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Mobilising finance and achieving early growth in new technology-based firms: a legitimacy perspective

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Abstract

Purpose – This study investigates a mediational model between legitimated elements, financial resource mobilisation and subsequent early firm growth among New Technology-Based Firms (NTBFs) using conformity and control perspectives of legitimacy.

Design/methodology/approach – To test the hypotheses, a longitudinal database of 303 NTBFs from Sweden, Finland and France is used. The ordinary least square regression analysis method is applied, and the proposed mediation relationships are studied by employing the four-step approach developed by Baron and Kenny (1986).

Findings – This study finds that based on the conformity principle, two out of three legitimated elements (business plan and incubator relationship, but not start-up experience) have an impact on financial resource mobilisation, which in turn, is associated with early growth in NTBFs based on the control principle. Thus, financial resource mobilisation positively mediates the relationships among the two legitimated elements and early growth in NTBFs.

Research limitations/implications – This study has several limitations, which also generate promising pathways for future research. Future research should study the relationship between the three legitimacy elements and financial resource mobilisation and early growth across a wider range of firms and settings. The questionnaire was also based on a single point in time and could not capture the evolving nature of the legitimacy elements and fundraising. Hence, future research can examine the multidimensionality of these processes; longitudinal qualitative studies can be a complement, allowing for a better understanding of the impact of legitimacy on NTBFs.

Practical implications – The findings offer implications for managers of NTBFs because developing legitimacy is critical to NTBFs' early growth and development. The findings indicate that NTBFs' founders



must systematically develop business plans and that incubators help enhance legitimacy through a signalling.

Social implications – It is believed that the study meaningfully contributes to the collective understanding of the role of legitimacy in driving the development of NTBFs. Given the importance of NTBFs in our economies, coupled with the lack of attention given to the role of mobilisation of external resources in explaining NTBF early growth, it is believed that the study is both timely and important.

Originality/value – The findings meaningfully contribute to the collective understanding of NTBF growth. While there are studies that have examined the antecedents of growth and finance separately, this study proposes a novel mediational model that integrates both and tests it empirically.

Keywords New technology-based firms, Legitimacy, Signallinen, Financial resource mobilisation, Sales growth, Mediation analysis

Paper type Research paper

Introduction

New technology-based firms (NTBFs) play an important role in economic growth, reduce unemployment and promote innovation in an economy (Storey, 1983). Over the years, NTBFs have been growing at a fast rate and expanding the economy in new areas. However, new firms have low survival rates (Audretsch, 1995). The lack of resources and the unavailability of information are severe problems for NTBFs. When NTBFs manage to mobilise large amounts of financial resources, it often raises public expectations about new job creation and increased tax revenues. In reality, however, success in financial resource mobilisation is only an intermediate outcome, which may or may not lead to a viable and growing NTBF.

From a conceptual viewpoint, success in mobilising financial resources does not automatically lead to growth in NTBFs (Morena and Casillas, 2007). Finance may be seen as a determinant for growth (Easterly, 1999) or as an indicator of quality (Mina *et al.*, 2013), predicting firms that will grow. Moreover, the factors that explain successful mobilisation of financial resources are not necessarily the same as those that explain NTBF growth (Fisher *et al.*, 2016). Yet, success in mobilising financial resources is often assumed to lead to the growth of new businesses (Assenova and Sorenson, 2017; Delmar and Shane, 2004; Kim and Pennings, 2009; Lee *et al.*, 2011; Lu and Xu, 2006; Rao *et al.*, 2008; Wright and Lockett, 2004). The primary purpose of this study is to increase the understanding of the relationship between success in mobilising financial resources and NTBF early growth and the factors behind both outcomes. In this study, conceptual arguments are built to explain why some NTBFs are able to mobilise financial resources and why such mobilisation leads to early growth.

To make sense of entrepreneurial actions, this study adopts the concept of *legitimacy*, a social judgement of acceptance, appropriateness and desirability (DiMaggio and Powell, 1991), and the concept of *signalling* to understand how legitimated elements explain the successful mobilisation of financial resources. While new firms in general suffer from the liability of newness (Stinchcombe, 1965), by adopting certain legitimated elements, an NTBF can be regarded as legitimate by external financial parties (c.f. DiMaggio and Powell, 1983), which is called the *conformity mechanism* of legitimacy. In particular, legitimated elements are important because of their signalling effect. Furthermore, because external financial resources are easily transformable to other kinds of resources (Katila *et al.*, 2008), an NTBF can actively shape the perceptions of customers in their target markets (c.f. Dowling and Pfeffer, 1975), which is called the *control mechanism* of legitimacy. This depends on the effectiveness of using financial resources in activities (such as Research and Development [R&D] tasks and commercialisation) that are geared towards stronger market acceptance than what would be possible without such financial resources.

In this study, two legitimacy related mechanisms (i.e. conformity and control) are empirically tested on a sample of 303 NTBFs that were started in Sweden, Finland, and France in 2013. By doing so, this study discusses the development of NTBF through this widely applied theoretical approach. This study provides new insights into the role of legitimacy in

explaining the success of NTBFs, both in resource mobilisation and firm early growth. Only a few studies have considered the long-term success of NTBFs (sales growth) in addition to the antecedents of initial legitimacy and the ability to mobilise financial resources in the same conceptual model and empirical investigation. Moreover, the central results related to the role of two legitimacy mechanisms among NTBFs (i.e. conformity and control) offer interesting implications on how NTBFs can succeed during the initial stages of their development.

The remainder of the article is structured as follows. [Section 2](#) presents the literature review, hypotheses and research model. [Section 3](#) describes the sample, methodology and variables. [Section 4](#) presents the analysis and [section 5](#) discusses the empirical findings, and [Section 6](#) concludes.

Theoretical development: hypotheses and conceptual model

Among the different kinds of resources, financial resources are seen as the most important for businesses because they are easily transformable into other kinds of resources ([Katila et al., 2008](#)). According to [Warhuus et al. \(2021\)](#), nascent entrepreneurs tend to acquire external funding relatively late in the new venture start-up process and they tend to take actions that are less resource-demanding early in the startup process to build their organizations to a fundable stage. Then, at some stage, financial resource mobilisation is often portrayed as a vital step for young firms with growth potential, although very few firms experience high growth in their early years ([Rannikko et al., 2019](#)). Hence, to ensure constant development, owners need to acquire funding from external sources such as family or friends, commercial banks, business angels, venture capital or crowdfunding ([Busenitz et al., 2004](#); [Gorman and Sahlman, 1989](#); [Maula, 2001](#); [Maula et al., 2003](#); [Sapienza, 1992](#); [Sapienza et al., 1996](#)). While the financial capital needs of NTBFs are well acknowledged, NTBFs lack the legitimacy needed to attract investors ([Arntzen et al., 2018](#)).

