VAT paid. The net impact of this is every provider in the chain dispatches assess on the value included, and at last the duty is paid by the end customer (Engel

2016). VAT gathered at each phase in the store network is dispatched to the duty experts of the part state concerned and frames some portion of that state's income. A little extent goes to the European Union as an impose ("VAT-based possess assets"). The co-ordinated organisation of significant worth included expense inside the EU VAT territory is an imperative piece of the single market. Cross-fringe VAT is proclaimed similarly as local VAT, which encourages the disposal of outskirts controls between part states, sparing expenses and diminishing deferrals. It likewise improves authoritative work for cargo forwarders. Already, disregarding the traditions union, the varying VAT rates and the different VAT organisation forms brought about a high managerial and cost trouble for cross-outskirt trade (Engel 2016). For private people (not enrolled for VAT) who transport to one-part state merchandise obtained while living or going in another part express, the VAT is typically payable in the state where the products were bought, paying little heed to any distinctions in VAT rates between the two states, and any assessment payable on remove deals is gathered by the seller. However, there various extraordinary arrangements for specific merchandise and services (Du Preez & Klein 2014).

## 2 Research Methodology and Data Results

### 2.1 Research Method and Design

This study is being conducted as a quantitative exploratory analysis. The focus of this type of analysis is to summarise the main characteristics of a dataset. It is not required that a statistical model be used, but exploratory analysis commonly shows more than just the results of a formal model. Per John Tukey (1977), the primary promoter of exploratory analysis, it is important to both

explore the data and develop hypotheses that may prompt future studies based on new data collection and new experiments (Tukey 1977). There are different goals of exploratory analysis, such as: (1) suggesting hypotheses relating to causes of observed phenomena of interest; (2) assessing assumptions relating to statistical inferences; (3) supporting the use of appropriate statistical analysis techniques; and (4) establishing a basis for future data collection utilising surveys or experiments (Tukey 1977). Because of the versatility of exploratory analysis, it is commonly used in data mining and big data analytics. Exploratory analysis is commonly graphically shown through: (1) pareto chart; (2) box plot; (3) stem-and-leaf plot; (4) histogram; (5) odds ratio; (6) run chart; (7) targeted projection pursuit; (8) scatter plot; (9) dimensionality reduction; (10) multi-vari chart; (11) projection methods (grand, guided, and manual tour); and (12) parallel coordinates (Morningstar 2017c).

## 2.2 Data Collection and Processing

Financial data will be collected from Finnish and Romanian energy companies, chosen because both countries use VAT in this industry, which will allow for a comparative analysis to determine the effect of VAT on the different countries based on the aggregate data for the companies. It is noted that the year-on-year may be different for the individual companies. The more important context is to determine an effective year-on-year growth rate based on the data. The companies selected are shown in the following table.

Table 1: Companies used in Analysis

Finland		Romania	
Company	Years	Company	Years
Neste	2012 - 2015	OMV Petrom	2012 - 2015

Fortum	2012 - 2015	Oil Terminal SA	2012 - 2015
Kaidi Finland	2012 - 2015	Rompetrol Rafinare SA	2012 - 2015
Gasum	2012 - 2015	Transgas	2012 - 2015
Vattenfall	2012 - 2015	Societatea Nationala Nuclearelectrica SA	2012 - 2015

The data extracted from the financial statements include: (1) net income (profit for the year); (2) total equity; (3) revenue; (4) total assets; (5) cost of goods sold (COGS); (6) payables; (7) inventory; (8) receivables; (9) non-current assets; (10) current assets; (11) current liabilities; (12) total liabilities; (13) tax expense; (14) interest expense; (15) income before interest and taxes (EBIT); and (16) total assets.

### 2.3 Data Analysis Procedures

The data analysis procedures are as follows:

1. Extract the data from the companies for 2012 to 2015.
2. The extracted data will be converted to Euro millions for the respective year (2012 to 2015) based on the currency used in the financial data obtained.
3. The forecasted growth rate for 2018 is based on 2012 to 2013. The forecasted growth rate for 2019 is based on 2012 to 2014. The forecasted growth rate for 2020 is based on 2012 to 2015.
4. The aggregated forecast data will be calculated based on the average of 2012 to 2015 raw data (excluding VAT impacts) and using the growth rates from the preceding step.
5. Apply the VAT to each year, adding a VAT expense to the data, based on the country and year, where Finland will have a 22% and 24% (2015

and 2017, respectively) applied and Romania will have a 24% and 19% (2015 and 2017, respectively) applied (European Commission 2017).

This application will be based on revenue. Net income will be reduced the amount of VAT expense. This application will be conducted for base and the forecast.

6. For each year and scenario (base and forecast), a financial ratio analysis and valuation analysis will be conducted. The financial ratio analysis consists of: (1) Return on Equity (%); (2) Net Profit Margin (%); (3) Return on Assets (%); (4) Debt to Income Ratio; and (5) DuPont Analysis. The valuation analysis will be conducted using the weighted-average cost of capital (WACC). Each of these analyses are conducted in terms of the 2015 impact and 2017 impact of VAT in order to analyse the changes to financial position as a result of VAT rule changes.

The first two steps of the data analysis process can be seen in Appendix 1.

The remaining steps are shown within this chapter and the results of each are analysed in section 3. While limited numerical data will be shown in the remainder of section 2, full calculations and full data can be found in Appendices 1 and 2.

#### 2.4 Growth Rates

Prior to obtaining the growth rates, the data from the individual companies were obtained, converted to Euro millions (where needed) and averaged in order to obtain a single dataset for each country. While it is recognised that some companies may yield a greater/lesser impact to the averages, the com-

panies selected are some of the most commonly used companies in the selected countries, making them the most representative of the impact of VAT on the energy industry in Finland and Romania. The growth rate for the existing data is calculated by

$$\frac{(x - y)}{y}$$

In this formula, the x value is the averaged data for the selected country in the most recent year and y is the averaged data for the selected country in the older year. The growth rates can be found in Appendix 2. The variables used for the growth rates can be found in the financial statements and are some of the most influential for companies, making them relevant for this section. Moreover, the variables selected are required for the completion of the ratio and valuation analysis. As can be seen, most of the Finnish growth rates are negative. However, as expected, tax expense is high. On the other hand, there is a fairly equal distribution of positive and negative growth rates for Romania.

## 2.5 VAT Impact

The forecasted financial data is calculated by

$$x + (x \times y)$$

In this formula, the x value is the base value (see appendix 1) and the y value is the growth percentage (see appendix 2). The forecast for 2018 to 2019 for both countries can be found in Appendix 2. The VAT calculation is based on revenue and impacts net income. The following table shows the Finnish VAT

impact for the data based on the 2015 (22%) and 2017 (24%) scenarios, showing the projected VAT expense and change in net income.

Table 2: VAT Impact on Finland

		2015 Scenario	2017 Scenario
Base	VAT Expense	1,765.74	1,846.00
	Net Income	-1,434.92	-1,515.18
2018	VAT Expense	1,765.74	1,846.00
	Net Income	-1,721.77	-1,802.03
2019	VAT Expense	1,552.97	1,623.56
	Net Income	-1,329.40	-1,399.99
2020	VAT Expense	1,234.96	1,291.09
	Net Income	-1,247.79	-1,303.93

It is shown that from 2015 to 2017, VAT will increase, which will cause a greater net loss to Finnish energy companies. As a result, it can be suggested that while the Finnish government is obtaining much-needed tax revenue, energy companies may experience financial problems due to the higher VAT rate.

The Romanian energy company projected growth is found in Appendix 2. As with the Finnish example, the VAT calculation is based on revenue and impacts net income. The following table shows the VAT impact for the data based on the 2015 (24%) and 2017 (19%) scenarios, showing the projected VAT expense and change in net income.

Table 3: VAT Impact on Romania

		2015 Scenario	2017 Scenario
Base	VAT Expense	418.70	331.47
	Net Income	-288.98	-201.75
2018	VAT Expense	418.91	331.64
	Net Income	-281.28	-194.01
2019	VAT Expense	419.12	331.61
	Net Income	-301.61	-214.29
2020	VAT Expense	419.33	321.97



	Net Income	-438.15	-350.79
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For Romania, it is suggested that the change will reduce VAT expenses for the companies, which will improve the bottom line of Romanian energy companies. However, it also shows that the Romanian government will have less VAT revenue, which may impact the ability of the government to meet the needs of society.

## 2.6 Financial Ratio Analysis

The base and forecasts are used for the analysis, which consists of: (1) Return on Equity (%); (2) Net Profit Margin (%); (3) Return on Assets (%); (4) Debt to Income Ratio; and (5) DuPont Analysis. The following table shows the formulas for all financial ratios used (Horngren et al. 2011; Weil et al. 2013; Kieso et al. 2013).

Table 4: Financial Ratio Analysis

Financial Ratio	Formula
Return on Equity (%)	Net Income / Equity
Net Profit Margin (%)	Net Income / Revenue
Return on Assets (%)	Net Income / Assets
Debt to Income Ratio	(Total Liabilities / 12) / Net Income
DuPont Analysis	(Net Income / Revenue) + (Revenue / Assets) + (Assets / Equity)

The following table shows the financial ratio analysis calculation results for Finland and Romania for base and forecast years (no VAT influence and VAT influence).

