

Sustainability Analysis of the Financial Situation of Hungarian Food Companies

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In this study, the economic and financial performance of the Hungarian food industry sector sample between 2017 and 2022 was examined, with a special focus on the sustainable development rate. The increasingly prominent adverse economic and environmental changes in recent years have had a strong impact on firm-level performance, which can cause national economic problems in a strategic sector such as the food industry. The assessment relied mainly on information from a financial position and profit and loss accounts. The data were used to determine financial ratios and to calculate different growth rates, which were used to analyse the financing and sustainable growth issues of the sector. The number of Hungarian food processing enterprises has gradually declined over the period under study, with a concentration trend in terms of enterprise size, form and employment structure, as well as within sectors. Turnover and expenditure show linear growth at current prices, with increases in the various profit categories. The asset structure is stable, and profitability is improving. The number of companies and employment in the sector has been steadily declining in recent years, while efficiency is increasing, with total sector turnover approaching HUF 6.5×10^{12} . The increase in profits in the food industry is remarkable for all branches of the economy. The sector is adapting well to the negative effects of the changing economic environment. The results of the study can help business leaders in their planning work when considering the evolution of growth rates, particularly the Sustainable Growth Rate.

1. Introduction

The pursuit of sustainable development has become a key factor in determining the strategic industries of nations. The role of the food economy, which includes agriculture and the food industry based on it, is now undisputed due to its strategic global importance, the combination of population and food demand growth, and the impact of the territorial and ecological constraints imposed by the nature of the food (Bene et al. 2016) The food industry is also a key industry in Hungary, but since the early 2000s, the sector has been in a process of capital flight, indebtedness, market loss, corporate fragmentation, and declining profitability.

The economic importance of agriculture and the associated food industry can be defined in several ways. With the right combination of Hungarian production and world market opportunities, the food economy is a stable and strategically important sector for the country. The importance of the food economy is also a matter of food security and the preservation of human health. From a macroeconomic point of view, the food economy contributes to a country's GDP and strengthens countries' external trade by increasing exports of products. The number of people employed in the food economy is also significant, as the combined employment in agriculture and food processing is significant (Tóth and Garay, 2012). Despite its declining role, the food industry is still a key contributor to the national economy, as it produces higher value-added products from agricultural raw materials and commodities, providing a market for the producers of raw materials. In addition to serving the domestic market and consumers, this also provides an opportunity to enter export markets (Kiss, 2022).

The share of agriculture and food in GDP is gradually declining as the industrial and services sectors advance. It is questionable whether it should be considered a key sector or a strategic sector in terms of its relative position in the economy – its perception is ambiguous. While its macroeconomic importance is declining, it is still vital to meet basic needs. In rural areas, its role in employment is also significant. In 2022, agriculture contributed 0.9 % of Hungary's GDP growth of 4.6 %, similar to the previous 5 y, i.e., it did not contribute significantly to GDP

