



# Corporate angels: A new breed of investors in the funding landscape for technology-based start-ups

Puck D. Hegeman<sup>a</sup>, Roger Sørheim<sup>a,\*</sup>, Hans Landström<sup>b</sup>, Erik Andreas Saether<sup>a</sup>

<sup>a</sup> Department of Industrial Economics and Technology Management, Norwegian University of Science and Technology (NTNU), Alfred Getz Veg 3, 7491, Trondheim, Norway

<sup>b</sup> Sten K. Johnson Centre for Entrepreneurship, Lund University, PO Box 7080, S-220 07, Lund, Sweden

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## ABSTRACT

This paper examines corporate angels, small businesses that provide equity capital directly to unquoted ventures and become minority shareholders. Corporate angels have been largely ignored in entrepreneurial finance research. This novel study examines corporate angels' investment practices, goals and challenges by means of a combination of qualitative cases and a survey of 87 corporate angels. From our analysis, we conclude that due to their knowledge and experience of technology and industry, combined with their active involvement in the investments, corporate angels can be an important source of seed and early-stage financing for technology-based start-ups, particularly with regard to technological and market knowledge and experience. Corporate angels' investment activity also leads to knowledge inflows to the corporate angel firms in terms of organizational and cultural development of the firms. With this paper we shed light on a new and unexplored investor group that is important in the changing landscape of entrepreneurial finance.

## 1. Introduction

The financial landscape for new technology-based firms has undergone significant transformation in recent years, with new actors and funding sources emerging and playing a prominent role. Traditional sources of funding, such as venture capital firms and angel investors, have been joined by a range of new players, including crowdfunding platforms, incubators, accelerators and initial coin offerings (Block et al., 2018; Harrison and Mason, 2019). Another actor that we have identified (Hegeman and Sørheim, 2021) is a group of investors that we label 'Corporate Angels'. Corporate Angels (CAs) are small businesses with less than 100 employees that directly invest equity capital in unquoted ventures in which they become minority shareholders. The CAs use the assets of their small firm to make the investments.

Two examples of CAs from our research are as follows. The first case, 'Alfa', is a small firm developing software for the defence industry in its fifth decade of operation under the same private ownership. When introduced to an early-stage venture developing a technology that supports social security, both the management and software programmers in the small software firm became excited. They were interested in what this software could achieve and in the sophistication of the technology.

In addition, they believed they had the ability to support the venture in the further development of its technology, which was complementary to their own. In agreement with their own software developers, the management of the small software firm decided to invest in the venture in return for becoming a minority shareholder and obtaining a seat on the board.

The second case, 'Beta', is a small consultancy firm focusing on strategy consulting and M&A support. When one of the partners left to start a new venture, the consultancy firm was amongst the first investors in the start-up. Based on that experience, the firm decided to set up its own investment programme with the aim of investing in other ventures. Learning first-hand how to build an innovative entrepreneurial company was believed to increase employee motivation as well as leading to the development of new skills to be applied in the company's core consultancy business. Furthermore, the consultancy firm could contribute to the ventures with strategic support and by extending their network. As a result, the consultancy firm invested in six early-stage ventures over a ten-year period.

Thus, CAs may be an important source of funding for new innovative firms. CAs can not only provide capital to the firms in which they invest, but also add value in the form of knowledge outflows due to their

\* Corresponding author.

E-mail addresses: [puck.hegeman@ntnu.no](mailto:puck.hegeman@ntnu.no) (P.D. Hegeman), [Roger.sorheim@ntnu.no](mailto:Roger.sorheim@ntnu.no) (R. Sørheim), [hans.landstrom@fek.lu.se](mailto:hans.landstrom@fek.lu.se) (H. Landström), [erik.a.saether@ntnu.no](mailto:erik.a.saether@ntnu.no) (E.A. Saether).

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knowledge and experience within a particular technological area and/or industry. At the same time, the investment activity may create a value for the CAs by enabling knowledge inflows. For large firms these inflows have been fairly extensively discussed in the literature focusing on corporate venture capital investing, as well as in the context of open innovation (Chesbrough and Tucci, 2004; Vanhaverbeke et al., 2008; Enkel and Sagmeister, 2020).

However, CAs have been ignored in the literature and in the research on entrepreneurial finance (Landström, 2023) for at least two reasons. First, a common assumption is that due to their size, small firms lack the resources to actively engage as investors in start-ups (Belderbos et al., 2018; Keil et al., 2008; Dushnitsky, 2006). Interestingly, we find this not to be the case, as although CAs can only invest limited amounts of financial capital, their non-financial contributions make them an appealing investor for early-stage businesses. Second, it is difficult to obtain data on CAs. It is uncommon for small firms to communicate their investments via press releases or on their website, nor is their investment activity included in venture capital databases. Indeed, we created our sample for this study by combining databases and needed to verify the investment process and rationale by phone with the management.

As our knowledge of CAs is very limited, it is important to gain an understanding of the phenomenon. Thus, in this paper, our first aim is to describe CAs as an investor group – revealing their goals, investment practice and how they handle uncertainty and risk. Such analysis not only gives us the possibility to better understand the phenomenon and examine the knowledge inflows and outflows from the investment activity, but also enables us to position CAs in the new financial landscape. It is also important to learn more about CA investments. Therefore, the second aim of the paper is to open up relevant future research avenues to advance our understanding of CAs and their investment activities.

The data that we use in the study are based on a combination of five qualitative cases and a proprietary dataset consisting of 87 Norwegian CAs. In the study, we find that CA investments have the potential to become an important financial source for new and innovative businesses in the seed and start-up stage – together with business angels, accelerators, incubators, etc. However, we find several ‘liabilities of smallness’ involved in CA investments in terms of limited financial resources for investments and a lack of investment experience among CAs that will restrict the number and size of their investments. Furthermore, our study reveals that many CAs tend to actively use their investment activities to generate inflows of knowledge. This is interesting, as it reveals that CAs do not primarily use the investments to enhance their technological development, but to develop their organization and its culture. For example, it is used for talent attraction and to enhance entrepreneurial capabilities in the firm. The study also shows that CAs tend to be very active in the business in which they invest. Thus, CAs tend to create outflows of knowledge, particularly in terms of dealing with issues related to their technological and market knowledge. Thereby, the relevance of studying CA investing in an open innovation context is acknowledged (Chesbrough, 2006), generating inflows of knowledge to accelerate internal innovation whilst at the same time creating outflows of knowledge to expand the markets for external use of innovation.

