

THE TRANSFORMATION OF THE BUSINESS ANGEL MARKET: EMPIRICAL EVIDENCE AND RESEARCH IMPLICATIONS

Colin Mason*, Tiago Botelho** and Richard Harrison***

**Adam Smith Business School, University of Glasgow, UK.* colin.mason@glasgow.ac.uk

***Norwich Business School, University of East Anglia*

****University of Edinburgh Management School, University of Edinburgh, UK*

ABSTRACT.

Business angel investing – a key source of finance for entrepreneurial businesses – is rapidly evolving from a fragmented and largely anonymous activity dominated by individuals investing on their own to one that is increasingly characterised by groups of investors investing together through managed angel groups. The implications of this change have been largely ignored by scholars. The paper examines the investment activity and operation of angel groups in Scotland to highlight the implications of this change for the nature of angel investing. It goes on to argue that this transformation challenges both the ongoing relevance of prior research on business angels and current methodological practices, and raises a set of new research questions.

Key words: entrepreneurial finance, business angels, angel groups, investment decision-making

INTRODUCTION

Meyer (2011: 6) has recently criticised entrepreneurship research for becoming method-centred and increasingly based on the sophisticated manipulation of data bases which, he argues, “distance researchers from actual people and behaviours that catalyse entrepreneurs and entrepreneurship”. This has several implications for entrepreneurship research. First, research topics are chosen on the basis of the availability of datasets rather than their intellectual or practical significance. Second, it results in a detachment from the ‘real world’ of the entrepreneur which, in turn, creates the risk that processes and changes, for example, in

terms of actors, institutions and behaviour, go unobserved, and research loses its relevance. As a consequence the ability of scholars to contribute to policy and practice is reduced.

These concerns are particularly evident in business angel research. The invisible nature of business angels, the lack of databases which capture their investments and the reluctance amongst the small population of visible angels to take part in surveys have meant that the topic has attracted relatively little research. In addition, its methodological sophistication has been weak, especially in comparison with venture capital and private equity research which have attracted significantly more studies, many of them based on quantitative research methods. This is at odds with the relative importance of these sources of entrepreneurial finance: business angels finance significantly more businesses than venture capital funds, and at the start-up stage the amount that they invest is also greater (Mason and Harrison, 2000a; Sohl, 2012; EBAN 2015).

This paper examines how the angel market is changing quite fundamentally from an atomistic, fragmented and largely invisible market comprising almost entirely individuals investing on their own or in *ad hoc* small groups to one that is increasingly characterised by highly visible angel groups and syndicates which consolidate and channel finance from individual investors to entrepreneurial ventures. The implications of this evolution of the angel market have been largely ignored by scholars. The consequence is that our understanding of the operation of the market remains based on studies of individual angels – which is now only part of the overall angel market - and does not provide insights into the operation and investment activity of angel groups. This paper is the first to explicitly and systematically examine this transformation of the angel market. It builds on previous papers on the overall evolution of the early stage risk capital market (Harrison et al 2010a), the

evolution of specific business angel groups (Gregson et al 2013), group investment decision-making (Carpentier and Suret, 2015; Croce et al, 2016a; Mason and Botelho, 2016) and the emergence of the angel group gatekeeper as a new actor in the market (Paul and Whittam 2010). Based on a case study of Scotland, where this market evolution has proceeded the furthest, the paper addresses the following key issues. First, what are the implications of the growth of angel groups for the financing of entrepreneurial ventures? Second, to what extent does this render redundant our existing understanding of the investment process which is derived from studies based on individual investors? Third, what are implications for methodology? And finally, what are the research questions that arise as a consequence of this change?

The next section of the paper discusses the drivers that are transforming the nature of angel investing. This is followed by an examination of the angel market in Scotland where this change has proceeded the furthest outside of the USA. The final section examines the implications of this change for future research on business angels.

THE CHANGING NATURE OF BUSINESS ANGEL INVESTING

Business angels – a definition

Business angels can be defined as high net worth individuals who invest their own money, either alone or with others, directly in unquoted businesses in which there is no family connection. They normally invest in the form of equity finance in the hope of achieving a significant financial return through some form of exit. Typically they will also take an active involvement in their investee businesses (Mason, 2006). Investments by business angels are largely focused on new and early stage technology ventures (Giudici and Paleari, 2000; Mason and Harrison, 2010; 2011; Madill et al, 2005). They are particularly important from a regional

economic development perspective because the majority of their investments are local (Harrison et al, 2010b; Avdeitchikova, 2009), hence they are typically recycling and reinvesting locally-created wealth (e.g. from the sale of a business – Mason and Harrison, 2006). Given the geographical concentration of venture capital investing in core regions (Mason and Harrison 2002a; Zook, 2004; Mason, 2007; Mason and Pierrakis, 2013) business angels are particularly important in peripheral regions.

The importance of business angels in supporting the development of a dynamic entrepreneurial economy has been recognised by both national and regional governments in various countries. Angel investment activity is encouraged in a variety of ways, notably through tax incentives and support for business angel networks and other types of intermediary which introduce angels and entrepreneurs seeking finance to one another (Mason, 2009a; OECD, 2011). The recent establishment of co-investment schemes has also helped, either directly or indirectly, to boost angel investment activity (Owen and Mason, 2016). This has brought business angel investing into the realm of economic development, giving government a legitimate interest in what would otherwise be a private activity. The different objectives of investors and government departments and agencies creates a potential source of tension, an issue that we revisit in the conclusion.

The Emergence of Angel Networks and Groups

Angel Networks

In the 1980s and 1990s angels operated anonymously, investing for the most part on their own or with small groups of friends and business associates in ventures that they came across through their personal social and business networks. Not surprisingly, the angel market operated inefficiently, with both investors and entrepreneurs incurring high search costs in

identifying one another, and often giving up as a result (Wetzel, 1986). It was very much an *ad hoc* activity for most investors and levels of professionalism were correspondingly low (Blair, 1996). Meanwhile, entrepreneurs typically did not understand how to make themselves ‘investment ready’ (Mason and Harrison, 2001; 2002b). An early market intervention, pioneered in the USA (Wetzel, 1984; Wetzel and Freear, 1996) and Canada (Blatt and Riding, 1996) and subsequently adopted in Europe, was the creation of business angel networks – essentially introduction services – which provided a communication channel to enable entrepreneurs to get their investment proposal to the attention of potential investors and for angels to examine investment opportunities without compromising their privacy (Mason and Harrison, 1996a). Subsequently some of these networks also delivered investment readiness programmes (Mason and Harrison, 2001; Mason and Kwok, 2010) and angel training (San José et al, 2005). The difficulties in developing a commercially viable model for this service has meant that most networks have relied on government funding, and several in the UK have closed after losing this support. Those which operate commercially levy a fee on the investments that they facilitate. This business model requires a focus on larger deals (Mason and Harrison, 1997). Evidence on the effectiveness of networks is mixed but broadly positive (Mason and Harrison, 1996b; 1999; 2002b; Collewaert et al, 2010).

Angel Groups

The angel market began to transform in the late-1990s as angels started to organise themselves into groups to invest collectively. This trend has proceeded furthest in the USA. The Band of Angels, which was founded in Silicon Valley in 1995, is generally – but inaccurately (see below) - regarded as the first organised group to be formed. Others, such as Tech Coast Angels (1997), Sierra Angels (1997), Common Angels (1997) and The Dinner Club (1999), soon followed (Preston 2007). Between 1996 and 2006 the number of identifiable business angel

organisations in the US grew from 10 to over 250 (Preston 2007). The Angel Capital Association, covering the USA and Canada, was created in 2003 for the purposes of transferring best practice, lobbying and data collection. It now comprises more than 240 formal angel groups, plus some affiliate members. There is growing evidence of specialisation by industry sector (e.g. health care angel groups) and type of investor (e.g. women-only angel groups). In Europe, there has been a similar expansion in the angel market but, with the exception of Scotland (Harrison et al 2010a; Gregson et al 2013a) – which is the focus for this paper - it has evolved differently, favouring angel networks which, as noted above, provide mechanisms connecting angels with entrepreneurs seeking finance (Mason, 2009a). In the case of Scotland, the number of identifiable groups has grown from 2 to over 20 between 2000 and 2012, the most radical shift in market organisation of any region in Europe. Moreover, Archangel Investors, the oldest and largest such group, was founded in 1992, and so is older than its better known US counterparts. Indeed, if Scotland was a US state it would be the 11th largest in terms of angel group investment activity in absolute terms whereas it ranks only 29th in terms of GDP per capita (Grahame, personal communication). Angel groups are now found throughout the world (OECD 2011). However, scholars have been slow to react to this organisational transformation of the angel market. The literature base comprises a handful of case studies (mainly written by practitioners) (May and Simmons, 2001; May, 2002; Cerullo and Sommer, 2002; Payne and Mccarty, 2002; May and O'Halloran, 2003) and just a few scholarly studies (Sudek, 2006; Gregson et al 2013a; Carpentier and Suret, 2015; Croce et al, 2016a) and general discussion (Mason, 2006; Sohl, 2007; 2012).

Angel groups have emerged for two main reasons. First, business angels have difficulties in investing alongside venture capital funds (VCFs) because of the investment instruments which VCFs use, notably, liquidation preferences, anti-dilution rights, special subscription

rights and enhanced follow-on rights. This became apparent during the dot.com crash of the early 2000s. At this time many of the companies that had been financed in the ‘bubble’ of the late 1990s were running out of cash. The huge fall in valuations in the crash meant that venture capitalists had to write down the value of many of the investments that they had already made. The consequence was that those companies that did raise further funding were refinanced at lower prices. As the initial investors in these businesses, angels were particularly vulnerable in these, so-called, down-rounds. Unable, or unwilling, to provide new cash their investments were typically wiped out. This resulted in angels losing trust in venture capitalists and since then many have sought to avoid investing in deals that are likely to require follow-on funding from venture capitalists. This, in turn, has led to a growing segmentation in the early stage risk capital market (Harrison et al, 2010a). A further difficulty is that business angels and venture capital funds have different objectives. This is particularly clear at the exit stage where, as Peters (2009) has noted, venture capital funds will refuse to exit at a valuation that is perfectly acceptable to angel investors but is below their ‘hurdle rate’ because it would affect their ability to raise a new fund. Second, the decline in the venture capital industry and its reorientation to larger, later stage deals since the dot.com crash (Clark, 2014) has meant that opportunities for angels to pass on their investments to venture capital funds for follow-on funding are much more restricted, necessitating angels to make follow-on investments themselves. In other words, as the market has evolved there are fewer opportunities for sequential investment complementarities between the angel and VC investor communities (Freear and Wetzel, 1990; Harrison and Mason 2000).

