

**University of Sopron  
István Széchenyi Economics and Management  
Doctoral School**

**EXAMINATION OF THE FINANCIAL SITUATION OF SMALL AND  
MEDIUM-SIZED ENTERPRISES OPERATING IN THE  
INFORMATION TECHNOLOGY AND HOSPITALITY SECTORS IN  
HUNGARY BETWEEN 2015 AND 2021**

Theses of the Doctoral (PhD) dissertation

**Tamás Németh**

**Sopron**

**2024**

**Doctoral School:** István Széchenyi Economics and Management Doctoral School

**Head of Doctoral School:** Prof. Dr. Csilla Obádovics

**Program:** International economy and management

**Supervisor:** Dr. habil. László Pataki PhD

.....

Supervisor's supporting signature

**Co-supervisor:** Dr. habil. Mihály Hegedűs PhD

.....

Co-supervisor's supporting signature

## **Background of the research, objectives**

The aim of the author's investigations, which began in 2016, is to monitor the changes that have occurred in the capital structure of the domestic SME sector since 2015, to explore the trends, and to uncover the reasons for these changes. The focus of his research is on enterprises operating in Hungary and other European countries that belong to the SME sector. His previous research and publications were related to the analysis of capital structure, liquidity, and profitability of Hungarian, Swedish, Italian, and Norwegian enterprises. He examined the evolution of the capital structure of SME sector enterprises, uncovering correlations with size, regional, and industry trends. According to the author, by comparing heterogeneous and homogeneous groups, previously unknown correlations and factors can be revealed in the operation of enterprises (especially in the operation of SME sector enterprises) that statistically significantly influence the capital structure optimal from the standpoint of profitability and liquidity, which play a crucial role during economic crises. The dissertation examines the capital structure, liquidity, and profitability situation of the Hungarian SME sector's Information Technology service industry and the Hospitality industry, according to size, statistical region, and industry classification (by activity), for the period 2015-2021. The aim of the author is to uncover, considering the differences by size, statistical region, and industry among the examined enterprises, how the temporal evolution of the capital structure (with particular emphasis on the period of the coronavirus pandemic) affects profitability and liquidity, and to determine the relationship between profitability and liquidity, as well as their correlations.

## **Research content, methodology, justification**

In the SME sector, larger enterprises are generally more diversified and have a lower probability of financial distress than smaller enterprises. (Titman-Wessels, 1988) Based on statistical regions, it is characteristic of the domestic SME sector that the capital city has been outstanding in all economic indicators for decades, thus this sector is concentrated in Central Hungary. Considering industrial differences, enterprises operating in the Information Technology service sector generally have a higher growth potential than those in the Hospitality sector. Based on this, the author investigates whether the presumed differences in the enterprises' capital structure, profitability, and liquidity can be verified statistically. The dissertation examines the relationship between capital structure and profitability, as well as between capital structure and liquidity, within homogeneous groups

formed based on the asset, financial, and profitability indicators of the enterprises in the sample.

One of the most significant growth constraints for SMEs is the lack of capital and the difficulty in accessing financing sources. From this, it can be inferred that enterprises in the SME sector tend to base their financing structure more on short-term loans, supplier financing, or member loans, rather than on more stable, long-term sources. Financially conscious enterprises try to align the maturity of their assets with the maturity of their sources based on the principle of maturity matching, but it also occurs that financial managers of enterprises often lack proper financial knowledge, resulting in their finances not being managed deliberately, which is why they do not choose a financing strategy. Based on this, the author investigates whether the enterprises in the two examined sectors (Information Technology service and Hospitality) of the Hungarian SME sector adhered to the general rule of maturity matching between 2015 and 2021.

The common conclusion of research spanning several decades on determining the optimal capital structure is that the optimal ratio of external and internal financing differs by size, statistical region, and industry, and even varies from one company to another. In light of all these factors, one of the research objectives included determining the level of indebtedness for companies in the Hungarian SME sector that can be interpreted as a threshold between businesses achieving a positive pre-tax profit and those achieving a zero or negative pre-tax profit.