The rest of the paper unfolds along the following line of argumentation. In the next section we will elaborate on the new financial landscape that has emerged over the last decade, including the new approach to finance that can be perceived among many entrepreneurs today. This section is followed by our methodological considerations, after which we provide our descriptions and analysis of CAs as an investor group, thus fulfilling the first aim of the study. Finally, in the last section – discussion and implications – we synthesize our main results and elaborate on a future research agenda on the subject of CAs (thereby addressing the second aim of the study).

## 2. The new financial landscape

Acquiring financial capital for the formation, survival and growth of

a firm can be perceived as a key activity for many entrepreneurs and the significant importance of financial capital in new and innovative businesses is well documented (Cassar, 2004; Storey and Greene, 2010). Seen from the perspective of entrepreneurs, there is a diverse set of financial sources available in different stages of the business development. Various financial actors have different goals, investment approaches and tolerance for uncertainty and risk, which influence the focus of their investments in different kinds of business and businesses in different stages of development.

As far back as 1981 Weston and Brigham presented a model in which they provided an argument to explain the financing of small firms using a ‘life-cycle approach’, suggesting that the funding of businesses differs in different stages of their development. These arguments were further developed by Berger and Udell (1998), who stated that the use of financial sources evolves over time and changes with size, age and the degree of information asymmetry. They assumed a linear relationship between stage of development and type of financial sources used in the firm. More recently, the concept of a ‘financial escalator’ has been coined as a modern variant of the growth cycle model (North et al., 2013). The financial escalator is used to identify how new and growing businesses can be financed in different stages of development, and not least, how they can transition from one type of funding to another, i.e., ensuring a smooth development of the business.

The financial escalator model (like the life-cycle approach) assumes that the development of the business will influence the requirements for capital and availability of financial resources. The financial resources will change from the use of funds from family, friends and government agencies in the seed stage of the business, to crowdfunding, customer financing and business angel financing in the start-up stage, finally moving to banks, accelerators, family offices etc. when the market is reached and the business starts to grow. In the later stages of growing businesses, we can identify independent venture capitalists, corporate venture capital and ultimately public offerings as key financial sources.

However, the life-cycle approach can be perceived as an oversimplification, not least because the financial landscape has changed over the last decade (Cumming et al., 2019; Landström, 2023). For example, the traditional venture capital market has changed significantly, with a shift towards more established companies and larger deals (Harrison and Mason, 2019), a new ecosystem for entrepreneurial finance with micro-venture capital funds, accelerators, family offices, etc. (Bonini et al., 2019), a globalization of entrepreneurship and financial markets (Bellavitis et al., 2017), a larger role played by governments in providing capital to new and growing ventures (Avdeitchikova and Landström, 2022) and the development of business angels markets in many countries with an increase in the number of ‘angel groups’ (Mason, 2018).

The changes in business models (and the changing needs for capital) together with the changes in the financial landscape since the 2010s have significantly altered the characteristics of the financial escalator. Today, entrepreneurs tend to raise finance from a multitude of sources and approach similar financial sources at various points in time (Bellavitis et al., 2017). Thus, the life cycle approach is no longer as straightforward as it was in the past, where each source of finance was considered in isolation and where each source had a more or less distinct position in the life cycle of the venture. Instead, we can find a stronger interplay between different financial actors (Cumming et al., 2019). According to Mason (2018), we can talk about a ‘bundling model’ in which firms will finance their activities from a package of several sources (see Fig. 1), i.e., new and growing firms will ‘bundle’ several financial resources together, rather than tapping each of them sequentially (Schweinbacher, 2015).

In this new and complex financial landscape that we can identify today, combined with the ‘bundling’ approach to finance that we see among entrepreneurs, we explore CAs’ position and potential as a financial source, also in relation to other financial sources.

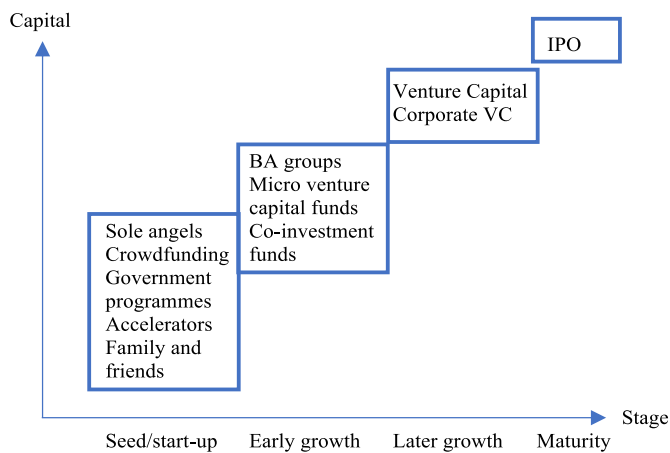


Fig. 1. The bundling approach to finance (based on Mason, 2018, p. 338.).

### 3. Method

#### 3.1. Procedure

Our study involved three phases. The first phase was conducted in late 2019 and consisted of five cases of CAs in Norway. These firms were identified through our personal network and snowballing, with the intention of better understanding what type of small firms invest in new ventures, why they do so and how it is organized. More specifically, we targeted these firms to confirm the CA phenomenon before embarking on data collection via a survey. The interviews also helped us to design a meaningful survey and better identify potential respondents by providing a context and a deeper understanding of the population. Furthermore, they enrich the results of this study by providing qualitative insights.

The second phase, conducted in 2020, focused on identifying small firms that act as CAs for our survey. To identify potential CAs, we used Proff Forvalt (Proff), a database containing all registered companies in Norway, and the Norwegian Tax Administration's Shareholder Register. Proff's database is compiled using data from the Brønnøysund Register and Statistics Norway, two publicly available national databases with a comprehensive and user-friendly format. All Norwegian limited liability companies are required to submit annual reports to the Brønnøysund Register and are thereby included in Proff. The criteria for selecting CAs were small businesses with less than 100 employees that directly invest equity capital in unquoted ventures in which they become minority shareholders<sup>1</sup>. In addition, the CA had to use the firm's own assets to make the investments, whereby the firm does not constitute a holding company structure as is often the case in a BA investment. We targeted technology-based firms, as early equity investment is mainly pursued in high-tech industries (Benson and Ziedonis, 2009). Only firms that were a minimum of three years old were included, as it was deemed unlikely that younger firms engage in investment activities. Applying these criteria in Proff resulted in 3245 firms. We then cross-referenced these firms with the Norwegian Tax Administration's Shareholder Register to select those holding shares in other companies, resulting in a sample of 783 firms.