These developments have prompted individual angels to recognise the advantages of investing as part of a group rather than on their own, the most important of which are the volume and quality of the deal flow, reducing the personal effort involved in the investment

process, and the sharing of experience and knowledge, for example in the evaluation and due diligence stages (Mason and Botelho, 2014). Other attractions of groups are that they enable individual angels to invest in particular opportunities that they could never have invested in as individuals, offer the opportunity to learn from more experienced investors and provide opportunities for camaraderie and networking with like-minded individuals. Moreover, by grouping together they can aggregate their investment capacity and so have the ability to make bigger investments and follow-on investments, with the potential to take businesses to an exit themselves without the need for follow-on funding from venture capital funds. Several US groups have also established side-car funds, pooled investment vehicles that invest alongside the angel group. These open up angel investing to high net worth individuals who want to be passive investors. They also enable group members to allocate part of their funds in a balanced manner across all of the group's investments. The presence of the sidecar fund enables the group to lead bigger investment rounds than the group of members themselves could afford.

The emergence of angel groups is of enormous significance for the development and maintenance of an entrepreneurial economy. First, they reduce sources of inefficiency in the market which have arisen on account of the fragmented and invisible nature of angels. There were few other mechanisms for angels to receive a steady flow of investment opportunities. Angel groups, in contrast, are generally visible and are therefore easier for entrepreneurs to approach, thereby reducing the search costs of both entrepreneurs and angels and increasing deal flow. A further source of inefficiency was that each investment made by an angel has typically been a one-off that was screened, evaluated and negotiated separately. However, the volume of investments that angel groups make enables them to develop efficient routines for

handling investment enquiries, screening opportunities and making investment agreements. The increased number of investors scrutinising potential risks also improves due diligence.

Second, angel groups have stimulated the supply-side of the market. The advantages of investing as part of a group have also been attractive to high net worth individuals (HNWIs) who would not otherwise consider investing in emerging companies, for example, because they lack the time, referral sources, investment skills or ability to add value. Hence, angel groups are able to attract and mobilise funds that might otherwise have been invested elsewhere (e.g. property, stock market, collecting: Mason and Harrison, 2000b), thereby increasing the supply of early stage venture capital, and to invest it more efficiently and effectively.

Third, angel groups are helping to fill the 'new' equity gap. The diminished number of venture capital funds have consistently raised their minimum size of investment and are increasingly abandoning the early stage market, either to invest in larger and later stage deals or simply because they have been unable to raise new funds from institutional investors (Mason, 2009b; Clark, 2014).¹ Angel groups are now increasingly the only source of funding for new and emerging businesses seeking investments in the range £250,000 to £1 million (under \$1m in the USA: Sohl, 2012). Moreover, as a consequence of their greater financial resources angel groups have the ability to provide follow-on funding. This overcomes one of the potential problems of raising money from individual business angels, namely that they often lack the financial capacity to provide follow-on funding. Consequently, the entrepreneur is forced to embark on a further search for finance. Moreover, in the event that the need for additional finance is urgent then both the entrepreneur and the solo angel will find themselves in a weak

¹ Just 11% of investments by the UK's venture capital and private equity sector was in seed and start-ups with a further 28% in early stage deals (BVCA, 2015).

negotiating position with potential new investors, resulting in a dilution in their investments and the imposition of harsh terms and conditions. With the withdrawal of many venture capital funds from the small end of the market individual angels and their investee businesses have increasingly been faced with the problem of the absence of follow-on investors. Because angel groups generally have greater financial firepower than individual angels or *ad hoc* angel groups to be able to provide follow-on financing, they are a more efficient source of finance for an entrepreneur because it avoids the need to start the search for finance anew each time a new round of funding is required.

Fourth, the ability of angel groups to add value to their investments should be much greater. The range of business expertise that is found amongst angel group members – described by May and Simmons (2001: 156), leading angel group practitioners in the USA, as a “smorgasbord of advice and strategic services” - means that in most circumstances they are able to contribute much greater value-added to investee businesses than an individual business angel, or even most early stage venture capital funds. It has also been shown that the accreditation role of angel groups enables businesses that have raised finance from angel groups to more easily raise follow-on funding from venture capital funds (Lerner, et al, 2015). Finally, angel groups are the most frequent partners in public sector co-investment schemes (Mason, 2009a; Harrison et al, 2010a), acting as the focal point for the leveraging of additional funds into the entrepreneurial ecosystem.

However, others are less sanguine about the emergence of angel groups. For example, Sohl (2012: 37) has suggested that “as angels are becoming more organised they are morphing into a portrait of venture capital funds and are losing some of the valuable characteristics of the

angel investor ...”² This, in turn, raises two specific concerns (Sohl, 2007; 2012). First, the emergence of angel groups will result in a reallocation of angel capital away from smaller, seed investing to bigger and later stage deals. Second, angel groups will simply attract “inexperienced wealthy individuals seeking a passive investment” rather than active angels who can contribute value added to their investee businesses (Sohl, 2007: 360). But whether these developments are inevitable remains contested. Concerns have also been expressed about the cost raising finance, and specifically the practice of some angel groups requiring entrepreneurs to ‘pay to pitch’ (Entrevestor.com, 2013) and taking fees in the form of a proportion of any funds that they raise.

DATA SOURCES AND ANALYSIS

This study is based on two sources: aggregate data on investment activity, which provides the basis for the next section, and interviews with angel group gatekeepers which is the key source for the following sections. Quantitative information on angel investment activity is derived from LINC Scotland (the trade body for angel groups in Scotland) and the *Scottish Risk Capital Market Reports* published by Young Company Finance in conjunction with Scottish Enterprise (Young Company Finance, 2012; 2014; 2015). LINC Scotland provided information on aggregate investment activity of angel groups compiled on the basis of data provided by its members. The Scottish Risk Capital Market Reports are based on an examination of Companies House 88(2) returns for all companies that were known to have raised equity finance in the appropriate time period. These returns give the date and number of new shares issued, in most

² This is illustrated by a report from the Boston Business Journal (15 April 2013), headlined “Common Angels eyes larger new fund, as group seeks to act more like a VC” which describes how Common Angels, a group of about 50 angels in the Boston area is in discussions to raise a pooled fund which will exceed its existing \$13m fund. The new fund would make a similar number of investments but would invest more capital into each business. The report also notes that it has centralised its decision-making in an eight member committee. The report concludes that the end result of these changes is that “Common Angels is now operating more like a VC firm ...” (<http://www.bizjournals.com/boston/blog/startups/2013/04/commonangels-fund-venture-capital-boston.html?page=2>)

cases the price, but not the names of the investors which had to be identified from other sources (see Mason and Harrison, 2008 and Harrison et al, 2010a for further discussion of this source).

This is complemented by information from 22 semi-structured interviews with gatekeepers of 19 groups, 18 of which are based in Scotland.³ In three groups the gatekeeper role was shared by two individuals. In each case both individuals were interviewed. The groups that were interviewed included all 17 that are publicly listed on LINC Scotland's web site. Two additional groups were interviewed. One was a UK-wide group with a very active Scottish branch but has no association with LINC. The other group is a Scottish Co-investment Fund partner that also has no association with LINC. There were also three other groups that were members of LINC Scotland but preferred anonymity. These groups were also invited to participate, via LINC Scotland, but declined to do so. At the time that the research was undertaken (2012-13) there were 24 angel groups identified in what was then the most recent Scottish Risk Capital Market Report (Young Company Finance, 2012). The groups not included in this study had either closed or were private offices of high net worth families whose investments and operations are much closer to venture capital investing than angel investing. The study therefore captured the vast majority of the participants in the market at the time that the study was undertaken.

Securing the participation of such a high proportion of angel groups in the Scottish market was a considerable achievement. In many cases the initial response was not positive and follow-up approaches were required. As a consequence, the recruitment process took three months. It started with an initial email to the gatekeeper to request an interview. In several cases it was

³ Halo, which is based in Northern Ireland, is also a member of LINC Scotland

not possible to identify the gatekeeper, but in these cases the recipient of the email forwarded it to the relevant individual.

Of the 22 interviewees, 20 were face-to-face and two were conducted on the telephone. All respondents agreed for the interview to be recorded for later transcribing. The interviews ranged in length from 37 to 93 minutes, with the average being about one hour. The face-to-face interviews took place at a location of the interviewee's convenience. Venues included the group's office, coffee shops and the researcher's office. We agreed with participants that information on individual groups would not be disclosed and that findings would be aggregated. Any references to specific groups are therefore based on information that is in the public domain (e.g. media, presentations).

One of the main challenges of qualitative methods, such as interviews, is how to analyse the information that is collected. Several sections of the interviews were based on collecting quantifiable data, such as the amount invested, number of deals, and age of the group. However, other parts of the questionnaire, notably on the skills that a gatekeeper requires and their own learning in the role, were based on opinion and perceptions. This information has been examined by thematic analysis (Howitt and Cramer, 2007) for "identifying, analyzing and reporting patterns within data" (Braun and Clarke (2006, p. 79). Boyatzis (1998) describes the technique as a process of 'encoding qualitative information'.

ANGEL GROUPS IN SCOTLAND: GROWTH AND INVESTMENT ACTIVITY

The paper is largely based on Scotland.⁴ This is a particularly appropriate context in which to undertake this study. Scotland has experienced a rapid growth in the number of angel groups. The initial groups – Archangels and Braveheart – were established in the 1990s. In 2002 LINC Scotland’s membership comprised 300 solo angels and these two groups which had about 70 angel members between them. By 2016 LINC Scotland had 21 groups in membership⁵, which it estimates comprise about 750 investors in total. As noted above, there are a small number of other groups that are not members of LINC Scotland. A handful of other groups have also been established but subsequently either closed or amalgamated. Individual membership of LINC Scotland is now below 100. At the time of the survey (2012-2013) nearly one-third (six, or 30%) of the groups that were interviewed were three years old or less, underlining the recent growth in the formation of groups. Collectively the 18 Scottish groups had just over 1,000 members, although this will include some double counting of investors who are members of more than one group. Two groups have significant numbers of non-Scottish based members. Membership ranges from less than 10 to over 100. Reflecting the skewed nature of the angel markets⁶, the five groups with more than 100 members account for 70% of the total (Figure 1).

