



Case Jukkatalo

Bankruptcy was predictable
years before the bankruptcy

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To be noted

This document has been prepared for training and example purposes to describe what Argon Pro Oy offers in the analyzes and valuations of companies and/or individual businesses. In this document, the construction company Jukkatalo Oy has been chosen as the Target Company for the analysis, whose bankruptcy in August 2023 has sparked a lot of discussion in the public. However, Jukkatalo Oy, or Jukkatalo Oy's bankruptcy estate, has not been involved in the implementation of this document. Argon Pro will continue to implement similar public sample reports and documents on significant Finnish growth and SME companies. Similar analyzes can also be ordered as paid, non-public commissions.

- The information, opinions and final results presented in this document have been produced for educational and illustrative purposes only, and should not be used as such, or considered as an offer or solicitation for the purchase or sale of the target company's business, securities, or other financial instruments. The purpose of the document is to give an example of the business operations of Target Company Jukkatalo Oy, approximately five years before the bankruptcy of the Target company. The documentary also describes the tools brought by current research for predicting bankruptcy.
- The analysis presented in the report and its final results are based on available public financial statement information and/or assumptions made by Argon Pro Oy and possible future scenarios. The public information presented in this report has been obtained or derived from reliable sources, but Argon Pro Oy does not take responsibility for their accuracy, correctness, usefulness, reliability, timeliness, or completeness. Argon Pro Oy also does not take responsibility for possible damages resulting from the use of the information presented in this report, and we do not guarantee the results that may be obtained from the information presented in this document or derived from the analysis.
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Training sessions related to the various areas of this report in December (in Finnish only)

- **Taloustaitoja esimiehille ja asiantuntijoille 11 - 12.12.2023**
 - Read more [here](#)
 - register before 4.12.2023
- **Tulosmittareista kassavirran mallintamiseen 18 - 19.12.2023**
 - For finance professionals
 - Read more [here](#)
 - register before 11.12.2023
- After these, the following training sessions will be in 2024



