Similarities and Differences between Households' and SME's Financial Knowledge and Behaviour: A Greek Survey

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Abstract

In this paper, we examine the financial literacy, thus the financial behaviour of 352 Greek households. In turn, we compare our findings with results from a similar survey we conducted on an equivalent sample of small and medium-sized enterprises (SMEs). Our aim was to realise if there is any link between financial knowledge and behaviour in each surveyed micro-system and, further, indicate similarities and differences between them. It is argued that the sample of households make better use of financial knowledge than the surveyed SMEs. Further, even in cases where financial knowledge was of high performance, both groups did not perform accordingly in terms of their financial behaviour. Such results indicate the complexity of the relationship between knowledge and behaviour.

JEL Classifications: L20, D10, D22.
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1. Introduction

Households and small and medium-sized enterprises (SMEs) are often considered as exhibiting several structural and financial similarities. They are both relatively small in size and their financial resources are often irregular and uncertain, in particular in an era of a persistent and highly painful global financial

crisis as the current one. The ultimate measure for their sustainability is usually associated with their ability to manage their wealth successfully. In earlier research work, a relationship has been assumed between SMEs financial knowledge and financial behaviour (Karlan and Valdivia, 2010; Field *et al*., 2010). In the same vein, there is some research which relates households' financial knowledge with their financial performance (see, for example, Hilgert *et al*., 2003). However, much of such efforts have been quite conceptual in nature. To fill this gap, this study tries to examine a number of indicators that show in a more quantifiable and systematic way whether there is a link between SMEs' and households' financial knowledge and performance. Further, we attempt to spot similarities and differences between the two economic groups under investigation. To our knowledge, there is no previous empirical work on comparisons between financial performance of households and SMEs, as reported in the present paper.

To begin with, first, there is need to clarify the terms 'financial knowledge' and 'financial behaviour' since there is a multiplicity of descriptive definitions. According to the established literature, there is no single agreed definition and, even more, there is no widely acceptable measurement. For example, the FunnieMae Foundation (Vitt *et al*., 2000) describes financial literacy as the ability to obtain information, analyze, manage and communicate about one's personal financial situation as it affects one's material well-being. Schagen and Lines (1996, p. 91) defined financial literacy as "the ability to make informed judgments and to take effective decisions regarding the use and management of money". Neither of the above definitions refers to the way we measure the terms.

As far as 'financial behaviour' is concerned, a prominent approach to this term interpretation is that it constitutes a synthesis of concepts and learning used in behavioural sciences, and, in particular, in Psychology, Sociology and Anthropology. Therefore, its interpretation depends upon the stance of the science through which someone examines it. For the purpose of this paper, we make the hypothesis that 'financial behaviour' is the performance outcome of one's financial knowledge.

The current paper builds upon a previous work (Stefanitsis *et al*., 2013) whereby the authors investigated the role that financial knowledge in the decision-making and behaviour of a sample of 352 SMEs. They provided evidence that despite SMEs satisfactory financial knowledge in specific areas of study, the majority of the respondents failed to capture gains in overall performance.

Within the evolving scene of a persistent and highly painful global financial crisis, the contribution of this paper is twofold. Firstly, we seek to comprehend the way financial knowledge affects households' and SMEs' financial behaviour. Given the multiplicity of the modern financial markets and products, households and SMEs

should be sufficiently equipped with financial knowledge and competences that lead to more proper decision making. Secondly, our study fills the gap in the literature on comparing financial knowledge and behaviour of two micro-systems. Because households and SMEs are often considered as exhibiting several structural and financial similarities, we try to investigate the pattern (similarities and differences between them) of their financial behaviour. It is worth mentioning that financial and economic crisis has led the two micro-systems to suffer multiple "similar shocks". For SMEs there is a severe drop in demand for goods / services, bankruptcies, tightening in credit terms etc. For households there is a severe impact in wages' decrease, an increase in unemployment, tightening in credit availability etc. In this paper, the main question of interest is to comparatively examine which organizational group (i.e. SMEs or households) make better use of their financial knowledge in relation to their financial behaviour.

The rest of the paper is organized as follows. Section 2 briefly reviews the literature on SMEs' and households' financial knowledge and behaviour. Section 3 presents the methodology employed. Section 4 discusses the empirical analysis. Section 5 concludes the paper and offers some proposals for further research.

2. Financial knowledge and behaviour: A literature review

In the last two decades, a number of studies have found evidence on the way small and medium sized enterprises acquire new knowledge and develop new skills and competences. For instance, in 1997, researchers from the Graduate School for Industrial Engineering and Management Science, at Eindhoven University of Technology in The Netherlands, found that SMEs have problems with both formulating and acquiring new knowledge and skills. For this reason, they proposed an approach to help SMEs identify the knowledge and skills they need to exploit their markets' opportunities. Applying this particular approach, the companies involved in the survey became more conscious of their attempts to achieve competitive advantage in a more strategic way (Vos *et al.*, 1998).

In the context of the Greek SMEs, there was an attempt to specify the relationship existed among different categories of their intellectual assets and to determine the way those assets influence SMEs' effective financial performance (Cohen and Kaimenakis, 2007). It was found that the interaction of certain cattegories of the SMEs intellectual assets is in some respects different from the pattern evidenced in other surveys that examined larger companies (Ibid). Other empirical data provide supportive evidence that certain categories of intellectual capital positively contribute to corporate performance.

