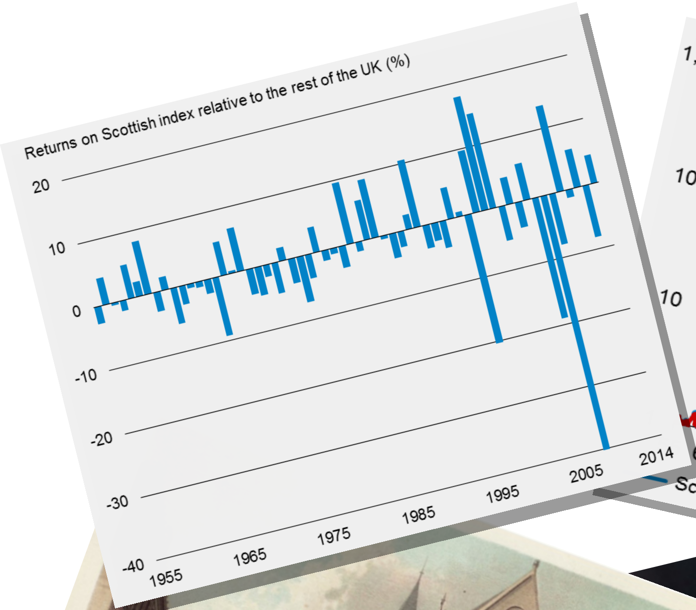
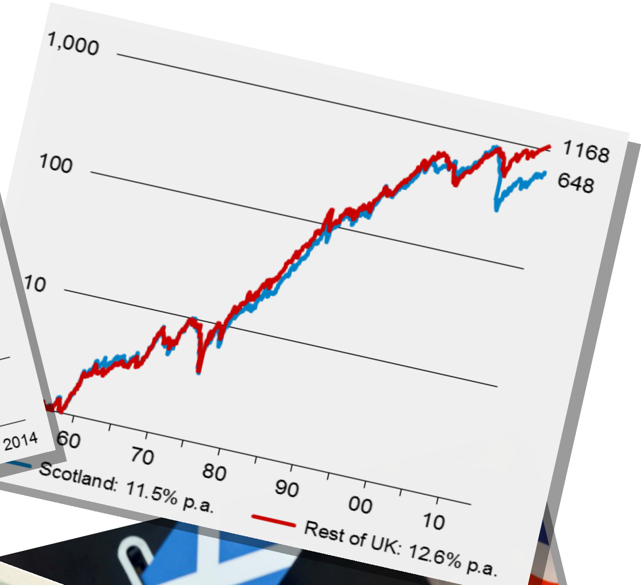
The Scotsie 100: Sixty Years Of Scottish Stocks

Paul Marsh and Scott Evans





- **60-year performance index of Scottish shares**
- **Implications for companies and investors of a “yes” vote**
- **The case for and against a Scottish stock exchange**

The Scotsie 100: Sixty years of Scottish stocks

A number of the UK's leading quoted companies are based in Scotland. With Scottish independence now a possibility, and greater devolution a near certainty, this article assesses the implications for Scottish stocks, equity markets and investors. We construct a Scottish stock market index spanning the last 60 years, and show how Scottish listed companies and the index have changed over time. We compare the performance of Scottish stocks with the rest of the UK and seek to explain the differences in risk and return. Looking ahead, we examine the implications of a "yes" vote for Scottish companies and their likely future domicile. Finally, we look at the history of Scotland's stock exchanges, and assess whether it would be desirable or indeed feasible to re-establish a Scottish Stock Exchange.

Paul Marsh and Scott Evans

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Sixty years ago, there were four Scottish stock exchanges in Glasgow, Edinburgh, Aberdeen and Dundee. In 1964, these merged to form the Scottish Stock Exchange, with Glasgow as the lead exchange. In 1973, Glasgow merged with the London Stock Exchange and closed. But both before and after this closure, the main trading venue for Scottish stocks – as for English, Welsh and Northern Irish stocks – was London.

In this article, we start by describing the characteristics of Scottish stocks traded in London over the last 60 years. We construct a Scottish stock market index, together with a companion index for the "Rest of the UK". We examine the composition of the Scottish index both today and 60 years ago, documenting its largest constituents, industry breakdown and concentration. We also look at the changing weights of Scottish stocks within the UK market since 1955.

In the second section of this article, we compare the performance of Scottish stocks with those from the Rest of the UK over the 60-year period since 1955. Besides documenting performance, and analysing performance deviations, we also examine comparative risk and return over time, and look at correlations with other countries.

In the third part of this article, we examine the potential impact on Scottish quoted companies of Scottish independence. In particular, we focus on factors that might lead companies to change their domicile, either away from Scotland, or to Scotland.

In the final section, we look at the desirability, feasibility, and likelihood of Scotland reestablishing its own stock market. Over the last 25 years, most countries that have achieved independence or transitioned from communism towards economic liberalism have set up their own national stock exchanges. On the face of it, it would seem odd if Scotland, with its long history of financial services and markets, and its established body of Scottish-based listed companies were to be an exception. Yet we argue that the case for a viable Scottish stock exchange is more nuanced than it first appears.

1. The Scottish Stock Market Index

To construct our Scottish Stock Market index, we used London Business School's London Share Price Database (LSPD). LSPD provides a comprehensive record of share prices, capital changes and dividends for UK quoted shares traded on the

London Stock Exchange going back to 1955. Most of the companies listed on the exchange in 1955 are long dead, thanks to takeovers and other delistings, including company failures. And since 1955, many new companies have been born. LSPD includes all non-surviving, as well as currently listed, companies. This allows us to create an index that is free of "survivorship bias", as in every year, it is based on all the companies that were listed at that time. LSPD also has full dividend information, so we can accurately calculate investors' total returns, including income.

Unfortunately, LSPD does not provide a marker to show which companies were Scottish at each point in time, nor is there any other easy source of this information. We therefore had to collect this by hand – a significant task, as LSPD contains data for over 10,000 UK companies (8,000 of which are now dead) over its 60 year history. We also needed a robust definition of "Scottishness".

Identifying Scottish companies

Determining a company's nationality is non-trivial and a vexed issue for the major index providers. FTSE International has a page and a half of rules on this. The basic rule states "If a company is incorporated in one country and has its sole listing in the same country, FTSE will allocate the company to that country." The numerous exceptions to this rule then get referred to the FTSE Nationality Committee for a decision.

Unfortunately, we cannot borrow even FTSE's basic rule to judge whether a company is Scottish, as hitherto, the "country" in question has been the United Kingdom of which Scotland is an integral part. Nor can we reliably assess whether a company is Scottish based on the location of its customers or assets. For example, Weir Group and Standard Life are clearly viewed as Scottish. Yet Weir Group is a global business, with only 4.3% of its revenues from the UK (let alone Scotland), and just 5% of its assets in the UK. Similarly, more than 90% of Standard Life's customers are outside of Scotland. Indeed, if a company's nationality were to be assessed from the location of its customers or assets, numerous companies that FTSE and other index compilers currently classify as "UK" would be deemed "non-UK".

Similarly, the location of a company's shareholders is of no help in determining Scottishness. Both Weir Group and Standard Life are globally held, with Scottish investors accounting for only a small minority of each company's share register.

Nor does the country of registration provide a definitive test. Registration of companies in Scotland began in 1856, when the post of Registrar of Companies was created in Edinburgh. The postholder is now an official of Companies House, an Executive Agency of the UK government. Companies registered in Scotland have registration numbers prefixed "SC". In many cases, however, such companies have long since severed all ties with Scotland, leaving only a brass-plate presence.

In judging Scottishness, the variable to which we give the greatest weight is the location of group headquarters. So if a company is registered in Scotland and has its head office in Scotland, we view it as unequivocally Scottish. However, if it has an "SC" registration, but its head office and control is outside of Scotland, we normally deem it "not Scottish". If its head office is in Scotland, but it is registered in England and Wales, we normally view it as Scottish. When there is a move, for example from Scotland to England, as when Christian Salvesen transferred its head office to Northampton in 1998, we deem the company Scottish only until the date of the move.

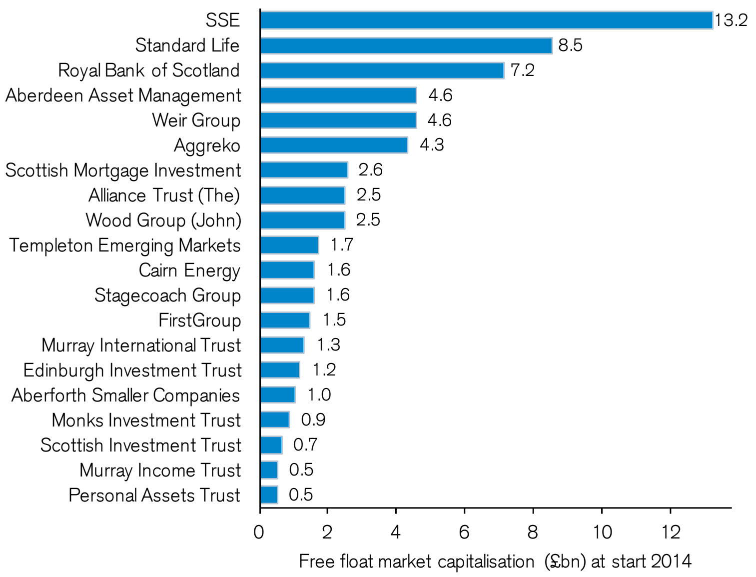
We adopt a slightly different approach for investment companies. Scotland was a pioneer in the field of investment trusts, and they have been a Scottish speciality since the 19th century, with many trusts registered and managed in Scotland. If an investment company is registered in Scotland, we treat it as Scottish, as it is often hard to establish precisely where it is managed or controlled. But if it is registered in England & Wales, but is known to be managed or controlled in Scotland, we also deem it to be Scottish.