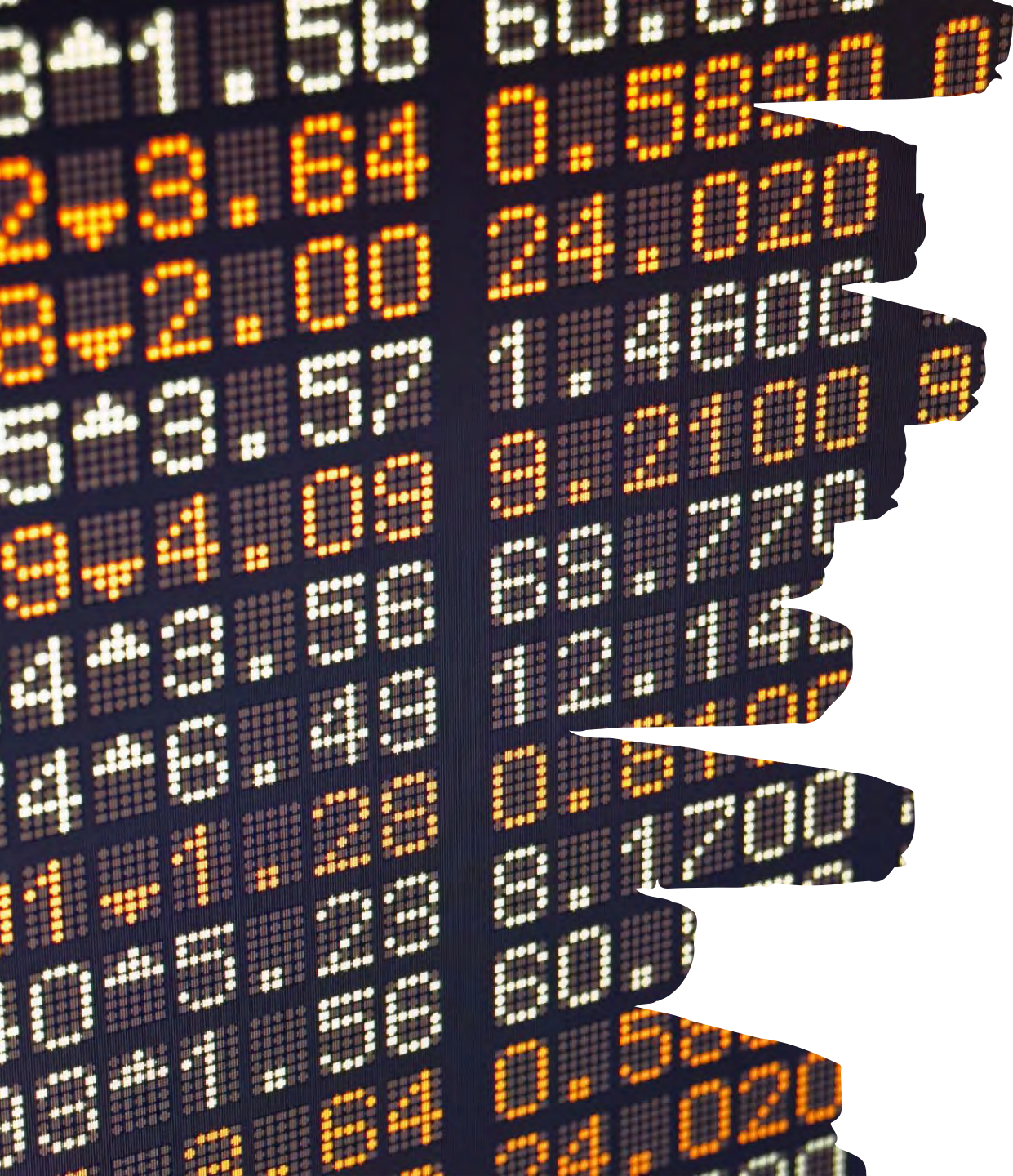
Agenda

- Information available
- Jukkatalo Oy
 - Financial history 2018 - 2022
- Forecasting and predicting bankruptcy risk - Case Jukkatalo
- Background, formulas and reference values to the financial indicators



Information available

- Annual closings of Jukkatalo Oy for 2017 – 2022
- Valu8 database
- Public articles and news related to bankruptcy coverage

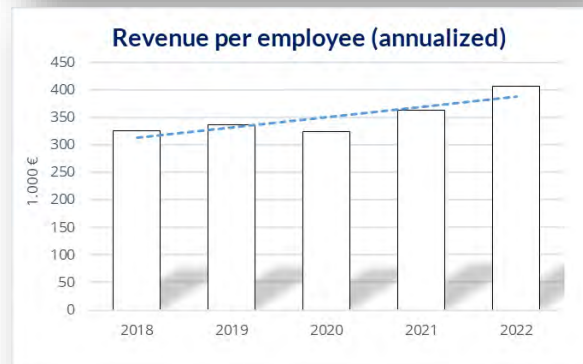
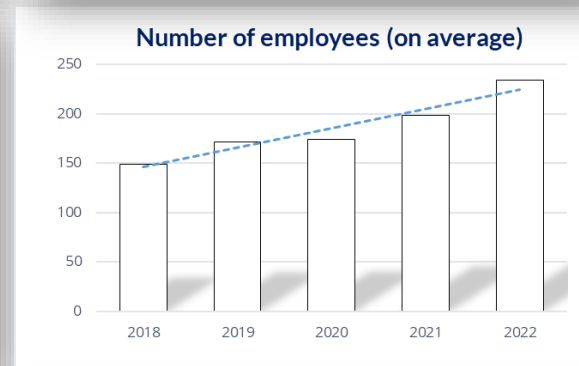


Financial history 2018 - 2022

Jukkatalo Oy's history from
finance perspective

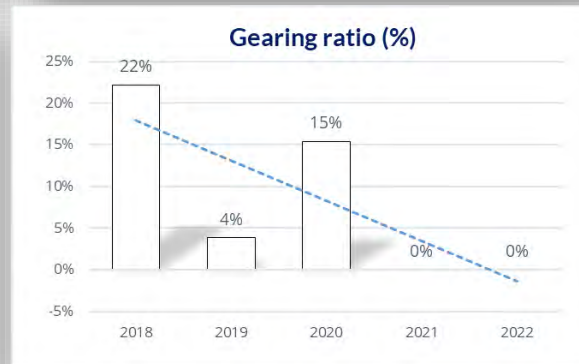
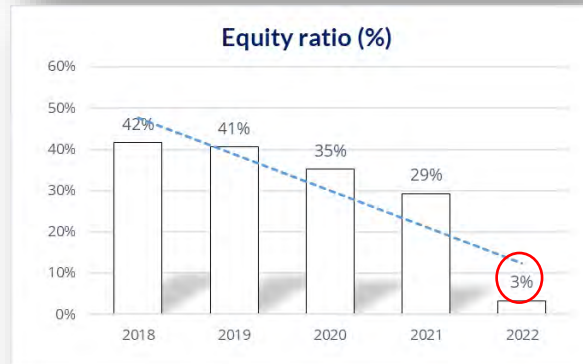
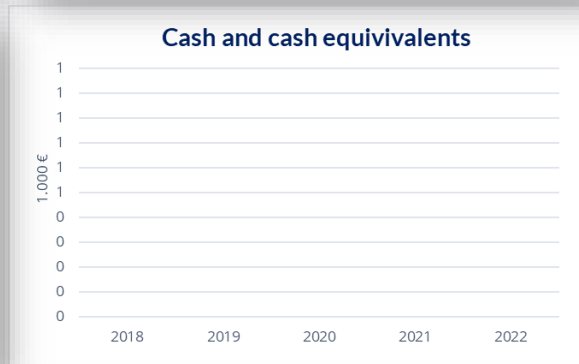
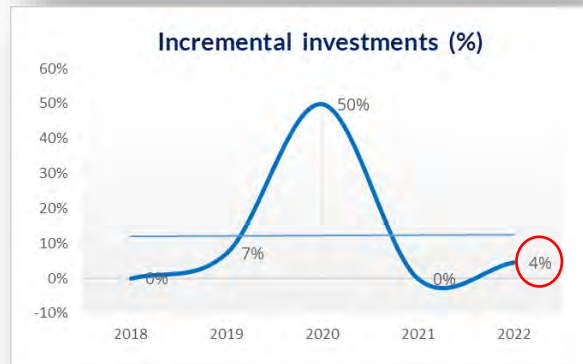
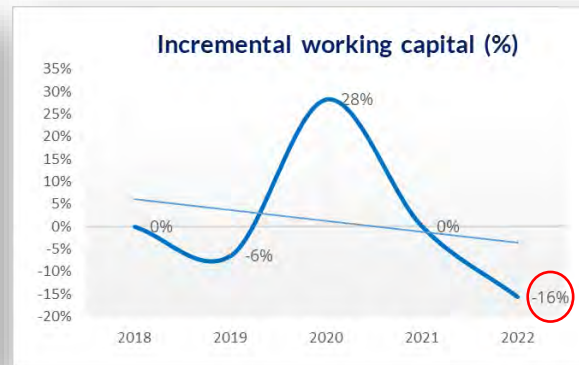
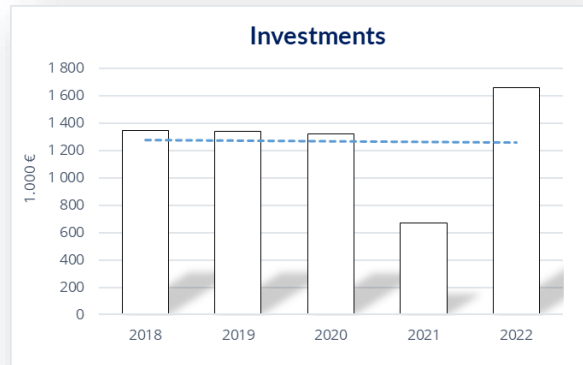
Finances 2018 - 2022