According to existing literature, it is possible to infer legitimacy through the actions of external stakeholders ([Tornikoski, 2009](#)), and particularly, by the existence of economic transactions between organisations ([Terreberry, 1968](#)). Following this logic, the authors contend that the mobilisation of external support, in general, is a manifestation of an NTBF's perceived legitimacy among external stakeholders. By adopting this approach, this study focuses on exchange legitimacy, which derives from an NTBF's most immediate audience ([Suchman, 1995](#)). In other words, legitimacy can be inferred through the endorsement and support of an NTBF's goals and activities ([Elsbach and Sutton, 1992](#)) by investors and customers engaging in voluntary resource exchange with the NTBF.

In the following sections, these ideas based on legitimacy and signalling are developed to propose a new model of how NTBFs mobilise external financial resources, which leads to their early growth.

Legitimacy and legitimated elements

Institutional theory conceptualises the environment in terms of expectations of appropriate organisational forms and behaviours that are widely shared ([Zucker, 1987](#)). These expectations denote legitimacy, and firms that best exemplify such expectations will be deemed legitimate by association ([Scherer and Lee, 2002](#)). Firms that exhibit practices and procedures defined by institutions increase their legitimacy and survival prospects ([Meyer and Rowan, 1977](#)). Hence, concern over legitimacy compels firms to be similar and not different, lest they lack credibility ([Scherer and Lee, 2002](#)), whereas firms that innovate structurally incur considerable cost in terms of legitimacy ([Meyer and Rowan, 1977](#)). To this end, by *resembling* other existing firms, which are legitimate due to their continued existence, a firm's conduct is not questioned. Resembling others makes a firm legitimate in the eyes of potential external exchange partners ([Hawley, 1968](#); [Meyer and Rowan, 1977](#)), which should improve its performance and survival prospects ([Deephouse, 1996](#)).

Adopting this logic, it is claimed that NTBFs need to exhibit certain *legitimated elements* (Tornikoski, 2008; Zucker, 1987) to conform to the expectations of external financial gatekeepers before they are granted external financing. In other words, NTBFs attain legitimacy through reliance on a combination of elements deemed by the external funding parties as typical elements of a legitimate NTBF. In this study, this legitimacy mechanism is called the *conformity principle*. In particular, legitimated elements are important due to their signalling effect. In the following sections, it is suggested that NTBFs can exhibit certain legitimated elements that make the mobilisation of financial resources possible through conforming to the expectations of the financial gatekeepers.

Business planning, start-up experience, incubator membership and their direct links to financial resource mobilisation

NTBFs can exhibit three important legitimated elements – business planning, founders' start-up experience and incubator membership – that make the mobilisation of financial resources possible. The choice of these legitimated elements is based on the literature related to how external funding parties evaluate candidates for their financial support. Essentially, all legitimated elements enhance resource mobilisation by signalling external resource providers of NTBF's trustworthiness.

Business planning. An NTBF can be legitimated if there is a business plan (Lovallo and Kahneman, 2003; Rutherford *et al.*, 2009). The assumption is that a business plan helps the founders as they engage in start-up activities: It is assumed to imply greater business success (Brinckman *et al.*, 2010). Studies have shown that small firms that use business plans tend to become more successful than those that do not (Green and Hopp, 2017; Kraus and Schwarz, 2007), especially in uncertain environments (Liao and Gartner, 2006), and when the timing of planning is correct (Liao and Gartner, 2006; Shane and Delmar, 2004).

Research on decision-making in entrepreneurial finance has demonstrated that a business plan is desirable or required by funding stakeholders (Hindle, 1997; Kraus *et al.*, 2008). In an uncertain decision-making setting, information asymmetry is created as entrepreneurs are the only ones who are knowledgeable about technology. A business plan can be used as a signalling mechanism to reduce information asymmetry (Bollazzi *et al.*, 2019; Connelly *et al.*, 2010). It conveys to stakeholders, especially investors, that a new firm is professional (Delmar and Shane, 2004) and investment-ready (Silver *et al.*, 2010). Hence, when funding stakeholders require a business plan from prospective founders, it clearly shows that a business plan is an important legitimated element and that it contributes towards the mobilisation of financial resources.

Accordingly, empirical studies have shown that small firms, which use business plans, tend to become more successful in resource mobilisation. For example, in a study with a random sample of 223 Swedish firms, Delmar and Shane (2003) affirm the hypothesis that planning facilitates the development of new ventures by helping to balance resource supply and demand. Concerning financing, Hopp (2015) finds that entrepreneurs who write formal business plan receive more formal financial support than those who do not plan formally.

In summary, in line with the conceptual argument and previous empirical findings, the following hypothesis is proposed:

H1a. Business planning positively influences financial resource mobilisation in NTBFs.

Start-up experience. An NTBF could be legitimated if the business was founded by people with previous start-up experience. In other words, legitimacy may be increased through past experience (Zimmerman and Zeitz, 2002). It is believed that previous start-up experience facilitates the identification of opportunities (Politis, 2005) and indicates knowledge of the unique opportunities in an entrepreneurial setting and the ability to cope with high uncertainty

and fast decision-making in small and young firms (Delmar and Shane, 2004). Experience fosters tacit knowledge, which is action-oriented, difficult to formalise, and focused on routines and operational skills (c.f. Lam, 2000). For these reasons, venture capitalists use start-up experience as a funding criterion (Zacharakis *et al.*, 2007) as it is a signal of investment readiness. Hence, when funding stakeholders require previous entrepreneurial experience from prospective founders, it clearly shows that start-up experience is an important legitimated element and that it contributes towards the mobilisation of financial resources.

Accordingly, the association between start-up experience and financial resource mobilisation has been studied in empirical studies. Concerning venture capital, Hsu (2007) finds that prior founding experience (especially financially successful experience) increases the likelihood of venture capital (VC) funding. According to Ko and McKelvie (2018), this effect varies: founders' founding experience has the greatest effect for acquiring first-round financing. Finally, in the domain of crowdfunding, Piva and Rossi-Lamastra (2017) find that entrepreneurial experience significantly contributes to entrepreneurs' success in equity crowdfunding in their study of 284 entrepreneurs who launched equity crowdfunding campaigns.

