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The anatomy of high growth firms in Scotland

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1. Introduction

There is a growing volume of scholarly evidence from various countries which points to high growth firms (HGFs) as a key force fuelling economic growth. These businesses are typically highly dynamic enterprises which undertake very rapid growth, generating substantial levels of turnover and employment growth over relatively short periods of time (BERR, 2009; Anyadike-Danes et al, 2009; Mason et al, 2009; Henrekson and Johannsson, 2010). One recent study discovered that these firms account for nearly half of all new employment growth within the UK (Anyadike-Danes et al, 2010). Other research has demonstrated that HGFs have above average levels of productivity, are highly innovative and feature strong levels of internationalisation (Mason et al, 2009). In addition, rapidly growing firms often act as vital 'growth nodes' and play an important catalytic role in shaping the overall growth trajectory of different industries through various positive spill-over effects (Stam et al, 2009; Brown, forthcoming). Moreover, by undergoing one or more periods of rapid growth, some firms are able to undertake a 'quantum leap' forward towards becoming fully rounded "companies of scale".

For these reasons the promotion of HGFs is now a central policy objective for many national and sub-national governments (Lerner, 2010). Indeed, in view of the evidence on the importance of these enterprise some observers advocate that policy makers should cease to promote start-ups and should instead focus business support on this small subset of businesses with high growth potential (Shane, 2009). Indeed, one of the central aims of the current economic strategy of the Scottish Government is to provide responsive and focused enterprise support to increase the number of highly successful, competitive businesses (Scottish Government, 2007). Hence, for the past decade there have been a number of policy initiatives designed to stimulate high growth entrepreneurship in Scotland. Many of these initiatives have had a strong technology focus and Scottish Enterprise has led on many of these policies.

Given the importance HGFs have for a region's economic growth potential and the policy attention they now receive it

was felt important to develop a deeper understanding of these important generators of wealth creation in the Scottish economy. Consequently, Scottish Enterprise commissioned the first ever comprehensive analysis of HGFs in Scotland (Mason and Brown, 2010a). This paper highlights some of the key findings from this research project. It is structured as follows. First, we define what we mean by HGFs. Second, we outline the research methodology undertaken during this study. Third, we outline the size of the population of these firms in Scotland. Fourth, we examine the key demographic characteristics of HGFs in Scotland. Fifth, we examine some of the qualitative features of HGFs in Scotland. Finally, we provide some conclusions and highlight the policy implications of the research.

2. Defining high growth firms

In the past a wide range of definitions have been used to define and measure rapidly growing firms (Coad, 2009), reflecting a lack of international agreement over the definition of what constitutes high growth. However, OECD has recently sought to bring precision to the topic by defining high growth firms as follows¹:

'enterprises with average annualised growth in employees or turnover greater than 20% per annum, over a three year period, and with more than 10 employees in the beginning of the observation period, should be considered as high growth enterprises'

In common with a growing number of recent research studies, our research adopted this definition of HGFs.

There were several reasons for selecting this exact definition of high growth. First, by selecting firms with three consecutive years of turnover growth greater than 20%, it should ensure that only firms that have gone through a period of consistent growth meet this challenging threshold. A shorter time period would make the data prone to potential one-off effects such as winning a major new order. Second, the 10 employee cut-off ensures that population of high growth firms is not dominated by micro-businesses that have achieved growth that is significant in percentage terms but relatively modest in absolute terms. Third, the benefit of using the standard OECD definition is that it enables both longitudinal and international comparisons. Therefore, we can assess how the population of HGFs change over time and how Scotland compares to other regional and national economies in terms of high growth entrepreneurship.

This research used turnover as the main growth indicator. While recognising that a single metric will not capture all elements of firm growth (Janssen, 2009), turnover was preferred as it is an 'outcome' measure whereas employment is an 'input' measure. However, it needs to be acknowledged that different indicators, such as employment and turnover, often produce different results when identifying the aggregate number of HGFs (Delmar et al, 2003; Daunfeldt et al, 2010).

3. Research method

The research design was based on a multi-method approach with four main elements. First, a quantitative analysis high growth firms was undertaken using the OECD definition based on the business database FAME (Financial Analysis Made Easy). FAME uses data obtained directly from Companies House, the official register for companies in the UK. It therefore contains detailed information on all public and private companies currently registered in the UK. An important advantage of FAME is that individual companies can be identified, making it possible to be used as a sampling frame. This is in contrast to official government data sources, such as the Inter-Departmental Business Register (e.g. Anyadike-Danes et al, 2009), whose records are anonymised. The data used for this research exercise was taken from the FAME database in April 2009.