Table 5: Financial Analysis for Finland and Romania

Financial Ratio	Year	Finland			Romania		
		No VAT	2015 VAT	2017 VAT	No VAT	2015 VAT	2017 VAT
Return on Equity (%)	Base	5.57%	-24.15%	-25.50%	8.52%	-18.98%	-13.25%
	2018	0.79%	-32.27%	-32.27%	9.10%	-18.59%	-12.82%

	2019	4.06%	-24.13%	-25.41%	13.24%	-33.99%	-24.15%
	2020	-0.21%	-20.84%	-21.77%	-2.20%	-51.18%	-40.98%
Net Profit Margin (%)	Base	4.12%	-17.88%	-18.88%	7.44%	-16.56%	-11.56%
	2018	0.55%	-21.45%	-22.45%	7.89%	-16.12%	-11.12%
	2019	3.17%	-18.83%	-19.83%	6.73%	-17.27%	-12.27%
	2020	-0.23%	-22.22%	-23.23%	-1.08%	-25.08%	-20.08%
Return on Assets (%)	Base	1.86%	-8.08%	-8.54%	4.62%	-10.29%	-7.19%
	2018	0.26%	-10.23%	-10.71%	4.81%	-9.82%	-6.78%
	2019	1.40%	-8.30%	-8.74%	3.70%	-9.51%	-6.75%
	2020	-0.08%	-7.97%	-8.33%	-0.63%	-14.73%	-11.80%
Debt to Income Ratio (%)	Base	299.07%	-68.95%	-65.30%	55.55%	-24.94%	-35.72%
	2018	2,142.53%	-54.71%	-52.27%	51.86%	-25.37%	-36.79%
	2019	394.30%	-66.31%	-62.97%	55.14%	-21.49%	-30.24%
	2020	-6,493.92%	-66.80%	-63.93%	-305.22%	-13.11%	-16.38%
DuPont Analysis	Base	3.48	3.26	3.25	2.54	2.30	2.35
	2018	3.50	3.28	3.27	2.58	2.34	2.39
	2019	3.38	3.16	3.15	4.19	3.95	4.00
	2020	2.97	2.75	2,74	4.05	3.81	3.86

When comparing the countries, it was noted that VAT had a negative impact on both countries. For example, when considering no VAT on the baseline data, all results were positive. However, upon adding VAT for 2015 and 2017, the results were negative in all cases, except for the DuPont Analysis, which decreased. In fact, the only period with a negative No VAT impact in the forecast for 2018 to 2020 was in 2020. Overall, the data showed that, in relation to return on equity, net profit margin, return on assets, and debt to income, the VAT caused companies to experience a negative financial ratio. Graphically, the DuPont analysis is easier to understand, as shown below.

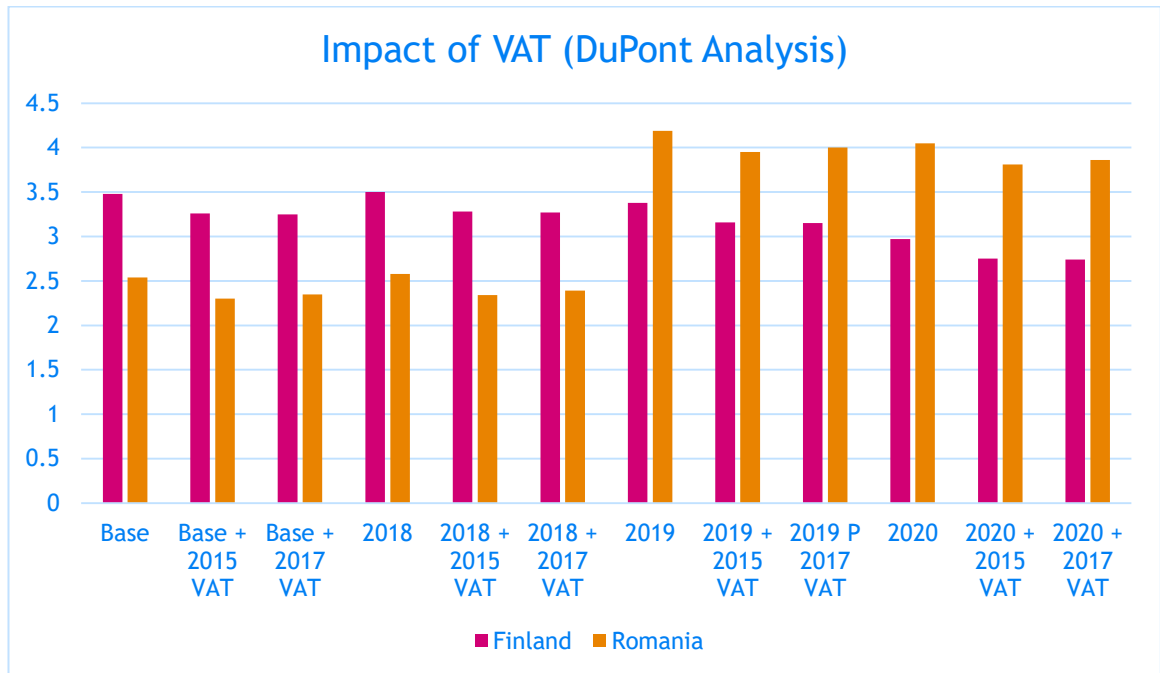


Figure 1: Impact of VAT (DuPont Analysis)

It was interesting to note that for the base and 2018, Finland had a higher DuPont analysis rating. However, from 2019 to 2020, Romania had the higher DuPont analysis rating. These differences may be attributed to different situations. For example, industry growth rates may impact revenue. It has already been shown that VAT is influenced by revenue. Therefore, VAT may lead to higher expenses (resulting in higher revenue for government), yet decrease the bottom line of the company. At the same time, the VAT rate impacts these scenarios as well, suggesting that VAT can positively impact the government, yet negatively impact the company.

## 2.7 WACC

The formula for WACC is

$$\frac{E}{V} \times Re + \frac{D}{V} \times Rd \times (1 - Tc)$$

In this formula,  $E$  refers to equity;  $V$  refers to total value;  $Re$  refers to cost of equity;  $D$  refers to debt;  $Rd$  refers to cost of debt; and  $Tc$  refers to tax rate (Hollberg 2015). For the purpose of this study,  $E$  refers to total equity;  $D$  refers to payables and VAT expense; and  $V$  refers to the sum of total liabilities and equity.  $Tc$  will be calculated by

$$Tc = \frac{\text{Revenue}}{\text{Tax Expense}} \%$$

$Re$  will be determined by

$$Re = rf + \beta + (rm - rf)$$

In this formula,  $rf$  refers to the risk-free rate (4% (Macabacus 2017));  $rm$  refers to the market risk premium rate (7% (Macabacus 2017)); and  $\beta$  refers to the beta (Hornsgren et al. 2011; Weil et al. 2013; Kieso et al. 2013). Beta is found by determining the average of the industry beta for coal (1.36); green and renewable energy (1.14); oil/gas (1.08, 1.38, and 1.20); and power (0.54) (NYU Stern 2017). This results in a beta of 1.12.  $Rd$  is calculated by subtracting the cost of equity from 1. The following table shows the WACC summation for Finland and Romania.

Table 6: WACC Analysis

Year	Finland			Romania		
	No VAT	2015 VAT	2017 VAT	No VAT	2015 VAT	2017 VAT
Base	0.40	0.40	0.36	0.76	0.77	0.77
2018	0.38	0.37	0.42	0.75	0.72	0.72
2019	0.40	0.35	0.38	0.62	0.58	0.59
2020	0.43	0.42	0.42	0.64	0.59	0.60

As noted, in all cases, Romania had a higher WACC than Finland. The reasons for this are unknown, but could be company-specific. For example, a higher

population may lead to higher revenue, which would benefit both the company and the government. The impact of VAT on WACC is shown below.

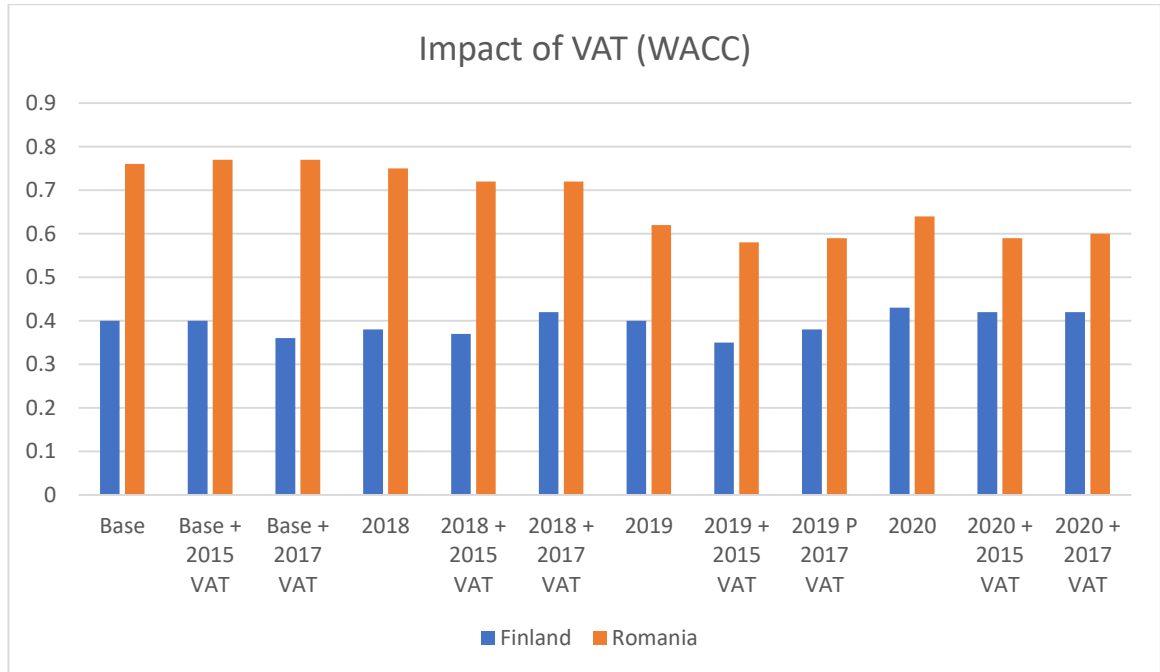


Figure 2: Impact of VAT on WACC

### 3 Summary of Results, Analysis, and Conclusions

#### 3.1 Summary of Financial Ratio Analysis Results

##### 3.1.1 No VAT

For the baseline data, Finland had a 5.57% return on equity, as compared to Romania's 8.72%. For the forecast 2018, Finland's return on equity dropped to 0.79%, whereas Romania's increased to 9.10%. For the forecast 2019, Finland's return on equity increased to 4.06% from that of the prior year, while Romania's continued to increase to 13.24%. For the forecast 2020, Finland's and Romania's return on equity decreased to -0.21% and -2.20%, respectively. It is important to note that Romania had an increase in return on equity until 2020.