In summary, in line with the conceptual argument and previous empirical findings, the following hypothesis is proposed:

H1b. Start-up experience positively influences financial resource mobilisation in NTBFs.

Incubator membership. An NTBF can be legitimate if it is a member in an incubator program. In general, incubators' business model includes selection, business support and mediation (Bergek and Norrman, 2008). According to Aaboen *et al.* (2011), general activities required to develop conditions for obtaining external financing are: obtaining help in application procedures, establishing a need for capital and making contacts with the best public or private investors. When a start-up applies to an incubator, its business model and technology, among other aspects, are closely examined. If the start-up as a whole is seen as having potential, it is selected for the incubator programme. As other parties are aware that this is part of the application process, there is a reputational advantage in being in an incubator (Westhead and Batstone, 1998). Reputation can be seen as the socially constructed outcome of the legitimating process (Rao, 1994), and it is a signal of investment readiness towards external financing parties.

Accordingly, previous researchers have analysed the impact of incubator membership on receiving external finance. Colombo and Grilli (2010) study new Italian-based technology and find that incubated NTBFs had easier access to public subsidies. By studying incubators in the UK, Bone *et al.* (2019) find that attending incubator (accelerator) is positively associated with the following three outcome measures: survival (measured by continued online presence), employee growth and funds raised. Finally, based on US regional data, Fehder and Hochberg (2014) suggest that accelerators may bring, regionally, an increase in VC funding going to non-accelerated firms as well to those which participate.

In summary, in line with the conceptual argument and previous empirical findings, the following hypothesis is proposed:

H1c. Incubator membership positively influences financial resource mobilisation in NTBFs.

Next, the study looks at how the mobilisation of financial resources and its three antecedents contribute to the early growth of NTBFs.

Direct link between financial resource mobilisation and NTBF early growth

Based on the logic that it is possible to infer legitimacy through the actions of external stakeholders, it is contended that when an NTBF achieves growth, it signals that the NTBF

and its offering have been legitimised by customers in target markets. In other words, growth is a manifestation of an NTBF's perceived legitimacy among customers. At the same time, the mechanism between successful resource mobilisation and NTBF early growth is not based on the conformity principle, like with legitimated elements. Instead, another legitimacy mechanism, the *control principle*, is introduced.

According to the control principle, a firm can seek legitimacy by controlling the institutional environment (Dowling and Pfeffer, 1975; Pfeffer and Salancik, 1978). In the context of this study, this means that an NTBF can achieve legitimacy among customers by shaping customers' perceptions. In a sense, the control principle depicts legitimacy as an operational resource (Ashforth and Gibbs, 1990), which NTBFs can acquire through their proactive actions (Tornikoski, 2009). How does the mobilisation of financial resources allow an NTBF to gain legitimacy among their customers, which would then allow the NTBF to grow?

First, the mobilisation of external financing helps in building the company's resource base. Financing is easily transformable to other kinds of resources (Katila *et al.*, 2008). The mobilisation of external financing helps an NTBF to finalise any remaining R&D tasks (Katila *et al.*, 2008), engage with commercialisation activities (Festel *et al.*, 2013), and prepare for market penetration and promotion campaigns (Homburg *et al.*, 2014). All these resource accumulating activities are oriented towards achieving market success.

Second, and more importantly, resource accumulation is a signal of success, which makes customers buy company's products. While marketing signals such as marketing campaign and brand are important signals in established companies, in NTBFs, other indicators, such as R&D spending (and received up-front investments for that), are even more important (DeKinder and Kohli, 2008). They effectively differentiate high-quality firms from low-quality firms because it is costly for low-quality firms to mimic such expenditures (DeKinder and Kohli, 2008; Spence, 1974). Quality signalling activity is of particular relevance to customers who prefer to make repeat purchases from the same suppliers (DeKinder and Kohli, 2008).

Accordingly, some empirical studies have concentrated on the relationship between external finance and early growth. By studying Spanish technology start-ups, Huergo and López (2020) find that public VC encourages the firm's development through their medium-term effect on growth rates of sales and labour productivity and on intangible assets intensity. By studying Italian digital start-ups, Cavallo *et al.* (2019) find that VC financing rises scale-ups grow linearly while start-ups follow an inverted U-shape. Concerning debt financing, Hyytinen and Toivanen (2005) provide evidence through Finnish SME data that capital-market imperfections hold back innovation and growth, which could be remedied by public debt financing. Finally, concerning the signalling effect of resource mobilisation, DeKinder and Kohli (2008) find that sales growth was positively affected by signalling value of R&D spending among US venture-based start-ups that went public in the years 2001–2005.

Accordingly, in line with the conceptual argument and previous empirical findings, the second hypothesis can be formulated as follows:

H2. Financial resource mobilisation positively influences early growth in NTBFs.

Mediational model: mobilisation of financial resources and NTBF early growth

As discussed earlier, legitimated elements are important drivers of the mobilisation of financial resources for NTBFs. To this end, three legitimated elements were identified: business plans, start-up experience and incubator membership. Their role in the process of NTBFs becoming legitimated by financial gatekeepers (i.e. conformity principle) through the signalling effect has been analysed. For NTBFs, involvement in R&D means that up-front investments are high, while operational and financial resources are scarce (Katila *et al.*, 2008). Therefore, NTBFs are generally forced to mobilise external resources before market success

can be expected (Katila *et al.*, 2008). Accordingly, an NTBF's ability to mobilise external resources can be seen as a vital entrepreneurial task (Aldrich and Martinez, 2001) and an important determinant of its future success. Furthermore, because success in mobilising financial resources is often assumed to lead to a growing new business (Assenova and Sorenson, 2017; Delmar and Shane, 2004; Kim and Pennings, 2009; Lee *et al.*, 2011; Lu and Xu, 2006; Rao *et al.*, 2008; Wright and Lockett, 2004), an explanation of how NTBF's financial resources turn into early growth by active shaping of customers' perceptions (control principle) was developed.

