
Financialisation Level of Non-Financial Enterprises in European Union Countries: A Comparative Analysis

Submitted 15/03/20, 1st revision 17/04/20, 2nd revision 23/05/20, accepted 07/06/20

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Abstract:

Purpose: The main aim of this article is to measure and compare the level of financialisation of enterprises in the European Union countries and determine the correlation between this process and the size of the financial sector, measured by the ratio of its assets to GDP.

Approach/Methodology/Design: An analysis of the differentiation in the level of financialisation of non-financial enterprises in the EU was made, and the scale and direction of changes in this process between 2009 and 2018 were determined. The analysis uses a synthetic indicator of enterprise finalization (SIEF) that allows assessing the level of this phenomenon in non-financial entities. The taxonomic standard method was used in the construction of the indicator. The source of empirical materials for research were the financial data of companies, from 2009-2018, derived from the pan-European database of financial statements of the companies "Amadeus".

Findings: It has been shown that the average level of enterprises' finalization in the EU countries measured by the synthetic SIEF index is varied, but in most EU countries the scale of this variation did not change significantly between 2009 and 2018. In the analyzed period, the SIEF index fell in almost all EU countries and the trend concerned both countries that had a relatively high level of SIEF in 2009 and countries with a low level of this indicator.

Practical Implications: The synthetic SIEF indicator presented in the study may be a useful tool for international, regional or industry comparative analyses of the degree of finalization of non-financial enterprises.

Originality/Value: Most of the scientific studies on financialisation focus on the financial sector and the importance of this process for the entire economy and the stability of the financial sector. Therefore, the macroeconomic approach dominates. The value of this study is the microeconomic approach, i.e., examining the process of enterprise financing based on economic and financial data obtained from companies' financial reporting. A comparative analysis of the level of finalization and its changes in 2009-2018 in individual EU countries used in the study may constitute the basis for further in-depth research on the determinants of this phenomenon.

Keywords: Financialisation, non-financial enterprises, financial statements.

JEL classification: D22, F65, G30.

Paper Type: Research study.

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1. Introduction

The sphere of finance has always been related to all activities of mankind, and it would be hard to imagine the world without the existence of money. The role of finance in economic development is indisputable, but in some circumstances, it may become the source of problems and a brake on the development of national economies. Such an example can be the overgrowth of the sphere of finance which leads to its dominance over the sphere of the real economy (Ugurlu *et al.*, 2014). In studies, this situation is referred to as financialisation. It is a process which Mączyńska (2013) defines as an overgrowth and degeneration of the financial sector, which is often accompanied by a radical shortening of the time horizon in economic decisions, and the disappearance of the strategic thinking culture. It is assumed that in its broad meaning financialisation is the process of making the financial sphere autonomous from the sphere of the real economy, or even the supremacy of the former in relation to the latter. As part of financialisation, financial markets and financial elites gain increasing impact on economic policy (both at the microeconomic level, i.e., in individual companies, and at the macroeconomic level), and on management outcomes (Saleto *et al.*, 2013). It has its consequences in the division of value-added generated in the economy.

Krippner (2005) has presented the most commonly cited definitions of financialisation which appear in the literature. For some researchers, financialisation means the increasing political and economic power of a particular class grouping, the rentier class. For others, financialisation is the explosion of financial trading with a myriad of new financial instruments. And for the authors, this process means a pattern of accumulation in which profit-making occurs increasingly through financial channels rather than through trade and commodity production. The definition of financialisation which often appears in source literature was devised by Epstein (2005). For him, financialisation is the increasing role of financial motives, financial markets, financial actors, and financial institutions in the operation of the domestic and international economies. Dore (2008), on the other hand, defines financialisation as growth of the financial sector in overall economic activity, financial assets over total assets, transferable securities over the total value of financial assets, and the role of the capital market in business cycles.

The financialisation process was the fastest in the US economy, which was also affected by it to the highest degree. To a lesser extent, it concerns all developed countries, and its roots are mainly in the deregulation and liberalisation of financial markets (Gostomski, 2014). Bogle (2008) insists that over the last two centuries, US has shifted from an economy based on agriculture to an economy based on industrial production and then to an economy based on services, to finally become an economy based mostly on financial operations. According to Palley (2007), the reasons behind the spread of financialisation in the world can be divided into three groups. The first is related to ongoing changes in the structure and functioning of financial markets, and the second is connected to changes in the functioning of non-financial

enterprises. The third and last group of factors affecting the development of financialisation is the growing impact of financial markets and financial elites on economic policy and management outcomes. A manifestation of this process has close ties between politics and the world of finance (visible through the so-called revolving door) and the shaping of a financial and political system which limits the role of the state in economic life (Hall, 2009; Ratajczak, 2017).

Taking the above into account, it can undoubtedly be said that financialisation has varied causes, which makes it a multi-dimensional process. Therefore, there is a need to research it on different levels of the economy. Overall, while there are a number of different explanations and different points of interest by various disciplines, this large-scale financialisation process seems to be considered by many authors to be a major phenomenon deserving careful consideration, on all analytical levels. Indeed, one should ask whether the macro-level “financialisation of the economy” (however interpreted) translates, at the micro level, into something that we might call the “financialisation of enterprises” (Szczepankowski, 2015). The financialisation of enterprises is associated mostly with the growing importance of financial activity in the operations of non-financial economic entities. The consequence of the above is a change in revenue streams, which involve an increasing share of revenue from financial activity, instead of the traditionally understood operating and investment activities (Nolke and Perry 2007; Ratajczak, 2017; Thalassinos *et al.*, 2015).

Financialisation is a process which meets with radically different opinions. However, the dominating view is that it has a negative effect on the economy. The consequences of financialisation are financial crises, speculative bubbles in the real estate and other markets (e.g. raw materials), as well as an increasing debt to GDP ratio (which concerns both private and government debt) (Duran-Ortiz, 2014; Ratajczak, 2017). Financialisation is sometimes referred to as a virus hidden in the economic system (Nolke and Perry, 2007; Thalassinos and Thalassinos, 2018).

