

An Anglo-German Foundation Report

The survival and growth of 'adolescent' high-tech firms in Germany and the UK, 1997–2003

Marc Cowling, Helmut Fryges, Georg Licht and Gordon Murray

Executive Summary

This report documents over a twelve year period (1991–2003) the continued fortunes of 600 independent New Technology-based Firms (NTBFs) which were founded in Germany or the UK between 1987 and 1996. Our findings on these firms, often known as 'high-tech start-ups', have significant implications for policy makers in the complementary areas of Entrepreneurship and Innovation.

Significant criteria for success and failure have been identified as follows:

Survival chances of NTBFs

- Once an NTBF has survived to its 5th year, there is an approximately 80% chance that the firm will still be trading in its 12th year.
- High-tech young firms, once started, are less vulnerable to failure in dynamic and competitive technology markets than is popularly assumed.
- Despite the severe downturn in high-tech markets starting in the year 2000, a majority of sampled firms *continued* to grow sales revenues and to create new jobs.

Factors of success and failure

- A large founding team was associated with a higher probability of survival in the UK.

- Business angel finance at start-up in Germany and later-stage formal venture capital finance in the UK were both linked to lower survival probabilities.
- Firms which used 'tried and tested' technologies, a conservative strategy more prevalent in the UK, demonstrated lower long-term survival rates.
- The creation and maintenance of managerial skills in small high-tech firms continue to be of profound importance for both survival and growth. For example, persistent and unresolved weaknesses in management (Germany) and in effective financial controls (UK) both increase the long-run risk of firm failure.

Comparative performance of UK and German NTBFs

In the first five years of growth to 1997, UK start-ups generally outperformed their German peers. This situation was to reverse between 1997 and 2002.

- Overall, the typical German firm performed better than its UK equivalent. In the first 10 years since formation, the German median firm had grown 11-fold compared to an 8-fold growth in the UK.
- Employment by 2003 (the 12th year) in the median firm was 12 persons in Germany and 10 in the UK.
- Sampled German NTBFs created *more jobs in more technology sectors* than UK firms for each of the two consecutive five-year periods under observation.

The improbability of 'spotting winners'

- It is *not* possible to determine accurately which firms will demonstrate long-term, high-growth trajectories by reference to their early growth patterns. Firms growing rapidly in the initial five-year period were found unlikely to sustain their exceptional economic performance. In essence, it is not feasible to pick future winners early in their life cycle. This has important policy implications for small firm support and advisory services.
- Europe's dilemma, as identified in the European Commission's Lisbon Strategy (European Commission, 2000) remains the absence of significant numbers of 'gazelles' (i.e. young firms that continue to grow rapidly over several years into large and globally dominant firms) being generated within the members' economies.
- While the top five firms in our second survey had aggregate sales of €203m per annum and employed a total of 1,830 workers, the real value of our respondent firms lies in their total *aggregate* impact on their host economies. In Germany and the UK, the greatest economic value has been created by the cumulative impact of several thousand more modestly growing firms. Policy prescriptions need to recognise this somewhat pedestrian reality.

The importance of internationalisation as a 'cause and effect'

- Despite Germany's reputation for export excellence, UK firms continue to be more global than their German peers. By 2003, 72% of all sampled UK firms were international compared to 60% of German firms.
- Exporting UK firms on average serviced 16 foreign markets compared to 11 for German exporters.
- Export sales represent nearly half of total sales for UK's internationalising firms compared to just under one-third for German firms. German firms also remained strongly Euro-centric in their export focus when compared to those in the UK. For example, the USA was the most important foreign market for UK exporters compared to Switzerland for Germany.
- Firms with international business activities had, on average, higher sales, more investments and a greater number of (R&D and non-R&D) employees.
- Internationalising firms were also more productive when measured by both sales and employment growth rates.
- While internationalisation contributed to more rapid growth in the first five years of the sampled firms' existence, it was *not* the driving force supporting continuing growth. Econometric analysis showed that firms with more superior human capital and technical knowledge grew faster. These firms also internationalised more extensively. However, over time, foreign sales were an *outcome* of superior firms and not the cause of their faster growth.

Where are Europe's new world-class firms?

- It is a matter of regret how few exceptional growth companies (gazelles) were identified in a relatively large sample of UK and German high-tech young firms. While our research had a more precise focus on the long-run growth of European firms, the question still remains: 'Why does the USA appear so much better than Europe in creating successive generations of global businesses from new technology opportunities?'
- We now have a template describing the environments, actions and consequences of new technology-based firms' behaviour in two major European economies. This can and should be appraised against their US equivalents' actions and performance. It is hoped that our research can materially contribute to a better understanding of an issue central to Europe's future economic well-being as a dynamic and entrepreneurial region.

For more information please contact:

Annette Birkholz
Anglo-German Foundation/Deutsch-Britische Stiftung
Hackescher Markt 1, D-10178 Berlin, Germany
Tel +49 30 2063 4985, Fax +49 30 311 099 20
E-mail ab@agf.org.uk, Website www.agf.org.uk

Dr Georg Licht
Head of Department of Industrial Economics and International Management,
Centre for European Economic Research (ZEW)
L 7, 168161 Mannheim, Germany
Tel +49 62 1123 5177, Mobile +49 16 3623 5177, E-mail licht@zew.de

Dr Gordon Murray
Professor of Management, School of Business and Economics, University of Exeter
Streatham Court, Rennes Drive, Exeter EX4 4PU, UK
Tel Office (PA Carole Marshall) +44 1392 264501/263458, Mobile +44 793 915 5775,
E-mail gmurray@ex.ac.uk

Notes to the editor:

The Anglo-German Foundation contributes to the policy process in Britain and Germany by funding comparative research on economic, environmental and social issues and by organising and supporting conferences, seminars, lectures and publications which encourage the exchange of knowledge, ideas and best practice, both between the two countries and between researchers and practitioners.

Review and reference copies of the report are available from the Anglo-German Foundation. You may also download the report free of charge from the Foundation's website at www.agf.org.uk; hard copies can be purchased and ordered at cost price from the Foundation's website via credit card.

The authors of the report are:

Marc Cowling, Institute for Employment Studies, University of Sussex (and visiting professor, University of Exeter), UK; Helmut Fryges, Centre for European Economic Research (Zentrum für Europäische Wirtschaftsforschung), Germany; Georg Licht, Centre for European Economic Research (Zentrum für Europäische Wirtschaftsforschung), Germany; and Gordon Murray, School of Business and Economics, University of Exeter, UK.