Subsequently, we ensured that the equity held in other firms was obtained as a result of investment activity in entrepreneurial ventures. To be certain that it concerned a CA investment, we excluded the following (Dushnitsky, 2006): (1) non-equity based inter-organizational relationships; (2) other equity-based forms of inter-organizational relationships such as joint ventures or investments in public equities; (3) internal corporate venturing; (4) spin outs (independent businesses started by departing employees); and (5) investment by financial firms.

Bearing these factors in mind, the 783 SMEs were reviewed using their financial information and website, as well as the websites of the

companies in which they hold shares (the new venture). Based on this information the following cases could be excluded.

- The small firm and its portfolio company were the same legal entity, meaning that the only shares held by the small firm were its own stock (e.g., stock buybacks).
- The portfolio company did not develop new products and/or services, thereby not qualifying as an entrepreneurial venture based on the broad definition by Frederiksen and Brem (2017) (e.g., portfolio companies developing real estate).
- The portfolio company was a spin-out from the small firm or a joint venture (e.g., a portfolio company formed with industry partners for collective purchasing).
- The portfolio company was a non-profit (e.g., portfolio companies that are state-funded research institutions).

After applying the exclusion criteria, 248 small firms remained. However, as small firms typically have limited information on their website, it was necessary to confirm that the shares held in the new ventures were the result of investment activity. Consequently, all 248 firms were contacted by phone. Eighty-three firms responded that they did not conduct an investment and 44 declined to respond or were unreachable. This resulted in 121 firms confirmed as CAs.

The third phase, which built on insights from the interviews in phase one and used the sample identified in phase two, was a survey of managers of small firms who qualified as CAs. In total 87 managers completed the survey, giving a response rate of 71.9%.

#### 3.2. Cases: sample and data collection

For the case studies we collected data from annual reports of the investing firms, as well as their websites and the reports in the media and compared their activities with those of their investees. Furthermore, we conducted semi-structured interviews with representatives of the investing firms based on an interview guide that we designed for the purpose of confirming the phenomenon of CAs and gaining understanding of the how and why of CA investing. The questions thereby focused on how the CAs started their investment activities, how investments were sourced, made and managed, why this activity was undertaken and what the outcomes entailed. Semi-structured interviews were held with representatives of five CAs, as presented in Table 1. Five interviews were conducted on-line and one face to face. The interviews lasted 62 min on average, ranging between 47 min and 1 h 39 min.

The interviews were recorded, transcribed, and coded using NVivo. Subsequently, a database was produced with findings from the collected data concerning the different aspects of CA investing in the various parts of the process, including statements from the interviews. This confirmed the phenomenon of CAs and pointed towards its distinctiveness vis-à-vis other types of investors by providing insights into similarities and differences (Eisenhardt, 1989), which functioned as input for the survey.

#### 3.3. Survey: Test for differences in the sample of CAs

An analysis of variance (ANOVA) test was performed to check for differences in continuous variables based on age and size of the firms, as these resource-related aspects of 'newness' could lead to dissimilarities (Freeman et al., 1983). We found 2 differences when testing groups based on company age (three groups: Group 1 3–10 years, 32.2%; Group 2 11–20 years, 36.8%; Group 3 21 years and older, 31.0%). First, Group 2 ( $M = 2.69$ ,  $SD = .535$ ) has a greater motivation to invest for fun than the most mature Group 3 ( $M = 2.19$ ,  $SD = .786$ ) [ $F(2, 84) = 4.22$ ,  $p < 0.05$ ]. Second, the younger firms in Group 1 ( $M = 2.71$ ,  $SD = 1.43$ ) are less interested in investing in startups that are active in the same industry [ $F(2, 84) = 3.12$ ,  $p < 0.05$ ] than the most mature firms in Group 3 ( $M = 3.63$ ,  $SD = 1.305$ ).

For size, we tested between micro firms (1–9 employees) and other

**Table 1**  
Case overview.

Corporate Angel (CA)	Industry	Age and number of employees	Number of investments in last 10 years	Management of investees	Interviewee – role in CA
Alpha	Mechanical engineering	20 years old 25 employees	1	Within existing company structure	CEO and co-founder
Beta	Telecom/software developer	60 years old 80 employees	2	Within existing company structure	“Right hand of owner”, i.e., CFO role, attends all board meetings and oversees daily activities
Gamma	IT Business analytics	6 years old 7 employees	9	Within existing company structure	CEO and co-founder
Delta	Strategy advisory firm	33 years old 63 employees	14	In separate business unit	Two interviews: - Head of investment unit - Partner
Epsilon	Strategy consulting	15 years old 43 employees	12	In stand-alone fund	Head of investment unit

firms (11–99 employees) it has been demonstrated that micro firms differ from larger firms in their ownership and cost structures, the amount of resources at their disposal and in issues related to financing (Binks et al., 1992; Nooteboom, 1993; Masiak et al., 2019; Baas and Schrooten, 2006). Based on size, we found one significant difference between the groups, with micro firms (1–9 employees;  $M = 3.66$ ,  $SD = 1.045$ ) having a stronger preference to invest in Norwegian startups than the larger firms (10–99 employees;  $M = 2.78$ ,  $SD = 1.229$ ) [ $F(85,1) = 10.894$ ,  $p < 0.01$ ]. Ultimately, with so few differences a further partitioning of the firms in our sample is not warranted and we therefore treat them as a homogeneous group.

### 3.4. Measures

For the descriptive analysis, we used measures with various response types, including multiple choice, dichotomous and Likert-type scales. The measures were constructed based on previous literature related to small firms and entrepreneurial finance as well as the interview data. To investigate the characteristics of CAs, we employed measures covering topics such as governance and incidence, pre-investment, post-investment and value-adding roles (Berg-Utby et al., 2007; Maula et al., 2005). Additionally, we measured investment objectives with 9 items adapted from Hill and Birkinshaw (2014) and Miles and Covin (2002), covering aspects of financial return, organizational development, technological development, acquisition opportunities and enjoyment. Table 2 provides details of the measures.

### 3.5. Limitations of the study

Our data reflect a unique and defined group of small firms, which differ from other entrepreneurial equity providers. Collecting data solely from firms in Norway perhaps limits its generalizability, but as Norway has an open and developed economy, we assume that our data provide information that is relevant to other countries with open and developed economies. Of course, this also offers an opportunity to conduct future studies in other countries to increase generalizability.