Financialisation creates specific threats (it generates uncertainty and risk) and disadvantages, also at the microeconomic level, i.e. for enterprises and their stakeholders (customers, business partners, lenders, etc.). The most important of these threats are presented in Table 1. Some of them concern financial markets directly, but due to the ties between the real economy and financial markets, they affect non-financial enterprises. We could refer to it as a kind of feedback. For example, an increase in the financialisation of enterprises stimulates the creation of new and often complicated financial market instruments and leads to an increase in the significance of large financial institutions, such as investment banks (Gostomski, 2014). These institutions compete with traditional banks. As a result, enterprises are offered a wide range of “investment products” and complex instruments to raise capital on financial markets, and may at the same time be cut off from traditional loans to finance their primary economic activity.

Table 1. Threats caused by the process of financialisation in relation to enterprises, their external interests and the entire economy

Threats to:	The most important potential effects:
1) enterprises	<ul style="list-style-type: none"> - an increase in overall business risk caused by financial risk; - increase in debt; - shortening the perspective of perception and planning of business processes; - reduction of investments in non-financial assets; - decrease in R&D activity; - limitation of investment in human capital related to basic economic activity.
2) business stakeholders (e.g. suppliers, recipients, local governments)	<ul style="list-style-type: none"> - weakening ties with business partners (co-operators, suppliers, recipients) as a result of excessive orientation on financial markets at the expense of processes in the "real" economy; - increased uncertainty related to concluded contracts, continuation and regularity of deliveries; - an increase in the risk of untimely payment of amounts due from enterprises by virtue of supplies and services, public law and others; - increased risk of insolvency and bankruptcy.
3) the economy	<ul style="list-style-type: none"> - increased risk of financial crises, - the appearance of speculative bubbles on the real estate market, commodity markets, etc.; - increase in overall economic risk and uncertainty in the economy; - increase in financial asset price fluctuation; - increasing the possibility of "infecting" the real economic sphere through financial market crises; - an increase in the significance of large financial institutions (financial conglomerates) and an increase in their balance sheets, leading to moral hazard and the problem 'too big to fail'.

Source: Own study based on Foster (2007); Palley (2007); Skott and Ryoo (2008); Hein (2009); Ratajczak (2012); Stockhammer (2013); Gostomski (2014).

Financialisation is an issue which has become increasingly popular in the literature. Papers are often devoted to a discussion on the essence of this phenomenon, as well as its causes, symptoms and consequences (Ratajczak, 2012; Gostomski, 2014). This phenomenon is examined mostly at the macroeconomic or mesoeconomic levels (Van Treeck, 2009; Skott and Ryoo, 2008), and evaluated with a focus on the impact which changes in the financial system have on the behaviour of economic entities and the functioning of various markets, mainly financial ones (Froud *et al.*, 2001; Wigan, 2009). Far fewer studies examine the financialisation process from the perspective of microeconomics, i.e. at the enterprise level (Orhangazi, 2008; Szczepankowski, 2015) or household level (Bibow, 2010; Kata and Chmiel 2017). This is why the present paper, which tries to evaluate the financialisation of non-financial enterprises in EU member states on the basis of financial reporting in companies, has significant cognitive value. When it comes to the proposed synthetic indicator, used to measure and comparatively analyse the financialisation of

enterprises, it contributes to research which aims to better understand the determinants of this process.

2. Symptoms of Enterprises' Financialisation and Measurement

The most important symptoms of the financialisation of enterprises are: 1) a growing share of the financial sector in GDP (Stockhammer, 2013), 2) and increased financial activity of non-financial enterprises (Nolke and Perry, 2007; Ratajczak, 2017). This activity is demonstrated mainly by large industrial and trading corporations which have considerable capital resources and invest them more and more in financial operations, rather than in their main operating activity (Rudny, 2018). However, research shows that SMEs and even microenterprises are becoming increasingly affected by the financialisation process (Sen and DasGupta, 2015, Felipe *et al.*, 2008; Palpaceur *et al.*, 2011).

The first of the abovementioned symptoms of financialisation can be observed especially in the United States. In the years 1979–2005, the share of the financial sector (banking, insurance and real estate trade) in GDP increased from 15.2% to 20.4%³, whereas its share in employment increased from 6.6 to 7.3% (Palley, 2007). Palley also notes that the era of financialisation has been associated with real economic growth.

In this paper, the subject of interest is those symptoms of financialisation which concern non-financial enterprises. At the level of an enterprise, all consequences of financialisation result from an increase in the importance of financial motives (mostly profit and risk) in the process of making economic decisions (Jajuga, 2014). The financialisation of enterprises is the product of looking for varied forms of capital in the financial market, as well as allocating the obtained capital in financial assets (Orhangazi, 2008). At the same time, financialisation is conducive to the establishment of numerous subsidiaries and twin companies, as well as to mergers and amalgamations, which are effected mainly for speculative reasons. Moreover, the relationship between the ownership structure in an enterprise and the level of financialisation of its economic activity is also emphasised in the literature. Enterprise research in Germany (Höpner, 2001) and France (Morin, 2000) has shown strong and statistically significant links between the participation of institutional investors in the ownership structure and the inclination to financial accumulation and large-scale mergers and acquisitions.

One of the symptoms of the financialisation of enterprises is changing the priorities in the functioning of enterprises from the non-financial sphere. This change is caused, for example, by the consolidation of the concept of shareholder value (SHV), which led to a departure from the Post-Fordist attention to the product and

³*In this period, the profits of Finance, Insurance and Real Estate sector increased from 975 billion dollars to 1931 billion dollars (Palley, 2007).*

consumers, and the shift to a new type of ownership capitalism, which takes care mostly of the interests of investors and owners (Williams, 2000; Lazonick, 2011; Szczepankowski, 2015). Ownership capitalism focuses on short-term financial decisions which guarantee fast maximisation of rates of return on the capitals employed in an enterprise, mostly by allocating them in financial assets. It was even defined by Crotty (1990) as a strategy of making a profit without investing.