For the baseline data, Finland had a 4.12% net profit margin, as compared to Romania's 7.44%. For the forecast 2018, Finland's net profit margin dropped to 0.55%, whereas Romania's net profit margin increased to 7.89%. For the forecast 2019, Finland's net profit margin increased to 3.17%, whereas Romania's decreased to 6.73%. For the forecast 2020, Finland's net profit margin decreased to -0.23%, whereas Romania's decreased to -1.08%. Despite the decreases, Romania had a better performance throughout the time period.

For the baseline data, Finland had a 1.86% return on assets, as compared to Romania's 4.62%. For the forecast 2018, Finland's return on assets dropped to 0.26%, whereas Romania's increased to 4.81%. For the forecast 2019, Finland's return on assets increased to 1.40%, whereas Romania's decreased to 3.70%. For the forecast 2020, Finland's return on assets decreased to -0.08%, whereas Romania's decreased to -0.63%. Despite the decreases, Romania had a better performance throughout the time period.

For the baseline data, Finland had a 299.07% debt to income, as compared to Romania's 55.59%. For the forecast 2018, Finland's debt to income increased to 2,142.53%, whereas Romania's decreased to 51.86%. For the forecast 2019, Finland's debt to income decreased to 394.30%, whereas Romania's increased to 55.14%. For the forecast 2020, Finland's debt to income decreased to -6,493.92%, whereas Romania's decreased to -305.22%. Despite the decreases, Romania had a better performance throughout the time period.

For the baseline data, Finland had a 3.48 DuPont, as compared to Romania's 2.54. For the forecast 2018, Finland's DuPont increased to 3.50, whereas Romania's decreased to 2.58. For the forecast 2019, Finland's Dupont decreased

to 3.38, whereas Romania's increased to 4.19. For the forecast 2020, Finland's Dupont decreased to 2.97, whereas Romania's decreased to 4.05. Despite the decreases, Romania had a better performance throughout the time period.

### 3.1.2 2015 VAT

For the baseline data, Finland had a -24.15% return on equity, as compared to Romania's -18.98%. For the forecast 2018, Finland's return on equity dropped to -32.27%, whereas Romania's increased to -18.59%. For the forecast 2019, Finland's return on equity increased to -24.13% from that of the prior year, while Romania's decreased to -33.99%. For the forecast 2020, Finland's return on equity increased to -24.13%, whereas Romania's decreased to -51.18%. It is important to note that Romania had an increase in return on equity until 2020.

For the baseline data, Finland had a -17.88% net profit margin, as compared to Romania's -16.56%. For the forecast 2018, Finland's net profit margin dropped to -21.45%, whereas Romania's net profit margin increased to -16.12%. For the forecast 2019, Finland's net profit margin increased to -18.83%, whereas Romania's decreased to -17.27%. For the forecast 2020, Finland's net profit margin decreased to -22.22%, whereas Romania's decreased to -25.08%. Both countries had similar results throughout the time period.

For the baseline data, Finland had a -8.08% return on assets, as compared to Romania's -10.29%. For the forecast 2018, Finland's return on assets dropped to -10.23%, whereas Romania's increased to -9.82%. For the forecast 2019, Finland's return on assets increased to -8.30%, whereas Romania's increased

to -9.51%. For the forecast 2020, Finland's return on assets increased to -7.97%, whereas Romania's decreased to -14.73%.

For the baseline data, Finland had a -68.95% debt to income, as compared to Romania's -24.94%. For the forecast 2018, Finland's debt to income increased to -54.71%, whereas Romania's decreased to -25.37%. For the forecast 2019, Finland's debt to income decreased to -66.31%, whereas Romania's increased to -21.49%. For the forecast 2020, Finland's debt to income decreased to -66.80%, whereas Romania's increased to -13.11%.

For the baseline data, Finland had a 3.26 DuPont, as compared to Romania's 2.30. For the forecast 2018, Finland's DuPont increased to 3.28, whereas Romania's decreased to 2.34. For the forecast 2019, Finland's Dupont decreased to 3.16, whereas Romania's increased to 3.95. For the forecast 2020, Finland's Dupont decreased to 2.75, whereas Romania's decreased to 3.81.

### **3.1.3 2017 VAT**

For the baseline data, Finland had a -25.50% return on equity, as compared to Romania's -13.25%. For the forecast 2018, Finland's return on equity dropped to -32.27%, whereas Romania's increased to -12.82%. For the forecast 2019, Finland's return on equity increased to -25.41% from that of the prior year, while Romania's decreased to -24.15%. For the forecast 2020, Finland's return on equity increased to -21.77%, whereas Romania's decreased to -40.98%.

For the baseline data, Finland had a -18.88% net profit margin, as compared to Romania's -11.56%. For the forecast 2018, Finland's net profit margin dropped to -22.45%, whereas Romania's net profit margin increased to -11.12%. For the forecast 2019, Finland's net profit margin increased to -



19.83%, whereas Romania's decreased to -12.27%. For the forecast 2020, Finland's net profit margin decreased to -23.22%, whereas Romania's decreased to -20.08%. Both countries had similar results throughout the time period.

For the baseline data, Finland had a -8.54% return on assets, as compared to Romania's -7.19%. For the forecast 2018, Finland's return on assets dropped to -10.71%, whereas Romania's increased to -6.78%. For the forecast 2019, Finland's return on assets increased to -8.74%, whereas Romania's increased to -6.75%. For the forecast 2020, Finland's return on assets increased to -8.33%, whereas Romania's decreased to -11.80%.

For the baseline data, Finland had a -65.30% debt to income, as compared to Romania's -35.72%. For the forecast 2018, Finland's debt to income increased to -52.27%, whereas Romania's decreased to -36.79%. For the forecast 2019, Finland's debt to income decreased to -62.97%, whereas Romania's increased to -30.24%. For the forecast 2020, Finland's debt to income decreased to -63.93%, whereas Romania's increased to -16.38%.

For the baseline data, Finland had a 3.25 DuPont, as compared to Romania's 2.35. For the forecast 2018, Finland's DuPont increased to 3.27, whereas Romania's decreased to 2.39. For the forecast 2019, Finland's Dupont decreased to 3.15, whereas Romania's increased to 4.00. For the forecast 2020, Finland's Dupont decreased to 2.74, whereas Romania's decreased to 3.86.

### 3.2 Summary of WACC Analysis Results

The base WACC for Finland was 0.40, whereas the base WACC for Romania was 0.76. The WACC for Finland and Romania base (regardless of VAT impact) remained within 0.05 of the base rate. The base for the 2018 forecast was

0.38 (Finland) and 0.75 (Romania). The WACC varied significantly (outside of 0.05) of the base rate for Finland, yet remained inside the 0.05 range for Romania. The base for the 2019 forecast was 0.40 (Finland) and 0.62 (Romania). The WACC varied significantly (outside of 0.05) of the base rate for Finland, yet remained inside the 0.05 range for Romania. The base for the 2019 forecast was 0.43 (Finland) and 0.64 (Romania). The WACC varied slightly for Finland, yet significantly (outside of 0.05) of the base rate for Romania.

### 3.3 Analysis and Conclusions

It can be concluded that the VAT rule change will impact both Finland and Romania in different ways. The study showed that the VAT rule change is expected to have a significant impact on the financial position of Romanian energy companies, based on a maximum  $\pm 5\%$  change in VAT expenses based on the aggregate data on a year-on-year basis. The VAT rule change is expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in VAT expenses based on the aggregate data on a year-on-year basis. The VAT rule change is expected to have a significant impact on the valuation of Romanian energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data on a year-on-year basis. The VAT rule change is expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data on a year-on-year basis. The VAT rule change is expected to have a significant impact on the valuation of Romanian energy companies, based on a

maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data (from 2018 to 2020). The VAT rule change is expected to have a significant impact on the valuation of Finnish energy companies, based on a maximum  $\pm 5\%$  change in valuation from baseline to 2020, based on the aggregate data (from 2018 to 2020).

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## Appendix 1: Individual Company Financial Data and Averages

The following table presents the extracted data with no changes to it.

Table 7: Individual Company Financial Data

			2012	2013	2014	2015
Finland	Neste <sup>1</sup> (Morningstar 2017a)	Revenue	17,853.00	17,462.00	15,011.00	11,131.00
		Interest Expense	0.00	0.00	0.00	77.00
		EBIT	233.00	561.00	78.00	634.00
		Tax Expense	74.00	37.00	18.00	74.00
		Net Income	157.00	523.00	57.00	558.00
		Current Assets	3,136.00	2,954.00	2,436.00	2,655.00
		Non-current Assets	4,249.00	4,086.00	4,058.00	4,137.00
		Total Assets	7,385.00	7,040.00	6,494.00	6,792.00
		Payables	1,370.00	1,433.00	0.00	0.00
		Current Liabilities	2,402.00	2,120.00	2,143.00	1,811.00
		Total Liabilities	4,823.00	4,132.00	3,853.00	3,709.00
Total Equity	2,562.00	2,908.00	2,641.00	3,084.00		
Finland	Fortum <sup>2</sup> (Morningstar 2017b)	Revenue	6,159.00	6,056.00	4,751.00	3,459.00
		Interest Expense	300.00	295.00	256.00	203.00
		EBIT	1,575.00	1,499.00	3,360.00	-305.00
		Tax Expense	72.00	220.00	199.00	-78.00
		Net Income	1,575.00	1,499.00	3,360.00	-305.00
		Current Assets	2,884.00	4,147.00	4,301.00	9,610.00
		Non-current Assets	21,744.00	20,273.00	17,074.00	13,157.00
		Total Assets	24,628.00	24,420.00	21,375.00	22,767.00
		Payables	0.00	0.00	0.00	0.00
		Current Liabilities	2,649.00	3,910.00	2,067.00	2,042.00
		Total Liabilities	14,423.00	14,396.00	10,511.00	8,973.00
Total Equity	10,205.00	10,024.00	10,864.00	13,794.00		
Finland	Kaidi Fin- land <sup>3</sup> (Gasum)	Revenue	2,639.00	2,209.00	2,849.00	3,496.00
		Interest Expense	276.00	222.00	264.00	671.00
		EBIT	118.00	69.00	228.00	405.00
		Tax Expense	42.00	5.00	28.00	65.00
		Net Income	34.00	65.00	205.00	389.00

<sup>1</sup> In Euro millions.