Blue lines in graphs = linear trend



- All information until 31 December 2022. Official financial data is not available from 1 January to 28 August 2023, i.e. until the bankruptcy date.
- Other operating income are rent etc. income
- Revenue increased (excluding year 2020)
 - Increase in revenue 2022 +32 %
 - Growth (CAGR, 2018 - 2022) +18 %
 - Revenue per employee also increased (+25 %)
- Gross profit margin (%) has decreased significantly
 - 26,8 % => 15,9 % (change -40,7 %)
- The 2020 EBIT (approx. 1,3 me) was the company's best in 15 years
 - However, as an EBIT margin, the result was only +2,4 %
- The number of employees increased by +57 % during the entire review period
 - Personnel costs have increased by +70 % since the beginning of the review period
 - Salary expenses per person increased +10 %
- Free cash flow from operations for the years 2019 - 2022 is approx. +1,35 me in total
 - Only the last year's result (2022) is at a loss and free cash flow is negative

Finances 2018 - 2022



- Net investments approx. 0.7 million per year
 - The company sold the property, machines and equipment to PRT-Wood (2022)
- Working capital for growth (2022) -16 %
 - Despite the growth, working capital has been released
- Investments for growth (2022) 4 %
 - For every 1,00 euro of revenue growth, approx. 0,04 euro has been committed to investments
 - Asset sales improved cash flow and reduced net investments
- During the review period, the financial statements do not show cash at all
 - There is internal credit limit of 3,0 me
 - for 2021 - 2022, balance sheet does not show interest-bearing debts, i.e. the credit limit is apparently not in use
 - Short-term (interest-free) liabilities in 2022 approx. 10,1 million, which reflects the collapse of the Quick ratio indicator to 0,4
- As a result of the loss of approx. 4.7 million in 2022, the equity ratio collapsed