Multiple sources were used to establish "nationality" based on these criteria. For earlier years, we relied mostly on the Stock Exchange Yearbooks, which give the company's main address, and whether it is Scottish registered. For later years, we used London Stock Exchange website files (December 2006 until October 2013) giving the regional affiliation of UK companies. To eliminate errors, we checked these against other sources, including Thomson Reuters Datastream, Extel Financial Company Analysis, and Bloomberg, all of which provide company location information, including for "dead" companies. Where

Figure 1

Largest 20 Scottish quoted companies at start 2014

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database



conflicts were identified, further sources were accessed, including The Companies House register, RNS statements, company websites and annual reports, Bloomberg News online, Scottish Newspapers online and Factiva.

Scottish stocks today

At the start of 2014, there were 100 Scottish stocks; hence we have dubbed our index the Scotsie 100. Figure 1 shows the 20 largest companies in terms of their free float market capitalisations. The largest is SSE, followed by Standard Life, Royal Bank of Scotland (RBS), Aberdeen Asset Management, Aggreko and Weir Group. These six are all members of the FTSE 100. The other 14 companies listed in Figure 1 are members of the FTSE 250. Our index contains one further FTSE 250 company, A.G Barr, ranked 21st by size, and hence not shown in Figure 1, but nevertheless famous in Scotland as the makers of Irn-Bru ("made in Scotland from girders").

Of the top 20 companies, ten were investment trusts, reflecting their importance in Scotland. Although our index contains AIM stocks (and historically, also stocks listed on AIM's forerunner, the USM), no AIM stocks made it into the top 20. All the companies in Figure 1 are fully listed.

Figure 1 is based on free float market capitalisations. These reflect the investable universe, and have been used by the major index providers since around 2000. For 17 of the companies, the free float adjustment makes little or no difference as the stocks have investability weights of very close, or equal, to 100%. The largest difference is for RBS. Its free float capitalisation was £7.2 billion, but if the UK government's holding is also taken into account, including the non-voting B shares, RBS had a total capitalisation of more than £38 billion at the start of 2014, making it by far the largest Scottish stock based on this metric.

The total free float market capitalisation of Scottish stocks at the start of 2014 was £73bn, representing 3.3% of the UK total. In full-float terms, including the government's full holding in RBS, the capitalisation was £107bn, or 4.1% of the UK total. Figure 1 shows that the three largest Scottish stocks dominate in terms of their size, indicating that the Scottish stock market index is highly concentrated. The largest stock accounts for 18% of the Scottish index, while the top three represent 40% of the index.

While this makes Scotland appear to be unusually concentrated, Figure 2 puts this in perspective by showing comparative data for other European and other major developed world markets. It is based on the stock weightings within each country for the FTSE All-World Index at end-2013. Of the 25 markets shown, Scotland is mid-ranked in terms of concentration. The two largest markets, the USA and Japan, are the least concentrated. The UK ranks fifth, but the top three stocks still account for 21% of the index. Switzerland, also a large market, is more concentrated than Scotland, with 20% and 52% weightings for the largest and top three stocks, respectively. Belgium's largest stock accounts for 54% of index value, while in the Czech Republic and Ireland, the top three stocks comprise the entire index.

Figure 3 shows the industry breakdown of Scottish stocks at the start of 2014, compared with the UK as a whole. The ICB industry sectors are ranked from top to bottom by their weighting within the Scottish index, shown by the blue bars.

Figure 2

Concentration of markets measured by largest stocks

Source: Paul Marsh and Scott Evans; FTSE International FTSE All-World index Annual Review

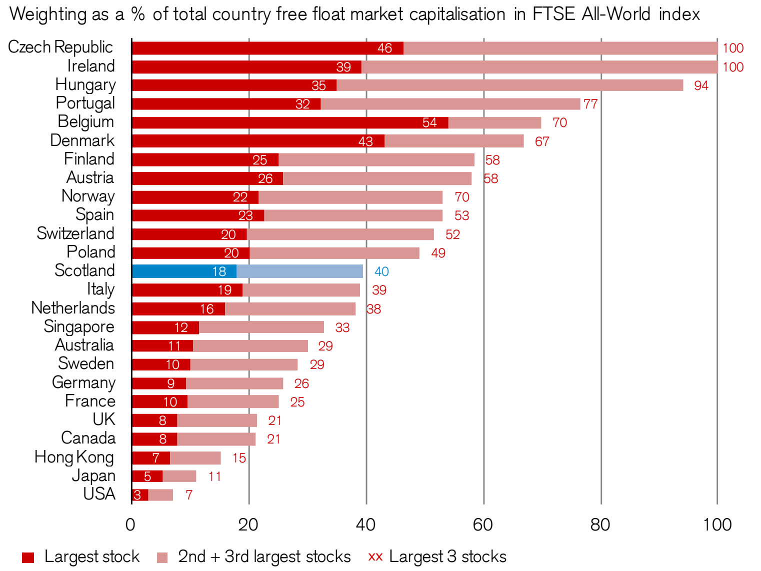


Figure 3

Industry weightings for Scottish and UK stocks, start-2014

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database

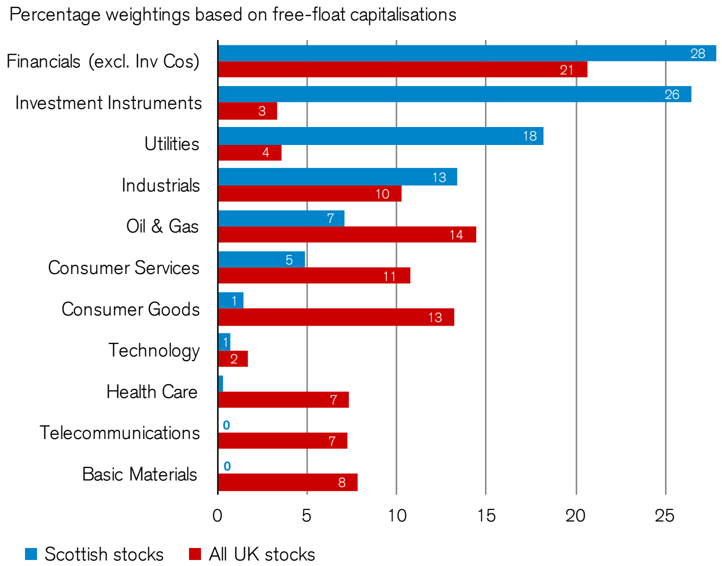


Figure 3 shows that the largest Scottish industry – at least within the quoted sector – is financials (excluding investment companies). The major constituents are RBS, Standard Life and Aberdeen Asset Management. Financials are also important within the UK as a whole (see the red bars) with a 21% weighting, but in the Scottish index, they have a weighting of 28%. The second largest Scottish sector is investment trusts, with an astonishing 26% weighting, reflecting Scotland's specialism in this area. Investment companies have just a 3% weighting within the UK.

Figure 4

Largest 20 Scottish quoted companies at start 1955

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database

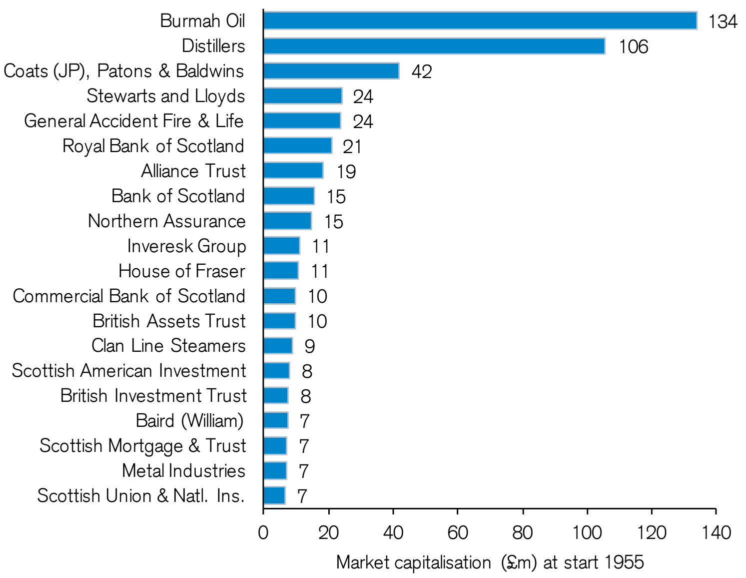
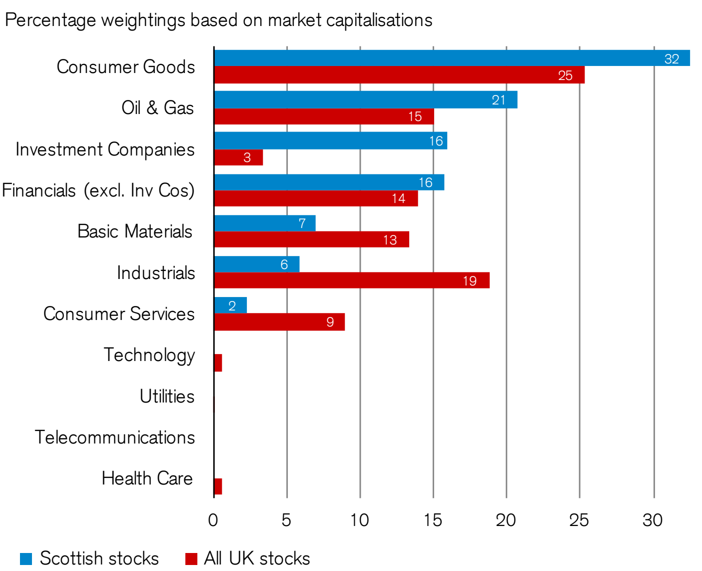


Figure 5

Industry weightings for Scottish and UK stocks, start-1955

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database



Investment companies are themselves financial companies, thus 54% by value of Scottish quoted companies are financial, compared with 24% for the UK as a whole. The customer and shareholder base of these financial and investment companies is predominantly "south of the border", which has important implications were Scotland to become independent, an issue that we return to below.

