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ENTREPRENEURS ON THEIR FINANCIAL LITERACY: EVIDENCE FROM THE NETHERLANDS

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Entrepreneurs on their financial literacy: evidence from the Netherlands[1]

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Abstract

Using a representative survey of Dutch entrepreneurs and self-employed we measure their subjective financial knowledge, whether they ask for advice when managing their companies, and whether subjective financial knowledge and demand for advice are related to the firm economic outcomes. We find that respondents feel more comfortable when dealing with accounting subjects than with strategic ones, in which they feel they know the least. Firms owned by entrepreneurs with higher financial knowledge are more likely to show a higher gross margin and higher revenue growth. Entrepreneurs who report higher financial knowledge are less likely to seek advice and to delegate the financial decisions concerning their firm to someone else. Seeking professional advice does not increase the likelihood that the company shows better performance if the entrepreneur's degree of financial knowledge is lower than the average. Our results suggest that entrepreneurs' subjective financial knowledge is an important factor for their business success.

Keywords: Subjective financial knowledge; financial advice; firm performance.

JEL Classification: **G41; G20; D14**

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1 Introduction

Micro, small, and medium-sized businesses (MSMEs) give a prominent contribution to the national GDP and employment in many countries. In most OECD economies MSMEs account for over half of all employment and value added of the business sector and represent more than 90% of all firms (OECD, 2018a). Their success, growth and sustainability depend on various supply side factors, but also on a number of demand side aspects related to the business owner, like having adequate financial knowledge and skills to access finance, make better financial decisions for the business in the short and long run, and manage various sources of financial risk (Cassar 2004; OECD, 2015a; OECD, 2017). Therefore, it is not surprising that studying the degree of financial literacy of entrepreneurs has become an important priority for policy makers interested in spurring economic diversification, employment, and growth in their jurisdictions (OECD, 2015).

Despite the importance of the entrepreneurs' level of financial knowledge and skills for the success of their companies, most of the empirical evidence on the former is collected in developing countries (for a survey, see Pandey and Gupta, 2018). The analyses of entrepreneurs' level of financial knowledge and skills in the most developed countries are scant (Dahmen and Rodriguez, 2014; Trombetta, 2016; BDC, 2017; Engström and McKelvie, 2017; Ćumurović and Hyll, 2019; Oggero et al., 2019).

The present paper tries to fill this gap using a survey conducted in 2016 by the Netherlands Chamber of Commerce among a representative sample of its registered members (Lentz et al. 2016). We investigate three main questions.

First, we measure the degree of (self-reported) financial literacy of entrepreneurs across various topics that are relevant for managing the firm. Our assessment of financial literacy for MSMEs is consistent with the OECD/INFE Core competencies framework (OECD, 2018b), which defines financial literacy of owners and managers of MSMEs 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". This definition emphasizes that an accurate measure of entrepreneurs' financial literacy should quantify a particularly useful and specific skillset that helps the entrepreneur in managing its business. Accordingly, we measure various aspects of financial knowledge relevant for MSMEs, which we classify into four main categories: accounting, strategy, financing of the firm, and taxation. Differently from the OECD definition, our paper focuses on (self-reported) knowledge and understanding.

We find that Dutch entrepreneurs feel the least comfortable when dealing with strategic elements and long-term forecasts, while they consider themselves as most knowledgeable on accounting related topics, such as bookkeeping, reading, understanding and preparing the P&L statement, and the basic investment principles. As for households (Lusardi, 2015), also entrepreneurs show a lower familiarity with concepts and tasks related to financial risk. The overall degree of knowledge of the respondents relates to their main socio-demographic characteristics in a similar way as found by the empirical literature on households' financial knowledge (e.g. Lusardi and Mitchell, 2014) and on entrepreneurs' financial knowledge (Engström and McKelvie, 2017; BDC, 2017; Ćumurović and Hyll, 2019): men consider themselves as more financially literate than women; age, university degree, and entrepreneurial experience are positively related to financial knowledge.

Second, the OECD definition of entrepreneurs' financial literacy reported above (OECD, 2018b) suggests that financial literacy can be seen as a component of entrepreneurial human capital (Drexler et al., 2014; Engström and McKelvie, 2017), which is a key driver of success for MSMEs. Therefore, we look at whether the owner's degree of financial knowledge correlates with the economic performance of the firm. We measure firm performance with three variables: the gross margin in the year 2015, the growth rate of firm revenues in the three years preceding the survey, and its yearly revenue.

We find a positive correlation between the owner's self-assessed financial knowledge and firm performance. Entrepreneurs who consider themselves as more knowledgeable are more likely to own larger firms in terms of revenue, report higher gross margin, and higher revenue growth, than those who say they are less financially literate. In addition, the levels of knowledge in the four different topics positively correlate with the firm economic performance, with the partial exception of the owner's knowledge in taxation issues. Following some studies on the impact of entrepreneurs' human capital and skills on small firm performance (Unger et al., 2011), we study the effect of formal education and entrepreneurial experience separately. We find that both having a university degree and more than five years entrepreneurial experience positively relate with our three measures of performance, but this relation is not always statistically significant. In particular, entrepreneurs with long experience are more likely to own larger firms, as expected, but not firms that are more profitable.

Third, we investigate whether the relation between the entrepreneur degree of financial literacy and firm performance is affected by the entrepreneur's demand for professional advice. Advice of professionals and many reliable sources are widespread in a country with highly developed financial and consulting services like the Netherlands. Professional advice is there to help entrepreneurs managing their firm (as Willis, 2008 and Willis, 2011 argue for households' financial decisions).

Therefore, we consider how the interaction between self-assessed financial knowledge and advice correlates with the firm economic performance. Given that seeking advice is by itself an entrepreneur's decision, we first look at the relationship between entrepreneurs' subjective financial knowledge and their propensity to rely on advice.

We observe that entrepreneurs who self-report higher levels of financial knowledge are less likely to seek advice both from non-professionals (e.g., family or partner), and from professionals, such as a certified financial advisors or firm managers (e.g., the CFO of the company). These results may be related to the self-reported nature of our financial knowledge variable, or to a perceived low quality of available sources of advice.

Perhaps surprisingly, we find that seeking advice does not correlate significantly with a better firm performance, when the firm owner considers himself as less knowledgeable than average. The data do not lend themselves to establishing a causal link between the economic performance and the degree of financial knowledge of the owner and we cannot conclude which of the various dimensions of business practices related to the owner's financial knowledge drive the results. However, these results strongly suggest that a high degree of financial knowledge of the owner is important for the business success of the firm.

The rest of this paper is organized as follows. Section 2 reviews the results present in the existing literature. Section 3 develops our empirical hypothesis in light of the existing theory. Section 4 details the sample, the descriptive statistics, and the measures of entrepreneurs' self-assessed financial knowledge in the various topics. Section 5 collects the results concerning the relations between financial knowledge, the demand for advice and the economic performance of the firm. Section 6 presents some robustness checks and Section 7 concludes. Appendix A collects some additional tables, while the English translation of the original survey (in Dutch) is included in Appendix B.

2 Literature Review

Our study is related to different topics, all included in the financial literacy literature. To begin, we relate to the literature trying to measure financial literacy. Next, our paper is also linked to the literature dealing with the relationship between financial literature and performance. Finally, we contribute to the literature dealing with the role of professional advisors.

To the best of our knowledge, only a few studies measure the degree of financial literacy of MSMEs owners and of self-employed in *developed* countries. Dahmen and Rodriguez (2014) surveyed the level of financial understanding and the use of financial statements among business owners who requested consulting from the Florida Small Business Development Centre at the University of South

Florida. Although their sample is too small to draw robust statistical conclusions, they report a clear connection between the lack of financial literacy, the lack of regular monitoring of the financial statements, and the financial difficulties experienced by the business. Trombetta (2016) studies the level of accounting and financial literacy using a sample of self-employed individuals in Spain. Focusing on questions related to the financing and the financial reporting of a business, he finds that the level of entrepreneurs' financial literacy is not significantly different from the one of non-entrepreneurs, which in turn is quite low. A more comprehensive study was run by the Business Development Bank of Canada in collaboration with the Telfer School of Management in 2017 (BDC, 2017). Their survey aimed to better understand Canadian business owners' mind-set regarding finances in general. Overall, business owners performed quite well on a financial literacy quiz and were quite confident about their own ability to manage financial aspects of their business. Ćumurović and Hyll (2019) measure financial literacy of a representative sample of German households active in the labor market in 2009, by using some basic and some advanced questions (from Lusardi and Mitchell (2005) and Lusardi and Mitchell (2009)). They find that self-employed tend to be more financially literate than those who are employed. Oggero et al. (2009) find that being an entrepreneur is associated to a higher degree of financial literacy in a sample of Italian households.

The empirical evidence on the financial literacy of entrepreneurs in *developing* countries is somewhat larger, as reviewed in Pandey and Gupta (2018). However, most of these studies measure entrepreneurs' financial literacy by looking at somewhat narrow measures, such as formal bookkeeping (e.g. Musah and Ibrahim, 2014), the separation of personal and firm assets and liabilities (e.g. OECD, 2015b), understanding basic financial ratios (Dahmen and Rodriguez, 2014). These studies are typically based on small and not necessarily representative samples, also due to the large size of the informal sector and difficulty of identifying the target population in such countries.[5]

Our paper has several advantages with respect to these studies. First, it focuses explicitly on a large sample of entrepreneurs. Furthermore, it builds a large set of questions (and variables) spanning several topics related to business finances and encompassing not just knowledge of concepts but also skills and behaviours.

Research into the relation between the financial literacy of entrepreneurs and performance of MSMEs in the developed countries is still relatively limited. The relation is likely to be stronger in small and micro-enterprises, where the business owner is the main driver of performance.

[5] Notable exceptions are Bruhn and Zia (2013) and Engström and McKelvie (2017), discussed below.