Finances 2018 - 2022

INCOME STATEMENT 1.000 EUR

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---------------|---------------|---------------|---------------|---------------|
| REVENUE | 48 585 | 57 659 | 56 368 | 71 818 | 95 115 |
| Ch. In revenue (%) | 42,0 % | 18,7 % | -2,2 % | 27,4 % | 32,4 % |
| Ch. In stocks of finished and semi finished goods | -77 | -167 | 193 | 1 384 | -2 144 |
| Other operating income | 123 | 160 | 338 | 149 | 173 |
| Raw materials and services | | | | | |
| Raw materials and consumables | | | | | |
| Purchases during financial year | 14 861 | 18 354 | 18 151 | 26 836 | 33 802 |
| External services | 20 490 | 24 932 | 23 773 | 30 790 | 44 121 |
| GROSS PROFIT | 13 021 | 14 192 | 14 712 | 16 144 | 15 158 |
| Gross profit margin (%) | 26,8 % | 24,6 % | 26,1 % | 22,5 % | 15,9 % |
| Fixed staff expenses | 6 910 | 8 409 | 8 583 | 10 007 | 11 709 |
| Other operating expenses | 4 662 | 5 355 | 4 529 | 5 343 | 7 648 |
| OPERATING MARGIN (EBITDA) | 1 770 | 727 | 2 023 | 971 | -3 976 |
| Operating margin (EBITDA, %) | 3,6 % | 1,3 % | 3,6 % | 1,4 % | -4,2 % |
| Depreciation and reduction in value | 635 | 681 | 680 | 695 | 627 |
| OPERATING PROFIT (EBIT) | 1 135 | 47 | 1 343 | 276 | -4 603 |
| Operating profit (EBIT, %) | 2,3 % | 0,1 % | 2,4 % | 0,4 % | -4,8 % |
| Financial income and expenses | -28 | -36 | -66 | -73 | -54 |
| Extraordinary income/expenses | -766 | - | -1 269 | -175 | - |
| Appropriations | - | - | - | -2 | 2 |
| Taxes | - | - | - | - | - |
| Profit of the financial year | 341 | 11 | 8 | 26 | -4 655 |
| CAGR (2018 - 2022) | 42 % | 19 % | 8 % | 14 % | 18 % |
| Purchases (% of Revenue) | 31 % | 32 % | 32 % | 37 % | 36 % |
| External services (% of Revenue) | 42 % | 43 % | 42 % | 43 % | 46 % |
| Other operating expenses (% of Revenue) | 10 % | 9 % | 8 % | 7 % | 8 % |
| Number of employees (on average) | 149 | 171 | 174 | 198 | 234 |
| Ch. In number of employees (%) | - | 15 % | 2 % | 14 % | 18 % |
| Revenue per employee (annualized) | 326 | 337 | 324 | 363 | 406 |
| Ch. In revenue per employee (%) | - | 3 % | -4 % | 12 % | 12 % |
| Staff expenses per employee (annualized) | 46 | 49 | 49 | 51 | 50 |
| Ch. In staff expenses per employee (%) | - | 6 % | 0 % | 2 % | -1 % |

1) Group contributions

BALANCE SHEET - ASSETS 1.000 EUR

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|
| Non-current assets | | | | | |
| Intangible assets | | | | | |
| Intangible assets total | 330 | 472 | 385 | 362 | 274 |
| Tangible assets | | | | | |
| Tangible assets total | 2 988 | 2 744 | 3 113 | 2 948 | 3 231 |
| Investments | | | | | |
| Investments total | 0 | - | - | - | - |
| Current assets | | | | | |
| Stocks | | | | | |
| Stocks total | 2 492 | 2 311 | 2 579 | 4 999 | 2 964 |
| Debtors | | | | | |
| Long-term debtors | | | | | |
| Long-term debtors total | 1 633 | 1 633 | 364 | - | - |
| Short-term debtors | | | | | |
| Trade debtors | 820 | 1 414 | 1 808 | 3 225 | 2 463 |
| Loans receivable | - | - | - | - | - |
| Internal receivables | 1 430 | 2 289 | 3 602 | 1 278 | 346 |
| Receivables/Group | 15 537 | 14 803 | 14 283 | 24 473 | 30 140 |
| Prepayments and accrued income | 1 343 | 615 | 499 | 860 | 705 |
| Other debtors | 96 | 17 | 1 | 10 | 57 |
| Short-term debtors total | 19 226 | 19 137 | 20 194 | 29 847 | 33 711 |
| Cash in hand and at banks | - | - | - | - | - |
| Current assets | 23 350 | 23 082 | 23 136 | 34 845 | 36 675 |
| ASSETS | 26 668 | 26 298 | 26 634 | 38 155 | 40 180 |

BALANCE SHEET - EQUITY AND LIABILITIES 1.000 EUR

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|--|---------------|---------------|---------------|---------------|---------------|
| Equity | | | | | |
| Capital and reserves | 4 986 | 4 997 | 4 005 | 4 030 | 375 |
| Creditors | | | | | |
| Long-term creditors | | | | | |
| Long-term debt | 1 077 | 165 | 410 | - | - |
| Short-term creditors | | | | | |
| Short-term (interest-bearing) debt | 29 | 28 | 206 | - | - |
| Advances received | 14 706 | 14 007 | 15 255 | 24 389 | 28 903 |
| Internal debt | 78 | 111 | 9 | 188 | 11 |
| Trade creditors | 2 450 | 2 407 | 2 039 | 3 934 | 3 578 |
| Other short-term debt | 1 291 | 1 526 | 1 271 | 1 726 | 2 104 |
| Accruals and deferred income | 1 742 | 2 533 | 2 969 | 3 364 | 4 463 |
| Short-term (interest-free) debt | 20 267 | 20 583 | 21 543 | 33 600 | 39 060 |
| Short-term creditors | 20 297 | 20 611 | 21 749 | 33 600 | 39 060 |
| EQUITY AND LIABILITIES | 26 668 | 26 298 | 26 634 | 38 155 | 40 180 |
| Inventory turnover (days) | 61 | 46 | 52 | 68 | 32 |
| Days in trade debtors | 6 | 9 | 12 | 16 | 9 |
| Days in trade creditors | 22 | 18 | 16 | 23 | 15,3 |
| Gearing ratio (%) | 22,2 % | 3,9 % | 15,4 % | 0,0 % | 0,0 % |
| Equity ratio (%) | 41,7 % | 40,7 % | 35,2 % | 29,3 % | 3,3 % |
| Net debt / Operating margin (EBITDA) (%) | 62,5 % | 26,5 % | 30,4 % | 0,0 % | 0,0 % |