The third largest Scottish industry is utilities, with an 18% weighting, dominated by SSE. The corresponding UK weighting is just 4%. Industrials, led by Weir Group are also over-weighted in Scotland (13%) compared with the UK (10%). In all other industries, Scotland is underrepresented. Despite North Sea oil, Scotland's weighting in oil and gas is just 7% versus 14% for the UK, with the latter weighting dominated by BP and Royal Dutch. The Scottish weighting in consumer services of 5% is less than half the UK's 11%. Scotland's weighting in consumer goods, technology and health care is tiny, while in telecommunications and basic materials, which includes mining, it is zero, despite these two sectors having appreciable weightings within the UK as a whole.

Scottish stocks 60 years ago

Figure 4 winds the clock back, showing the largest 20 Scottish quoted companies from 60 years ago. At the start of 1955, the biggest was Burmah Oil, then the seventh largest UK stock. Burmah started life as the Rangoon Oil Company in Glasgow in 1886. It stayed in our Scottish index until 1972, when it moved its headquarters to Swindon. This was timely for the Scottish index, as Burmah's share price subsequently plummeted, and it was finally rescued by the Bank of England on Christmas Eve, 1974.

Figure 4 shows that, besides Burmah, the top five in 1955 included Distillers, reflecting the importance of whisky and distilling to the Scottish economy, Coats (JP), Patons and Baldwins, the major textile company, steelmakers Stewarts and Lloyds, and insurance company, General Accident. The Scottish index was even more concentrated in 1955 than it is today. The biggest stock accounted for 21% of the index's value, and the largest three for 43%. This compares with today's 18% and 40% as reported in Figure 2 above.

Of the top 20 companies, only five have survived until today as independent quoted companies, namely, Royal Bank of Scotland, and four investment trusts. The remaining 15 have, over the years, been absorbed into other organizations, or closed down. This is not unique to Scotland. For the UK as a whole, only 6 of the 20 largest companies in 1955 are still quoted today.

Figure 5 shows the industry breakdown of Scottish stocks at the start of 1955 versus the UK as a whole. Looking first at the overall UK position and comparing 1955 (Figure 5) with today (Figure 3), the most obvious change is the move from manufacturing towards services. In 1955, three of the then largest industries, basic materials, consumer goods, and industrials were made up almost exclusively of manufacturing companies. Their combined weighting in the UK stock market was 57%, versus 31% today. For Scotland, the figures were 45% falling to 14% today. But the true decline in manufacturing was even greater. The basic materials companies of the 1950s were UK based manufacturers of steel, aluminium, chemicals, and paper. Today's basic materials companies are mostly mining companies operating outside of the UK. Similarly, "industrials" in 1955 meant what it said, while today, support service companies account for half of its 10% weighting.

Another striking difference between 1955 and today is that four industries that today make up 20% of the UK stock market – telecommunications, technology, health care, and utilities – were almost totally absent in 1955. Oil and gas and investment companies, on the other hand, had roughly the same weightings in 1955 as today. Financials have expanded in importance from a 14% weighting in 1955 to 21% today.

Figure 5 shows that in 1955, Scotland had a higher weighting than the UK as a whole in consumer goods, boosted by Distillers; in oil and gas, thanks to Burmah Oil; and in financials. Ironically, the weighting of oil and gas in the Scottish index was far higher in 1955 (21%) than today (7%), yet this was long before the North Sea oil boom. Scotland's greatest overweight position in 1955, as today, was in investment companies, with a weighting of 16% versus just 3% for the UK as a whole. Meanwhile, Scotland had underweight positions in basic materials, industrials, and consumer services. Like the rest of the UK, Scotland had close to zero weight in telecommunications, technology, utilities and health care.

Scottish stocks: the decline over time

The number of Scottish stocks has fallen over time. Until the mid-1960s, there were over 200 Scottish stocks, more than twice the number today. By the mid-1980s, this had declined to 150. Over the next 12 years, and in line with a general increase in the number of UK quoted stocks over this period, the number of Scottish stocks climbed back to 186 by 1997. Since 1997, which by coincidence was the year of the "yes" vote on devolution, the number of listed Scottish stocks has fallen to 100 today.

Over the last 60 years, however, there has also been a general fall in the number of UK listed stocks from 3,444 in 1955 to 2,064 in 2014. To check if Scotland has lost ground, we examine the proportion of Scottish stocks within the UK total. The yellow line in Figure 6 shows that at the start of 1955, Scottish stocks made up 7.4% of the UK total. The proportion held steady until the early 1970s. It then grew, with some fluctuation, peaking at 9.5% at the start of 1996. From its 1996 peak, it fell steadily to 5.1% today.

The blue line in Figure 6 shows the equivalent figures by value. Scottish stocks made up 8.3% of UK stock market capitalisation at the start of 1955. The proportion grew to over 10% by 1962, then fluctuated around a downward trend, but with a massive "spike" in the early 2000s. This spike rose up from a proportion of 3.9% in 2000 to its peak of 9.2% in 2007, and then shrunk back to 3.3% (in free float terms) by 2014. This was due to the Scottish banks and mirrors the rise and fall of RBS and HBOS. By 2007, these two banks made up 58% of the Scottish index. Their subsequent collapse is well documented.

The importance of Scottish stocks has therefore declined over time relative to the UK as a whole, whether we look at the number of stocks or at their value. Scotland is not alone here, and the same trend is apparent for Wales, Northern Ireland, and the English regions. It partly reflects the consolidation of smaller companies within the UK through mergers and acquisitions (M&A). This corporate restructuring has taken place against the background of the general shift from manufacturing to services documented above.

The creation of larger corporate units has been accompanied by a geographical concentration of head offices and corporate control towards London and the south east. Even in the absence of M&A, as local, regional companies have expand ed, they have adopted a national and even global focus, leading many of them to move their headquarters to a more central location within the UK.

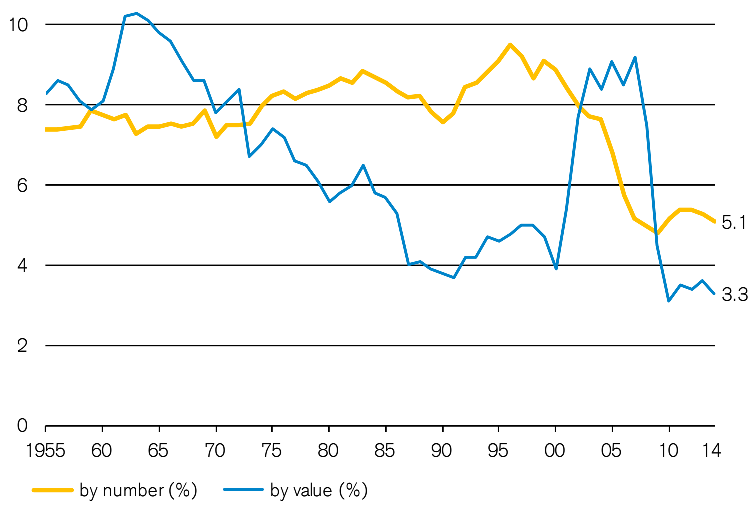
2. The performance of the Scottish index

We measure the performance of Scottish stocks over the last 60 years and compare this with the rest of the UK by constructing two companion indices that we rebalance annually. At each year-

Figure 6

Weighting of Scottish stocks within the UK, 1955–2014

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database



end, starting in 1954, we group all securities that were deemed Scottish at that point in time into our Scottish index, and all other UK stocks into our "Rest of the UK" index. Index constituents are capitalisation weighted at each rebalancing date. Since 2000, the major index compilers such as FTSE International and MSCI-Barra have adopted free-float weighting, and we, too, follow this practice from the start of 2000. Reliable free float weights were not available before then.

Between rebalancing dates, our two indices are buy-and-hold indices, calculated using arithmetic averaging. The buy-and-hold nature of the indices (i) minimises turnover, (ii) ensures that the indices could have been easily replicated in practice, and (iii) eliminates bias from reweighting constituents between rebalancing dates. No securities enter the indices between rebalancing dates – IPOs come in at the next rebalancing date. Any changes in "nationality" during the year are handled at the next rebalancing date.

Index returns include reinvested dividends, and incorporate the terminal value/proceeds from constituents that die/are delisted between rebalancing dates. When computing returns, standard adjustments are made for capital changes. We calculate our indices both including and excluding investment companies. We also compute an ex-financials version of the two indices, given the importance of financials in the Scottish index, and the turbulent history of the Scottish banks.