Second, a sample of the population of HGFs that were identified from FAME were examined in greater detail using secondary research resources, notably company databases, press sources and company websites. This element of the research was used both to provide a profile this group of HGFs and also to ascertain their suitability for subsequent interview. In total some 90 firms were examined in this manner.

Third, in-depth qualitative evidence was gathered through interviews with the business owners or senior management of 21 indigenous high growth companies² in order to develop a deeper understanding of the nature of their businesses and growth processes.

Finally, Interviews were conducted with the eight account managers within Scottish Enterprise who deal directly with these businesses³. These interviews were specifically designed to corroborate the data obtained directly from the companies.

4. High growth firms in Scotland: aggregate evidence

4.1 How many?

HGFs constitute a very small sub-set of the overall population of firms in any given economy, with most studies showing that they constitute less than 10% of the total stock of firms employing more than 10 employees (Henrekson and Johansson, 2010). This is confirmed in Scotland. There are approximately 290,000 private sector firms in Scotland of which 20,400 have more than 10 employees. Of this latter total, just 825 firms met the OECD definition of high growth, having grown in turnover by over 20% for three consecutive years between 2006-2009. HGFs therefore comprise just 4.1% of all registered businesses in Scotland employing more than 10 employees. However, the small size of this cohort of businesses should not detract from the fact that they undoubtedly make a disproportionate contribution to economic development and are critical to the growth of the Scottish economy.

Because other studies have used different definitions and data sources it is difficult to judge how Scotland compares with other countries and UK regional economies. However, a major recent study of HGFs in the UK which used employment growth as the main indicator of high growth found that, during the 2002-2005 time-period, such firms represent 6.3 percent of all UK firms employing ten people or more (Anyadike-Danes et al, 2010). During this time period 830 HGFs were identified in Scotland or 6.3 percent of the all firms employing more than 10 employees in Scotland. However, during a later time period 2005-2008, 1030 firms or 7 percent of the total stock of Scottish companies with 10 or more employees were found to be HGFs in Scotland. Moreover, this figure is actually above the UK average during this second time period (5.8%). The lower figures found during our study are likely to reflect the different measures of growth (turnover vs. employment) and the different time periods covered.

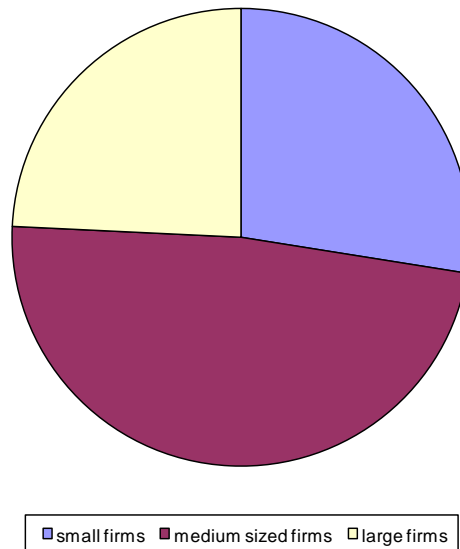
Comparison with studies from various Scandinavian countries show that the number of HGFs in Scotland is broadly on a par with other small EU economies. For example, using data from the Finnish Business Register it has been estimated that there were 750 HGFs in Finland, roughly 5% of registered businesses (Deschryvere, 2008). The number of HGFs in Denmark was similar at 721 (Peterson, 2006). However, conclusions from such comparisons must be tentative on account of different data sources and definitional issues.

4.2 Size profile

Prior research indicates that the relationship between HGFs and firm size is ambiguous (Henrekson and Johansson, 2010). Small firms are nevertheless overrepresented in the surveys of most studies of HGFs. This is not the case in Scotland. In fact, if anything the reverse is true, with medium and larger-sized enterprises dominating the composition of the Scottish HGF population (see Figure 1).