Some studies have emphasized the importance of different aspects of the entrepreneur financial knowledge for the company' economic outcome. Shane and Venkataraman (2000) argue that the entrepreneur's ability to evaluate an investment opportunity, which is crucial for the success of a venture between the discovery and the exploitation phase, is related to the degree of financial literacy. Bruton et al. (2011) find that financial literacy affects firm performance because is related with the "awareness of interest rates and time value of money" of entrepreneurs borrowing fund for their company. Given that financial literacy is related with the ability of making financial plans (Lusardi, 2012), it can positively impact firm performance through this channel (Baum et al., 2001; Frese et al., 2007). Bruhn and Zia (2013) find that financial literacy is associated to better business performance of micro and small firms in Bosnia-Herzegovina. Engström and McKelvie (2017) examine how financial literacy and the usage of entrepreneurial role models impact firm performance on a sample of 739 micro enterprises in Ecuador. They measure financial literacy with the "Big Three" questions of Lusardi and Mitchell (2014) on interest rate, inflation, and diversification, finding that financial literacy is an important predictor of the firm financial performance but not growth.

Our paper contributes to this literature by showing how the self-assessed degree of knowledge and skills in different domains (accounting, strategy, financing and taxation issues) relate to firm performance, analyzed through three different forms (gross margin, revenue growth and revenue).

Whether financial advisors improve households' financial decisions is still a relative open question (Stolper and Walter, 2017). Some studies argue that advisors do more harm than good (Mullainathan et al., 2012; Karabulut, 2013), but other papers found a positive effect (Kramer, 2012; Hung and Yoong, 2010). Moreover, it is not clear whether and how financial literacy relates to the demand for advice for households (again, see Stolper and Walter, 2017 for an exhaustive survey on this topic). Other elements, such as trust in the advisors and the type of advice demanded may matter. Georgarakos and Inderst (2011) find that investors rely on professional advice only when their own perceived financial knowledge is sufficiently low, and when their trust in the advisor is high. Using the Dutch Households Survey (DHS), van Rooij et al. (2011) show that people who are less financially literate rely more on informal sources of advice, such as friends and family.

The evidence about the relation between the degree of financial knowledge and the demand for advice among entrepreneurs is even more scant. BDC, 2017 shows that two-thirds of business owners in Canada usually consult a financial advisor or an accountant before making an important financial decision. They also report that only a few business owners seek professional advice on managing cash flow and debt obligations, and to evaluate the financial performance of their firm.

We believe that our paper provides one of the first assessments of the impact of professional advice on MSMEs performance.

3 Theory and hypothesis development

We start by motivating the use of some specific parts of the survey organized by the Netherlands Chamber of Commerce (Lentz et al., 2016) in our paper.

The OECD/INFE Core competencies framework on financial literacy for MSMEs (OECD, 2018b) emphasizes that the correct definition of financial literacy for owners and managers of MSMEs should be slightly different from the one applied to households. In particular, it needs to include not only knowledge, but also "skills and attitudes that help the entrepreneur taking effective financial decisions".[6] As the vast majority of micro- and small firms are centred around one individual, the success of these enterprises is mostly determined by the owner's decisions (Engström and McKelvie, 2017). These decisions cover a broad spectrum of management issues especially in micro- and small firms. For example, some authors highlighted that the degree of the entrepreneur's knowledge in specific topics relates with the firm economic outcome. Gibson (1992) argues that a good knowledge of finance alternatives is the basis for making good financial decisions, which in turn represent a key ingredient for a sound firm performance (Cassar 2004). In terms of funding sources, also Seghers et al. (2012) analyze how the limited knowledge of the financing alternatives by the entrepreneurs causes suboptimal finance decisions. Baum et al. (2001) and Frese et al. (2007) find that the ability of an entrepreneur to engage in planning is positively related to firm performance. Martin et al. (2013) show that entrepreneurship education and training improve financial performance. Bruton et al. (2011) report that awareness of business owners of the time value of money and of interest rates is positively related to firm performance.

For these reasons we exploit survey questions covering many different aspects of financial knowledge classified into four main categories: accounting, strategy, financing of the firm, and taxation. The survey asks the respondent to explicitly assess his/her ability in dealing with problems inherent to these topics, coherently with the OECD definition reported above.[7]

Differently from the OECD definition, our paper focuses on (self-reported) knowledge and understanding. Some authors report a strong positive relationship between objective (based on tests)

[6] Given that the types of knowledge and skills that are important for entrepreneurs in managing the finances of their businesses may overlap to some extent but are not necessarily the same as those needed by consumers and households to manage personal or family finances (see for example Lusardi and Mitchell, 2014), we cannot extrapolate to entrepreneurs the results obtained in the vast literature on households' financial literacy.
[7] See the English translation of the entire questionnaire that we include in Appendix B.

and subjective (self-reported) measures of consumers' financial literacy (Van Rooij, Lusardi, Alessie, 2011). Allgood and Walstad (2016) and Bellofatto el al. (2018) suggest that self-reported financial knowledge is strongly related to various aspects of consumers' and investors' financial behaviour, and that perceived measures may be as important as actual measures. Other papers use subjective measures of financial literacy, rather than objective ones. Kramer (2016) motivates the use of self-assessed measures of knowledge by noticing that individuals rely on what they think they know, rather than on test-based knowledge.[8] For all these reasons we believe that the subjective measures contained in the survey provide a meaningful and relevant assessment of entrepreneurs' financial knowledge.

The OECD definition of entrepreneurial financial literacy (OECD, 2018b) includes skills such as better reporting capabilities, the use of appropriate financing sources, a more effective financial management and risk coverage. This definition suggests that financial knowledge can be considered as a component of entrepreneurial human capital (Engström and McKelvie, 2017). The effect of entrepreneurial human capital on performance has been studied extensively. Colombo and Grilli (2005) investigate how founders' human capital affect the growth of new technology-based startups, while Ehrlich et al. (2017) argue that entrepreneurial human capital is an endogenous economic growth driver for all firms. Unger et al., 2011 show that skills and knowledge are better predictors of performance than formal education and experience. Hanushek and Woessmann (2008) confirm this view, stating that "the cognitive skills of the population […] are powerfully related to individual earnings." (p. 607). Focusing on formal education, Eklert et al. (2015) find that a high-school entrepreneurship program increases the expected entrepreneurial income, but it does not have effects on firm survival.[9] This large strand of theories brings us to claim that entrepreneurs' degree of financial knowledge relates to firm performance. The following hypothesis expresses this more formally:

Hypothesis 1: There is a positive relation between an entrepreneur´s self-assessed degree of financial literacy in various domains of financial management and their company's economic outcome as measured by a) gross margin, b) revenue growth, and c) revenue.

Managing the company finances requires the attention of the business owner almost on a daily basis on many different and rather specialized issues (Trombetta, 2016). When lacking skills or facing uncertainty about financial decisions, entrepreneurs can rely on professional help from accountants, book-keepers and business partners (BDC, 2017). If entrepreneurs correctly realize when they need to

[8] The ability to realize your own (in)competence is usually defined as a form of metacognition by cognitive psychologists (see for example Kruger and Dunning (2009)).
[9] van der Sluis et al. (2005) find that entrepreneurship educational programs in the developing countries strongly impact the enterprise economic outcome, suggesting that some targeted education can be extremely effective.

seek advice and if expert help effectively improve their decisions, then advice of professionals and reliable sources can be instrumental for business success.[10]

Whether professional advice is sought by people who need it the most has been debated mostly focussing on households' behaviour. Some psychological literature argues that less knowledgeable people lack the ability to recognize their illiteracy, leading them not to seek advice (Kruger and Dunning, 2009). This argument implies that financial literacy and demand for financial advice are complement rather than substitutes (as found for example in Calcagno and Monticone, 2015, and Collins, 2012). More literate households might be more eager to seek advice than less knowledgeable ones because of their high opportunity costs of time (Hackethal et al., 2012), because they know they induce advisors to provide better information (Bucher-Koenen and Koenen, 2015), or because they know they are better able to correct for the agency bias inherent to independent advice (Inderst and Ottaviani, 2012).

Conversely, others found a negative relation between objective degree of financial literacy and demand for professional advice. Less financially literate households are less aware of conflicts of interests and then trust advisors more (Inderst et al., 2009), and find more difficult to process complex information and save costs by hiring a professional advisor (Hung and Yoong, 2010).

All these studies investigate the relation between the objective degree of financial knowledge and demand for advice. Other authors argue that subjective knowledge might be a more important determinant for the demand for advice (e.g. See et al. (2011)): as self-confidence in the own knowledge increases, the propensity to seek advice reduces. Kramer (2016) find a negative relationship between self-assessed financial knowledge and the demand of professional financial advice among households. If we translate this argument to the case of entrepreneurs, this view suggests that professional advice rather substitutes for entrepreneurs' self-assessed personal ability to deal with daily financial decisions. Given that our data provide a self-assessed measure of financial knowledge, we expect to find this same negative relationship.

The other important element determining whether professional financial advice affects firm performance is whether it actually improves entrepreneurs' financial decisions. Individuals, both investors and entrepreneurs, can obtain a large amount of information, for example through the internet, but it is unlikely that they can select the most relevant one, analyse it and interpret it correctly. Professional advice therefore can improve their decisions (Willis, 2008). At the same time,

[10] Entrepreneurs seeking advice may also learn from professional advisers, as it is the case for households (Stolper and Walter, 2017).

professionals operating in an organization which is independent from the advisee are likely to pursue their organizations' and their own goals. Professional advice therefore is subject to agency bias (Inderst and Ottaviani, 2009). The trade-off between these benefits and costs of professional advice has been investigated mostly looking at households' investment decisions.