FIGURE 1 ABOUT HERE

Two key drivers in the Scottish environment have resulted in this significant increase in angel group. First, LINC Scotland was created⁷ in 1992 as part of the Scottish Business Birth Rate Strategy as a conventional business angel network, responsible for both the demand and supply

⁴ Halo, the Northern Ireland investment group was also included as it is a member of LINC Scotland.

⁵ Including Halo.

⁶ Many aspects of the angel market exhibit a skewed distribution; for example, returns (dominated by failures) and number of investments/amount invested (large number of investors with few investments).

⁷ It was actually created out of an existing organisation operated by Glasgow Opportunities to give it a pan-Scotland focus.

sides of the market and seeking to make ‘introductions’ between investors and entrepreneurs that would lead to investments. Some ten years later Scottish Enterprise took increasing responsibility for the demand side, leaving LINC Scotland with an agreed remit to develop the supply side of the market. It took the strategic decision, influenced by the early successes of Braveheart and Archangels, that this would be most effectively achieved through the development of angel groups. Scottish Enterprise co-funds certain activities with LINC but does not provide core funding. LINC’s main sources of funding come from the European Regional Development Fund (ERDF)⁸ and the private sector.

LINC actively sought to encourage its individual investors to band together. The older, established groups were willing to share their knowledge with the new groups. This helps to explain why, as we comment later, most of the groups have similar operating models. The visibility of angel groups and publicity for LINC’s activities created a momentum and other groups emerged independently of LINC’s efforts. These new groups typically grew out of existing groups of investors who were already working together informally and so had a ‘club’ mentality. However, they were required to find a chairman/gatekeeper, either from their own members or, less commonly, externally, in order to start investing. LINC Scotland was able to provide financial support new angel groups on account of its access to ERDF funding.

The second driver was the Scottish Co-Investment Fund (SCIF) which came on stream in 2003 in response to the acute shortage of risk capital in the aftermath of the dotcom crash. The SCIF was designed to invest alongside private sector investment partners on a *pari passu* basis, investing up to £1 for every £1 invested by the partner to a maximum of £1m per business (and with the introduction of follow-on funding from the Venture Fund deal sizes can be even

⁸ LINC Scotland has enterprise agency status which gives it direct access to apply for ERDF funding.

larger). The intention was to improve liquidity in the market, enabling partners to make bigger investments, or follow-on investments, and freeing up part of their funds to invest in new businesses rather than follow-on investments. The SCIF carried out due diligence on prospective partners before accepting them onto the scheme. The partners make their own investment decisions. SCIF does not undertake its own analysis on the investments that the partners propose to make. Their only decision was to confirm that the business fell within the rules of the scheme. The eligibility criteria were known to investors. Partners could seek initial approval of a prospective investment's eligibility in principle at an early stage in their appraisal process. Once investment terms were agreed by the partner, SCIF approval, or not, was generally made within 24 hours of bringing an investment to the Fund. This high level of certainty was built into the scheme following consultation with the initial angel groups and, arguably, has been a key feature of its success.⁹ Although angel groups accounted for less than half of the Fund's investment partners, the fund's maximum investment limit meant that the vast majority of the deals that qualified were brought by angel groups rather than venture capital funds (Harrison 2009).

The existence of the SCIF encouraged the emergence of groups in two respects. First, the SCIF wanted to expand its number of investment partners so welcomed the formation of new groups, especially in areas of the country where they were lacking. LINC Scotland was specifically contracted to support the creation of three new groups per annum to be co-investment partners. Second, angel groups received a 2.5% fee on completion of every co-investment deal that they participated in. This provided useful additional income to fund a group's running costs, supporting salaries of a gatekeeper and possibly one or more administrative staff.

⁹ In contrast the UK Angel Co-Fund does undertake its own evaluation, creating uncertainty for its partners. This is the main criticism made by investors of the scheme (Owen and Mason, 2016).

FIGURE 2 ABOUT HERE

FIGURE 3 ABOUT HERE

Investment activity by angel groups has grown steadily since 2002-3, in terms of both number and amount invested, peaking in 2010 with 101 deals compared with just 22 in 2002-3. Investment activity has recovered since then, albeit erratically, with 98 deals in 2015 (Figure 2). Only part of the recent rise in investments is due to activity of new groups that did not exist in 2010 (these groups made 8 investments in 2012). Moreover, investment activity is skewed to a small number of groups, with just two groups making 69% of the investments in the period 2009-12. Almost every other group made less than 10 new investments in the period (i.e. excluding follow-on investments). The amount invested by members of the angel groups has risen from £6.3m in 2002-3 to a peak of £26.17m in 2011, and recovering to £19.04 in 2015 (Figure 3). Total aggregate investment (i.e. including co-investors) has increased even more sharply, from £6.8m in 2002-03 to what was then a peak of £34.5m in 2011. Investment activity recovered quickly to reach a new peak of £44.5m in 2015 (Figure 4), reflecting both the growth of the SCIF and the increasing tendency for angel groups co-invest with other investors. This represents a significant part of the risk capital market in Scotland (Harrison et al 2010). Looking at the market as a whole, the Scottish Risk Capital reports show that venture capital funds dominate, accounting for well over half of investments by value in the period 2009-2014. Angels, by contrast, have accounted for between 10 and 15% (Table 1). This reflects the focus of venture capital funds on large investments. However, angels dominate the middle market which covers investments in the £100,000 - £2m range. In the 2012-2014 period angels (groups and individuals) made nearly three times the number made by venture capital funds, and invested 1.3 times the amount invested by venture capital funds (Table 2). Moreover, much of

the investment in the public sector category comprises the Scottish Co-Investment Fund which has largely invested alongside angel groups.

FIGURE 4 ABOUT HERE

TABLE 1 ABOUT HERE

TABLE 2 ABOUT HERE

Of course these investments represent only a fraction of the investment opportunities that the groups see. The number of opportunities seen by the groups in the 12 months prior to the interview range from under 10 (due to circumstances specific to that group) to over 250. However, the majority of groups saw between 40 and 150 investment opportunities (median = 100). No doubt some opportunities will be seen by more than one group. The overall ‘yield rate’ – investments as a proportion of opportunities seen invested - was about 6.5%. This is significantly lower than the equivalent data reported by Sohl (2013) for US angel groups for the same time-period. Assuming that the difference is real, rather due to data or definitional differences, there are several possible explanations for this difference. It may reflect the poorer quality of opportunities that Scottish groups see, their more risk-averse screening and selection standards, or the superior investment capabilities of US groups (in terms of numbers of members and dollars available for investment).

Angel groups typically invest anywhere from £25,000 to £500,000 per round, with a few outliers at each end. However, as the vast majority (85%) of deals had co-investors – almost invariably the SCIF – so deal sizes were larger. Nevertheless, more than 90% of deals in 2009-10 were below £1m (the maximum allowable transaction under SCIF regulations). The

majority of this investment is follow-on funding. This peaked at over 80% at the start of the financial crisis but has fallen back since then to around 60% (Figure 5).

FIGURE 5 ABOUT HERE

Scottish angel groups have a diverse range of investment preferences. This is particularly apparent in terms of sector, where two categories of groups can be identified. Six (of the 18) are specifically oriented to technology sectors, with some having a very specific investment focus (e.g. biopharmaceuticals, energy, life science) and two others have a 'preference' for technology. The remainder will invest in 'everything' or 'everything except X'. There is less diversity in terms of the stage of development, with 15 groups looking to invest in early stage or start-up businesses. Two groups are focused on proof of concept and seed stages. There is also diversity in the size of investment. Three groups stated this was 'unlimited', two groups would invest up to £500,000, and three would go up to £1m. However, the majority of groups are looking to invest under £250,000 per deal, not including any coinvestment. Finally, the majority (12) of groups are looking to invest in Scotland, although in a few cases this was 'not exclusive'. Four groups reported that they would invest worldwide, confirming that while angel investing is a local phenomenon it is not exclusively so (Harrison et al, 2010b)

Follow-on investments have quickly dominated the investment activity of angel groups (Mason and Harrison, 2010; 2011; Sohl 2012). This may be a 'natural' process, reflecting a combination of the financial strength of angel groups to make follow-on investments and the lack of alternative investors to provide follow-on funding (Harrison et al 2010a). However, some groups have turned down the opportunity to bring institutional investors into deals, because of fears of both being diluted and also losing control of the investment, particularly the ability to influence, manage and control the exit. The need to invest in ordinary shares so

that investors qualify for tax relief under the Enterprise Investment Scheme is a further discouragement to seek follow-on funding from institutional investors. As discussed earlier, these investors will invest using preference shares and other more complex instruments which give them greater power over investors with ordinary shares.

ANGEL GROUP INVESTMENT PROCESSES

The investment process of angel groups is rather different to that of individual angels. Previous research has established that individual angels undertake an initial screening process to establish whether the proposal is a good fit with their investment criteria and would appear to have merit. This is typically a fast process, taking anything from one to twenty minutes (Mason and Rogers, 1997; Harrison et al., 2015), and upwards of 90% of proposals get rejected at this stage (Feeney et al, 1999). Those proposals that get through the initial screening are then investigated in detail.

The investment process of angel groups is rather more extended and involves more stages. Two distinct approaches are apparent amongst the Scottish groups, although there are differences of detail in each approach. In both cases the gatekeeper is the initial point of contact for the business. The gatekeeper then undertakes the initial screening role. At its most basic this may simply be to filter businesses against the group's key investment criteria. In other cases it is more proactive with the gatekeeper assessing the business plan and in some cases contacting the entrepreneur to gather information about the company. In some groups the gatekeeper may be assisted by one of the members, perhaps to bring in sector expertise.