Our study is based on a single survey resulting in self-reported, cross-sectional data, which makes it susceptible to common-method bias (CMB). However, we made procedural efforts to reduce the effects of CMB. In the first phase of our study, the cases contributed to making our survey relevant to practitioners, helping to eliminate ambiguity and elicit valid responses. Moreover, we guaranteed anonymity, used different question and response scales and labelled all endpoints to reduce the likelihood of variance resulting from the measurement method. Ultimately, our data are used in an exploratory way with descriptive statistics constituting a primary form of analysis, so CMB should not be of particular concern.

**Table 2**  
Measures.

Demographical characteristics	
<b>Sector</b>	<i>Based on most prevalent sectors for SMEs as reported in Proff (including telecom, software development, IT consulting, shipping and fishery, aquaculture, industry/chemicals, management consulting)</i>
<b>Age</b>	<i>Date of establishment (before 1900, 1900–1949, 1950–1979, 1980–1999, 2000–2009, 2010–2017)</i>
<b>Governance mode</b>	<i>Internal, separate business unit/subsidiary, via venture capital fund</i>
CA position in the financial landscape	
<b>Investment phase</b>	<i>1 (startup/seed) to 4 (late)</i>
<b>Investing with venture capital fund</b>	<i>1 (not important) to 5 (very important)</i>
CA motive	
<b>Motives to invest</b>	<i>1 (not important) to 3 (very important): Financial return, scan new technologies, better use of existing assets, to invest in disruptive technologies that can cannibalize own firm, identify acquisition candidates, develop new skills, because it is fun, create an entrepreneurial spirit, motivate employees</i>
CAs' investment strategies	
<b>Number of investments</b>	<i>Made in the last 10 years, ranging from 1 (1 investment) – 6 (6 or more)</i>
<b>Geographical proximity preference</b>	<i>1 (not important) to 5 (very important): Local (same area/region) and domestic</i>
<b>Relationship (complementarity) with industry and technology</b>	<i>1 (not important) to 5 (very important): Knowledge, product, technological, industry</i>
<b>Strategic link (part of wider corporate strategy)</b>	<i>1 (strongly disagree) to 5 (strongly agree)</i>
CA investment behaviour	
<b>Deal origin</b>	<i>Dichotomous yes/no: Professional network, approached by startups, personal network, market search, via other investors.</i>
CA post-investment behaviour	
<b>Preferred ownership amount</b>	<i>1 (no preference) to 5 (50% or more)</i>
<b>Board representation</b>	<i>Dichotomous yes/no: Board or observer seat</i>
<b>Involvement level (frequency of interaction)</b>	<i>1 (daily) to 7 (less than quarterly)</i>
<b>Non-financial contributions</b>	<i>1 (strongly disagree) to 5 (agree): Multi-item constructs strategy and organization, product and technology, legitimacy, market, finance and accounting, see Table A-1 in appendix for component loadings for constructs</i>
<b>Investment horizon</b>	<i>1 (less than 2 years) to 4 (as long as necessary)</i>

#### 4. Corporate angels in Norway

##### 4.1. Demographic characteristics of CAs

The CAs in the survey consist of 87 small firms based in Norway. The sample includes small firms active in IT (60.9%), manufacturing (13.8%), aquaculture (12.6%) and various other industries (12.6%). Furthermore, it includes micro firms with 1–9 employees (33.3%) and firms with 11–99 employees (66.7%). They tend to organize the investment process and management of investees internally within the existing structure of the small firm (80.5%), whereas only 19.5% of the CAs organize their investments through a separate business unit or subsidiary – which is the way large corporates tend to organize their corporate venture capital (CVC) investments (Dushnitsky, 2012).

As the sample of CAs was taken from Norway, a description of the geographical context is warranted. Norway is a small, developed country, with a very open economy and strong regulatory institutions and the Norwegian industry profile predominantly consists of SMEs (Eide et al., 2020; Nisar et al., 2018). As an energy rich nation, Norway’s industrial foundations are mainly built around offshore oil and gas, but also around the maritime industry, aquaculture and hydropower (Steen and Weaver, 2017). In addition, Norway has an active venture capital ecosystem, including BAs, accelerators, CVC investors and independent venture capital (Hegeman and Sørheim, 2021), both locally based and operating from Europe or globally. Culturally, the ‘Norwegian Model’ (Lund and Steen, 2020), characterized by flat hierarchical structures, high levels of trust and highly autonomous skilled workers, defines the social and economic context in which the CAs in this study are embedded.

Conducting research in the Norwegian context means there is enormous availability of data due to Norway’s culture of transparency, both in how business is conducted and in reporting. The combination of these aspects provides a fruitful setting for developing knowledge on CAs, whilst the results are likely to be transferable to other highly industrialized, developed and open economies.

##### 4.2. The position of CAs in the financial landscape

CAs in Norway prefer to invest in the early stages of development – seed, start-up and early stages. In our study 70% of the CAs prefer the seed and start-up stages, whereas 28% prefer early-stage investments. The positioning of CAs in the financial landscape is further specified by one of the CAs we interviewed:

*So before us, there are not so many ... mainly angels. And then after us there are a bunch of investors, anything from industrial, strategic players to the venture capital firms.*

The qualitative interviews reveal that co-investments take place frequently, particularly together with BAs, but also incubators, accelerators, other CAs and government funds targeting early stage firms, whilst co-investing with venture capital funds is less favoured (only important to 3.4% of respondents).

Furthermore, from the interviews it became clear that by investing in the early stages CAs can have a ‘place at the table’ with relatively limited capital investment capacity and they truly want to be a part of the early stage process of the firms in which they invest. One of our CAs expressed it as follows:

*We really want to get in very early and be there to help shape the business.*

Thus, in the financial escalator model (Mason, 2018; Cumming et al., 2019) (see Fig. 1) CAs are mainly positioned together with other seed and start-up investors, where CAs may invest at a similar stage and even co-invest with other equity capital investors such as BAs and accelerators.

##### 4.3. Why CAs invest

We define CAs as small businesses making equity capital investments in unquoted ventures in which they become minority shareholders. The size of the firms – or smallness of the firms – and the crucial role played by the key individuals in them, will have a significant influence on their CA investments. As can be seen in Table 3, in addition to financial returns, the major driving force behind making investments is related to the organizational development of the CA firm. Obtaining new skills, motivating employees and creating an entrepreneurial spirit are amongst the most important motives for making their investment. Another important motive is ‘investing for fun’ – a motive that can be interpreted in different ways, either as an individual idiosyncratic motive, in line with the individual nature of BA investing, or as an organizational issue to make the firm an interesting and dynamic workplace with a positive working climate, which in the long run will render the firm more attractive.