Lately, financial knowledge has also gained researchers' attention in several countries. For example, in India, it was found that knowledge, as the key resource

of knowledge-based economy, is the best way for firms to attain sustainable competitive advantage. In the context of such studies it is also emphasized the huge research gap in the field of the SMEs worldwide and, in particular, in Indian SMEs (Pillania, 2006).

Further, an attempt was made to study the specificities of the process of knowledge creation and development in family firms since it was found that family businesses exhibit a particular behaviour in terms of the creation, development, sharing, protection and transmission of knowledge (Basly, 2007). In another study undertaken in Sweden, it was found that increased awareness of financial knowledge and the proper use of the internet technology as well as the revenue management systems are important elements for improving the viability of SMEs' operations (Marvel, 2001). A number of other studies suggested that SMEs provide an interesting setting for investigation as they are knowledge generators, but poor at knowledge exploitation (Levy *et al.*, 2001). These authors proposed a game-theory framework for analysing inter-organisational knowledge-sharing working under the rules of co-opetition. They also provided guidelines for the management of explicit knowledge, predicated on co-ordination and control theory.

In USA, researches indicated that poor financial management at the individual and family level in the general population has the potential to equate to poor financial management in the pool of nascent entrepreneurs. It was found evidence that it is likely to exist a range of levels of financial management skills among nascent entrepreneurs, and if financial management is important to business success, then it is also likely that people with stronger financial management knowledge or skill to create businesses successfully (Katz and Cabezuelo, 2004).

In other countries, as for instance in Spain, researchers presented empirical evidence on the determinants of the financial behaviour of small family businesses and their differences from nonfamily small ones. The results confirmed that a business's family nature does lead it to employ financial policy different from the rest of businesses. Further, results from other studies indicated that growth opportunities, financial distress costs, and internal resources appeared to be the main factors that differentiate the financial behaviour of family firms from their nonfamily counterparts (Gracia and Andújar, 2007).

As far as households are concerned, beginning from the United States of America, an attempt was made in order to "tabulate the prevalence of financial literacy, retirement calculations, and the planning tools people report they deploy to devise and execute their plans. In addition, it was evaluated whether those who lack insight into simple economic facts also prove to be those who have particular difficulty devising plans and carrying them out in practice. The idea was to evaluate whether, those who were more financially literate were also more likely to plan and be successful planners" (Lusardi and Mitchel, 2005). The same authors, two

years later, continued to investigate the causes and consequences of financial illiteracy to better understand why retirement planning is lacking and why so many households arrive close to retirement with little or no wealth. In their review, many households are unfamiliar with even the most basic economic concepts needed to make saving and investment decisions (Lusardi and Mitchel, 2007).

Few years earlier, Bernheim and Garrett (2001) used a household survey to investigate the effects of employer-based financial education on personal saving. They explored cross-sectional relationships between the availability of employer-based financial education and various measures of asset accumulation, and they interpreted these patterns in light of various potentially confounding factors. Their findings favored the hypothesis that employer-based financial education stimulates saving, both in general and for retirement. Another research from the same country examined the effects of institutional variables on saving behaviour by positing that four institutional variables—institutionalized saving mechanisms, targeted financial education, attractive saving incentives, and facilitation—promote saving. It was found that low-income households are substantially less likely to have access to these institutions, a phenomenon that may help explain their below-average saving rates (Beverly and Sherraden, 2000).

Other studies were focused particularly on college students. For example, a study that examined the relationship between financial knowledge and credit card behaviour of college students since the widespread availability of credit cards has raised concerns over how college students might use those cards given the negative consequences (both immediate and long-term) associated with credit abuse and mismanagement. The results suggested that financial knowledge is a significant factor in the credit card decisions of college students. Students with higher scores on a measure of personal financial knowledge were more likely to engage in more responsible credit card use. Specific behaviour chosen has been associated with greater costs of borrowing and adverse economic consequences in the past (Robb, 2011).

The interest in College students started many years ago. Non-business majors, women, students in the lower class ranks, under age 30, and with little work experience had lower levels of knowledge. Less knowledgeable students tend to hold wrong opinions and make incorrect decisions. It is concluded that college students are not knowledgeable about personal finance. The low level of knowledge will limit their ability to make informed decisions (Chen and Volpe, 1998).

Besides young people, special interest has been given also to the financial knowledge and behaviour of elderly people, since they are supposed to be a knowledgeable weak group. In this context, a number of studies have been conducted that investigate who is the financially more knowledgeable person in male-female couple households with a head over age 50. Lindamood and Hanna (2006)

found that education, health, income, and financial assets generally predicted which person was identified as more knowledgeable.

A number of other studies indicate that financial knowledge also plays a key role in consumption and investment behaviour. Under this regime, based on interviews with participants of a sustainable behaviour change programme, some researchers considered both how, and in what form, knowledge is mobilised when individuals rethink their personal practices. Hobson, (2003) emphasised the importance of 'known' or 'local' information, as well as discursive processes, in addressing individual consumption practices and argued that 'cultural politics' of sustainable consumption needs to be factored into on-going academic and policy debate. Also, evidence on participation, diversification, and mortgage refinancing suggested that many households invest effectively, but a minority makes significant mistakes (Campbell, 2006). This minority appeared to be poorer and less well educated than the majority of more successful investors. There is some evidence that households understand their own limitations and avoid financial strategies for which they feel unqualified. Some financial products involve a cross-subsidy from naive to sophisticated households, and this can inhibit welfare-improving financial innovation (Ibid).