The management of companies is assigned to managers, whose job positions and remuneration depend on short-term results (profit and the increase in the value of shares) expected by the owners, which are mostly financial institutions (banks and investment funds). Institutional investors change the investment behaviour of enterprises. Indeed, Lazonick and O'Sullivan (2000) argue that when it comes to the SHV concept, the “*retain and invest*” policy was replaced by actions based on the rule to “*reduce investment and distribute income*”. The assessment of managers is connected with the assessment of a given enterprise by financial markets, which outweighs the assessment shaped by the market (Banaszyk, 2015). The basic consequence of the financialisation of enterprises is shifting the preferences of capital allocation from tangible assets to more risky, but potentially more profitable financial assets. This leads to an increase in risk at both the microeconomic level (the level of enterprises) and in the economy as a whole. Moreover, such an investment strategy is accompanied by an increase in the debt of economic entities, which is a result of easing the requirements for loan takers when credit risks are calculated by financial institutions (Lewicka-Strzałecka, 2015).

When financialisation is described through the prism of the activity of an enterprise from the non-financial sector, we can identify many areas in which the symptoms of this process are visible. Examples include changes in the structure of assets, changes in the structure of revenues and expenses, as well as changes in enterprise management processes (Table 2).

Table 2. *Symptoms of financialisation of enterprises*

The area of business (economics) of the enterprise	Symptoms of the financial process of non-financial enterprises
Assets and investments	Decrease in the value of fixed assets in the balance sheet total Decrease in intangible assets in the balance sheet total Increase in the level of loans granted and financial assets (investments) Decrease in the level of investments incurred for property, plant and equipment and intangible assets
Revenues	Increase in the level of financial revenues in total revenues Decline in revenues from core operating activities in total revenues
Costs	Increase in the level of financial costs in total costs Decrease in the level of costs from basic operating activities in total costs
Liabilities and	Increase in overall debt level

profit distribution	The share of loan debt in the total amount of liabilities increased Increase in debt from the issue of financial instruments Increase in the level of dividends paid (an enterprise as a form of investing capital)
Management	Numerous mergers and acquisitions Decisions taken in the short term Implementation of the SHV concept Focus on generating high rates of return on financial investments Utilizing financial innovation on a large scale to achieve higher profits

Source: *Own study based on Stockhammer (2004 and 2013), Davis (2013), Szczepankowski (2015), Remlein (2015), and Socha (2016).*

The financialisation of enterprises can be measured in different ways. In the literature, no author has yet presented one comprehensive indicator of the financialisation of enterprises which would make it possible to expand the financial analysis so as to include an assessment of the level to which financialisation occurs in enterprises of various sizes and with various levels of advancement of financial reporting. The analysis of the level of financialisation is usually carried out using chosen values from the financial statements of enterprises (Remlein, 2015) or selected financial indicators (Socha, 2016). For example, to assess the level of financialisation, Stockhammer (2013) uses indicators of financial assets to total assets, and profits from financial activity to total profits, as well as an enterprise's investment in tangible assets in relation to its total debt, and its investments in relation to total profits (Stockhammer, 2013). Szczepankowski (2017), on the other hand, proposed a synthetic indicator of the financialisation of enterprises (*FINANCIX*) based on partial indicators from three fields of an enterprise's activity, i.e. investment activity, financial activity and the division of profits. The average of the three indices, determined on the basis of 12 partial indicators, constitutes the value of the synthetic indicator falling within the interval [0, 1]. The author used the indicator to assess the level of financialisation in enterprises listed on the Warsaw Stock Exchange (WSE).

3. Materials and Methods

The subject of research was the assessment of the level of financialisation in non-financial enterprises in EU countries. Non-financial enterprises belong to the sphere of the real economy, and constitute the core of the economic system of every country. These enterprises produce and supply to the market goods and services which satisfy human needs, and determine employment and the income of households. Non-financial enterprises include entities operating in the sectors of industry, construction, distributive trades and services.

The research covered the years 2009–2018. This time period for the analysis was dictated mainly by the availability of financial data of enterprises from the Amadeus database, and their comparability in the international context. Before 2009, financial data of enterprises were available only for some European Union Member States,

which made it impossible to fully achieve the aim of this article⁴. The choice of 2009 as the beginning of the research period also arose from the fact that in this year, the whole world experienced a deep financial crisis, the climax of which was the downfall of Lehman Brothers, an investment bank, on 15 September 2008. As a result of the financial crisis, assets in financial markets were significantly marked down, and the consequences of the crisis primarily affected the financial sector. It was not until several months later that these consequences became apparent on balance sheets and profit and loss accounts of non-financial enterprises, but they were not fully shown until the end of 2009. It can be assumed that if the financial crisis was a turning point which slowed down or even reversed the ongoing financialisation of the economy, then at the end of 2009, the level of financialisation in the non-financial enterprise sector was close to its maximum from the time before the crisis.

The 10-year research period, which includes the years 2009-2018, is long enough to notice some tendencies in the examined phenomenon. We assume that after 2009, the financialisation level of enterprises in EU countries should decrease or its growth rate should reduce. Moreover, we assume that the reduction in the average financialisation level of enterprises should be higher in those countries in which this process was more advanced. As a result, in the period considered, the differences in the level of this phenomenon in EU countries should be smaller. This issue will be the subject of empirical studies.

In order to determine the average financialisation level of non-financial enterprises in specific EU countries, we used data from Amadeus, an international database of financial information which contains information about over 20 million companies from 43 European countries. The number of countries included in the research was narrowed down to those which are members of the European Union. Even though the financial and accounting data of enterprises included in the Amadeus database come from different countries, they make international comparative analyses possible due to the fact that they are unified (standardised). For the purposes of this paper, the research sample comprises all enterprises registered in specific EU countries whose financial data were included in the Amadeus database in the years 2009–2018⁵. These were non-financial enterprises of varying sizes. In the study, enterprises were not grouped by their sizes; nevertheless, an analysis of the level of financialisation with regard to this characteristic may serve as another interesting research idea.

It needs to be emphasised that research based on selected, individual financial indicators does not reflect the complex nature of financialisation. It only analyses financialisation fragmentarily. Taking this into account, there was an attempt to

⁴In 2009, such data were available for all EU countries except Denmark.