Measured in terms of their employment, HGFs in Scotland can be found across the size spectrum. The largest firm identified had 105,685 employees while the smallest firm had a 11 employees. The largest concentration of HGFs (398) is in the medium-sized category of firms employing between 50 and 299 employees⁴. There are also a sizeable number of HGFs firms which employ between 300 and 750 employees (200). Whereas previous studies have considered large firms or 'elephants' to demonstrate relatively stable employment levels (Acs et al, 2008) this is contradicted by our evidence which shows that large firms, employing over 300 employees, comprise a substantial proportion of the population of HGFs. A similar pattern emerges when the turnover of HGFs is examined. Once again, the majority of HGFs are concentrated in the middle to upper ranges of turnover levels. Smaller firms with a turnover of less than £5 million account for around one in seven of the overall population of HGFs. The largest cohort of HGFs is in the £20-50 million bracket. In fact, more than half of the firms have a turnover in excess of £20 million.

Figure 1: Size of HGFs in Scotland, 2007-2009



Source: Mason and Brown (2010a)

4.3 Contribution to employment

The HGFs identified in Scotland employed almost half a million people (499,242). This figure represents almost a quarter of all private sector employment in Scotland (1,995,520), illustrating the importance of these firms to the Scottish economy. However, as we note later, by no means all of this employment will actually be located in Scotland. Many HGFs have substantial overseas operations which account for a significant proportion of their employment. First Group is a good example, with 25,000 employed in its UK bus division, 13,000 in its UK rail businesses, 8,000 in Greyhound (north America) and 87,000 in its North American contract services (First Group Annual Report and Accounts 2010).

4.4 Age profile

Popular images of HGFs typically associate such firms with youthfulness. This is consistent with much of the research evidence which finds a high correlation between newness and high growth (Henrekson and Johansson, 2010). Acs et al (2008) is an exception, reporting that the average age of 'high impact firms' in the USA is 25 years old. Growth through acquisition is much more prevalent for older HGFs.

Our analysis finds that Scottish HGFs lie somewhere in-between these extremes. The vast majority (roughly two-thirds) of Scottish HGFs were established between 1985-2004. The two largest age cohorts are those founded between 1995-1999 (146) and those founded between 2000-2004 (146). Over one-third of Scottish HGFs, therefore, are less than 15 years old. Newer companies -

genuine gazelles under five years of age - established from 2004 onwards are much less significant in the population of HGFs (fewer than 25 or less than 3% of the entire high growth population). However, this should not obscure the significant tail of very old, well established companies that have grown rapidly. Quite often these firms are now operating in different markets to those which they were originally established to serve.

