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MEASURING THE EFFECT OF FINANCIAL LITERACY, ALONGSIDE ENTREPRENEURIAL AND DIGITAL COMPETENCES ON FINANCIAL OUTCOMES OF MSMEs IN THE SOUTHERN GREAT PLAIN OF HUNGARY

Theses of the PhD Dissertation

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1. Introduction and relevance of the topic

Financial literacy has been a recurring theme of researchers following the outbursts of economic crises (such as the 2008 financial crisis or the recent economic outcomes of the pandemic), many blaming individuals for their inadequate level of financial literacy, making decisions that yielded no future benefits, but gave rise to the crisis (Kovács-Terták, 2016, 2019). In recent years individuals even though remained in the spotlight of researchers, new groups of entrepreneurs and small businesses gained momentum, as academics realized that these groups, such as micro-businesses or small and medium enterprises (MSMEs) face similar difficulties, and the consequences of poor financial literacy of MSME decision-makers can be such as grave as of individuals.

The MSME sector is an important building block of our national economy, contributing greatly to macro-financial stability, economic growth, and job creation, SMEs "*employing more than two-thirds of Hungarian workers, producing almost half of the value added and more than 30% of corporate investment*" (Tóth-Kása-Lentner, 2022, p. 2). The domestic MSME sector has a stabilizing and balancing macroeconomic role, so the broad support of their competitiveness can be considered one of the most important driver of future economic growth (Tóth-Gyurcsik-Thuróczy, 2019). In micro, small and medium-sized enterprises, financial decision-making is often concentrated in the hands of one person, so that the competences of that person play a key role in financial decision-making. In the case of entrepreneurs, their financial decisions can affect the operation of their whole business. As a consequence, the spillover effect of "bad" financial decisions can have serious economic implications, especially at times of crisis, therefore it is important to learn if they could cope with unexpected crises and economic downturns.

Financial literacy is not the only competence that influences financial decision-making in a business, it can not be examined in isolation, but jointly with entrepreneurial and digital competences. This study focuses predominantly on financial literacy. This has been a deliberate decision and is due to the aim of wanting to show that although financial literacy is not generally considered as a competence in the literature, but is treated as an abstract phenomenon, it is the same as the other two competences, both in its structure and in its impact on individuals. Therefore, financial literacy should be treated equally as a competence, and thus it is included in the research model as an equal element alongside entrepreneurial and digital competences. Many measurement models exist for assessing financial literacy at firm level, and most of these identify firm-level financial literacy with the financial literacy characteristics of the main

decision maker. Financial literacy is, however, not standing alone, but is a concept in close interaction with entrepreneurial and digital competences. Neither their complex interactions can be observed independently from each other, nor their influence on financial outcomes of the company.

One novelty of this work is therefore the introduction of each of these competences jointly in one model. The input side of the conceptual model applied in this thesis work composes of three competences: financial literacy, digital and entrepreneurial competences. The OECD MSME financial literacy framework (OECD, 2018) defined MSME financial literacy as

> "*the combination of awareness, knowledge, skills, attitudes and behaviour that a potential entrepreneur or an owner or manager of a micro, small or medium sized enterprise should have in order to make effective financial decisions to start a business, run a business, and ultimately ensure its sustainability and growth*" (OECD, 2018, p. 7.).

The subject of this financial literacy definition is an individual. MSME financial literacy is a very complex competence, that individuals should possess and constantly develop to be able to operate a business successfully and securely. The above OECD definition is derived from the individual definition by Atkinson and Messy (2012) and can be regarded as a specialized extension of that. In its structure, it differentiates between the dimensions of knowledge, behaviour and attitudes, but modifies its content so that it fits business-related (with special regards to the traits of SMEs) context.

Digital competences are listed among the key competences for lifelong learning by the Council Recommendation. Digital competence is required for citizens for "*the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society*" (Council Recommendation, 2018, p. C189/9) accurately stressing how digital competences are important at the workplace as well. This definition has been adapted in the thesis work and the DigComp framework (Carretero-Vuorikari-Punie, 2017) was adapted for examining digital competences. Entrepreneurial competences are described by the same Council Recommendation as "*the capacity to act upon opportunities and ideas, and to transform them into values for others*" (Council Recommendation, 2018, p. C189/11) and this definition is applied in the EntreComp framework as well (Bacigalupo et al.

2016), stressing that entrepreneurship is a transversal competence applicable across all spheres of life, both in personal and business-related settings.

The reason for the adaptation of these frameworks was that even though the conceptual definitions are coming from organizations working independently from each other (OECD and the European Commission) they identified the same three key dimensions of these competences: knowledge, attitudes and behaviour, making it possible to examine these competences with the same methodological approach.