In contrast, technological considerations, such as ‘the risk of technologies that can cannibalize the firm’, ‘scan new technologies’ and ‘better use of existing resources’ play a less important role as a driving force for CA-investments. These results are in contrast to our knowledge of CVC investments (Dushnitsky and Yu, 2022; Jeon and Maula, 2022), where strategic concerns and technological innovations tend to play a significant role in the reason for making CVC investments. It is also noteworthy that CAs do not only make their investments for the organizational development of their own firm – a financial return is also of significant importance. Thus, it seems as if CA investors have partly distinct driving forces for making their investments compared to investors such as BA (Van Osnabrugge, 2000; Harrison and Mason, 2017) and CVC investors (Maula et al., 2005; Chesbrough, 2002). In particular, CAs show a stronger focus on the organizational considerations of their own firm.

These results are confirmed when asking the CAs about the importance of relating their CA investments to ‘knowledge’, ‘product’, ‘technology’ and/or ‘industry’. The results show that it seems more important for CAs that the investee’s business complements the knowledge of the CA firm (stated by 66.7% of the CAs), whereas other aspects of product, technology and industry relatedness are of less importance.

To provide a more nuanced picture of the investment motives and goals of CAs we will present some of the responses from our interviews. The interviews confirm the results of the quantitative study (Table 3) and emphasize how the motives of CAs are more linked to organizational development in terms new skills, motivating employees, creating an entrepreneurial spirit in the firm and to fun, thus highlighting the importance of the individual behind the investment. Motives are less linked to the firm’s technology, market development and strategic

**Table 3**  
Motives for investing (No. = 87).

	No.	%
New skills	57	65.5
Financial returns	54	62.1
Fun	52	59.8
Motivate employees	50	57.5
Scan new technologies	42	48.8
Create an entrepreneurial spirit	52	48.3
Better use of existing assets	31	35.6
Avoid disruptive technologies that can cannibalize own firm	26	29.9
Acquisition candidates	9	10.3
Relationship with industry and technology		
Knowledge complementarity		66.7%
Product complementarity		64.4%
Technological relatedness		58.6%
Industry relatedness		49.4%

considerations:

*The reason why we have invested time and resources in these kind of investments is because it's fun ... and we learn a lot. Hopefully, the investments will be successful.*

*Such things are important for the employees and also for when we're hiring new people - that we're working with startups, that we're working with on-the-edge technology.*

*I think a direct result is to increase the competence of our employees ... to learn about the company and the industry they're in, but you also learn about building businesses.*

However, the interviews also highlight how CA investments are not only made for organizational reasons. Financial considerations are part of the decision-making:

*Investing in start-ups is important for us because it provides value beyond the financial returns. But, having said that, we don't make an investment if we don't think we can make money out of it.*

*Financial return is subordinated but relevant because we are commercially oriented and we try to get some return on the investments, but we're quite relaxed on that matter. We know there's quite a high risk involved in these type of investments.*

For some CAs, indicating a level of heterogeneity, the motives are aligned with those established in CVC investing (Dushnitsky and Yu, 2022; Wang et al., 2021), whereby the investment should complement the CA business in terms of knowledge, but at the same time, add something to the development of the CA's products and services. For example, one of our interviewees illustrated the balance between complementarity and newness in the following way:

*The reason why we invested in Firm A is that it's a new and interesting technology, but also because we see that we can put this technology on top of another of our products.*

#### 4.4. CAs' investment strategies

Elaborating on CAs' investment activity in terms of the number of investments and amounts of capital invested, due to the smallness of the firms they tend to have less financial slack, i.e., unused and uncommitted financial resources. This may limit their ability to invest in young and entrepreneurial ventures and thereby lead to them making relatively few investments over time. This is indeed confirmed in our study (see Table 4). The results reveal that CAs tend to make a very limited number of investments – more than two thirds of the CAs have only made three or less investments over a ten-year period. However, we can also identify a small group of CAs (16.1%) that seem to be rather active investors having made six or more investments over ten years. Thus, similar to the investment motivations above, we again find a certain level of heterogeneity as CA investors have different levels of investment capacity.

In terms of investment activities, CAs seem to exhibit rather similar behaviour to BAs. Studies (e.g., Avdeitchikova, 2008) have shown that the vast majority of BAs make relatively few investments, while the group of BA investors in general exhibits great heterogeneity. Especially

**Table 4**  
CA investment strategies.

Number of investments in the past 10 years	1 investment	33.3%
	2-3 investments	35.6%
	4-5 investments	14.9%
	6 and more investments	16.1%
Geographic proximity of the investments	Local investments important	31.4%
	National investments (Norwegian) important	34.4%

in more advanced markets, such as the US and UK, we can for instance identify super-angels (Landström, 2023) and more formalized actors organized around BA groups (Harrison and Mason, 2019). In these BA groups the members can pool their financial resources, enabling a higher level of investment capacity with more and larger investments than solo-BAs.

One of our interviewees – a CA that has been active for about 30 years and tends to regularly manage 1–2 investments at a time, made the following statement:

*... it takes a lot of resources. We're too small to have a lot of investments going on at the same time.*

Finally, our results (see Table 4) on geographical preferences reveal how CAs are willing to make long-distance investments – only one-third (31.4%) of the CAs expressed a desire to make their investments locally. From our knowledge about other equity capital investors, we know that CVCs tend to avoid short-distance investments (Belderbos et al., 2018; Ma, 2020). This is explained by the fact that established companies can easily receive innovation knowledge from start-ups in the same region through local innovation spillover, decreasing the marginal benefits of making short-distance investments. However, it is questionable to what extent the same reasoning can be applied to CAs, as we have established how CAs invest more for organizational development and financial return, and less for innovation knowledge.