Long-run performance of Scottish stocks

Figure 7 shows the long-run performance of Scottish stocks (the blue line plot) versus the Rest of the UK (the red line plot) since the start of 1955, a period of almost 60 years. It indicates that an investment of £1 in Scottish stocks at the start of 1955 would have grown to £648 by the end of June 2014, while an equivalent investment in stocks from the Rest of the UK would have grown to £1,168 – almost twice as much.

These terminal wealth figures represent annualised returns of 11.5% for Scotland and 12.6% for the Rest of the UK. For the entire UK including Scotland (not shown in Figure 7), the terminal wealth figure was £1,124 corresponding to an annualised return of 12.5%. These returns seem high, but they are money returns, which have not been adjusted for inflation. Over this period, consumer prices rose 24-fold, representing an inflation rate of 5.5% per year. Adjusting for inflation, the annualised real return on Scottish stocks was 5.7% versus 6.8% for the Rest of the UK.

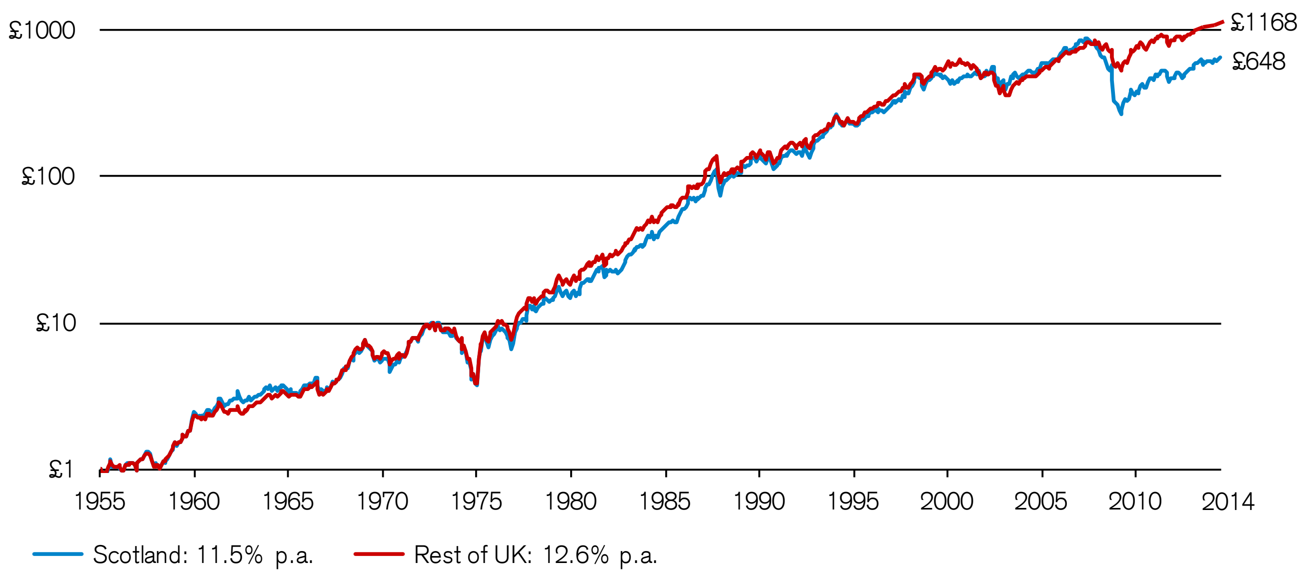
Scotland underperformed by 1.1% per annum, but Figure 7 shows that, for most of the period, the two indices were neck-and-neck. Indeed, they crossed over each other 38 times, and at these points, the returns were identical. The most recent crossover was in September 2007. During the financial crisis of 2007–09, however, Scotland's heavy weighting in RBS and HBOS, which both experienced disastrous share price returns, led to severe underperformance by the Scotsie 100.

Figure 8 shows the relative performance year-by-year. The bars show the extent to which the Scottish index out- or under-performed the Rest of the UK. Until 1999, the annual return differences were all within ±10%, but thereafter, the differentials increased. The large 1999 underperformance by Scottish stocks reflects the dot com boom, from which Scotland failed to benefit, being light in technology/TMT stocks. During the ensuing bear market and dot com bust, Scotland outperformed the UK for the same reason. Figure 8

Figure 7

Long-run performance of Scottish stocks versus the rest of UK, 1955–2014 (log scale)

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database



then highlights Scotland's subsequent severe underperformance in 2007–08.

We should stress, however, that throughout this period, Scotland was part of the United Kingdom. Independence proponents will naturally argue that its quoted companies would have performed even better had Scotland been independent. Opponents might argue that it would have been worse, since the UK is "better together".

The impact of investment companies

Figure 9 shows the impact of various exclusions from the Scottish and Rest of the UK indices. Each pair of bars shows the terminal wealth at the end of June 2014 from an initial £1 investment at the start of 1955, together with the corresponding annualised return. The top pair of bars shows the figures for the full indices, with no exclusions, and thus matches the data in Figure 7.

The next pair of bars in Figure 9 shows the impact of excluding investment companies. Index compliers now provide ex-investment companies (XIC) indices as a matter of course. Many active fund managers do not invest in other investment companies because of the double fees involved, and hence they prefer an XIC benchmark.

In the particular case of Scotland, there is a further rationale for looking at an XIC index. Scottish-based investment companies typically have similar mandates to those based in the rest of the UK. Very few focus on, or favour, Scottish companies. Instead, they invest in stocks across the UK and/or internationally. So arguably, an XIC Scottish index provides a purer measure of Scottish performance. Figure 9 shows, however, that the exclusion of investment companies makes very little difference.

We have seen, however, that investment trusts were not only invented in Scotland, but are an important component of the Scottish index. The third set of bars in Figure 9 therefore looks at how Scottish investment companies have performed relative to their counterparts in the Rest of the UK. It is sometimes argued that "distance from the noise of London" gives Scottish trusts a competitive edge, allowing them to take a more detached, dispassionate approach to investment value. Unfortunately, Figure 9 does not support this, and shows that Scottish investment trusts have slightly underperformed. The difference is small, however, and not statistically significant.

The impact of financial companies

The fourth set of bars in Figure 9 shows the impact of excluding all financial companies, including investment companies. At the margin, this slightly enhances the returns from the Rest of the UK, but predictably, it has a much larger, positive impact on Scottish returns. Non-financial companies based in Scotland have outperformed those from the Rest of the UK.

The final pair of bars shows the impact of excluding just the two Scottish banks, RBS and HBOS – and, for consistency, the predecessor companies, Bank of Scotland (Scottish) and Halifax (Rest of the UK). This confirms the huge impact on returns from these two banks during the financial crisis. With these companies removed, the Scottish index beats the Rest of the UK, albeit by a relatively small margin of 0.3% per annum. Figure 9 shows that the overall impact on the Scottish index is to increase the annualised return from 11.5% to 12.9%.

Figure 8

Relative performance by year,1955–2014

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database

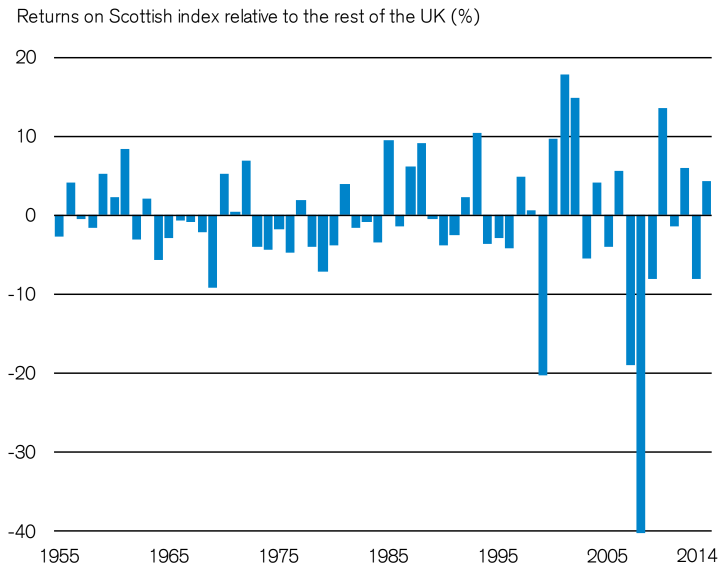
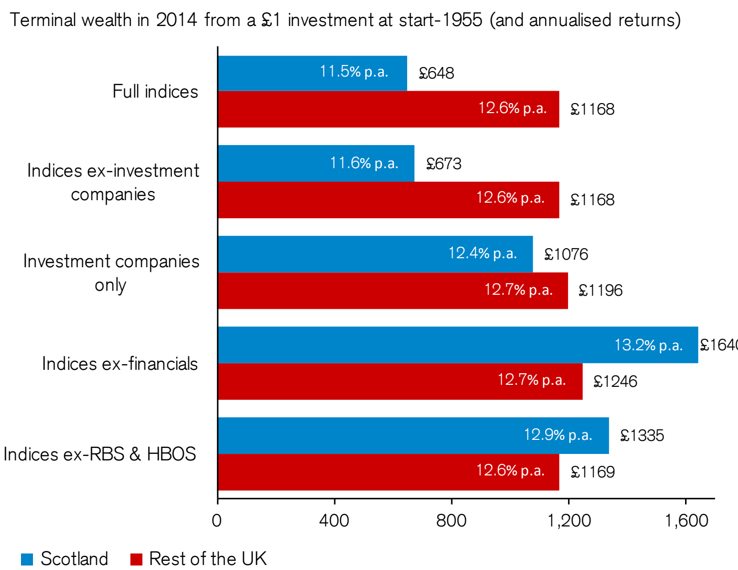


Figure 9

Long-run performance: index variants

Source: Paul Marsh and Scott Evans; London Business School's London Share Price Database



While this analysis is helpful for diagnosis, the comparison is unfair. We have indulged in extreme lemon picking by removing the two most heavily weighted, worst performers from the Scottish index, without making any equivalent exclusion of poor performers from the Rest of the UK. Their removal is also inappropriate, because they were key drivers of Scottish returns. No-one would suggest re-stating Irish stock market returns, excluding the impact of Allied Irish Banks, Anglo Irish Bank, Irish Life and Permanent Group, and Bank of Ireland.