⁵An exception were the data of enterprises registered in Denmark, which did not appear in the Amadeus database until 2014 and were included in the analysis from then on.

construct a multi-criterion indicator for assessing the level of this economic phenomenon using a synthetic indicator of enterprises financialisation (*SIEF*). Its value is calculated on the basis of data included in the financial statements of enterprises.

The theoretical foundations for the concept of *SIEF* were similar to those adopted by Szczepankowski (2017), assuming that this process concerns the basic economic decisions of an enterprise. Moreover, it was considered that these decisions are reflected on balance sheets and profit and loss accounts, as well as the division of profit, and can be expressed by specific financial relations (indicators). Contrary to Szczepankowski (2017), no individual indices for specific areas of activity were separated. Instead, a few partial indicators were used. Each of them represents a different area of the economics of an enterprise. Apart from substantive criteria, it was the availability of data that was of key importance in this respect. The point was to make it possible to also calculate the synthetic indicator for those enterprises for which available information from financial reporting is much more scarce than in the case of stock exchange-listed companies.

The algorithm of the synthetic indicator of enterprises financialisation (*SIEF*) was based on the following assumptions:

- 1) The synthetic indicator consists of partial indicators (diagnostic variables). Each of them represents one of four economic and financial areas in an enterprise (i.e. assets and investments, liabilities, revenues, and expenses). The choice of the partial indicator representing a given economic and financial area was based on the substantive criterion and the availability criterion. The former means that the partial indicator should well capture the essence of financialisation, whereas the latter criterion means that it should be calculated on the basis of publicly available data. When selecting diagnostic variables out of the indicators that represent a given area, statistical criteria of selecting partial variables were also taken into account, i.e. the coefficient of variation (the most commonly used critical value of 0.10 was assumed) and the coefficient of correlation between diagnostic variables (the critical value of 0.5 was assumed) (Młodak, 2006, p. 27-31).
- 2) The fifth introduced diagnostic variable was the indicator of the return on shareholder funds, which is of particular importance for the implementation of the SHV concept, namely the concept which according to many researchers stimulates the financialisation of an enterprise (Froud et al., 2000; Crotty, 1990; Szczepankowski, 2015 and 2016).

The sphere of enterprise management was disregarded in the construction of the *SIEF* indicator (Table 3). In this sphere, changes related to financialisation are very important, but also very difficult to measure. Moreover, it was presumed that changes occurring in the management sphere actually precede changes in areas such as assets and liabilities, expenses and revenues, as well as profit division. This

means that changes in these key areas of an enterprise, which reflect the financialisation process, are a result of specific decisions in the management sphere, so they can be disregarded in *SIEF*. For example, the return on shareholder funds is an indicator that shows the relationship between the amount of dividend and the amount of capital employed by investors (co-owners of an enterprise), demonstrating the degree to which the concept of value management (SHV) is implemented.

The final set of variables selected to calculate *SIEF* are presented in Table 3. These variables are stimulants, which means that their growth causes an increase in the level of financialisation in an enterprise. The only exception is feature X_1 — share of tangible assets in total assets — which was the only feature considered to be a destimulant. It means that the growth of this indicator is indicative of a decrease in the level of financialisation in an enterprise.

Table 3. Variable representing the level of financialisation of enterprise used in the algorithm of the synthetic indicator of enterprises financialisation (*SIEF*)

Variable (feature)	The nature of the variable	Coefficient of variation (V)	Max	Min
X_1 - Share of fixed assets in total assets (%)	destimulant	10,9	86,5	49,9
X_2 - Share of financial revenues in the total revenues (%)	stimulant	113,4	27,1	0,1
X_3 - Share of financial costs in the total costs (%)	stimulant	114,1	33,7	0,1
X_4 - Share of debt in the total liabilities (%)	stimulant	51,2	54,7	4,3
X_5 - Return on shareholders funds*	stimulant	62,3	53,2	0,0

Note: * values after variable normalization.

Source: Own study.

In the first stage, variables were unified, which means that there was a change (stimulation) in the variable considered to be a destimulant, that is X_1 (share of tangible assets in total assets). Stimulation was carried out in accordance with the subtraction formula, which takes the following form for destimulants (Młodak, 2006, p. 42):

$$x_{ij}^S = a - bx_{ij}^D, \quad i=1,2,\dots,n; j=1,2,\dots,m; \quad b>0, \quad (1)$$

where:

$$a, b - \text{constants assumed arbitrarily, } b=1, \quad a = \max_{j=1,2,\dots,m} \{x_{ij}^D\}$$

A separate issue was compliance with non-negativity constraints for normalised feature values, namely eliminating a situation in which the values of feature X_i include negative numbers (as applied to variable X_5). This was achieved by additive correction of feature X_5 , in accordance with the following formula:

$$x'_{ij} = x_{ij} - \min_{j=1,2,\dots,m} x_{ij} \quad (2)$$

Next, diagnostic variables were normalised to adjust the variables and bring them down to the interval [0, 1]. The following formula was used for this purpose (Młodak, 2006):

$$z_{ijt} = \frac{x_{ijt}}{\max_{j,t}[x_{ijt}]} \quad (3)$$

where:

z_{ijt} – normalised value of the variable i ($i=1, 2, \dots, 5$) in country j ($j=1, 2, \dots, 28$) in period t ,

x_{ijt} – the value of the i -th variable in the j -th country ($j = 1, 2, \dots, 5$) in year t ,

$\max [x_{ij}]$ – the reference point for the variable i – coordinates of the “model” object, i.e. with maximum values of diagnostic features (stimulants) throughout the period considered.

An advantage of the adopted normalisation method is that variables can retain different variances, which also gives them specific and natural weights (Młodak, 2006, p. 42-44). To calculate the synthetic indicator of enterprises financialisation $SIEF_j$, we used a taxonomic method: the development pattern method. This method belongs to linear ordering methods, whose aim is to arrange objects from the best to the worst with regard to the level of a complex phenomenon (Kowalewski 2003, p. 287). Using this method makes it possible not only to determine a ranking of objects, but also to evaluate how much variability there is in the analysed phenomenon.