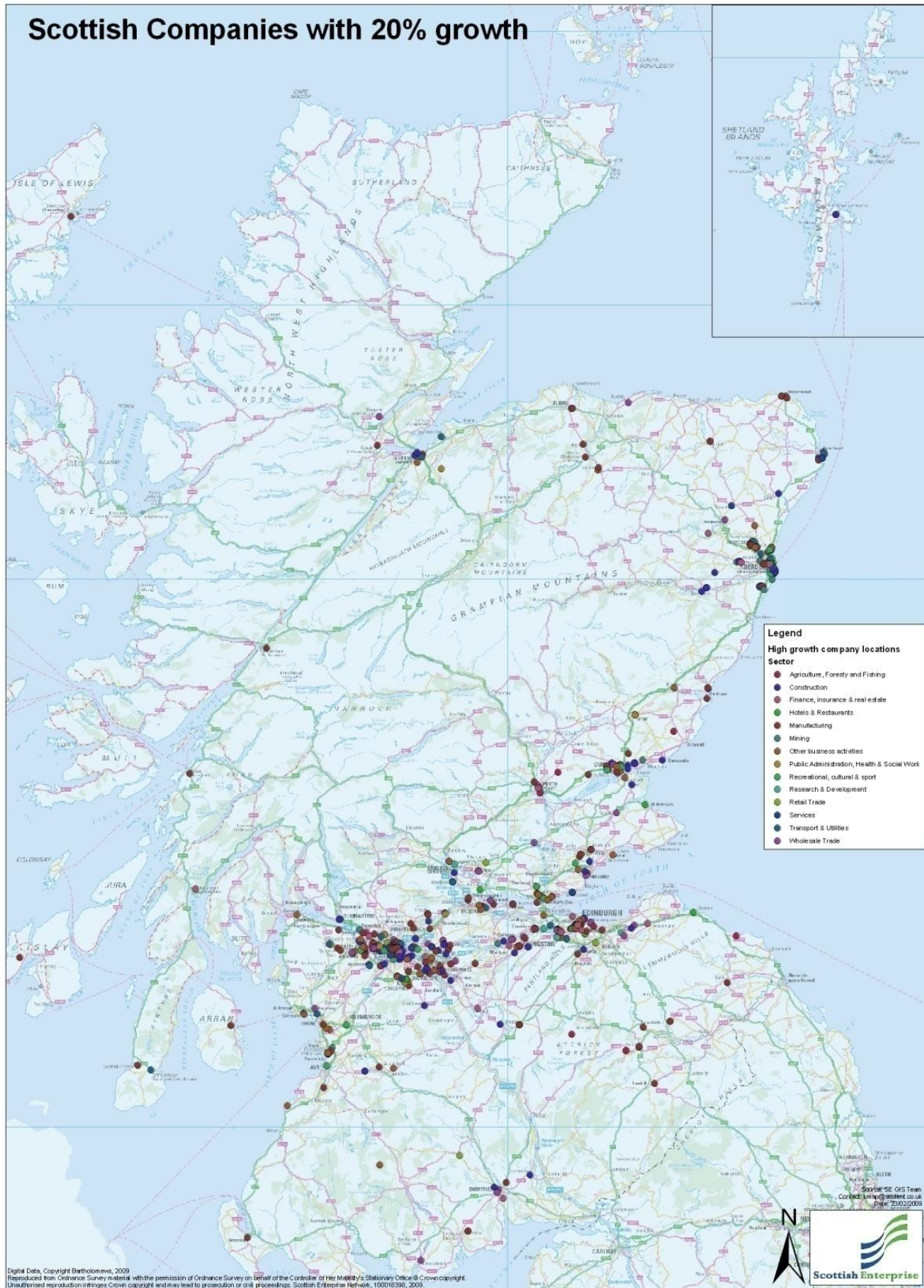
4.5 Location of HGFs

The vast majority of Scottish HGFs are based around Scotland's main urban agglomerations of Glasgow, Edinburgh, Dundee and Aberdeen (Figure 2). Given the large number of knowledge-intensive business service firms in the overall population of HGFs, and the concentration of such firms in major urban areas this geographical bias is to be expected. However, existing clusters also play a role in determining the spatial distribution of HGFs. For example, the spatial concentration of HGFs in the north east of Scotland is linked to the role of the energy industry in that region. HGFs are typically under-represented in remote rural areas. In Scotland the HGFs in rural areas are mainly based around the processing of raw materials, such as food and drink and forestry.

4.6 Country of ownership

The FAME data only includes businesses with a separate legal status and which are incorporated in the UK. Foreign-owned 'branch plant' and 'branch office' operations are therefore not included because they are not established as legally separate businesses. However, FAME does include

Figure 2: The spatial location of Scottish high growth firms



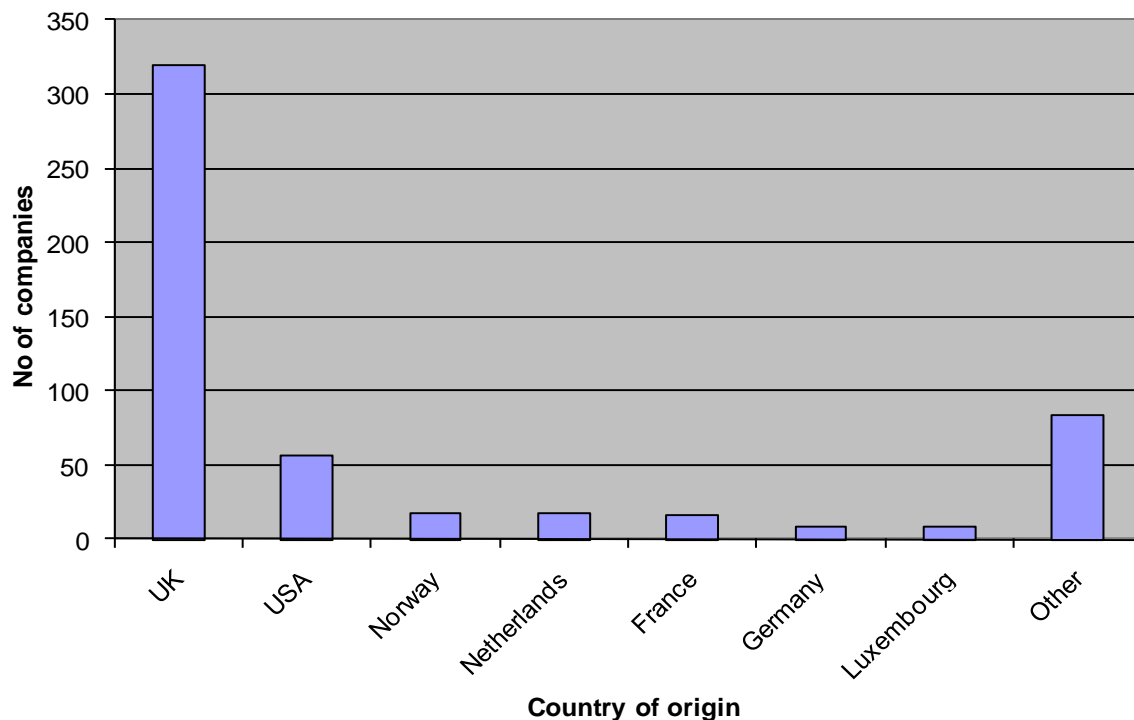
Source: Mason and Brown (2010a)