The differences in approach occur at the next stage. In some groups the businesses that get through the filtering and initial screening processes are evaluated in detail by a small group of

the angels. This may include a presentation by the entrepreneur to this inner core. They will make a collective decision whether or not to invest in the business themselves. If this inner core decide unanimously to invest then the opportunity is opened up to the rest of the group for each member to decide individually whether they also want to invest. This approach is typified by Archangels (Gregson et al, 2013a). In the alternative approach those businesses that get past the screening stage are presented to the group members. Typically the company will make a presentation. Some groups will coach the entrepreneurs prior to the presentation. Each individual member then makes their own decision whether or not they are interested in investing. If there is sufficient interest then a sub-group is established to do the due diligence and, if appropriate, negotiate the terms and conditions of the investment. The deal will then be brought back to the members to make individual decisions whether or not to invest.

The key difference between these two approaches is therefore who drives the process after the initial screening stage. In the first approach it is driven by an active core group of angels, with the outer core only being invited to invest, on a take-it or leave-it basis, in those deals that the core group have decided to invest in. In the second approach the members drive the process, with the gatekeeper undertaking due diligence on those businesses that the membership are interested in.

Compared with individual angels (Mason and Harrison, 1996c), raising finance from angel groups is more costly for the entrepreneur. None of the Scottish groups require entrepreneurs to ‘pay to pitch’; however, four groups charge fees associated with the due diligence process and the majority of groups charge deal/completion fees when the investment is made (typically 3% of the amount raised) (10 groups) and also levy ongoing non-executive director monitoring fees (11 groups).

This investment process has a number of implications for entrepreneurs seeking finance from angel groups. First, there are more people involved in the process and hence more people have to be persuaded of the merits of the investment opportunity. Second, gatekeepers have the power to reject investment opportunities but it is the members who make the decision to invest. The entrepreneur has therefore to get past the gatekeeper in order to reach potential investors. Third, in contrast to traditional business angel networks, where the pitch to an audience of potential investors is at the start of the process and is used by the investors as the initial screening process, with angel groups the pitching stage occurs later in the process after the business has passed the initial screen. This, in turn, has implications for the content and style of the pitch. Fourth, raising finance from angel groups incurs fees whereas this would not typically be the case with individual angels. However, business angel networks also charge fees. Finally, given the various stages and different people involved, the length of time to secure an investment from an angel group will generally be longer than in the case of individual angels.

THE GATEKEEPER

The previous discussion has highlighted the critical role of the group gatekeeper in the investment process, managing both the day-to-day operations of the group and, more significantly, controlling access to investors. The emergence of this new actor is one of the most significant outcomes of the growth of angel groups, with considerable implications both for scholars who continue to focus on how individual angels make their investment decisions and also for entrepreneurs. Gatekeepers are of two types: member gatekeepers and manager gatekeepers (Paul and Whittam, 2010). Gatekeepers have typically emerged from within the group that initially started the angel group. In half of the groups (9) that were interviewed,

members act as managers (more than half of whom receive remuneration), five groups (28%) have hired an external manager and in the remaining four groups the gatekeeper role is shared between a member and someone that has been hired. The bigger groups have appointed external managers as they became larger. Some groups have gone further, hiving off a separate administrator function from the gatekeeper's role. Indeed, in 11 of the 18 groups (61%) the role of gatekeeper is shared. The implication is that the gatekeeper function changes as the group's activities increase and portfolio management becomes a more time consuming and critical function.

TABLE 3 ABOUT HERE

The gatekeeper undertakes a variety of functions (Table 3). Two-thirds of gatekeepers undertake external-facing roles, notably the promotion of the group to attract new investors and entrepreneurs. Around half also report that they undertake internal roles, mostly interacting and communicating with the members. However, their main functions are associated with managing the investment process. Gatekeepers review the business plans and executive summaries that they receive from entrepreneurs seeking finance, decide whether they meet the investment criteria of the group, may seek additional information and even meet the entrepreneur and ultimately make the decision whether the opportunity is passed on to the group members, whether an inner core or the entire group, to be considered for investment. The gatekeeper may also be responsible for preparing one or more supporting papers on the business for the group. The gatekeeper will also follow up with members to gauge their interest in the opportunity. In the second model, discussed in the previous section, if the group is interested in the business then the gatekeeper will also be involved in the due diligence process and even in the negotiation. It is of note that fewer than half of the gatekeepers are involved in

the process after the investment is made. Specifically, few gatekeepers see the preparation of investee companies for an exit being as being part of their role (Mason and Botelho, 2016). The norm is for a member of the group to take on the role of non-executive director in the investee company. It is only in the larger groups, which have more support staff, that the gatekeeper is involved in portfolio management. The majority (17 out of 21, or 81%) undertake this function on a part-time basis (less 30 hours a week).

The backgrounds of the gatekeepers are remarkably varied. There is considerable variety in academic expertise, albeit with a bias to accounting, finance and law. Just under half reported work experience in banking, accountancy or corporate finance. Eleven (52%) had entrepreneurial experience and 15 (71%) have personal experience of making angel investments, reflecting the presence of a number of member angels as gatekeepers. The vast majority thought they were prepared for the role (95%), although those in the longer established groups were actually pioneers, defining and shaping the role.

CONCLUSION AND IMPLICATIONS

Angel investing is changing from an invisible and largely individual process to one in which angels are joining together in organised and managed groups to invest. This is evident throughout the world (May and Liu, 2016), although the pace of change has varied between countries. Yet despite the growing significance of angel groups as a major source of finance for entrepreneurial companies at the start of the so-called funding escalator little scholarly attention has been devoted to this development, despite the possibility that it renders much of the existing research base redundant. Nor has there been much consideration of the practical consequences of this change either for entrepreneurs and investors nor the policy implications.

This paper is the first attempt to provide an in-depth examination of the growth of angel groups and the implications for the financing of entrepreneurial ventures.

The paper draws on evidence from Scotland where, for a variety of reasons, the emergence of angel groups has proceeded further than anywhere else outside of the USA. Indeed, in both absolute numbers and on a per capita basis Scotland's population of angel groups is larger than that of the majority of US states. The latest Risk Capital Market Report (Young Company Finance, 2015) identifies 21 angel groups in Scotland compared with just two prior to 2000. Angels, alongside the co-investment fund, dominate investment activity in the £100,000 to £2m range. However, activity is skewed to a minority of larger and longer-established groups.

Implications for the supply of entrepreneurial finance

The existing debate about the implications of the growth of angel groups mainly focuses on the benefits, notably their greater visibility and greater professionalism compared with individual angels, which, it is argued, reduces the time and cost for the entrepreneur of raising finance. In addition it is thought to have expanded the supply of informal venture capital by attracting passive investors who lack the capabilities to invest on their own. However, others have raised the concern that the essence of angel investing is at risk of being lost as the process becomes more organised. Some have also expressed the concern that the angel market could evolve in the same way as venture capital funds, shifting to making larger and later stage investments and losing its ability to add value.

Our evidence is finely balanced. On the supply side the process has reduced the number of investment decision-makers in the market as individual angels have joined angel groups. It has probably also reduced the number of investments of £50,000 and below which are too small to

be of interest to the groups. However, equity crowdfunding may fill this gap (Tuomi and Harrison 2017). Groups have focused on making larger investments and follow-on investments, with the latter dominating investment activity. The continued creation of new groups is therefore needed to mobilise new capital into the market to make new investments. On the other hand, the greater investment capability of angel groups has helped to fill the funding gap created by the decline of venture capital funds specialising in seed, start-up and early stage financing. From a process point of view angel groups extend the investment process, adding more stages and increasing the decision-time, and the gatekeeper now controls access to the angels. Moreover, market deficiencies remain. The emergence of angel groups, with government support, has helped resolve the ‘traditional’ equity gap (originally under £250,000 but other definitions have put this figure closer to £1m). However it has opened up a ‘second’ equity gap (Murray, 1994; Sohl, 2012) above £1m-£2m for growth capital, beyond the capability of virtually all angel groups, even with syndication. This is a challenge for angel-backed companies requiring growth capital to fulfil their potential and may result in their premature sale to overseas companies to the possible detriment of both investors and the regional economy.

Moreover, Scotland’s angel market may be out of equilibrium. First, the availability of ERDF funding may have resulted in too many angel groups being created for the available investment opportunities. Second, it may have resulted in too many manager-led groups and limited involvement of individual members in contrast to the USA where there appears to be greater member involvement. Third, some of the angel groups may not be financially sustainable, certainly without the public sector support they receive. The groups most at risk are those that have expensive manager-gatekeeper functions and a process that is not sufficiently ruthless at the initial screening stage, combined with the lack sufficient volume of investment activity to

generate fee income. A further concern is that some groups appear to be evolving, not to become venture capital funds, as Sohl (2007; 2012) feared, but fund managers. Two Scottish groups have already made this transformation.¹⁰

Finally, what has been the economic impact of Scotland's much admired business angel market? The support that the angel market has received from the public sector both through ERDF funding and indirectly via the Enterprise Investment Scheme means that this question cannot be ignored. However, we lack sufficient evidence to make a judgement on what represents "success". Taking the 'glass half empty' viewpoint, a strong case can be made that the impact has been disappointing. Investors have achieved relatively few exits (Mason and Botelho, 2016) and most of these have been small, with the consequence that little wealth has been created for recycling in new ventures, and management learning in a growth company context has been truncated. Moreover, their investments have not led to the creation of 'companies of scale', a key focus of Scottish Enterprise policy over the past decade (Brown and Mason, 2012). The riposte from angel groups is that this is not their role. Moreover, the M&A market is dominated by small exits which give a good return to investors (Gray, 2012). Furthermore, the ability of angel groups to build 'companies of scale' is limited. These companies are likely to require significant additional amounts of finance and therefore carry a significant dilution risk for angels and also require appropriately experienced management.¹¹

¹⁰ For example, Braveheart, now listed on AIM, describes itself as follows: Braveheart Investment Group plc was formed in 1997 and has been quoted on the Alternative Investment Market (AIM: BRH.L) of the London Stock Exchange since 2007. Headquartered in Perth, Scotland, it also has offices in Yorkshire. The Group has around £71m of funds under management across various regional and national funds and runs investment syndicates which Braveheart and its operating companies have established. The Group provides equity, loan and mezzanine funding to Small and Medium-sized Enterprises (SMEs). Braveheart also invests on behalf of high net worth individuals, family offices, institutional investors and public sector organisations across the UK and Europe. (<http://www.braveheartgroup.co.uk/about-us/>)

¹¹ See Gregson et al (2013b) for the case of one business angel backed company that did become a company of scale and floated on the London Stock Market. In 2015 it was acquired by a Japanese company (Financial Times, 2015).