The data for the analysis of the capital structure required for the Hungarian SME sector was provided through the Széchenyi István Doctoral School of Management and Organizational Sciences via the Crefoport database. The initial database, which served as the basis for the analyses (descriptive statistical analyses, analysis of variance, correlation analysis, factor and cluster analysis), contains 153,902 unique data entries, representing the reporting data of 36,145 businesses over 7 years. The sample was exclusively narrowed down to businesses in the sectors of 56: Hospitality and 62: Information Technology Services. The majority of the businesses examined are not obligated to undergo an audit, hence the analysis is conducted on non-audited data. Regarding the businesses included in the database, the author primarily assumes that they conducted their activities mainly based on their primary activity, complied with national legislation in keeping their books, and thereby, the published reports provide a reliable and accurate overall picture. For the sake of comparability of data, the selection was made from businesses that operated between 2015 and 2021 and belonged to

the SME sector throughout the entire period. The dataset was purged of report data that entered the database with a zero-forint balance sheet total, negative revenue or other income, negative cash holdings, or negative receivable-liability balances, as well as businesses that did not comply with the mandatory requirements of the Accounting Act in their published report data. In the narrowed sample, most of the indicators involved in the analyses contained extreme outlier values, as indicated by the high value range. Since extreme deviations from normality, homoscedasticity, and linearity reduce the value of the correlation coefficient among indicators, to ensure further impartiality of the sample, the author deemed it necessary to remove these extreme outliers. In statistical analyses, the optimal sample's lower boundary is marked by values decreased by one and a half times the interquartile range of the lower quartile, and the upper boundary is marked by values increased by one and a half times the interquartile range of the upper quartile. (Freedman et al., 2005) However, this solution would have led to further significant data loss, so the author defined the outlier threshold values for every indicator involved in the study by decreasing them by three times the interquartile range of the lower quartile and increasing them by three times the interquartile range of the upper quartile. This truncation also caused a very large amount of data loss, but regardless, it was judged that the smaller, but regularly distributed sample formed based on accepted statistical methods more accurately represents the research objectives and also provides information with high reliability for accepting or rejecting hypotheses. After truncation, the remaining dataset contained 62,035 unique data entries from the reports published by 8,862 companies during the examined period.

The author utilized Microsoft 365 and SPSS 27.0 programs for conducting the statistical analyses. In analyzing the relationship between capital structure, profitability, and liquidity, the research relies on the balance sheet and income statement data of double-entry bookkeeping businesses, taking into account the statistical region, field of activity, and size category. To avoid the distorting effects of taxes when determining profitability indicators, calculations were made using pre-tax profit.

The author considered the classification according to size, statistical region, and industry in every background calculation of the analysis. The classification of businesses by size was distinguished into three size categories based on the Act XXXIV of 2004 on Small and Medium Enterprises and their Support: Micro-enterprise, Small Enterprise, and Medium-sized Enterprise. The characteristics of the capital structure of businesses were also

examined based on their regional location, which was classified into County, Regional, and Territorial categories based on the location of their headquarters. According to the classification of statistical regions, Central Hungary, Transdanubia, as well as the Northern Great Plain and the Southern Great Plain statistical regions were distinguished, which were formed by consolidating the 7 regions found in Hungary. In line with the basic idea of the research, namely comparing the capital structure, liquidity, and profitability of different industries, as well as exploring the trends, similarities, and differences among them, the analyses were also conducted according to the division of the NACE Rev. 2 classification at the 2nd and 4th levels.

In the analysis, the author used distribution ratios to describe the composition of the businesses and employed diagrams and tables to illustrate the results. Based on the size distribution within the sample, a significant majority of 78.5%, or 48,715 businesses, were micro-enterprises, making the conclusions, results, and trends drawn from the analysis most characteristic of micro-enterprises. In examining the distribution by statistical regions, the literature agrees that businesses in the Hungarian SME sector are concentrated in Central Hungary, and this process is gradually strengthening. (Vértesy, 2018) According to the classification by statistical regions, 34,372 businesses belong to Central Hungary, which represents 55.4% of the total sample. This also means that in terms of their main activity, more businesses operate in the Hospitality and Information Technology Services sectors in this area alone than in all other regions of the country combined. Based on the industry distribution, businesses in the Information Technology Services sector represent an annual proportion of 44.6%, while those in the Hospitality sector account for 55.4%.