foreign-owned businesses that are incorporated in the UK. Unfortunately, FAME does not separately identify Scottish from UK companies. Ownership data was only available for around two-thirds of HGFs in Scotland (i.e. 525). However, there is no reason to think that the other third do not reflect the HGF population as a whole.

The majority of HGFs (61%) are UK-owned. However, a sizeable minority are foreign-owned (39%), with US-owned businesses accounting for 10% of the total. A number of other Scottish HGFs are owned by companies based in

European countries, notably the larger economies of France and Germany, but also The Netherlands and Norway (Figure 3). The high level of Norwegian-owned HGFs is linked to the role played by Norwegian enterprises in North Sea oil and gas exploration. In addition, a number of Norwegian salmon farming businesses have acquired Scottish producers in recent years (Brown, forthcoming). Although precise figures are unknown, our desk research revealed that a significant proportion of foreign-owned HGFs are acquisitions of formerly Scottish-owned businesses.

Figure 3: High growth firms by country of ownership, 2006-2009



Source: Mason and Brown (2010a)

4.7 Publicly quoted companies

There is a fundamental difference between privately-owned and public companies in terms of their governance, external scrutiny and access to resources. Public companies comprise those that are listed on the London Stock Exchange (LSE) and whose shares are traded on either its main list or the Alternative Investment Market (AIM).

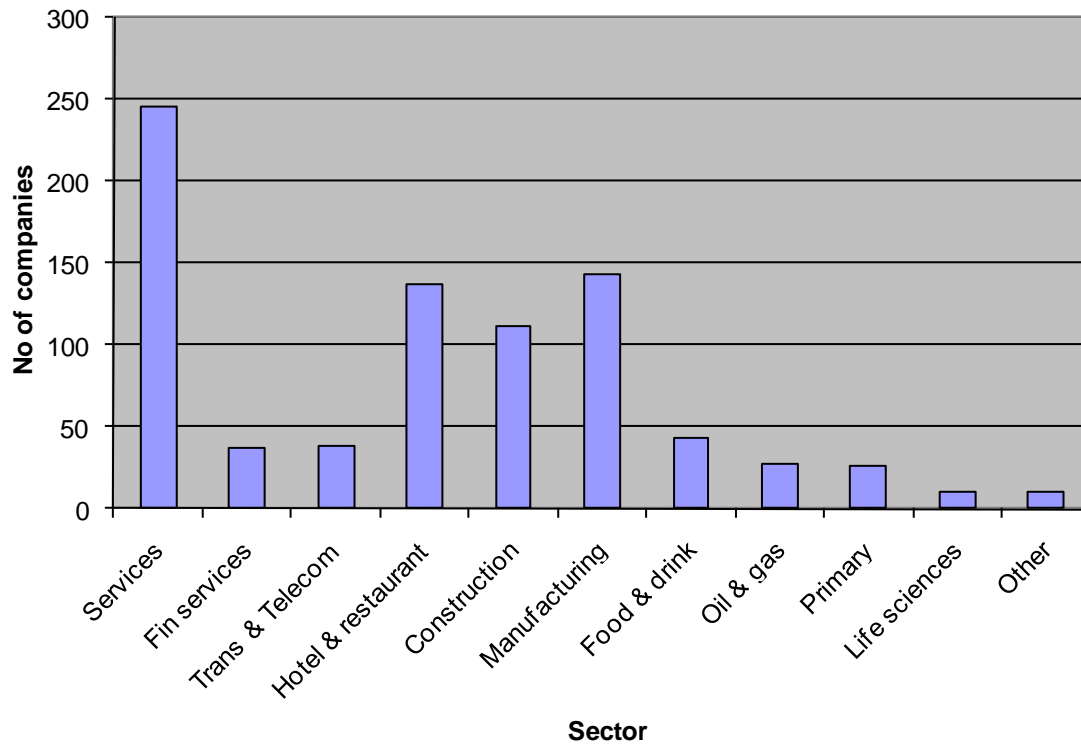
The vast majority of HGFs – 92% in total - are privately-owned firms. This finding is somewhat unexpected because it might have been anticipated that more HGFs would have sought a public listing either to raise further capital to fund their expansion plans, to enable existing shareholders (e.g. private equity investors) to sell their shares, or to provide existing shareholders with liquidity for their shares (e.g. family firms where ownership is widely dispersed). Nevertheless, Scottish HGFs comprise a sizeable proportion

