

Ratio Working Paper No. 248

THE ECONOMIC SIGNIFICANCE OF BUSINESS ANGELS – TOWARDS COMPARABLE INDICATORS

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3.1 The role of business angels in the economy – the potential for impact

The importance of access to early-stage finance for fostering high-growth innovative entrepreneurship has been widely acknowledged in the literature. Business angels are believed to be one of the most important sources of funding for such early-stage, high-risk, high-potential ventures. However, their contribution to firms and to the economy may well go beyond that. In principal, four types of contribution can be distinguished:

- 1) Increasing the supply of financial capital. In countries where evidence of the scope of business angel activity is available, the data indicates that business angels provide as much capital to firms as formal venture capital investors and finance a great many more ventures (e.g., Gaston, 1989; Mason and Harrison, 2000; Sohl, 2012). Thus, business angels contribute directly to increasing the flow of finance to firms. Furthermore, not just the *quantity* of finance provided by business angels is important, but also the *type* of finance. By primarily providing small amounts of finance in the early stages of a firm's development, business angels play a unique role in the SME finance landscape.
- 2) Contributing to a venture's ability to attract more financing. As business angels mainly invest equity capital, their investments contribute to strengthening the firm's balance sheet, in contrast to loan financing that weakens a company's finances. Business angel investment can also send positive signals to other investors and the market (provided that the firm succeeds in attracting the 'right' business angel), reducing some of the informational asymmetry and leading to lower perceived risk for other financiers (e.g., Elitzur and Gaviols, 2003; Conti, Thursby and Rothaermel, 2011). This may in turn

imply a larger pool of financing opportunities for these firms, better valuations (in cases of equity) and more favorable interest rates (in cases of loans).

- 3) Increasing the “quality” of firms through value-adding activities. Business angel investment is often associated with the active involvement of the investor, which can take the form of advising, coaching, providing access to the investor’s network, etc. It can also be assumed that business angels add value faster and in a more flexible manner than many other investors such as venture capitalists and banks. Thus, firms that receive business angel funding potentially gain access to non-financial value, which can result in better prospects for development and growth (e.g., increased productivity, profitability, and level of innovation) compared to firms that use more traditional sources of funding.
- 4) Strengthening the entrepreneurial eco-system. Scholars have started to draw attention to business angels’ role in entrepreneurial eco-systems (Zacharakis, Shepherd and Coombs, 2003). As they are often active or former entrepreneurs themselves, many business angels are well-networked in their local communities. Therefore, when a business angel acts by connecting firms to competence, intermediaries, etc., the entrepreneurial eco-system itself may benefit, which contributes to improved conditions for firm growth in the region. An eco-system with a high level of angel investing can also be perceived as more attractive for innovative start-ups, which can lead to increased start-up rates and growth of firms.

This brief overview illustrates that the contribution of business angels to funding entrepreneurial ventures can be discussed on different levels and that there are both input and effect dimensions to be considered. By the *input* dimension we mean the activities of business angels – what do business angels do? What is the nature of their contribution to the firms? How much do they invest and what do they invest in? By the *effect* dimension we mean – what are the outcomes of business angel financing? Does it have a positive impact on firms/regions/industries/countries?

In this chapter, we will focus on the *financial* contributions of business angels at the macro (market) level. Thus, we do not cover their non-financial contribution; these aspects can be found in Chapter 7 in which Politis focuses on business angels as smart investors and in

Chapter 8 where Collewaert discusses the business angel-entrepreneur relationship.

Furthermore, we do not cover the effect dimension, as our focus is on the extent of business angel investing and not on the outcomes that it creates.

Due to its importance, the business angel market has attracted considerable interest among policy-makers around the world in recent decades (Mason, 2009; OECD, 2011; also see Chapter 16 by Carpentier and Suret on tax incentives). However, most of the policy initiatives to support business angel investment have been taken without policy-makers having a strong empirical basis to guide their actions. Thus, there is a great need for policy-makers and politicians to be able to measure the scope and significance of the business angel market (Mason and Harrison, 2008). For example, it is important to monitor the changes in the number of business angels and their investments that could threaten the entrepreneurial “ecosystem”. It is also essential to determine the need for interventions to support the market. However, the invisibility of the market makes it difficult to obtain information about its size (see Chapter 2 for this discussion), which implies a risk of inappropriate policy interventions.

The research results so far have provided little guidance for policy-makers regarding the state of the business angel market and what (if any) policy response is required to support it. In this chapter, we take one step in the direction of “making sense” of the existing evidence. We will differentiate between the size and the significance of the business angel market. To date, most studies have focused on measuring the size of the market, i.e., estimating the extent of business angel investment activity. However, we will argue that we need to move beyond talking about the extent of business angel activity and increase our understanding of its significance, here defined as *relative (actual or potential) importance* for funding new and growing ventures. Discussing the significance of business angels in relative terms enables us to understand business angel financing in the context of the overall supply of and demand for venture financing in a country, make cross-national comparisons and draw more informed policy lessons.