The output side of the conceptual framework focuses on the financial outcomes of businesses, that is captured through three key dimensions: financial resilience, financial well-being and financial performance, which were adapted from OECD (2020a, 2020b). Financial resilience is a characteristic, a skillset, that individuals should possess to ensure that they can cope with unexpected and unpredictable financial difficulties and financial choices in their life. While financial resilience describes a skillset individuals should possess, financial well-being is a state which describes the stability of the financial situation of an individual, a state within which a person can feel secure about their finances and are not restricted in any ways financially (OECD, 2020a). Financial performance means the quantifiable indicators of the enterprise's performance, such as ROI, ROE, ROA etc. (OECD, 2020b). These together constitute the financial outcomes of the companies, which include both objective and subjective, perceived measures of financial performance.

The pandemic caused an economic shock which was different than any of the economic crises experienced before. The lockdowns and resulting fallbacks affected businesses unequally, making the smallest businesses and certain industries (such as the tourism and hospitality industry) suffer the most. Since one of the reoccurring reaction on behalf of companies to tackle the difficulties was to speed up the digitalization process, a brief look is taken at the initial reaction of businesses to the Covid-19 pandemic at the earlier stages of the global pandemic. Data collection has been carried out in mid-2021, focusing on the previous years, therefore the conclusions to be drawn are limited to the earlier stages of the pandemic and disregard those events that unfolded at the later stages, when the impact on businesses was greater. The empirical study investigated financial decision makers of micro, small and medium enterprises in the Southern Great Plain Region on their perception of the financial outcomes of the enterprise on a sample of 157 valid items. Analysis was carried out using PLS-SEM path models, another novelty of the thesis work having been the application of a hierarchical

component model (HCM), which is an extension of the path models, and which allows for multi-dimensional latent variables to exist in a path model.

2. Dissertation objectives and hypotheses developing

Financial literacy, entrepreneurial competences and digital competences are usually positively associated with the ability to make informed decisions and therefore lead to an increased performance of the company. Research shows that by developing the above competences, companies can improve their economic and financial performance and on the long run can boost profitability and success. The main research question, the dissertation seeks to answer, is the following:

How and to what extent do financial literacy, entrepreneurial and digital competences influence the financial outcomes of an MSME in the Southern Great Plain of Hungary?

The aim is therefore to examine how three competence areas, financial literacy, digital and entrepreneurial competences are intertwined in the process of financial decision-making and to see in practice the impact of these competences on the financial outcomes of MSMEs. Based on an extensive literature review a conceptual framework was formulated (*Figure 1*). It reflects the main findings of the literature and merges them in a model where not only the individual effects of financial literacy, entrepreneurship or digital competences are assessed, but takes into account their interactions and joint influence on the financial outcomes of the company. The subject of the analysis is not an organization, but an individual, an entrepreneur or financial decision-maker of an MSME.

Figure 1. The proposed conceptual model for empirical research
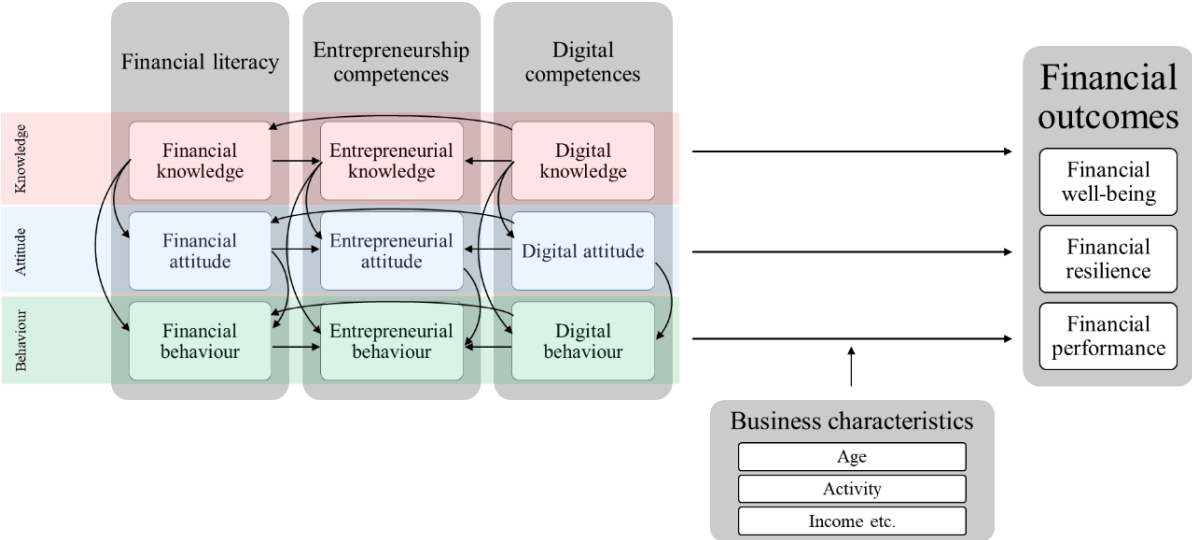
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For formulating the research hypotheses, it is important to clarify in advance that the adapted survey instrument contains self-assessment type variables for the financial outcomes . It also needs to be reviewed briefly what the literature says about the relationships of the competences and their dimensions. Knowledge is often associated with an overall positive effect on behaviour (Capuano-Ramsay, 2011) and attitudes (Yong-Yew-Wee, 2018). Many papers also supported that attitudes can positively affect the behaviour of individuals (Luksander et al. 2016, Nagy-Tóth, 2012). The path models applied in this current research model do not examine the relationship of these dimensions, however, since both models will include measures for each dimensions of financial literacy, digital and entrepreneurial competences, it is possible to examine their effect on the perceived financial outcomes of the company.

