Corporate pricing power and inflation

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Abstract

Recent surge in inflation created new challenges for economic theory and policy. The reference to earlier episodes is often misleading. Traditional theories focus on demand factors like excessive money supply overheating the economy (monetary theory), wage growth and labor shortages and point to central bank responsibility. Central banks are increasing interest rates in line with their mandate in the inflation targeting framework. Current explanations point to supply disruptions and bottlenecks in basic commodities and energy markets and the geopolitical turmoil. Increasing interest rates and the austerity policy would do little to tame supply related inflation and they would risk even worsening the problem.

We propose new aspects of the problem which indicate a need for new approaches in research. Inflationary tendencies are often linked to cost pressures. We point to a new aspect namely the increasing profit margins of companies. Firms with market power increase prices when they expect that their competitors will follow. Current conditions of sector-wide cost shocks support such expectations that instead of increasing market share competitors will follow the price increase. Not just the competitors but every downstream sector may also increase their prices.

We extend the analysis to this aspect by using Orbis database for the Hungarian companies' balance sheet data for the period of the period 2013-2021.

Keywords: inflation, markup, EBITDA, monetary policy

INTRODUCTION

Inflation has rapidly and significantly increased in almost every country in the world. Several characteristics of the current inflation trends reminded many analysts of the oil price shock in the 1970s and its inflationary impact. This parallel is based on the perception that the increase in energy prices has significantly contributed to current spike in price increases. However, the comparison is flawed for several reasons. It would be premature to evoke the economic policy responses of the 1970s. It is important to realize that the current situation is different from any previous inflationary episode for several reasons. An important consequence of these

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differences is that traditional theoretical approaches do not provide a convincing explanation for the current inflationary phenomena. We need to know that traditional approaches do not provide guidance for effectively policy response for our todays problem (Ábel – Nagy, 2022).

We focus on the shortcomings of traditional approaches. These approaches played a significant role in modelling the factors and assessing policy responses in central banks and by the International Monetary Fund's recent country studies on inflation (see IMF, 2022, 2022a, 2023). These popular and widely used models belong to a group of so-called expectation augmented Phillips curve framework. The results of these estimations indicated that although the theoretical framework of the traditional Phillips curve approach still contributed to highlighting some of the main mechanisms, it also revealed that important aspects of the current problems remained outside of the explanatory power of this approach. The estimations left a huge slack in explaining the developments. There is a need to expand the list of factors by adding new elements in the current situation. First, we highlight some of these considerations from the ongoing debates in the United States, then we outline the path that identified a significant gap in the explanatory power of the traditional approach.

1.1. DEBATES ON INFLATION IN THE UNITED STATES

Galbraith (2023) emphasized that in the US oil prices rose rapidly in 2021, but before that there was a long period when the price of oil was particularly low. The period before 2021 reflected the impact of the pandemic which triggered a decline in traffic and in this way contributed to a fall in demand for oil. The oil industry adjusting to the declining demand, decreased production and exploration of new deposits. However, the rising demand after the pandemic led to a rapid increase in prices after 2021. The price of oil fluctuated between $65 and $80 per barrel on the international markets before the pandemic broke out, dropping to $20 at the beginning of 2020 due to the crisis. After the crisis, prices rose rapidly, and at the beginning of 2022, the inflation-adjusted price per barrel reached $116, from where it fell to around $80 by the end of 2022 (Galbraith, 2023, p. 2.).

Fuel price increases significantly contributed to today's inflation. "…oil prices drove the gasoline component of the Consumer Price Index up by 154 percent from the low in March 2020 to the peak in June 2022, with indirect effects on food and all other sectors." (Galbraith, 2023, p.2.)

Another important inflationary impact was related to the shortage of semiconductors and chips in the automobile industry according to Galbraith (2023). Car manufacturers expected a decrease in demand for cars used for commuting due to pandemic related remote work while appliance manufacturers foresaw an increase in demand for household appliances. However, neither of this happen, and because of the decline in the supply of new cars, used car prices in the United States increased by 55% until February 2022 (Galbraith, 2023, p.3.). But it is questionable what economic policy measure could be considered to mitigate such an inflationary impact of the shift from new cars toward used one.