Results are not univocal, and many findings suggest that the balance between benefits and costs of financial advice depends on the degree of financial literacy of the advisees. Von Gaudecker (2015) focusses on households' portfolio diversification. He finds that households who rely on advice, both professional and informal, achieve a portfolio allocation similar to the one of households endowed with the highest degree of financial literacy, so that relying on advice helps the least financially literate households. Inderst and Ottaviani (2012) emphasize that advice may lead to an improvement on individual decisions only if agents are sufficiently wary of the conflict of interests and moral hazard issues between advisors and advisees. Karabulut (2013) shows that financial advisors have a negative effect on the portfolio decisions of households, but this effect is more pronounced among investors with lower financial literacy who presumably do not correct for the advisors' conflict of interest.

Based on this evidence, we argue that professional advice should improve performance especially for firms owned by the entrepreneurs who consider themselves as least knowledgeable, both for the reason they are more eager to rely on advice and for the fact that advice may help them the most. We advance therefore this hypothesis:

Hypothesis 2: There is a negative relation between the demand for financial advice and the entrepreneur's self-assessed degree of financial knowledge. Financial advice has a positive relation with the firm economic outcome, as measured by a) gross margin, b) revenue growth, and c) revenue. This relation is stronger in firms whose owner has a lower degree of self-assessed financial knowledge.

4 Data, descriptive statistics, and entrepreneurs' subjective financial knowledge

Our analysis relies on the survey designed by the Chamber of Commerce of the Netherlands conducted among its panel of entrepreneurs in 2016.[11] This panel includes 4,091 registered members and is representative of the Dutch MSMEs (Lentz et al. 2016). All the members were invited to fill in the survey on the same day (May 31st) and 1,681 participants completed it, resulting in a response rate of around 40%.

The survey collects information about the respondent's gender, age, education level, and experience as entrepreneur. It includes information about the firm, such as its age, the sector of activity,

[11] We use interchangeably the terms 'entrepreneur' and 'business owner' throughout this paper, to indicate the individual directly involved in making the main decisions for the company.

whether it is a one-man business or an employer firm. It asks the respondent to report economic and strategic information about the company, i.e. the sources of business finance, the gross margin in the previous fiscal year (i.e. 2015), the revenue growth rate in the last three years, its current yearly revenue, and the firm strategy for the twelve coming months in terms of development of new products, the intention to innovate, to consolidate the brand or to grow.

It also reports detailed information on the subjective financial literacy of respondents, their attitudes in dealing with financial matters, and their demand for financial advice. In terms of financial literacy, respondents are asked to indicate to what extent they agree with statements on several financial topics on a scale 1-5. Statements are grouped in 16 batteries of 3 statements, for a total of 48 financial literacy-related variables. Within each battery, the first statement refers to awareness and knowledge of a given topic ("I am aware of the basic principles underlying a profit-and-loss statement" or "I know the elements necessary to prepare a demand for a credit line"), while the second and third statements refer to self-reported ability to perform related tasks ("I look and interpret regularly the P&L of my firm" or "As soon as my firm needs additional finance I invest time on this task"). We classify all these statements along four main subjects: accounting, strategy, firm financing, and taxation.

The survey also investigates whether the respondent regularly asks for professional or non-professional advice, and in which subjects the respondent feels most the need of external help. We formally define our variables in Table 1 and present the descriptive statistics in Table 2.

[INSERT TABLES 1 & 2 HERE]

The sample is composed mostly of men (77.7%). The lower frequency of female entrepreneurs in Netherlands is consistent to what can be observed in virtually all industrialized countries (Kelley 2012; Oggero et al. 2019). The majority of the respondents (58.8%) are self-employed, as in Trombetta (2016). In parallel, 63.1% of the respondents have a university degree, a figure comparable to that of Dutch investors having at least one bank account (Kramer 2016). This proportion is, however, much higher than in a representative panel of Dutch households (DHS 2005). The respondents' median age is 54 years old, and 76.4% of them have more than five years of experience as entrepreneurs (related variable is High entrepreneurial (ent.). experience).[12]

The first purpose of our study is to quantify the subjective degree of financial knowledge of entrepreneurs. Entrepreneurs report relatively high levels of subjective knowledge overall: their

[12] According to Burke et al. (2018) entrepreneurial experience enhances firm performance in employer firms. The prevalence of entrepreneurs with rather long experience in our sample might then bias it towards well performing firms.

average self-report (*Knowledge*) equals 3.78 on a maximum scale of 5 (the median score is 3.75), similarly to BDC (2017). We notice significant differences between the levels of subjective knowledge in the four different subjects. Respondents feel more comfortable about accounting subjects (4.18) in comparison to strategic ones (3.45), wherein they feel they know the least. On issues related to the financing possibilities of the company and tax compliance they judge themselves slightly more knowledgeable than on strategic decisions. The differences are all significant at the 1% level (see Table A1 in Appendix A). Notwithstanding their higher subjective knowledge in these topics, entrepreneurs feel they need help mostly on accounting matters: almost 50% of the respondents admit they feel they need help (also see Table A3 in Appendix A).[13]

Not surprisingly, the degree of self-reported ability largely matches self-reported knowledge. Entrepreneurs consider themselves as more capable to perform a task in accounting (3.99) than in strategy (3.34), with intermediate levels of self-assessed ability for tasks related to the demand of external funding (3.56) and to tax compliance (3.58). Overall, they believe to be able to deal with practical steps related to financial choices to a slightly lesser degree than their own judgment of financial knowledge. Entrepreneurs in our sample therefore seem to be quite coherent when asked to judge their own knowledge and ability to act upon it.

Overall, 49.6% of the respondents take the financial decisions concerning the company asking some form of external advice while 46.2% do it completely on their own. We see a large difference in the behaviours of the self-employed and of MSME owners with employees: about 67% of the latter and only about 39% of the self-employed ask for some help when making financial decisions (see Table A2 in Appendix A). Among respondents who ask for advice, most (27.8%) get advice from professionals (*Advice = 2*). Only 17.7% of them ask for advice to non-professionals (*Advice = 3*). Financial decisions are completely delegated to another person only by 8.4% of the sample (*Advice = 4*).

In terms of activity sectors (see Table 3), the largest quota of firms operates in advising and research (33.6%), while the second largest sector is retail and wholesale (14.7%). Slightly more than a third of the firms (33.9%) earned a revenue smaller than 50,000 EUR in 2015, the year before the survey took place.

[INSERT TABLE 3 HERE]

[13] In general, the higher the degree of self-assessed knowledge, the lower the respondents feel they need help on a given topic.

The vast literature on financial literacy among households has established clear relations between the degree of financial knowledge, both objective and subjective, and some individuals' characteristics such as gender, age, and education (e.g. see Lusardi and Mitchell (2014); for entrepreneurs, see Engström and McKelvie (2017), and Oggero et al. (2019)). In Table 4 we verify whether these relations hold also in our sample of entrepreneurs.

[INSERT TABLE 4 HERE]

As in the case of households, men show a higher degree of average self-reported financial knowledge than women. Subjective financial knowledge increases with (log) age, education level of the respondent and the revenue of the firm.

We observe that having more than five years-experience as entrepreneur is positively correlated with the average level of subjective financial knowledge and this effect is significant at the 1% level. At the same time, the significance of this variable varies across topics, suggesting some form of learning process only in specific areas. The correlations between gender, age and education and self-reported knowledge across the four different subjects are also less clear-cut. For example, the level of subjective knowledge in accounting does not vary with these demographic characteristics in a significant way, while knowledge in strategic issues does. Men and older respondents judge themselves as more knowledgeable when confronted to the possible sources of finance for their company. Gender and age instead are not related to knowledge about tax issues. Up to our knowledge, these results are new. They suggest that entrepreneurs are confronted with different areas of expertise and the degree of knowledge in these different areas varies in a non-homogeneous way, also due to different learning patterns.

The self-employed seem to be less knowledgeable on average (significant at 5%) but this effect seems to be driven by the strategy and financing topics (significant at 5% and 1% respectively).[14]

5 Hypothesis testing

In this section we analyse the relation between the entrepreneurs' degree of financial knowledge, their demand for advice in taking business decisions, and the economic performance of the firm.

5.1 Subjective financial knowledge and economic performance of the firm

The question whether financial literacy can improve firm performance by improving entrepreneurs' ability to make good financial decisions remains largely open. Given the limited amount of information

[14] If we measure financial knowledge in the various sectors of activity of the company, only advising and research shows a level of subjective financial knowledge across all subjects higher than the average, while those who own a business operating in health and well-being are consistently associated to a lower degree of knowledge.

on the businesses contained in our data, we can only verify whether higher subjective financial knowledge of the owner correlates with self-reported higher performance of the firm. In order to do so, in Table 5 (respectively Table 6, and Table 7) we run multinomial logit models relating the 2015 gross margin of the firm (respectively the growth rate of firm revenue in the last three years as of 2016, and its revenue in 2015) with the self-reported level of financial knowledge of the owner across all subjects. In all the three models we control for entrepreneurs' socio-demographics provided by the survey (gender, age, and university education), their experience as entrepreneurs, whether the firm is a one-man-business, firm's current revenues (in Table 5 only) and sector of activity.

Table 5 shows that higher subjective financial knowledge increases the relative likelihood that the company gross margin in 2015 falls into the [16-25%]-[26-35%]-[36-45%]-[45%-more] intervals rather than the base case, i.e. gross margin lower than 5%. This result is statistically significant for all the intervals (except 5-15% one). One can interpret the point estimates as follows. Consider the interval [16-25%] and the estimated odds ratio of 1.445. This suggests that if the entrepreneur's self-reported financial knowledge increases by one unit (on a scale of 5), then the likelihood that the gross margin of the firm falls into the [16-25%] interval is 44.5% higher than the likelihood the gross margin falls into the base case (gross margin <5%).