In the present chapter, we start by reviewing current knowledge about the scope of business angel investing in different countries. We then change focus to the significance of business angel activities in their national contexts. We propose two sets of indicators of the significance of business angels from the supply and the demand side, as well as discussing their informational value, availability, and the required quality of data necessary to construct

such indicators. We use four countries (France, Norway, the UK and the USA) to demonstrate how the indicators can be calculated and what they reveal. However, our purpose is not to make any strong statements about the business angel markets in these specific countries; the examples provided are of an illustrative nature. Finally, we discuss how these findings can provide guidance for policy-makers.

3.2 Review of the scope of business angel activities

Business angel research is now more than three decades old. It has provided important insights into the functioning of business angel financing and our level of understanding of the phenomenon has gradually increased (Landström, 2007; Landström and Mason, 2012). Nevertheless, some researchers have pointed out that the field seems to have moved from providing no answers to presenting “a flora of answers” about the nature and activity of business angels (Shane, 2009). In particular, no clear picture has yet emerged of just how significant this source of funding is for financing entrepreneurship.

Why our knowledge of the significance of the business angel market has not progressed further is explained by three factors. First, as discussed in Chapter 2, accessing data on business angel investments has been a challenge in itself, as in most countries there are no official registers of business angel activity, and as a consequence, most studies have been cross-sectional and based on small non-representative samples. Second, a variety of definitions have been used by different scholars, which has inhibited the build-up of a consistent knowledge-base. Third, the results of different studies have rarely been put into a wider context of access to a finance system on a country level, or the regional entrepreneurial eco-system for that matter, making it difficult to understand and interpret the results. For a more comprehensive discussion about the definitions and methodologies in business angel research, see Chapter 2 by Mason and Harrison.

3.2.1 Early attempts to measure the scope of business angel activities

In his seminal work on business angels in 1983, William Wetzel Jr. noted that the population of business angels ‘is unknown and probably unknowable’ (Wetzel, 1983, p.26). More than 30 years later, Wetzel’s observation still holds, as it has been shown in many studies over the years that the extent of business angel investment activity is difficult to measure.

In one of the first attempts to measure the scope of the activities, Wetzel (1987) ‘played with existing numbers’, using a variety of fragmented data on high income families and the financing of business, concluding that (p. 305).

‘... if the average net worth of millionaires is between \$1 million and \$2 million, then, excluding borrowed funds, the total wealth controlled by the one million or more US millionaires is between \$1 trillion and \$2 trillion. If the average millionaire commits 10% of his or her net worth to venture investing, the total informal venture capital pool is between \$100 and \$200 billion. If only one-fourth of US millionaires have any interest in venture investing, the pool of informal venture capital controlled by these 250,000 individuals lies in the \$25 to \$50 billion range, about twice the capital managed by professional venture investors. ... it appear that each year over 100,000 individual investors finance between 20,000 and 50,000 firms for a dollar investment totaling \$5 billion and \$10 billion. The typical firm financed by angels raises about \$250,000 from three or more investors.’

Obviously, these are rough estimates, but the figures served a useful purpose at that time when there was a need to provide some numerical estimation of the scale of business angel markets in order to highlight the significance of the market for policy-makers and politicians. Since Wetzel’s seminal attempt to measure the scope of the market, many researchers have tried to generate estimates of the size of the business angel markets in various countries. The estimates of the size of the business angel market in some of these studies are presented in Table 3.1.

Table 3.1 Early estimates of business angel activity

Country	Estimated size of the BA market	Study
USA	Two million families holding investments of US\$300 billion in privately-held businesses.	Ou (1987)
	720,000 private investors making 490,000 investments totaling US\$32.7 billion in equity and US\$23 billion in debt finance to 87,000 companies.	Gaston (1989)
	250,000 business angels in the US who invested US\$10-US\$20 billion a year in over 30,000 companies.	Wetzel (1994)
	300,000 to 350,000 business angels investing about US\$30 billion a year in 50,000 companies.	Sohl (2003)
	In 2009, business angels invested US\$17.6 billion in 57,225 companies. Over the period 2002-2009, business angel investors invested on average US\$21 billion in approximately 50,000 companies annually.	Sohl (2012)

Country	Estimated size of the BA market	Study
United Kingdom	20,000 to 80,000 business angel investors investing £500 million to £2 billion.	Mason and Harrison (2000)
	In 2008/09 business angels in the UK invested about £426 million.	Mason and Harrison (2011)
Canada	Canadian business angels invested US\$200 to US\$400 million.	Short and Riding (1988)
	Business angels in eastern Canada invested US\$60-75 million annually.	Farrell (1998)
	During 2004, 15,800 business angels invested approximately CAN\$1.9 billion.	Riding (2008)
	In 2005 the Canadian business angel market was estimated at US\$3.5 billion.	Riding (2005)

The results presented in Table 3.1 reveal that the estimates of the business angel markets vary considerably between studies, making it obvious that robust estimates of the size of the business angel markets are lacking. Our knowledge has mainly been based on ad hoc studies using various definitions of business angels (or informal investors), and employing different sampling techniques (see discussion by Mason in Chapter 2). However, bearing these definitional and sampling concerns in mind, previous research has shown that in many countries business angels seem to be the single largest source of external capital, after family money, for firms in the early stages of development, and business angels do not only provide capital but also significant non-financial inputs, for example, mentoring, advice, networks, and other forms of added value (see Chapter 7 by Politis in this volume). Not least, it has been demonstrated that business angels invest more capital in a greater number of firms than formal venture capitalists, especially early stage firms.