<sup>2</sup> In Euro millions.

<sup>3</sup> In CNY millions.

		Current Assets	3,275.00	3,253.00	4,156.00	8,682.00
		Non-current Assets	8,360.00	8,703.00	10,025.00	24,210.00
		Total Assets	11,635.00	11,956.00	14,181.00	32,892.00
		Payables	1,069.00	1,492.00	1,435.00	2,011.00
		Current Liabilities	4,360.00	4,689.00	5,733.00	13,622.00
		Total Liabilities	9,225.00	9,451.00	11,407.00	25,515.00
		Total Equity	2,410.00	2,505.00	2,774.00	7,377.00
Finland	Gasum <sup>4</sup> (Vattenfall 2015; Vattenfall 2013)	Revenue	1,274,648.00	1,149,702.00	1,079,042.00	915,456.00
		Interest Expense	5,453.00	5,638.00	3,973.00	5,947.00
		EBIT	55,329.00	34,533.00	-5,253.00	108,431.00
		Tax Expense	5,883.00	10,748.00	-484.00	7,353.00
		Net Income	41,664.00	38,068.00	-4,770.00	101,078.00
		Current Assets	287,486.00	227,422.00	4,423,234.00	315,524.00
		Non-current Assets	600,916.00	595,351.00	1,178,779.00	1,110,023.00
		Total Assets	888,402.00	822,772.00	1,621,103.00	145,547.00
		Payables	176,962.00	156,557.00	313,656.00	114,785.00
		Current Liabilities	236,157.00	229,748.00	448,847.00	170,582.00
		Total Liabilities	459,900.00	396,687.00	1,160,808.00	863,580.00
		Total Equity	428,507.00	426,085.00	460,295.00	561,967.00
Finland	VATtenfall <sup>5</sup> (Morningsstar 2017e)	Revenue	167,313.00	171,684.00	165,945.00	143,576.00
		Interest Expense	10,476.00	9,954.00	-8,635.00	-7,531.00
		EBIT	18,118.00	-15,211.00	-8,240.00	-9,845.00
		Tax Expense	-1,071.00	1,668.00	-44.00	4,657.00
		Net Income	17,047.00	-13,543.00	-8,284.00	-5,188.00
		Current Assets	133,983.00	110,560.00	128,371.00	119,026.00
		Non-current Assets	394,381.00	375,866.00	368,062.00	343,291.00
		Total Assets	528,364.00	486,426.00	496,433.00	462,317.00
		Payables	35,219.00	31,908.00	30,641.00	23,958.00
		Current Liabilities	104,437.00	97,091.00	112,268.00	87,853.00
		Total Liabilities	378,992.00	355,708.00	367,971.00	346,361.00
Total Equity	149,372.00	130,718.00	128,462.00	115,956.00		
Romania	OMV Petrom <sup>6</sup> (Mornin	Revenue	26,258.00	24,185.00	21,541.00	18,145.00
		Interest Expense	315.00	79.00	313.00	86.00
		EBIT	4,826.00	5,699.00	2,909.00	-726.00
		Tax Expense	880.00	875.00	810.00	-36.00

<sup>4</sup> In Euro thousands.

<sup>5</sup> In SEK millions.

<sup>6</sup> In RON millions.

		Net Income	3,953.00	4,821.00	2,103.00	-676.00
		Current Assets	5,195.00	5,451.00	5,868	4,980.00
		Non-current Assets	32,950.00	34,596.00	37,256.00	36,138.00
		Total Assets	38,145.00	40,047.00	43,125.00	41,118.00
		Payables	2,880.00	2,958.00	2,899.00	2,318.00
		Current Liabilities	6,002.00	5,167.00	6,160.00	5,038.00
		Total Liabilities	14,706.00	13,376.00	6,160.00	5,038.00
		Total Equity	23,438.00	26,671.00	27,042.00	8,664.00
Romania	Oil Terminal SA <sup>7</sup> (Morningstar 2017f)	Revenue	112.00	112.00	107.00	138.00
		Interest Expense	1.00	1.00	1.00	1.00
		EBIT	2.00	2.00	2.00	10.00
		Tax Expense	1.00	2.00	2.00	4.00
		Net Income	1.00	0.00	0.00	6.00
		Current Assets	15.00	19.00	14.00	39.00
		Non-current Assets	416.00	455.00	456.00	465.00
		Total Assets	431.00	473.00	470.00	504.00
		Payables	19.00	10.00	9.00	16.00
		Current Liabilities	28.00	20.00	16.00	25.00
		Total Liabilities	35.00	35.00	58.00	75.00
		Total Equity	396.00	438.00	411.00	429.00
Romania	Rompetro Refinare SA <sup>8</sup> (Morningstar 2017h)	Revenue	3,843.00	3,911.00	4,349.00	2,725.00
		Interest Expense	0.00	0.00	0.00	13.00
		EBIT	-164.00	-96.00	-58.00	6.00
		Tax Expense	-1.00	0.00	1.00	-59.00
		Net Income	-163.00	-95.00	-59.00	63.00
		Current Assets	891.00	875.00	577.00	501.00
		Non-current Assets	1,253.00	1,242.00	1,218.00	1,326.00
		Total Assets	2,144.00	2,117.00	1,796.00	1,827.00
		Payables	0.00	1,044.00	0.00	0.00
		Current Liabilities	1,712.00	1,579.00	1,366.00	1,108.00
		Total Liabilities	1,794.00	1,664.00	1,451.00	1,417.00
		Total Equity	350.00	453.00	344.00	410.00
Ro- ma-	Trans gas <sup>9</sup> (Morn	Revenue	1,343.00	1,343.00	1,328.00	1,479.00
		Interest Expense	0.00	9.00	0.00	0.00
		EBIT	452.00	462.00	393.00	430.00

<sup>7</sup> In RON millions.

<sup>8</sup> In USD millions.

<sup>9</sup> In RON millions.

		Tax Expense	75.00	83.00	64.00	95.00
		Net Income	376.00	380.00	329.00	334.00
		Current Assets	492.00	561.00	686.00	562.00
		Non-current Assets	2,943.00	3,275.00	3,403.00	3,344.00
		Total Assets	3,435.00	3,836.00	4,089.00	3,906.00
		Payables	0.00	0.00	134.00	0.00
		Current Liabilities	347.00	357.00	358.00	355.00
		Total Liabilities	675.00	1,249.00	826.00	918.00
		Total Equity	2,760.00	2,586.00	3,263.00	2,988.00
Romania	Societatea Nationala Nucle- arelectrica SA <sup>10</sup> (Keen & Lockwood 2010)	Revenue	1,652.00	1,933.00	1,795.00	1,749.00
		Interest Expense	0.00	0.00	25.00	21.00
		EBIT	66.00	517.00	153.00	177.00
		Tax Expense	46.00	90.00	21.00	29.00
		Net Income	20.00	427.00	131.00	147.00
		Current Assets	1,485.00	3,433.00	1,777.00	1,864.00
		Non-current Assets	9,543.00	8,291.00	8,022.00	7,695.00
		Total Assets	11,028.00	11,723.00	9,799.00	9,559.00
		Payables	31.00	35.00	5.00	0.00
		Current Liabilities	625.00	1,906.00	479.00	421.00
		Total Liabilities	2,951.00	4,025.00	2,367.00	2,064.00
		Total Equity	8,077.00	7,699.00	7,433.00	7,495.00

The currencies shown in the prior table include Euro millions, CNY millions, Euro thousands, SEK millions, USD millions, and RON millions. The following table shows all data in Euro millions.

Table 8: Extracted Data in Euro Millions

			2012	2013	2014	2015
Finland	Neste	Revenue	17,853.00	17,462.00	15,011.00	11,131.00
		Interest Expense	0.00	0.00	0.00	77.00
		EBIT	233.00	561.00	78.00	634.00
		Tax Expense	74.00	37.00	18.00	74.00
		Net Income	157.00	523.00	57.00	558.00
		Current Assets	3,136.00	2,954.00	2,436.00	2,655.00
		Non-current Assets	4,249.00	4,086.00	4,058.00	4,137.00

<sup>10</sup> In RON millions.