This highlights the challenges in aligning the objectives of policy-makers and the practices of the angel community. A glass ‘half full’ perspective would argue that Scotland has stumbled upon an effective model of angel investing that overcomes the limitations of its angel market imposed by its historic low level of entrepreneurial activity (Paul et al 2003). This model makes efficient use of its limited number of active angels to serve as nodes to cluster less knowledgeable money of high income individuals typically in the professions and who are looking for tax efficient investments. In the absence of such groups it is quite possible that this money will have been invested with the traditional fund managers who will not have channelled it either to entrepreneurial businesses or within Scotland.¹²

Implications for policy

The emergence of angel groups has several implications for policymakers seeking to promote angel investing. First, they need to choose whether to support angel groups and, if they are supporting BANs, whether support for angel groups (e.g. to cover their running costs) would be more effective. Both models result in entrepreneurs receiving funding from angel investors. From a public policy perspective, the evidence on the relative effectiveness of these models is not clear-cut. Moreover, there are different angel group models to those developed in Scotland. For example, Halo in Northern Ireland¹³ has developed a model in which they act as the first selection gate for angel groups, inviting them to large pitching events, while other groups that are not members of Halo will form an outer ‘ring’ to ‘bulk up’ the investments led by the groups. However, it is clear that angel groups need to be in place for a co-investment fund approach to work. Second, where tax incentives are available for angel investors these typically only apply when angels are investing directly in businesses (as

¹² We are grateful to David Grahame, OBE, CEO of LINC Scotland, for this observation.

¹³ <http://www.nisp.co.uk/halo/about/>

in the case in the UK). It is therefore appropriate to ask whether tax incentives should also be available to angels to invest in pooled investment vehicles to enable angel groups to build sidecar funds. This is significant in the context of the emergence of a finance gap in the £1m-£5m range. Third, context matters. LINC Scotland's access to ERDF was critical in terms of the number and diversity of angel groups that have been created, and the dominance of manager-led models. The co-investment fund, which has been successfully replicated elsewhere (New Zealand, Canada), has also been critical.

Implications for Research

These changes in the angel market have major implications for research on angel investing. First, who is attracted to join angel groups? There is a suggestion that they are attracting individuals who would not have become solo angels. Younger angels in particular are likely to start their investing career with a group rather than as a solo investor (Mason and Botelho, 2014). There is also emerging evidence that angels who invest as part of a community (i.e. who are members of groups or networks) manage their risk differently from those who invest on their own, notably in terms of their post-investment monitoring and involvement (Bonini et al; 2016). So, do members of groups fit the well-established profile of business angels? Or is this profile now out-of-date? Specifically, are angels who are members of groups as active as solo angels in managing their investments, and do they have the same ability to add value? If not then this challenges the view of business angels as 'smart investors'. Moreover, given the increasing tendency for researchers to base their samples on angel group members it now begs the question whether this is an appropriate sampling frame. Is it meaningful to compare these investors with the angels profiled in prior research? Or are they a different population?

Second, it is clear that angel groups are characterised by diversity, for example, in terms of management and investment processes. However, sampling of angels is typically restricted to a single angel group (and one group in particular).

Third, angel group investments typically involve more than one angel. However, much of the research continues to take a single angel perspective which seeks, for example, to explore the relationship between business angel characteristics and firm performance (Croce et al, 2016b) or how the human capital of angels influences valuation (Collewaert and Manigart, 2016) based on data from just a single investor in each business. The growth in investing by angel groups undermines the appropriateness of this type of analyses based on a single angel investor in a company.

Fourth, the investment process of angel groups is different to that of solo angels, with more stages, more people involved and different people involved at different stages. This challenges the ongoing relevance of existing research on how business angels make their investment decisions. Moreover, there is evidence (Mason and Botelho, 2014; Botelho et al., 2015a) that members of angel groups are likely to be influenced in their investment decision either by the gatekeeper or other group members. Given evidence that business angels learn from the experience of others (Harrison et al, 2015) and consequently may change the way they invest (Botelho et al., 2015b) it may be, as suggested by Mason et al (2016), that the emergence of angel groups is creating a unique opportunity for situated learning, potentially resulting in the emergence of a ‘community of practice’ (Lave and Wenger, 1991) with a shared repertoire of approaches to investing, resulting in a growing standardisation of investment assessment.

Fifth, the emergence of angel groups has created a new actor – the angel group manager – or gatekeeper - who plays a key role at the initial screening stage. Emerging research suggests that they perform this role in ways that are subtly different to that of solo angels (Mason and Botelho, 2017). Further research is needed on what is likely to be an evolving role.

Sixth, we do not know what the emergence of angel groups means for the post-investment relationship. If many of the groups are passive investors does this create a ‘band width’ issue if this role is performed by a core group of angels? Or, is the value-added contribution enhanced by the diversity of skills and knowledge in the group.

And finally, what are the broader implications for the early stage risk capital market of the emergence of angel groups. For example, how do they engage, if at all, with newer sources of finance such as crowdfunding platforms and accelerators? And can angel groups effectively fill the various funding gaps created by the demise of the traditional funding escalator (North et al, 2013; Baldock and Mason, 2015; Gill, 2015)?

Acknowledgements. This paper arises from research funded by the ESRC under its Co-Funded Pilot scheme. The co-funders are NESTA, BVCA, Lloyds-TSB and Invest NI. We are grateful to all of our interviewees for giving up their time to talk to us. We wish to give particular thanks to David Grahame OBE, chief executive of LINC Scotland, and Nelson Gray for sharing their deep knowledge of the Scottish angel market with us and for their extensive comments on a pre-circulation version of the paper. We are also most grateful to the many gatekeepers who provided detailed feedback: Alec Mackie, Bill Morrow, Raymond McLennan, Allan Watts, John Waddell and Mary Jane Brouwers. We also benefitted from a valuable conversation with Donald Smith. The authors are responsible for all of the views and opinions in the paper.

REFERENCES

Avdeitchikova, S (2009) False expectations: Reconsidering the role of informal venture capital in closing the regional equity gap, *Entrepreneurship and Regional Development*, 21 (2) 99-130.

- Baldock, R and Mason, C (2015) Establishing a new UK finance escalator for innovative SMEs: the roles of the Enterprise Capital Funds and Angel Co-Investment Fund, *Venture Capital: an international journal of entrepreneurial finance*, 17(1), 59-86.
- Bhidé, A (2008) *The Venturesome Economy*, Princeton, NJ: Princeton University Press.
- Blair, A., 1996, Creating An Informal Investor Group: Personal Experiences Of A Seasoned Informal Investor. In R. T. Harrison and C. M. Mason (eds) *Informal Venture Capital: evaluating the impact of business introduction services*, . Prentice Hall, Hemel Hempstead , pp 156-196.
- Blatt, R and Riding, A., 1996, Where Angels Fear To Tread? Some Lessons From The Canada Opportunities Investment Network. In R. T. Harrison and C. M. Mason (eds) *Informal Venture Capital: evaluating the impact of business introduction services.*, Prentice Hall, Hemel Hempstead, pp 75-88.
- Bonini, S, Capizzi, V, Valletta, M and Zocchi, P (2016) Groups, networks and business angels' investment process, Available at <file:///C:/Users/cm252t/Downloads/Bonini,%20Capizzi,%20Valetta,%20Zocchi%20-%20Groups,%20networks%20and%20business%20angels%E2%80%99%20investment%20process.pdf>
- Botelho T, Mason C and Tagg S (2015a) Can we group business angels who have the same investment criteria? Paper presented at 2015 ISBE conference, Glasgow, November.
- Botelho T, Mason C and Tagg S (2015b) Do business angels change their investment criteria? Paper presented at 2015 ISBE conference, Glasgow, November
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*: Sage Publications.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research In Psychology*, 3(2), 77-101.

- Brown, R and Mason, C, (2012) 'The evolution of enterprise policy in Scotland' in R Blackburn and M Schaper (eds) *Government, SMEs and Entrepreneurship: Development, Policy and Practice*. Gower, pp 17-30.
- British Venture Capital Association (2015) BVCA Private Equity and Venture Capital Report on Investment Activity 2014. London: BVCA
- Carpentier, C and Suret, J-M (2015) Angel group members' decision process and rejection criteria: A longitudinal analysis, *Journal of Business Venturing*, 30, 808-821.
- Cerullo, B. and Sommer, B., 2002, Helping healthcare entrepreneurs: a case study of Angel Healthcare Investors, LLC. *Venture Capital: An International Journal of Entrepreneurial Finance*, 4: 325-330.
- Clark, J (2014) *VC Evolved: How VC Has Adapted In The 15 Tumultuous Years Since The Dotcom Boom*. London: British Venture Capital Association
- Collewaert, V and Maingart, S (2014) Valuation of angel backed companies: the role of investor human capital, *Journal of Small Business Management*, 54 (1), 356-372.
- Collewaert, V, Manigart, S and Aernoudt, R (2010) An assessment of government funding of business angel networks in Flanders, *Regional Studies*, 44, 119-130.
- Croce, A, Tenca, F and Ughetto, E (2016a) How business angel groups work: rejection criteria in investment evaluation, *International Small Business Journal*, DOI 10.1177/0266242615622657
- Croce, A, Guerini, M and Ughetto, E (2016b) Angel financing and the performance of high0tech start-ups, *Journal of Small Business Management*, DOI: 10.1111'jsbm. 12250
- EBAN (2015) *European Early Stage Market Statistics*, EBAN: Brussels.
- <http://www.eban.org/wp-content/uploads/2016/06/Early-Stage-Market-Statistics-2015.pdf>

- Entrevestor.com (2013) Debating the pay-to-pitch model,
<http://www.entrevestor.com/blog/debating-the-pay-to-pitch-model>
- Feeney, L, Haines, G H and Riding A L (1999) Private Investors' Investment Criteria: Insights From Qualitative Data. *Venture Capital: An International Journal of Entrepreneurial Finance*, 1: 121-145.
- Financial Times* (2015) Nikon buys Scottish retinal imaging company Optos for £259m, 27 February. <http://www.ft.com/cms/s/0/22f5bac2-be98-11e4-8036-00144feab7de.html#axzz4I32Ut9su>
- Freear, J. and Wetzel, W.E. (1990) Who Bankrolls High-Tech Entrepreneurs? *Journal of Business Venturing*, 5, 77-89.
- Gill, D (2015) Consolidating the gains: Government intervention in risk capital, *Venture Capital: An International Journal of Entrepreneurial Finance*, 17 (1-2), 43-58.
- Gray, N (2012) A business angel's thinking on exits, Presentation to the New Zealand Angel Association Summit.
http://www.angelassociation.co.nz/media/2014/04/Angel_Summit_Speakers_Page_Nelson_Gray.pdf
- Gregson, G, Mann, S and Harrison, R (2013a) Business angel syndication and the evolution of risk capital in a small market economy: evidence from Scotland, *Management and Decision Economics*, 34 (2), 95-107.
- Gregson, G, Carr, J and Harrison, R (2013) The entrepreneur-business angel investor relationship: how does it influence initial and follow-on investment decisions and investment outcomes? Paper to the 2013 Babson Entrepreneurship Research Conference, Lyon, France.