It is often mentioned that government policies contributed to the inflation. Pandemic related budgetary spending increases and extremely loose monetary policy measures were used to mitigate the income loss of those who lost their job. Such measures also helped the companies to survive the threat of recession. It is widely believed that these measures also contributed to today's acceleration in inflation as the beneficiaries began spending again. Pandemic related postponed demand suddenly appeared on the market, and companies responded to the rapid increase in demand by price increases.

Galbraith (2023) noted however, that the significant increase in budget spending, which amounted to $600 per person per week in unemployment benefits, did not necessarily resulted in savings (which would finance postponed demand) since households in need still had to spend

on rent, food, fuel, and everyday expenses, and only the wealthier people were able to save more. They probably spent this on investments, real estate purchases, and the like.

Ferguson and Storm (2023) strongly refuted the idea that the pandemic related government spending could explain the recent acceleration in inflation. Instead, they claimed that the current inflationary episode may be attributed to various global factors, including import prices and supply bottlenecks, but it cannot be adequately explained by the US economic policy reactions that supported the incomes of workers and unemployed people in response to the impact of the pandemic. Significant changes have occurred in these supports over time without noticeable change in the inflationary trends (Ferguson and Storm, 2023, p. 12). They also emphasized that various supply-side changes, such as import prices, energy prices, and corporate profit margins, have contributed significantly to the emergence of inflation, but together, they do not explain the significant change in inflation convincingly (Ferguson and Storm, 2023, pp. 13-15.). Although they refuted that the economic policy response to the pandemic was behind the re-emergence of inflation in the US, they also noted that the effects of the pandemic on global trade may have contributed to the emergence of inflation through various supply shocks.

All these considerations have extraordinary importance in choosing the policy mix suitable to cope with inflation because traditional monetary policy interventions such as drastic interest rate hikes can only have a limited effects on mitigating the impact of external and erratic supply shocks, and even this limited effect could be achieved at an extremely high cost. The recession that arises because of increased interest rates often causes more damage than the inflation itself.

1.2. NEED FOR A NEW APPROACH IN ASSESSING CURRENT INFLATIONARY TENDENCIES

In 2021, the accelerated inflation set new forty-year records in both the USA and European Union countries. In exploring the causal factors for this phenomenon, some views emphasize demand-side factors, namely the Covid-19 restrictions, followed by the surge in consumer demand after their easing (especially in the USA), and rapid price increases induced by nominal wage growth. However, empirical data do not support an excessive increase in aggregate demand in the latter case. The European Commission's report on labor market and wage trends (European Commission, 2022) noted that the 4% nominal income increase in 2021 exceeded the average for the years 2013-2019 by 1.9 percentage points, but overall wage growth remained subdued, while real wages decreased significantly in both 2022 and 2023. According to the ILO (2022) report, global real wages decreased by 0.9% in the first half of 2022, except for China, which saw a decrease of 1.4%, a phenomenon that has not occurred since 2008. Prior to Covid, there was a 1-2% real wage increase in the European Union, which disappeared in 2021, and in the first half of 2022, a 2.4% decrease was observed. In Eastern Europe, the previously relatively high 3.3% real wage increase was followed by a similarly significant negative change during this period. After millions of low-wage workers lost their jobs in the US and Canada due to Covid-19, real wage growth increased by 4.3% in 2020, but then decreased to zero in the following year and shrank by 3.2% in the first half of last year. According to Stiglitz and Baker (2022), the fear of wage-price spiral is unfounded, as nominal wage growth in the US slowed from 6% in May 2022 (annualized based on three-month averages) to 4.4%.