		Total Assets	7,385.00	7,040.00	6,494.00	6,792.00
		Payables	1,370.00	1,433.00	0.00	0.00
		Current Liabilities	2,402.00	2,120.00	2,143.00	1,811.00
		Total Liabilities	4,823.00	4,132.00	3,853.00	3,709.00
		Total Equity	2,562.00	2,908.00	2,641.00	3,084.00
Finland	Fortum	Revenue	6,159.00	6,056.00	4,751.00	3,459.00
		Interest Expense	300.00	295.00	256.00	203.00
		EBIT	1,575.00	1,499.00	3,360.00	-305.00
		Tax Expense	72.00	220.00	199.00	-78.00
		Net Income	1,575.00	1,499.00	3,360.00	-305.00
		Current Assets	2,884.00	4,147.00	4,301.00	9,610.00
		Non-current Assets	21,744.00	20,273.00	17,074.00	13,157.00
		Total Assets	24,628.00	24,420.00	21,375.00	22,767.00
		Payables	0.00	0.00	0.00	0.00
		Current Liabilities	2,649.00	3,910.00	2,067.00	2,042.00
		Total Liabilities	14,423.00	14,396.00	10,511.00	8,973.00
Total Equity	10,205.00	10,024.00	10,864.00	13,794.00		
Finland	Kaidi Finland <sup>11</sup>	Revenue	324.60	269.50	350.43	503.42
		Interest Expense	33.95	27.08	32.47	96.62
		EBIT	14.51	8.42	28.04	58.32
		Tax Expense	5.17	0.61	3.44	9.36
		Net Income	4.18	7.93	25.22	56.02
		Current Assets	402.83	396.87	511.19	1,250.21
		Non-current Assets	1,028.28	1,061.77	1,233.08	3,486.24
		Total Assets	1,431.11	1,458.63	1,744.26	4,736.45
		Payables	131.49	182.02	176.51	289.58
		Current Liabilities	536.28	572.06	705.16	1,961.57
		Total Liabilities	1,134.68	1,153.02	1,403.06	3,674.16
Total Equity	296.43	305.61	341.20	1,062.29		
Finland	Gasum	Revenue	1,274.65	1,149.70	1,079.04	915.46
		Interest Expense	5.45	5.64	3.97	5.95
		EBIT	55.33	34.53	-5.25	108.43
		Tax Expense	5.88	10.75	-0.48	7.35
		Net Income	41.66	38.07	-4.77	101.08
		Current Assets	287.49	227.42	4,423.23	315.52

<sup>11</sup> The exchange rates from CNY to Euro are: 0.123 (2012); 0.122 (2013); 0.123 (2014); 0.144 (2015) (OANDA 2017).

		Non-current Assets	600.92	595.35	1,178.78	1,110.02
		Total Assets	888.40	822.77	1,621.10	145.55
		Payables	176.96	156.56	313.66	114.79
		Current Liabilities	236.16	229.75	448.85	170.58
		Total Liabilities	459.90	396.69	1,160.81	863.58
		Total Equity	428.51	426.09	460.30	561.97
Finland	VATTenfall <sup>12</sup>	Revenue	19,241.00	19,915.34	18,253.95	15,362.63
		Interest Expense	1,204.74	1,154.66	-949.85	-805.82
		EBIT	2,083.57	-1,764.48	-906.40	-1,053.42
		Tax Expense	-123.17	193.49	-4.84	498.30
		Net Income	1,960.41	-1,570.99	-911.24	-555.12
		Current Assets	15,408.05	12,824.96	14,120.81	12,735.78
		Non-current Assets	45,353.82	43,600.46	40,486.82	36,732.14
		Total Assets	60,761.86	56,425.42	54,607.63	49,467.92
		Payables	4,050.19	3,701.33	3,370.51	2,563.51
		Current Liabilities	12,010.26	11,262.56	12,349.48	9,400.27
		Total Liabilities	43,584.08	41,262.13	40,476.81	37,060.63
		Total Equity	17,177.78	15,163.29	14,130.82	12,407.29
Romania	OMV Petrom <sup>13</sup>	Revenue	5,881.79	5,465.81	4,846.73	4,082.63
		Interest Expense	70.56	17.85	70.43	19.35
		EBIT	1,081.02	1,287.97	654.53	-163.35
		Tax Expense	197.12	197.75	182.25	-8.10
		Net Income	885.47	1,089.55	473.18	-152.10
		Current Assets	1,163.68	1,231.93	1,320.30	1,120.50
		Non-current Assets	7,380.80	7,818.70	8,382.60	8,131.05
		Total Assets	8,544.48	9,050.62	9,703.13	9,251.55
		Payables	645.12	668.51	652.28	521.55
		Current Liabilities	1,344.45	1,167.74	1,386.00	1,133.55
		Total Liabilities	3,294.14	3,022.98	1,386.00	1,133.55
		Total Equity	5,250.11	6,027.65	6,084.45	1,949.40
Romania	Oil Te	Revenue	25.09	25.31	24.08	31.05
		Interest Expense	0.22	0.23	0.23	0.23

<sup>12</sup> The exchange rates from SEK to Euro are: 0.115 (2012); 0.116 (2013); 0.110 (2014); 0.107 (2015) (OANDA 2017).

<sup>13</sup> The exchange rates from RON to Euro are: 0.224 (2012); 0.226 (2013); 0.225 (2014); 0.225 (2015) (OANDA 2017).

<sup>14</sup> The exchange rates from RON to Euro are; 0.224 (2012); 0.226 (2013); 0.225 (2014); 0.225 (2015) (OANDA 2017)



		EBIT	0.45	0.45	0.45	2.25
		Tax Expense	0.22	0.45	0.45	0.90
		Net Income	0.22	0.00	0.00	1.35
		Current Assets	3.36	4.29	3.15	8.78
		Non-current Assets	93.18	102.83	102.60	104.63
		Total Assets	96.54	106.90	105.75	113.40
		Payables	4.26	2.26	2.03	3.60
		Current Liabilities	6.27	4.52	3.60	5.63
		Total Liabilities	7.84	7.91	13.05	16.88
		Total Equity	88.70	98.99	92.48	96.53
Romania	Rompetrol Refinare SA <sup>15</sup>	Revenue	2,989.85	2,944.98	3,279.15	2,455.23
		Interest Expense	0.00	0.00	0.00	11.71
		EBIT	-127.59	-72.29	-43.73	5.41
		Tax Expense	-0.78	0.00	0.75	-53.16
		Net Income	-126.81	-71.54	-44.49	56.76
		Current Assets	693.20	658.88	435.06	451.40
		Non-current Assets	974.83	935.23	918.37	1,194.73
		Total Assets	1,668.03	1,594.10	1,354.18	1,646.13
		Payables	0.00	786.13	0.00	0.00
		Current Liabilities	1,331.94	1,188.99	1,029.96	998.31
		Total Liabilities	1,395.73	1,252.99	1,094.05	1,276.72
Total Equity	272.30	341.11	259.38	369.41		
Romania	Transgas <sup>16</sup>	Revenue	300.83	303.52	298.80	332.78
		Interest Expense	0.00	2.03	0.00	0.00
		EBIT	101.25	104.41	88.43	96.75
		Tax Expense	16.80	18.76	14.40	21.38
		Net Income	84.22	85.88	74.03	75.15
		Current Assets	110.21	126.79	154.35	126.45
		Non-current Assets	659.23	740.15	765.68	752.40
		Total Assets	769.44	866.94	920.03	878.85
		Payables	0.00	0.00	30.15	0.00
		Current Liabilities	77.73	80.68	80.55	79.88
		Total Liabilities	151.20	282.27	185.85	206.55
Total Equity	618.24	584.44	734.18	672.30		

<sup>15</sup> The exchange rates from USD to Euro are: 0.778 (2012); 0.753 (2013); 0.754 (2014); 0.901 (2015) (OANDA 2017).

<sup>16</sup> The exchange rates from RON to Euro are: 0.224 (2012); 0.226 (2013); 0.225 (2014); 0.225 (2015) (OANDA 2017).

Romania	Societatea Nationala Nucleo-arelectrica SA <sup>17</sup>	Revenue	370.05	436.86	403.88	393.53
		Interest Expense	0.00	0.00	5.63	4.73
		EBIT	14.78	116.84	34.43	39.83
		Tax Expense	10.30	20.34	4.73	6.53
		Net Income	4.48	96.50	29.48	33.08
		Current Assets	332.64	775.86	399.83	419.40
		Non-current Assets	2,137.63	1,873.77	8,022.00	1,731.38
		Total Assets	2,470.27	2,649.40	2,204.78	2,150.78
		Payables	6.94	7.91	1.13	0.00
		Current Liabilities	140.00	430.76	107.78	94.73
		Total Liabilities	661.02	909.65	532.58	464.40
		Total Equity	1,809.25	1,739.97	1,672.43	1,686.38

The final two tables show the averages for each of the countries in consideration of years and base.<sup>18</sup>

Table 9: Finland Averages

	2012	2013	2014	2015	Base
Revenue	8,970.45	8,970.51	7,889.08	6,274.30	8,026.09
Interest Expense	308.83	296.48	-131.48	-84.65	97.29
EBIT	792.28	67.69	510.88	-111.53	314.83
Tax Expense	6.78	92.37	43.02	102.20	61.09
Net Income	747.65	99.40	505.24	-29.00	330.82
Current Assets	4,423.67	4,110.05	5,158.45	5,313.30	4,751.37
Non-current Assets	14,595.20	13,923.32	12,806.14	11,724.48	13,262.28
Total Assets	19,018.87	18,033.36	17,168.40	16,781.78	17,750.61
Payables	1,145.73	1,094.58	772.14	593.58	901.51
Current Liabilities	3,566.74	3,618.87	3,542.70	3,077.08	3,451.35
Total Liabilities	12,884.93	12,267.97	11,480.94	10,856.07	11,872.48
Total Equity	6,133.94	5,765.40	5,687.46	6,181.91	5,942.18

Table 10: Romania Averages

	2012	2013	2014	2015	Base
Revenue	1,913.52	1,835.30	1,770.53	1,459.04	1,744.60

<sup>17</sup> The exchange rates from RON to Euro are: 0.224 (2012); 0.226 (2013); 0.225 (2014); 0.225 (2015) (OANDA 2017).