of all Scottish public firms, with eight HGFs listed on AIM which comprises more than one-quarter of all Scottish companies on this market.

4.8 Industry sector

The largest category of HGFs in Scotland is in services which comprise nearly one-third of the total, a finding which is in line with the vast majority of other studies on rapid growth firms (e.g. BERR, 2008; Henrekson and Johansson, 2010) (Figure 5). However, this is a very diverse and wide ranging grouping of activities, including knowledge-intensive business services, consumer services and personal services. Smaller numbers of HGFs are found financial services (37), oil and gas (27) and life sciences (10) - despite these being identified as key sectors in Scotland (Scottish Government, 2007). Indeed, the general lack of HGFs across high technology sectors is noteworthy. For

Figure 4: Scottish high growth firms by sector



Source: Mason and Brown (2010b)

example, in life sciences the number of firms meeting the OECD high growth turnover criteria (10) represents 1.6% of all Scotland's life science enterprises and approximately 1.2% of all Scotland's HGFs. Other sectors exhibiting significant numbers of HGFs include manufacturing/engineering, construction and primary industries such as forestry and agriculture. The key point from this analysis is therefore that HGFs can be found in any sector and not just in high-technology industries as is commonly assumed.

5. The characteristics of Scottish hgfs: qualitative evidence

Much of the research on HGFs is quantitative, where the objective is to establish 'how many' of these firms exist. Our desk research and interviews with a sample of Scottish-owned HGFs sought to achieve a richer understanding of their characteristics and dynamics. Table 1 summarises the main themes that we explored and the key insights.

5.1 Firm origins and growth trajectories

HGFs have varied origins. They are by no means all new start-ups and many have been 'pre-incubated' in established organisations. Existing businesses, rather than new start-ups, are therefore an essential source of new HGFs, with several being management buy-outs (MBOs) of businesses that were previously part of larger organisations. Firms started by serial entrepreneurs are also significant. Growth

is often 'stepped' or lumpy. HGFs which exhibit a continuous or linear growth trajectory are the rare exception. Corporate re-configurations, such as MBOs and management buy-ins (MBIs), often kick-start rapid periods of growth. Indeed, ownership changes to businesses as a whole seem to be particularly potent growth trigger points. Although the majority of the HGFs interviewed had grown organically, acquisition has been an important mechanism for achieving high growth status amongst the larger businesses in the sample.

5.2 Market orientation

Only a minority of HGFs are in high technology sectors. However, classifying HGFs into 'manufacturing' and 'service' categories is problematic, underlining the inappropriateness of this distinction. Most 'manufacturing' firms have a significant service component in their offering, with some describing themselves as total solutions providers. This underlines that the competitiveness of manufacturing firms increasingly depends on the service attributes in which the products are embedded. Most HGFs are selling to other businesses, not to consumers. Over two-thirds of firms that we interviewed engaged in business-to-business (B2B) transactions. Only a minority of Scottish HGFs sell exclusively within the Scottish market with the majority of firms selling into global markets and some, such as the software firm Craneware, were 'born global'.