Interestingly, our results are in line with Cowling et al. (2021), who found that BAs also invest at a distance, especially outside dynamic economic hubs, thereby challenging the 'local bias thesis'. This thesis is based on BAs being assumed to have a strong preference for investing close to home due to informational and agency issues. Our results thereby indicate that CAs possess a particular industry knowledge that makes long distance investments feasible (which Tsai and Ghosal, 1998, define as 'cognitive proximity'), as well as a strong industry network and involvement that goes beyond the local contact networks (so-called 'social proximity' according to Sørheim, 2003). In addition, in the new financial landscape, new financial actors such as crowdfunding platforms have changed the perception of long-distance investments (Salomon, 2019), indicating that as investments in start-ups will be more geographically dispersed, CA long-distance investments are not a rare phenomenon.

#### 4.5. CAs' pre-investment behaviour

There are several models that describe and explain the investment behaviour of equity capital providers (Wright and Robbie, 1998; Landström, 2023), but it is difficult to find consensus on the characteristics of the investment process – the stages are blurred, overlapping and iterative. However, it seems reasonable to divide the investment process into pre- and post-investment stages. The pre-investment stage of equity investments includes a search for and first impression of potential investment proposals, an evaluation of those projects assessed as interesting and a negotiation and contracting phase in which an agreement between the entrepreneur and capital provider is reached.

As in the case with other equity providers, the characteristics of CAs will leave their mark on the nature of the pre-investment process. For example, the pre-investment process is strongly connected to the investor's capacity, but CAs will seldom be able to devote much time to the search for and assessment of new investment opportunities. Our study shows that few CA investors (14.0%) make an actively search for investment opportunities. The large majority (77.0%) of the CAs obtain information about new investment opportunities from their professional network, while in 23.0% of the cases CAs receive information from their personal network. A total of 50.6% of CAs stated that they are approached by the start-up firms. In this respect, the pre-investment process of CAs reveals similar characteristics to that of BAs (Wetzel, 1983; Paul et al., 2007) – using their formal and informal networks to recognize investment opportunities, resulting in an informal and fairly

quick decision process.

Our interviews with the CAs contributed further details to the results of the quantitative study. It reveals how the investment process is rather flexible and appears to be fairly fast and informal, which is also in line with BA characteristics (Paul et al., 2007). Interestingly, the relatively small size of the CAs' organization enables an inclusive decision making process whereby all employees can be involved. One of the CAs described the investment process as follows:

*First, the entrepreneur meets us and we have a couple of chats with him or her. We make an evaluation, do some research and a quick due diligence to see if this is promising. And if so, we take it to a management meeting. If the management team is positive, we have an 'investment committee' including all employees in the firm that takes the final decision.*

Another CA described their investment process as follows:

*We're not that structured – we don't have any structured method to follow. The most important issue for us is the people behind the idea and the firm ... We do not always make a thorough analysis – sometimes the investment is just obvious.*

#### 4.6. CAs' post-investment behaviour

At the post-investment stage, including managing and harvesting the investment, equity capital providers will provide financial capital as well as monitoring the investment and rendering different kinds of value-adding contributions to the ventures in which they invest.

With regard to the post-investment behaviour, our study shows that CAs tend to prefer a relatively large minority ownership stake in the firms in which they invest. A large proportion of CAs, 42.5%, want an ownership of 25% or more (Table 5). It is also worth noting that many CAs are rather flexible in their view on ownership, stating that they have no preferences with regard to their ownership share. The relatively large ownership share is reflected in the seats on the boards – in 82.8% of the cases the CA takes a seat on the board of the investee firm.

The CAs' relationship to their investee firms can be characterized as very active (Table 5) and in nearly 6 out of 10 cases (57.4%) CAs have contact at least once a week, while in 2 out of 10 cases, they even interact daily. The CAs provide more than capital to the firms in which they invest. In their own opinion, they can essentially supply value-added contributions pertaining to 'product and technology' issues and

**Table 5**  
CAs' post-investment behaviours.

Ownership	Prefer ≥25% ownership shares	42.5%
	Prefer <25% ownership shares	31.0%
	No preferences	26.4%
Board representation	Board seat	82.8%
	No board seat	15.0%
	Observer seat on board	2.2%
Level of involvement (frequency of interaction)	Daily	19.5%
	At least once a week	37.9%
	At least twice per month	29.8%
	Quarterly or less	12.6%
Non-financial value-added	Product and technology	M = 3.71
	Strategy and organization	M = 3.45
	Legitimacy	M = 3.31
	Market issues	M = 3.20
	Finance and accounting	M = 2.90
	Investment horizon	As long as necessary
	Prefer max 5 years	34.5%
	Prefer max 10 years	5.8%

to some extent 'strategy and organization' issues, as well as providing some legitimacy to the firms in which they invest. Thus, when comparing the motives for making CA investments (see Section 4.3) – which were highly focused on organizational development (e.g., new skills, motivating employees and creating an entrepreneurial spirit in the firm) – the CAs' strongest contribution to their investee companies is product and technological knowledge.

Our results are reflected in the interviews. For example, the active and flexible involvement in the investee business was mentioned in several interviews:

*We work with the venture every day, helping them, and we also learn a lot from them.*

However, the active and close relationship is not only a result of active involvement, but also related to the fact that some CAs share office and production space with investee ventures.

*We have dedicated space for the investee venture in our office and of course, we become a lot closer because of the proximity.*

The CAs tend not to focus on exit, with 59.7% remaining for as long as necessary. This aligns with the finding that CA investing is not dominated by creating financial results, which would lead to a stronger focus on an early exit. The long-term stance and flexibility are reflected in the interviews:

*We have a long-term view on everything we do ... we're not like a PE firm in that we have to exit after a few years.*

*It really depends [when we exit] and that's why we haven't any kind of clear exit strategy when we invest. Often we see that the directions are changing, so sometimes we see that it is good to have different owners and then we start the exit process.*

However, the interviews also reveal that there are limitations on CA's abilities to maintain their investments. Due to the size of the firm they become less capable of continuing to add value as the investee venture grows.

*When the venture scales-up it becomes a capacity issue, and it often requires more people to be involved.*

All in all, CAs, as established albeit small firms, leverage their assets to actively support the start-up in an early phase. If we link our findings to the knowledge we have on the value-adding of CVCs, we can conclude that established companies usually have impressive knowledge, and particularly when there is a technological fit between the company and the startup, the value-added from the CVCs can be of great significance for the development of the start-up (Wang et al., 2021; Benkraiem et al., 2022). Studies show how CVCs can support start-ups in developing their technology and on market activities (Maula, 2007), thus strengthening the start-up's innovative capacity and increasing the innovative output (Dushnitsky and Yu, 2022), helping start-ups to internationalize (Park and LiPuma, 2020) and bringing legitimacy to the new venture (De Lange and Valliere, 2020). Having said this, we must be aware that compared to CVCs, small firms making CA investments will have relatively limited financial resources as well as limited business knowledge and network, restricting their ability to provide support to the firms in which they invest (Parida and Örtqvist, 2015), especially as the start-up grows and matures. Finally, studies have shown that CVC investments do not always create positive effects for their investees. For example, it has been argued that a lack of internal collaboration within the established company may hamper the value added activities (Pahnke et al., 2015; Bugl et al., 2022). Similar concerns may be less pronounced when CAs invest due to the smallness of the firm, allowing for instance all relevant employees to be involved in the process.