The author used the one-way analysis of variance (ANOVA) method to validate Hypothesis H1 (*Significant differences can be observed based on size, statistical region, and industry in the capital structure of businesses in the two sectors (Information Technology Services and Hospitality) of the Hungarian SME sector I examined between 2015 and 2021.*), which was further supplemented by Post Hoc testing using the Bonferroni method for more precise results. ANOVA is a statistical method that helps examine whether there are significant differences between two or more groups based on the effect of independent variables on a dependent variable. Since one-way ANOVA only examines the systematic deviation of the categories' variances from external variance, it is also necessary to ensure that there are systematic reasons for the differences in variances between categories, rather than these

differences being due to chance. To eliminate the influence of chance, the performance of post-hoc tests is necessary, for which the author used the Bonferroni method. This method was chosen because it is not sensitive to the varying sample sizes of the groups under study, making it a suitable choice for ensuring that any observed differences are statistically significant and not due to random variation. (Sajtos-Mitev, 2006) As a result of the test, the differences between the means are indicated, and those pairings where the significance level is below 0.05 are marked with a star. This denotes the cases where there is a significant difference between the group averages. (Hódiné-Mikó, 2018)

To validate Hypothesis H2 (*Between 2015 and 2021, the strength and direction of the relationship between capital structure and profitability, capital structure and liquidity, as well as profitability and liquidity among businesses in the two sectors (Information Technology Services and Hospitality) of the Hungarian SME sector I examined depend on the business size, statistical region, and field of activity.*), the author determined the correlation between factors defining the capital structure and profitability indicators using correlation analysis. Correlation analysis shows the presence and strength of a linear relationship, meaning the correlation answers whether there is a relationship between two or more quantitative variables and if so, how strong that relationship is. The joint variation of characteristics is characterized by the Pearson correlation coefficient. The sign of the correlation coefficient indicates the direction of the relationship. The characteristics of Pearson correlation include being scale-independent, the correlation coefficient can range between -1 and 1, and it is symmetrical. The calculations needed for descriptive statistics and correlation analysis were carried out using indicators that are related to the income-generating ability of the businesses and could be formed based on the financial statement data available from the database.

To validate Hypothesis H3 (*The enterprises operating between 2015 and 2021 in the two sectors (Information Technology Services and Hospitality) of the Hungarian SME sector that I examined can be categorized into homogeneous groups based on their asset, financial, and profitability indicators, in which groups the strength and direction of the relationship between capital structure and profitability, as well as capital structure and liquidity, differ.*), the author used factor analysis followed by the creation of clusters based on the resulting factors, which were further examined with cluster analysis. During factor analysis, latent variables are created from manifest variables, where the manifest variables are considered

to be the indicators of asset, financial, and profitability positions formed from the report data. A latent variable is condensed from a set of manifest variables in such a way that it carries the information content of the manifest variables. Latent variables have specific meanings, but they cannot be directly observed; their existence is inferred based on the stochastic relationships among the variables, and their values are estimated through these relationships. (Sajtos-Mitev, 2006) Factor analysis is used for data compression and to explore the data structure, consolidating the number of initial variables into so-called factor variables, which are not directly observable. The applicability of factor analysis depends on various conditions, which can be verified with the following tests:

- The Kaiser-Meyer-Olkin (KMO) test analyses the correlation matrix of variables and refers to the measure of the average correlation. The KMO value is an overall measure for all the variables and one of the most important indicators of suitability for factor analysis. If the KMO test value does not reach 0.6, then the data are not suitable for factor analysis.
- The Bartlett's test of sphericity examines whether the off-diagonal elements of the correlation matrix differ from zero solely due to chance.

During factor analysis, the number of variables considered optimal is those whose eigenvalues are greater than 1. (Freedman et al., 2005) The factor analysis was performed using the principal component method with Kaiser normalization. The generated factors were rotated using the Varimax method, which is among the orthogonal transformation procedures. A variable is accepted as a member of a factor if its factor loading within that factor exceeds 0.5 (in absolute value).