Finances 2018 - 2022

FREE CASH FLOW 1.000 EUR

| | 2019 | 2020 | 2021 | 2022 |
|---|-------|-------|-------|--------|
| OPERATING PROFIT (EBIT) | 47 | 1 343 | 276 | -4 603 |
| <i>Operating profit (EBIT, %)</i> | 0,1 % | 2,4 % | 0,4 % | -4,8 % |
| Taxes | - | - | - | - |
| Adjustments to Operating profit | - | - | - | - |
| Net Operating Profit Less Taxes (NOPLAT) | 47 | 1 343 | 276 | -4 603 |
| Depreciation and reduction in value | 681 | 680 | 695 | 627 |
| Ch. In provisions | 216 | -54 | 52 | 222 |
| Ch. In working capital | 585 | -365 | -15 | 3 630 |
| Other adjustments to cash flow | - | - | - | - |
| Cash flow from operations | 1 528 | 1 604 | 1 008 | -124 |
| Investments in fixed assets | 1 339 | 1 322 | 672 | 1 656 |
| Sales of fixed assets | -909 | -361 | -190 | -865 |
| Net investments | 430 | 960 | 482 | 792 |
| FREE CASH FLOW | 1 098 | 644 | 525 | -916 |

FINANCING 1.000 EUR

| | 2019 | 2020 | 2021 | 2022 |
|---|--------|--------|------|-------|
| Ch. In long-term (interest-bearing) debt | -912 | 245 | -410 | - |
| Ch. In short-term (interest-bearing) debt | -1 | 178 | -206 | - |
| Ch. In long-term debt | - | - | - | - |
| Ch. In long-term debtors | - | 1 269 | 364 | - |
| Financial income and expenses | -36 | -66 | -73 | -54 |
| Proceeds from share issue and other restricted equity | - | - | - | - |
| Ch. In other non-restricted equity reserves | - | - | - | 1 000 |
| Dividend payments | - | -1 000 | - | - |
| Other financing items/adjustments | -149 | -1 270 | -200 | -30 |
| | -1 098 | -644 | -525 | 916 |
| Ch. In liquid assets | 0 | 0 | 0 | - |
| Cash and bank accounts at the beginning of the period | - | - | - | - |
| Cash and bank accounts at period end | - | - | - | - |
| Ch. In liquid assets | - | - | - | - |

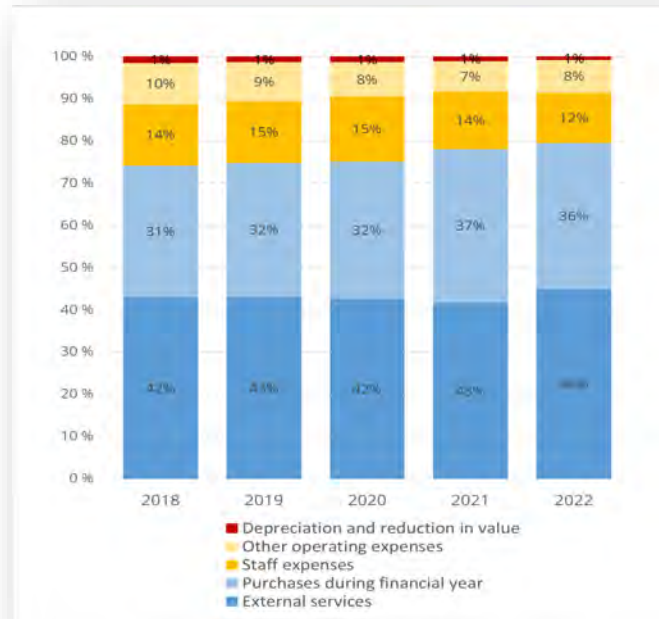
- In the review period 2019 - 2022, approx. 3,8 me working capital has been released
- In the years 2018-2020, the company has implemented only one equity financing round, where the raised financing was 1 me
 - During the review period, the company has paid group contribution for parent company approx. 1,4 me and dividends (2020) 1,0 me
 - According to the financial statements, at the end of 2022, the company had approx. 0 me cash and approx. 0 me interest-bearing debt on the balance sheet
 - The company has a group credit limit of 3,0 me, of which 0 me was used at the time of closing the accounts on December 31, 2022.
 - A very simplified cash flow for the company's history in the years 2019 - 2022 looks like the following (thousands of euros):

| | |
|---|----------|
| Cash and Cash equivalents 31.12.2018 | 0 |
| Cash flow from operations | 1 351 |
| Group contributions | -1 445 |
| Dividends paid | -1 000 |
| Equity funding | 1 000 |
| Other financing items | 94 |
| Cash and Cash equivalents 31.12.2022 | 0 |