- Giudici, G. and Paleari, S., 2000. The provision of finance to innovation: a survey conducted among Italian technology-based small firms, *Small Business Economics*, 14(1), pp.37-53.
- Harrison R T (2009) *The Scottish Co-Investment Fund: Public Policy and Regional Risk Capital Markets*, report to NESTA.
- Harrison, R T, Dibben, M and Mason, C M (1997) The role of trust in the business angel's investment decision: an exploratory analysis, *Entrepreneurship Theory and Practice*, 21 (4), 63-81.
- Harrison R T and C M Mason (2000) Venture capital market complementarities: the links between business angels and venture capital funds in the UK, *Venture Capital: An International Journal of Entrepreneurial Finance*, 2 (3), 223-242
- Harrison, R, Don, G and Johnston, K G (2010a) The early stage risk capital market in Scotland since 2000: issues of scale, characteristics and market efficiency, *Venture Capital: an international journal of entrepreneurial finance*, 12 (3) 211-239.
- Harrison, R T, Mason, C M and Robson, P J A, (2010b) Determinants of long-distance investing by business angels in the UK, *Entrepreneurship and Regional Development*, 22 (2) 113-137.
- Harrison, R T, Smith, D and Mason, C M (2015) Heuristics, learning and the business angel investment decision making process, *Entrepreneurship Theory and Practice*, 27 (9-10), 527-554.
- Howitt, D., & Cramer, D. (2007). *Introduction to Research Methods in Psychology*: Prentice Hall.
- Lave J and Wenger E (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.

- Lerner, J, Schoar, A, Sokolinski, S and Wilson, K (2015) *The Globalisation of Angel Investments*, Brussels: Bruegel Working Paper 2015/09
- Madill, J. J., Haines, G. H. jr. and Riding, A. L. 2005, The Role Of Angels In Technology SMEs: A Link To Venture Capital. *Venture Capital: An International Journal of Entrepreneurial Finance*, 7: 107-129.
- Mason, C.M. (2006) Informal sources of venture finance, in S C Parker (ed) *The Life Cycle of Entrepreneurial Ventures*, New York: Springer: New York, pp.259-299.
- Mason, C M (2007) Venture capital: a geographical perspective, in H Landström (ed) *Handbook of Research on Venture Capital*, Edward Elgar, Cheltenham, pp 86-112.
- Mason, C.M. (2009a) Public policy support for the informal venture capital market in Europe: a critical review, *International Small Business Journal*, 27 (5), 536-556.
- Mason, C (2009b) Venture capital in crisis, *Venture Capital: an international journal of entrepreneurial finance*, 11 (4), 279-285.
- Mason, C and Botelho, T (2014) *The 2014 Survey of Business Angel Investing in the UK: A Changing Market Place*. http://www.gla.ac.uk/media/media_362647_en.pdf
- Mason, C and Botelho, T, (2016) The role of the exit in the initial screening of investment opportunities: the case of business angel syndicate gatekeepers, *International Small Business Journal*, 34 (2), 157-175
- Mason, C and Botelho, T (2017) The age of angel groups: a comparison of how individual business angels and angel group gatekeepers undertake the initial screening process. Paper to the 2017 ACERE conference, Melbourne, 7-10 February.
- Mason, C. M. and Harrison, R. T. (1996a), Informal investment business introduction services: some operational considerations. In R. T. Harrison and C. M. Mason (eds) *Informal Venture Capital: evaluating the impact of business introduction services*. Prentice Hall, Hemel Hempstead, pp 27-58.

- Mason, C. M. and Harrison, R. T. (1996b) LINC: A decentralised approach to the promotion of informal venture capital. In R. T. Harrison and C. M. Mason (eds) *Informal Venture Capital: evaluating the impact of business introduction services*. Prentice Hall, Hemel Hempstead, pp 119-141.
- Mason, C. M. and Harrison, R. T. (1996c), Informal venture capital: a study of the investment process and post-investment experience. *Entrepreneurship and Regional Development*, 8: 105-126.
- Mason, C M and Harrison, R T (1997) 'Business angel networks and the development of the informal venture capital market in the UK: is there still a role for public policy? *Small Business Economics*, 9, 111-123.
- Mason, C. M. and Harrison, R. T. (1999) Public policy and the development of the informal venture capital market: UK experience and lessons for Europe. In K. Cowling (ed) *Industrial Policy in Europe*, , pp 199-223. Routledge, London.
- Mason, C M and Harrison, R T (2000a) The size of the informal venture capital market in the UK, *Small Business Economics*, 15, 137-148.
- Mason, C M and Harrison, R T (2000b) Influences on the supply of informal venture capital in the UK: an exploratory study of investor attitudes, *International Small Business Journal*, 18 (4) 11-28.
- Mason, C M and Harrison, R T (2001) Investment readiness: a critique of government proposals to increase the demand for venture capital, *Regional Studies*, 35, 663-668.
- Mason, C M and Harrison, R T (2002a) The geography of venture capital investments in the UK, *Transactions of the Institute of British Geographers*, 27, 427-451.
- Mason, C. M. and Harrison, R. T. (2002b) Barriers to investment in the informal venture capital sector. *Entrepreneurship and Regional Development*, 14: 271-287.

- MASON, C M and Harrison, R T (2006) After the exit: acquisitions, entrepreneurial recycling and regional economic development, *Regional Studies*. 40, 55-73.
- Mason, C M and Harrison, R T (2008) Measuring business angel investment activity in the United Kingdom: a review of potential data sources, *Venture Capital: an international journal of entrepreneurial finance*, 10, 309-330.
- Mason, C M and Harrison, R T (2010) *Annual Report on the Business Angel Market in the United Kingdom: 2008/09*, Department of Business, Innovation and Skills.
- Mason, C M and Harrison, R T (2011) *Annual Report on the Business Angel Market in the United Kingdom: 2009/10*. Department of Business, Innovation and Skills.
- Mason, C and Pierrakis, Y (2013) Venture capital, the regions and public policy: the United Kingdom since the post-2000 technology crash, *Regional Studies*, 47 (5), 1156-1171.
- Mason, C and Kwok, J. (2010) Investment readiness programmes and access to finance: a critical review of design issues, *Local Economy*, 25 (4) 269-292.
- Mason, C and Rogers, A (1997) The business angel's investment decision: an exploratory analysis, in D Deakins, P Jennings and C Mason (eds.) *Entrepreneurship in the 1990s* (Paul Chapman Publishing) pp 29-46.
- Mason, C, Botelho, T and Zygmunt, J (2016) Why business angels reject investment opportunities: it is personal? *International Small Business Journal*. DOI: 0266242616646622
- May, J. (2002) Structured angel groups in the USA: The Dinner Club Experience. *Venture Capital: An International Journal of Entrepreneurial Finance*, 4: 337-342.
- May, J and Liu, M M (eds) (2016) *Angels Without Borders: trends and policies shaping angel investment worldwide*. Singapore: World Scientific Publishing Company
- May, J. and O'Halloran, E. F., 2003, *Cutting Edge Practices in American Angel Investing*. The Darden School, Batten Institute, University of Virginia, Charlottesville, VA.

- May, J and Simmons, C (2001) *Every Business Needs An Angel: Getting the money you need to make your business grow*, New York: Crown Business
- Meyer , D (2011) The reinvention of academic entrepreneurship, *Journal of Small Business Management*, 49 (1), 1-8
- Murray, G. (1994) The European Union Support for New Technology Based Firms: an Assessment of the First Three Years of the European Seed Capital Fund Scheme, *European Planning Studies* 2(4), 435-461.
- North, D, Baldock, R, and Ullah, F (2013) Funding the growth of UK technology-based small firms since the financial crisis: are there breakages in the finance escalator? *Venture Capital: an international journal of entrepreneurial finance*, 15 (3), 237-260.
- OECD (2011) *Financing High Growth Firms: The Role of Angel Investors*, Paris: OECD Publishing. <http://dx.doi.org/10.1797/9789264118782-en>
- Owen, R and Mason, C (2016) The role of government co-investment funds in the supply of entrepreneurial finance: an early assessment of the UK Angel Co-investment Fund, *Environment and Planning: Government and Policy*, forthcoming.
- Paul, S and Whittam, G (2010) Business angel groups: an exploratory study of gatekeepers, *Venture Capital: an international journal of entrepreneurial finance*, 12 (4), 241-256.
- Paul, S, Whittam, G and Johnston, J (2003) The operation of the informal venture capital market in Scotland, *Venture Capital: an international journal of entrepreneurial finance*, 5 (4), 313-335
- Payne, W. H. and Mccarty, M. J., 2002, The anatomy of an angel investing network: Tech Coast Angels. *Venture Capital: An International Journal of Entrepreneurial Finance*, 4: 31-336.
- Peters, B (2009) *Early Exits: Exit strategies for entrepreneurs and angel investors (but maybe not venture capitalists)*, Vancouver: Meteor Bytes.