Table 1: Key characteristics of Scottish high growth firms

Characteristics	Scottish HGFs
Founding Circumstances (origins and trajectories)	Many Scottish HGFs are 'pre-incubated' in existing businesses. Pre-incubated means that the business had its origins in a pre-existing or established business (e.g. MBOs).
Nature of Management Team (origins and trajectories)	Team based rather than solo entrepreneurs dominate. Prior experience of the management team is critical. Serial entrepreneurship important.
Funding Architecture (origins and trajectories)	Over half of the sample of HGFs interviewed obtained venture capital funding and one-quarter are publicly listed.
Business Strategy (market orientation)	Scottish HGFs are characterised by close relationships with their customers, partnering with customers and other firms and business models that have recurring and multiple income streams.
Markets/End Users (market orientation)	Over two thirds of Scottish HGFs are B2B
Business Sector (market orientation)	Services are the single largest source of HGFs. Manufacturing firms are total systems providers in which their products are embedded within service elements. High tech sectors are weakly represented, especially some of Scottish Enterprise key sectors (e.g. life sciences, energy)
Innovation (competitive advantage)	Most HGFs are highly innovative, although they are not heavily engaged in R&D.
Firm Embeddedness	Scottish footprint is often limited to their HQ. Scottish HGFs have weak links to HE bodies
Links to Government (government support)	20% are account managed by SE. Government has played a significant indirect role as customer, through privatisation and deregulation, and legislation that has created or expanded markets.

Source: Adapted from Mason and Brown (2010b)

5.3 Sources of competitive advantage

The success of HGFs in Scotland is based around three key attributes. First, even though a minority of HGFs are in high technology sectors, the majority are knowledge-intensive with innovation at the core of their competitiveness. This is the case irrespective of sector, with HGFs in traditional sectors also exhibiting innovative attributes.

Second, a key source of innovation amongst the HGFs that we interviewed is their business models – which we define as “a system of activities that depicts the way in a company ‘does business’ with its customers, partners and vendors” (Amit and Zott, 2010). Many of the firms have business models which are based around building long-term relationships with customers that generate recurring revenue rather than one-off transactions. Their business proposition is as much based around selling knowledge as it is selling tangible products and services. Creating close relationships with their customers is at the core of such business models. This provides HGFs with an in-depth knowledge of the types of products, services and ‘solutions’

required by their customers. Another key outcome of this close end-user engagement is the ability of HGFs ‘co-create’ new knowledge with their customers which can then be used as the basis for product offerings for other customers.

Partnering is also at the core of the business model of many of HGFs which can take a variety of different forms. It sometimes involves co-creating new knowledge in the forms of products and services with their customers. It can also involve collaborations with other companies in different parts of the value-chain or with complementary products and services to provide the solutions required by their customers.

Third, HGFs consistently identify their workforce as a key source of their competitiveness. This reflects distinctive HRM practices which emphasize hiring the ‘right’ people (attitude being more important than formal qualifications), a high level of investment in training, a culture of openness and information sharing, and profit-sharing.

5.4 Embeddedness

In general HGFs are relatively weakly embedded in the Scottish economy. This has several dimensions. First, with just one exception, these businesses are located in Scotland because this is where the founders were living and working at the time that the company was started. Indeed, most HGFs could be located anywhere. Second, as noted earlier, only a small number derive the majority of their revenue in Scotland. As a result many of the interviewed companies have a physical presence – often a significant one – elsewhere in the UK or in foreign markets. Third, most of the HGFs interviewed are weakly embedded through supply relationships. However, high growth manufacturing firms do have quite extensive local supplier linkages – but they comprise a minority of HGFs. Scottish HGFs also have few links to universities or higher education institutions for research, technology-transfer or graduate recruitment.

Two implications arise from these findings. First, the direct Scottish 'footprint' of many of these companies is sometimes quite small, often limited to headquarters functions, with the majority of the jobs located elsewhere in the UK and abroad. This reflects a combination of the service-oriented nature of the majority of the businesses which requires a physical presence close to customers and the need for sales and support staff in export markets. Indeed, for such companies there is almost an inevitability that growth – involving penetration of new geographical markets - especially if it is achieved through acquisitions, will reduce the Scottish footprint, at least in relative terms. Second, the Scottish HQ would be vulnerable to downgrading or even closure in the event that the company is acquired.

5.5 Extent and nature of government support

The majority of HGFs have received public sector assistance at some point in their development. However, much of this has been on a relatively small scale. This includes grant support from the Scottish Government, internationalization assistance from Scottish Development International (SDI), innovation support, and assistance with manufacturing issues. A quarter of the firms interviewed had received Regional Selective Assistance. Around 20% (approx 160) of the 825 HGFs identified from FAME are account managed by Scottish Enterprise.