Entrepreneurs who consider themselves as more financially knowledgeable are significantly less likely not to answer the question about their firm gross margin in 2015 rather than reporting a gross margin lower than 5%. Higher entrepreneurs' age and education level both reduce the relative likelihood the firm earns a higher margin than the base case, although these results are not always statistically significant. The experience of the owner as entrepreneur correlates positively with the firm gross margin, but this relation is never significant. Firms owned by men are more likely to have a gross margin higher than the base case than firms owned by women, in line with much of the gender literature on entrepreneurship (e.g. see Dilli and Westerhuis (2018)). Overall, the results provide strong evidence that subjective financial knowledge of the owner correlates with a better performance of the firm in terms of gross margin, confirming our Hypothesis 1(a). We do not see a clear relationship between the size of the company, measured by its 2015 revenue, and the gross margin.

[INSERT TABLE 5 HERE]

As an additional measure of firm performance, we consider its revenue growth in the last three years (as of 2016). We run a multinomial logit model where the dependent variable is the yearly revenue growth rate in such period, and we consider as the base case a revenue decrease of more than 20% on average per year. We show the results of this analysis in Table 6.

[INSERT TABLE 6 HERE]

An entrepreneur who considers him/herself more financially knowledgeable is relatively more likely to own a firm that experienced an increase in revenue (i.e. the firm revenue growth belongs to the intervals [+1%, +5%], [+6%, +20%], >20%), than one whose revenue decreased by more than 20% per year. This effect is also economically significant. For example, an increase of one unit of the owner's financial knowledge makes 1.68 times more likely that his/her firm showed a revenue growth rate higher than 20% per year rather than a decrease of 20% or more (the base case). Therefore, we conclude that our Hypothesis 1(b) holds for the highest levels of revenue growth.

The effect of the other control variables on the firm revenue growth are somewhat similar to the ones illustrated in Tables 5, except for the entrepreneur experience, which now gain some significance in explaining the likelihood of high revenue growth. Firms owned by older entrepreneurs are less likely to show revenue growth, since all the odds ratio are significantly lower than one. The other demographic characteristics of the entrepreneur do not have a significant impact on the relative likelihood of observing a higher growth of revenue relative to the base case. In terms of revenue growth one-man businesses are less likely to perform better than employer firms.

In order to study whether the owner's degree of subjective financial knowledge is linked to the firm size, we run a multinomial logit on the firm 2015 revenue. As the base case of the model, we consider a revenue lower than €50,000. The results are illustrated in Table 7.

[INSERT TABLE 7 HERE]

Increasing the owner's degree of overall financial knowledge significantly increases the likelihood that the firm revenue belongs to any higher revenue category rather than the base case: all the estimated odds ratios are significantly higher than one (except for the revenue category 6), thus strongly confirming our Hypothesis 1(c).

If the firm owner is a man and has experience as entrepreneur, the firm is relatively more likely to get a revenue higher than the base case rather than if the owner is a woman or has no entrepreneurial experience. Entrepreneur's age instead significantly reduces the odds ratio of the firm revenue being higher than the base case. One-man businesses are significantly smaller in terms of yearly revenue: the odds ratio of belonging to any interval higher than the base case is significantly lower than one. We also see some significant difference in firm size across different sectors: firms in culture/sport/recreation, accommodation/meal/beverages, education, and in other sectors are likely to earn a lower revenue (results are un-tabulated but available upon request).

From these analyses we conclude that the owner's subjective level of financial knowledge across all topics surveyed in the questionnaire correlates positively with firm performance and its size but this relation is not always statistically significant. Once again, our data do not allow to establish a causal link between the degree of financial knowledge of the entrepreneur and performance, nor to assess whether the positive correlation we reported is due to the entrepreneur's ability to take more sound financial decisions.

5.2 Subjective financial knowledge, the demand for advice and their effect on firm performance

In principle, entrepreneurs are likely to be regularly in contact or to have contractual relationships with experts, such as bookkeepers, accountants, or tax consultants. If this is the case, the latter advise the entrepreneurs' decisions and help them managing the firm in issues related to their expertise. Therefore, financial advice, especially coming from professionals[15] might help entrepreneurs making better investment decisions.

Given that the demand for advice is an endogenous choice of the entrepreneur, we first study its relationship with the entrepreneur's financial knowledge.

5.2.1 Financial knowledge and demand for advice

The first model in Table 8 (column 1) shows how entrepreneurs' propensity to seek financial advice, both from professionals and from non-professionals, vary with the subjective level of financial knowledge.[16] As in the study on Dutch households of Kramer (2016), entrepreneurs who rate their financial knowledge as high have a significantly lower propensity to demand advice. Given that 50% of the entrepreneurs who take financial decisions by themselves demand some form of advice, the odds ratio estimate of financial knowledge (0.636) implies that a unit increase in subjective financial knowledge assessment reduces the probability of seeking advice by about 11% from the baseline average of 50%.[17] In the same manner, being self-employed correlates negatively and significantly with the demand of advice.

[INSERT TABLE 8 HERE]

The second (2) model in Table 8 distinguishes between the different types of advice sought. Here, we estimate a multinomial logit model where the base case assumes that the entrepreneur takes

[15] In the robustness checks, we show that the results we obtain here are confirmed if we consider only professional advice.
[16] The Logit model (1) illustrated in Table 8 excludes respondents who fully delegate the financial decisions related to their business to another person (e.g. the CFO of the company).
[17] As for comparison, in the 2005 DHS representative sample of Dutch households, investors who rate their financial literacy as high are 17.5 percentage point less inclined to seek advice than those who rate their literacy as low (Kramer (2016)).

the financial decisions concerning his business by himself without asking for any advice. Column 2 (respectively, column 3) refers to the case where respondents demand professional (respectively, non-professional advice) advice but ultimately decide by themselves; column 4 refers to the case in which the respondent delegates the financial decisions related to the business to someone else. The results overall confirm those obtained from the first model. A higher level of self-assessed financial knowledge reduces the likelihood to seek advice of any type, both professional and non-professional. The point estimate of the effect of financial knowledge on the demand of professional advice (0.592) indicates that the odds to seek professional advice (category 2) are about 40% lower than the odds to fall in the baseline category (no advice) if we increase the level of self-assessed financial knowledge of the respondent by one unit (on a scale 1-5). Not surprisingly, the magnitude of the effect is lower for non-professional advice (category 3), which we classify as advice from the partner or from other members of the family.

Overall, we can then conclude that entrepreneurs who consider themselves as more knowledgeable are also less likely to let someone else taking the financial decisions concerning their business, which confirms the first part of our Hypothesis 2.

5.2.2. The economic impact of financial knowledge and advice

We now turn to the analysis of the second part of our Hypothesis 2, i.e. the predicted positive relation between financial advice and firm performance. Recall also that we expect this relation to be stronger in firms whose owner has a lower degree of financial knowledge.

We consider a multinomial logit model similar to that shown in Tables 5-7, but in which we add as explanatory variables the interaction terms between self-reported knowledge and the demand for advice. For succinctness we only tabulate the interaction terms. As base case we consider entrepreneurs with subjective financial knowledge lower than average (*Low knowledge*) who do not seek advice (*Advice (D,0)*), with firms having a gross margin less than 5% (Panel A). Table 9 reports the results.

[INSERT TABLE 9 HERE]

We reject our Hypothesis 2(a). Asking for advice does not significantly affect the likelihood the firm earns a gross margin higher than the base case if the entrepreneur has a degree of financial knowledge lower than average. Instead, entrepreneurs with subjective knowledge higher than the average own firms which are more likely to earn a gross margin higher than the base case. This is true also if they seek advice. The effect is statistically significant for almost all intervals of gross margin higher than the base case.

Firms owned by men are associated with higher gross margin, as in the model illustrated in Table 5, where we do not control for the demand of advice. The entrepreneur's age and having a university degree both reduce the likelihood that the firm earns a higher gross margin rather than the base case, but this effect is not always statistically significant. The size of the firm, measured by its past year revenue, and its sector of activity do not show a univocal effect on the gross margin.

We repeat the same analysis by considering the firm revenue growth in the last three years (see Panel B) and its yearly revenue (Panel C).

Panel B shows our results if we consider the effect of the owner's self-reported knowledge, advice, and their interaction on the firm revenue growth in the last three years. As for the gross margin (in Panel A), the demand for advice does not always increase significantly the likelihood to manage a firm with high revenue growth rather than the base case, if the firm owner has a degree of knowledge lower than average leading us to reject Hypothesis 2(b). Entrepreneurs with higher than average financial knowledge are more likely to manage firms with higher revenue growth rather than ones with the base case. This effect is present irrespectively whether they seek or not advice.

Asking for advice increases the likelihood that the firm yearly revenue is higher than the base case if the firm owner has a degree of financial knowledge lower than average: all the odds ratios are significantly higher than one (see Panel C). The magnitude of the effect is quite high: the likelihood to fall into a higher growth rate category is approximately twice the likelihood to fall into the base case when an entrepreneur with low degree of knowledge seeks advice, rather than not doing it. The same is true also for firms whose owners have a degree of financial knowledge higher than average, irrespectively whether they seek or not advice, so that we accept our Hypothesis 2(c).

Summarizing, the value added of professional advice on the firm performance is questionable, but larger firms rely more on external advice. This is particularly true if we consider firms whose owners have a level of financial knowledge lower than average.

6 Robustness checks

6.1 Distinction between the types of advice sought

In Section 4.1 we analysed whether entrepreneurs' propensity to seek financial advice, both from professionals and from non-professionals, vary with their degree of financial knowledge (see Table 8). It is likely that the quality of advice coming from experts is higher than the one provided by family and friends, and therefore professional advice probably plays a more important role improving entrepreneurs' financial decisions. Therefore, we study whether the degree of financial knowledge affects the likelihood that the entrepreneur seeks professional advice only. We also want to verify

whether the degrees of knowledge in the different topics (i.e. accounting, strategy, firm financing, and taxes) have different impact on the demand for professional advice. In Table 10 we report the results (we omit the effects of all control variables for brevity).