Figure 10

The magnitude of banks prior to the financial crisis

Source: Paul Marsh and Scott Evans; Thomson Reuters Datastream, IMF

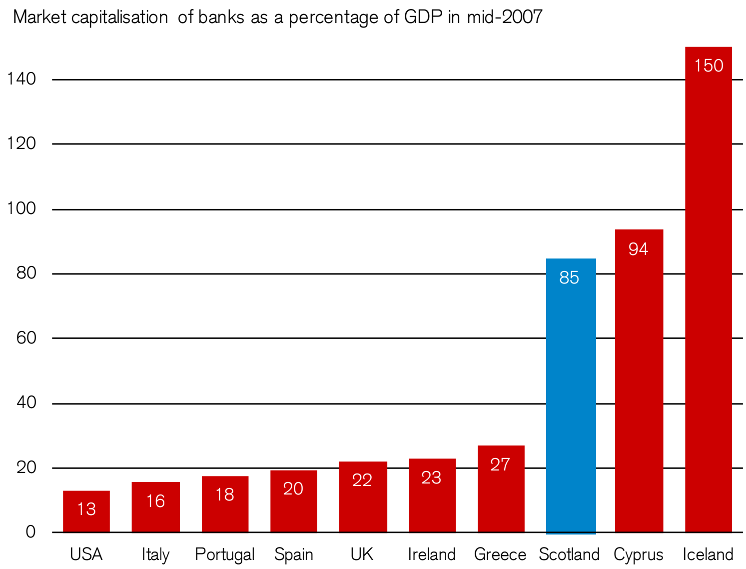
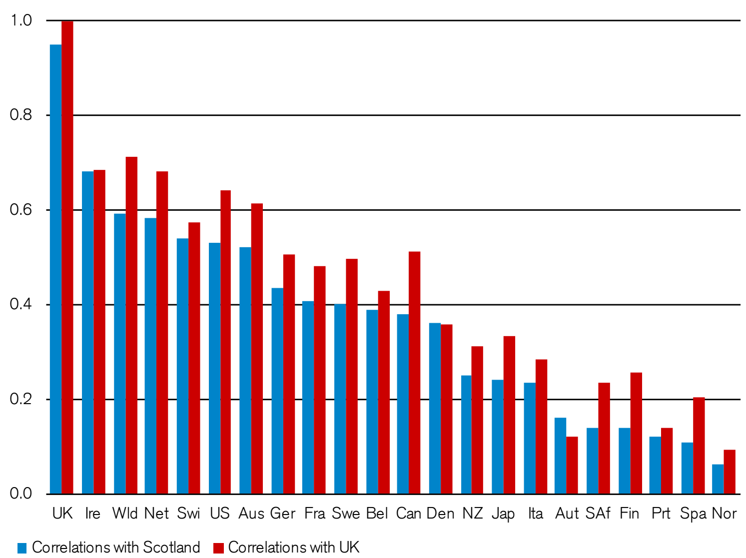


Figure 11

Correlations between Scotland, the UK and other countries

Source: Paul Marsh and Scott Evans; LBS's LSPD and DMS (Dimson-Marsh-Staunton) dataset



Impact of the financial crisis

For a long-term investor in the Scottish index, RBS and HBOS had a devastating impact. Their near-collapse cut investors' wealth by more than half (see Figure 9). Quite apart from their impact on investors, they imposed a very substantial cost on the UK economy and its taxpayers. Their impact was much larger than that of the two English banks that actually collapsed, Northern Rock and Alliance and Leicester. RBS and HBOS were simply too big to fail.

This raises the question of how Scotland would have fared had it been an independent country during the financial crisis. Figure 10 provides some perspective on the relative magnitude of its banks in an international setting immediately prior to the financial crisis. For each country, the bars show the total market capitalisation of the country's banking sector expressed as a proportion of its GDP. We have selected countries that were subsequently most afflicted by the financial crisis and by the need to mount bank rescues.

As Figure 10 shows, Scotland would have sat uncomfortably between Greece and Cyprus with a ratio almost as high as for Cyprus. It was not, however, as "overbanked" as Iceland, which had a ratio of 150%, compared with Scotland's 85%. Scotland's exposure was nevertheless far greater than that of Greece, Ireland, the UK, Spain, Portugal, Italy or the USA. The subsequent history of the four countries sitting either side of Scotland in Figure 10, namely, Ireland, Greece, Cyprus and Iceland is well documented.

Scotland was not, of course, an independent country in 2007. Instead, a Scottish prime minister of the United Kingdom helped broker a deal whereby HBOS was acquired by Lloyds. Both RBS and then Lloyds received substantial injections of rescue finance from the UK Treasury and the Bank of England. The United Kingdom was therefore able to provide co-insurance to Scotland, with the burden spread across the UK as a whole, rather than falling entirely on the people of Scotland. The citizens of Iceland, Cyprus, Greece and Ireland were less fortunate.

Risk and correlations

In addition to analysing the returns on the Scottish index, we also examined risk and volatility. The standard deviation of the annual returns since 1955 has been 27.3%, versus 26% for the Rest of the UK. It is not surprising that Scottish volatility is higher, given that Scotland is less well diversified than the Rest of the UK. But the difference is small. The beta of the Scottish index relative to the Rest of the UK is 0.90. Historically, it has therefore been somewhat less risky in a portfolio context, and more defensive, than for UK stocks as a whole. Scottish investment trusts have a beta of 0.99 relative to those from the Rest of the UK, indicating virtually identical risk.

The correlation between Scottish index returns and those from the Rest of the UK is 0.95. This reflects the fact that the Scottish economy is highly integrated into the Rest of the UK. The blue bars in Figure 11 show the correlations between the real GBP returns on Scottish stocks with those from a selection of other markets for which we have data going back to 1955. The red bars show the corresponding figures for the UK. Scottish stocks are most highly correlated with the Rest of the UK, followed by Ireland, the world index, the Netherlands, Switzerland, the USA, Australia, Germany, France, Sweden, Belgium and Canada. The ranking of correlations for Scotland is very close to that for the UK as a whole, again underlining the high degree of integration.

3. The impact of Scottish independence

On 18 September 2014, the Scottish people, or more precisely, the residents of Scotland, will vote on whether their country should be independent, or whether it should remain a part of the United Kingdom. If there were to be a "yes" vote on independence, what are the implications for Scottish companies and their investors? Unfortunately, there is no easy answer as the terms of any separation have not been pre-negotiated. A "yes" vote would be followed by an intensive interim period of negotiations prior to independence day, as Scotland and the UK agree how to unravel their 307 year union.

The issues that are likely to have the greatest impact on the business sector are the questions of currency, corporate and personal taxation, double taxation treaties, EU membership, employment and business law, pension arrangements, immigration policy, Scotland's credit rating and the impact of a (likely) lower rating than for the UK on borrowing costs, whether there would be a Scottish Central Bank, and the regime and institutions required for business and financial regulation.

This level of uncertainty over quite fundamental issues makes it difficult for businesses. It is also difficult for voters in the referendum, since it is not clear what they are voting for. Even the implications of a no vote are unclear, as the three major nationwide UK political parties have all promised greater devolution, but each has its own variant.

Four key unresolved issues

Currency is a key issue for citizens, companies, and investors. The pro-Independence campaigners hope to form a currency union with the UK, rather than adopting the euro or a new currency. But the UK Government and all three major UK-wide political parties have stated they will not agree to this. The Scottish Nationalist Party (SNP) dismisses this as a negotiating stance. Meanwhile, the Bank of England has expressed concerns about how currency union would work, especially with respect to its role as lender of last resort.

On EU membership, Scotland will need to apply to join. It will argue for fast-tracking, given it was previously part of a member state. But even if this were granted, the process is unlikely to be swift. At worst, Scotland could join the queue behind existing "candidate" and "potential candidate" countries such as Albania and Kosovo. Scotland's accession would require the approval of every member state. This led the European Commission President Jose Manuel Barroso to enrage independence supporters by saying it would be "extremely difficult, if not impossible" for an independent Scotland to join the EU. Furthermore, new EU member states must agree to adopt the euro once various conditions are met. This could create more uncertainty for Scottish businesses.

Taxation is the third key issue. The consensus view is that, given the timescales, Scotland would almost inevitably adopt a similar tax structure to the UK, and would negotiate standard treaties to avoid double taxation. Tax rates, however, may differ, and even with a "no" vote, Scotland will likely gain more discretion over tax rates.