volume growth (KSH, 2023). The sector is characterised by a dual structure, which dates to the 1800s, with micro and small enterprises, which play a role in local supply and filling market niches, and medium and large enterprises, which can produce homogeneous and large quantities of commodities, being able to appear on the shelves of retail chains and in exports (Felkai and Kuti, 2022). The Hungarian food industry is one of the largest employers in the manufacturing sector, although the number of people employed is decreasing year by year. This decline in employment is not surprising; it is linked to the decline in real terms of the sector's revenues, modernisation, and low earnings (Ministry of Agriculture, 2020). In 2022, the two priority sectors (agriculture and food) will provide 7.1 % of total employment. This share has steadily decreased year by year (7.9 % in 2018). The value of exports of agricultural and food products amounted to € 13.164 × 10⁶, imports to € 9.701 × 10⁶, and the value of foreign trade in agriculture to € 3.463 × 10⁶ (€ 124 × 10⁶ less than in 2021). The structure of exports and imports is relatively stable over time. Hungary's main exports are cereals, spirits and vinegar, meat and meat products, and animal feed. On the import side, the main items were animal feed, oilseeds, cereals, meat, and offal (AKI, 2023). These figures also show that the importance of the food economy for the national economy cannot be disputed. It is also essential to examine the companies that make up the sector to get an accurate picture of economic trends and the positive and negative effects on the sector. With this information, the food sector can be better prepared and perform more stably at the level of the national economy. The economic and environmental impacts of recent years (COVID-19 aftermath, Russian-Ukrainian war, negative environmental trends caused by global warming, etc.) are increasingly raising awareness of the importance of sustainable operation of the businesses that make up the sector. The ability of companies to operate sustainably, to adapt flexibly to circumstances, to react to future difficulties, and to adapt to the market needs of new technologies and products are all vital components of sustainable development. Sustainability can also be understood as a new paradigm in corporate governance, offering an alternative to the traditional profit creation and maximisation model as the primary objective of the organisation. The sustainability approach is a value-creation framework that applies to achieving sufficient revenue for the firm and meeting the needs of a diverse set of stakeholders in the firm (Katits et al., 2022). According to Baranyai et al. (2022), the achievement of sustainable "well-being" is inseparable from economic processes and their financial dimensions. The implementation of sustainable management and operation requires not only the right technologies and processes but also financial solutions to facilitate their implementation (Nemes and Konczos-Szombathelyi, 2023).

The study of Sandberg et al. (2023) aims to investigate how ESG (environmental, social, and governance) ratings impact financial performance in the European food industry. Ordinary least squares regression is applied to analyse the relation between ESG ratings and financial performance over a 4 y period from 2017 to 2020. The profitability measures Return on Assets (ROA) and Return on Equity (ROE) are employed as financial performance measures, while ESG ratings are obtained from the database CSRHub. Results show that higher ESG ratings are associated with better financial performance. Gomes et al. (2023) found in their study that years of research on the relationship between Environmental Performance (EP) and Financial Performance (FP) have yet to yield a definitive conclusion. The food industry has been underrepresented in these studies, and existing results remain mixed. The food industry, in general, cannot explain the relationship between EP and FP. Initial investigations yielded inconclusive results for both quantile regression and cluster correlation.

For Hungarian food businesses, there have been no analyses between 2017 and 2022 that are explicitly based on sustainable growth and the context of the financial indicators that underpin it. The present study fills a gap by examining the sector's response to financial data and growth indicators resulting from the changing economic environment in recent years. The paper aims to analyse the role of enterprises in the economy sector, their assets, results, and main financial indicators and to examine the possibility of incorporating sustainability principles and their driving forces over six financial years. The following research questions were formulated based on a review of available databases and an analysis of the literature: a) Overall, how have the financial data of businesses developed in the years under review? b) What changes in profitability indicators have been observed? c) What were the effects on the financing of the sector under review? d) What are the growth rates that support the management of sustainable farming? e) What are the trends in growth rates? This study is based on the work published in 2023, in which the period 2017-2021 was analysed in terms of wealth, income, and financial situation for the same business sector (Hegyi et al., 2023). The database of the analyses included in this report has been extended with data for the year 2022, and the analyses have been complemented by calculating different growth rates and demonstrating their role in supporting sustainable management.

2. Methods

The analysis of the financial situation of food businesses is generally based on financial indicators derived from financial position and income statements (capital structure, efficiency, liquidity, return on investment, and

profitability indicators). And by quantifying growth rates and examining their evolution over time, it is possible to draw conclusions about the sustainable growth of a given sector.

In this paper, the economic and financial performance of the Hungarian food sector sample (only double-entry bookkeeping companies) between 2017 and 2022 was analysed, with a focus on the sustainable development rate. The analysis was based on data from the National Tax and Customs Administration's database of annual reports on this sector produced by the Institute of Agricultural Economics (AKI). The valuation was based primarily on information from financial position and income statements. The main categories of the profit and loss account (net turnover from sales, operating expenses, operating results) were examined as the structure of the financial position (ratios and changes in the values of the financial position categories). The financial indicators used are shown in Table 1.