In the pattern method, for each component variable X_{ij} , we determine the so-called development pattern (X_w). When it comes to the present study, the pattern was the object with the highest value for a given diagnostic feature, determined for the whole period considered, i.e. the years 2009–2018 ($X_w = \max [X_{ij,t}]$). As a result of assuming such a pattern, it was possible to compare the values of $SIEF_j$ in different periods of time. The choice of the maximum value for a given variable (X_{ij}) as the pattern resulted from the fact that after the transformation, all diagnostic variables became stimulants of financialisation of enterprises. Taxonomic transformations were carried out using formula no. 3. The application of the abovementioned formula made it possible to bring the values of diagnostic variables to the interval [0, 1] and at the same time to determine the value of individual objects (variables X_i in the j -th country) in relation to the pattern, which assumed the value of 1 for each diagnostic variable X_i .

In the construction of the synthetic indicator, it was assumed that all partial measures which have an impact on the financialisation level of non-financial enterprises have the same weight, that is, the same impact on the level of the complex phenomenon ($SIEF_j$ indicator). In the end, $SIEF_{j,t}$ was calculated in accordance with the following formula:

$$SIEF_{j,t} = \frac{1}{n} \sum_{i=1}^n z_{ijt} \quad (4)$$

where:

n – the number of diagnostic variables.

When this method is applied, the synthetic indicator of enterprises financialisation ($SIEF_{j,t}$) falls within the interval [0, 1]. The higher its value, the higher the average financialisation level of enterprises in the j -th country in year t .

4. Level of Financialisation of Non-Financial Enterprises in EU

The average level of partial indicators which were chosen for the algorithm of the SIEF_j indicator in specific EU countries is presented in Table 4.

Table 4. Selected indicators measuring the level of enterprises financialisation (%).

Country	X ₁ - Share of fixed assets in total assets			X ₂ - Share of financial revenues in the total revenues			X ₃ - Share of financial costs in the total costs			X ₄ - Share of debt in the total amount of liabilities			X ₅ - Return on shareholders funds		
	2009	2013	2018	2009	2013	2018	2009	2013	2018	2009	2013	2018	2009	2013	2018
Austria	65,5	68,6	64,7	2,7	3,8	4,8	4,1	4,6	3,2	41,5	43,9	36,7	48,9	14,2	20,4
Belgium	53,8	57,4	59,8	8,5	5,2	6,9	6,1	4,5	4,8	27,6	30,5	29,4	6,2	7,7	10,0
Bulgaria	56,3	53,8	55,6	2,1	2,8	2,2	9,7	7,4	5,1	22,7	15,2	13,4	14,1	11,7	15,0
Croatia	67,2	66,8	67,0	2,6	2,3	2,2	4,0	4,4	2,7	30,1	33,3	30,3	9,6	21,0	28,7
Cyprus	67,9	61,7	77,5	1,1	0,5	1,4	5,5	7,6	6,5	32,5	37,5	54,8	17,4	18,0	20,1
Czech Rep.	57,6	54,9	60,2	3,2	2,6	4,0	4,3	3,7	3,4	11,8	9,9	9,0	6,4	4,9	16,2
Denmark	nd	nd	67,7	nd	nd	9,5	nd	nd	3,9	nd	nd	11,3	nd	nd	11,8
Estonia	62,7	62,1	62,8	0,1	0,1	0,0	0,1	0,1	0,0	31,0	28,8	28,8	-4,3	9,7	12,2
Finland	61,5	59,3	60,5	2,7	2,4	2,3	4,1	3,7	2,7	16,1	16,7	13,1	7,5	7,8	7,5
France	58,9	59,2	60,5	4,3	4,8	4,4	4,5	4,9	2,7	23,8	24,8	20,0	10,4	7,7	10,9
Germany	55,7	57,0	49,9	2,2	2,3	3,1	2,7	2,6	1,6	30,7	30,6	31,1	31,5	30,5	30,9
Greece	60,9	63,2	65,3	0,5	0,7	0,5	2,4	2,7	2,0	41,4	39,1	34,0	17,4	9,1	11,8
Hungary	59,8	57,9	55,4	4,9	3,4	3,1	7,3	5,7	2,0	9,4	6,7	5,4	18,4	18,4	11,1
Ireland	64,2	53,3	59,7	1,5	3,4	4,2	3,6	2,7	1,8	52,4	50,6	30,8	7,5	7,8	9,3
Italy	56,9	53,3	52,1	2,8	2,5	2,8	4,6	3,9	2,7	27,3	25,6	21,1	3,2	-0,7	6,7
Latvia	67,9	65,4	63,8	1,1	1,2	1,4	2,5	1,8	1,0	30,9	31,0	25,7	-0,5	26,3	26,5
Lithuania	66,8	75,2	72,3	1,5	0,6	0,1	3,4	0,6	0,0	15,0	11,1	11,0	0,3	18,4	21,7
Luxemburg	86,5	85,3	80,2	19,1	22,7	22,7	27,2	24,3	22,3	4,7	9,0	11,0	7,8	9,0	18,6
Malta	63,9	63,2	70,3	10,2	2,8	5,4	2,7	2,6	1,1	17,3	14,9	15,5	12,4	18,3	33,0
Netherlands	58,0	52,4	65,1	2,2	1,9	1,8	1,9	1,8	1,1	18,8	19,4	15,9	19,7	11,3	23,8
Poland	66,5	67,3	66,7	2,5	1,9	1,4	2,7	3,3	2,4	11,9	10,4	10,7	10,7	9,4	13,5
Portugal	57,4	63,3	65,4	5,8	1,9	1,3	6,9	5,4	2,9	36,2	40,0	30,9	0,0	-5,0	6,0
Romania	62,9	61,5	57,7	3,3	3,0	1,7	6,8	4,8	2,4	0,0	7,0	5,8	22,5	18,0	28,9
Slovakia	57,8	61,5	61,6	0,3	0,2	0,2	1,0	0,5	0,5	11,1	13,2	13,7	7,6	9,2	11,0
Slovenia	67,5	63,3	58,5	2,1	1,4	1,1	4,8	4,5	1,4	34,8	36,0	22,6	6,5	7,9	13,4
Spain	65,2	66,3	68,1	3,0	2,4	2,0	5,8	5,8	3,4	38,2	34,1	30,6	0,4	-2,9	7,7
Sweden	67,8	68,6	71,2	5,6	3,9	6,7	3,6	2,9	2,9	21,6	10,4	12,7	6,3	6,8	11,0
UK	52,9	50,1	56,7	10,3	5,4	4,0	2,1	1,9	1,5	39,0	36,9	32,2	10,3	11,9	11,5

Source: Own study.