The essence of cluster analysis is to arrange the observational units into homogeneous groups based on the variables involved in the analysis, where the members of these groups resemble each other based on the characteristics included in the study and differ along the same dimensions from the members of other groups. In this analysis, the author determined the optimal number of clusters using a two-step clustering process, followed by the determination of the clusters based on the characteristics using the k-means method (centroid method). With the help of variance analysis, it was proven that the clusters differ according to the characteristics ( $p < 0.05$ ). To further sophisticate the data of the clusters, cross-tabulation analyses were conducted with size, region, and industry dimensions and clusters. Using cross-tabulation to determine the strength of the relationships between variables, it was checked whether the individual clusters show any correlation based on size,



region, and industry. To determine the presence of a relationship and measure the strength of association in research practice, the most commonly used Cramers's V index was applied. It measures the strength of association between two categorical variables on a scale from 0 to 1, where 0 indicates no association and 1 indicates a complete association. (Saunders et al., 2016)

To validate Hypothesis H4 (*In the Hungarian SME sector's businesses within the two sectors I examined (Information Technology Services and Hospitality) between 2015-2021, a conservative financing strategy prevails based on size, statistical region, and industry in terms of maturity matching, whereby companies finance a significant portion of their invested assets and working capital with long-term sources.*), the maturity matching indicator was examined in multiple dimensions with base and chain ratio numbers, where the aim was to determine the extent to which the origin of assets matches their forms of appearance. (Bozsik, 2010) According to the principle of matching, the structure of sources is determined by the composition of assets. If the maturity matching indicator value is below 1, it means the company does not fully utilize its long-term sources for financing its fixed assets; in this case, it also finances a part of its working capital with long-term sources. Businesses with such an indicator pursue a conservative financing strategy. The indicator value is generally favorable if it is close to 1, as it indicates that the company finances its fixed assets with long-term or perpetual sources. In such cases, companies follow a solid financing strategy. When the value exceeds 1, the size of the fixed assets surpasses the magnitude of long-term sources, indicating an aggressive financing strategy. (Paár et al, 2021) Financially conscious businesses strive to align the commitment period of their assets with the maturity of their sources based on maturity matching. In developing a financing strategy, it is essential to consider the fundamental rule that long-term investments should be financed with equity and/or long-term loans, while the financing of working capital can be done with short-term sources.

To validate Hypothesis H5 (*For businesses within the two sectors I examined (Information Technology Services and Hospitality) in the Hungarian SME sector between 2015-2021, a positive pre-tax profit is more likely at a certain level of indebtedness, and furthermore, this level differs based on size, statistical region, and industry.*), the debt ratio indicator was examined in multiple dimensions using percentile categorization, ratio formation by dimension, and the aid of a dichotomous variable. Profitability was examined based on pre-

tax profit, considering those businesses profitable which achieved a pre-tax profit greater than zero in a given fiscal year, and accordingly, labeled every business that was not profitable as loss-making. The debt ratio indicator, calculated from the data of external capital / equity, illustrates whether the proportion of external capital is more or less in relation to equity. The lower the value, the better it is considered. If it is below 1, then the elements of equity in the company's capital structure exceed the elements of external capital. (Paár et al., 2021) The indicator can take on a negative value if a business has negative equity. The growth of leverage up to a certain point positively affects profitability; however, high indebtedness, due to the effect of increasing risk, leads to progressive interest rate increases, which negatively impact the pre-tax profit. In this context, the author sought to identify the leverage point at which the profitability of businesses in various dimensions could be predicted. For the purpose of illustrating the results on a graph, the debt ratio indicator was organized into 2% equal percentile categories, creating 50 categories. Subsequently, the calculation of the proportions of businesses belonging to each dimension was carried out using aggregated variables. Thus, the calculated proportions in dimensions of size, geographical location, and industry were suitable for representation with percentile categories and a dichotomous variable.

## **Results**

In his doctoral dissertation, the author, diverging from previous research on capital structure analysis, did not solely examine the relationship, direction, and strength of the determinants of capital structure but also aimed to present the trends and laws observed before and during the coronavirus pandemic. The uniqueness of the research lies in its presentation of the capital structure, profitability, and liquidity of businesses in the Information Technology Services and Hospitality sectors, highlighting the differences in business sizes and regional affiliations. The comparative evaluative analysis derived from these results points to trends observed before the coronavirus pandemic, as well as changes during the pandemic. From this perspective, the findings represent an advancement in the study of the capital structure of domestic businesses, as they examine the period currently affected by the coronavirus pandemic and simultaneously reveal similarities determined by size, statistical region, and industry affiliation.