Table 1: Financial indicators analysed

Profitability indicators	
ROS (%)	Profit after tax / Net sales
ROE (%)	Profit after tax / Equity
ROA (%)	Total profit after tax / Total assets
Wage and salary profitability (%)	Profit after tax / Salary and personnel costs
Profit after tax per capita (HUF 10 ⁶)	Profit before tax / Average number of staff
Return on equity (%)	Profit before tax / Average number of staff
Return on capital employed (%)	Profit after tax / Equity

Financial growth is influenced by several factors; it is the optimal combination of these factors that allows a company to achieve the highest growth. There can be internal and external growth, and each type has its advantages and disadvantages. The Internal Growth Rate (IGR) (Parrino, Moles, and Kidwell, 2011) measures the maximum growth of a company without external financing, solely from retained profits (Eq1).

$$IGR = \frac{\frac{Net\ Profit}{Assets} \times \frac{Retained\ Profit}{Net\ Profit}}{1 - \frac{Net\ Profit}{Assets} \times \frac{Retained\ Profit}{Net\ Profit}} = \frac{ROA \times RPR}{1 - ROA \times RPR} \quad (1)$$

Where: ROA = Return on Assets; RPR = Retention Profit Rate. The Sustainable Growth Rate (SGR) is the maximum growth rate possible without changing or increasing the firm's capital leverage (Chandra, 2020) (Eq2).

$$\frac{\frac{Net\ Profit}{Equity} \times \frac{Retained\ Profit}{Net\ Profit}}{1 - \frac{Net\ Profit}{Equity} \times \frac{Retained\ Profit}{Net\ Profit}} = \frac{ROE \times RPR}{1 - ROE \times RPR} \quad (2)$$

Where: ROE = own return on equity. It is a growth that can be achieved without raising new equity, while maintaining the long-term debt and equity ratio (Chandra, 2011). If the growth rate of sales exceeds the size of the IGR, the Additional Financial Needed (AFN) is the amount of additional funding needed to achieve this growth (Katits and Szalka, 2020) (Eq3).

$$AFN = \frac{Assets}{NSR_0} \times \Delta NSR - NSR_1 \times \frac{Net\ Profit}{NSR_0} \times \frac{Retained\ Profit}{Net\ profit} \quad (3)$$

The $\frac{Assets}{NSR_0} \times \Delta NSR$ = asset requirement for revenue growth, where ΔNSR = year-on-year increase in turnover; the $NSR_1 \times \frac{Net\ Profit}{NSR_0} \times \frac{Retained\ Profit}{Net\ profit}$ = retained profit on projected turnover, where NSR_1 = projected turnover, NSR_0 = turnover for the current year, and $\frac{Retained\ Profit}{Net\ profit}$ = profit retention rate.

The Self-financeable Growth Rate (SFGR) (Eq.6) is the growth rate of a company that can be achieved with operationally managed resources without external financing and capital withdrawal (Marks et al., 2009). This company-specific growth rate depends essentially on the following 3 factors (Katits and Szalka, 2020):

- The duration of the Operating Cash Cycle (OCC) (Eq.5), which is the time to hold inventory (DIH = Days Inventory Held), and the time to collect trade receivables (DSO = Days Sales Outstanding).
- The duration of the borrowing as an OCC to finance working capital.
- Generate the freely available resource as OCC (Eq.4).

The following steps are required to calculate the annual SFGR:

$$\frac{\text{Free disposable funds}}{\frac{SNR}{DIH + DSO}} = \text{as SFGR OCC} (= SFGR_{OCC}) \quad (4)$$

$$\frac{365}{OCC} = \text{OCC number per year} (= OCCn) \quad (5)$$

$$(1 + SFGR OCC) \times OCCn - 1 = \text{Yearly SFGR} \quad (6)$$

3. Results

3.1 Description of the sector under review, general financial characteristics

The number of partnerships in the sector analysed shows a downward trend. However, their share at the level of the economy remained stable at 2.1 %, as the number of enterprises in other sectors also fell. The number of profitable enterprises represents, on average, around 60 %. The most popular legal form of holding is the limited liability company, with 3,272 out of 3,916 enterprises operating in this form in 2022. Among the size categories of enterprises, micro-enterprises are the most important, but their number also shows a significant decrease (from 3,605 to 2,929 in 2022). In addition, the number of small enterprises shows a negative trend. These trends are not accompanied by an increase in the number of medium and large enterprises, which are rather stagnating. The decline in the total number of firms suggests the disappearance of smaller firms.