The presented results point to large variations in the average level of the examined features of non-financial enterprises in European Union Member States. Countries such as Luxembourg, Cyprus, Malta, the United Kingdom and Belgium are characterised by partial indicators of the financialisation of enterprises whose values are significantly higher, and in the case of variable X₁ lower, than in other EU countries. In these countries, the financial sector is of major significance for the economy, which is calculated by its share in GDP or financial assets to GDP ratio.

Therefore, it can be assumed that the size of the financial sector is also of crucial importance to the level of financialisation of non-financial enterprises (Table 5).

Table 5. Absolute increases* of partial indicators of enterprise financialisation between 2009 and 2018 (in percentage points)

Country	ΔX_1 - Fixed assets/ total assets	ΔX_2 - Financial revenues/ total revenues	ΔX_3 - Financial costs/ total costs	ΔX_4 - Debt/ total amount of liabilities	ΔX_5 - Return on shareholders funds
Austria	-0,70	0,98	-1,39	-4,70	-28,5
Belgium	6,05	1,72	0,36	1,80	3,9
Bulgaria	-0,66	-0,62	-2,27	-9,37	0,8
Croatia	-0,25	-0,11	-1,71	0,25	19,1
Cyprus	9,52	0,84	-1,09	22,31	2,7
Czech Rep.	2,53	1,37	-0,26	-2,76	9,8
Denmark	-2,19	9,47	3,88	-1,51	11,8
Estonia	0,12	0,00	0,00	-2,13	16,5
Finland	-1,09	-0,08	-0,98	-3,00	0,0
France	1,63	-0,43	-2,19	-3,76	0,5
Germany	-5,82	0,86	-0,97	0,36	-0,6
Greece	4,41	-0,21	-0,73	-7,38	-5,6
Hungary	-4,35	-0,31	-3,69	-3,96	-7,2
Ireland	-4,47	0,84	-0,98	-21,51	1,8
Italy	-4,81	0,26	-1,17	-6,19	3,5
Latvia	-4,10	0,23	-0,80	-5,24	27,0
Lithuania	5,52	-0,43	-0,59	-4,03	21,4
Luxemburg	-6,29	0,01	-1,93	6,37	10,8
Malta	6,44	2,68	-1,56	-1,82	20,6
Netherlands	7,08	-0,04	-0,71	-2,89	4,1
Poland	0,14	-0,52	-0,94	-1,25	2,7
Portugal	8,00	-0,54	-2,49	-5,28	6,0
Romania	-5,21	-1,23	-2,35	5,77	6,4
Slovakia	3,76	-0,01	-0,06	2,54	3,3
Slovenia	-8,96	-0,24	-3,13	-12,18	7,0
Spain	2,91	-0,42	-2,40	-7,59	7,4
Sweden	3,47	2,74	-0,03	-8,89	4,7
UK	3,88	-1,35	-0,43	-6,70	1,3

Note: $\Delta X_{ij} = X_{ij2018} - X_{ij2009}$; except Denmark, for which the base year was 2014.

Source: Own study.

In Table 5, total increments of partial indicators are presented, that is, changes in their levels between 2009, i.e. the first year included in the analysis, and 2018. Research shows different tendencies in the development of partial variables. In the case of many countries, there was a decrease in the value of individual indicators between 2009 and 2018. When it comes to the variable X_1 (share of tangible assets in total assets), which is a destimulant of the financialisation of enterprises, a decrease in this indicator may be indicative of progress in the financialisation process.

Between 2009 and 2018, such a decrease was observed in 13 EU countries (the largest drops being in Slovenia, Luxembourg and Germany), whereas an increase was observed in 15 countries (the largest increases being in Cyprus, Portugal and the Netherlands). In the case of variables referring to the share of financial revenues in total revenues (X_2), and financial costs in total costs (X_3), an increase in these indicators shows progress in the financialisation of enterprises. Variable X_2 increased in 12 countries, whereas variable X_3 increased only in 2 countries. When it comes to variable X_4 (the share of loans in total liabilities), a higher level of this indicator in 2018 as compared to 2009 was observed in 7 countries (e.g. Belgium, Germany, Luxembourg and Cyprus). When it comes to variable X_5 (the return on shareholders' funds), a higher level of this indicator in 2018 as compared to 2009 was observed in 23 countries (Table 5).

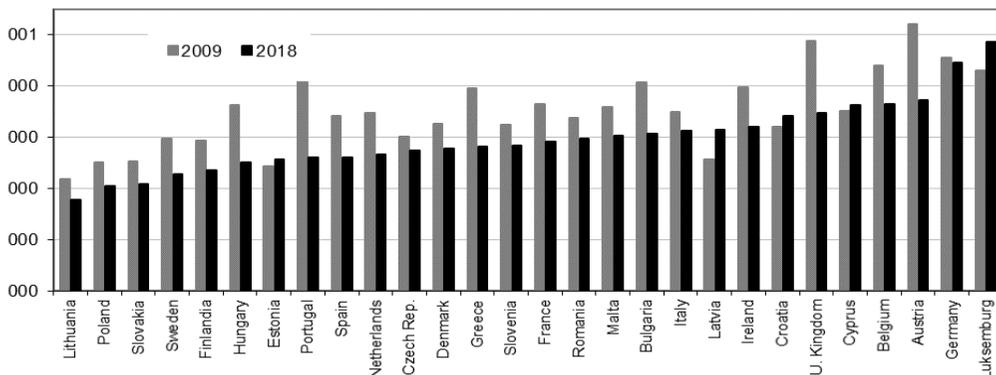
However, the presented results do not provide an unequivocal answer to the question of whether the average financialisation level between 2009 and 2018 decreased or increased in individual countries. Tendencies in the development of diagnostic features varied in individual countries, whereas an increase in the value of one financialisation stimulant was often levelled by a decrease in another stimulant. In view of the above, a better tool for assessing the level of financialisation in individual EU countries could be the synthetic *SIEF* indicator. The results obtained after the application of the synthetic indicator of enterprises financialisation are presented in Figure 1.