Similar research attempts have been taken place in Europe as well. For example, in Sweden, the results from an exploratory study of Swedish households' portfolio behaviour were presented. The results showed that groups of households exhibited different patterns of financial assets and debts (Gunnarsson and Wahlund, 1997). In Nederland, a household survey to measure financial literacy and study its relationship to stock market participation has been made. It was found that the majority of respondents display basic financial knowledge and have some grasp of concepts such as interest compounding, inflation, and the time value of money. However, very few go beyond these basic concepts; many respondents do not know the difference between bonds and stocks, the relationship between bond prices and interest rates, and the basics of risk diversification. Most importantly, it was concluded that financial literacy affects financial decision-making: those with low literacy are much less likely to invest in stocks (Rooij *et al.*, 2007).

In Germany, measured on the basis of three financial literacy questions, it was found that the German population has good financial knowledge. It was also revealed that higher wealth is associated with higher levels of financial literacy. Further, financial literacy relates to higher levels of income and education. Finally, a positive correlation of financial literacy and financial decision making was identified. More literate households were more likely to save privately for their old-age and at the same time households saving privately for their old-age acquired financial knowledge to improve their investment decisions (Bucher-Koenen, 2009). In England, studies have been conducted in order to measure fi-

nancial literacy. These found evidence that at least half of the UK population needs reminding that it is dangerous to live for the day and make no provision for changes in circumstance, unexpected expenditure, or retirement. In addition, with the low levels of financial capability identified, it is likely that mis-selling of financial products will continue in the UK (Atkinson *et al*., 2007).

In Russia, another study was undertaken in an attempt to explore the patterns of saving behaviour of Russian households as well as to examine whether patterns of consumption smoothing can be rejected on the basis of the Russian data (Kuzina, 2005).

From the proceeding literature review, it is clear that there is no study that has investigated in a comparative way SMEs' and households' financial knowledge and behaviour.

3. Methodology

3.1 Sample and data collection

Data were collected through two structured questionnaires administered on-line mainly to owners, managers and professionals of SMEs and households, located in Greece. Earlier versions of the questionnaires were piloted for validity reasons and, in turn, the questionnaires were amended accordingly.

Following the pilot survey, an internet site was built up in order for the questionnaires to be easily accessible by the respondents. Then, an e-mail was constructed with the on-line questionnaires' hyperlink attached, explaining the purpose of the survey and inviting the recipients to participate by answering and submitting back the questionnaires. The sample used was a convenient one, since the e-mail was sent to the web addresses of SMEs and households included in two different data bases. The majority of the two questionnaires' questions were closed.

The circulation of the questionnaire addressed to SMEs was set off on the 16th of March 2009 and completed on the 8th of April 2010. Of the 1,228 SMEs which initially responded positively to our invitation, 359 managed to complete it in full. According to the Greek Small Business Institute (2008), the number of SMEs in Greece is 879,318. The circulation of the questionnaire addressed to households started on the 7th of September 2009 and it was completed on the 28th of April 2010. Of the 713 households which attempted to answer the questionnaire, 368 manage to do so properly. According to the Hellenic Statistical Authority, the number of Greek households reaches 3,993,000.

For both questionnaire surveys, an equivalent sample comprised of the first received 352 questionnaires properly answered, was selected. The required survey data were classified into three different thematic sections: general informa-

tion (respondents' personal information and firm identity), financial knowledge (general and specialized information), and financial behaviour.

As far as the SMEs' questionnaire is concerned, the first section comprises questions regarding respondents' 'personal data' and 'firm's identity'. Given our assumption that the level of the financial knowledge is likely to be a function of a number of different determinants, the gender, the age and the respondents' position at the company, were asked to be defined. As for the firm's identity is concerned, the year of establishment (in order to check whether there are differences between established firms and new comers in the market), the company's sales, profits and number of staff evolution, the legal status, the business sector, region and numbers of employees were also examined, as whether they constitute determinant variables or not. Similarly, in the households' questionnaire, demographic characteristics of the interviewee, such as gender, age, marital status, place of permanent residence, personal taxable income and occupational status, were asked in the first section.

The second section, entitled *'financial knowledge'*, aimed at measuring the respondents' financial knowledge. This section was divided in two sub-categories. The first one comprised questions which provide general information about the respondents' financial knowledge, for example their educational level, sources of information relevant to financial matters etc. The second subcategory comprised 27 specialized questions covering thematic areas of financial knowledge like cash flow, savings and costing, investments, loans, and general financial knowledge questions related to SMEs' and households management. Specialized financial knowledge questions were true or false questions and were scored as correct or not.

The third section, entitled *'financial behaviour',* comprised 27 specialized financial – management questions, which were related to what is used to be called 'good' or 'bad' financial practices, or, in other words, 'responsible' or 'irresponsible' financial behaviour (Pruzan, 2001). Financial practices were categorized into the same five thematic areas. Most of the behavioural questions were either yes/no questions or questions based on Likert's scale.

Each specialized thematic area contained financial questions which ranged from basic money management skills' questions to more sophisticated ones. Scores on financial knowledge and financial behaviour in each thematic area as well as aggregate scores were classified as "low", "medium" or "high".