H1: The knowledge dimension of each competences has a positive, significant effect on perceived financial outcomes.

H2: The attitude dimension of each competences has a positive, significant effect on perceived financial outcomes.

H3: The behaviour dimension of each competences has a positive, significant effect on perceived financial outcomes.

Financial literacy is often regarded as a determinant of entrepreneurial competences, claiming that higher financial literacy levels contribute to better entrepreneurial competences, thus being a driver of success (Rahmandoust et al. 2011). With the rise of FinTech, mentioning digital finances are unavoidable when assessing financial literacy. Furthermore, entrepreneurial competences also require a certain level of digital proficiency. FinTech is revolutionizing financial services and is very likely to have an overall impact on personal financial management, well-being and welfare both at individual and societal level (Nemoto-Koreen, 2019, Panos-Wilson, 2020). Digital competences also affect entrepreneurial competences, in many cases together with financial literacy, as Oggero, Rossi and Ughetto (2019) found that financial literacy and digital skills can positively contribute to entrepreneurship. Based on the above, in my conceptual framework digital competence is regarded as the determinant of both financial literacy and entrepreneurial competences.

H4: Competence areas are positively related to each other.

H4a: Financial literacy has a positive effect on entrepreneurial competences.

H4b: Digital competences have a positive effect on financial literacy.

H4c: Digital competences have a positive effect on entrepreneurial competences.

A paper by Sariwulan et al. (2020) proposed a model highly similar to the conceptual model of this work. The relationships proposed between the different constructs strongly resembles the conceptual model of this thesis work. Based on that paper, digital competences are hypothesized to have an effect on both financial literacy, entrepreneurial competences and financial outcomes. Financial literacy is expected to affect entrepreneurial competences and financial outcomes and a causal relationship is expected directed from entrepreneurial competences towards financial outcomes. In this research the strength of the effect competences exhibit (if any) on perceived financial outcomes is assessed. It is hypothesized therefore, that each of the observed competences will result to have a significant impact on the perceived financial outcomes of the company.
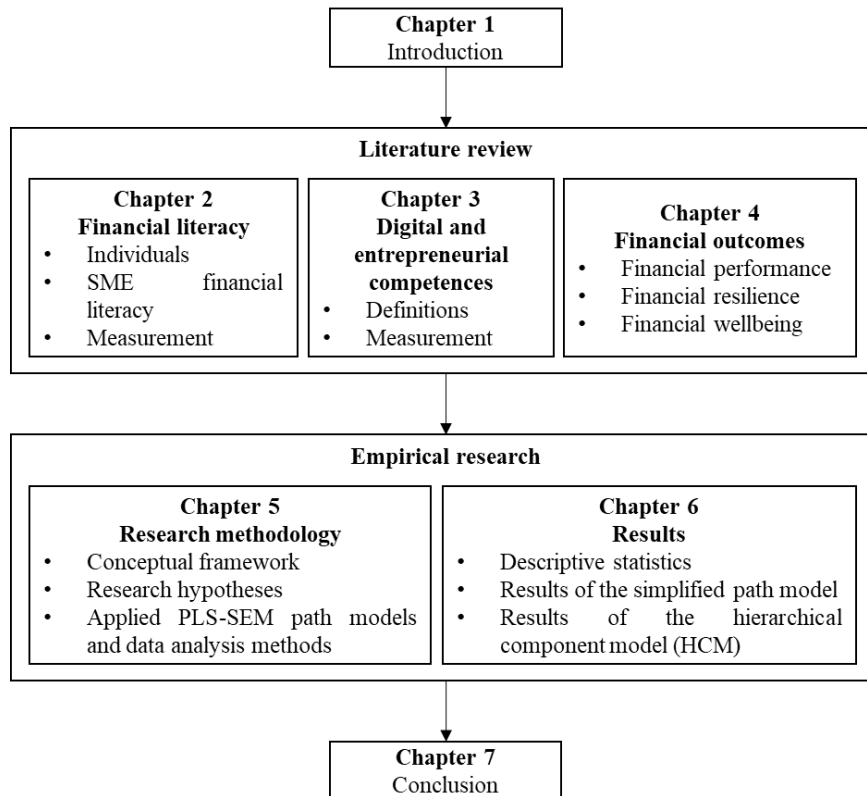
H5: Every competence has a positive effect on perceived financial outcomes.