At the same time, in order to group countries by the financialisation level of enterprises, measured using the *SIEF* indicator, we used the arithmetic mean and the standard deviation of this measure. By treating the results from 2009 and 2018 separately as points of reference, EU countries were divided into three groups, i.e. countries with a relatively high financialisation level of enterprises, with a medium level of this phenomenon, and with a low financialisation level of enterprises (Table 6).

The countries with the highest level of financialisation of enterprises in 2009 are: Austria (0.52), the United Kingdom (0.49), Germany (0.46), Belgium (0.44) and Luxembourg (0.43). At the opposite pole, there are Baltic countries (with indicator values of 0.22–0.26) and countries from Central and Eastern Europe, i.e. Poland and Slovakia, with their indicators equal to 0.25. When it comes to the countries included in the second group (which is quite numerous due to the chosen grouping method), a relatively low value of $SIEF_j$ was also observed in Finland (0.29), Sweden (0.30) and the Czech Republic (0.30). In 2018, the highest value of $SIEF_j$ was observed in countries such as Luxembourg (0.49), Germany (0.45), the United Kingdom (0.35), Austria (0.37), and Belgium and Cyprus (0.36). Therefore, it can be said that in the last 10 years, there were no significant changes in the group of countries with the highest financialisation level of enterprises, especially because the next place went to the United Kingdom, which was in this group in 2009. In the majority of the abovementioned countries, except Luxembourg and Cyprus, the

$SIEF_j$ indicator was lower in 2018 than in 2009. In 2018, the lowest average level of financialisation of enterprises was observed in countries such as: Lithuania (0.18), Poland and Slovakia (0.21), Sweden (0.23) and Finland (0.24). When it comes to countries included in the second group, a relatively low value of $SIEF_j$ was also observed in Portugal and Spain (0.23), Hungary (0.25) and Estonia (0.26). As can be seen, there were no significant changes in countries with the lowest and relatively low financialisation level of enterprises (except for a significant downward movement of Spain and Hungary in the hierarchy of countries with regard to the $SIEF_j$ indicator). Similarly to countries with the highest financialisation level of enterprises, also in the group of countries in which the level of this phenomenon is the lowest, the value of $SIEF_j$ decreased in 2018 as compared to 2009 (the only exception being Estonia). Apart from the abovementioned countries, the $SIEF_j$ indicator only increased in 2018 as compared to 2009 in Lithuania and Croatia. In the remaining EU countries, it decreased, which concerns both countries with a relatively high and relatively low level of this phenomenon (apart from the abovementioned exceptions). These results confirm the thesis proposed in the introduction, stating that as a result of the financial crisis, the financialisation level of enterprises in EU countries decreased. The largest drop in the synthetic indicator of enterprises financialisation concerns countries such as Hungary, Portugal, Greece, the United Kingdom, Ireland and Austria. The average value of $SIEF$ for all EU countries fell from 0.35 in 2009 to 0.30 in 2018. The coefficient of variation (V) for this indicator was 21.4% in 2009 and 22.9% in 2018. Therefore, variability between the analysed EU countries is not very high⁶ and throughout the analysed decade (2009–2018), it increased only slightly.

Figure 1. The synthetic indicator of enterprises financialisation ($SIEF$) among European Union countries in 2009 and 2018.



Source: Own study based from non-financial enterprises from the Amadeus databank.

⁶However, it should be noted that due to the normalisation of partial variables, which narrows their variability down to the interval $[0; 1]$, the coefficient of variation $V > 20\%$ for $SIEF$ should be seen as a significant variation in the analysed multi-dimensional phenomenon in EU countries.

Table 6. Division of European Union countries by level of synthetic indicator of enterprises financialisation (SIEF)

Synthetic indicator level	Group of countries - 2009	Group of countries- 2018
High level $SIEF_i > avSIEF + S_{SIEF}$	Austria, U. Kingdom, Germany, Belgium, Luksemburg	Luxemburg, Germany, Austria, Belgium Cyprus
Moderate level $avSIEF - S_{SIEF} \leq SIEF_i \leq avSIEF \pm S_{SIEF}$	Finlandia, Sweden, Czech Rep., Croatia, Slovenia, Denmark, Romania, Spain, Netherlands, Italy, Cyprus, Malta, Hungary, France, Greece, Ireland, Bulgaria, Portugal	U. Kingdom, Croatia, Ireland, Latvia, Italy, Bulgaria, Malta, Romania, France, Slovenia, Greece, Denmark, Czech Rep., Netherlands, Spain, Portugal, Estonia, Hungary
Low level $SIEF_i < avSIEF - S_{SIEF}$	Lithuania, Estonia, Poland, Slovakia, Latvia	Lithuania, Poland, Slovakia, Sweden, Finland

Note: $avSIEF$ – average of the SIEF for the entire community of EU countries in the analyzed period (2009-2018)

Source: Own study.

As has already been noted, financialisation is a multi-dimensional process, which to varying degrees concerns the economy as a whole, especially in relation to the role played in it by the financial sector, and concerns non-financial entities as well. Therefore, what is interesting is the answer to the question of whether there is any correlation between the level of financialisation of the economy, shaped by the size of the financial sector, and the financialisation of enterprises. In order to get this answer, we analysed the correlation between the indicator of enterprises financialisation (SIEF) and indicators illustrating the level of financialisation of the economy, expressed as the size of the financial sector. Using primary sources, in particular indicators used by the World Bank in the *Global Financial Development*⁷ database to assess the development of the financial system (World Bank 2019), we selected 3 indicators:

Z_1 – financial system deposits to GDP (%);

Z_2 – gross portfolio equity assets to GDP (%)⁸;

Z_3 – banking sector assets to GDP (%).