3.2.2 Contemporary studies on the scope of business angel activities

The scope of business angel investing is likely to change over time and be affected by changes in market conditions. In the past two decades, the boom and bust of the IT-bubble in the late 1990s and early 2000s, the financial crisis of 2008/2009 and the subsequent credit crunch, as well as the development of a technological infrastructure that facilitates direct equity investments in unquoted businesses through different web platforms are all likely to have had a significant impact on business angels' investment activity. Thus, the data on business angel investment activity is not easily comparable over time. The market is fairly volatile, and even within a period of few years there can be considerable variations in the

level of angel activity, echoing changes in market liquidity, perceived market conditions and availability of other types of finance (Månsson and Landström, 2006; Mason and Harrison, 2015). In this respect, short-term fluctuations in angel investment activity can be greater than those of institutional investors, reflecting the inherent difference in the functioning of these sources of finance. While venture capitalists need to invest the fund's equity during the lifetime of the fund, business angels do not have such pressure, making it easy for them to hold off investing in "bad" times.

Furthermore, when making international comparisons, we need to be aware that countries can be influenced in different ways by global macroeconomic and societal trends. Equally, national context factors play an important role in the scope and functioning of the business angel market, such as the structure of national financial markets, tax systems, regulations affecting angel investment and technological advancement, as well as governmental policies aimed at promoting investment.

A couple of attempts have also been made in recent years (post 2008/2009 crisis) to measure the scope of business angel investment activity and we will focus on these contemporary estimates later in this chapter. We will summarize the estimates below and in the next section attempt to place them in their national context and develop comparable indicators of the significance of business angel finance.

Overview of contemporary studies

In their work on business angels' investment activity in *the United Kingdom* during the recent financial crisis, Mason and Harrison (2011) estimated that business angel activity in the UK amounted to £317.7 million annually in the period 2009/2010. The estimate is based on extrapolating from the "visible market", i.e., investors who are part of business angel networks/syndicates, based on a presumed degree of participation. The estimate relies on data provided by the British Business Angel Association and LINC Scotland, adjusted for undercounting and complemented by a questionnaire. For the period 2008/2009 they provided an estimate of £426 million. However, the latter may involve a certain degree of double-counting, thus it cannot be concluded that there was a decline (Mason and Harrison, 2015). The study does not apply a specific definition of business angels and instead relies on a self-defined population – investors who are members of BANs/LINC Scotland syndicates.

In *the US*, the Center of Venture Research at the University of New Hampshire conducts an annual study of the scale of business angel investment. The last available study estimated that in 2013, the scale of business angel investment in the USA was \$24.8 billion, representing investments in 70,730 companies. When compared with previous estimates, it appears that investment activity has grown steadily over recent years: \$22.9 billion was estimated to have been invested in 2012, \$22.5 billion in 2011, \$20.1 billion in 2010, and \$17.6 billion in 2009. Thus, the investment volumes seem to be steadily recovering towards the pre-crisis level (\$26 billion invested in 2007).¹ The estimates are made by extrapolating data from an annual survey of individuals known to be making business angel investments, both independently and as members of angel groups/networks. However, the exact definition used is not provided, nor the methodology for making the extrapolation.

The Center for Strategy and Evaluation Services (CSES, 2012) has estimated the volume of business angel investments in France at €157 million annually (2010 data). The estimate is based on extrapolation from investment data reported by 81 BANs in France representing more than 3,000 active angels, on the basis of a presumed degree of business angels' participation in BANs and adjusted for non-respondents. Like the studies mentioned above, this study does not apply a specific definition of business angels but relies on a self-defined population – investors who are members of BANs.

In 2010 MENON Business Economics conducted a study of business angel activity in *Norway* on behalf of the Ministry of Enterprise and Trade. The study, which was based on tax authority data from 2009, found that there were about 2,400 active business angels in Norway who held equity stakes in around 4,500 unquoted businesses. The study does not provide an estimate of the size of the market, but based on previous evidence of the average annual investment by business angels in Norway (Reitan and Sørheim, 2000), the market can be estimated at €295 million annually. The definitional alternatives are discussed in detail in the report and the definition chosen by the authors was “private investor who owns an equity stake of less than 50% in an unquoted company, who receives less than 800,000 NOK (about €100,000) per year in salary from that company, who has equity stakes in at least two firms

¹ <http://paulcollege.unh.edu/research/center-venture-research/cvr-analysis-reports>

worth at least 500,000 NOK (about €60,000), is on the board of at least one of these firms and is not an ordinary manager/CEO of these firms”².

Table 3.2 summarizes these estimates of business angel investment in France (2010), the UK (2010), the USA (2010) and Norway (2009)^{3 4}.