3. Structure of the dissertation and research methodology

This thesis work follows a structured path, first providing a literature review of the three competences constituting the input side of the research model, financial literacy (Chapter 2), digital and entrepreneurial competences (Chapter 3), followed by the output side of the model, financial outcomes (Chapter 4). The next two chapters are dedicated to the conceptual framework and methodology (Chapter 5), followed by the results of the empirical research (Chapter 6). Chapters 2 to 4 are dedicated to the theoretical backgrounds of financial literacy, digital and entrepreneurial competences, and financial outcomes. One of the novelties of this thesis is that there have not been any research models, which included each of the three competences and broke them down to three dimensions, knowledge, attitude and behaviour at the same time. Chapters 5 to 6 are addressing the empirical research of the thesis. Apart from descriptive statistics, Partial Least Squares Structural Equation Modeling (PLS-SEM) is carried out to evaluate the path models. Another added value of the thesis work is that a hierarchical component model (HCM) is applied to break the competences down to their dimensions. Since traditional PLS-SEM models do not allow for constructs to exist in models without their own, direct indicators, this novel HCM method is applied to make it possible to treat the competence dimensions and financial outcomes dimensions as separate constructs in the path models. The results contain descriptive statistics about the sample, and the results of the applied PLS-SEM path models, based on which decisions are to be made on the research hypothesis. Limitations

of the study and recommendations for further research are also included at the end of the thesis work. The below flowchart (*Figure 2*) summarizes the structure of the dissertation, highlighting the most important elements of each chapter.

Figure 2. Structure of the dissertation

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                        │     Chapter 1       │
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│                          Literature review                             │
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│ │    Chapter 2     │ │    Chapter 3     │ │       Chapter 4        │  │
│ │ Financial literacy│ │  Digital and    │ │  Financial outcomes    │  │
│ │ • Individuals    │ │ entrepreneurial  │ │  • Financial performance│ │
│ │ • SME financial  │ │  competences     │ │  • Financial resilience │ │
│ │   literacy       │ │ • Definitions    │ │  • Financial wellbeing  │ │
│ │ • Measurement    │ │ • Measurement    │ │                         │ │
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│ │       Chapter 5          │ │            Chapter 6                 │ │
│ │  Research methodology     │ │             Results                  │ │
│ │ • Conceptual framework    │ │ • Descriptive statistics             │ │
│ │ • Research hypotheses      │ │ • Results of the simplified path model│ │
│ │ • Applied PLS-SEM path    │ │ • Results of the hierarchical        │ │
│ │   models and data analysis│ │   component model (HCM)              │ │
│ │   methods                 │ │                                      │ │
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                        │     Chapter 7       │
                        │    Conclusion       │
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A questionnaire has been developed to assess these entrepreneurs, adapting the OECD/INFE Survey Instruments, the DigComp and EntreComp frameworks and At Work Implementation Guides. Knowledge elements were measured through true and false statements, while attitudes, behaviour and financial outcomes were measured using multiple choice and Likert scale items. The research is aimed at the micro, small and medium enterprises of the Southern Great Plain of Hungary. Members of the target group have been chosen randomly using publicly available company registries, accounting for a sampling frame of 3050 businesses. Data was collected in an online survey which ran between 22 April and 3 September 2021, yielding a total of 159 responses to the survey, which accounts for a response rate of 5,21%.

Two PLS-SEM path models have been developed based on the above framework, the first one is a simplified model which did not include the relationships between the dimensions

of the competences and contained the dimensions as indicators in the model. In the simplified PLS model every competence area is constituted from three indicators of knowledge, behaviour, and attitude, which contain the scores along these 9 dimensions. The relationships between the competence areas have been drawn following the relationships indicated by the processed literature and each competence area is assumed to have an impact on, thus pointing toward the construct of financial outcomes. The indicators of financial outcomes are also scores, where each of the three dimensions of financial outcomes are the embodiments or manifestations of this construct.

The second PLS model applied in the research is a hierarchical component model (HCM). Hierarchical component models (or HCM in short), according to Hair et al. (2018) "*refer to a construct measured at more than one level of abstraction in a PLS path model*" (Hair et al. 2018, p. 37). This means that components in the path model are not constituted from indicators as in the previously described models, but are composed of other subcomponents, which are concrete traits or dimensions of the primarily examined concepts. One advantage of the use of HCM models is that it can reduce the number of relationships in the structural models, making it more parsimonious (or more compact in this sense) and as well make the model easier to apprehend. In the introduced empirical research framework, both the competences themselves and their dimensions appear as latent variables and instead of the generated scores for the dimensions, the original indicators are all included in the PLS model.

The purpose of the HCM model is therefore to break down the dimensions of the original constructs and making those dimensions latent variables in the model, and to include as many of the original variables as possible. This way the constructs can be explained in a more realistic way, basing the path coefficients and explanatory power of the model more on the actual, observed values than the transformed indicators of the previous model. The HCM model was run in two stages, first, following the evaluation of the measurement model, the significant indicators were selected and with the help of them, latent variable scores were calculated for each of the dimensions. These latent variable score were then re-loaded into the path model as indicators and then model evaluations were carried out similarly as for the simplified model.