The abovementioned indicators primarily show the relative (in relation to GDP) size of the whole financial system and its essential component, that is, the banking sector. Therefore, they are also indicative of the level of financialisation of the economy, arising from the size of financial assets in relation to the total size of the economy. It was assumed that there may be a positive correlation between the indicators which illustrate the financialisation of the economy from the point of view of the financial sector and the level of financialisation of non-financial enterprises. In order to verify this thesis, the Pearson linear correlation analysis was applied and the linear

⁷World Bank Indicators database ensures methodological coherence, as well as the comparability of data and measures for 205 OECD and non-OECD countries.

⁸World Bank data, <https://www.worldbank.org/en/publication/gfdr/data/global-financial-development-database>.

regression function was calculated, where the synthetic indicator of enterprises financialisation (*SIEF*) was assumed as variable Y_j . Searching for this direction of correlation between the analysed indicators stems from the assumption that in the economy, the financialisation process runs from the financial sector to the real economy sphere and not vice versa. Thanks to the availability of data, the values of the first two indicators in specific EU countries were determined for 2009 and 2017 by comparing them with the values of the $SIEF_{j,t}$ indicator for the same countries and years, whereas the values of the third indicator, i.e. the one concerning banking sector assets, were determined for 2009 and 2018 and compared with relevant (concerning the same years) values of the $SIEF_{j,t}$ indicator.

However, the research results did not provide an unequivocal answer to the question of whether there is any correlation between the financialisation of the economy arising from the size of the financial sector and the financialisation of non-financial enterprises. The coefficient of linear correlation between *SIEF* and Z_1 – financial system deposits to GDP (%) for 2009 was $r_{xy2009} = 0.42$ and was statistically significant for $p < 0.05$, whereas the correlation coefficient for these variables in 2017 was 0.66 and was also statistically significant for $p < 0.05$. The parameters of the regression function for this correlation in 2017 were as follows:

$$SIEF_{j,2017} = 0.0006Z_1 + 0.2403; \quad \text{with: } R^2 = 0.4303, p < 0.05.$$

Taking into account the fact that the financialisation of enterprises is a multi-factorial phenomenon, the presented results point to a positive and relatively strong correlation between the analysed variables. In the case of variable Z_2 – gross portfolio equity assets to GDP (%), the analysis did not confirm a statistically significant correlation between variable Z_2 and the indicator of financialisation of enterprises, neither in 2009 nor in 2017. The correlation coefficient with *SIEF* was positive, but its value was low ($r_{xy2009}=0.15$ and $r_{xy2017}=0.25$, respectively). Meanwhile, the coefficient of linear correlation between *SIEF* and banking sector assets to GDP (Z_3) calculated for 2009 was equal to $r_{xy2009}= 0.35$ and was statistically significant (for $p < 0.05$).

At the same time, the correlation coefficient for data from 2018 was $r_{xy2018}=0.06$ and was not statistically significant. This result was obtained despite a similar, i.e. downward, trend in the development of both variables, that is, both the *SIEF* indicator, and the indicator of banking sector assets to GDP in the years 2009–2018. In 2018, the values of these variables were significantly lower in the majority of EU countries as compared to 2009. However, in several countries, a contrary trend was observed, i.e. an increase or decrease in the *SIEF* variable was accompanied by a change in the opposite direction in the relation of banking sector assets to GDP. Despite the fact that these changes were not too big, the coefficient of correlation between the analysed features showed no correlations in 2018.

In view of the presented research results, we can cautiously conclude that a higher financialisation level of non-financial enterprises is accompanied by a large share of the financial sector in the economy. Reducing the size of the financial sector leads to a decrease in the level of financialisation of enterprises.

5. Concluding Remarks

The financialisation of enterprises is arousing more and more interest in the economic environment. Research into this process, with a focus on its dynamics, spatial variability, or the analysis of its correlation with other economic processes, requires appropriate tools for measuring its level in an enterprise. In order to meet this demand, this paper proposes an original synthetic indicator of enterprises financialisation (*SIEF*). The proposed indicator is the right tool to measure the level of financialisation in enterprises because it includes all of the key areas of financial entities from the non-financial sector. It refers to decisions on the division of profit and it can be calculated using data included in basic financial statements.

Research conducted using the *SIEF* indicator made it possible to assess the average financialisation level of enterprises in specific EU countries, as well as to assess the scale and direction of changes in this regard which occurred between 2009 and 2018. It was concluded that in the considered decade (2009–2018), which directly followed the peak of the global financial crisis, there was a downward trend in the financialisation level of enterprises in the majority of European Union Member States. The decrease was observed both in countries with a relatively high average financialisation level of enterprises and in countries with a low level of this phenomenon. The research did not confirm the assumption that in the post-crisis period, the differences in the financialisation level of enterprises in EU countries diminished due to the occurrence of contrary trends, i.e. a decrease in the financialisation level of enterprises in the group of countries with a high level of this phenomenon and an increase in the group of countries with its low level.

Due to negative consequences of excessive financialisation of enterprises, the observed decrease in its level in the European Union between 2009 and 2018 should be seen as positive. It indicates a reducing dependence of entities from the sphere of real economy on the financial sector, which in turn increases their resistance to negative consequences of financial crises or unfavourable changes in the economic situation in financial markets. Moreover, research shows a positive link between the size of the financial sector and the level of financialisation of enterprises. Countries which have a relatively big financial sector, including the banking sector, usually demonstrate a high average level of the $SIEF_{j,t}$ indicator and vice versa. This positive correlation is also evidenced by research on the correlation between the *SIEF* indicator and some measures illustrating the size of the financial sector. However, it needs to be emphasised that a statistically significant correlation was found only for some independent variables, and only for 2009, whereas the strength of this correlation was relatively low.

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