A report published by Oxford Economics in April 2014 entitled "The potential implications of independence for business" casts doubt on whether an independent Scottish Government could deliver on its commitment to lower corporate taxes. The challenge here is that UK corporate tax rates have already been reduced, and will fall to just 20% by April 2015. Undercutting the UK would be difficult, and they suggest that lower North Sea oil revenues and an ageing population could result in an independent Scotland having to impose higher taxes than if it remained part of the UK.

There has been speculation that a more left-leaning government in Scotland could increase top rates of personal tax. But individuals are even more mobile than corporations, especially between Scotland and the rest of the UK. A migration of Scotland's top earners, leading business figures and key financial players is unlikely to be good for either Scottish businesses or Scotland.

The final key issue is regulation. An independent Scotland would need to create its own regulatory systems, institutions and rules. For Scottish companies that are currently listed on the London Stock Exchange (LSE) this could bring additional complexities. Currently, Scottish registered companies are listed on the LSE as UK domiciled businesses. They are subject to UK market regulations (i.e. stock exchange rules, UK Takeover code, etc.) and, depending on their type of business, overseen by the UK Financial Conduct Authority and the Prudential Regulation Authority, and where applicable, the relevant utility regulator.

Within an independent Scotland, such companies would find themselves subject to an extra and unwelcome dual level of regulation and bureaucracy in an already highly regulated environment. This will further add to the uncertainty surrounding company domicile and listing venue.

Domicile and company registration

For companies registered in Scotland, or based in Scotland but registered in England, independence brings another level of uncertainty. Currently, both English and Scottish registered companies are governed by the Companies Act 2006, but there are some separate provisions for Scottish companies. However, Scottish companies are bound by Scottish courts and their interpretations of the law, while English companies are bound by the courts of England and Wales. Should Scotland become independent or more powers become devolved, greater legal differences may develop between Scottish and English companies.

Companies currently registered in Scotland can change to a UK registration only by creating a new company and transferring the assets to that company via a scheme of arrangement. The costs are not trivial, and the lead time required is around four months. While for small companies, the time and costs could be significant, they are unlikely to be a major hurdle for larger companies. Such companies are therefore potentially quite mobile, and can re-domicile relatively easily.

For taxation, however, it is generally the place of effective management/control that is most relevant in deciding the country of tax domicile. In some cases, changing the location of board meetings may be enough to provide a strong argument that the tax domicile has changed. There are thus no major hurdles to changing tax domicile.

Should investors be concerned?

Despite the many uncertainties, we do not believe that investors in Scotsie 100 stocks should be unduly concerned, or be making contingency plans to rebalance their portfolios.

While, at the margin, the uncertainties may be discouraging investment in Scotland, and while a "yes" vote would impose transitional and ongoing costs, there are two overriding considerations. First, nearly all the large Scotsie 100 companies also operate within the rest of the UK and globally. Indeed, the bulk of their assets, customers, revenues, profits and investors are from outside Scotland. The uncertainties and costs relate only to that portion of their business that lies in Scotland. They are therefore in the same position as non-Scotsie 100 UK companies, the vast bulk of which also have operations in Scotland (e.g, BP or Tesco). Second, if the burdens of remaining Scottish were to outweigh the benefits, companies can simply re-register in, and redomicile to, the UK.

On currency, for example, whatever currency was chosen for an independent Scotland, companies could still use sterling as their reporting currency and for stock price quotations and dividend payments. Equally, they could report in any other currency, just as many FTSE 100 companies report in dollars or euros. And while it is true that the adoption by Scotland of a currency other than sterling would introduce currency risk and impose transactions costs, these would apply only to companies' operations within Scotland.

Similarly, on taxation, we have argued that the Scottish tax regime is likely to resemble that of the UK. Key tax rates may well also be similar, at least initially. If there were significant differences, companies or individuals could redomicile for tax purposes, either to the UK, or towards Scotland if the Scottish regime was advantageous enough. For companies, this would not constrain their choice of stock exchange listing venue.

The logic here works both ways. Because companies and individuals can redomicile, this would influence, and act as a constraint on, the tax rules and rates chosen by an independent Scottish government. A predatory, overly business friendly approach would in turn be constrained by the government's spending plans. Similar considerations apply to the design of the regulatory systems, otherwise companies may use their ability to redomicile to effect regulatory arbitrage.

Finally, time is on the side of investors, companies and individuals. In the event of a "yes" vote, March 2016 has been targeted for "independence day". This seems hugely optimistic given the very large number of issues that would need to be negotiated, agreed and resolved. But even taking it at face value, there would still be 18 months in which to "wait and see" and then make plans.

4. A Scottish stock exchange?

New countries tend to set up their own stock exchanges. Figure 12 shows a list of 32 European and Asian countries, together with the opening dates of their stock exchanges. These countries mostly emerged as independent states or from under the yoke of communism after the breakup of the USSR and the former Yugoslavia. Others, such as China are communist countries that have moved towards economic liberalisation. The start dates in Figure 12 mostly reflect the date when trading started on a centralized exchange.

For some countries, the start date is the re-establishment date after closure some 50 years before during communist times. For example, the St Petersburg exchange opened in 1810, and was closed after the revolution in 1917. Similarly, Warsaw, Budapest, Shanghai, Prague, Belgrade and Bucharest all had exchanges dating back to the 19th century, but which closed in the 1940s.

Everybody else has one

In some countries the move to open (or re-open) a stock exchange may have been little more than symbolic. For most, however, it was driven by the desire to create a venue for issuing government securities, to facilitate privatisation of state owned companies, and to provide an alternative to state or bank finance for domestic companies.

Some of these exchanges, such as in Russia, China and Poland are sizeable, active and relatively liquid. Others are tiny with few stocks listed and low trading volumes. The most extreme is probably Tajikistan, where we understand there has yet to be a transaction in the secondary market.

Nevertheless, all 32 of these "emergent" countries have felt the need to establish a stock exchange, and all but two have done so. The exceptions are Kosovo, (independent only since 2008) and Turkmenistan, which has a stock exchange building, but no exchange. All 28 EU countries have a stock exchange, as do all 50 countries and micro-states that make up Europe, except for the very smallest and newest (Andorra, Monaco, San Marino, Vatican City, Liechtenstein and Kosovo).

If Scotland were to separate from the UK, not having an exchange would set it apart from the rest of Europe, and indeed the world, especially given the size of its economy. Also, unlike many of the new European and Asian states, a Scottish stock exchange would not be new. As noted above, until 1964, there were regional exchanges in Edinburgh, Glasgow, Aberdeen and Dundee when they merged into a single Scottish exchange based in Glasgow, which continued until 1973.

The idea of re-establishing a Scottish exchange is also not new as the concept has been discussed and supported by various individuals and organisations including the Scottish Government, the Business Secretary of the UK and the Institute of Economic Affairs (IEA). Supporters of a Scottish exchange have focused on the view that it could help to provide non-bank financing for local (smaller) companies that banks have allegedly failed to support in the post financial crisis era.

Advantages of Scotland

One of the caveats about setting up a Scottish stock exchange is that many of the exchanges listed in Figure 12 (e.g. Albania, Macedonia, Montenegro) have failed to attract sufficient companies and/investors. With very few companies and little or no liquidity to attract foreign investors and insufficient domestic investors to provide capital, many of these exchanges have been failures.

Scotland has a distinct advantage over many of these countries in that it has a long history of successful private and publicly listed companies. As the Business Archive Council of Scotland has detailed, many companies in existence today have been registered in Scotland for more than 125 years. Some, such as Alliance Trust, Edinburgh Investment Trust and Dunedin Income Growth Trust, still exist as independent listed companies.

Another advantage that Scotland has over other newly independent countries is a highly developed financial sector, and a large pool of domestic savings. Scotland also has a strong equity culture, which has not existed in many of the new Eastern European and Frontier markets.

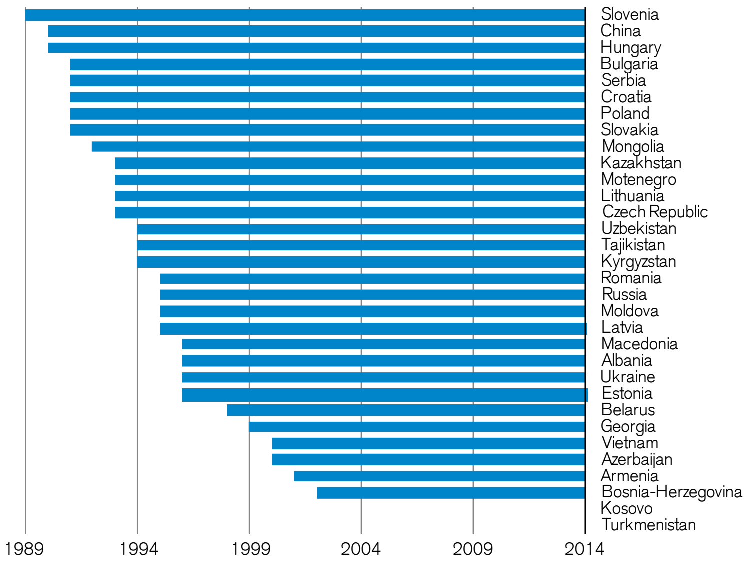
Where would Scotland rank?

In considering whether Scotland should have its own stock exchange, three questions need to be addressed. First, are there enough potential listed companies to create a viable exchange? Second, would they choose to list there? Third, will there be enough liquidity to satisfy investors?