4. Main results and theses

Two PLS-SEM models were evaluated as part of the empirical research. Even though the results were overall similar, the different content of the indicators (i.e. the use of scores instead of the original indicator value) resulted in slight differences between the models. It is

common in both models that knowledge resulted to have an insignificant effect in each of the competence dimensions. In the simplified model, the final indicators that remained in the models were the attitude and behavioural elements for financial literacy and only behaviour for the other two competences.

Each path kept in the model shows moderate, but positive and significant effects. Financial literacy does not have a direct effect on financial outcomes, however, by examining its total (and in this case, indirect) effect, we see that it is still significant, positive, but weak (0,498*0,331=0,165, p=0,025). This means that financial literacy does not contribute directly to SME finances; however, the results confirm that it exhibits a significant indirect influence through entrepreneurial competences. Concerning the total effects of the other two competences on financial outcomes, digital competences have the strongest total effect (a direct effect of β=0,373 and an indirect effect of 0,376*0,498*0,331), followed by entrepreneurial competences (β=0,331). This confirms that digital competences have the strongest influence on perceived financial outcomes, mainly due to the fact that it influences financial literacy directly and entrepreneurial competences indirectly as well. Based on this model, the hypotheses of H4 are all supported, the hypothesized relationships between the competences apply and are all positive.

Figure 3. Final path model with significant paths, simplified PLS-SEM model
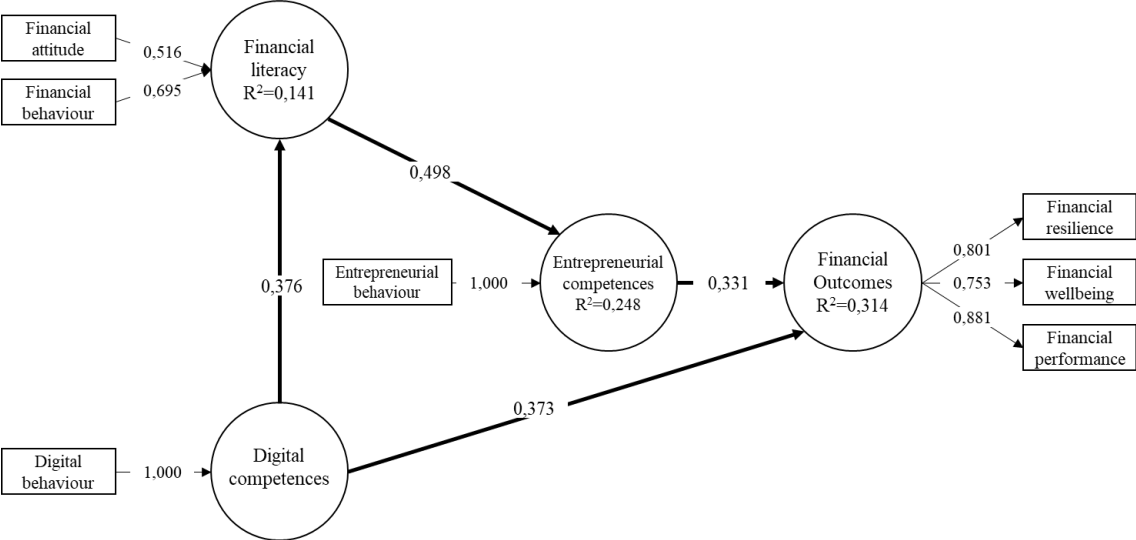
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Table 1 contains the final model's evaluation, including the previously mentioned path coefficients and total effects, and further complementing it with the f^2 effect sizes. The effect sizes show that financial literacy has the strongest effect on entrepreneurial competency

(f^2=0,330), however this effect is still moderate, similarly as how digital competences only exhibit moderate effect on financial literacy (f^2=0,164) and financial outcomes (f^2=0,189). Entrepreneurial competences have a small effect on financial outcomes with f^2=0,148. Based on this it can be concluded that financial literacy has the strongest effect on the endogenous constructs in the model. This can be partially explained by the fact that financial literacy and entrepreneurial competences mediate the effect of digital competences on financial outcomes, by omitting either of these constructs from the model, the explanatory power of the model would decrease greatly.

Table 1. Path model evaluation, simplified model, after removing insignificant paths

Path	Path coefficients				Total effects		f^2
	Original	Bootstrap sample	Standard deviation	t-value (p value)	Value	t-value (p value)	
Digital competences -> Enterpreneurial competences					0,187	2,644 (0,008)	
Digital competences -> Financial Literacy	0,376	0,379	0,111	3,396 (0,001)	0,376	3,396 (0,001)	0,164
Digital competences -> Financial outcomes	0,373	0,37	0,104	3,570 (0,000)	0,435	4,355 (0,000)	0,189
Enterpreneurial competences -> Financial outcomes	0,331	0,331	0,107	3,097 (0,002)	0,331	3,097 (0,002)	0,148
Financial Literacy -> Enterpreneurial competences	0,498	0,501	0,112	4,444 (0,000)	0,498	4,444 (0,000)	0,330
Financial Literacy -> Financial outcomes					0,165	2,248 (0,025)	