In summary, the focus is on how business planning, start-up experience and incubator membership facilitate early growth through the mobilisation of financial resources. First, this study explicitly focuses on legitimated elements and assumes that these three elements will foster a fruitful environment for financing, and hence, are positively associated with financial resource mobilisation (H1a-c). Second, it is suggested that financial resource mobilisation is associated with sales growth in NTBFs (H2). The process of mediation in this study is defined as the intervention caused by the mediator variable – mobilisation of financial resources (H3). Legitimated elements are not important for early growth as such (direct effect) but mainly because they enable financing, which then enables early growth if effectively used, as in the case of finalising any remaining R&D tasks or commercialisation activities (mediated effect). Arguments in hypotheses 1–3 clarify this linkage more closely (see Figure 1). As the conceptual model suggests a mediating role for financial resource mobilisation, an important objective of the forthcoming analysis is to confirm that financial resource mobilisation serves as a mediating variable. Principally, a mediation model examines the relationships between the independent variables and the dependent variable, the relationships between the independent variables and the mediator variable, and the relationship between the mediator variable and the dependent variable. The figure below presents the conceptual model.

To conclude, the conceptual model presents a meditational model. Mobilisation of financial resources mediates the effects of legitimated elements (i.e. business plan, start-up experience and incubator membership) on NTBF early growth. Hence, the model of financial resource mobilisation and NTBF early growth, which uses a legitimacy perspective, holds that intermediate success can be achieved using conformity, but longer-term success is based on more active or transformative behaviour by NTBFs. Therefore, the final hypothesis can be formulated as follows:

- H3. Financial resource mobilisation positively mediates the relationships among business plans, start-up experience, incubator membership and the early growth of NTBFs.

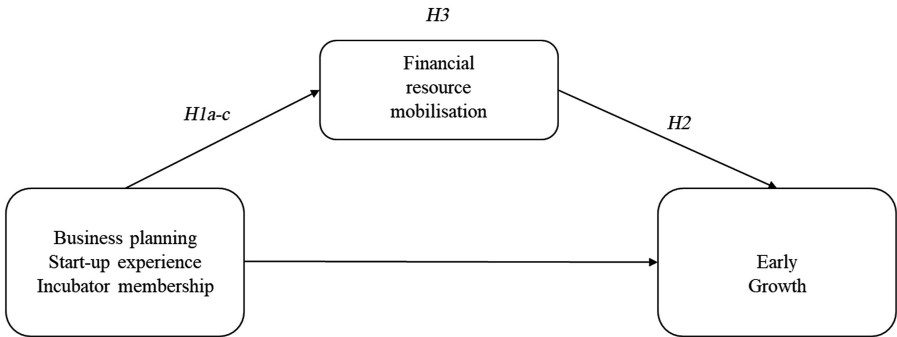


Figure 1.
Conceptual model

Method

Sample and data collection

To test the hypotheses, a longitudinal database of 303 NTBFs from Sweden, Finland and France was developed. NTBFs from these three countries were analysed mainly to avoid country bias and to use the language skills of the research group. These countries also collectively represent Europe's industry sector. However, there are some differences between the three countries, especially France, which does not have the same publicly available databases for micro-firms. According to EU statistics, France's population of micro firms is approximately 13 times bigger than Finland and four times bigger than Sweden ([European Commission, 2018](#)). However, Rhône-Alpes (NUTS2 region of France) provides a satisfactory sample of French NTBFs because of its industrial centres, including the big cities Lyon and Grenoble.

The database includes survey information to capture legitimated elements and financial resource mobilisation, as well as financial information (sales growth from 2014 to 2018 for firms founded in 2014). As authors' interest is in NTBFs, concentration in the analysis is on three different categories: high-tech manufacturing, medium high-technology manufacturing and knowledge-intensive high-technology services (see [Table A1](#) for Table NACE Rev.2 – sectors: responding firms), following the Eurostat categorisation of manufacturing and service industries in accordance with technological intensity (R&D expenditure), based on NACE codes ([Eurostat, 2020](#)).

Only limited liability companies and independent companies are included, excluding sole proprietorship and other legal firms, to focus on independent entities with comparable publicly available annual report data. Data for this study were collected from various sources at different times, both pre- and post-survey. The Retriever business database was used for Sweden, Voitto+ was used for Finland, and the business register of the Rhône-Alpes region was used for France. Screening resulted in a sample of 1,290 firms with full contact information in Sweden, 899 in Finland, and 942 in France. The total sample consisted of 589 responses from NTBFs, at a response rate of 18.8%. The highest number of responses was received from knowledge-intensive high-technology service firms (499 firms; 84.7%), followed by 54 firms (9.2%) in medium high-technology manufacturing and 36 firms (6.1%) in high-technology manufacturing. The responding firms are small, as measured by the number of employees in Sweden, Finland and France (mean: 2.30, 5.03 and 2.19) in 2016. [Table A1](#) in [appendix](#) shows the industry distribution. The non-response analysis did not reveal any significant differences between respondents and non-respondents, as illustrated in [Table A2](#) in [appendix](#). From the sample of 589 firms it was possible to find financial data for 303 firms which formed the final sample of the analysis.

Questionnaire design, validity and reliability

To build the database, a telephone-based survey was conducted in 2016 in Sweden, Finland and France using a common questionnaire. To collect the data, the authors used telephone interviews, which were performed at the same time (March–April 2016) in all three countries by TNS-Sifo. By using an external research firm, the validity and reliability of the data collection process were improved through several levels of quality control. The authors made two reviews with TNS-Sifo before finalising: (1) discussions with the entrepreneurs' perceptions of their businesses (to measure them), including key resource dimensions and (2) the questionnaire was pre-tested and modified after discussions with firms to identify inconsistencies and avoid misunderstandings in the final survey. While questionnaires can be reliable, they often lack validity. When using self-reported questionnaires to collect data at the same time from the same participants, common method variance can be a methodological problem ([Podsakoff and Organ, 1986](#); [Podsakoff et al., 2003](#)). Several methods were adopted to

avoid common method bias: (1) the dependent variables (growth, employment, sales and total capital) were constructed using information from external sources (i.e. accounting measures); (2) different scale types (1–5 and 1 or 0) were used; and (3) different headings and sections for the different questions were used in the questionnaire.

Variables

Table 1 presents the descriptive statistics for firms that were included in the analysis. Due to the missing values on some of the variables of interest, the number of observations in Table 1 is smaller ($n = 303$) than in the total sample (589 firms). The average sales of these 303 firms were 231,000 euros and had grown to 591,000 euros in 2018.