3.2 Measurement of Variables

All specialized questions were graded with 0 or 1. In the financial knowledge true or false specialized questions, correct answers were graded with 1, while in-

correct answers were graded with 0. Similarly, in the financial behaviour spe-
cialized questions, responsible financial behaviour practices were graded with 1
and irresponsible financial behaviour practices were graded with 0. Respondents
that scored correctly up to 50% of the questions were included at the low level
category of each thematic area. Respondents that scored between 50% and 85%
were included at the medium level category whilst those that scored above 85%
were included at the high level category. In order for a SME or a household to
be included in the medium or high level category of the financial knowledge or
financial behaviour aggregate score, it was set as a prerequisite that they should
achieve a total score equal or higher than 50% respectively, in all the five finan-
cial thematic areas described above. The reason for this decision was based on the
assumption that all the categories explored are interdependent and respondents
should indicate an "acceptable" level of performance in overall.

3.3 Control Variables

Further, controls were established for "conditional" variables. In particular,
in the investments' thematic area, firms or households that did not have a port-
folio, were not expected to answer the behavioural questions regarding invest-
ments. Thus, they were automatically excluded from the particular section.
Similarly, firms or households that reported they are not in debt to loans were not
expected to answer the behavioural questions focused on loans.

4. Empirical Analysis

4.1 Findings and Discussion

4.1.1 Financial Knowledge Section Scores

In order to investigate the perceived level of financial knowledge both for
SMEs and households, we first analyzed the responses of the five financial the-
matic areas and then classified the respondents' financial knowledge scores as
"low", "medium" or "high". As it is revealed in Table 1, the majority of the sur-
vey samples are classified in the medium level category, for most of the thematic
areas. Most firms are classified in the medium category in terms of financial
knowledge on the issue of *cash flow* (64%). However, the authors of the paper
are concerned about the fact that 26% of the sample is ranked in the low cate-
gory, while only a small percentage (10%) is categorized in the high category.
Cash flow knowledge appears to be the weak point of the respondents in the
questionnaire administered to households as well. It is the section that recorded
the highest percentages of people belonging to the low category group (23%).

The medium category gathered again the largest proportion (61%), while the high category recorded percentage of 16%.

The results of *savings and costing* thematic area are more optimistic compared with those of cash flow. The percentage of SMEs classified in the medium category is almost the same (70% compared to 64% in cash flow) but the relationship between firms that are categorized at the low and high category is reversed. Thus, 10% of companies are ranked in the low level category and 20% of the companies are ranked in the high level category. Similarly, households' financial knowledge in savings and costing thematic area is considered satisfactory since 25% of the total sample is included in the high level category, while only about 10% of the total sample is included in the low category.

In the *investments* financial knowledge thematic area, the greatest accumulation of SMEs is recorded in the medium category (82%), accompanied with the lowest recorded concentration of companies in the high category (7%). Similarly, as far as the households percentages are concerned, we observe a very small percentage in the low category (only 4%), and the greatest proportion of the sample in the medium category (81%).

Table 1
Financial Knowledge Section Scores

			Survey Sample	
			SME	**Households**
Cash Flow	Low	N %	26%	23%
	Medium	N %	64%	61%
	High	N %	10%	16%
Savings & Costing	Low	N %	10%	10%
	Medium	N %	70%	66%
	High	N %	20%	25%
Investments	Low	N %	11%	4%
	Medium	N %	82%	81%
	High	N %	7%	15%
Loans	Low	N %	8%	3%
	Medium	N %	72%	77%
	High	N %	20%	20%
General	Low	N %	5%	9%
	Medium	N %	46%	82%
	High	N %	49%	9%

The performance of SMEs in the financial knowledge thematic area concerning loans is characterized positive. The majority was found to belong to the medium category with a rate of 72%. Furthermore, there is still a fairly high percentage belonging to the high category (20%), and a relatively small proportion belonging to the low category (8%). For households, the financial knowledge thematic area on loans seems to be the one that respondents have the best performance, since it recorded the smallest percentage of households belonging to the low category (only 3%), as well as the second highest percentage of households that belong to the high category (20%), following the percentage reported in the savings - costing section (percentage of people who belong to the high category: 25%).

SMEs *general financial literacy* thematic area is the one that has the highest percentage of correct responses to the high level category (49%). From this evidence it becomes clear that Greek SMEs are well-informed on issues related to general financial management. As far as households' performance, the percentage reported in the low and high categories was equal (9%). The medium category in this section recorded a very high share of 82%.

The overall picture, however, shows that Greek SMEs do not indicate a satisfactory aggregate level of financial knowledge. As we can see from Table 2, only 18% of the total sample belongs to the high category and a percentage of 38% belongs to the medium group. The remaining 44% is gathered in the low level category. As far as households are concerned, the findings are roughly more optimistic. The largest percentage of respondents is classified at the medium category (46%), while the percentage of high level category reaches 15%. As such, the sum of respondents that belong to the middle and high category reaches 61%. The percentage of lower category though (39%), could not be described as small in any way, and for this reason we consider necessary the evaluation of future similar researches which would monitor the progress.

Table 2

Financial Knowledge Aggregate Score

	Observa- tions	Low		Medium		High	
		N	Row N%	N	Row N%	N	Row N%
SME Survey Sample	352	156	44%	134	38%	62	18%
Households Survey Sample	352	136	39%	163	46%	53	15%

4.1.2. Financial Behaviour Section Scores

The thematic area of *cash flow* is proved to be the weak point for the SMEs financial behaviour, as well. In relation to the performance recorded in the financial knowledge section, we observe an increase regarding the percentage of firms included in the low category, but also a decrease of the percentage of firms classified in the medium and high category (Table 3). The cash flow financial behaviour of households suggests that Greeks behave rather well, although it is proved from the analysis of the relative knowledge section, that their knowledge regarding cash flow issues is moderate. More specifically, in relation to the cash flow financial knowledge thematic area, the financial behaviour area indicates lower percentages both in the low level category and in the medium one. The losses occurring in these two categories are for the benefit of the high category.