Source: own editing

The main conclusion of this first, simplified model is that knowledge and attitude elements (except for financial literacy) do not have a significant impact on the competences of SME decision-makers, which ultimately means that it is more of their actions, not their actual factual knowledge and beliefs, are what matters when it comes to making financial decisions in the company. The model supports the relationships and overlaps between the competence areas, the examined effect of the competences on perceived financial outcomes also supports H5. However, it needs to be noted that in the case of financial literacy, the effect is only indirect, as the path between financial literacy and financial outcomes resulted to be insignificant, and as a consequence, got removed from the model.

Similarly to the simplified model, knowledge dimensions resulted not to have significant effect in the HCM model as well, however, attitude and behaviour were all having significant, positive weights in the model in each construct. The final path model consists of two dimensions for each competence areas (behaviour and attitude), an improvement compared to the simplified model, and contains each of the three financial outcome dimensions. It is interesting to compare this path model to that of the simplified PLS-SEM model from two aspects. First, each competence areas are now comprised of two dimensions, both attitudes and behaviour. Second, financial literacy resulted to have a significant direct effect on the perceived financial outcomes of the company, while digital competences do not have a direct, only indirect effect. Concerning the relationships of the competence areas, H4 is supported. Digital competences have a positive, direct effect on both financial literacy and entrepreneurial competences. Financial literacy has a positive direct effect on entrepreneurial competences of a similar strength (*Figure 4*). The results are not fundamentally different from what we have seen in the case of the simplified model. Even though due to the exclusion of independent variables at the first stage and some information loss as a result of the components generated, the R^2 values are slightly lower.

Figure 4. Final path model with significant paths, hierarchical component model (HCM)
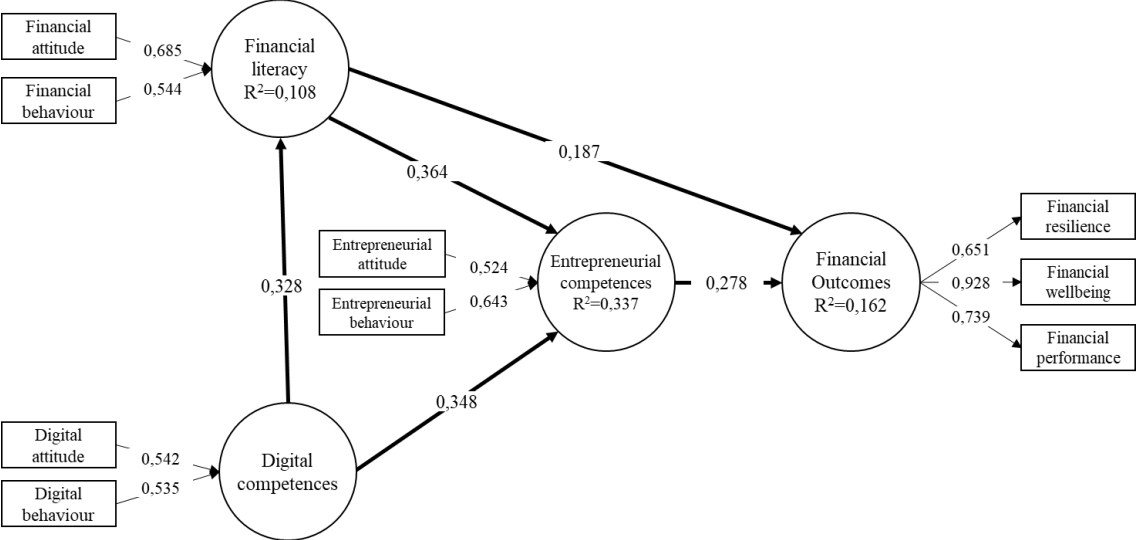
Source: own editing

Contrary to the previous model, here financial literacy exhibits the strongest total effect (0,187+0,364*0,278=0,289) on the perceived financial outcomes, followed by entrepreneurial competences (β=0,278) and digital competences (which only has an indirect effect of 0,348*0,278+0,328*0,364*0,278+0,328*0,187=0,192). Total effects are significant for each

path, and what we need to notice is the medium effects of digital competences (f^2=0,163) and financial literacy (f^2=0,179) on entrepreneurial competences. The results support the theory on the overlap of competences and how digital skills and financial skills could be segments of entrepreneurial competences. This latter observation contradicts the results of the previous model, because as even though we could see how important role digital competences play in affecting the other competence areas, in this case its total effect on perceived financial outcomes remains lower than that of financial literacy (*Table 2*). It is worth mentioning though that even though digital competences do not have a direct effect on perceived financial outcomes, the overall total effect of every competences resulted to be positive and significant on financial outcomes, meaning that this model, similarly to the simplified path model, supports H5.