<sup>18</sup> The base average is derived from the average of the averages

Interest Expense	14.16	4.02	15.26	7.20	10.16
EBIT	213.98	287.48	146.82	-3.82	161.11
Tax Expense	44.73	47.46	40.52	-6.49	31.55
Net Income	169.52	240.08	106.44	2.85	129.72
Current Assets	460.62	559.55	462.54	425.31	477.00
Non-current Assets	2,249.13	2,294.14	2,542.31	2,382.84	2,367.11
Total Assets	2,709.75	2,853.59	2,857.57	2,808.14	2,807.27
Payables	131.26	292.96	137.12	105.03	166.59
Current Liabilities	580.08	574.54	521.58	462.42	534.65
Total Liabilities	1,101.99	1,095.16	642.31	619.62	864.77
Total Equity	1,607.72	1,758.43	1,768.58	954.80	1,522.39

## Appendix 2: Calculations

Table 11: Growth Rates for Forecasts

	2012 - 2013		2012 - 2014		2012 - 2015	
	Finland	Romania	Finland	Romania	Finland	Romania
Revenue	0.00%	0.05%	-12.05%	0.10%	-30.06%	0.15%
COGS	6.63%	-4.09%	-98.06%	-7.47%	-104.61%	-23.75%
Interest Expense	-4.00%	-5.46%	-142.57%	0.53%	-127.41%	-10.31%
EBIT	-91.46%	-71.61%	-35.52%	7.77%	-114.08%	-49.15%
Tax Expense	1,262.39%	34.35%	534.51%	-31.39%	1,407.37%	-101.79%
Net Income	-86.71%	6.10%	-32.42%	-9.41%	-103.88%	-114.51%
Receivables	-26.55%	41.62%	-30.70%	-37.21%	-42.12%	-98.32%
Inventory	-3.13%	0.00%	-13.76%	0.00%	-11.04%	0.00
Current Assets	-7.09%	-11.81%	16.61%	-16.57%	20.11%	-26.33%
Non-current Assets	-4.60%	21.48%	-12.26%	0.42%	-19.67%	-7.67%
Total Assets	-5.18%	2.00%	-9.73%	13.04%	-11.76%	5.94%
Payables	-4.46%	5.31%	-32.61%	5.46%	-48.19%	3.63%
Current Liabilities	1.46%	123.19%	-0.67%	4.46%	-13.73%	-19.98%
Total Liabilities	-4.79%	-0.96%	-10.90%	-10.08%	-15.75%	-20.28%
Total Equity	-6.01%	-0.62%	-7.28%	-41.71%	0.78%	-43.77%

Table 12: Finland Forecast

	Base	2018	2019	2020
Revenue	8,026.09	8,026.09	7,058.95	5,613.45
COGS	3,599.24	3,837.87	69.83	-165.92
Interest Expense	97.29	93.40	-41.42	-26.67
EBIT	314.83	26.89	203.00	-44.33
Tax Expense	61.09	832.28	387.62	920.85
Net Income	330.82	43.97	223.57	-12.84
Receivables	826.2	606.84	572.56	478.20
Inventory	788.49	763.81	679.99	701.44
Current Assets	4,751.37	4,414.50	5,540.57	5,706.87
Non-current Assets	13,262.28	12,652.22	11,636.32	10,653.59
Total Assets	17,750.61	16,831.13	16,023.48	15,663.14
Payables	901.51	861.30	607.53	467.07
Current Liabilities	3,451.35	3,501.74	3,428.23	2,977.48
Total Liabilities	11,872.48	11,303.79	10,578.38	10,002.56
Total Equity	5,942.18	5,585.05	5,509.59	5,988.53

Table 13: Romania Forecast

	Base	2018	2019	2020
Revenue	1,744.60	1,745.47	1,746.34	1,747.22
Interest Expense	10.16	9.61	10.21	9.11
EBIT	161.11	45.74	173.63	81.92
Tax Expense	31.55	42.39	21.65	-0.56
Net Income	129.72	137.63	117.51	-18.82
Current Assets	477.00	420.67	397.96	351.41
Non-current As- sets	2,367.11	2,875.57	2,377.05	2,185.55
Total Assets	2,807.27	2,863.42	3,173.34	2,974.02
Payables	166.59	175.44	175.69	172.64
Current Liabilities	534.65	1,193.29	558.50	427.83
Total Liabilities	864.77	856.47	777.60	689.39
Total Equity	1,522.39	1,512.95	887.40	856.04

Table 14: Finland Financial Analysis (No VAT)

Financial Ratio	Year	Calculation	Result
Return on Equity (%)	Base	$(330.82 / 5,942.18) \%$	5.57%
	2018	$(43.97 / 5,585.05) \%$	0.79%
	2019	$(223.57 / 5,509.59) \%$	4.06%
	2020	$(-12.84 / 5,988.53) \%$	-0.21%
Net Profit Margin (%)	Base	$(330.82 / 8,026.09) \%$	4.12%
	2018	$(43.97 / 8,026.09) \%$	0.55%
	2019	$(223.57 / 7,058.95) \%$	3.17%
	2020	$(-12.84 / 5,613.45) \%$	-0.23%
Return on Assets (%)	Base	$(330.82 / 17,750.61) \%$	1.86%
	2018	$(43.97 / 16,831.13) \%$	0.26%
	2019	$(223.57 / 16,023.48) \%$	1.40%
	2020	$(-12.84 / 15,663.14) \%$	-0.08%
Debt to Income Ratio (%)	Base	$((11,872.48 / 12) / 330.82) \% = (989.37 / 330.82) \%$	299.07%
	2018	$((11,303.79 / 12) / 43.97) \% = (941.98 / 43.97) \%$	2,142.53%
	2019	$((10,578.38 / 12) / 223.57) \% = (881.53 / 223.57) \%$	394.30%
	2020	$((10,002.56 / 12) / -12.84) \% = (833.55 / -12.84) \%$	-6,493.92%
DuPont Analysis	Base	$(330.82 / 8,026.09) + (8,026.09 / 17,750.61) + (17,750.61 / 5,942.18) = 0.041 + 0.452 + 2.987$	3.48
	2018	$(43.97 / 8,026.09) + (8,026.09 / 16,831.13) + (16,831.13 / 5,585.05) = 0.005 + 0.477 + 3.014$	3.50
	2019	$(223.57 / 7,058.95) + (7,058.95 / 16,023.48) + (16,023.48 / 5,509.59) = 0.032 + 0.441 + 2.908$	3.38
	2020	$(-12.84 / 5,613.45) + (5,613.45 / 15,663.14) + (15,663.14 / 5,988.53) = -0.002 + 0.358 + 2.616$	2.97

Table 15: Finland Financial Analysis (2015 VAT)

Financial Ratio	Year	Calculation	Result
Return on Equity (%)	Base	$(-1,434.92 / 5,942.18) \%$	-24.15%
	2018	$(-1,721.77 / 5,585.05) \%$	-32.27%
	2019	$(-1,329.40 / 5,509.59) \%$	-24.13%
	2020	$(-1,247.79 / 5,988.53) \%$	-20.84%
Net Profit Margin (%)	Base	$(-1,434.92 / 8,026.09) \%$	-17.88%
	2018	$(-1,721.77 / 8,026.09) \%$	-21.45%
	2019	$(-1,329.40 / 7,058.95) \%$	-18.83%
	2020	$(-1,247.79 / 5,613.45) \%$	-22.22%
Return on Assets (%)	Base	$(-1,434.92 / 17,750.61) \%$	-8.08%
	2018	$(-1,721.77 / 16,831.13) \%$	-10.23%
	2019	$(-1,329.40 / 16,023.48) \%$	-8.30%
	2020	$(-1,247.79 / 15,663.14) \%$	-7.97%
Debt to Income Ratio (%)	Base	$((11,872.48 / 12) / -1,434.92) \% = (989.37 / -1,434.92) \%$	-68.95%
	2018	$((11,303.79 / 12) / -1,721.77) \% = (941.98 / -1,721.77) \%$	-54.71%
	2019	$((10,578.38 / 12) / -1,329.40) \% = (881.53 / -1,329.40) \%$	-66.31%
	2020	$((10,002.56 / 12) / -1,247.79) \% = (833.55 / -1,247.79) \%$	-66.80%
DuPont Analysis	Base	$(-1,434.92 / 8,026.09) + (8,026.09 / 17,750.61) + (17,750.61 / 5,942.18) = -0.179 + 0.452 + 2.987$	3.26
	2018	$(-1,721.77 / 8,026.09) + (8,026.09 / 16,831.13) + (16,831.13 / 5,585.05) = -0.215 + 0.477 + 3.014$	3.28
	2019	$(-1,329.40 / 7,058.95) + (7,058.95 / 16,023.48) + (16,023.48 / 5,509.59) = -0.188 + 0.441 + 2.908$	3.16
	2020	$(-1,247.79 / 5,613.45) + (5,613.45 / 15,663.14) + (15,663.14 / 5,988.53) = -0.222 + 0.358 + 2.616$	2.75

Table 16: Finland Financial Analysis (2017 VAT)

Financial Ratio	Year	Calculation	Result
Return on Equity (%)	Base	$(-1,515.18 / 5,942.18) \%$	-25.50%
	2018	$(-1,802.03 / 5,585.05) \%$	-32.27%
	2019	$(-1,399.99 / 5,509.59) \%$	-25.41%
	2020	$(-1,303.93 / 5,988.53) \%$	-21.77%
Net Profit Margin (%)	Base	$(-1,515.18 / 8,026.09) \%$	-18.88%
	2018	$(-1,802.03 / 8,026.09) \%$	-22.45%
	2019	$(-1,399.99 / 7,058.95) \%$	-19.83%

	2020	$(-1,303.93 / 5,613.45) \%$	-23.23%
Return on Assets (%)	Base	$(-1,515.18 / 17,750.61) \%$	-8.54%
	2018	$(-1,802.03 / 16,831.13) \%$	-10.71%
	2019	$(-1,399.99 / 16,023.48) \%$	-8.74%
	2020	$(-1,303.93 / 15,663.14) \%$	-8.33%
Debt to Income Ratio (%)	Base	$((11,872.48 / 12) / -1,515.18) \% = (989.37 / -1,515.18) \%$	-65.30%
	2018	$((11,303.79 / 12) / -1,802.03) \% = (941.98 / -1,802.03) \%$	-52.27%
	2019	$((10,578.38 / 12) / -1,399.99) \% = (881.53 / -1,399.99) \%$	-62.97%
	2020	$((10,002.56 / 12) / -1,303.93) \% = (833.55 / -1,303.93) \%$	-63.93%
DuPont Analysis	Base	$(-1,515.18 / 8,026.09) + (8,026.09 / 17,750.61) + (17,750.61 / 5,942.18) = -0.189 + 0.452 + 2.987$	3.25
	2018	$(-1,802.03 / 8,026.09) + (8,026.09 / 16,831.13) + (16,831.13 / 5,585.05) = -0.225 + 0.477 + 3.014$	3.27
	2019	$(-1,399.99 / 7,058.95) + (7,058.95 / 16,023.48) + (16,023.48 / 5,509.59) = -0.198 + 0.441 + 2.908$	3.15
	2020	$(-1,303.93 / 5,613.45) + (5,613.45 / 15,663.14) + (15,663.14 / 5,988.53) = -0.232 + 0.358 + 2.616$	2,74