Unlike the area of cash flow, SMEs commitment to responsible practices on the *savings and costing* thematic area is increased. Thus, only a small proportion (11%) of our sample is classified in the low level category, while the remaining sample is shared between medium (48%) and high category (41%). On the other hand, households' performance regarding the financial behaviour thematic area savings and costing is not satisfactory. This section recorded the highest percentages of households belonging to the low category (34%). Also, the medium category which in general demonstrates the largest percentage by far in all sections analyzed, in this case records only 49%.

Indicative of the recent economic crisis, liquidity problems and difficulties of access to funding, is the fact that only 29% of the firms in our sample spend money on *investments*. Firms, however, that are engaged in investments, present a satisfactory financial behaviour since only a percentage of 8% appears to belong to the low level category, while the remaining percentage is shared between medium and high group rates (i.e. 53% and 39% respectively). As far as households are concerned, only 39% of the sample seems to have the necessary funds and time to invest. Respondents that are involved in investments however, present a good behaviour, since more than 27% of the sample managed to join the high category, while the percentage that belongs to the lower level category is small (7%).

Table 3
Financial Behaviour Section Scores

			Survey Sample	
			SME	**Households**
Cash Flow	Low	N %	40%	10%
	Medium	N %	51%	57%
	High	N %	8%	33%
Savings & Costing	Low	N %	11%	34%
	Medium	N %	48%	49%
	High	N %	41%	17%
Investments		**Count***	102	136
	Low	N %	8%	7%
	Medium	N %	53%	66%
	High	N %	39%	27%
Loans		**Count***	236	204
	Low	N %	6%	3%
	Medium	N %	73%	66%
	High	N %	21%	31%
General	Low	N %	39%	23%
	Medium	N %	44%	66%
	High	N %	17%	11%

* SMEs and households that do not have an investment portfolio are excluded from answering the behavioural questions regarding investments.
Similarly, SMEs and households that report they are not in debt to loans are excluded from answering the behavioural questions focused on loans.

The 2/3 of the SME sample has debt obligations. The majority is found in the medium category (73%). A fairly high percentage rate of 21% is found in the high level category, while the percentage of firms classified in the low category is small (6%). Households performance in the *loans* financial behaviour thematic area is among the best recorded, since the second highest percentage of respondents in the high category group is recorded (31%), with the dominant performance recorded in cash flow section (i.e. 33%) as well as the smallest

proportion of respondents belonging in the low level category (3%). Fifty eight percent (58%) of the sample noted that has debt obligations.

Moving to the *general financial behaviour* thematic area, what is interesting is the fact that the 83% of the SME sample is split between the low and medium category. The rate recorded in the high category is around 17%. The data for households show that 23% of the sample is classified in the low category, while only about one out of eleven respondents is classified at the high category.

The results however, regarding the overall financial behaviour of SMEs are worrying (see Table 4). More specifically, over half of the firms are classified in the low category group (64%). 18% is ranked in the medium group, while the same percentage of the sample is classified in the high level category. It is therefore immediately apparent, that even though Greek SMEs present a satisfactory performance in specific knowledge areas, they fail to capitalize the returns in order to present a good overall picture. Households on the other hand are much more disciplined than firms. For example, the percentage of households that is categorized in the low level category is 15% units less than this of the firms. Similarly, even though the percentage of respondents who belong to the high category (18%) is the same for both SMEs and households, the percentage of respondents classified in the medium category is 15% more for households compared with the one for SMEs.

Table 4
Financial Behaviour Aggregate Score

	Observations	Low		Medium		High	
		N	Row N%	N	Row N%	N	Row N%
SME Survey Sample	352	224	64%	63	18%	65	18%
Households Survey Sample	352	174	49%	116	33%	62	18%

4.1.3 Financial Knowledge and Financial Behaviour – Is there a link?

In order to evaluate further our research findings, several additional statistical methods have been used. Thus, first, we calculate and report Cronbach's alpha coefficient to examine the internal consistency reliability of the questionnaires.

Kline (1999) notes, "that although the general accepted value of 0.8 is appropriate for cognitive tests such as intelligence tests, for ability tests a cut-off

point of 0.7 is more suitable. He goes onto say that when dealing with psychological constructs values below even 0.7 can, realistically be expected because of the diversity of the constructs being measured". (Field, 2005).

In our analysis, all measures proved to be close to the cut-off point. Cronbach's Alpha reliability statistics measures for both samples are depicted at Tables 5 and 6.