Others mentioned that the measures restricting the movement of people introduced during the pandemic caused disruptions in global supply chains, creating problems with bottlenecks (such as chip shortages) in specific affected sectors, which fueled inflation from the supply side. Stiglitz and Regmi (2022) identified five main factors related to this. The world market energy and food price increases, accelerated by the Russian-Ukrainian war, contributed

2.9 percentage points to the US inflation rate of 7.7% measured in October 2022, while energy prices were more deflationary before the pandemic. The increase in prices of other essential products was also significant (especially for cars and parts, as well as freight transportation). Due to supply problems in specific sectors, demand is growing faster for substitute products than for products with oversupply, as nominal prices are downward inflexible, so this also has a price-increasing effect. Increased rental prices for housing (depending on location and property type) accounted for 0.6 percentage points of the October inflation data. The fifth factor can be attributed to the market power of companies, namely that they increased their prices more than their costs.

Stiglitz and Regmi (2022, p. 40) noted, that in the United States between 1960 and 1980, the average corporate profit rate exceeded marginal costs by 26%, and it continued to increase at a slow pace thereafter. The average profit rate in 2021 was 72% higher than wage cost increases. Lapavitsas et al. (2022) argue that the inflation is not explained by the wage-price spiral, but rather by excessive profit growth. In the UK, from October 2021, 60% of price increases can be attributed to the increase in corporate profits, while wage growth contributed only 8%. Nersisyan and Wray (2022) cited Matt Stoller's (2021) survey, which states that in the United States, 60% of the inflation can be attributed to the growing corporate profits. This is estimated to cost an average American $2,126 annually. According to the latest findings by Glover et al. (2023), profit rate growth in the US contributed more than 50% to inflation in 2021, which was significantly higher than in the previous decade. We believe that in the current inflationary dynamics companies pricing power may play an important role. We follow some suggestions in the literature focusing on the US and often refereeing to the current inflationary period as “greedflation”, indicating that companies are able to increase their profit share by using (misusing) their pricing power (Weber – Wasner, 2023). The term is widely used see for example Chassany (2023), who published an article in the Financial Times. The oil industry is an outstanding example for that, but we may be facing a wider trend in this respect.

In our analysis, we examine the inflationary consequences of corporate profit growth. We apply the methodology of the profit rate survey conducted by Konczal and Lusiani (2022) for US corporations to Hungarian businesses, and explore the relationships between prices, corporate profitability, and market power similarly to their approach.

1.3. ESTIMATING THE MARKET PREMIUM (ALTERNATIVE METHODS)

Konczal and Lusiani (2022) examined market premiums in the United States between 1955 and 2021. In their study, they used an upgraded version of De Loecker et al.'s (2020) methodology, which interpreted market premiums as the ratio of sales to the cost of goods sold (COGS), with certain corrections. The authors investigated three aspects: the relationship between company size and market premiums, the movement of market premiums across industries, and the predictive factors influencing market premiums in 2021.
The American example showed that, despite the pandemic, market premiums calculated using De Loecker et al.'s (2020) methodology increased significantly. Companies with the highest margins in the past experienced the greatest increase in premiums included the financial sector, the oil industry, and the real estate market experiencing the highest price increases from an industry perspective.

We adopted De Loecker et al.'s (2020) and Konczal and Lusiani (2022) methodology to a Hungarian data set and tested whether companies used their market power in their pricing policies, or whether their higher profit expectations contributed to inflationary effects.
In this context, we assumed that increasing profitability of companies may have contributed to

the inflationary pressures since 2021.

The sample we examined came from the Orbis database and included companies that submitted annual reports in Hungary between 2013 and 2021. We provided the criteria based on the 2000 Act CXXXVII, which states that the revenue should exceed HUF 2.4 billion, or the balance sheet total should be larger than HUF 1.2 billion, or the number of employees should exceed 50, with at least 2 of these criteria being met each year. We used panel analysis for our investigation, which means we only considered companies with data available for every year. In total, we analyzed data of 1,987 companies. The sample cannot be considered representative, but it covers a significant proportion of companies submitting annual reports.

The variables we examined were as follows:

- Margin (Sales/COGS)
- EBITDA margin (Operating profit including depreciation / Sales)

The period between 2014 and 2021 was covered in these calculations.