### **New scientific results**

T1: Significant differences can be observed based on size, statistical region, and industry in the capital structure of businesses within the two sectors (Information Technology Services and Hospitality) of the Hungarian SME sector examined by the author between 2015-2021. According to these findings, medium-sized enterprises operating in the Information Technology Services sector and in the Central Hungary statistical region have the highest leverage.

This result points out that the Information Technology Services sector is among the least vulnerable areas of the Hungarian economy, whose performance has consistently risen over the past decades, even during economic recessions. Considering that nowadays every transaction is mediated by the IT sector through technology, this trend was not disrupted by the coronavirus pandemic; the sudden change in social and economic circumstances led to an increased demand for information and communication technologies. This growth potential further strengthened the bargaining position of medium-sized enterprises concentrated in Central Hungary and with a stable financial background, resulting in easier access to external capital.

T2: Between 2015-2021, for businesses within the examined Information Technology Services and Hospitality sectors of the Hungarian SME sector, the strength of the relationship between capital structure and profitability, capital structure and liquidity, as well as profitability and liquidity depends on the size of the business, its location according to statistical regions, and its field of activity, although the direction of these relationships is not influenced by these dimensions.

The author's results confirmed that increasing equity marginally improves the profitability and liquidity of the examined businesses, and with the increase in profitability, liquidity slightly improves as well. However, the observed weak and moderate relationships highlight that the relationship between capital structure, profitability, and liquidity is significantly influenced by other factors as well.

T3: The businesses operating between 2015-2021 within the two sectors examined by the author (Information Technology Services and Hospitality) of the Hungarian SME sector, based on their asset, financial, and profitability indicators, are categorized into homogeneous clusters where the strength and direction of the relationship between capital structure and

profitability, as well as capital structure and liquidity, differ in most of the examined dimensions.

The author's results support the need for sector- and cluster-specific differentiation of financing portfolios to effectively align with the unique characteristics of different groups, thereby supporting the growth, competitiveness, and sustainability of businesses within the SME sector.

T4: Between 2015-2021, businesses within the two sectors examined by the author (Information Technology Services and Hospitality) of the Hungarian SME sector predominantly adopted a conservative financing strategy that ensures safe operation with low risk, which did not change even during the economic uncertainties caused by the coronavirus pandemic.

The results indicate that the examined businesses apply the most expensive financing strategy, which cannot ensure the maximization of the company's value and is less motivating towards adapting to changes.

T5: Between 2015-2021, for businesses within the two sectors examined by the author (Information Technology Services and Hospitality) of the Hungarian SME sector, the proportion of indebted and profitable businesses varies based on size, statistical region, and industry, but there exists a level of indebtedness that can be considered optimal across all three dimensions.

### **Conclusions and recommendations**

The economic crisis caused by the coronavirus pandemic caught the majority of companies unprepared at the beginning of 2020, even though many believe we should expect similar pandemics in the future. Therefore, reviewing and organizing the trends and tendencies in businesses' capital structures in light of the risks posed by the pandemic is especially important, as this could be the starting point for successful risk management later on. The dissertation provides an overview of the processes in the various statistical regions of Hungary and enables their synthetic assessment and comparison. During this period, the comparative analysis of the Information Technology Services sector and the Hospitality sector is considered particularly timely, as the role of information technology has significantly appreciated due to the coronavirus pandemic. This field not only plays an important role in maintaining competitiveness but has become increasingly central since the

IT sector mediates every transaction through technology during the pandemic period. On the other hand, hospitality is one of the sectors that recorded a tremendous loss after people's lives shifted towards distancing and other restrictions with the onset of the pandemic. The adverse effects of the pandemic are also supported by the changes in the performance of the hospitality sector.