Figure 12

Stock exchanges established by newly independent countries

Source: Paul Marsh and Scott Evans; Wikipedia and national stock exchange websites



Scotland already has a critical mass of quoted companies, but currently, they are listed on the London Stock Exchange (LSE). On the (rather heroic) assumption that all of the current Scotsie 100 constituents were to switch their listings to a new Scottish stock exchange, where would it rank internationally? Figure 13 shows that it would rank as the world's 28th largest national market, and as the 14th largest in Europe.

The numbers in Figure 13 are the country capitalisations at start-2014 within the FTSE All-World index. The latter is the large/mid cap aggregate of around 2,800 stocks from the FTSE Global Equity Index Series. It covers 90-95% of the investable market capitalisation. So while the figures do not represent total capitalisations, the rankings will be reliable. The figure for Scotland is our own estimate based on the Scotsie 100 constituents, and adjusted to be on a comparable basis.

Within Europe, Scotland's equity market would be larger than that of Austria, the Czech Republic, Greece, Hungary, Ireland, Portugal, Poland and many eastern European frontier markets. Figure 13 shows the 27 countries that would have larger stock markets than Scotland.

Would Scotsie 100 stocks stay Scottish?

Scotland would rank 28th in the world only if all the Scotsie 100 stocks chose to have their primary listing on a newly established Scottish exchange. Currently, the top 20 Scottish stocks (see Figure 1) all have premium listings on the LSE and are FTSE 100 or FTSE 250 constituents. A "yes" vote would not impact their LSE premium listings, but it could impair their FTSE eligibility.

For the FTSE UK Index Series, Scottish registered companies would, from independence day, become foreign registered. As foreign stocks, they would need a 50% (rather than 25%) free float to be considered for FTSE UK eligibility. If they met this test, then the FTSE Nationality Committee would assess their case, taking into account a range of factors including the location of head office and of company meetings.

Companies typically place a high value on FTSE membership, as this enlarges the investor pool, enhances liquidity, and arguably, at the margin, lowers their cost of capital. FTSE membership also provides a signal of quality and status. Index membership of a small market ranked (at best) 28th in the world would come a poor second. For Scotland, there is also a danger that, in order to secure their FTSE membership, companies might move company meetings, or parts of their head office – and hence some of their focus – outside of Scotland.

Other factors will of course influence companies in their choice of domicile and stock exchange. We discussed currency, EU membership and taxation in the previous section. In addition, companies will consider the location of their assets, customers and shareholders. For the largest Scottish companies, the majority of their assets, customers and shareholders are outside of Scotland. This does not help tip the balance in favour of preferring a Scottish stock market listing.

If there were a Scottish exchange, companies might still consider a dual listing, even if the preferred location for their primary listing was London. In the particular case of London and Scottish listings, however, it is hard to see what this would achieve. The major index compilers would still view the company as UK, not Scottish, as stocks are allocated to only one country. The liquidity would therefore be on the LSE or other London-based platforms, and investors would not, therefore, favour transacting in Scotland.

The position of the largest companies

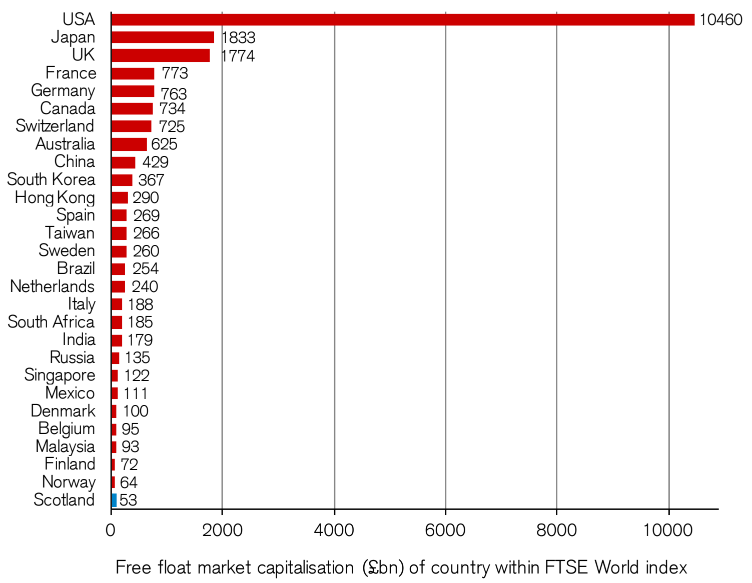
While these considerations do not bode well for the viability of a Scottish exchange, it is also instructive to look at what Scotland's largest quoted companies have actually said about independence and their intentions. It is worth recalling here that the top three companies alone account for 40% of the Scotsie 100's free float capitalisation.

As we have seen, RBS has the largest market capitalisation of any Scottish company, although not in free float terms, as it is 80% owned by the UK government. In its latest annual report, it states, "….the uncertainties resulting from an affirmative vote in favour of independence would be likely to significantly impact the Group's credit ratings and could also impact the fiscal, monetary, legal and regulatory landscape to which the Group is subject." Given its ownership, the size of its balance sheet and the inability of Scotland to act as lender of last resort, RBS would surely have to redomicile to England in the event of a "yes" vote. The Governor of the Bank of England has also

Figure 13

Scotland's ranking among the world stock exchanges

Source: Paul Marsh and Scott Evans; FTSE All-World Index Series Review, December 2013



pointed out that EU rules require a bank to be headquartered where it has the largest proportion of its activities. Even if RBS remained a London-listed, Scottish company, it would be deemed "foreign" and no longer qualify for the FTSE 100 owing to insufficient free float. This strengthens the argument for a change of domicile to England.

Lloyds Banking Group – along with certain other companies with roots in Scotland – is unusual. It is Scottish registered, but headquartered in London. It is not therefore in the Scotsie 100. It has indicated that independence could have a negative impact on its business. In the event of a "yes" vote, Lloyds, like RBS, and for mostly the same reasons, would need to change its registration to England and Wales via a scheme of arrangement. The taxpayers of Scotland should welcome this. Why, after all, should they underwrite potential future liabilities for a large bank that is not even headquartered in Scotland?

SSE is the largest Scottish company is terms of free float (see Figure 1). Its public statements have been mostly neutral on independence, but its most recent annual report highlighted the uncertainty the referendum was causing, and pointed out that independence will impact long-term investment decisions. SSE has extensive operations outside of Scotland, and is the UK's second largest energy supplier. Most of its shareholders are from outside of Scotland. So it seems unlikely that it would choose Scotland for its primary listing.

Standard Life, as Scotland's second largest listed company in terms of free float, is always eager to promote its Scottish heritage. However, it has indicated concerns over Scotland splitting away from the UK. It has set up separate English registered companies as a precautionary measure in the event of independence. This suggests that a move away from its London listing is unlikely

The views expressed by Scotland's other large companies have ranged from the neutral, "wait-and-see" approach of Wood Group and Aberdeen Asset Management, to the more negative views expressed by Weir Group and Aggreko. Stagecoach is unusual, in that it has publicly raised concerns over the impact that independence could have on regulation and public funding, but simultaneously, Chairman Sir Brian Souter has been a major donor to the SNP, and has said, "I personally hold the view that independence will create a positive outcome for all companies in Scotland". Finally, Alliance Trust, the largest investment trust in Scotland, has set up subsidiary companies in London as a contingency plan.

Neither the arguments set out in the previous section, nor the statements made by companies (where caution will prevail), seem encouraging in terms of the prospects for a Scottish stock exchange. Instead, we anticipate that most of the largest Scotsie 100 stocks will wish to keep their primary listing in London. In the event of independence, we would also expect a number of them to redomicile to England and Wales.

Ireland: a case study

It is instructive to look at the experience of Ireland. Following the Acts of Union 1800, Great Britain and Ireland were united as The United Kingdom of Great Britain and Ireland. Ireland gained its independence in 1922 as the Irish Free State, after 700 years of rule by, and later union with, Britain. In 1937, it changed its name to Ireland (Éire in Irish), becoming the Republic of Ireland in 1949.

To date, Ireland is the only constituent country of the UK to have gained its independence. Its population at just under five million is very close to that of Scotland at just over 5 million, and the two countries have very similar GDP, and hence GDP per capita. Given the historic links with the UK, and the legal and cultural proximity to both the UK and Scotland, this makes the Irish Stock Exchange (ISE) a close comparator for Scotland.

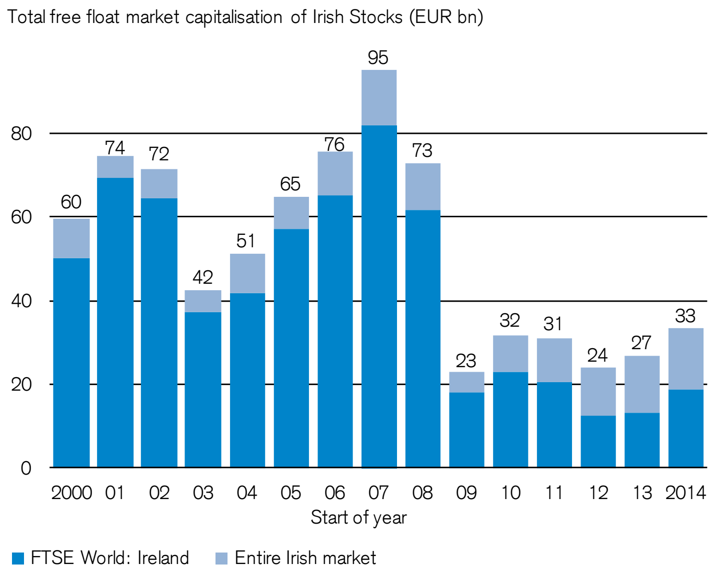
The ISE has existed in various forms since 1793. Originally, there were separate exchanges, first in Dublin, then later in Cork and Belfast. For most of the time, the exchange(s) have been independent, but between 1973 and 1995 the ISE was a part of the International Stock Exchange of Great Britain and Ireland (the forerunner of the LSE). In 1995 it regained its independence. The ISE operates markets in several instruments including bonds, funds, ETFs and specialist debt instruments. Our comparison here is restricted to the Irish equity market.