An increase in the level of financial knowledge of the owner significantly reduces the relative ratio of seeking professional advice. This is true for all four dimensions of financial knowledge, and the magnitude of the effect is quite similar across dimensions. The result confirms that the degree of self-reported financial knowledge is negatively correlated with the demand for professional advice.

[INSERT TABLE 10 HERE]

6.2 Degrees of financial knowledge and performance

In Section 4.2 we reported evidence that the entrepreneur's degree of financial knowledge makes it more likely that the firm performs better, in terms of gross margin (Table 5) and revenue growth (Table 6), and that firms earn a larger revenue (Table 7). The subjective knowledge in the four different topics might have different impact on firm performance. Therefore, we study whether these correlations persist when we consider separately the degree of knowledge in the four main different topics. We run multinomial logit models as in Tables 5-7 analysing the relation between the degree of knowledge of the owner and the firm gross margin (respectively, revenue growth, and revenue).

The different dimensions of knowledge do not show different impact on the likelihood the firm earns a higher gross margin relative to the base case. Only for one category, a gross margin belonging to the [16% - 25%] interval, the effect of knowledge on strategy, sources of firm funding and taxes is lower than the effect of overall knowledge and of knowledge in accounting.

In addition, the general level of knowledge is related to the firm revenue in a similar way as the degree of knowledge across all the different topics, except for the one over taxation issues. The latter has a lower impact on the relative likelihood the firm earns higher revenue than the base case.

Finally, the only knowledge dimension that has a lower effect on the firm revenue growth is the owner's knowledge about taxation issues.

7 Conclusions

We use a survey run in May 2016 on entrepreneurs associated to the Netherlands Chamber of Commerce to study their degree of subjective financial knowledge in various topics: accounting reports, tax-related issues, the possible sources of financing of the company, and strategic analysis. Up to our knowledge, this is one of the first surveys targeting entrepreneurs' degree of financial knowledge in developed countries (for Canada, see BDC (2017); for Italy, see Oggero et al. (2019); for Spain,

Trombetta (2016)). We find that respondents feel the least knowledgeable when dealing with strategic choices. Instead, they feel quite confident about the basic principles of investment and in accounting related issues. We observe significant differences in the degree of self-reported knowledge across the four different topics.

Firms owned by entrepreneurs with higher subjective financial knowledge are more likely to show a better economic performance and higher growth. Entrepreneurs who report higher financial knowledge are less likely to seek advice and to delegate the financial decisions concerning their firm to someone else. The worse performance of firms owned by the least knowledgeable entrepreneurs is not positively affected by the intervention of an advisor. External advice is not related to a better firm performance when the entrepreneur has a degree of knowledge lower than average.

Overall, our results suggest that the owner's financial knowledge may be one of the keys for the economic success of a small business. While providing new insights, this paper also calls for greater efforts to investigate in a more robust way the relationship between the financial literacy of MSMEs owners and managers and the success of their businesses. Future research should i) develop objective measures of the financial literacy of entrepreneurs that would account for the specific nature of business financial literacy (as opposed to households' financial literacy) and that would rely on objective tests rather than self-reports, ii) link financial literacy to more objective measures of firm performance, such as for instance those based on administrative data; iii) explore the use of longitudinal data to investigate causal relationships and the impact of owners' degree of financial knowledge on the likelihood of firm survival.

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Tables

Table 1. Definitions of the variables.

Label	Definition
Subjective financial knowledge	The average level of self-reported financial knowledge computed over all subjects (i.e. using all sixteen questions) on a scale 1-5 (from the lowest to the highest level of knowledge).
Subjective financial ability	The average level of self-reported financial ability over all subjects (i.e. using all thirty-two questions), on the same scale as subjective financial knowledge.
High knowledge (D)	Dummy variable equal to one if the individual considers his/her level of financial knowledge as high (Knowledge >= 3.75).
Knowledge of accounting	The average level of self-assessed knowledge over the accounting subject.
Knowledge of strategy	The average level of self-assessed knowledge over the strategy subject.
Knowledge of financing	The average level of self-assessed knowledge over the financing subject.
Knowledge of taxation	The average level of self-assessed knowledge over the taxation subject.
Ability on accounting	The average level of self-assessed efficacy over the accounting subject.
Ability on strategy	The average level of self-assessed efficacy over the strategy subject.
Ability on financing	The average level of self-assessed efficacy over the financing subject.
Ability on taxation	The average level of self-assessed efficacy over the taxation subject.
Need help in […] (D)	Dummy variable equal to one if the respondent indicates that he needs help the most in […] area of decision making. We aggregate these into four subjects above defined (accounting/strategy/financing/taxation).
Advice categories	Categorical variable capturing the dynamics of the advice sought: Advice = 1 - Individual decides on his/her own, Advice = 2 - Individual asks for professional advice, Advice = 3 - Individual asks for non-professional advice, Advice = 4 - Individual does not decide (delegates the decision making).
Advice (D)	Dummy variable equal to one if the respondent is the person making the financial decisions in the company and in doing so (s)he asks for professional or non-professional advice (Advice = 2 or 3).
Revenue categories	Bins that correspond to the answers to the question "What is the yearly revenue of your firm at this moment" (kvkq012): 1 - less than €50k, 2 - between €50k and €100k, 3 - between €100k and €250k, 4 - between €250k and €500k, 5 - more than €500k, 6 - I don't know / I don't want to answer.
Revenue growth categories	The question asking the respondent to indicate the bin corresponding to the answer to the question “How did the revenue of your firm develop in the last 3 years” (kvk011). The bins are: Strong decrease (more than 20% on average per year), Decrease (6%-20% on average per year), Slight decrease (1%-6% on average per year), Stable, Slight increase (1%-6% on average per year), Increase (6%-20% on average per year), Strong increase (more then 20% on average per year).
Gross margin categories	The question asking the respondent to indicate in which bin falls the gross margin earned in 2015 (kvk055). The bins are: [<5%], [5%-15%], [16%-25%], [25%-35%], [36%-45%], [>45%], [“I don’t know”].
Sex (D)	Dummy variable equal to one if the respondent is a male.
Age	Age of the respondent.
High education (D)	Dummy variable equal to one if the respondent holds a university degree.
High ent. experience (D)	Dummy variable indicating high entrepreneurial experience (more than five years).
One-man business (D)	Dummy variable equal to one if the respondent is the self-employed.
Asked for funding (D)	Dummy variable equal to one if the respondent asked for funds for the company in the last three years.
New product (D)	Dummy variable equal to one if the respondent reported developing new products over the last three years.
Export (D)	Dummy variable equal to one if the respondent reported exporting goods abroad.
Innovation (D)	Dummy variable equal to one if the respondent plans to innovate.
Consolidation (D)	Dummy variable equal to one if the respondent plans to consolidate his/her business.
Growth (D)	Dummy variable equal to one if the respondent plans to increase his/her business.

Table 2: Descriptive statistics.

Variable	Min	Mean	Median	Max	SD	N
Subjective financial knowledge	1.250	3.779	3.750	5.000	0.696	1,681
Subjective financial ability	1.344	3.619	3.594	5.000	0.671	1,681
High knowledge (D)	0.000	0.522	1.000	1.000	0.500	1,681
Knowledge of accounting	1.000	4.180	4.200	5.000	0.670	1,681
Knowledge of strategy	1.000	3.452	3.400	5.000	1.002	1,681
Knowledge of financing	1.000	3.598	3.500	5.000	0.952	1,681
Knowledge of taxation	1.000	3.526	3.667	5.000	0.787	1,681
Ability on accounting	1.700	3.989	4.000	5.000	0.686	1,681
Ability on strategy	1.000	3.342	3.300	5.000	0.882	1,681
Ability on financing	1.000	3.557	3.500	5.000	0.857	1,681
Ability on taxation	1.000	3.582	3.667	5.000	0.708	1,681
Need help in accounting (D)	0.000	0.471	0.500	1.000	0.369	1,681
Need help in strategy (D)	0.000	0.150	0.000	1.000	0.272	1,681
Need help in financing (D)	0.000	0.252	0.000	1.000	0.434	1,681
Need help in taxation (D)	0.000	0.417	0.000	1.000	0.493	1,681
Advice (D)	0.000	0.496	0.000	1.000	0.500	1,540
Advice = 1	0.000	0.462	0.000	1.000	0.499	1,681
Advice = 2	0.000	0.278	0.000	1.000	0.448	1,681
Advice = 3	0.000	0.177	0.000	1.000	0.382	1,681
Advice = 4	0.000	0.084	0.000	1.000	0.277	1,681
Revenue category 1	0.000	0.339	0.000	1.000	0.474	1,681
Revenue category 2	0.000	0.167	0.000	1.000	0.373	1,681
Revenue category 3	0.000	0.185	0.000	1.000	0.388	1,681
Revenue category 4	0.000	0.086	0.000	1.000	0.280	1,681
Revenue category 5	0.000	0.131	0.000	1.000	0.338	1,681
Revenue category 6	0.000	0.092	0.000	1.000	0.289	1,681
Sex (D)	0.000	0.777	1.000	1.000	0.416	1,681
Age	17.000	52.953	54.000	104.000	10.970	1,669
High education (D)	0.000	0.631	1.000	1.000	0.483	1,681
High ent. experience (D)	0.000	0.764	1.000	1.000	0.424	1,681
One-man business (D)	0.000	0.588	1.000	1.000	0.492	1,676
Asked for funding (D)	0.000	0.158	0.000	1.000	0.365	1,681
New product (D)	0.000	0.397	0.000	1.000	0.489	1,681
Export (D)	0.000	0.189	0.000	1.000	0.391	1,681
Innovation (D)	0.000	0.159	0.000	1.000	0.366	1,681
Consolidation (D)	0.000	0.565	1.000	1.000	0.496	1,681
Growth (D)	0.000	0.121	0.000	1.000	0.326	1,681

Table 3. Industry composition of the sample.