- Preston, S L (2007) *Angel Financing for Entrepreneurs*, San Francisco: Jossey-Bass
- San José, A., Roure, J. and Aernoudt, R., 2005, Business angel academies: unleashing the potential for business angel investment. *Venture Capital: An International Journal of Entrepreneurial Finance*, 7:149-165.
- Sohl, J (2007) The organization of the informal venture capital market, in H Landström (ed) *Handbook of Research on Venture Capital*, Edward Elgar, pp 347-368.
- Sohl, J (2012) The changing nature of the angel market. In H Landström and C Mason (eds) *The Handbook of Research on Venture Capital: Volume II*. Edward Elgar: Cheltenham, pp 17-41.
- Sohl, J (2013) *The Angel Investor Market in 2012: A Moderating Recovery Continues*. Center for Venture Research, University of New Hampshire, USA.
- Sudek, R (2006) Angel investment criteria, *Journal of Small Business Strategy*, 17 (2-3), 89-103.
- Tuomi K and Harrison RT, A comparison of equity crowdfunding in four countries: implications for business angels, Forthcoming in *Strategic Choice: Studies in Entrepreneurial Finance*, May 2017
- Wetzel, W E (1984) Venture Capital Network Inc.: An Experiment in Capital Formation, in J A Hornaday, F Tarpley, J A Timmons and K H Vesper (eds) *Frontiers of Entrepreneurship Research*, Babson College, pp 111-125
- Wetzel, W E jr (1986) Entrepreneurs, *Angels And Economic Renaissance*. In R.D. Hisrich (ed) *Entrepreneurship, Intrapreneurship and Venture Capital*, Lexington MA: Lexington Books, pp. 119-139.
- Wetzel, W. E. jr. and Freear, J., (1996) Promoting informal venture capital in the United States: reflections on the history of the Venture Capital Network. In R. T. Harrison and

C. M. Mason (eds) *Informal Venture Capital: evaluating the impact of business introduction services*. Prentice Hall, Hemel Hempstead, pp 61-74.

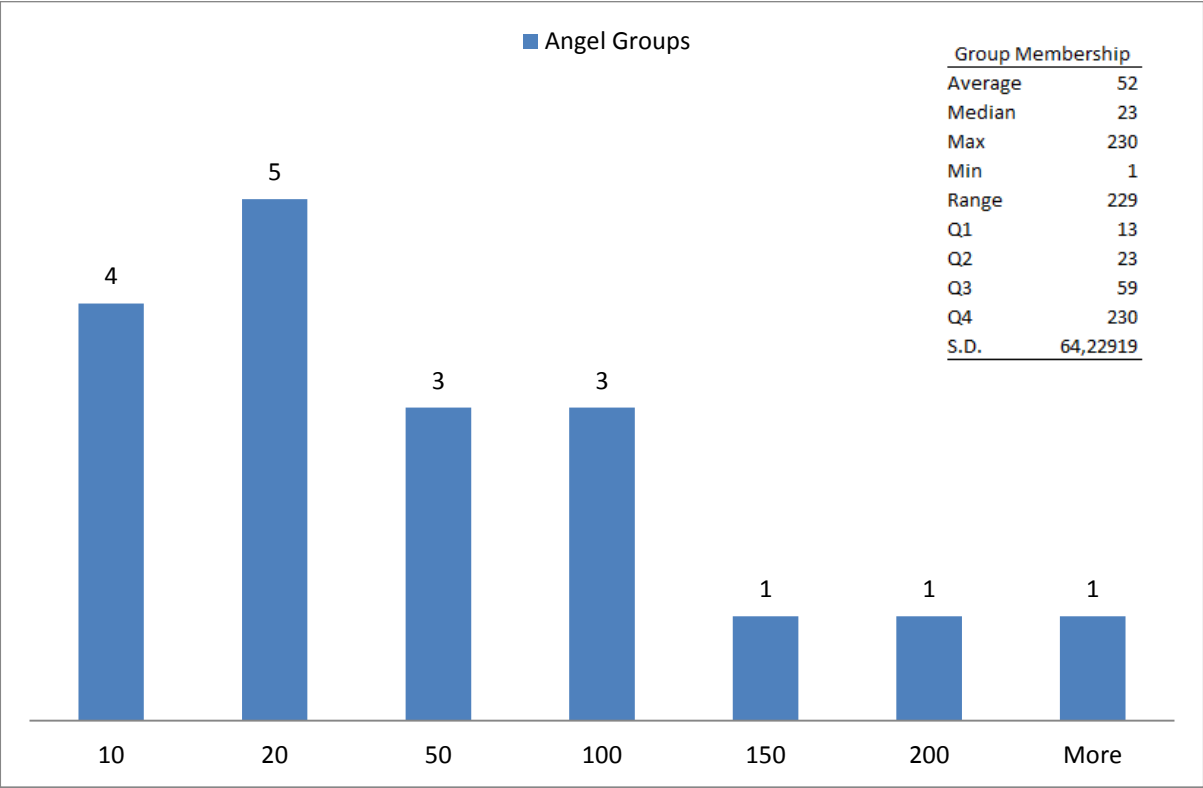
Young Company Finance (2012) *The Risk Capital Market in Scotland 2009-2011*. Glasgow: Scottish Enterprise

Young Company Finance (2014) *The Risk Capital Market in Scotland 2012-2013*. Glasgow: Scottish Enterprise

Young Company Finance (2015) *The Risk Capital Market in Scotland 2014*. Glasgow: Scottish Enterprise

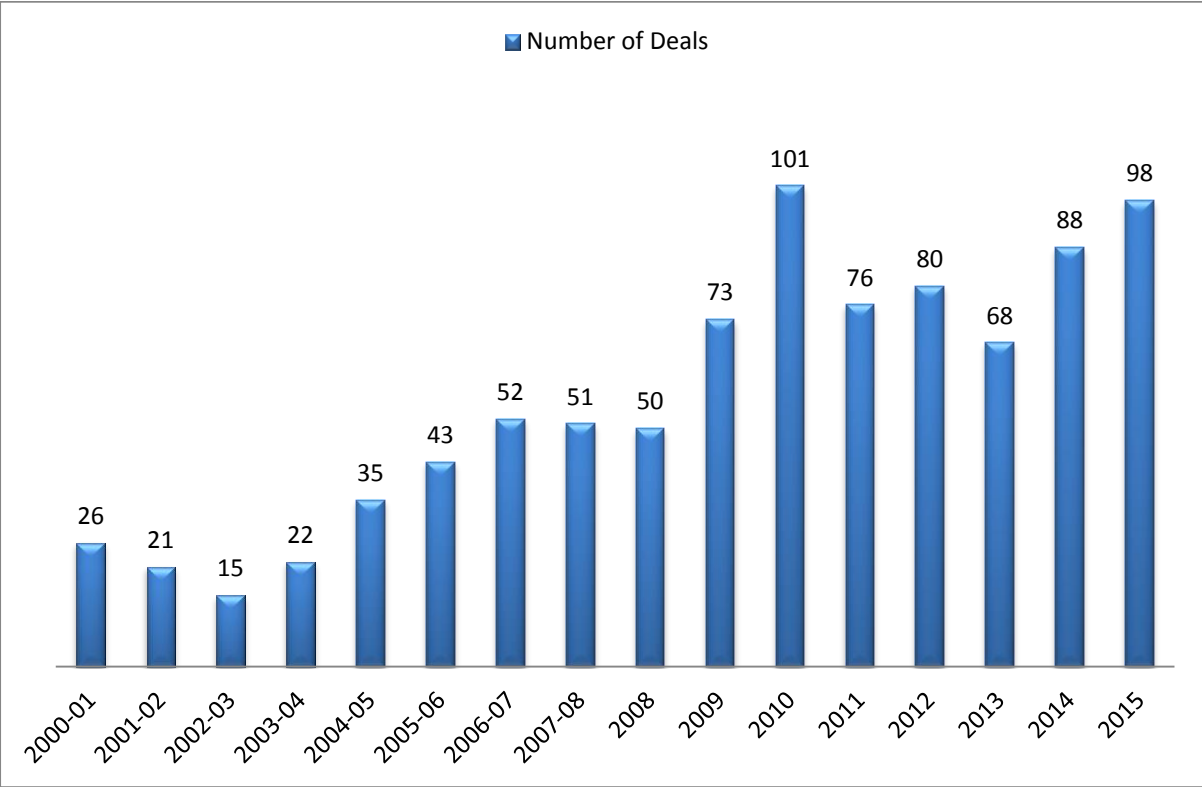
Zook, M A (2004) The knowledge brokers: venture capitalists, tacit knowledge and regional development, *International Journal of Urban and Regional Research*, 28 (3), 621-641