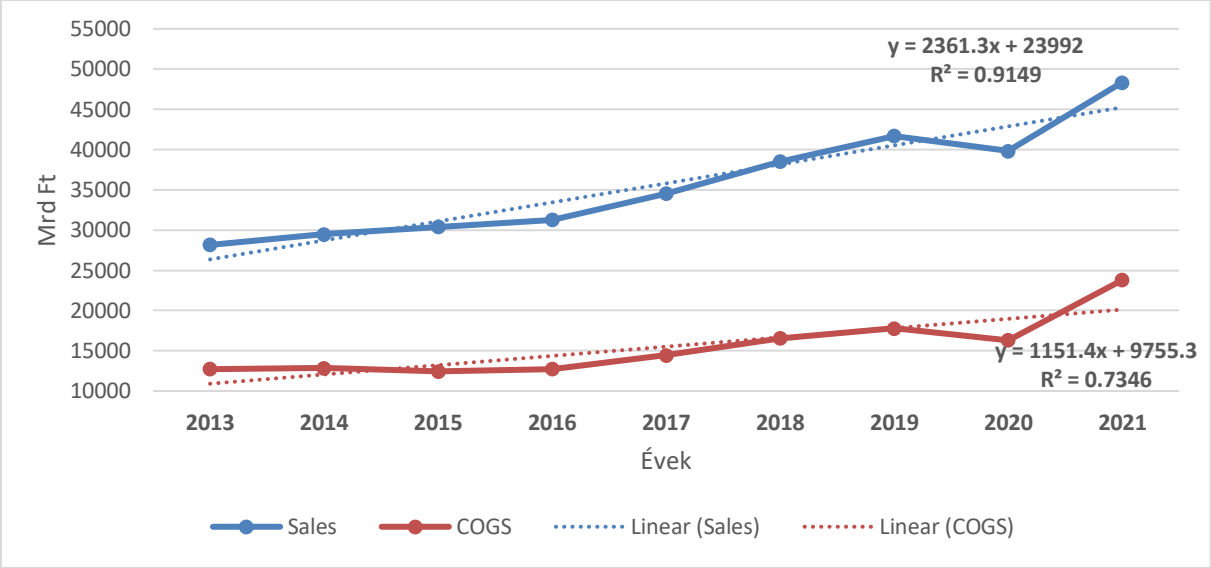
We conducted descriptive statistical analyses, trend calculations, and variance analyses, the latter by industry segments, with the variables examined. We checked for explanatory factors for changes in the EBITDA margins by using regression analysis.

1.4. RESULTS

1.4.1. TOTAL REVENUES (SALES) AND COST OF GOODS SOLD (COGS)

We first look at the tendencies observed in the aggregate sample total of the revenue (Sales) and the cost of goods sold (COGS) in the period of 2013 and 2021, with a sample size of 1,987. Figure 1 shows that the growth rate of the revenue significantly surpassed of the growth rate of cost of goods sold during the period of 2014-2016, when the economy was in recession. This trend changed during the period of 2017-2019, when the cost of goods sold grew at a higher rate than the sales revenue. In 2020, the growth rate of both variables declined due to the pandemic, and in 2021, the growth rate of the cost of goods sold significantly surpassed that of the revenue. This observation is supported by the trendline equation of the cost of goods sold, which has a lower R^2 than the revenue due to the significantly increased growth in the last year. However, these growth rates may be misleading, as shown in Figure 1, where the "gap" between the revenue and the cost of goods sold has been increasing in the period of 2016-2019 and in 2021. The ratio of the two variables reached its highest value in 2021. Although Konczal and Lusiani (2022) and De Loecker et al (2020) mainly focused on the cost of goods sold in their analyses, in the case of Hungarian data, the material costs and services consumed in the material-type cost structure should be considered more important. However, the trends in material costs and services consumed are consistent with those of the cost of goods sold. In this regard, the domestic trends are like those observed in the United States.