Table 3.2 Contemporary estimates of business angel activity

Country	Estimate of BA investment (amount)	Source
UK (2010 data)	£317.7 million	Mason and Harrison (2011)
USA (2010 data)	\$20.1 billion	CVR (2014)
France (2010 data)	€157 million	CSES (2012)
Norway (2009 data)	€295 million ⁵	Menon (2010)

3.2.3 Summary

So far, we have argued that in the last 30 years, the research field has progressed from providing no answers to presenting a plethora of answers about the scale of business angel investment. However, most of the studies remain methodologically weak, drawing upon self-selection samples, in addition to using unclear definitions and methodologies. While some advanced approaches to estimating the scope of the market have been successfully tested, e.g., using large surveys to a randomly select a sample of individuals in a country (Avdeitchikova, 2008a) or employing information contained in tax and firm register databases (Menon, 2011), they have not been widely adopted, probably due to high costs and data access problems.

² The sensitivity of estimates to the criteria used is also discussed. For instance, if the cut-off point for the value of the portfolio is raised from 500,000 to 1 million NOK, the estimate of the number of business angels would drop by over 50%.

³ The years 2009 and 2010 were chosen (instead of the most recent available estimate for each country) to increase comparability and ensure availability of secondary data for the construction of indicators.

⁴ In addition to this review, fairly detailed recent data on business angel investment is available in Canada, derived from a database of all incoming external financing at firm level. However, as this database only covers British Columbia, we chose not to present it here. For more information about the dataset, see <http://www.tinbergen.nl/wp-content/uploads/2013/11/Angels-and-Venture-Capitalists-Complements-or-Substitutes.pdf>

⁵ The study does not provide data on the amount invested, only the number of business angels. If we assume that the financial activity of an individual angel in Norway is on the same level as in the late 1990s, the average yearly amount invested by a business angel would be approx. €122,874 in 2009 monetary value (€100,000 according to Reitan and Sørheim, 2000 estimates, adjusted for approx. ten years of inflation, <https://www.ssb.no/en/kpi>), giving a total annual investment amount of €295 million.

With regard to suggestions for future research, we reiterate the recommendations of Avdeitchikova et al. (2008) and Mason and Harrison (2008), who called for increased use of registry-based data that would give us almost full coverage of the population, an opportunity to work with accurate definitions, and align data collection practices between countries. It also appears to be more accurate and fruitful to focus on the investments made by business angels (and thus work with investment-based data), as opposed to business angel investors as individuals (i.e., using individual related data), which has implications for the choice of data sources.

3.3 The significance of business angel investment

So far in this chapter we have discussed the scope of business angel investment by means of estimates of business angel investment activity. However, the significance of this financing source is a more complex but potentially more relevant concept. It goes beyond measuring the scope of the market and refers to the *relative* (actual or potential) importance of this source of finance for businesses.

Earlier studies based on relative measures of venture capital activity (institutional and informal) have mainly used a country's GDP, one of the common measures of the size of the economy, as the denominator (Avdeitchikova, 2008a, OECD 2013). While having some obvious strengths, e.g., simplicity, stability over time, good data access and comparability, such an indicator is inherently problematic as it does not reflect the structure of the economy, nor the size and composition of the SME sector that receives the financing. Thus, we argue, such indicators are not a particularly meaningful ground for cross-national comparisons or tool for policy-making. Moreover, given the problems in calculating gross regional product (GRP), it is likely that they provide even less opportunity for regional comparisons.

Instead, we suggest two alternative sets of indicators of the significance of business angel finance: one that focuses on the supply perspective (the relative importance of business angels as a source of finance to firms compared to other financing sources) and another that highlights the demand perspective (the extent to which business angel finance is available in relation to the structure of the SME sector). Below we discuss these indicators' strengths and weaknesses in terms of (1) information value and pose the questions: Does the indicator advance our understanding of the importance of business angels? Can the indicator potentially

serve as a basis for more informed policy-making? and (2) methodological issues, asking: Is the underlying data available, comparable and of sufficient quality?

3.3.1 Indicators of business angel significance from the supply perspective

As a first step, we look at the significance of business angels from the supply perspective. One possible way of determining the significance of business angels as financiers is by relating business angel investment volumes to the total supply of external equity in the early stages, thus addressing the question of how important business angels are as providers of external equity finance. Another possible way to increase our understanding of business angels' significance is by relating business angel finance to the total amount of external finance that flows to SMEs, i.e., addressing the question of their overall significance as providers of external finance.

In order to illustrate our argumentation, we bring together the data provided by the studies of the scope of business angel activity in the UK, France, the USA and Norway presented in subsection 3.2.2, as well as data on the scope of other external financial flows to SMEs (European Venture Capital Association [EVCA] and the National Venture Capital Association [NVCA] for data on venture capital investing, and OECD Financing SMEs and Entrepreneurs Scoreboard for loan financing). The following conclusions can be made:

- In *the UK*, out of £1.1 billion early stage external equity finance invested in 2010, £318 million, or 28.4%, was provided by business angels. Business angels' share of total external financing, including bank loans and government guaranteed loans, that went to SMEs in the UK that year was 0.28%.
- In *the USA*, out of \$27.9 billion early stage external equity finance that was invested in SMEs in 2010, \$20.1 billion, or 72.0%, was provided by business angels. Business angels' share of total external financing to SMEs in the USA that year was 2.57%. Thus, the significance of business angels as providers of external equity finance in 2010 was about 2.5 times larger in the USA than in the UK, while their overall significance as a supplier of finance to SMEs was about nine times larger in the USA compared to the UK.

