

# »» SME business performance – research and development pays off



No. 106, 21 March 2016

Author: Dr Volker Zimmermann, phone +49 69 7431-3725, research@kfw.de

Research and development (R&D) is regarded as a major pathway companies can take to secure and expand their competitiveness. What significance does systematic, creative work on broadening existing knowledge and its application actually have for the performance of small and medium-sized businesses?

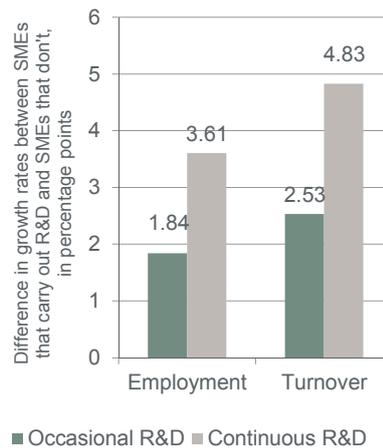
## Research and development drives innovation

Enterprises that undertake their own R&D produce innovations on a regular basis and are often first to introduce new products and services to the market. A strong R&D effort is necessary, for example, to develop new high-capacity batteries for electric cars or 3D printers. The future success of R&D projects, however, cannot be planned with certainty. The ways in which R&D impacts on the development of SMEs' employment and turnover, as well as on their profitability, can be quantified with the aid of the KfW SME Panel.

## R&D improves performance

The analysis shows that SMEs that carry out R&D grow faster and are more profitable than SMEs without R&D. Within two years, the turnover of a business that conducted R&D continuously in the preceding years grows at a rate that is an average 4.8 percentage points higher and 2.5 percentage points higher when it conducted R&D occasionally. Employment growth rates in the same period are 3.6 and 1.8 percentage points, respectively. Based on the average turnover growth in the sample (10.4% within two years), businesses that occasionally conduct R&D grow nearly one third faster than those without any R&D. In enterprises with continuous R&D, the growth rate is nearly two thirds higher.

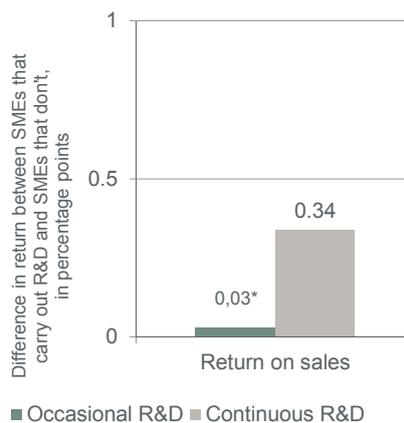
**Figure 1: Effects of R&D on growth**



Source: KfW SME Panel, own calculation

The profit margin of companies that continuously conduct R&D rises by 0.3 percentage points within two years. At a mean profit margin of 7.4%, that is, after all, a 5% increase.

**Figure 2: Effects of R&D on profitability**



Note: \* = non-significant

Source: KfW SME Panel, own calculation

## Conclusion

R&D is a major lever for improving business performance. It has a particularly positive effect on business growth. SMEs that continuously conduct R&D also achieve higher profit margins. In order for as many companies to be able to implement ambitious, R&D-based innovation strategies and develop growth potentials, it is important that existing hurdles – especially financing difficulties, bureaucratic obstacles and skills shortages – are removed. ■

## Regression analysis: R&D and business performance

The analysis addressed how an enterprise's employment and turnover growth and its profit margin develop over a period of two years after it conducted R&D occasionally or continuously in a preceding three-year period compared with an enterprise without R&D.

In order to isolate the effect of R&D, the following characteristics were taken into account: number of employees, age of company (both logarithmised), employment of university graduates, sales region, industry in which the company operates, year of survey, group to which the company belongs, legal status, KfW support status and region of company's registered office. All time-varying company characteristics refer to the date immediately preceding the performance measurement.

The analysis is performed using the least squares method and refers to the period from 2005 to 2014. Depending on the estimation equation, between 20,400 and 14,700 observations are covered by the survey.