Table 5

SMEs Cronbach's Alpha Reliability Coefficient

	N	Reliability Statistics		
		Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
SMEs with Investments & Loans	62	0.696	0.706	54
SMEs with Loans without Investments	174	0.704	0.704	48
SMEs with Investments without Loans	40	0.67	0.724	48
SMEs without Investments & without Loans	76	0.602	0.615	42

Table 6

Households Cronbach's Alpha Reliability Coefficient

	N	Reliability Statistics		
		Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Households with Investments & Loans	75	0.657	-	54
Households with Loans without Investments	129	0.606	0.63	48
Households with Investments without Loans	61	0.504	0.55	48
Households without Investments & without Loans	87	0.523	0.546	42

Further, it was found that the values of ϱ derived from the Kolmogorov-Smirnov test and the Shapiro-Wilk test for both samples were less than 0.05. Since our observations were not drawn from normally distributed populations, we used non-parametric statistical methods. We evaluated Spearman correlation in order to summarize the strength of relationship between the two variables (financial knowledge and financial behaviour). According to this test, in terms of financial knowledge, all individual indicators are correlated to the aggregate financial knowledge. The lack of correlation, however, between knowledge and behaviour variables, confirms that there is no strong statistical correlation between financial knowledge and behaviour in our SMEs sample (Table 7). Findings for the households are more or less the same. In terms of knowledge, all individual indicators are correlated to the aggregate financial knowledge at the 1% level of significance. On the other hand, in comparison with the SMEs, household's correlations between the variables financial knowledge and behaviour are more in number, and more intensive (Table 8).

We also evaluated Mann-Whitney Test. In our case we examine whether the median performance on financial literacy and financial behaviour differ for SMEs and households. The difference between SMEs and households in the sectors: investments knowledge, loans knowledge, general financial knowledge, cash-flow behaviour, savings behaviour, loans behaviour, general financial behaviour and aggregate financial behaviour for SMEs and households who have no loans neither investments, was found statistically significant (Table 10). In all the areas mentioned above, the performance of household outweighs that of the SMEs except in the areas of general financial knowledge and savings behaviour (Table 9).

Table 7
Spearman's rank correlation coefficient SME

		Financial Knowledge						Financial Behaviour								
Variables		Cash Flow	Savings & Costing	Investments	Loans	General	Aggregate	Cash Flow	Savings & Costing	Investments	Loans	General	Aggregate (SMEs with Investments & Loans)	Aggregate (SMEs with Investments, without Loans)	Aggregate (SMEs with Loans, without Investments)	Aggregate (SMEs without Investments & without Loans)
Financial Knowledge																
Cash Flow		1.000	0.100	.106(*)	0.073	.184(**)	.630(**)	0.090	0.030	-0.047	0.114	0.044	0.054	-0.100	0.144	-0.065
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Savings & Costing		0.100	1.000	0.032	.118(*)	0.096	.357(**)	0.004	0.018	0.024	-0.011	-0.068	0.007	0.044	0.085	0.011
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Investments		.106(*)	0.032	1.000	0.100	.127(*)	.461(**)	0.088	0.049	.219(*)	0.014	0.073	0.107	0.073	0.069	0.118
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Loans		0.073	.118(*)	0.100	1.000	.132(*)	.321(**)	-0.065	-0.044	-0.034	0.119	0.035	-0.053	0.168	-0.023	-0.156
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
General		.184(**)	0.096	.127(*)	.132(*)	1.000	.294(**)	0.076	0.012	0.087	0.051	0.078	.285(*)	0.014	0.078	0.016
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Aggregate		.630(**)	.357(**)	.461(**)	.321(**)	.294(**)	1.000	0.104	0.072	0.124	0.038	.135(*)	0.205	0.075	0.125	-0.045
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Financial Behaviour																
Cash Flow		0.090	0.004	0.088	-0.065	0.076	0.104	1.000	.357(**)	-0.109	.280(**)	.160(**)	.597(**)	.401(*)	.720(**)	.473(**)
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Savings & Costing		0.030	0.018	0.049	-0.044	0.012	0.072	.357(**)	1.000	0.042	.259(**)	.379(**)	.287(*)	0.282	.524(**)	.562(**)
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Investments		-0.047	0.024	.219(*)	-0.034	0.087	0.124	-0.109	0.042	1.000	0.159	.243(*)	.263(*)	.317(*)	0	0
	N	102	102	102	102	102	102	102	102	102	62	102	62	40	0	0
Loans		0.114	-0.011	0.014	0.119	.169(**)	0.038	.280(**)	.259(**)	0.159	1.000	.208(**)	.341(**)	.	.384(**)	.
	N	236	236	236	236	236	236	236	236	62	236	236	62	0	174	0
General		0.044	-0.068	0.073	0.035	0.078	.135(*)	.160(**)	.379(**)	.243(*)	.208(**)	1.000	.491(**)	.554(**)	.540(**)	.841(**)
	N	352	352	352	352	352	352	352	352	102	236	352	62	40	174	76
Aggregate (SMEs with Investments & Loans)		0.054	0.007	0.107	-0.053	.285(*)	0.205	.597(**)	.287(*)	.263(*)	.341(**)	.491(**)	1.000	.	.	.
	N	62	62	62	62	62	62	62	62	62	62	62	62	0	0	0
Aggregate (SMEs with Investments, without Loans)		-0.100	0.044	0.073	0.168	0.014	0.075	.401(*)	0.282	.317(*)	.	.554(**)	.	1.000	.	.
	N	40	40	40	40	40	40	40	40	40	0	40	0	40	0	0
Aggregate (SMEs with Loans, without Investments)		0.144	0.085	0.069	-0.023	0.078	0.125	.720(**)	.524(**)	0	.384(**)	.540(**)	.	.	1.000	.
	N	174	174	174	174	174	174	174	174	0	174	174	0	0	174	0
Aggregate (SMEs without Investments & without Loans)		-0.065	0.011	0.118	-0.156	0.016	-0.045	.473(**)	.562(**)	0	0	.841(**)	.	.	.	1.000
	N	76	76	76	76	76	76	76	76	0	0	76	0	0	0	76