- In *France*, out of €1.0 billion early stage external equity finance that was invested in 2010, €157 million, or 15.7%, was provided by business angels. Business angels' share of total external financing, including bank loans and government guaranteed loans, that went to SMEs in France that year was 0.09%. Compared to the USA, this would mean that in 2010 business angels in France were four to five times less significant as providers of external equity finance to firms, while their overall significance as a supplier of finance to SMEs was almost thirty times lower than in the USA. Measured in this way, business angel activity in France would also be almost two times less significant than that in the UK in terms of a source of external equity finance and about three times less significant as an overall source of external finance.

- In *Norway*, out of €429 million early stage external equity finance that was invested in SMEs in 2009, approximately €295 million, or 69.0%, was provided by business angels. Business angels' share of total external financing that went to Norwegian SMEs that year was 0.59%. This means that business angels as players on the external equity market for unquoted SMEs were considerably more important in Norway than in the UK during the same period, and relatively speaking almost as significant as they were in the USA. Nevertheless, if business angel activity is compared to the total flow of finance to these firms, the significance of business angels in Norway, while more than twice as high as in the UK and almost seven times higher than in France, was about four times lower than in the USA⁶.

Table 3.3 summarizes the data on external early stage equity/total external capital flow to SMEs (including bank loans) in the UK, USA, France and Norway, and presents both indicators per country, expressed as percentages.

Table 3.3 Business angel investments vs. external equity/capital flow to SMEs

⁶ The example of the USA and Norway is particularly interesting for illustrating that supply and demand side analysis can give a very different picture of the state of the business angel market. Having a traditionally bank-based financial system (Demirgüç-Kunt and Levine, 2001), Norway did not develop an active venture capital market. At the same time, the level of personal wealth is very high in Norway compared to the rest of the OECD countries, which may have triggered the formation of a relatively active business angel market. Thus, what we seem to be seeing here is business angels being a significant player in a moderately developed external equity finance market. This differs from the situation in the USA, where business angels appear to be important players in a well-developed and highly active external equity market (Gambacorta et al., 2014).

Country	Estimate of scope of BA investment (amount)	Total equity flow to SMEs (BA and VC) ⁷	BA's share of total equity flow to SMEs	Total capital flow to SMEs (incl. bank loans) ⁸	BA's share of total capital flow to SMEs
UK (2010 data)	£318 million	£1.1 billion	<u>28.4%</u>	£114.0 billion	<u>0.28%</u>
USA (2010 data)	\$20.1 billion	\$27.9 billion	<u>72.0%</u>	\$783.0 billion	<u>2.57%</u>
France (2010)	€157 million	€1.0 billion	<u>15.6%</u>	€173.9 billion	<u>0.09%</u>
Norway (2009 data)	€295 million	€429 million	<u>69.0%</u>	€50.4 billion ⁹	<u>0.59%</u>

Strengths and weaknesses of the indicators

In this section we have suggested two indicators of the significance of business angel investment from the supply perspective: (1) business angels' share of total early stage external equity investment in SMEs, and (2) business angels' share of total external financing that flows to SMEs. Below, we will discuss the strengths and weaknesses of these indicators.

Information value

The two indicators provide different and potentially valuable information about the state of the business angel market. The first demonstrates how well-positioned business angels are as a source of external equity funding, while the second highlights their overall significance for financing SMEs. If the first indicator has a relatively low value, the attention of policy makers should probably turn to understanding what hinders business angel investment, while if the second indicator has a relatively low value, the attention of policy makers should probably focus on understanding the barriers to external (unquoted) equity investment as a whole. There can also be combinations when one of the indicators is high and the other low, which would signal the area of the potential problem.

Nevertheless, both indicators should be interpreted with caution. Here, it is important to keep the relativity aspect of the measure in mind, because of the complementarity and substitutability of different capital sources. A high proportion of firms financed by business angels does not in itself indicate a well-functioning business angel market, nor does the opposite necessarily imply a poorly functioning market. The financing eco-system is complex,

⁷ The sum of VC in early stages according to EVCA and NVCA estimates and business angel investments according to the sources stated above. The data for comparison is derived for the same year as the observation data.

⁸ The sum of bank loans to SMEs (OECD, 2014), VC in early stages according to EVCA and NVCA estimates and business angel investments according to the sources stated above. The data for comparison is derived from the same year as the observation data.

⁹ Conversion rate as per 20091231: 1€= 8.33 NOK

as different sources of finance (loans, angel investments, venture capital investments, grants, customer credits, etc.) can be both complementary to each other and act as substitutes.