Table 17: Romania Financial Analysis (No VAT)

Financial Ratio	Year	Calculation	Result
Return on Equity (%)	Base	$(129.72 / 1,552.39) \%$	8.52%
	2018	$(137.63 / 1,512.95) \%$	9.10%
	2019	$(117.51 / 887.40) \%$	13.24%
	2020	$(-18.82 / 856.04) \%$	-2.20%
Net Profit Margin (%)	Base	$(129.72 / 1,744.60) \%$	7.44%
	2018	$(137.63 / 1,745.47) \%$	7.89%
	2019	$(117.51 / 1,746.34) \%$	6.73%
	2020	$(-18.82 / 1,747.22) \%$	-1.08%
Return on Assets (%)	Base	$(129.72 / 2,807.27) \%$	4.62%
	2018	$(137.63 / 2,863.42) \%$	4.81%
	2019	$(117.51 / 3,173.34) \%$	3.70%
	2020	$(-18.82 / 2,974.02) \%$	-0.63%
Debt to Income Ratio (%)	Base	$((864.77 / 12) / 129.72) \% = (72.06 / 129.72) \%$	55.55%
	2018	$((856.47 / 12) / 137.63) \% = (71.37 / 137.63) \%$	51.86%
	2019	$((777.60 / 12) / 117.51) \% = (64.80 / 117.51) \%$	55.14%
	2020	$((689.39 / 12) / -18.82) \% = (57.47 / -18.82) \%$	-305.22%
DuPont Analysis	Base	$(129.72 / 1,744.60) + (1,744.60 / 2,807.27) + (2,807.27 / 1,522.39) = 0.074 + 0.621 + 1.844$	2.54
	2018	$(137.63 / 1,745.47) + (1,745.47 / 2,863.42) + (2,863 / 1,512.95) = 0.079 + 0.610 + 1.893$	2.58

	2019	$(117.51 / 1,746.34) + (1,746.34 / 3,173.34) + (3,173.34 / 887.40) = 0.067 + 0.550 + 3.576$	4.19
	2020	$(-18.82 / 1,747.22) + (1,747.22 / 2,974.02) + (2,974.02 / 856.04) = -0.011 + 0.587 + 3.474$	4.05

Table 18: Romania Financial Analysis (2015 VAT)

Financial Ratio	Year	Calculation	Result
Return on Equity (%)	Base	$(-288.98 / 1,552.39) \%$	-18.98%
	2018	$(-281.28 / 1,512.95) \%$	-18.59%
	2019	$(-301.61 / 887.40) \%$	-33.99%
	2020	$(-436.15 / 856.04) \%$	-51.18%
Net Profit Margin (%)	Base	$(-288.98 / 1,744.60) \%$	-16.56%
	2018	$(-281.28 / 1,745.47) \%$	-16.12%
	2019	$(-301.61 / 1,746.34) \%$	-17.27%
	2020	$(-438.15 / 1,747.22) \%$	-25.08%
Return on Assets (%)	Base	$(-288.98 / 2,807.27) \%$	-10.29%
	2018	$(-281.28 / 2,863.42) \%$	-9.82%
	2019	$(-301.61 / 3,173.34) \%$	-9.51%
	2020	$(-438.15 / 2,974.02) \%$	-14.73%
Debt to Income Ratio (%)	Base	$((864.77 / 12) / -288.98) \% = (72.06 / -288.98) \%$	-24.94%
	2018	$((856.47 / 12) / -281.28) \% = (71.37 / -281.28) \%$	-25.37%
	2019	$((777.60 / 12) / -301.61) \% = (64.80 / -301.61) \%$	-21.49%
	2020	$((689.39 / 12) / -438.15) \% = (57.47 / -438.15) \%$	-13.11%
DuPont Analysis	Base	$(-288.98 / 1,744.60) + (1,744.60 / 2,807.27) + (2,807.27 / 1,522.39) = -0.166 + 0.621 + 1.844$	2.30
	2018	$(-281.28 / 1,745.47) + (1,745.47 / 2,863.42) + (2,863.42 / 1,512.95) = -0.161 + 0.610 + 1.893$	2.34
	2019	$(-301.61 / 1,746.34) + (1,746.34 / 3,173.34) + (3,173.34 / 887.40) = -0.173 + 0.550 + 3.576$	3.95
	2020	$(-438.15 / 1,747.22) + (1,747.22 / 2,974.02) + (2,974.02 / 856.04) = -0.251 + 0.587 + 3.474$	3.81

Table 19: Romania Financial Analysis (2017 VAT)

Financial Ratio	Year	Calculation	Result
Return on Equity (%)	Base	$(-201.75 / 1,552.39) \%$	-13.25%
	2018	$(-194.01 / 1,512.95) \%$	-12.82%
	2019	$(-214.29 / 887.40) \%$	-24.15%
	2020	$(-350.79 / 856.04) \%$	-40.98%
Net Profit Margin (%)	Base	$(-201.75 / 1,744.60) \%$	-11.56%
	2018	$(-194.01 / 1,745.47) \%$	-11.12%
	2019	$(-214.29 / 1,746.34) \%$	-12.27%
	2020	$(-350.79 / 1,747.22) \%$	-20.08%



Return on Assets (%)	Base	$(-201.75 / 2,807.27) \%$	-7.19%
	2018	$(-194.01 / 2,863.42) \%$	-6.78%
	2019	$(-214.29 / 3,173.34) \%$	-6.75%
	2020	$(-350.79 / 2,974.02) \%$	-11.80%
Debt to Income Ratio (%)	Base	$((864.77 / 12) / -201.75) \% = (72.06 / -201.75) \%$	-35.72%
	2018	$((856.47 / 12) / -194.01) \% = (71.37 / -194.01) \%$	-36.79%
	2019	$((777.60 / 12) / -214.29) \% = (64.80 / -214.29) \%$	-30.24%
	2020	$((689.39 / 12) / -350.79) \% = (57.47 / -350.79) \%$	-16.38%
DuPont Analysis	Base	$(-201.75 / 1,744.60) + (1,744.60 / 2,807.27) + (2,807.27 / 1,522.39) = -0.116 + 0.621 + 1.844$	2.35
	2018	$(-194.01 / 1,745.47) + (1,745.47 / 2,863.42) + (2,863 / 1,512.95) = -0.111 + 0.610 + 1.893$	2.39
	2019	$(-214.29 / 1,746.34) + (1,746.34 / 3,173.34) + (3,173.34 / 887.40) = -0.123 + 0.550 + 3.576$	4.00
	2020	$(-350.79 / 1,747.22) + (1,747.22 / 2,974.02) + (2,974.02 / 856.04) = -0.201 + 0.587 + 3.474$	3.86

Table 20: Finland WACC (No VAT)

	Year	Calculation	Result
E/V	Base	$5,942.18 / (11,872.48 + 5,942.18) = 5,92.18 / 17,814.66$	0.33
	2018	$5,585.05 / (11,303.79 + 5,585.05) = 5,585.05 / 16,888.84$	0.33
	2019	$5,509.59 / (10,578.38 + 5,509.59) = 5,509.59 / 16,087.97$	0.34
	2020	$5,988.53 / (10,002.56 + 5,988.53) = 5,988.53 / 15,991.09$	0.37
Re	Base	$0.04 + 1.12 + (0.07 - 0.04) = 0.04 + 1.12 + 0.03$	1.19
	2018		
	2019		
	2020		
D/V	Base	$901.51 / (11,872.48 + 5,942.18) = 901.51 / 17,814.66$	0.05
	2018	$861.30 / (11,303.79 + 5,585.05) = 861.30 / 16,888.84$	0.05
	2019	$607.53 / (10,578.38 + 5,509.59) = 607.54 / 16,087.97$	0.04
	2020	$467.07 / (10,002.56 + 5,988.53) = 467.07 / 15,991.09$	0.03
Rd	Base	$1 - 1.19$	-0.19
	2018		
	2019		
	2020		
(1-Tc)	Base	$1 - ((8,026.09 / 61.09) \%) = 1 - 1.313$	-0.31
	2018	$1 - ((8,026.09 / 832.28) \%) = 1 - 0.096$	0.90
	2019	$1 - ((7,058.95 / 387.62) \%) = 1 - 0.182$	0.82
	2020	$1 - ((5,613.45 / 920.85) \%) = 1 - 0.061$	0.94
WACC	Base	$0.33 \times 1.19 + 0.05 \times -0.19 \times -0.31$	0.40
	2018	$0.33 \times 1.19 + 0.05 \times -0.19 \times 0.90$	0.38
	2019	$0.34 \times 1.19 + 0.04 \times -0.19 \times 0.82$	0.40
	2020	$0.37 \times 1.19 + 0.03 \times -0.19 \times 0.94$	0.43

Table 21: Finland WACC (2015 VAT)