Industry	Freq.	Percent
Advising & research	565	33.61%
Construction	108	6.42%
Culture & Recreation	136	8.09%
Finacial institutions	40	2.38%
Health	89	5.29%
IT	98	5.83%
Industry	66	3.93%
Other	109	6.48%
Primary sector	50	2.97%
Rental of property	121	7.20%
Retail & Wholesale	247	14.69%
Transport	52	3.09%

Table 4. Baseline correlations.

The table represents the baseline OLS regressions of the average knowledge across five distinct categories (overall, accounting, strategy, financing sources and taxation). The baseline for the revenue category dummies is Revenue category 1. Industry dummies and constant are included in all models but are omitted for succinctness. Robust standard errors are reported in square brackets. For the detailed definitions of variables see Table 1. * p<0.10, ** p<0.05, *** p<0.01.

Dep. Variable – Knowledge	Average	Accounting	Strategy	Financing	Taxes
	(1)	(2)	(3)	(4)	(5)
Sex (D)	0.127***	0.066	0.268***	0.147**	0.039
	[0.042]	[0.043]	[0.060]	[0.060]	[0.050]
Ln(1 + Age)	0.293***	0.120	0.567***	0.480***	0.131
	[0.078]	[0.079]	[0.112]	[0.113]	[0.093]
High education (D)	0.093***	0.057	0.115**	0.059	0.146***
	[0.036]	[0.036]	[0.051]	[0.050]	[0.044]
High ent. experience (D)	0.124***	0.152***	0.118*	0.124**	0.086*
	[0.042]	[0.043]	[0.061]	[0.058]	[0.049]
One-man business (D)	-0.091**	-0.066	-0.122**	-0.177***	-0.05
	[0.042]	[0.042]	[0.060]	[0.059]	[0.049]
Revenue category 2	0.169***	0.159***	0.268***	0.166**	0.046
	[0.050]	[0.049]	[0.072]	[0.068]	[0.057]
Revenue category 3	0.171***	0.167***	0.296***	0.125*	0.002
	[0.049]	[0.048]	[0.072]	[0.073]	[0.057]
Revenue category 4	0.240***	0.227***	0.401***	0.245**	0.006
	[0.066]	[0.066]	[0.094]	[0.097]	[0.081]
Revenue category 5	0.333***	0.319***	0.503***	0.366***	0.104
	[0.062]	[0.061]	[0.089]	[0.086]	[0.075]
Revenue category 6	0.039	0.053	0.112	0.069	-0.097
	[0.060]	[0.062]	[0.083]	[0.086]	[0.071]
Number of observations	1,664	1,664	1,664	1,664	1,664
Adjusted R^2	0.154	0.106	0.166	0.107	0.093

Table 5. Self-assessed financial literacy and entrepreneurial outcomes – gross margin.

The table presents the multinomial logit estimates expressed as relative risk ratios. The baseline bin for the model is the "Lower than 5% margin" answer. The baseline for the revenue category dummies is Revenue category 1. Industry dummies and constant are included in all models but are omitted for succinctness. Standard errors are reported in square brackets. For the detailed definitions of variables see Table 1. * p<0.10, ** p<0.05, *** p<0.01.

Gross margin bins, in %	**5-15%**	**16-25%**	**26-35%**	**36-45%**	**>45%**	**I do not know**
Subjective financial knowledge	1.225	1.445**	1.588**	1.923***	2.775***	0.447***
	[0.212]	[0.257]	[0.297]	[0.427]	[0.481]	[0.072]
Advice (D)	1.357	1.175	1.222	1.763**	0.889	0.948
	[0.302]	[0.269]	[0.291]	[0.495]	[0.199]	[0.197]
Sex (D)	2.052**	1.700*	3.109***	2.077**	1.659*	0.76
	[0.582]	[0.478]	[1.027]	[0.757]	[0.441]	[0.177]
Ln(1 + Age)	0.742	0.605	0.271**	0.346	0.126***	0.138***
	[0.419]	[0.353]	[0.162]	[0.238]	[0.070]	[0.069]
High education (D)	0.622**	0.678	0.785	0.636	0.947	0.525***
	[0.144]	[0.164]	[0.199]	[0.187]	[0.241]	[0.117]
High ent. experience (D)	0.97	1.207	1.415	1.312	1.347	1.151
	[0.260]	[0.339]	[0.425]	[0.463]	[0.368]	[0.277]
One-man business (D)	1.539	1.352	1.509	1.131	2.338***	1.924**
	[0.460]	[0.412]	[0.470]	[0.403]	[0.704]	[0.556]
Revenue category 2	3.411***	3.504***	4.107***	4.518***	5.294***	2.477***
	[1.220]	[1.277]	[1.587]	[1.858]	[1.803]	[0.835]
Revenue category 3	4.873***	4.379***	7.739***	4.01***	7.032***	2.868***
	[1.905]	[1.751]	[3.147]	[1.849]	[2.666]	[1.092]
Revenue category 4	1.982	2.821**	3.077**	1.503	2.083	0.715
	[0.905]	[1.272]	[1.469]	[0.841]	[1.038]	[0.360]
Revenue category 5	2.335**	1.447	1.818	0.901	0.733	0.606
	[0.956]	[0.632]	[0.833]	[0.478]	[0.392]	[0.297]
Revenue category 6	1.610	1.765	3.322***	0.492	1.989	3.715***
	[0.720]	[0.792]	[1.479]	[0.399]	[0.845]	[1.358]
Number of observations						1,499
Log-likelihood (model)						-2432.301
Log-likelihood (null)						-2816.667

Table 6. Self-assessed financial literacy and entrepreneurial outcomes – revenue growth.

The table presents the multinomial logit estimates expressed as relative risk ratios. The baseline bin for the model is the "Declined strongly by more than 20%". Industry dummies and constant are included in all models but are omitted for succinctness. Standard errors are reported in square brackets. For the detailed definitions of variables see Table 1. * p<0.10, ** p<0.05, *** p<0.01.

Revenue growth bins	**Decrease (6-20%)**	**Slight decrease (1-5%)**	**Stable**	**Slight increase (1-5%)**	**Increase (6-20%)**	**Strong increase (>20%)**	**Do not know or Do not answer**
Subjective financial knowledge	1.075	1.356	1.294	1.439**	1.457**	1.68***	0.991
	[0.199]	[0.275]	[0.207]	[0.242]	[0.247]	[0.337]	[0.240]
Advice (D)	1.509	1.030	1.360	1.093	1.523*	1.186	1.106
	[0.385]	[0.283]	[0.299]	[0.252]	[0.353]	[0.320]	[0.360]
Sex (D)	0.539*	0.559	0.673	0.495**	0.734	0.825	0.375**
	[0.190]	[0.205]	[0.212]	[0.158]	[0.240]	[0.304]	[0.151]
Ln(1 + Age)	0.203**	0.068***	0.056***	0.046***	0.018***	0.007***	0.01***
	[0.156]	[0.054]	[0.037]	[0.031]	[0.012]	[0.005]	[0.008]
High education (D)	0.752	1.691*	1.622**	1.145	1.472	1.506	3.051***
	[0.203]	[0.504]	[0.387]	[0.282]	[0.369]	[0.439]	[1.130]
High ent. experience (D)	0.964	2.335*	0.652	0.534*	0.431**	0.209***	0.092***
	[0.379]	[1.160]	[0.211]	[0.177]	[0.142]	[0.074]	[0.038]
One-man business (D)	0.592*	0.445***	0.822	0.562**	0.542**	0.425***	1.261
	[0.169]	[0.134]	[0.207]	[0.146]	[0.141]	[0.129]	[0.558]
Number of observations							1,499
Log-likelihood (model)							-2732.416
Log-likelihood (null)							-2955.989

Table 7. Self-assessed financial literacy and entrepreneurial outcomes – revenue.

The table presents the multinomial logit estimates expressed as relative risk ratios. The baseline bin for the model is the Bin 1 corresponding to the "Less than €50k" answer. Industry dummies and constant are included in all models but are omitted for succinctness. Standard errors are reported in square brackets. For the detailed definitions of variables see Table 1. * p<0.10, ** p<0.05, *** p<0.01.

Revenue bins	**2**	**3**	**4**	**5**	**6**
Subjective financial knowledge	1.504***	1.525***	1.938***	2.474***	0.995
	[0.185]	[0.199]	[0.399]	[0.522]	[0.151]
Advice (D)	1.765***	1.788***	2.412***	4.229***	0.829
	[0.287]	[0.306]	[0.626]	[1.151]	[0.174]
Sex (D)	1.836***	2.807***	3.841***	5.645***	0.892
	[0.371]	[0.637]	[1.445]	[2.333]	[0.206]
Ln(1 + Age)	0.539	0.189***	0.085***	0.148***	0.688
	[0.218]	[0.078]	[0.053]	[0.095]	[0.342]
High education (D)	1.046	1.136	1.033	1.648*	1.039
	[0.192]	[0.221]	[0.285]	[0.451]	[0.238]
High ent. experience (D)	1.914***	2.506***	2.763***	2.966***	1.362
	[0.384]	[0.554]	[0.985]	[1.097]	[0.331]
One-man business (D)	0.370***	0.109***	0.021***	0.004***	0.183***
	[0.084]	[0.023]	[0.007]	[0.002]	[0.046]
Number of observations					1,499
Log-likelihood (model)					-1963.050
Log-likelihood (null)					-2452.039

Table 8. Asking for advice.

The table presents the logit and multinomial logit estimates expressed as odds or relative risk ratios respectively. The baseline for the revenue category dummies is Revenue category 1. Industry dummies and constant are included in all models but are omitted for succinctness. Decide alone, Ask professional, Ask non-professional, and Delegate completely corresponds to the values of Advice = 1, 2, 3, and 4. Standard errors are reported in square brackets. For the detailed definitions of variables see Table 1. * p<0.10, ** p<0.05, *** p<0.01.