One possible scenario is that certain sources of financing grow increasingly important, primarily due to others being unavailable. An example is the business angel market in Scotland, where business angels organized themselves in syndicates and grew increasingly strong financially, to the extent that they can play in a niche normally occupied by venture capital firms, mainly due to the fact that Scotland does not have a functioning institutional venture capital market ('supplementary role', cf. Gregson et al., 2013). In the same way, some business angels found themselves increasing their investment activity during the last financial crisis, because their portfolio companies lost sales, were not paid by their customers and were unable to obtain bank loans. Thus, what might look like an increasingly well-functioning business angel market may in reality be a sign of a poorly -functioning bank sector and a depressed economy. We can also find more general signs of such a supplementary relationship. In countries that traditionally have bank-centered financial systems (Black and Gilson, 1998; Jeng and Wells, 2000) such as Germany and Austria, banks have been more important in financing new, high-risk ventures than in market-centered economies, where this role is played by external equity financiers to a larger degree. The role of banks, business angels, government agencies, etc., is also likely to differ between regions, depending on the relative availability of other financial sources.

Equally important is the 'complementary role' of different sources of finance, where business angel financing can trigger other forms of capital inflow. For instance, banks are more likely to lend to firms that have received an equity investment, while a condition of many government funding programs is co-financing from a private source. Thus, an active and well-functioning business angel market can contribute to a better overall financing system for SMEs, which in turn can lower the relative significance of business angels when measured in this way.

Finally, relating business angel financing to external equity or total capital provided to SMEs disregards the specificity of business angel financing, which most SMEs never attract or even consider. Thus, a more nuanced view of the demand-side would contribute to a better understanding of the significance of business angels. Therefore, in the next section we will discuss some suggestions for demand-side indicators.

Methodological issues

The availability of internationally comparable data has increased substantially over recent years. The National Venture Capital Association (NVCA) in the US and the European Venture Capital Association (EVCA) provide yearly data on venture capital investment and the OECD intends to collect data on a variety of financing sources on a yearly basis, gradually increasing the number of countries involved (now 32 countries). However, a great deal remains to be done in terms of streamlining methodologies and definitions, as well as increasing the quality of data.

Based on existing data, both indicators of the relative significance of business angel activity are likely to overestimate it. At present, the measure of the total external capital flows to SMEs does not incorporate government grants, tax subsidies, and types of state support other than loans, which means that the total pool of finance to SMEs is larger than that indicated by the data used here. Furthermore, the external equity measure does not include corporate venture capital and crowd-investing, which means that the total external equity flow is also larger than indicated by the figures presented here. Enhancing the quality of the data and incorporating other data sources will increase the quality of this set of indicators.

3.3.2 Indicators of business angel significance from the demand perspective

Addressing the significance of business angel funding from the demand perspective necessarily requires a discussion about who receives it and how significant this source of finance is for the recipients. In the literature, the “target group” for business angel funding is usually only vaguely described. Most studies indicate that business angels target young, innovative, often technology-based SMEs; however, there is no agreement about what companies fall under this definition. It may also be the case that the target population for business angel investment changes over time, as a result of general technological developments, the emergence of other financing mechanisms (public sector venture capital, crowdfunding, etc.) and the decreasing cost of starting a business, shifting the first round of financing for most firms towards the post-seed stage. While technology-based firms were considered to be the main attractor of business angel financing during the IT-boom of late 1990s, a significant share of start-ups in the mid-2010s has a technological component in their business model. For that reason, we did not investigate start-ups, nor did we attempt to

identify technology-based firms. Instead, we propose a set of demand-based indicators that relate business angel activity to (a) the total stock of small and middle-sized firms and (b) the stock of growth oriented early stage firms. While the former is a way of relating business angel investment to the total business activity, the latter provides a more nuanced view of potential users of business angel finance, and also, as demonstrated here, presents a somewhat unexpected picture of the financing situation in the countries that we have looked at.

To illustrate this, we brought together the estimates of business angel activity presented in sub-section 3.2.2 (Table 3.2) with the OECD Scoreboard data on the SME sector and GEM data on growth-oriented early stage entrepreneurship¹⁰, which yielded the following estimates:

- In *the UK*, with an SME stock of approximately 1.6 million (2010), total business angel investment in relation to the number of SMEs is £267.4 per year. If we instead relate the angel activity to the number of growth-oriented new ventures, the annual investment per firm would be approximately £411.
- In *the USA*, with an SME stock of approximately 5.0 million (2010), business angel investment divided by the number of firms is \$4,021.4, approximately ten¹¹ times larger than in the UK. Furthermore, if only growth-oriented new ventures are considered, the annual investment per firm is \$2,421, approximately four times higher than in the UK.
- In *France*, with an SME stock of approximately 2.5 million (2010), total business angel investment in relation to the number of SMEs is around €62.6 per year, approximately fifty times lower than in the USA and five times lower than in the UK. If we instead relate the angel activity to the number of growth-oriented new ventures, the annual investment per firm would be approximately €214, which is about one-eighth of the USA level and half of the UK level.
- In *Norway*, with an SME stock of approximately 142.4 thousand enterprises (2009), total business angel investment in relation to the number of SMEs is €2,071, which is

¹⁰ According to the Global Entrepreneurship Monitor, newly started firms or firms in the start-up process that intend to employ at least five people in the next five years (i.e., medium or high growth aspirations according to the GEM definition, Bosma et al., 2012).