The profit and loss accounts of the organisations show that sales revenue shows a slow linear increase over the period (from HUF 3.634 × 10¹² at current prices to HUF 6.587 × 10¹²). Total operating expenses range between HUF 3.623 × 10¹² and HUF 6.468 × 10¹² over the period. Although all expenditure groups show an increase, the largest change is in the material category. Operating results vary between HUF 156 × 10⁹ and HUF 378 × 10⁹ at current prices, but there was a slowdown in 2019 and 2020 in an otherwise increasing trend. In the financial position of the accounts of food processing enterprises, the average value for 6 y is taken for the structure of assets and liabilities. Within the assets, fixed assets (50 %) and current assets (48 %) represent similar proportions, while accruals and deferrals account for 2 %. 90 % of the value of fixed assets is accounted for by tangible assets, the remaining 10 % by intangible assets and financial fixed assets. Inventories represent 37 % of current assets, receivables 47 %, cash 14 %, and securities only 1 %. The value of assets increased linearly. Between 2017 and 2022, the value of fixed assets increased the most by 70 %. This was due to a positive change in the value of fixed assets, suggesting an increase in the intensity of investment. There is also a linear increase in liabilities. In the structure of liabilities, equity accounts for 42 % and liabilities for 52 % (provisions and accruals account for the remaining 6 %). Within liabilities, long-term liabilities represent 32 % and current liabilities 65 % (the remaining 3 % are subordinated liabilities.) The ratios reflect the absence of a predominance of long-term liabilities (e.g. investment loans) in the companies under review. The change in the value of liabilities also shows a linear upward trend. The 76 % increase in long-term liabilities stock shows the highest rate of change in 2020 and 2021, mainly due to the increase in the stock of long-term liabilities. The steady increase in total indebtedness highlights concerns about the sector's solvency.

3.2 Analysis of key profitability indicators

The profitability indicators of the companies analysed show a steady improvement. The ROE indicator (the peak profitability indicator) shows the highest increase (3.3 %) from 2021 to 2022. Both components of the ROE indicator, ROS, and ROA, are also increasing. The ROS indicator increased from 3.7 in 2019 to 4.9 in 2022. There has been a marked increase in ROE per capita, with the value of this indicator rising from 148.6 to 379.7, indicating a positive change in the efficiency of labour use (Table 2).

Table 2: The most important profitability indicators of food processing enterprises, 2017-2022

Profitability indicators	2017	2018	2019	2020	2021	2022
ROS (%)	3.6	3.8	3.7	4.2	4.5	4.9
ROE (%)	10.7	11.5	11.1	12.5	13.6	16.8
ROA (%)	4.8	5.1	4.9	5.1	5.2	6.2
Wage and salary profitability (%)	37.1	37.7	36.3	42.3	47.6	60.6
Profit after tax per capita (HUF 10 ⁶)	148.6	168.5	178.1	215.4	262.0	379.7
Return on equity (%)	11.5	12.4	12.0	13.3	14.4	17.9
Return on capital employed (%)	48.0	51.2	54.0	60.5	71.1	99.5

Source: Own elaboration, data from AKI reports (2017, 2018, 2019, 2020, 2021, 2022).

3.3 Examination of growth rates

In terms of the growth of companies, we can talk about internal financing (the return of the resources generated back into operations) and external financing (the resources used come from outside). If internal resources are insufficient to finance growth, the missing part must come from external resources.

The values in Table 3 suggest that if $SaGR < IGR$, the sector is not fully exploiting the growth potential that would result from self-financing, i.e. retained profits. This may indicate low revenue generation due to high operating and financing cost ratios, operational and financing disruptions due to insufficient working capital, market problems due to changing and/or declining demand, and management problems (Katits and Szalka, 2020). This is what can be seen in 2017 and 2019.