The main results of the author's objective to verify the relationship between capital structure, profitability and liquidity, and to explore the factors that determine profitability, can be useful not only for researchers in similar fields, but also for experienced financial managers, as they can contribute to their business through conscious decisions to reduce the cost of capital and thereby make the company more profitable. The research determined the differences characteristic of the capital structure based on size, statistical region and industry, the relationship between the capital structure and profitability and liquidity based on various groupings, the financing strategy typical of the SME sector, and the indebtedness range in which the majority of enterprises are expected to have a positive pre-tax profit. They can achieve results. However, when evaluating the obtained results, attention must be paid to the special circumstances, micro- and macro-economic environment of the enterprise. This is especially true for the SME sector, where risk factors that carry a high degree of uncertainty cannot be dispensed with.

The author came to the conclusion that the different methodological definition of the size of the enterprises (categorization based on the SME classification according to the law, the total balance sheet or the net sales from sales) can significantly influence the results appearing in different size categories, the capital structure and profitability of the enterprises, as well as the correlations between them in his investigation. This raises the need for companies in the SME sector to take additional, more detailed groupings into account in addition to the SME classification according to the law during financing and credit assessment or support procedures.

In a comparison according to statistical regions, he found that significant differences can be observed in the investigated enterprises of the Hungarian SME sector, which have an impact on the capital structure, profitability and liquidity of the enterprises. Its results also point to the need for a more thorough understanding and consideration of the characteristics and needs of local businesses when developing and implementing regional development strategies..

Based on the analysis of the industry data, it can be concluded that the capital structure, profitability and liquidity of the Hospitality sector differs to a large extent from the

companies operating in the Information Technology service sector, which is mainly due to risk factors representing a high degree of uncertainty (seasonality, fluctuations in costs - raw material prices and energy prices ) can be traced back. Based on all of this, he considers it necessary to develop subsidies that, thanks to their investment stimulating effect, are easily accessible to businesses with low capital in the SME sector, and are able to improve the profitability of the sector by strengthening digitalization and increasing energy efficiency and contribute to preserving competitiveness.

On the basis of the established new scientific results, he came to the conclusion that the optimal capital structure of the investigated enterprises cannot be determined at a specific point, but in a specific range, which can be established as a result of the combined effect of several micro- and macroeconomic factors.

The results published in the research leave room for other researchers to continue further research and expand the current work. The examination of the period of economic crises still contains many possibilities, by extending the analysis to several years, by examining the asset and resource structure in more detail or by examining other sectors, this analysis can be the starting point for a later complex assessment, which is the coronavirus pandemic or any other crisis it helps to understand the dynamics, connections and interactions of its economic effects. At the same time, it would be advisable to include other micro- and macroeconomic factors in the investigation of the factors affecting the capital structure, profitability and liquidity, or the emotional factors affecting the decision-making of company managers through the tools of economic sociology and economic psychology, which can also lead to new scientifically demanding results. In addition to examining the size, geographical location and industry, the development of the capital structure could also be presented with the life cycle of the business, because in different stages of life company managers have to face different financial problems, such as founding and starting operations, growth, stability or even decline, that is, even during the crisis, we can observe a different composition of the available capital. An analysis of the effects on profitability resulting from the different risks and costs of the different forms of financing available in the SME sector could also provide useful information.

## **Bibliography**

- 1 Bozsik, S. (2010): Vállalati pénzügyi tervezés. Miskolci Egyetem, Miskolc
- 2 Freedman, D. A., Pisani, R., Purves, R. (2005): Statisztika, Typotex Kiadó, ISBN: 978-963-9548-63-3
- 3 Hódiné, Sz. M., Mikó J. (2018): Kutatásmódszertani alapismeretek, Bevezetés az SPSS használatába, Szegedi Tudományegyetem
- 4 Paár, D., Ambrus, R., A., Szóka, K. (2021): Gazdasági elemzés a beszámolók információi alapján, Soproni Egyetem Kiadó, Sopron 2021, <https://doi.org/10.35511/978-963-334-402-6>
- 5 Sajtos, L., Mitev, A. (2006): SPSS kutatási és adatelemzési kézikönyv. Alinea Kiadó, Budapest. 245-282.p., ISBN: 9789639659087
- 6 Saunders, M., Lewis, P., Thornhill, A. (2016): Research methods for business student. L.E.G.O. S.p.A., Italy 541. p.
- 7 Titman, S., Wessels, R. (1988): The Determinants of Capital Structure Choice. The Journal of Finance, 43, 1-19. <http://dx.doi.org/10.1111/j.1540-6261.1988.tb02585.x>
- 8 Vértesy, L. (2018): A KKV szektor Magyarországon Budapesti Műszaki és Gazdaságtudományi Egyetem Gazdaság-és Társadalomtudományi Kar Pénzügyek Tanszék, Budapest., ISBN 978-963-421-787-9, <http://real.mtak.hu/id/eprint/102266>