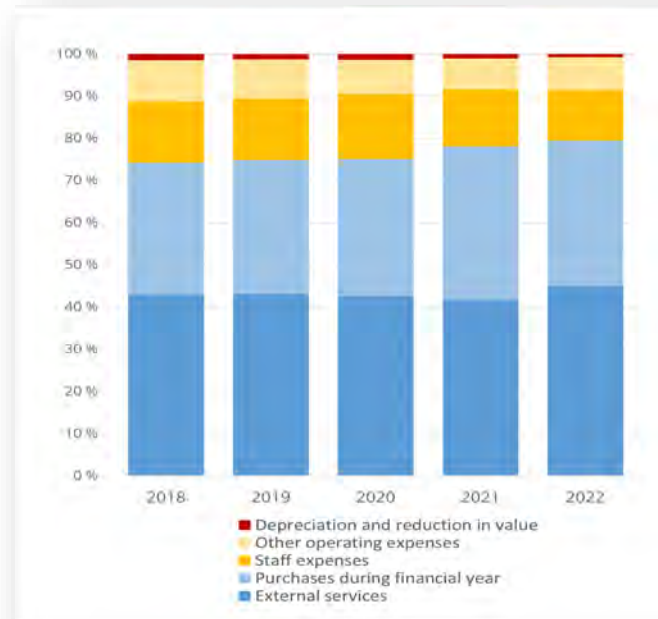
1) Includes also Group contributions

Cost structure and costs

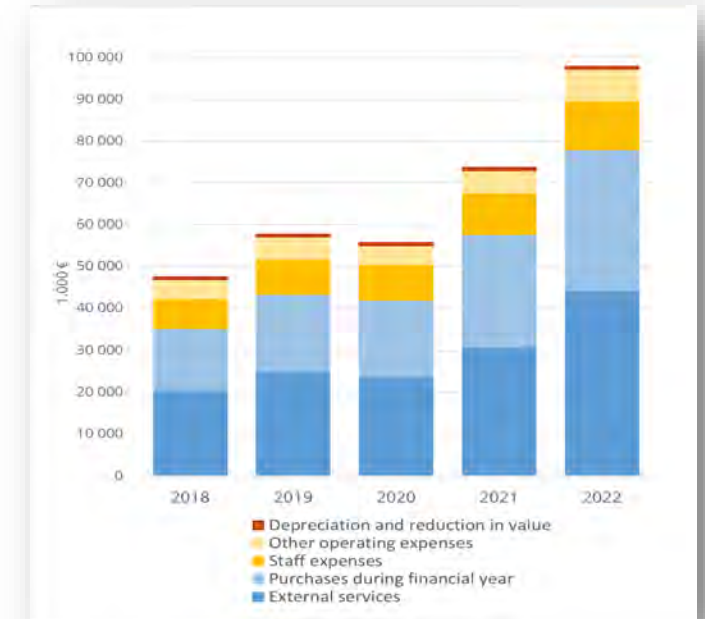
In relation to revenue



Share of all costs

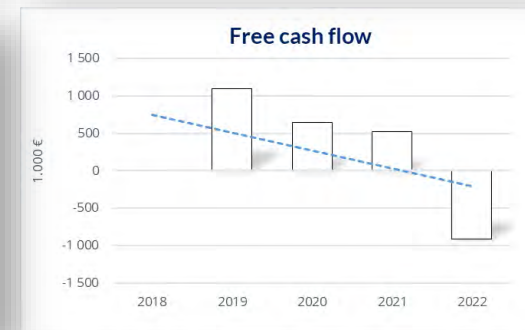
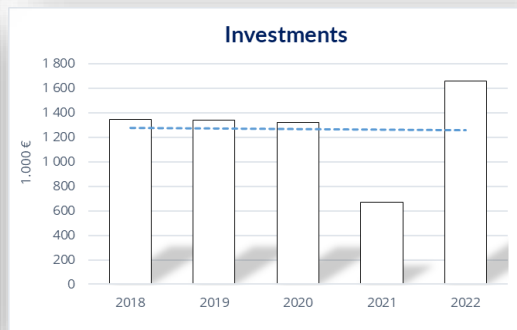
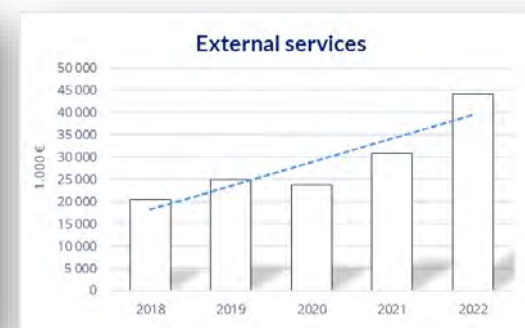
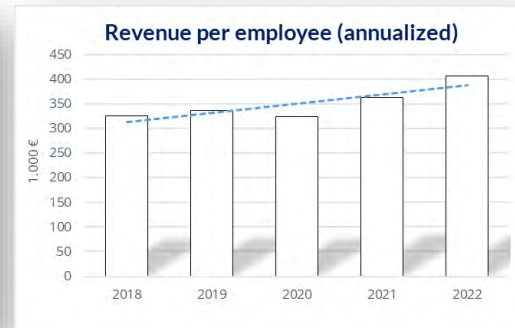
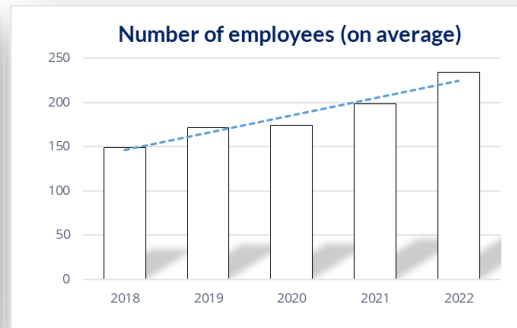