Figure 14 shows the total free float capitalisation of all stocks listed on the ISE (the full height of the bars), and also, the free float capitalisation of the stocks included in the FTSE World Ireland index (the dark blue portion of the bars). Despite a setback in 2003, the ISE grew strongly in the early 2000s achieving a value of EUR95 billion by the start of 2007. Then the financial crisis hit, and

Figure 14

The Irish Stock Exchange, 2000–2014

Source: Paul Marsh and Scott Evans; Thomson Reuters Datastream and FTSE International



by the start of 2009, the capitalisation had fallen to just EUR22 billion. At the start of 2014, it was still only EUR33 billion. By then most countries had regained their pre-crisis highs, and the capitalisation of the FTSE All-World Index was 15% higher than at the end of 2006. In contrast, the capitalisation of the ISE had fallen by two-thirds.

There are two reasons for this decline. First, the Irish banks imploded during the financial crisis. The three main banks, plus financial services firm Irish Life and Permanent all needed massive cash injections by the Irish government. Shareholders in these four institutions experienced a loss of 99%. There is a parallel with Scotland, given that Scotland was, prior to the crisis, even more "over-banked" than Ireland (see Figure 10). But Irish taxpayers bore the full cost, while the costs of the Scottish banks were spread across the entire UK.

Second, quite apart from the collapse of the banks, the ISE has been steadily losing its largest companies to London. Among recent defectors are Acencia Debt Strategies, United Drug, Kenmare Resources, Greencore, DCC, CRH and Grafton Group. Meanwhile, drug developer Elan moved to New York. There are now only eight ISE companies with free floats above EUR1 billion.

When CRH, Ireland's largest company, moved its primary listing to London in 2011, it cited the international nature of its business and the fact that most of its trading already took place in London. It said "it believed that inclusion in the FTSE would result in a further increase in UK and international investor awareness of CRH." Similarly, when Grafton Group moved, it said that 75% of its revenue was from the UK and most of its shares were now held by investors located outside of Ireland. Like all the other defectors, it stressed the importance of UK FTSE index membership.

The Scotsie 100 stocks, however, are already listed on the LSE and are FTSE eligible. The ISE is trying to prevent defections to London, but Scotland's challenge is greater. It would need to entice companies away from the large liquid international London market with their FTSE imprimatur, on to a new, untested Scottish exchange.

This image of the Glasgow Stock Exchange was reproduced with kind permission from Frontispiece, London, UK

A local Scottish market for smaller firms?

Focusing only on the current listed companies and whether they would move to a Scottish exchange may be only part of the story. Rather than competing head on with London, Scotland might consider establishing a market focused on funding the next generation of Scottish companies.

A central aspect of current Scottish Government policy is to promote a competitive business environment within Scotland and to provide support for Scottish exporters and small and medium enterprises (SMEs). The establishment of a Scottish exchange that promoted Scottish companies and provided funding for growth might further these goals. Scottish listings might also promote greater participation by Scottish based investors.

In the last decade, there has been interest in the UK in reviving regional/local stock exchanges. One experiment that has been carried out is Investbx, an on-line exchange set up in 2007 to fund smaller companies in Birmingham and the West Midlands – a region that has a larger population than Scotland. After four years and £3 million of public money, the exchange had attracted just three companies. In 2011, it was sold for £1, and one of the three companies delisted. As the Financial Times commented, "localism is a lot less attractive to investors than it is to politicians".

Politicians want local stock exchanges to provide finance for businesses, i.e., they want an effective primary market. However, it is not possible to have an effective primary market without having an efficient, liquid secondary market in which investors can easily trade their shares.

The nostalgia for regional exchanges is based on a romantic notion of a world that never was. During the Industrial Revolution, many regional and city stock exchanges sprung up throughout Europe and the United States. Before there were efficient communications and transport, it was natural for investors to be located close to the firms in which they invested. This lowered their risk by giving them better access to information so they could monitor their investments. By 1900, the United Kingdom had some 20 regional exchanges, including the four in Scotland.

By the 1970s, the UK's regional exchanges, including the Scottish Stock Exchange in Glasgow, were no longer viable. This was partly because of the need for major IT expenditure, but also because these IT systems would have drained the last vestiges of liquidity from these markets to London. The regional exchanges had outlived their purpose, and no longer provided an adequate pool of liquidity. All of the regional exchanges merged with the LSE and effectively closed. We believe it will now be very difficult to reverse that trend, even in the context of a new national stock exchange for Scotland.

Relying on the LSE makes more sense

An independent Scotland may well seek to set up its own stock exchange. Almost all newly independent countries have done so, albeit with mixed results. Our analysis, however, suggests that Scotland would face a difficult challenge.

We believe that it would make more sense for Scotland to devote resources elsewhere, and to rely for "stock market services" on existing institutions elsewhere in the UK. Just as the "Yes" campaign is advocating reliance on existing UK institutions such as the monarchy, the pound sterling, and the Bank of England, we would add the London Stock Exchange to this list. The Scotsie 100 constituents are already listed on the LSE, and enjoy membership of the FTSE UK index series. Rather than trying to compete with the LSE, Scotland should continue to make use of it.

In the event of independence, Scotland should consider lobbying FTSE International to persuade them that the FTSE UK Index Series should become the FTSE UK and Scotland Series. Scotsie 100 companies would not then be treated as foreign. FTSE membership matters a great deal to companies, as we saw from the Irish experience.

For smaller, younger Scottish firms considering an IPO, it would make sense for Scottish companies to continue to use the LSE's AIM market, rather than for Scotland to set up its own junior market. AIM has a long tradition of attracting numerous foreign companies to the exchange.

To the extent that Scotland believes there is still an "equity gap" for its smaller companies, we believe that resources would best be devoted to supporting and encouraging a vibrant venture capital and private equity industry in Scotland.

5. Summary and conclusions

We have constructed a Scottish stock market index spanning the last 60 years together with an index for the "Rest of the UK". We have compared its composition today with that of 60 years ago, and seen that the differences mostly reflect the changing industrial structure of the UK, especially the move from manufacturing to services. Today, the Scottish index would have exactly 100 constituents, so we have dubbed it the Scotsie 100.

Over the last 60 years, Scottish stocks moved closely in line with those from the Rest of the UK until the financial crisis, reflecting the close integration of the Scottish economy with the rest of the UK. During the financial crisis, however, the Scotsie 100 underperformed because of the near-collapse of RBS and HBOS. For a long-term investor in the Scottish index, this had a devastating impact, more than halving investors' wealth.

Besides their impact on investors, these two banks imposed a very substantial cost on the UK economy and its taxpayers. At the time, Scotland was, of course, part of the UK. The UK thus provided co-insurance to Scotland, with the burden spread across the entire UK, rather than falling solely on the people of Scotland. The citizens of Iceland, Cyprus, Greece and Ireland were less fortunate.

Even after the losses during the financial crisis, Scottish stocks still performed well over the full 60 years. They gave an annualised return of 11.5% per annum, or 5.7% in real (inflation-adjusted) terms. An investment of £1 in the Scotsie 100 at the start of 1955 would, with dividends reinvested, have resulted in an investment worth £648 by the end of June, 2014. The corresponding figures for the Rest of the UK were an annualised nominal return of 12.6%, an annualised real return of 6.8%, and terminal wealth of £1,168.

When financial stocks (or even just RBS and HBOS) are excluded from the Scotsie 100 index, it outperforms the rest of the UK by a small margin. We have also looked separately at investment trusts which were not only invented in Scotland, but are an important component of the Scottish index. While it is sometimes argued that "distance from the noise of London" gives Scottish trusts an edge, we find no support for this, with Scottish investment trusts slightly underperforming.

We have looked at the implications of a "yes" vote for Scottish companies and investors. It is hard to reach definitive conclusions, as the terms of any separation from the UK have not been pre-negotiated. But despite the many uncertainties, we do not believe that investors in Scotsie 100 stocks should be unduly concerned, or be making contingency plans to rebalance their portfolios. To some extent, they are protected by the fact that both companies and individuals can redomicile if necessary. There will also be a period of at least 18 months during which the terms of separation are negotiated. They can thus afford to "wait and see" and then make plans.

Finally, we have looked at the desirability, feasibility, and likelihood of Scotland reestablishing its own stock market. Over the last 25 years, most countries that have achieved independence have set up their own national stock exchanges. It might seem odd if Scotland, with its long history of financial services and markets, and its established body of listed companies were to be an exception. Yet we argue that the case for a viable Scottish stock exchange is more nuanced.

It will be a tough challenge to attract the Scotsie 100 companies away from the large liquid international London exchange on which they are already listed along with their FTSE imprimatur. It would make more sense for Scotland to continue to rely for its "stock market services" on the LSE and AIM. To the extent that Scotland feels this still leaves an "equity gap", resources would best be devoted to encouraging a vibrant venture capital and private equity industry in Scotland.