Table 8
Spearman's rank correlation coefficient Households

Variables		Financial Knowledge						Financial Behaviour								
		Cash Flow	Savings & Costing	Investments	Loans	General	Aggregate	Cash Flow	Savings & Costing	Investments	Loans	General	Aggregate Households with Investments & Loans	Aggregate Households with Investments, without Loans	Aggregate Households with Loans, without Investments	Aggregate Households without Investments & without Loans
Financial Knowledge	Cash Flow	1.000 (352)	.057 (352)	.025 (352)	.065 (352)	.086 (352)	.610** (352)	.062 (352)	.000 (352)	-.005 (136)	-.026 (204)	.083 (352)	.152 (75)	-.014 (61)	.003 (129)	.165 (87)
	Savings & Costing	.057 (352)	1.000 (352)	.146** (352)	.208** (352)	.064 (352)	.400** (352)	.121* (352)	.231** (352)	.047 (136)	.069 (204)	.180** (352)	.164 (75)	.273* (61)	.320** (129)	.135 (87)
	Investments	.025 (352)	.146** (352)	1.000 (352)	.128* (352)	.061 (352)	.276** (352)	.024 (352)	.108* (352)	.013 (136)	.129 (204)	.093 (352)	.125 (75)	.143 (61)	-.063 (129)	-.002 (87)
	Loans	.065 (352)	.208** (352)	.128* (352)	1.000 (352)	.056 (352)	.256** (352)	.066 (352)	.130* (352)	.075 (136)	-.027 (204)	.132* (352)	.086 (75)	.135 (61)	.106 (129)	.129 (87)
	General	.086 (352)	.064 (352)	.061 (352)	.056 (352)	1.000 (352)	.365** (352)	.078 (352)	.004 (352)	.079 (136)	.006 (204)	.006 (352)	.209 (75)	.121 (61)	.018 (129)	-.134 (87)
	Aggregate	.610** (352)	.400** (352)	.276** (352)	.256** (352)	.365** (352)	1.000 (352)	.093 (352)	.131* (352)	-.008 (136)	.073 (204)	.123* (352)	.177 (75)	.102 (61)	.187* (129)	.127 (87)
Financial Behaviour	Cash Flow	.062 (352)	.121* (352)	.024 (352)	.066 (352)	.078 (352)	.093 (352)	1.000 (352)	.346** (352)	.040 (136)	.314** (204)	.116* (352)	.329** (75)	.249 (61)	.445** (129)	.222* (87)
	Savings & Costing	.000 (352)	.231** (352)	.108* (352)	.130* (352)	.004 (352)	.131* (352)	.346** (352)	1.000 (352)	.122 (136)	.336** (204)	.182** (352)	.640** (75)	.433** (61)	.836** (129)	.646** (87)
	Investments	-.005 (136)	.047 (136)	.013 (136)	.075 (136)	.079 (136)	-.008 (136)	.040 (136)	.122 (136)	1.000 (136)	-.081 (75)	.215* (136)	.301** (75)	.411** (61)	. (0)	. (0)
	Loans	-.026 (204)	.069 (204)	.129 (204)	-.027 (204)	.006 (204)	.073 (204)	.314** (204)	.336** (204)	-.081 (75)	1.000 (204)	.081 (204)	.340** (75)	. (0)	.253** (129)	. (0)
	General	.083 (352)	.180** (352)	.093 (352)	.132* (352)	.006 (352)	.123* (352)	.116* (352)	.182** (352)	.215* (136)	.081 (204)	1.000 (352)	.515** (75)	.788** (61)	.310** (129)	.666** (87)
	Aggregate (Households with Investments & Loans)	.152 (75)	.164 (75)	.125 (75)	.086 (75)	.209 (75)	.177 (75)	.329** (75)	.640** (75)	.301** (75)	.340** (75)	.515** (75)	1.000 (75)	. (0)	. (0)	. (0)
	Aggregate (Households with Investments, without Loans)	-.014 (61)	.273* (61)	.143 (61)	.135 (61)	.121 (61)	.102 (61)	.249 (61)	.433** (61)	.411** (61)	. (0)	.788** (61)	. (0)	1.000 (61)	. (0)	. (0)
	Aggregate (Households with Loans, without Investments)	.003 (129)	.320** (129)	-.063 (129)	.106 (129)	.018 (129)	.187* (129)	.445** (129)	.836** (129)	. (0)	.253** (129)	.310** (129)	. (0)	. (0)	1.000 (129)	. (0)
	Aggregate (Households without Investments & without Loans)	.165 (87)	.135 (87)	-.002 (87)	.129 (87)	-.134 (87)	.127 (87)	.222* (87)	.646** (87)	. (0)	. (0)	.666** (87)	. (0)	. (0)	. (0)	1.000 (87)