Model type	**(1) Logit**		**(2) Multinomial logit**		
	Ask for advice (D)	Decide alone (base)	Ask professional	Ask non-professional	Delegate completely
Subjective financial knowledge	0.636***		0.592***	0.728***	0.583***
	[0.056]		[0.059]	[0.084]	[0.098]
Sex (D)	0.854		1.023	0.693**	0.477***
	[0.123]		[0.175]	[0.126]	[0.129]
Ln(1 + Age)	0.688		1.045	0.37***	1.642
	[0.192]		[0.344]	[0.129]	[0.918]
High education (D)	1.026		1.057	0.974	0.760
	[0.131]		[0.154]	[0.162]	[0.177]
High ent. experience (D)	1.163		1.500**	0.836	1.064
	[0.166]		[0.258]	[0.155]	[0.323]
One-man business (D)	0.495***		0.761	0.269***	0.073***
	[0.073]		[0.131]	[0.052]	[0.023]
Revenue category 2	1.760***		2.061***	1.402	0.842
	[0.284]		[0.388]	[0.310]	[0.354]
Revenue category 3	1.786***		2.302***	1.228	1.343
	[0.305]		[0.454]	[0.285]	[0.484]
Revenue category 4	2.356***		4.180***	1.062	3.097***
	[0.603]		[1.192]	[0.359]	[1.252]
Revenue category 5	4.086***		6.46***	2.183**	3.487***
	[1.073]		[1.897]	[0.700]	[1.443]
Revenue category 6	0.825		1.111	0.516**	0.887
	[0.173]		[0.272]	[0.160]	[0.387]
Number of observations	1,499				1,632
Log-likelihood (model)	-944.723				-1774.161
Log-likelihood (null)	-1038.52				-1989.463

Table 9. Knowledge and propensity to ask for advice and its effect on firm performance.

The table presents the multinomial logit estimates expressed as relative risk ratios. The baseline bins are: for the Panel A the "Lower than 5%" answer; for the Panel B the "Declined strongly by more than 20%" answer; for the Panel C the "Less than €50k revenue" answer. In all cases the models are estimated using the same controls as in Tables 5-7. The baseline interactions are always in the first row of each panel. Standard errors are omitted for succinctness. For the detailed definitions of variables see Table 1. * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Gross margin bins, in %	**5-15%**	**16-25%**	**26-35%**	**36-45%**	**>45%**	**I do not know**
Low knowledge x Advice (D, 0)	1.000	1.000	1.000	1.000	1.000	1.000
Low knowledge x Advice (D, 1)	1.211	1.561	1.435	1.749	0.995	1.003
High knowledge x Advice (D, 0)	1.088	2.018**	1.912*	2.018	2.897***	0.407***
High knowledge x Advice (D, 1)	1.547	1.841*	1.935*	3.137***	1.995**	0.344***
Log-likelihood (model)						-2459.845
Log-likelihood (null)						-2816.667

Panel B: Revenue growth bins	**−(6-20%)**	**−(1-5%)**	**Stable**	**+(1-5%)**	**+(6-20%)**	**+(>20%)**	**Do not know or Do not answer**
Low knowledge x Advice (D, 0)	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Low knowledge x Advice (D, 1)	2.571***	1.499	2.028**	1.419	2.101**	2.283**	1.243
High knowledge x Advice (D, 0)	2.17**	2.545**	2.508***	2.224***	2.501***	4.046***	0.91
High knowledge x Advice (D, 1)	1.879*	1.739	2.227**	1.743*	2.603***	2.407**	1.224
Log-likelihood (model)							-2725.406
Log-likelihood (null)							-2955.989

Panel C: Revenue bins			**2**	**3**	**4**	**5**	**6**
Low knowledge x Advice (D, 0)			1.000	1.000	1.000	1.000	1.000
Low knowledge x Advice (D, 1)			2.013***	2.408***	3.332***	3.103**	0.989
High knowledge x Advice (D, 0)			2.042***	2.728***	3.455***	2.600**	1.092
High knowledge x Advice (D, 1)			3.03***	3.839***	6.254***	10.498***	0.643
Log-likelihood (model)							-1955.338
Log-likelihood (null)							-2452.039

Table 10. Knowledge and asking for professional advice.

The table presents the logit odds ratio estimates of the impact of various types of self-assessed knowledge on the likelihood to ask for professional advice. Controls, industry dummies and constant are included in all models. Standard errors are reported in square brackets. For the detailed definitions of variables see Table 1. * p<0.10, ** p<0.05, *** p<0.01.

Variable	(1)	(2)	(3)	(4)	(5)
Knowledge	0.682***				
	[0.063]				
Knowledge of accounting		0.778***			
		[0.071]			
Knowledge of strategy			0.798***		
			[0.051]		
Knowledge of financing				0.787***	
				[0.051]	
Knowledge of taxation					0.687***
					[0.054]
Number of observations	1,632		1,632		1,632
Log-likelihood (model)	-904.942		-909.944		-907.402
Log-likelihood (null)	-952.236		-952.236		-952.236

Appendix A: Additional tables

Table A1. T-tests of various types of knowledge.

	Knowledge of accounting	Knowledge of strategy	Knowledge of financing	Knowledge of taxation
Knowledge of accounting				
Knowledge of strategy	t-stat: 43.5847 ***			
Knowledge of financing	t-stat: 30.4488 ***	t-stat: -7.5649 ***		
Knowledge of taxation	t-stat: 40.1865 ***	t-stat: -3.5949 ***	t-stat: 3.5444 ***	

***p < 0.01, **p < 0.05, *p < 0.1

Table A2. Propensity to seek advice

	Sole owner		
Advice	0	1	Margin
0	189	586	775
1	383	378	761
Margin	572	964	1536

Table A3. Types of knowledge and need for help correlations.

The table reports the correlations and descriptive statistics between the types of self-assessed knowledge and the respondents' answer to the question "In which area do you think you need help most". All correlation coefficients are statistically significant at 1% level. * p<0.10, ** p<0.05, *** p<0.01. NHA, NHS, NHF, and NHT are the abbreviations for the need for help in accounting, strategy, financing sources, and taxation respectively. For convenience, we also report the relevant descriptive statistics extracted from Table 2.

Panel A: Correlation between the average knowledge and need for help answers.

	(1)	(2)	(3)	(4)	(5)
(1) Knowledge	1.000				
(2) Need help in accounting	-0.322	1.000			
(3) Need help in strategy	-0.142	0.480	1.000		
(4) Need help in financing sources	-0.102	0.363	0.584	1.000	
(5) Need help in taxation	-0.244	0.586	0.313	0.237	1.000

|

Panel B: Summary statistics for the need for help answers.

	Mean	**Median**	**SD**	**N**
Knowledge of accounting	4.180	4.200	0.670	1681
Need help in accounting (NHA)	0.471	0.500	0.369	1681
Knowledge of strategy	3.452	3.400	1.002	1681
Need help in strategy (NHS)	0.150	0.000	0.272	1681
Knowledge of financing	3.598	3.500	0.952	1681
Need help in financing sources (NHF)	0.252	0.000	0.434	1681
Knowledge of taxation	3.526	3.667	0.787	1681
Need help in taxation (NHT)	0.417	0.000	0.493	1681

Panel C: Correlations between specific types of knowledge and need for help answers.

	NHA	NHS	NHF	NHT
Knowledge of accounting	-0.294***			
Knowledge of strategy		-0.089***		
Knowledge of financing			-0.015	
Knowledge of taxation				-0.256***

Appendix B: the English translation of the complete survey (originally in Dutch)

List of Questions – Netherlands Chamber of Commerce

Research over money and business matters among entrepreneurs

First part: how do you manage financial issues (problems and decisions) in your firm

This section of the survey covers issues related to money management, financial and administrative decisions taken in your firm.

Question 1: Who is responsible for the treasury, financial and administrative management in your firm?

- Nobody, I take care of this myself
- My partner
- Internal accountant
- External accountant
- Internal auditor
- External auditor
- Shareholders
- Financial advisor
- CFO
- Members of my family
- Other entrepreneurs
- Others (indicate here who):

Question 2: Who takes the financial decisions in your firm in the end?

- Myself **(go to question 2A)**
- CFO
- My partner
- Internal accountant
- External accountant
- Internal auditor
- External auditor
- Shareholders
- Financial advisor
- Members of my family
- Others (indicate here who):

Question 2A: Who is the person giving you the most relevant help in taking the financial decisions concerning your firm?

- Nobody, I decide completely alone
- CFO
- My partner

- Internal accountant
- External accountant
- Internal auditor
- External auditor
- Shareholders
- Financial advisor
- Members of my family
- Others (indicate here who):

Second part: Basic financial knowledge and ability to apply the concepts

You reach now the core of the survey. We propose three claims for each of the next fifteen subjects. Say how much you agree or disagree with each of the claims.