1. Figure Total revenues (Sales) and total cost of goods sold (COGS)
(Sample N=1,987, period 2013-2021)

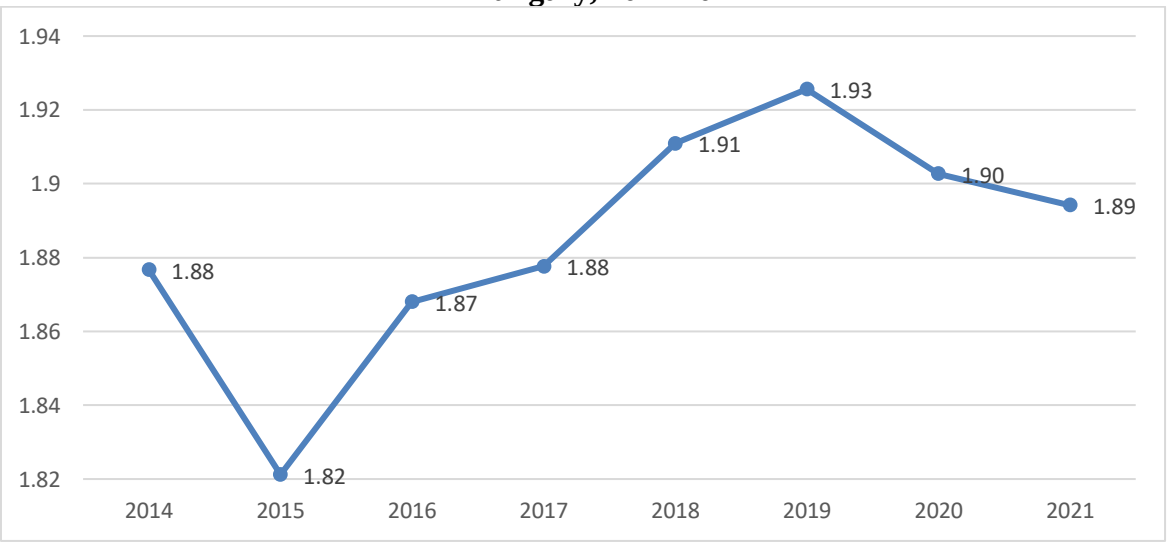


Source: Based on data from Orbis (2023)

1.4.2. AVERAGE VALUES OF THE RATIO OF SALES REVENUE TO COST OF GOODS SOLD (COGS)

The average value of the ratio of sales and cost of goods sold (COGS) is presented in Figure 2. This ratio in the sample dynamically increased between 2015 and 2019, but the growing trend was interrupted by the pandemic, and this trend continued in 2021 as well. Based on this, it can be concluded that the average markup calculated using the methodology of De Loecker et al. (2020) does not show the dynamic expansion observed in the United States between 2020 and 2021 in Hungary. In fact, the previous upward trend turned into a decrease, unlike in the US.