**Table 6**  
Comparison of BAs, CAs and CVCs.

	BA	CA	CVC
Investors	Wealthy individuals investing their own money	Small firms with limited resources investing firm funds	Large corporations with extensive resources investing corporate funds
Type of investments	Seed-stage and start-ups	Seed-stage and start-ups	All stages
Geographic proximity	Close proximity preferred	Proximity less important	Proximity less important
Investment process	Quick and informal	Quick and informal	Formalized
Investment motives	Idiosyncratic personal motives and development	Idiosyncratic, development of own organization	Strategic, technological and financial
Decision criteria	Idiosyncratic, varies significantly	Complementarities and newness. Idiosyncratic	Strategic and technological fit, financial potential
Monitoring and value-added	Informal control Low to extremely high involvement Roles: strategy, sounding board, personal networks Hands-on role	Informal control Extremely high involvement Roles: technology, strategy and organization Operative role	Corporate control Low to moderate involvement Informal or board Roles: technology and strategy
Exit	Unplanned Trade sale	Unplanned Acquisition	Acquisition/trade sale/IPO
Advantages	Willing to take high risks Small amounts of equity available Often hands-on expertise	Industry/technical knowledge available – accelerated technical development Small amounts of capital available and access to corporate resources (e.g., office space) Hands-on support and possible learning achievements	Technological knowledge and access to market organization – accelerated technical development and market entry Large amounts of capital available Increased credibility and enhanced attractiveness to other investors
Disadvantages	Risk of ownership dilution Goals and expertise are not always productive Exit could be unplanned	Resources are dependent on the CA firms' situation and financial position at different times. Risk of misfit between CA and investee company – a 'burden' for the CA firm Exit is unclear	Risk of 'cannibalization' – the large corporation appropriating the technology of the start-up Investment will require detailed information and may take time Hard for start-up to connect with relevant persons/business units within large corporations

## 5. Discussion and implications

### 5.1. Concluding remarks and discussion

In this study we have elaborated on a group of investors that to a large extent have been ignored in the literature – CAs. In order to make use of the potential of the investment activity carried out by this group of investors – both for the investor and the investee – it is important to gain an understanding of the investment behaviour of CAs. Accordingly, the first aim of the study is to describe CAs as an investor group and to position this investor type in the financial landscape.

#### 5.1.1. CAs in the financial landscape

In the financial escalator model (Mason, 2018; Cumming et al., 2019) CAs are mainly positioned together with other seed and start-up investors. Our findings reveal how the characteristics of CAs resemble those of both BAs and CVCs (see Table 6). Similar to BAs, CAs invest in the earliest stages of the startup process, while CAs resemble CVCs as they both invest corporate funds. Overall, CAs' investment preferences indicate a level of flexibility and a relatively high risk tolerance. The search for investment opportunities and the investment process indicate a less purposive mode of sourcing external knowledge than is the case with CVCs. Exits are unplanned, whilst management of investees is active and informal. CAs exhibit an intense interaction with their investees, often showing an operational commitment. In terms of the type of value added contributions that start-ups can expect to receive from a CA, these are mainly related to the development of their technology, but also of their strategy and organization.

We can conclude that due to CAs' knowledge and experience of technology and industry, combined with their active involvement in the start-ups in which they invest, they can be perceived as an important and potentially valuable source of seed and start-up financing for technology-based start-ups. Even though CAs are small firms with limited resources, the smallness of the firm can be perceived as an advantage – making the investment process quick, informal, whilst involving the entire staff in the process. However, having said that, our results reveal a 'liability of smallness' in their investment activities – as

small firms tend to have limited amounts of capital available for their investments and lack investment experience. Thus, they make a limited number of investments and their investment process becomes rather reactive.

#### 5.1.2. CA investing as an instrument to create an innovative climate in the firm

Our study reveals how CAs aim to add value to the start-ups they invest in, but we find that CAs also invest to create knowledge inflows to develop their own firms. The argumentation about knowledge inflows and outflows for the purpose of development and innovation of small firms is increasingly being discussed in open innovation literature (Brunswick and Vanhaverbeke, 2015; Barrett et al., 2021; Marzi et al., 2023). While several studies have focused on the type of partner that small firms choose for their open innovation activities (e.g., Brunswick and Van de Vrande, 2014; Lee et al., 2010; Hutton et al., 2021), only few studies mention start-ups as a partner to innovate with (e.g., Van de Vrande et al., 2009). Our findings can thereby be linked to Van de Vrande et al. (2009), who do find that small firms that make investments in start-ups may serve as an open innovation tool allowing for both 'outflow' and 'inflow' of knowledge, the latter enhancing the technological, organizational and market development of the small firm making CA investments. Indeed, we find that CAs tend to invest for a diverse mix of reasons. There is a strong individual engagement – the CA needs to perceive the investment proposal as interesting and exciting – and financial return is also a key driver behind making investments, but most striking is the type of development and innovation that is sought by CAs when investing in start-ups. In this respect, our study shows that the CAs' motives are not primarily based on technological considerations, instead we find that CAs invest based on organizational considerations. Investing in start-ups allows them to promote cultural changes and to develop their entrepreneurial capabilities. For example, through their CA investments they can recruit talent, due to being perceived as a dynamic and growth oriented company. Also, employees of small firms are directly exposed to the intricacies of building a new business, which may be helpful in navigating their own innovation efforts. Due to the small size of the firms the investments will have a wide exposure in the entire



organization and thus a large potential impact on many, if not all employees, and may be a useful tool in the open innovation efforts of small firms.