Table 9
Mann Whitney U test – Ranks

		N	Mean Rank	Sum of Ranks
Financial Knowledge Cash Flow	SME	352	340.88	119991.50
	Households	352	364.12	128168.50
	Total	704		
Financial Knowledge Savings & Costing	SME	352	343.38	120868.00
	Households	352	361.63	127292.00
	Total	704		
Financial Knowledge Investments	SME	352	316.51	111410.00
	Households	352	388.49	136750.00
	Total	704		
Financial Knowledge Loans	SME	352	324.49	114220.00
	Households	352	380.51	133940.00
	Total	704		
Financial Knowledge General	SME	352	437.85	154123.50
	Households	352	267.15	94036.50
	Total	704		
Financial Knowledge Aggregate Score	SME	352	346.57	121991.00
	Households	352	358.43	126169.00
	Total	704		
Financial Behaviour Cash Flow	SME	352	272.43	95895.00
	Households	352	432.57	152265.00
	Total	704		
Financial Behaviour Savings & Costing	SME	352	417.00	146784.50
	Households	352	288.00	101375.50
	Total	704		
Financial Behaviour Investments	SME	102	125.44	12795.00
	Households	136	115.04	15646.00
	Total	238		
Financial Behaviour Loans	SME	236	199.91	47179.50
	Households	204	244.32	49840.50
	Total	440		
Financial Behaviour General	SME	352	328.66	115688.00
	Households	352	376.34	132472.00
	Total	704		

(to be continued)

Financial Behaviour Aggregate Score (involved in Investments and Loans)	SME	62	63.48	3936.00
	Households	75	73.56	5517.00
	Total	137		
Financial Behaviour Aggregate Score (with Investments, without Loans)	SME	40	49.56	1982.50
	Households	61	51.94	3168.50
	Total	101		
Financial Behaviour Aggregate Score (with Loans, without Investments)	SME	174	152.36	26510.50
	Households	129	151.52	19545.50
	Total	303		
Financial Behaviour Aggregate Score (without Investments and without Loans)	SME	76	71.07	5401.50
	Households	87	91.55	7964.50
	Total	163		

Finally, in order to investigate the relationships between the variables, we evaluated as a statistical tool Multiple Regression Analysis, using the backward stepwise method. Unfortunately, the restrictions which accompany the magnitude of the present paper, does not provide us with the luxury to elaborate on the results. The authors of the paper though believe that it is worth mentioning that in all models derived, the level of education was the variable with the greatest impact on the dependent variable (financial behaviour).

Table 10
Mann Whitney U test – Test Statistics

	Financial Knowledge					
	Cash Flow	Savings & Costing	Investments	Loans	General	Aggregate Score
Mann-Whitney U	57863.5	58740	49282	52092	31908.5	59863
Wilcoxon W	119991.5	120868	111410	114220	94036.5	121991
Z	-1.573	-1.257	-4.874	-3.820	-11.722	-0.779
Asymp. Sig. (2-tailed)	0.116	0.209	0.000	0.000	0.000	0.436

Grouping Variable: Τ.Δ

	Financial Behaviour								
	Cash Flow	Savings & Co-sting	Invest-ments	Loans	General	Aggregate Score (involved In Investments and Loans)	Aggregate Score (with Investments, without Loans)	Aggregate Score (with Loans, without Investments)	Aggregate Score (without Investments and without Loans)
Mann-Whitney U	33767	39247.5	6330	19213.5	53560	1983	1162.5	11160.5	2475.5
Wilcoxon W	95895	101375.5	15646	47179.5	115688	3936	1982.5	19545.5	5401.5
Z	-10.733	-8.668	-1.213	-3.795	-3.192	-1.487	-0.402	-0.083	-2.784
Asymp. Sig. (2-tailed)	0.000	0.000	0.225	0.000	0.001	0.137	0.688	0.934	0.005

Grouping Variable: T.Δ

5. Conclusion, implications and future research

In this paper we sought to understand the way financial knowledge affects households and SMEs financial behaviour and further to indicate similarities and differences between the two groups under investigation. To this end, we used a sample of 352 Greek households and compared it with an equal sample of small and medium-sized enterprises (SMEs), located in Greece.

Our empirical findings, as expected, indicate a complex relation between respondents' financial knowledge and financial behaviour. Following the application of various statistical tests, it is argued that in our sample households are more resourceful and make better and more sophisticated use of their financial knowledge than surveyed SMEs. Further, it was revealed that there is a positive correlation between certain variables of financial knowledge and financial behaviour. To our surprise, although both surveyed SMEs and households have shown a notable performance in specific areas of financial knowledge, they fail to take advantage of this knowledge by showing corresponding financial behaviour. These results indicate the complexity of the relationship between knowledge and behaviour. They also show that further research in this field is essential.

It would be interesting to conduct a similar research which will be addressed to a much larger sample of the surveyed one in this paper. It might be also important to complement the survey with in-depth interviews along the online questionnaires for obtaining further qualitative information on the matter. Further,

one could undertake similar surveys on a regular basis. In this way it would be possible, for example, to capture attitudes and perceptions of the respondents before and after the financial crisis. It is true that Greece has been in economic and financial turmoil since 2008. It is possible that the SMEs and households behaviour captured in the present survey is caused due to the prolonged crisis. On the other hand, crises bring opportunities. Raising awareness of financial literacy and its benefits could accelerate the relocation of resources to new activities so that growth is more knowledge-based. In this sense, "periodic financial check-ups are as important as annual physicals in assessing current behavior, diagnosing problems before they become worse, and identifying uncovered risk exposures" (O'Neill, 2002). Based on the findings of this research, government and several nonprofit organizations might undertake initiatives to enhance financial literacy. The information can also be used to inform better customized financial education programs and academic research.

Finally, our research showed also that even in our days, the presence of adequate financial knowledge should not be taken for granted. The development of targeted educational programs seems to be imperative. As was at the past almost impossible for someone to sufficiently operate without knowing how to read and write, so today it is impossible to function well without being financially literate. Given the complexity of modern financial markets, SMEs and households should be sufficiently equipped with financial knowledge and competences that lead to proper decision making.

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