NTBF early growth was operationalised through sales growth for the period 2014–2018. Accounting data for 2014 was used as this was the first full accounting year after inception. The dependent variable, early growth, is measured as a log difference of sales, i.e. $\log(\text{sales}_{18}) - \log(\text{sales}_{14})$. Measurement issues related to very young firms have attracted considerable attention as scholars have increasingly recognised the highly skewed nature of many metrics of firm performance and how relative changes should be measured (Almus, 2002; Coad *et al.*, 2014; Delmar *et al.*, 2013; Törnqvist *et al.*, 1985). Hence, as recommended by Törnqvist *et al.* (1985), growth was measured as the log difference of sales ($\log[\text{sales}_{2018}] - \log[\text{sales}_{2014}]$), which offers monotonic transformations that do not affect the ranking of firms. According to Rannikko *et al.* (2019), the most popular measure of growth among recent growth studies is the log difference of sales.

Business planning is operationalised based on the question “Have you written a formal business plan?” If the answer was yes, then it was coded 1; otherwise, it was coded 0. Of the 303 firms, 57% had written a business plan.

Start-up experience is operationalised based on the question “Before this business was founded, did any founder have start-up experience?” If the answer was yes, then it was coded 1; otherwise, it was coded 0. Of the 303 firms’ founders, 56% had previous start-up experience.

Incubator membership is operationalised as participation in an incubator programme. Incubators normally consist of a programme in which only a limited number of NTBFs with a potential growth capacity can enter (Aaboen *et al.*, 2008). As already pointed out, there is a reputational advantage in being in an incubator (Westhead and Batstone, 1998). To this end, there was the question “Have you been part of an incubator/accelerator during the creation?” If the answer was yes, then it was coded 1; otherwise, it was coded 0. From the 303 firms, 13% had taken part in an incubator programme.

Table 1.
Descriptive statistics of
the variables used in
the analysis ($N = 303$)

Variable	Mean	Std. Dev.
Sales growth (log difference)	0.49	1.71
Sales 2014 (Teur)	231	1,126
Sales 2018 (Teur)	591	2,431
Strategy – similarity	0.40	0.49
Strategy – pricing	0.22	0.41
Strategy – quality	0.72	0.44
High-tech manufacturing firms	0.05	0.22
Knowledge intensive firms	0.85	0.34
Management experience	9.16	12.27
Industry work experience	19.68	16.68
Business plan	0.57	0.49
Start-up experience	0.56	0.49
Incubator membership	0.13	0.33
Financial resource mobilisation	0.57	0.89

Financial resource mobilisation is a dichotomous variable and operationalised based on the question “Have you acquired/obtained funding from external sources?” If a respondent had acquired external funding, this was coded as 1; otherwise, it was coded as 0. The external funding might have been received from family, bank, venture capitalists, crowd funding campaign or public sources; however, this information was not used in the analysis. This approach in operationalizing financial resource mobilisation as a dichotomous variable reflects, on a very general level, the pecking order theory according to which internal funding is preferred followed by external funding (e.g. debt capital, equity) (Myers, 1984). In addition, the dichotomous operationalization also reflects well the conceptual focus of this study: obtaining external funding signals exchange legitimacy, which is derived from an NTBF’s most immediate audience (Suchman, 1995). Of the 303 firms, 28% had mobilised external financial resources.

Besides independent, mediating, and dependent variables, strategy-, industry- and entrepreneur-related variables were included in the analysis as control variables based on their potential impact on sales growth. Means and standard deviations for these are shown in Table 1. Control variables were chosen to reflect firms’ internal factors and operating environment. It was assumed that founders’ attitudes towards growth (or other founder-related factors) is reflected in strategy controls. The strategy was modelled using three different dimensions. *Strategy-similarity dummy* is based on the question “Compared to the products/services of similar firms in your industry, is your main product/service very similar (1), somewhat similar (2), neither (3), somewhat different (4) or very different (5)?” If the answer was 4 or 5, then the strategy-similarity dummy was coded 1; otherwise, it was coded 0. The *strategy-pricing dummy* is based on the question “Compared to the products/services of similar firms in your industry, is your main product/service very cheap (1), somewhat cheap (2), neither (3), somewhat expensive (4) or very expensive (5)?” If the answer was 4 or 5, then the strategy-pricing dummy was coded 1, otherwise, it was coded 0. The *strategy-quality dummy* is based on the question “Compared to the services/products of similar firms in your industry, is your main product/service very standard in quality (1), somewhat standard in quality (2), neither (3), somewhat high in quality (4) or very high in quality (5)?” If the answer was 4 or 5, then the strategy-quality dummy was coded 1; otherwise, it was coded 0.

For the industry sector, there are two dummies. The high-tech manufacturing dummy (*Htm dummy*) was coded 1 if the firm is categorised as a high-tech manufacturing firm by NACE codes (21: manufacture of basic pharmaceutical products and pharmaceutical preparations or 26: manufacture of computer, electronic and optical products). The knowledge-intensive high-tech services dummy (*kihts dummy*) was coded as 1 if the firm is categorised as a knowledge-intensive high-tech service firm by NACE codes 59–63.

Regarding entrepreneur-level, two dummies were included in the analysis. *Industry work experience* is operationalised based on the question “How many years of work experience do the founders have (in total) in the same industry where your business competes at the start-up year?” On average, founders in the sample had 19 years of work experience in the industry. *Management experience* is operationalised based on the question “How many years of managerial experiences do the founders have (in total) at the start-up year?” On average, founders in the sample had 9 years of management experience.

When making statistical inferences about variable relationships, exact *p*-values are reported and further scrutiny is warranted to those variable relationships where the *p*-value is below 0.05. At the same time, the authors try to be careful when making inferences solely based on the *p*-values (c.f. Wasserstein *et al.*, 2019). To test the hypotheses, the authors conducted a mediation analysis. Overall, the authors followed the four-step approach suggested by Baron and Kenny (1986) in which four conditions must be met: (1) Independent variables must have significant relationships with the dependent variable. (2) Independent

variables must have significant relationships with the mediating variable. (3) The mediating variable has a significant relationship with the dependent variable. (4) In the presence of the mediating variable, the effect of the independent variables on the dependent variable is reduced. Yet, as the mediating variable is dichotomous, the authors estimated the indirect effects using the general approach for causal mediation analysis proposed by [Imai et al. \(2010\)](#), as implemented in the *R* mediation package. In practice, the first equation (effects of the IV on the mediator) is a logistic regression model, while the other equations (effects of the IV and the mediator on the DV) are OLS (ordinary least squares) regressions. The authors then estimated the confidence intervals of the indirect effects using bootstrapping with 1,000 simulations.