Figure 1 – Size Distribution of Angel Syndicate membership



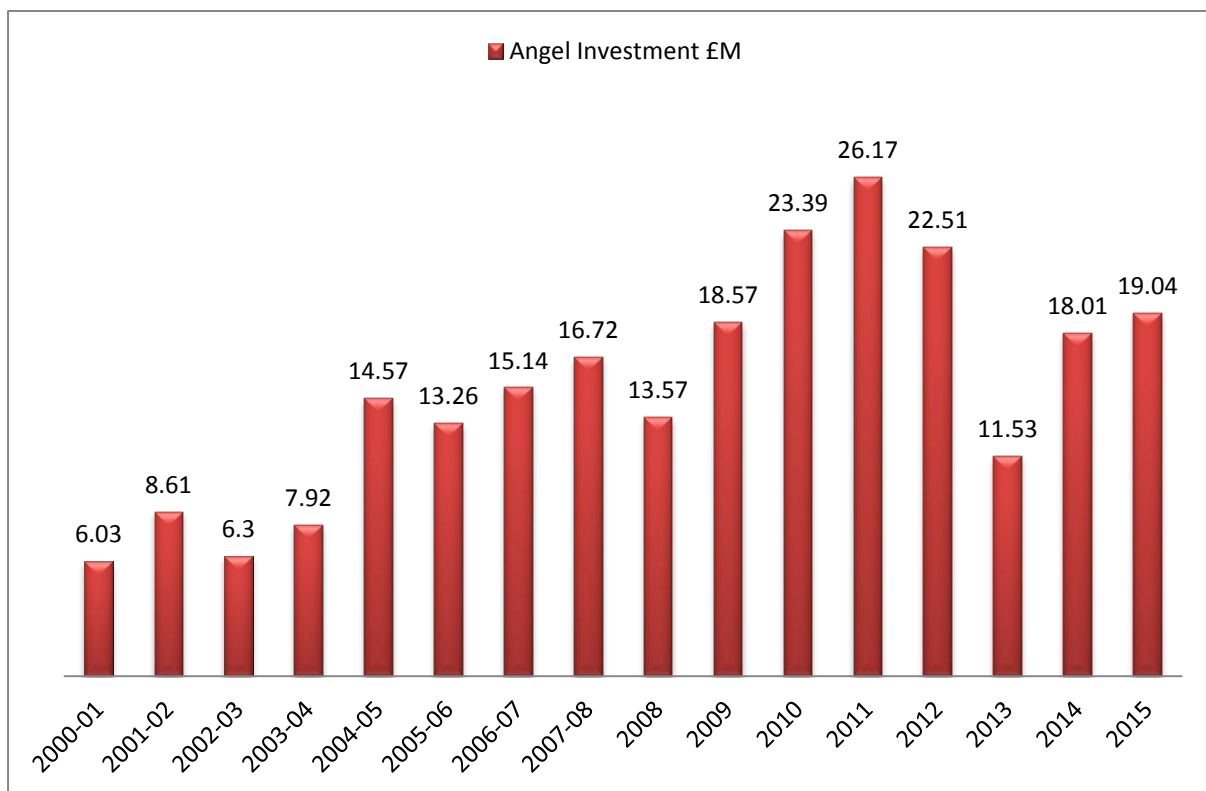
Source: compiled from interviews

Figure 2. Number of investments made by angel groups in Scotland, 2000-2015



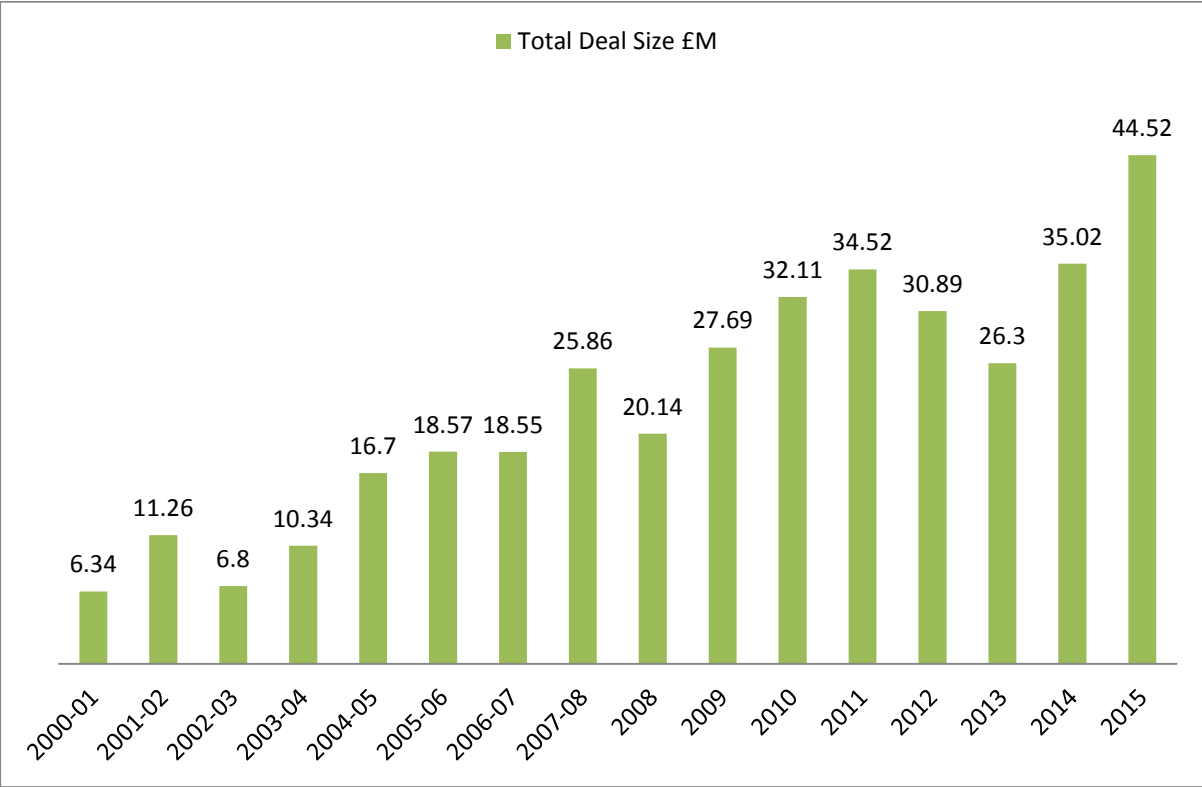
Source: LINC Scotland

Figure 3 - Total aggregate transaction value of angel group investments in Scotland from 2000 to 2015



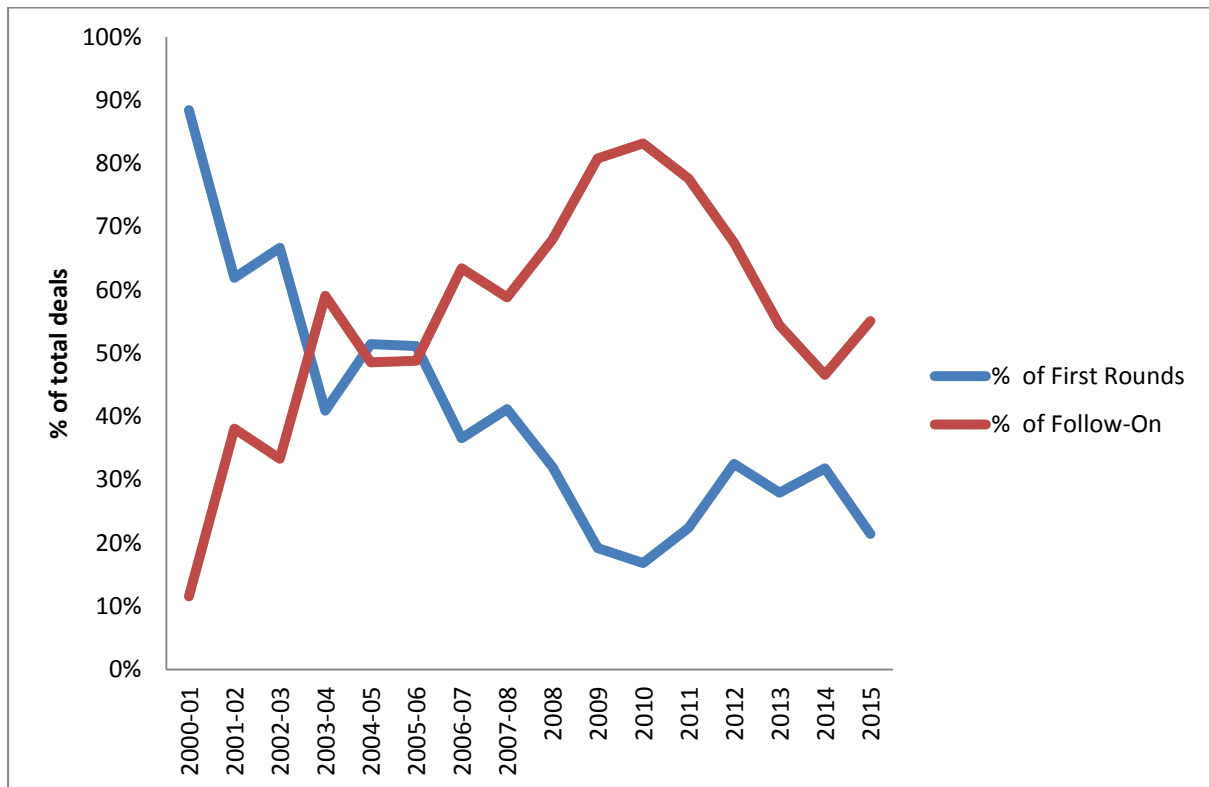
Source: LINC Scotland

Figure 4. Amounts invested by angel groups in Scotland, 2000-2015



Source: LINC Scotland

Figure 5 – Follow On Vs. First Round Investments



Source: LINC Scotland

Table 1 - Venture capital investment in Scotland, 2009-14: number of investments and amount invested (£m)

| | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | |
|----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | £m | % | £m | % | £m | % | £m | % | £m | % | £m | % |
| Angels | 14 | 13.2 | 17 | 13.4 | 15 | 16.7 | 17 | 14.5 | 15 | 7.4 | 26 | 10.7 |
| Venture capital/ institutions | 53 | 50.0 | 76 | 59.8 | 48 | 53.3 | 69 | 59.0 | 155 | 76.7 | 157 | 64.3 |
| Scottish Enterprise /public | 31 | 29.2 | 24 | 18.9 | 18 | 20.0 | 21 | 17.9 | 21 | 10.4 | 49 | 20.1 |
| Other | 8 | 7.5 | 10 | 7.9 | 9 | 10.0 | 10 | 8.5 | 11 | 5.4 | 12 | 4.9 |
| Total | 106 | 100 | 127 | 100 | 90 | 100 | 117 | 100 | 202 | 100 | 244 | 100 |

Source: Young Company Finance (2015)

Table 2. Venture Capital Investments between £100,000 and £2 million 2012-14: number of investments and amounts invested (£m)

| | Number of investments | | Amount invested £m | |
|---------------------|-----------------------|------|-----------------------|------|
| | number | % | £m | % |
| Angels | 230 | 32.9 | 50.1 | 33.1 |
| Venture capitalists | 80 | 11.4 | 37.2 | 24.6 |
| Other private | 120 | 17.2 | 17.8 | 11.8 |
| Public sector | 269 | 38.5 | 46.3 | 30.6 |
| Total | 699 | 100 | 151.4 | |

Source: Young Company Finance (2015)

Table 3. Gatekeeper Roles

| General function | Proportion of gatekeepers citing this role | Detailed function | Proportion of total comments |
|-----------------------|--|---|---|
| 1. External | 66.7 | Marketing Promotion Recruitment | 5.5 6.3 2.4 |
| 2. Internal | 52.4 | Interaction with members Organisation of the process Internal communication Administrative | 0.8 1.6 7.9 7.9 |
| 3. Investment Process | 100.0 | Sourcing Screening Due diligence Negotiation Post-investment Exiting Others | 7.1 21.3 11.0 7.1 7.9 3.1 8.7 |
| 4. Organisational | 19.0 | Creation of group Development of group | 0.8 0.8 |

Source: compiled from interviews