Table 2. Path model evaluation, HCM model, after removing insignificant paths

Path	Path coefficients				Total effects		f^2
	Original	Bootstrap sample	Standard deviation	t-value (p value)	Value	t-value (p value)	
Digital competences -> Enterpreneurial competences	0,348	0,353	0,145	2,409 (0,016)	0,468	3,135 (0,002)	0,163
Digital competences -> Financial Literacy	0,328	0,331	0,080	4,096 (0,000)	0,328	4,096 (0,000)	0,121
Digital competences -> Financial outcomes					0,192	2,887 (0,004)	
Enterpreneurial competences -> Financial outcomes	0,278	0,285	0,091	3,059 (0,002)	0,278	3,059 (0,002)	0,071
Financial Literacy -> Enterpreneurial competences	0,364	0,367	0,068	5,369 (0,000)	0,364	5,369 (0,000)	0,179
Financial Literacy -> Financial outcomes	0,187	0,189	0,082	2,282 (0,022)	0,289	4,103 (0,000)	0,032

Source: own editing

The most substantial added value of this study is the application of an extended PLS method called hierarchical component model (HCM). The limitations of the widely used PLS-SEM method, as we could see it in the simplified model, did not allow for a detailed analysis of the dimensions (knowledge, skills, attitudes) that make up each competence, but sought to characterise them with a single measure. The HCM method extended the application of PLS-SEM and allowed competences to be analysed along their sub-dimensions including more indicators, thus contributing to more detailed results and understanding of the underlying constructs. The results demonstrated the applicability of the HCM method and its limitations in

this topic, showing that attitudes and behaviour have a positive significant effect on the perception of financial outcomes. Knowledge has a negative but not significant effect, indirectly suggesting that those with higher knowledge tend to have a more negative perception of performance than those with lower knowledge. In the upcoming paragraphs theses are formulated which can all be generalized to MSMEs of the Southern Great Plain of Hungary. The decisions on the research hypotheses and the final theses are summarized in the below *Table 3*.

Table 3. Decision on research hypotheses, theses

	Hypothesis	Decision		Thesis
H1	The knowledge dimension of each competences has a positive, significant effect on perceived financial outcomes.	Rejected	T1	Knowledge of financial decision-makers does not have a significant effect on perceived financial outcomes of MSMEs.
H2	The attitude dimension of each competences has a positive, significant effect on perceived financial outcomes.	Partially accepted	T2	Financial attitudes of financial decision-makers have a positive, significant effect on perceived financial outcomes of MSMEs.
H3	The behaviour dimension of each competences has a positive, significant effect on perceived financial outcomes.	Accepted	T3	Behaviour of financial decision-makers has a significant, positive effect on perceived financial outcomes of MSMEs.
H4	Competence areas are positively related to each other. H4a: Financial literacy has a positive effect on entrepreneurial competences. H4b: Digital competences have a positive effect on financial literacy. H4c: Digital competences have a positive effect on entrepreneurial competences.	Accepted	T4	Competence areas of financial decision-makers of MSMEs are positively and significantly related to each other.
H5	Every competence has a positive effect on perceived financial outcomes.	Accepted	T5	Every competence of financial decision-makers has a positive significant total effect on perceived financial outcomes of MSMEs.

Source: own editing

Knowledge dimensions resulted to be insignificant in the path models. In both models knowledge elements had negative weights, which could imply that those who have better knowledge and better understanding of business processes might have a more pessimistic view of the financial outcomes of the company. The first hypothesis was therefore rejected.

Thesis 1: Knowledge of financial decision-makers does not have a significant effect on perceived financial outcomes of MSMEs.

The insignificant effect of knowledge on the perceived financial outcomes contradicts the literature. Even though it seems from the results that knowledge has no effect on how MSME decision-makers perceive financial outcomes of the business, the results need some further elaboration. First, the negative weights of the knowledge dimensions in both the simplified and the HCM model might imply that those, who have a higher level of knowledge have a worse perception of financial outcomes. However, this remains just an assumption, as the knowledge test questions did not provide a detailed enough overview of the actual knowledge on the respondents. The MSME financial literacy framework (OECD 2018) even though describes the knowledge areas (topic) related to the different life-stages of MSMEs, it does not specify the proficiency level entrepreneurs should exhibit at certain stages of the SME life-cycle. A better understanding of knowledge levels of the respondents might require longer surveys with various types of assessment tools and needs to be analysed more in detail, which is beyond the scope of this current research.

Attitude dimensions resulted to be all significant in the HCM model and were partially present in the simplified model. Positive weights imply that those with better attitudes and beliefs are more optimistic about their financial outcomes. As a result, the second hypothesis is partially accepted, as even though each of the three attitude dimensions resulted to have a positive, significant effect in the HCM model, digital and entrepreneurial attitudes were not significant in the simplified model. Behaviour dimensions have significant and positive effect in both path models. Based on the results in can be deduced that what has the most influence in financial decision-making is the behaviour of persons, their practices, acts and prior experience, even if that might sometimes be contrary to either their beliefs or factual knowledge.