Empirical findings

Statistical analysis

In the data analysis, the first step is a correlation analysis. To estimate the degree to which any two measures are related, scholars normally use the correlation coefficient. A correlation matrix using Pearson correlation was calculated at the variable level (11 variables) to check the initial correlations between the independent variables (see [Table 2](#) for correlations at the variable level). There are several correlations between financial resource mobilisation and strategy-similarity, kihts dummy, business plan, start-up experience and incubator membership. As [Table 2](#) shows, no overly high and significant correlations were found. Skewness and kurtosis statistics were calculated for the dependent variable as well. However, neither skewness (0.083) nor kurtosis (5.19) cause action to be taken in modelling.

The second step is to test whether business planning, start-up experience and incubator membership will positively influence financial resource mobilisation ([H1a-c](#)). The results of the analysis are presented in the model 1 of [Table 3](#). As can be seen, and what comes to the control variables, both strategy-similarity ($p = 0.018$; $\beta = 0.738$) and management experience ($p = 0.050$; $\beta = 0.273$) are positively associated with financial resource mobilisation. In regards of the independent variables, business plan ($p = 0.000$; $\beta = 1.590$) and incubator membership ($p = 0.000$; $\beta = 2.021$) are positively associated with financial resource mobilisation, but start-up experience ($p = 0.126$) is not. Hypotheses [H1a](#) and [H1c](#) receive support in the analysis. At the same time, the analysis failed to provide support for the hypothesis [H1b](#).

The third step is to test whether financial resource mobilisation positively influences sales growth ([H2](#)). As can be seen from the model 2 in [Table 3](#), financial resource mobilisation ($p = 0.000$; $\beta = 0.985$) is positively associated with sales growth. Hypothesis [H2](#) receives support in the analysis.

The fourth step is to test whether financial resource mobilisation positively mediates the relationships among business plans, start-up experience, incubator membership and sales growth ([H3](#)). The results of the analyses are presented in the models 3 and 4 of [Table 3](#). The independent variables – business plan ($p = 0.043$; $\beta = 0.402$), start-up experience ($p = 0.045$; $\beta = 0.440$) and incubator membership ($p = 0.001$; $\beta = 0.979$) – all are positively associated with sales growth, as shown in model 3. Finally, as the mediating variable (financial resource mobilisation) is added into model 4, the independent variables of business plan and start-up experience, which were significant with the correct sign in model 3, became non-significant ($p = 0.201$ and $p = 0.077$) in Model 4. On the contrary, incubator membership ($p = 0.021$; $\beta = 0.700$) stays significant. In addition, the relationship between financial resource mobilisation and early growth stays significant ($p = 0.004$). The analysis shows that the mediating variable represents partial mediation, that is, the mediating variable is responsible for a part of the relationship between the independent and the dependent variables. However,

	1	2	3	4	5	6	7	8	9	10	11	12
1. Sales growth	1.000											
2. Financial resource mobilisation	0.303	1.000										
3. Strategy – similarity	0.159	0.290	1.000									
4. Strategy – pricing	0.084	0.103	0.084	1.000								
5. Strategy – quality	0.099	0.030	0.061	0.260	1.000							
6. High-tech manufacturing firms	0.060	0.097	0.180	0.107	–0.013	1.000						
7. Knowledge intensive firms	–0.073	–0.115	–0.148	–0.163	–0.056	–0.600	1.000					
8. Management experience	0.099	0.240	0.212	0.126	0.119	0.052	–0.145	1.000				
9. Industry work experience	–0.113	–0.055	–0.061	–0.001	0.106	0.018	–0.031	0.313	1.000			
10. Business plan	0.176	0.334	0.222	0.089	0.012	0.066	–0.104	0.145	–0.026	1.000		
11. Start-up experience	0.113	0.147	0.078	–0.003	–0.052	–0.019	–0.069	0.481	0.167	0.024	1.000	
12. Incubator membership	0.243	0.373	0.197	0.021	–0.004	0.032	–0.037	0.074	–0.165	0.161	–0.014	1.000

Note(s): $N = 303$; values in italic are significant at $p < 0.05$

Table 2.
Correlation matrix of
the variables used in
the analysis

Baron and Kenny's (1986) four steps (requirements) are met. Hypothesis H3 receives partial support in the analysis.

For logistic regression $\text{Prob} > \chi^2 = 0.0000$ indicating that the model coefficients differ from zero. In terms of the R -square-adjusted scores, in Model 2, the adjusted R -squared value is 0.095. The R -square value of 1.0 indicates a perfect fit of a regression line's approximation of real data points. For Models 3 and 4 the adjusted R -square value is 0.090 and 0.114, respectively. Variance inflation factor was calculated to check for potential multicollinearity. No indication of multicollinearity was found in the data. As the authors were also interested in country effects, models were complemented with country dummies, but this addition did not affect the results. However, it could be seen that Finnish firms had experienced higher growth than firms from France and Sweden. Thus, the country dummy had positive effect on growth.

To further increase the validity of the result, the authors completed the mediation approach of Baron and Kenny (1986) with the bootstrapping method suggested by Preacher and Hayes (2004), which addresses the power limitations of the Sobel test. Preacher and Hayes' (2004) method does not assume that data are normally distributed, and it is suitable even with small sample sizes. Although the authors do not believe that these assumptions are violated, this supplementary analysis is provided as a robustness check. Table 4 reports the average causal mediation effects (ACME), the average direct effect (ADE), the total effect and the proportion of ACME on total effect.

While the direct effect of the three predictors on sales growth is significant only in case of incubator, the ACME are significant for the business plan and the incubator membership ($\text{ACME}_{\text{business_plan}} = 0.183$, $\text{ACME}_{\text{used_incubator}} = 0.277$; $p < 0.01$). The authors also conducted a sensitivity analysis to assess the value of the correlation ρ between the residuals of the