The interviews highlighted a number of key issues regarding public support. First, in some cases the critical support occurred when the companies were still very young (and not yet identifiable as a HGF) and potentially vulnerable. Second, the most effective forms of support appeared to be schemes which provided international sales and marketing support, followed by training grants. Third, those firms that were account managed by Scottish Enterprise valued the ongoing

relationship that this created. Of course, firms valued the access that the account manager provided to various 'products' that Scottish Enterprise offered (e.g. RSA, SMART, etc). However, they placed as much, if not more, value on the strategic relationship that provided guidance and advice. In other words a 'relational' rather than a purely 'transactional' relationship is viewed extremely positively by HGFs.

Government also has had important, often critical, indirect effects on HGFs as a customer, through privatisation and deregulation, and through legislation which has created or expanded markets. A prime example of this is the impact of environmental regulations which has created new markets for re-cycling waste products.

6. Conclusion

This has been the first in-depth analysis of high growth entrepreneurship to have been undertaken in Scotland. We take the opportunity in closing to re-iterate four key findings.

First, HGFs comprise a small proportion of the overall business stock in Scotland employing more than 10 employees (4.1%), but because of the lack of comparable studies we cannot say exactly how this compares with other parts of the UK or other countries. However, the small number of HGFs should not detract from the fact that they undoubtedly make a disproportionate contribution to economic development and are critical to the growth of the Scottish economy. Broadly speaking, the evidence suggests that Scotland performs on a par with other economies in terms of the aggregate level of HGFs.

Second, growth of HGFs is not a linear process. Rather, growth tends to be sporadic and uneven, a finding that is confirmed in other studies of HGFs (Parker et al, 2010). Particularly amongst larger firms this often reflects growth through acquisition. Indeed, many of HGFs identified in this study would no longer have been classified as being high growth if the analysis had been undertaken a year later. The population of HGFs is therefore constantly changing: as some emerge, or re-emerge, others will stop growing, some will be acquired and lose their identity as part of a larger business, and a few will cease to exist. Flux is the norm for this dynamic collection of firms.

Third, HGFs are a highly diverse collection of enterprises. One of our central conclusions from this study is the inherent difficulty of pre-judging where HGFs will emerge. HGFs are found in a wide range of industries, with several crossing the manufacturing-services divide. Most are not found in 'high technology' sectors. HGFs also vary in terms of their size and age. Of note is the fact that Scottish HGFs tend to be somewhat older and larger than the norm, a finding in

common with a recent study in the US of high impact firms (Acs et al, 2008). By no means all HGFs started as 'classic' start-up companies. A significant minority have been 'pre-incubated' in established businesses, with several emerging after MBOs.

Fourth, one of the most notable features of this group of businesses is the way in which they do business. HGFs are mostly knowledge-intensive, with an emphasis on innovation, very strong customer focus and business models which are characterised by partnerships with customers and other businesses and 'recurring' and multiple income streams.

The policy implications are discussed in more detail in the full report and in a separate paper (Mason and Brown, 2010b). In our view there is clearly a role for government to nourish and support HGFs. However, policy makers may wish to review the current support mechanisms in light of the evidence presented within. In particular, public policy makers in many economies have in the past tried to pre-judge both the sources of HGFs and the most appropriate method of assisting them. There has been a tendency to focus on high technology businesses with the majority of assistance geared towards support for commercialisation and innovation. The key points to be drawn from this analysis are, first, that HGFs can be found in any sector and not just in high-technology industries, and second, that close relationships with customers, rather than R&D activity, is vital for developing their competitive advantage. Therefore, going forward more nuanced and bespoke forms of assistance may be more effective for aiding the development and growth of HGFs.

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Endnotes

¹'Gazelles' (or young high growth firms) are deemed to be a subset of high growth enterprises: 'they are the high growth enterprises born five years or less before the end of the three year observation period' (OECD, 2008, pg. 20). The focus of this study was on HGFs as a whole and not just gazelles.

²A substantial amount of information was obtained on a further high growth firm from a presentation by the owner at an Entrepreneurial exchange event.

³ Account managers are people employed by Scottish Enterprise to help support business growth within targeted businesses on an on-going basis (e.g. export assistance, innovation support and so on).

⁴FAME defines a medium-sized firm as employing between 50-299 employees whereas standard definitions of medium-sized businesses are those employing between 50-249.