2. Figure The average value of the ratio of sales and the cost of goods sold (COGS) Hungary, 2014-2021

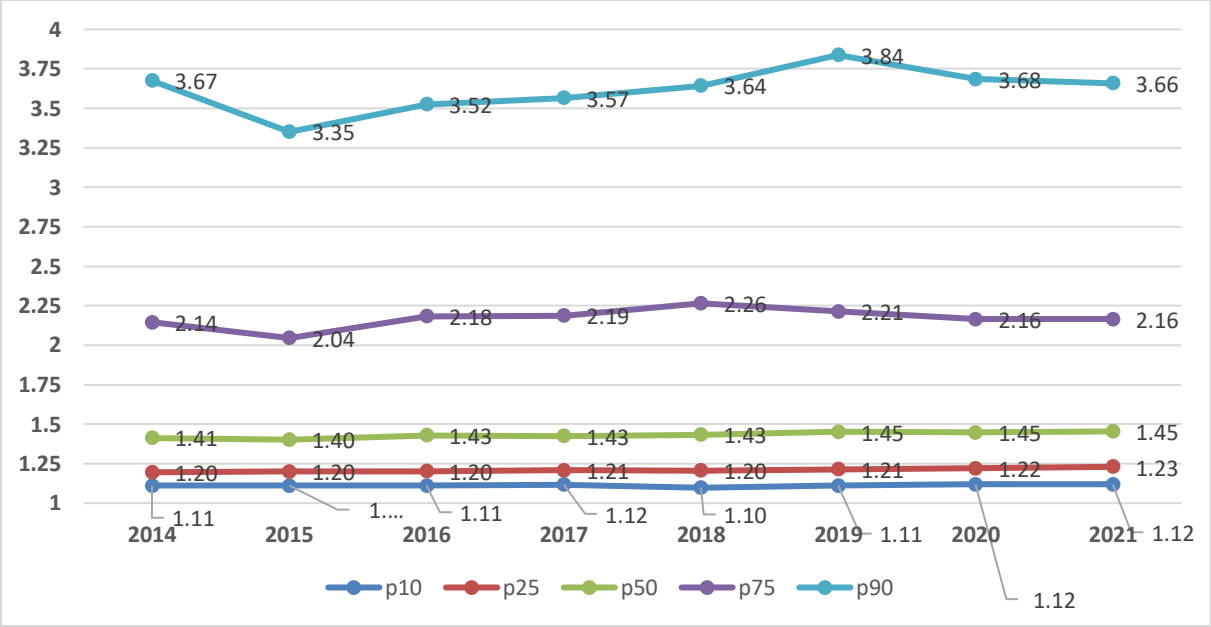


Source: Based on data from Orbis (2023), N=1987 observation.

1.4.3. TENDENCIES OF THE RATIOS IN THE PERCENTILE GROUPING OF THE SAMPLE

De Loecker et al. (2020) found that the markups significantly increased from 2015, and this growth mainly affected companies with the highest markups, identified by the upper percentile (p90). Their studies also found that the highest value was reached in 2021 in all quartiles and percentiles of the sample companies, explaining the phenomenon of market power. Figure 3 presents the result for Hungary in the different groups (percentiles) of companies.

3. Figure Markups in the different percentile segments of the Hungarian sample



Source: Based on data from Orbis (2023), N=1,987 observation.

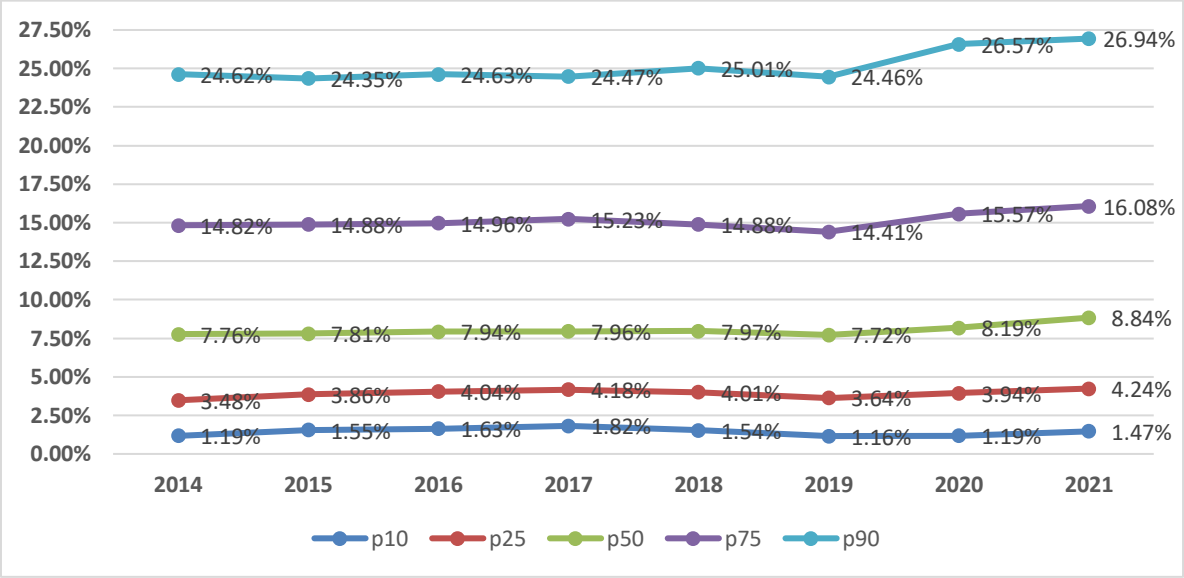
In contrast with the phenomenon observed in the US sample we found that in Hungary markups fell in segments above the median (p75 and p90) due to the pandemic and stagnated at the median. Only a slight increase in markups can be observed in segments below the median (p10 and p25) during the entire period examined. The reason for this may be that the cost of goods sold (COGS) increased in volume more than the companies could pass it through their sales revenue. Since the presence of COGS is quite sector-specific, mainly occurring in the commercial sector, it can be inferred that sectoral characteristics may have influenced this factor.