If SGR exceeds the growth rate of turnover from the profit and loss account, the enterprise cannot maintain its current capital structure. In this case, both debt and permanent capital could be raised, i.e. the ownership could change. Conversely, a change in the capital structure is not accompanied by an increase in turnover, which does not improve asset efficiency but increases financing costs. This can be observed between 2017 and 2021, but the trend reverses by 2022.

Table 3: Internal (IGR), sustainable (SGR), and self-financing (SFGR) growth rates and net sales growth rates (SaGR) of the income statement between 2017 and 2022

Profitability indicators	2017	2018	2019	2020	2021	2022
SaGR	3.45	7.11	3.99	9.10	12.61	32.44
IGR	5.12	5.46	5.14	5.38	5.49	6.59
SGR	11.94	13.10	12.44	14.37	15.72	20.19
SFGR	0.99	1.05	1.00	0.97	0.92	0.90

Source: Own elaboration, data from AKI reports (2017, 2018, 2019, 2020, 2021, 2022).

If $SaGR > SFGR$, then the sector has achieved higher revenue growth than the corporate growth that could be achieved with operationally managed resources without the need for external financing and capital withdrawal, without reducing the duration of OCC – inventory write-downs and trade receivables collection. Companies benefit from SaGR not decreasing from one year to the next, except in 2019, when the period under review shows an increase. If the growth rate of the SGR exceeds the growth rate of turnover calculated from the profit and loss account, the enterprise cannot maintain the capital structure it has in its financial position for the current year. In the period under review, except for the year 2022, the SGR of the companies in the sector was higher than the SaGR each year and increased year on year. This shows that the companies under study have maximised their self-financing potential but do not exceed the rate of revenue growth at which the financial position liability structure changes.

4. Conclusions

The number of Hungarian food processing enterprises decreased between 2017 and 2022, with an average of 60 % of profitable enterprises. In terms of legal forms, limited liability companies are the most popular in the sector, while micro-enterprises are dominant in terms of size, although their numbers are falling spectacularly. Profit and loss accounts show a slow increase in sales revenues. The value of operating expenses is steadily increasing, with the largest change in material expenses. The positive trend in the operating result for the period under review was reversed in 2019 and 2020. The analysis of the financial position shows that the asset structure of enterprises in the sector is stable, with a significant increase in fixed assets and a significant increase in liabilities. Profitability indicators show a steady improvement.

The analysis shows that the sector is adapting well to the negative effects of the changing economic environment. The pandemic that occurred during the period under review did not have a lasting and profound impact on the food economy. The supply problems on the world market have drawn attention to the importance of the sector (including the value of domestic food production and food security). These factors could positively impact the longer term by stimulating demand for domestic food and increasing its trade volume.

Global sustainability goals must also be applied to small businesses, which are an integral part of the national economy. Growth and development must be guided by these aspects. The financial sustainability of small enterprises should be given a higher focus. The goal of the national economy is not 'no growth' but growth that involves an unjustified surplus of resources and causes environmental damage. Companies need to think holistically about their growth in terms of financeability. Taking sustainable growth rates into account is an important planning parameter. Knowing the IGR, SGR, and SFGR growth rates help analyse the financeability of growth opportunities by considering changes in projected or actual sales revenue (SaGR). Calculating the

rates helps in projecting profit and loss accounts to support further financial growth.

The SGR is not only a financial planning parameter but also a useful parameter for financial analysis. It can be used to assess the performance of the business over the period under review (operating and net profit margin, ability of assets to generate revenue), ROA, and the evolution of the financing cash flow (self-financing, the level of retained earnings, and the increase or decrease in equity in total capital).

The questions answered in the survey will provide a realistic picture of the sector, which will also provide a good basis for policy experts and decision-makers to identify possible weaknesses and, in case of persistent internal financing problems, to intervene with their instruments to address them.

Food business managers are encouraged to use the Sustainable Farming Checkpoints. By matching the SGR with additional financing needs, they can decide on the financing structure and modality. Sustainable management requires a regular and smooth cash flow to meet debts on time and to finance activities, so it is recommended to prepare a liquidity plan and to monitor it using a cash flow and operating cash flow approach.

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