¹¹ Exchange rate on 31 December 2010 \$1= £0.64

about 30% lower than in the USA¹². However, if only growth-oriented new ventures are considered, the annual investment per firm in Norway would be €3,829, almost twice as high as in the USA, nine times higher than in the UK and eighteen times higher than in France.

The results are presented in Table 3.4.

Table 3.4 Business angel investments in SMEs

Country	Estimate of scope of BA investment (amount)	Size of SME stock ¹³	BA investment per number of SMEs	Number of growth-oriented new ventures ¹⁴	BA investment per number of growth-oriented new ventures
UK (2010 data)	£318 million	1,188,025	<u>£267.4</u>	77,750	<u>£411</u>
USA (2010 data)	\$20.1 billion	4,998,243	<u>\$4 021.4</u>	8,302,310	<u>\$2,421</u>
France (2010 data)	€157 million	2,509,345	<u>€62.6</u>	733,284	<u>€214</u>
Norway (2009 data)	€295 million	142,442	<u>€2 071.0</u>	76,839	<u>€ 3,839</u>

It can be concluded that considerable differences seem to exist between the four countries in the way in which the SME sector is supplied by business angel finance. When business angel activity is calculated in this way, France lags behind the other three countries, both when it comes to relating angel activity to the total SME stock and to the group of growth-oriented new ventures. Norway seems to be best off, significantly outperforming the UK in terms of angel investment per number of SMEs and outperforming both the UK and the US with regard to the relative availability of business angel finance per number of growth-oriented new ventures¹⁵.

¹² Exchange rate on 31 December 2009 \$1= €0.70; on 31 December 2010 \$1=€0.75

¹³ OECD SME financing Scoreboard, 2010 data (UK, USA, France) and http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/countries-sheets/2010-2011/norway_en.pdf, 2009 data (Norway)

¹⁴ Calculated on the basis of the country's adult population (OECD Statistics) and Medium-High Job Expectation TEA (MHEA), averages 2009-2011 (Bosma et al., 2012).

¹⁵ It is important to consider the following factors when comparing Norway to the other countries. First, the general cost level is significantly higher in Norway than in the countries used for comparison (<https://stats.oecd.org/Index.aspx?DataSetCode=CPL>), which means that the (absolute) cost of creating and growing a firm is also likely to be higher. Second, Norway is by far the smallest country in this comparison, which means that the domestic market for goods and services is small and that expansion often requires internationalization, which is more expensive than domestic growth. Third, the Norwegian economy is dominated by traditional industries, such as oil, gas, forestry, and fishing, and the number of growth-oriented new ventures is low (Bosma et al., 2012). Thus, the lower demand for venture financing in Norway rather than better supply explains the difference between Norway and the US when it comes to the final indicator.

The results are in line with an earlier study by Avdeitchikova (2009) that explored the variations in the supply of business angel finance between different regions of Sweden and found that differences in demand had high explanatory power. Our results are also in line with the more general discussion that venture finance activity clusters around dynamic entrepreneurial systems, while the opposite is far less obvious.

Strengths and weaknesses of the indicators

In this section we have suggested two indicators of the significance of business angel activity from the demand perspective: (1) the amount of business angel investment in relation to the total stock of SMEs and (2) the amount of business angel investment in relation to the stock of growth-oriented early-stage firms. Their strengths and weaknesses are discussed below.

Information value

Depending on whether the focus of entrepreneurship policy in a country is on SMEs or on growth-oriented new ventures, both indicators are potentially of considerable relevance for policy-makers. Instead of looking at the supply of business angel finance, the indicators answer the question “Are the SMEs/growth-oriented start-ups disadvantaged in terms of access to business angel finance?” This provides concrete tools for determining whether there is a “problem” to be “fixed” and can be more easily translated into policy standpoints and action.

One weakness of the proposed indicators is that they are based on an assumption about who receives business angel funding. However, this can vary between (and within) countries, as well as over time, and we still have very little systematic knowledge about what companies business angels invest in. Thus, the potential relevance of the indicator is affected by the choice of “denominator”.

Another weakness is that these indicators assume that supply and demand can be separated in a meaningful way. However, the actual level of investment is better described as equilibrium, the quantities being determined by both the supply of and demand for different types of capital (cf. Robb and Robinson, 2012; see also the discussion under 3.3.1). In addition, this equilibrium may change over time, as greater availability of finance could contribute to increased entrepreneurial activity and especially ambitious entrepreneurship. Finally, it is important to note that these indicators do not measure the extent to which business angel

finance is actually *used* by SMEs/growth-oriented new ventures; they only reflect the amount of finance *available* to the firms. Naturally, there can be considerable differences between countries when it comes to which firms receive the finance, but understanding this would require a different type of analysis.

Methodological issues

Methodologically, one of the major strengths of the indicators is data availability. Data on the size of the SME sector is available for most OECD countries and is accessible through OECD Statistics. Data on growth-oriented new ventures is also easily accessible through GEM reports, which are collected annually and made available within less than a year (aggregated data).