1.4.4. EBITDA MARGINS IN DIFFERENT SEGMENTS OF THE ECONOMY

In the Hungarian sample for the period examined we found no significant increase in the sales to cost of goods sold markups in the years after the pandemic but looking at total operating level profit margin (EBITDA/Sales) we could find evidence for the increased pricing power.

Using the total operating profit means that, in addition to COGS, it also includes all other operating-level costs and investments, regardless of amortization and other specifics of the accounting structure. The EBITDA margin, or profitability ratio, though it is seldom used in the Hungarian practice, but it is an appropriate measure of operating-level profitability. EBITDA represents the operating-business result that is not adjusted by amortization, divided by sales revenues. This alternative differs from the sales/COGS margin used by Konczal and Lusiani (2022).

4. Figure EBITDA margin in different segments (percentiles) of the Hungarian economy (2014 – 2021)



Source: Own calculations using Orbis (2023) database. N=1,987.

The EBITDA margin has been on an upward trend, and increased significantly even during the pandemic years, reaching record levels in several segments. This was true for all segments, so in this regard, the most successful year in the examined time period was 2021. This fact confirms similar tendencies for the pricing power like the trends observed in the US market, namely that companies used their market power to increase prices to achieve higher profits, even in the lowest profitability segments. This indicates that increasing corporate profit was also an important factor in the inflationary dynamics in Hungary.

We tested the sectoral characteristics by comparing the changes in EBITDA margins between 2021 and 2020, 2021-2020, and between the average values of 2021 and 2014-2019. For the latter variables, we followed the approach proposed by Konczal and Lusiani (2022), where we subtracted the values related to different years from each other to obtain the difference between the average values of 2021 and 2020 and between 2021 and 2014-2019. The conditions for the F-test were met, and the Levene statistic exceeded the critical value for all variables, indicated by the significant F-test values in Table 1.

1. Table Statistical tests confirming the significance of our results.

ANOVA		Sum of Squares	Mean Square	F	Sig.
Marg_EBITDA21	Between Groups	21,373	1,257	3,324	**<,001**
	Within Groups	744,732	0,378		
	Total	766,105			
Marg_EBITDA20	Between Groups	31,51	1,854	7,347	**<,001**
	Within Groups	496,763	0,252		
	Total	528,274			
dEBITDAmarg2120	Between Groups	18,239	1,073	6,306	**<,001**
	Within Groups	334,998	0,17		
	Total	353,237			
dEBITDA,arg21avg1419	Between Groups	19,387	1,14	3,344	**<,001**
	Within Groups	671,539	0,341		
	Total	690,926			

Source: Own calculations using Orbis (2023) database. N=1,987.

CONCLUSIONS

In the Hungarian economy EBITDA margin shows some increses, indicating an increase in the profitability of companies, which may generate inflationary effects.
This is due to the aggregated revenue growth in the sample following the first year of the pandemic.
The EBITDA margin increased in most sectors of the economy, but there was a significant decrease in the electricity sector in both pandemic years. This may explain the drastic price increase in 2022 when there opened an opportunity to increase prices.
Our research proved that the significant increase in EBITDA margin in 2021 and the gradual increase in revenues could have significantly contributed to inflation in 2022-2023. The explosive rise in energy prices was influenced by both external factors as well as the increasing EBITDA margin of the sector.

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