Thesis 2: Financial attitudes of financial decision-makers have a positive, significant effect on perceived financial outcomes of MSMEs.

Thesis 3: Behaviour of financial decision-makers has a significant, positive effect on perceived financial outcomes of MSMEs.

Regarding the fourth hypothesis about the interrelatedness of the competences, only one path between digital competences and entrepreneurial competences resulted to be insignificant in the simplified path model, however, the indirect effect of digital competences on entrepreneurial competences through financial literacy resulted to be significant. This demonstrates that these competences are strongly intertwined and cannot be examined in isolation from each other, meaning that the fourth hypothesis is fully supported by the evidence.

Thesis 4: Competence areas of financial decision-makers of MSMEs are positively and significantly related to each other.

Concerning the fifth hypothesis about the effect of the competences on perceived financial outcomes, the results vary highly depending on the complexity of the applied model, however the fifth hypothesis is accepted. It is important to notice however, that the effect of competences on perceived financial outcomes is not necessarily direct, but in certain cases are only indirect through entrepreneurial competences. Path coefficients are overall positive, however, in the simplified model financial literacy and in the HCM model, digital competences did not have a significant direct effect on perceived financial outcomes. Yet, total effects were positive and significant for every competences, meaning that by improving the level of each competences, perceived financial outcomes will increase. This conclusion should be treated carefully though, as e.g. in the HCM model competences did not include the knowledge dimension, therefore improving the competence levels is possible through teaching good practices and influencing the norms and beliefs of MSME decision-makers, other than improving their factual knowledge). One important conclusion of this part of the analysis is that each of these competences can affect jointly financial decisions of entrepreneurs, making financial literacy equally as important as the other two competences. This is in line with Lusardi (2019), stating that "*In today's world, financial literacy should be considered as important as basic literacy, i.e., the ability to read and write*" (Lusardi, 2019, p. 7.).

Thesis 5: Every competence of financial decision-makers has a positive significant total effect on perceived financial outcomes of MSMEs.

5. Limitations, future research directions

There are some limitations and further research opportunities in this work. One of the most important limitation of the study is the small sample size. While 159 responses were received yielding a 5,21% response rate, a further 106 reactions arrived in the form of replies to the initial invitation or the reminder asking for participation in the survey. The majority of the rejection emails expressed reservations about the anonymity of the survey. Some respondents criticized the length of the survey, saying that during the pandemic, participating in a survey was the least of their concern. Last, some others refused to take part, because they thought that the survey questions were not realistic or lifelike, and suggested rewording some of the questions to reflect on the everyday activity of MSMEs a bit more. The feedback received has been documented and will be used in a future research to simplify the survey and to clarify

the questions that were not completely obvious for the participants. As a further research direction, a larger regional or national sample could be taken where spatial comparisons would become possible.

Another limitation of the study is that since the questions were adapted from the OECD questionnaire (OECD 2020a, 2020b) as a verified questionnaire, there was little to no room for adjusting the questions to the research objectives. Concerning the financial outcome measures, the Likert scale variables did not make it possible to objectively evaluate the financial status of the businesses. Instead, items were focusing on how the respondents evaluated certain aspects, which in fact could also mean that due to certain shortfalls (e.g. lack of knowledge, overly optimistic attitude etc.) the respondents could have a false impression of the actual finances of the company. In future research, more "hard" numerical financial indicators should be included in the survey. As a conclusion therefore, the survey needs to be redesigned, knowledge questions need to be more diversified, and new questions for financial indicators should be included, yet it should be kept in mind to keep the survey as compact as possible.

The findings of the study highlight the need for joint development of the competences. One of the most important implication of the study is that the key to SME success and survival is the complex development of financial literacy, digital and entrepreneurial competences of financial decision-makers. Even though financial literacy development programmes do exist in Hungary, and financial support is available to some degree to support digitalization, policymakers do not pay enough attention to SMEs when it comes to competence development. The economic recession of the pandemic showed that those who cannot adapt quickly enough to the rapidly changing circumstances would have to bear the negative consequences of the recession. The key of survival lies not in material assets but in the continuous development of the human factor. This does not necessarily mean that employees and decision-makers must thrive for excellence in every competences. This rather means that they should make efforts to keep learning continuously and to dare to ask for help when in need.

There is need for financial education, the importance of which has been recognized in the past 20 years. While several countries adapted national strategies to improve financial literacy and financial inclusion (Kovács-Terták, 2019), many is designed to educate only children and adolescents and do not promote openness, nor affect attitudes and behaviour but focus merely on factual knowledge improvement. Therefore, policy makers are recommended to develop programmes which first and foremost promote financial attitudes and behaviour and second, does it in way that includes digital and entrepreneurial competences. Even though the

majority of the SMEs are aware of the importance of developing competences, they are not self-motivated, and currently, they are not pressurized by policymakers either. More emphasis should be taken to support the most vulnerable group, micro-businesses, which account for the vast majority of entreprises.

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