	Year	Calculation	Result
E/V	Base	$5,942.18 / (11,872.48 + 5,942.18) = 5,92.18 / 17,814.66$	0.33
	2018	$5,585.05 / (11,303.79 + 5,585.05) = 5,585.05 / 16,888.84$	0.33
	2019	$5,509.59 / (10,578.38 + 5,509.59) = 5,509.59 / 16,087.97$	0.34
	2020	$5,988.53 / (10,002.56 + 5,988.53) = 5,988.53 / 15,991.09$	0.37
Re	Base	$0.04 + 1.12 + (0.07 - 0.04) = 0.04 + 1.12 + 0.03$	1.19
	2018		
	2019		
	2020		
D/V	Base	$(901.51 + 1,765.74) / (11,872.48 + 5,942.18) = 2,667.25 / 17,814.66$	0.15
	2018	$(861.30 + 1,765.74) / (11,303.79 + 5,585.05) = 2,627.04 / 16,888.84$	0.16
	2019	$(607.53 + 1,552.97) / (10,578.38 + 5,509.59) = 2,160.50 / 16,087.97$	0.13
	2020	$(467.07 + 1,234.96) / (10,002.56 + 5,988.53) = 1,702.03 / 15,991.09$	0.11
Rd	Base	1 - 1.19	-0.19
	2018		
	2019		
	2020		
(1-Tc)	Base	$1 - ((8,026.09 / 61.09) \%) = 1 - 1.313$	-0.31
	2018	$1 - ((8,026.09 / 832.28) \%) = 1 - 0.096$	0.90
	2019	$1 - ((7,058.95 / 387.62) \%) = 1 - 0.182$	0.82
	2020	$1 - ((5,613.45 / 920.85) \%) = 1 - 0.061$	0.94
WACC	Base	$0.33 \times 1.19 + 0.15 \times -0.19 \times -0.31$	0.40
	2018	$0.33 \times 1.19 + 0.16 \times -0.19 \times 0.90$	0.37
	2019	$0.34 \times 1.19 + 0.13 \times -0.19 \times 0.82$	0.35
	2020	$0.37 \times 1.19 + 0.11 \times -0.19 \times 0.94$	0.42

Table 22: Finland WACC (2017 VAT)

	Year	Calculation	Result
E/V	Base	$5,942.18 / (11,872.48 + 5,942.18) = 5,92.18 / 17,814.66$	0.33
	2018	$5,585.05 / (11,303.79 + 5,585.05) = 5,585.05 / 16,888.84$	0.33
	2019	$5,509.59 / (10,578.38 + 5,509.59) = 5,509.59 / 16,087.97$	0.34
	2020	$5,988.53 / (10,002.56 + 5,988.53) = 5,988.53 / 15,991.09$	0.37
Re	Base	$0.04 + 1.12 + (0.07 - 0.04) = 0.04 + 1.12 + 0.03$	1.19
	2018		
	2019		
	2020		
D/V	Base	$(901.51 + 1,926.26) / (11,872.48 + 5,942.18) = 2,827.77 / 17,814.66$	0.16
	2018	$(861.30 + 1,926.26) / (11,303.79 + 5,585.05) = 2,787.56 / 16,888.84$	0.17
	2019	$(607.53 + 1,694.15) / (10,578.38 + 5,509.59) = 2,301.68 / 16,087.97$	0.14

	2020	$(467.07 + 1,347.23) / (10,002.56 + 5,988.53) = 1,814.30 / 15,991.09$	0.11
Rd	Base	1 - 1.19	-0.19
	2018		
	2019		
	2020		
(1-Tc)	Base	$1 - ((8,026.09 / 61.09) \%) = 1 - 1.313$	-0.31
	2018	$1 - ((8,026.09 / 832.28) \%) = 1 - 0.096$	0.90
	2019	$1 - ((7,058.95 / 387.62) \%) = 1 - 0.182$	0.82
	2020	$1 - ((5,613.45 / 920.85) \%) = 1 - 0.061$	0.94
WACC	Base	$0.33 \times 1.19 + 0.16 \times -0.19 \times -0.31$	0.36
	2018	$0.33 \times 1.19 + 0.17 \times -0.19 \times 0.90$	0.42
	2019	$0.34 \times 1.19 + 0.14 \times -0.19 \times 0.82$	0.38
	2020	$0.37 \times 1.19 + 0.11 \times -0.19 \times 0.94$	0.42

Table 23: Romania WACC (No VAT)

	Year	Calculation	Result
E/V	Base	$1,522.39 / (864.77 + 1,522.39) = 1,522.39 / 2,387.16$	0.64
	2018	$1,512.95 / (856.47 + 1,512.95) = 1,512.95 / 2,369.42$	0.64
	2019	$887.40 / (777.60 + 887.40) = 887.40 / 1,665.00$	0.53
	2020	$856.04 / (689.39 + 856.04) = 856.04 / 1,545.43$	0.53
Re	Base	$0.04 + 1.12 + (0.07 - 0.04) = 0.04 + 1.12 + 0.03$	1.19
	2018		
	2019		
	2020		
D/V	Base	$166.59 / (864.77 + 1,522.39) = 166.59 / 2,387.16$	0.07
	2018	$175.44 / (856.47 + 1,512.95) = 175.44 / 2,369.42$	0.07
	2019	$175.69 / (777.60 + 887.40) = 175.69 / 1,665.00$	0.11
	2020	$172.64 / (689.39 + 856.04) = 172.64 / 1,545.43$	0.11
Rd	Base	1 - 1.19	-0.19
	2018		
	2019		
	2020		
(1-Tc)	Base	$1 - ((8,026.09 / 61.09) \%) = 1 - 1.313$	-0.31
	2018	$1 - ((8,026.09 / 832.28) \%) = 1 - 0.096$	0.90
	2019	$1 - ((7,058.95 / 387.62) \%) = 1 - 0.182$	0.82
	2020	$1 - ((5,613.45 / 920.85) \%) = 1 - 0.061$	0.94
WACC	Base	$0.64 \times 1.19 + 0.07 \times -0.19 \times -0.31$	0.76
	2018	$0.64 \times 1.19 + 0.07 \times -0.19 \times 0.90$	0.75
	2019	$0.63 \times 1.19 + 0.11 \times -0.19 \times 0.82$	0.62
	2020	$0.55 \times 1.19 + 0.11 \times -0.19 \times 0.94$	0.64

Table 24: Romania WACC (2015 VAT)

	Year	Calculation	Result
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E/V	Base	$1,522.39 / (864.77 + 1,522.39) = 1,522.39 / 2,387.16$	0.64
	2018	$1,512.95 / (856.47 + 1,512.95) = 1,512.95 / 2,369.42$	0.64
	2019	$887.40 / (777.60 + 887.40) = 887.40 / 1,665.00$	0.53
	2020	$856.04 / (689.39 + 856.04) = 856.04 / 1,545.43$	0.53
Re	Base	$0.04 + 1.12 + (0.07 - 0.04) = 0.04 + 1.12 + 0.03$	1.19
	2018		
	2019		
	2020		
D/V	Base	$(166.59 + 418.70) / (864.77 + 1,522.39) = 585.29 / 2,387.16$	0.25
	2018	$(175.44 + 418.91) / (856.47 + 1,512.95) = 594.35 / 2,369.42$	0.25
	2019	$(175.69 + 419.12) / (777.60 + 887.40) = 594.81 / 1,665.00$	0.36
	2020	$(172.64 + 419.33) / (689.39 + 856.04) = 591.97 / 1,545.43$	0.38
Rd	Base	$1 - 1.19$	-0.19
	2018		
	2019		
	2020		
(1-Tc)	Base	$1 - ((8,026.09 / 61.09) \%) = 1 - 1.313$	-0.31
	2018	$1 - ((8,026.09 / 832.28) \%) = 1 - 0.096$	0.90
	2019	$1 - ((7,058.95 / 387.62) \%) = 1 - 0.182$	0.82
	2020	$1 - ((5,613.45 / 920.85) \%) = 1 - 0.061$	0.94
WACC	Base	$0.64 \times 1.19 + 0.25 \times -0.19 \times -0.31$	0.77
	2018	$0.64 \times 1.19 + 0.25 \times -0.19 \times 0.90$	0.72
	2019	$0.63 \times 1.19 + 0.36 \times -0.19 \times 0.82$	0.58
	2020	$0.55 \times 1.19 + 0.38 \times -0.19 \times 0.94$	0.59

Table 25: Romania WACC (2017 VAT)

	Year	Calculation	Result
E/V	Base	$1,522.39 / (864.77 + 1,522.39) = 1,522.39 / 2,387.16$	0.64
	2018	$1,512.95 / (856.47 + 1,512.95) = 1,512.95 / 2,369.42$	0.64
	2019	$887.40 / (777.60 + 887.40) = 887.40 / 1,665.00$	0.53
	2020	$856.04 / (689.39 + 856.04) = 856.04 / 1,545.43$	0.53
Re	Base	$0.04 + 1.12 + (0.07 - 0.04) = 0.04 + 1.12 + 0.03$	1.19
	2018		
	2019		
	2020		
D/V	Base	$(166.59 + 331.47) / (864.77 + 1,522.39) = 498.06 / 2,387.16$	0.21
	2018	$(175.44 + 331.63) / (856.47 + 1,512.95) = 507.08 / 2,369.42$	0.21
	2019	$(175.69 + 331.80) / (777.60 + 887.40) = 507.49 / 1,665.00$	0.30
	2020	$(172.64 + 331.97) / (689.39 + 856.04) = 504.61 / 1,545.43$	0.33
Rd	Base	$1 - 1.19$	-0.19
	2018		
	2019		
	2020		

(1-Tc)	Base	$1 - ((8,026.09 / 61.09) \%) = 1 - 1.313$	-0.31
	2018	$1 - ((8,026.09 / 832.28) \%) = 1 - 0.096$	0.90
	2019	$1 - ((7,058.95 / 387.62) \%) = 1 - 0.182$	0.82
	2020	$1 - ((5,613.45 / 920.85) \%) = 1 - 0.061$	0.94
WACC	Base	$0.64 \times 1.19 + 0.21 \times -0.19 \times -0.31$	0.77
	2018	$0.64 \times 1.19 + 0.21 \times -0.19 \times 0.90$	0.72
	2019	$0.63 \times 1.19 + 0.30 \times -0.19 \times 0.82$	0.59
	2020	$0.55 \times 1.19 + 0.33 \times -0.19 \times 0.94$	0.60

## Figures

Figure 1: First figure ..... Errore. Il segnalibro non è definito.

Figure 2: Second figure ..... Errore. Il segnalibro non è definito.

## Tables

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## Appendix 1: First appendix