On the other hand, studies on CVCs have shown that their CVC investments do not always create positive effects in their own company (Katila et al., 2008; Pahnke et al., 2015; Bugl et al., 2022). Emotions and even envy within the CVC organization resulting from and influenced by the interaction with the investee venture might affect its outcomes (Biniari, 2012). Similarly, small firms are known to be faced with different obstacles and risks when interacting with different types of external partners for innovation (Livieratos et al., 2022), stemming from, among other things, cross-company collaboration challenges, financial constraints, lack of internal commitment and lack of specialized staff (Farjam et al., 2023). Although our study did not reveal such negative connotations for small firms interacting with start-ups, it is conceivable that such negative consequences apply to CA investing.

## 5.2. Future research agenda

Our study reveals that CAs are distinct actors in the new financial landscape, but a financial actor that we lack knowledge. Thus, we need to learn more about the phenomenon, which leads to the second aim of our study: opening-up for relevant future research avenues on CAs.

The focus of future research on CAs needs to be related to our current knowledge of the topic (Edmondson and Mcmanus, 2007). In this stage of knowledge accumulation, we can argue that there is a strong need for extensive empirical research on CAs. As argued by Eisenhardt (1989) and Goshal (2006), without a deep empirical knowledge of the phenomenon it would be difficult to develop valid and sophisticated concepts and theories on the topic in the future. Historical evidence from research on BAs and crowdfunding validates such reasoning. It took decades of nuanced descriptions of the phenomenon before research could focus on conceptual and theoretical development (Landström and Mason, 2016; Landström et al., 2019). Thus, we argue for the need to develop deep empirical knowledge on CAs in order to gain a better understanding of the incidence, investment process, role in the entrepreneurial ecosystem and their impact on the development of technology-based start-ups.

### 5.2.1. Scope and importance of CA investments

We need to know more about the significance of CA investments, asking questions such as.

- How should the significance and importance of CA investments be measured, i.e., what measures should be used and what information sources are needed?
- How large is the CA investment market and how significant is it compared to other equity capital investments?
- What types of small firms make up the CA market? We have focused on technology-based firms in this study, but it may be that non-tech firms are also active CAs.

### 5.2.2. CAs as part of the new financial landscape

Over the years, we have seen a lot of new actors on the financial market for new and technology-based start-ups and observed that to a large extent ventures tend to bundle their financial sources (Mason, 2018), which gives rise to a number of research questions.

- What is the role of CA within the financial landscape for new and technology-based ventures?
- What is the attitude of other investors to invest alongside or as follow-up investors in CA-backed ventures?
- Seen from the perspective of the investee ventures; are they aware of the CA as potential equity capital investors in their business and what are their attitudes and actual experiences with CAs?

- One of our observations in the study was the variation of the CA market – for instance CAs having various investment motivations and a different investment pace. Thus, we can expect to find different kinds of CA investors and we need an understanding of the heterogeneity of the market. Additionally, in BA research we have seen how BAs can develop over time. For example, in more mature markets, such as the US and the UK, we have seen BAs acting more like an early stage venture fund, similar to super-angels and angel groups (Landström, 2023). Correspondingly, there is a need to understand how CAs develop over time. Thus, the variation and development in CA behaviour must be taken into consideration in future research.

### 5.2.3. The attitudes and behaviour associated with CA investments

Understanding the process of CA investing from the pre-investment to the post-investment stages is crucial and a number of intriguing research questions arise, for example.

- What are the driving forces for small firms to make CA investments? What are the factors influencing their investment decisions, such as information asymmetry, agency issues, etc? What is the more nuanced understanding of the CA pre-investment process?
- Correspondingly, seen from the perspective of the investee venture; what is their attitude to raising capital from CAs and what are the characteristics of their decision-process?
- Another finding in our study relates to the inflow and outflow of knowledge in a CA investment and obviously this is something that merits further research. Put in an open innovation context, it becomes important to explore the effects of the knowledge transfer between the CA firm and the investee company – particularly taking into account the organizational development and cultural enhancement of the CA firm. This will be interesting, as cultural and cognitive differences between partners have previously been described as a *risk* for open innovation activities (Du et al., 2014).
- The above questions focuses on CAs' post-investment process and we need answers to questions such as: What are the characteristics of the CAs' value-adding and monitoring process? What contributions can a CA investor actually make in a new and technology-based venture? What characterizes the relationship between CAs and the investee venture and how does it develop? What is the 'dark side' of a CA investment, i.e., the negative emotions in both the CA firm and the investee venture, what conflicts arise and how are they resolved, etc.?

### 5.2.4. Exit and outcomes of CA investments

We need more knowledge on the exit mechanisms and the actual outcome of the CA investments, both for the investing firm and for the investee, leading to questions such as.

- When and to what extent is CA investing perceived as success or failure for the CAs and/or the investee venture respectively?
- What are the outcomes for small firms investing and what are the main obstacles and risks experienced by CAs?
- Under what conditions can success be created and what are the causes of failure?

## 5.3. Implications

We can conclude that CAs are an actor in the financial landscape providing early stage finance to new and innovative businesses – they have valuable knowledge and experience of technology and industry that could be of significant importance to technology-based firms in the early phases of their development. In addition, CAs tend to be active and engaged investors in the businesses in which they invest. However, there seems to be untapped potential in the CA market as the already active CAs make few investments. As a consequence, there could be a potential to increase the number of CA investments in the economy – introducing

different policy measures to stimulate the CA market.

Having said that, our knowledge about CAs is still in its infancy (see Section 5.2) and without a deeper understanding of the phenomenon, it becomes difficult to make adequate policy recommendations (Landström and Sørheim, 2019). However, in line with the reasoning by Harrison (2022) we propose that different types of investors should be targeted based on their investment orientation in the first place. CAs should have access to existing measures that stimulate local, national and cross border initiatives. However, the actors in the different ecosystems must become aware of CAs as potential contributors. This will also make it easier for potential CAs to become a part of existing entrepreneurial ecosystems. In addition, ecosystem actors could learn from the mobilization of different types of BAs and BA groups. They can experiment with various types of mobilization of CAs, either as a separate group or alongside BAs and BA networks.

## Endnote

1. We have defined CAs as small firms with 100 or less employees. The main reason for this is related to keeping a coherent sample of CAs in this pioneering study. However, future studies should consider including medium-sized businesses (101–250 employees) to show an even more complete overview of different types of CAs.

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## CRedit authorship contribution statement

**Puck D. Hegeman:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Roger Sørheim:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Hans Landström:** Conceptualization, Data curation, Investigation, Writing – original draft, Writing – review & editing. **Erik Andreas Saether:** Data curation, Formal analysis, Investigation, Methodology, Writing – original draft.

## Data availability

The data that has been used is confidential.

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