All costs in euros



- External services and Purchases are the most significant cost items
- The share in euros of external services (subcontracting, etc.) and the share in relation to turnover has increased
 - On the other hand, the share of personnel costs in turnover has decreased slightly, which can explain the growth of external services to a similar extent

Summary - Jukkatalo Oy 2018 - 2022



Forecasting and predicting bankruptcy risk - Case Jukkatalo



Z-score as a predictor of bankruptcy risk

- Bankruptcy research is based on the goal of finding the most essential factors that predict a future financial crisis, which, if realized, could lead to the company's bankruptcy
- The development of research and forecasting models has progressed e.g. from Edward I. Altman's one-variable model to Aatto Prihti's Z-score and Erkki K. Laitinen's three- and five-factor Z-scores
 - The Z-score can be used, for example, in the evaluation of the company's internal financial condition, in which case the imminent threat of bankruptcy can be avoided by taking measures to improve operations
 - The goal has not been to find a completely reliable, but indicative indicator, which would nevertheless raise a "red flag as a sign of danger" in sufficient time.
 - However, a Z-score falling below the critical value is not a sure "bankruptcy sentence", but rather gives the owner, financier and operative management an opportunity to react
 - According to current research work done, Laitinen's three-factor Z-score gives more reliable results in predicting bankruptcy than Laitinen's five-factor Z-score
 - **Z-score has proven to be an excellent identifier of bankrupt companies. It identifies the company's difficulties and possible bankruptcy with an approx. 80% probability already two years before bankruptcy**
- In external reviews, the challenge of evaluating the results is that the Financial Statements only shows the situation at the time of the financial statements
 - Quite often companies in trouble i.e., in financial difficulties try to "embellish" the financial statements
 - The prediction made on the basis of financial statement analysis only concerns the symptoms of bankruptcy and not their concrete causes
- Laitinen's Three and Five variables Z-score calculation is included in Argon Pro's analysis model

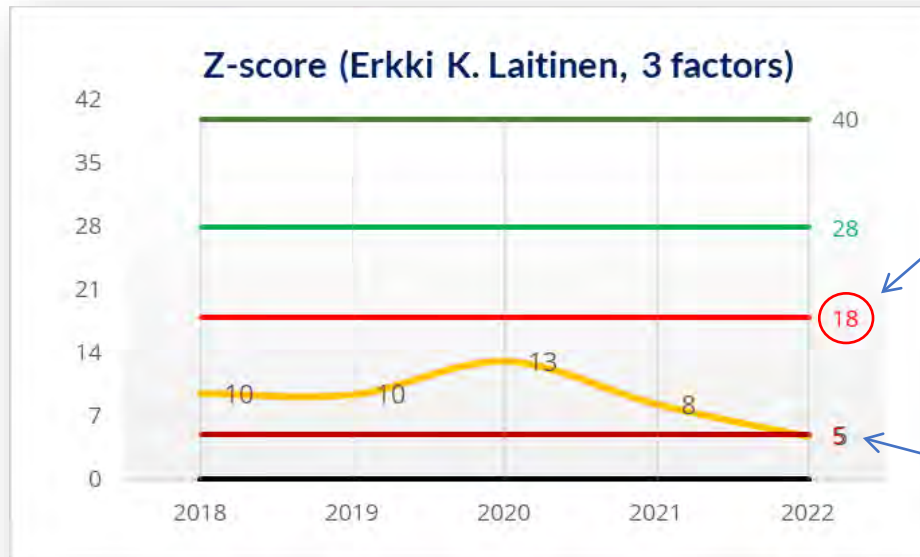
| Three variable Z-score (Laitinen) | Indicative reference values |
|-----------------------------------|-----------------------------|
| Excellent | > 40 |
| Good | 28 - 40 |
| Satisfying | 18 - 28 |
| Weak | 5 - 18 |
| Poor | < 5 |
| The critical value is 18 | |

Jukkatalo and three factor Z-score

- The Z-score measures the probability that the company will find itself in a difficult financial situation (in the near future) if no active measures are taken to prevent it.
- Z-score for Jukkatalo has been below the critical value for the past five years already, which means that the company has been classified as a "bankrupt company" for several years already.