The next three claims concern the **reading and understanding of the profits and loss statement (P&L)**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
3. I am aware of the basic principles underlying a P&L					
4. I look and interpret regularly the P&L of my firm					
5. If one specific entry of the P&L has changed I understand the consequences of this on my business					

The next three claims concern the **preparation of the P&L**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
6. I am aware of the rules that underlie the construction of a P&L					

7. I regularly draft the P&L for my firm on my own					
8. I am able to take appropriate decisions concerning my business operations by looking at the important changes recorded in the P&L					

The next three claims concern the **return forecasts analysis**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
9. I know what elements are necessary to prepare a return forecasts analysis					
10. I am regularly busy determining and adjusting the correct amounts in order to prepare a return forecasts analysis					
11. When business conditions change I know what consequences this has for the preparation of the return forecasts analysis					

The next three claims concern the return forecasts analysis. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
12. I know how a return forecasts analysis is prepared					
13. I regularly draft return forecasts analysis for my firm on my own					

14. I am able to detect abnormal changes in the return forecasts analysis in order to take the appropriate business decisions in time					

The next three claims concern the **possible financial sources**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
15. I know the different sources of funds that my firm has access to					
16. I am able to identify the right financing source					
17. I know what is the effect of obtaining funds at different conditions on my business					

The next claims concern the **preparation of a demand for a credit line**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
18. I know the elements necessary to prepare a demand for a credit line					
19. I prepare by myself the elements necessary to demand a credit line					
20. As soon as my firm needs additional finance I invest time on this task					

The next claims concern **taxation issues**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
21. I know the most important fiscal regulation concerning income taxes					
22. I put aside enough money to pay taxes					
23. I know the effects that important changes in the tax regulation may have on my firm business results (for example, the impact of a change in the regime of deductions)					

The next claims concern value added tax **(VAT)**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
24. I am aware of the most important regulation about VAT					
25. I put aside enough time to fill in a correct VAT declaration for my firm					
26. I identify by myself changes in the VAT laws that apply to my firm business					

The next claims concern your **retirement savings**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree

27. I know that, as a self-entrepreneur, I need to take care of my pension on my own					
28. I regularly putting aside money for my retirement					
29. I check my pension rights every year and in case I feel it is necessary I take further decisions					

The next three claims concern **bookkeeping**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
30. I know what must be recorded in the accounting books and how to do it					
31. My accounting records are kept in a well-organized manner					
32. I can have a clear view of the financial situation of my firm at every moment by looking at the information contained in my accounting records					

The next three claims concern the **timely processing of bills and payables**. Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
33. I am aware of the basic principles underlying the management of credits and debt					

34. I have a precise overview of my unpaid bills and of credits and debts					
35. I am proactive towards the creditors who still need to be paid and the borrowers					

The next three claims concern **cash-flows and cash management**.

(In the following we refer to overviews of future incomes and costs for which it is clear that the firm has enough money to deal with).

Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
36. I know the basic principles underlying liquidity management					
37. I am constantly informed about my liquidity position to forecast and to avoid liquidity problems					
38. Considering the firm liquidity needs plays an important role in my business decisions					

The next three claims cover **strategic factors** of your firm.

With strategic factors we mean key economic and financial variables that affect the firm profits. For example, sales of products, Earnings Before Interests Taxes Depreciation and Amortizations (EBITDA).

Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree

39. I know the impact of the strategic factors					
40. I regularly check the dynamics of the strategic factors of my firm to analyse firm health					
41. I can explain and interpret the dynamics of the strategic factors and act upon them					

The next three claims concern **periodic reports**.

Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
42. I am aware of the importance of analysing periodic results during the year					
43. Thanks to a regular interpretation of the periodic results of my firm I have a clear picture of its financial condition					
44. I take my decisions based on periodic reports					

The next three claims concern **investment principles**.

Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
45. I know the basic investment principles					
46. I consider many possible alternative opportunities before I invest					

47. I can decide whether for my firm it is profitable to invest immediately or rather to delay the investment					

The next three claims concern **subsidies.**

Say how much you agree or disagree with each of the three claims.

	Totally agree	Agree	Neutral	Disagree	Totally disagree
48. I am aware of the possible subsidies I can obtain for my enterprise					
49. I think there is enough information about subsidies					
50. I understand the information about subsidies that is available					

Third Part: What is your experience with financial management?

The next questions investigate your experience in finance.

Question 51. In your opinion, how important is it to have enough personal knowledge on the following topics:

(Very important Important Neutral Not important Not important at all)

Accounting balance

Profitability analysis

Access to credit

Income and corporate taxation

VAT

Pensions

Accounting statements

Cash flows and liquidity management

Gross return, Quick Ratio, Solvency Ratio

Periodic statements

Investment and Payback period

Question 52. In which of the following area do you think you need professional help?

(Same as above)

Question 53. Please tell us whether one or more than one of the following happened to you in the past 36 months:

- Shortage of cash
- Problems with your firm bank account(s)
- You needed to compensate business losses with your private means
- Lack of funds for investment, or access to credit too expensive
- Delay in payments
- Insolvency on one of your debt
- Suffered a legal procedure due to your delay in repayments
- Could not reimburse a loan
- The bank refused one of your demand of credit
- An investor refused your demand of funds
- Missed income due to the unavailability of proper labour resources
- Missed income due to the loss of an important client
- Missed income due to the impossibility to find new clients
- Costs higher than expected due to the unavailability of proper labour resources
- Costs higher than expected due to the replacement of firm assets
- Costs higher than expected due to high purchase prices
- Others….

Question 54. In the past 36 months did someone tell you that they were concerned about your money or business management?

- Yes → go to question 54A
- No
- Do not know

Question 54A. Who were these people?

- Accountant
- Auditor
- Family
- Friends
- Employees
- Other entrepreneurs
- Clients
- Supplier
- Bank
- Investor
- Tax authority
- Municipality
- Others…

Fourth Part: General Questions

We have reached the last questions of this survey. They concern your own firm.

55. What is the gross margin of your firm in 2015 (earnings before depreciation and taxes but after deducting interests)?

- Less than 5%

- 5-15%

- 16-25%

- 26-35%

- 36-45%

- More than 45%

- I don't know

57. Did you follow some educational programs, courses or practical trainings to acquire additional knowledge in the area of finance?

- Yes, please specify

- No

58. Did you ask for external funds for your firm in the last three years?

- Yes. Go to question 59

- No

59. Did you receive external funds for your firm in the last three years?

- Yes

- No

60. Would you like to acquire more information in which areas of finance?

(Please fill in) _____

CODE	QUESTION	ANSWERS
Kvkq01	I am a:	1- Man
		2- Woman
Kvkq010	In which year your current enterprise was created?	
Kvkq011	How did the revenue of your firm develop in the last 3 years?	
		1 – Strong decrease (more than 20% on average per year)
		2 – Decrease (between 6% and 20% on average per year)
		3 – Slight decrease (between 1% and 6% on av. per year)
		4 – Stable
		5- Slight increase (between 1% and 6% on average per year)
		6 – Increase (between 6% and 20% on average per year)
		7 – Strong increase (more than 20% on average per year)
		8 – I don’t know / refuse to answer
Kvkq012	What is the yearly revenue of your firm at this moment?	
		1 – Less than 50 000 EUR
		2 – Between 50 000 – 100 000 EUR
		3- Between 100 000 – 250 000 EUR
		4- Between 250 000 – 500 000 EUR
		5 – Between 500 000 – 750 000 EUR

6 – Between 750 000 – 1 mln EUR

7 – Between 1 mln – 1.5 mln EUR

8 – Between 1.5 mln – 2.5 mln EUR

9 – Between 2.5 – 4 mln EUR

10 – Between 4 mln – 8 mln EUR

11 – Between 8 mln – 16 mln EUR

12 – Between 16 mln – 32 mln EUR

13 – More than 32 mln EUR

14 - I don't know / refuse to answer

Kvkq014 Do you earn other incomes aside from the one coming from your enterprise?

1 – No, my enterprise is my only income

2 – Next to my enterprise I have a job

3 – Next to my enterprise I have a pension / subsidy

4 – Next to my enterprise I have a rent

5 – Others: indicate in question kvkq014 Others

Kvkq014 Others

Kvkq015 How many hours do you spend per week on average in your enterprise?

Kvkq016 Did your enterprise bring to the market new products / new services in the last three years?

1 – Yes

2 - No

Kvkq016a These products/services were:

1 – New for my firm

2 – New for my firm and for our market/sector

Kvkq016b Who did develop these new products/services?

1 – Mostly my firm

2 – My firm together with other firms or institutions

3 – Mostly other firms/ institutions

Kvkq017 Does your firm export products/ services abroad?

1 – Yes, my firm exports goods abroad

2 – Yes, my firm offers services abroad

3 – Yes, my firm exports good and offers services abroad

4 – No, my firm does not export abroad

Kvkq018 What is the share of export on the total revenue of your firm? [0-100%]

Kvkq019 Does your firm import goods or services from abroad?

1 – Yes, my firm imports goods from abroad

2 – Yes, my firm buys services from abroad

3 – Yes, my firm imports good and buys services from abroad

4 – No, my firm does not import from abroad

Kvkq02 What is your date of birth? [day/month/year]

Kvkq020 Do you regularly work with partners from your own professional network outside your own enterprise?

1 – Yes

2 - No

Kvkq021 Which of the following statements best describes your plans for the coming 12 months?

1 – Innovate: I want to bring new products / new services to the Dutch /foreign market, and to add new models to my firm offer

2 – Consolidate: I want to increase my revenue/ reduce my costs and increase the notoriety of my brand

3 – Growth: I want to increase my firm activity by hiring new employees

4 – None of the above

Kvkq03 What is the highest education degree that you have earned?

1 – Primary school (or less)

2 – Middle school

3 –High school degree and equivalent

4 – Bachelor

5 – Master, PhD

6 – Others (please indicate in kvkq013 others)

Kvkq03 Others

Kvkq04 What are the four digits of your postal code?

Kvkq05 How many people work in your enterprise, including yourself? You can count both full time employees and part-time ones.

1- 1
2- 2-4
3- 5-9
4- 10-19
5- 20-49
6- 50-99
7- 100-249
8- 250 or more
9- Refuse to answer

Kvkq06 How many full-time equivalent people on average were working in your firm in 2015 (including yourself)?

Kvkq07 What is your function?

1 – Owner

2- Partner (in a family sense: husband/wife)

3 – Friend

4 – Controlling partner

5 – Officer

6 – CEO

7 – others (please indicate in kvkq07others)

Kvkq07 Others

Kvkq08 Are you owner (also in part) of more than one enterprise?

1 – Yes

2 – No

Kvkq09 For how long have you been entrepreneur, including your previous enterprises (if any)?

1- Less than one year
2- Between 1 and 2 years
3- Between 2 and 5 years
4- Between 5 and 10 years
5- More than 10 years

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