Table 3.
Regression analysis
results

	Dependent variable			
	Financial resource mobilisation <i>logistic</i> (1)	OLS (2)	Sales growth <i>OLS</i> (3)	OLS (4)
Strategy – similarity	0.738*** (0.311)	0.186 (0.205)	0.209 (0.206)	0.120 (0.205)
Strategy – pricing	0.343 (0.360)	0.080 (0.235)	0.132 (0.236)	0.098 (0.233)
Strategy – quality	–0.055 (0.364)	0.344 (0.220)	0.398 (0.222)	0.396 (0.220)
High-tech manufacturing firms	0.281 (0.774)	0.111 (0.513)	0.241 (0.515)	0.195 (0.509)
Knowledge intensive firms	–0.133 (0.526)	–0.075 (0.340)	–0.039 (0.342)	–0.029 (0.337)
Management experience	0.273* (0.139)	0.058 (0.078)	0.010 (0.087)	–0.019 (0.087)
Industry work experience	–0.155 (0.175)	–0.222* (0.110)	–0.204 (0.111)	–0.187 (0.110)
Business plan	1.590*** (0.345)		0.402* (0.197)	0.253 (0.201)
Start-up experience	0.701 (0.357)		0.440* (0.218)	0.385 (0.216)
Incubator membership	2.021*** (0.433)		0.979*** (0.289)	0.700*** (0.300)
Financial resource mobilisation		0.985*** (0.221)		0.721*** (0.239)
Constant	–2.830*** (0.821)	0.429 (0.469)	0.033 (0.495)	–0.019 (0.488)
R-sq		0.119	0.120	0.146
Adj. R-sq		0.095	0.090	0.114
Log Likelihood	–137.315			
Akaike Inf. Crit.	296.631			
F statistic		4.940*** (df = 8; 294)	3.998*** (df = 10; 292)	4.537*** (df = 11; 291)
Residual Std. Error		1.625 (df = 294)	1.629 (df = 292)	1.607 (df = 291)
Number of observations	303	303	303	303
Note(s): ***, $p = 0.001$, **, $p = 0.01$, *, $p = 0.05$ (two-tailed)				

mediator, and the outcome regressions the ACME would be equal to 0. This is the case when $\rho \approx 0.2$. In this study, the correlation between the residuals was close to 0.

Discussion

Theoretical implications

In this study, conceptual arguments were developed to explain why some NTBFs are able to mobilise financial resources and why it leads to NTBF early growth. When building the core arguments, concepts of legitimacy and signalling were adopted to understand which legitimated elements could explain successful mobilisation of financial resources (the conformity mechanism of legitimacy). Furthermore, it was argued that success in mobilising financial resources would lead to early growth in NTBFs because an NTBF can actively shape the perceptions of customers in their target markets (the control mechanism of legitimacy).

Based on empirical analysis, the main finding is that financial resource mobilisation seems to fully mediate the relationships between one of the proposed three legitimated elements and NTBF early growth. More specifically, the effect of business planning on sales growth is fully mediated by financial resource mobilisation. Full mediation can be seen as a manifestation of joint operation of conformity mechanism and control mechanism. In this respect, the study is one of the first to demonstrate how two different legitimacy mechanisms explain the early development of NTBFs from initial resource mobilisations to early growth. This is an important contribution, as only a few studies have considered the long-term success of NTBFs (sales growth) in addition to the antecedents of initial legitimacy and the ability to mobilise financial resources in the same conceptual model and empirical investigation. To this end, this study can be seen as a continuation of the research by [Zimmerman and Zeitz \(2002\)](#), who argued that conceptually, legitimacy is an important resource for acquiring other resources in new firms, with an extension towards performance in the analysis.

However, an intriguing question is why empirical results do not show full mediation for incubator membership, nor mediation effect for start-up experience in order to support fully the legitimisation argument. Indeed, the effect of incubator membership on growth is only partially mediated since there exists also a positive direct association between incubator membership and sales growth. This result cast some doubt on the role of incubator membership as a legitimated element in the conformity principle of legitimacy. Rather than bringing just legitimacy related benefits, incubator membership could benefit the sales growth of NTBFs through alternative and/or complementary mechanism. For example, while it is well acknowledged that incubator membership helps new businesses to extend or modify their resource bases ([Garcia-Ochoa et al., 2021](#)), this resource reconfiguration is also all about building dynamic capabilities ([Enkel and Sagmeister, 2020](#)), which then helps NTBFs to exploit opportunities ([Zahra et al., 2006](#)). In essence, building dynamic capabilities could help NTBFs to accelerate their development, including sales growth, through re-orchestrating the resources. Alternatively, it might also be the case that learning and/or efficiency effects exist

	ACME	ADE	Total effect	Proportion
Business plan	0.183**	0.253	0.436	42%
Start-up experience	0.037	0.384	0.422*	9%
Incubator membership	0.277**	0.699*	0.976**	28%

Note(s): The mediating effect is calculated based on the models reported in [Table 3](#) using bootstrap confidence intervals with 1,000 simulations. Mediator is Financial resource mobilisation, *p*-value: **** <0.001; ** <0.01; * <0.05. ACME stands for Average Causal Mediated Effect, ADE stands for Average Direct Effect

Table 4.
Mediating effects

besides legitimacy effect (Gastrogiovanni, 1996) to incubator membership: the founders of NTBFs can increase the use of their current resources through the support and advices of an incubator that then helps to accelerate the development of the NTBF. Indeed, incubators and accelerators are supposed to help nascent firms and entrepreneurs to reach successful outcomes by providing capital, enabling industry connections, increasing exposure to investors and inform an entrepreneur about how to sell, thereby creating an efficiency-based linkage between incubator membership and growth. In addition of seeing NTBF's development and growth as a quest for legitimacy, we encourage future research to build on our results by using alternative/complementary perspectives to get more rounded picture about the mechanism behind NTBF's development and growth.

The empirical evidence for the *conformity principle* meets expectations based on the works of previous legitimacy scholars. Previous research has also demonstrated that legitimacy has a crucial role in financing and that organisations with greater legitimacy obtain better organisational results and improved access to resources (Becker-Blease and Sohl, 2015; Diez-Martin *et al.*, 2013; Frydrieh *et al.*, 2014; Pollack *et al.*, 2012). As interesting nuances, while start-up experience does not seem to be connected to financial resource mobilisation, managerial experience seems to have such connection. That is, managerial experience, rather than start-up experience, seems to be an important entrepreneur-related legitimated element. It is somewhat counterintuitive to think that financial resource-gatekeepers would use managerial experiences, rather than start-up experiences, as a bases for granting legitimacy. Managerial experiences could reflect a better ability to use financial resources/budgets and exploit given plans than entrepreneurial experiences. Our sample was made of recently created NTBFs, rather than firms in nascent entrepreneurial stage: it could be that managerial qualities are more important for financial parties than entrepreneurial ones in the new firm stage. While this empirical result could be related to measurement issues, we encourage future scholarly work to look better into the role of generic and specific human capital and how they function as legitimated elements in resource acquisition efforts among NTBFs.