A potential weakness of the data on growth-oriented new ventures is that an entrepreneur's growth aspiration is inherently subjective. It can also be assumed that systematic differences between countries influence this variable, for instance related to culture and societal norms, which would mean that the data is not entirely comparable between countries. However, this is a common weakness of self-reported data, rather than of this specific variable.

3.3.3 Summary

In this section we have argued that the significance of business angels as a source of finance is a more relevant concept than the volume of business angel investment. While there is no straightforward answer to how this significance can and should be measured, we propose two sets of indicators (demand and supply oriented) and discuss their informational value and challenges in terms of measurement and interpretation.

When relating business angel activity to the nature of the financial flows to enterprises on the one hand and the structure of the SME sector on the other, we find some significant differences between the countries included in the analysis. In particular, an unexpected finding was that Norway seems to be better off than the US when business angel investment is related to the number of new growth-oriented firms, while France lags considerably behind. From the supply perspective, the US seems to be far "superior" in terms of business angel activity to the other three countries in the comparison.

3.4 Conclusions: Towards comparable indicators and relevance for policy

In this chapter, we have briefly reviewed the studies of business angel activity in different countries and summarized recent estimates of the scope of business angel activity in countries where post 2008/2009-crisis estimates were available (USA, UK, France and Norway). We have also discussed the need for understanding the significance of business angel finance in a particular national context (rather than merely measuring the scope), and suggested two sets of indicators for measuring the significance of business angel activity. In this concluding section we summarize the findings and discuss how they can be of value for policy-makers. We also suggest some paths for further knowledge development.

3.4.1 From data to information – constructing meaningful indicators

In the early phases of knowledge development on business angels, research and policy analysis focused on exploratory studies of the phenomenon – how prevalent is the phenomenon and how does it function? However, the information value of such data for policy-makers remains low unless they have tools to understand it. Moreover, as the amount of empirical evidence grows, the plethora of evidence may become increasingly difficult to deal with, due to conflicting evidence, uncertainty about whether and how the data can be compared and overall confusion regarding what the data actually says. Nevertheless, most policy-making in the area of business angel financing has, at best, been based on fragmented data on business angel activity.

Indicators, as opposed to data, say something about the situation in a way that is relevant to the context of the phenomenon. In the present case, we have suggested measuring the relative significance of business angels by relating business angel activity to the prevalence of other sources of funding as well as the number of firms that are potential users of business angel financing. Thus, instead of discussing ‘How prevalent is business angel investment (in a particular country)?’ we suggest moving the focus to the following questions: ‘How important are business angels as providers of finance to firms?’ and ‘How well-supplied are firms with business angel finance?’

Describing business angel activity using meaningful indicators allows comparison between countries (benchmarking). It also enables the tracking of business angel activity over time,

which can be useful as a base for evaluating policy effectiveness when a government is pursuing policies to increase business angel investment. However, having indicators of business angel activity does not automatically imply having tools for policy-making. For the latter, the key is intelligent interpretation of the indicator values.

3.4.2 From information to knowledge – using indicators to guide policy

While low business angel activity values probably deserve the attention of policy makers, they do not automatically require a policy response. As discussed earlier, even well-functioning financial eco-systems can have relatively low levels of business angel activity due to substitutability and complementarity between different financial sources. Therefore, it is not necessarily a “problem”, even if the indicators suggest that it is.

Moreover, there is always an alternative cost to be considered from a policy perspective; thus, can public money be used more productively elsewhere? Creating policies to promote business angel investment is not necessarily the right “solution”, given the cost-effect tradeoff of the policy.

Finally, SME access to finance, as well as the need for external finance, is affected by a considerable number of factors in different spheres of the economy, such as taxation, administrative burdens, financial market regulations, and other framework conditions. The formulation of business angel policies must be driven by a holistic understanding of these conditions (and developments), in combination with information about the current state of business angel activity that the indicators suggested here can provide.

3.4.3 Future research

In this chapter we have focused on national level indicators and comparisons as opposed to the regional perspective, although we are aware that business angel activity is highly concentrated in certain regions (e.g., Avdeitchikova, 2009). Thus, even if a country “comes out well” in an international comparison, there may still be an under-supply at regional level. Therefore, one potentially fruitful path for further studies would be to explore regional business angel activity/indicators of angel finance.

In this chapter, we have focused on business angels and discussed their economic significance. As new ways of providing finance emerge, for example crowdfunding (and specifically crowdfunding, which comprises the equity part of crowdfunding), a broader perspective on informal venture capital investment becomes increasingly useful in order to capture these new developments. Therefore, another potentially fruitful path for future studies would be investigating and benchmarking the significance of informal venture capital investment in broader terms. Given the recent introduction of the use of registry-based data (e.g., tax data) in studies of venture finance, there is good potential for finding ways to capture the informal venture capital market as a whole in countries where such data is systematically gathered and available. Crowdfunding platforms are also a potential source of data on these particular investments, although the quality and reliability of such data has not been tested.

Finally, to reiterate our earlier argument, as the quality of indicators is only as good as the quality of the underlying data, future research must focus on aligning definitions and data collection practices across countries, in addition to producing periodic, reliable estimates.

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