## **Publications related to the topic of the dissertation**

NÉMETH T., HEGEDŰS M., PATAKI L. (2023): A magyar és szlovák Információ-technológiai szolgáltató szektor vállalkozásainak tőkeszerkezetében, jövedelmezőségében és likviditásában jelentkező változások a koronavírus-világjárvány időszakában In: CONTROLLER INFO (2063-9309 ): 11 2 pp 32-37 (2023)

NÉMETH, T., PAWELOSZEK, I., HEGEDŰS, M., PATAKI, L. (2023): Comparative Analysis of the Information Technology Service Sector Between 2019-2021 Based on the Capital Structure of the Hungarian and Slovak SME Sectors, ECONOMICS & WORKING CAPITAL 2023 : 1-2 pp.,

NÉMETH, T., DUNAY, A., HEGEDŰS, M., PATAKI, L. (2023): The impact of the COVID-19 pandemic on the capital structure, liquidity and profitability of SMEs operating in the Hungarian hospitality and IT services sectors, In: Langhamrová, Jitka; Vrabcová, Jana (szerk.) RELIK 2023 Conference proceedings - Reproduction of Human Capital - mutual links and connections, Prága, Csehország : Prague University of Economics and Business (2023) 626 p. pp. 271-281. , 11 p

NÉMETH T., HEGEDŰS M., PATAKI L. (2023): The impact of the COVID-19 pandemic on the capital structure and other financial characteristics of Hungarian hospitality SMEs In: ICOM – 12th International Conference of Management 2023: Sustainability-Security-Quality, 15-16.06.2023

NÉMETH T. (2022): A magyarországi KKV szektor tőkeszerkezeti kérdései 2018-2020 között In: A gazdasági fejlődés aktuális kérdései a visegrádi országokban: A közeledés és/vagy távolodás trendjei. Online konferencia a Tomori Pál Főiskolán 2022. április 29-én. Budapest, Magyarország: Tomori Pál Főiskola (2022) ISBN: 9786156281104

NÉMETH T. (2021): Magyar kkv szektor értékelő elemzése a likviditás és a tőkeáttétel tükrében 2012-2017 között In: Kultúrák találkozása a tudományban - Jövőformáló tudomány: Tanulmánykötet a Magyar Tudomány Ünnepe alkalmából Budapest, Magyarország: Tomori Pál Főiskola (2021) 177 p. pp. 59-74., 16 p.



NÉMETH T. (2020): Tőkeszerkezeti modellek érvényesülése az olasz szolgáltató szektorban 2012–2017 között In: VÁLSÁG ÉS KILÁBALÁS: INNOVATÍV MEGOLDÁSOK Nemzetközi Tudományos Konferencia Sopron, 2020. november 5. – Konferenciakötet / CRISIS AND RECOVERY: INNOVATIVE SOLUTIONS International Scientific Conference 5 November 2020, Sopron – Conference Proceedings Sopron, Magyarország: Soproni Egyetemi Kiadó (2020) 592 p. pp. 384-394., 11 p.

NÉMETH T., HEGEDŰS, M. (2020): Capital structure of SME sector and the strategic development In: New trends in the economic systems management in the context of modern global challenges Sofia, Bulgária: VUZF Publishing House “St. Grigorii Bogoslov” (2020) 309 p. pp. 91-99., 9 p.

NÉMETH T., GYURCSIK P. (2019): Analysis of the capital structure of the Swedish SME sector between 2009 and 2017 In: Proceedings of the 9th International Conference on Management: "People, Planet and Profit: Sustainable business and society": Volume II Gödöllő, Magyarország: Szent István Egyetemi Kiadó Nonprofit Kft. (2019) 407 p. pp. 2-8