Existing literature does not offer the empirical evidence that this study found on the *control mechanism of legitimacy*. Assenova and Sorenson (2017) found that legitimization processes accounted for increased sales and generated employment. In their study, the formality of an entrepreneurial venture was seen as an indication of legitimacy, which is accompanied by performance benefits, but the precise mechanism about how legitimacy fosters early growth remained unexplored. Similarly, Li *et al.* (2016) analysed the mediating role of innovation legitimacy between corporate reputation and enterprise growth among established small- and medium-sized firms, but they did not explain how legitimacy enhances growth. Therefore, the findings explain this black box of the legitimacy mechanism.

Practical implications

The findings offer interesting implications for founders of NTBFs because developing legitimacy is critical to the early growth and development of NTBFs. Developing systematically business plans and becoming members of incubators might play a role in enhancing NTBFs' legitimacy, which is needed for resource mobilisations and business growth. While some advocate burning business plans (Gumpert, 2002), this study demonstrates that NTBFs can benefit from business plans because they not only contribute to financial resource mobilisation but also indirectly to sales growth. External gate-keepers seem to grant more legitimacy to those NTBFs that have business plan than to those which do not. In addition, despite some negative issues related to incubator memberships (Lukosiute *et al.*, 2019), NTBFs are encouraged to consider strongly the option of being attached to an incubator/accelerator due to its benefits related to resource

mobilisations and sales growth. At the same token, if all NTBFs develop business plans and join incubators in a given context, the role of these two legitimated elements might become a necessary but not sufficient condition for being considered legitimated. As such, founders of NTBFs are encouraged to continue exploring potential new sources of legitimacy for the development of their NTBF. Finally, this study gives hope to those founders of NTBFs, who do not have previous entrepreneurial experiences: this does not seem to be a handicap in making efforts to mobilise financial resources.

Limitations and future research directions

This study has some limitations, which also generate promising pathways for future research. First, the learning and efficiency effects of business planning, previous entrepreneurial experience and incubator membership were not considered. However, according to previous research, business planning, for example, is positively associated with firm performance due to learning and efficiency effects (Gastrogiovanni, 1996). Thus, the following question arises: What is the relative importance of learning, efficiency or signalling for resource mobilisation or growth in the context of NTBFs? This would be an interesting question to explore in the future. Analysis could also be carried out on different performance dimensions (Nunes *et al.*, 2010) to study the determinants of profitability.

Second, an equally interesting and important future research area is the role of moderating factors such as the newness or cultural environment of the relationships found in this study (Brinckmann *et al.*, 2010). For example, ambitions might neutralize the effect of business planning (van Gelderen *et al.*, 2006), while the quality of the business planning might amplify its effect (Chwolka and Raith, 2012). Related to this limitation, there is also the potential problem of omitted variables present in this study. Thus, future studies should try to control for the potential omitted variables, such as the need for financing, which might explain financial resource mobilisation. Furthermore, Honig and Samuelsson (2014) highlight the importance of data replication, data extension and sample selection bias in the study of small firm performance.

Third, future research should study the relationship between the three legitimated elements, financial resource mobilisation and early growth across a wider range of firms and settings. Moreover, the questionnaire was also based on a single point in time and could not capture the evolving nature of the legitimated elements and financial resource mobilisation. Hence, future research can examine the multidimensionality of these processes. Longitudinal qualitative studies can complement, allowing for a better understanding of the impact of legitimacy on NTBFs and their development.

Conclusions

Despite the above limitations, it is believed that the study meaningfully contributes to the collective understanding of the role of legitimacy in driving the development of NTBFs. Given the importance of NTBFs in our economies, coupled with the lack of attention given to the role of the mobilisation of external resources in explaining NTBF early growth, it is believed that the study is both timely and important. Moreover, the use of the legitimacy perspective encourages scholars to focus on theory-based logic to explain NTBF early growth. Thus, the authors also aim to overcome the reductionist view on either resource mobilisation or early growth by integrating both into the same conceptual model using one unifying theoretical rationale. As a result, it is believed that the empirical findings have important implications for both academics and practitioners. At the very least, the authors hope to have enriched the ongoing discussion regarding the importance of legitimacy within the context of the early development of NTBFs.

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Appendix

Mobilising
finance and
achieving growth
in NTBFs

1555

Table A1.
NACE Rev.2-sectors
(responding firms)

Sector	Frequencies (per cent)		
	Sweden	Finland	France
Manufacture of chemicals and chemical products	0.4	0.5	3.4
Manufacture of fabricated metal products, expt. machin. and equipmt	0.4	0.0	0.0
Manufacture of computer, electronic and optical products	2.5	7.5	2.7
Manufacture of electrical equipment	0.8	0.5	2.0
Manufacture of machinery and equipment n.e.c	3.7	4.5	2.0
Manufacture of motor vehicles, trailers and semi-trailers	0.8	0.5	2.0
Manufacture of other transport equipment	0.0	1.0	0.0
Manufacture of furniture	0.0	0.0	0.7
Other manufacturing	0.8	0.0	0.0
Repair and installation of machinery and equipment	0.0	0.0	4.1
Wholesale of mining, construction and civil engineering machinery	0.4	0.0	0.0
Motion picture, video and television prog. production, sound record	11.6	10.0	10.8
Programming and broadcasting activities	0.0	1.0	1.4
Telecommunications	2.1	5.0	1.4
Computer programming, consultancy and related activities	58.1	56.5	59.5
Information service activities	7.1	5.0	4.7
Activities of head offices; management consultancy activities	0.4	0.0	0.0
Architectural and engineering activities, technical testing and analysis	2.9	0.0	0.0
Scientific research and development	7.1	8.0	5.4
Other professional, scientific and technical activities	0.8	0.0	0.0
Sum	100	100	100

Table A2.
Non-response analysis
– average number of
employees, sales and
total assets (amounts in
1000 Euro).
Accounting data for
sampling year 2014

		Total	Sweden	Finland	France
Employees	Respondents	1.62	1.95	1.38	1.20
	Non-respondents	1.38	1.24	1.83	1.05
	<i>p</i> -value	0.391 (n.s.)	0.391(n.s.)	0.125 (n.s.)	0.742 (n.s.)
Sales	Response	219.08	240.37	136.74	340.70
	Non-respondents	196.51	160.53	223.63	267.39
	<i>p</i> -value	0.620 (n.s.)	0.620 (n.s.)	0.051 (n.s.)	0.500 (n.s.)
Assets	Response	167.91	152.20	156.67	246.27
	Non-respondents	153.87	89.28	226.03	196.39
	<i>p</i> -value	0.674 (n.s.)	0.674 (n.s.)	0.229 (n.s.)	0.421 (n.s.)

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