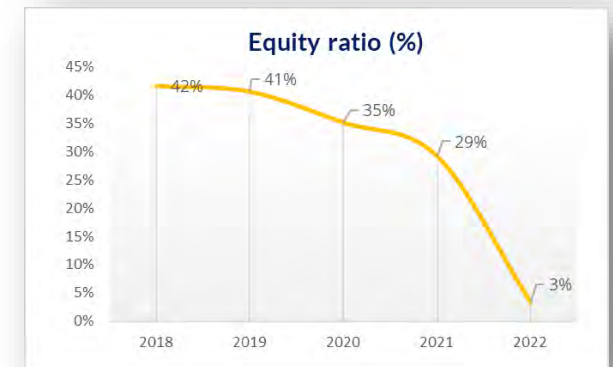
On the other hand...

- It seems that in 2018 - 2022, money/capital has been "pumped" out of the company, e.g. with group contributions and dividends totaling approx. 3,2 million euros and on 31.12.2022 the company had an unused group credit limit (3 million)
- Various arrangements for group subsidiaries may distort the results



■ The critical value of the Z-score

- If the Z-score is lower than 18, the company is in danger of going bankrupt
- If the Z-score is greater than 18, the company is classified as a healthy company
- Z-score for Jukkatalo Oy for 2018 - 2022



- $Z\text{-score (Three factors)} = (1,77 \times \text{Financial result-\%}) + (14,14 \times \text{Quick ratio}) + (0,54 \times \text{Equity ratio})$



Backgrounds, formulas and reference values to the financial indicators

Background to the financial indicators

- **Financial result (%)** describes how many percent of the company's income remains after expenses
 - Traditionally, the business of a bankrupt company has been unprofitable for several years before the bankruptcy.
 - A company with a negative financial result has to take out a new loan to pay its debts, which is an unsustainable situation in the longer term
- **Equity ratio (%)** describes the strength of the company's balance sheet
 - It has been found that the balance sheets of almost all bankrupt companies were weak.
 - A company with weak equity ratio is very likely to run into payment difficulties, and it is also more difficult for it to get external financing than a company with strong equity position.
 - In volatile times, a company with a strong equity ratio also has easier and cheaper access to external financing
- **Quick ratio** and **Current ratio** describes the company's ability to respond to short-term financing needs, and those ratios usually decrease as bankruptcy approaches
 - A weak Quick ratio is a traditional problem of bankrupt companies, but not necessarily the cause of bankruptcy itself.
- One of the key performance indicators is the cycle period of **Trade debtors** and **Trade creditors**.
- **Change in revenue (%)** measures the expansion or contraction of the company's business.
 - However, this financial indicator has given indications of bankruptcy only in the last year before the actual bankruptcy.
- **A company below the critical value of the Z-score has a high risk of bankruptcy. .**
 - However, oversized value of one variable may distort the value of the Z-score and may lead to incorrect interpretations.
 - In groups where financing is usually managed centrally by the parent company, all or some variables may also be distorted, although the parent company is usually responsible for its subsidiaries

Formulas for the financial indicators

| Financial indicator | Formula |
|-------------------------|---|
| Net income | EBIT + Financial income – Financial expenses – Taxes |
| Financial result | Net income + Depreciation and reduction in value |
| Financial income (%) | $\frac{\text{Financial result}}{\text{Income from operations Total}} \times 100$ |
| Equity ratio (%) | $\frac{\text{Shareholders' equity}}{\text{Total assets – Advance payments received}} \times 100$ |
| Quick ratio | $\frac{\text{Financial assets – Receivables in Percentage of completion projects}}{\text{Short – term liabilities – Short – term advance payments received}}$ |
| Current ratio | $\frac{\text{Inventory + Financial assets}}{\text{Short – term liabilities}}$ |
| Days in Trade creditors | $\frac{\text{Trade creditors}}{\text{Purchases and External services (12 mths)}} \times 365$ |
| Days in Trade debtors | $\frac{\text{Trade debtors}}{\text{Revenue (12 mths)}} \times 365$ |

Reference values for financial indicators

| Financial indicator | Excellent | Good | Satisfactory | Weak | Poor |
|-------------------------|---|-----------|--------------|-----------|--------|
| Net income | | | | | |
| Financial result | At least as large as the repayments of the loan. In the long term, it should cover loan repayments, self-financing portions of investments, increases in working capital and profit distribution to owners. | | | | |
| Financial income (%) | | | | | |
| Equity ratio (%) | > 50 % | 35 – 50 % | 25 – 35 % | 15 – 25 % | < 15 % |
| Quick ratio | > 1,5 | 1,0 – 1,5 | 0,5 – 1,0 | 0,3 – 0,5 | < 0,3 |
| Current ratio | > 2,5 | 2,0 – 2,5 | 1,5 – 2,0 | 1,0 – 1,5 | < 1,0 |
| Days in Trade creditors | Industry/business-specific, however reasonably close to the sales receivables cycle time, the payment times of procurement/purchase agreements should be monitored at some level | | | | |
| Days in Trade debtors | Industry/business-specific, however reasonably close to the cycle time of accounts payable, the payment times of sales contracts (payment terms) should be monitored at some level | | | | |



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