



China through the Telescope

A Southwestern perspective on Contemporary China

4th Seminar, 25 March 2016

Innovation Capabilities of Hi-Tech Small and Medium-sized Enterprises

A Comparative Analysis between China and France

Experts Roundtable

The target growth range announced by China's government with the 13th Five-Year Plan, released in March this years, is between 6.5 and 7 percent. In the plan, innovation is set to be the main driving force for future growth: by the year 2020, 60 percent of China's economic growth is supposed to come from improvements in technology and science. Against this background, the topic of the 4th China though the Telescope seminar is of particular interest.

Professor Jean-Jacques Chanaron, Research Director at the French National Centre for Scientific Research and Chief Scientific Advisor at the Grenoble Graduate School of Management, presented a research study on innovation capabilities of high-tech small and medium-sized enterprises (SMEs), drawing a comparison between the Chinese and the French realms.

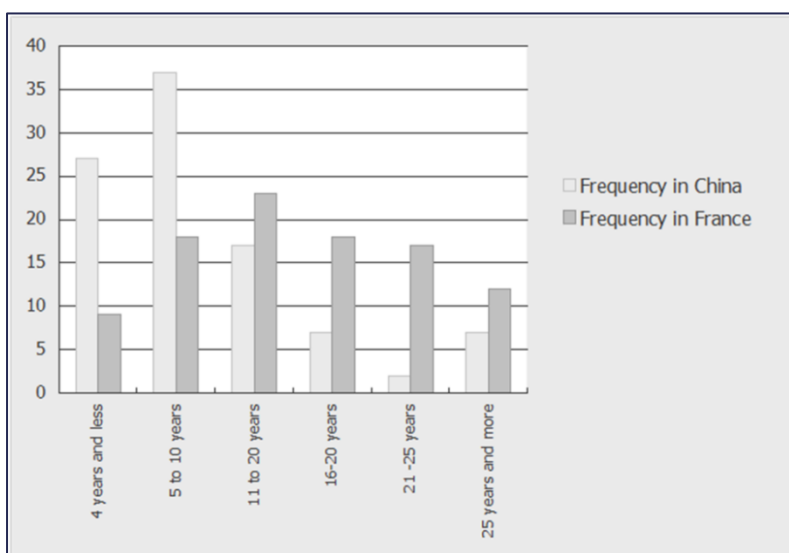
To discuss the potential and the challenges posed to SMEs in the high-tech sector, the Galileo Galilei Italian Institute was pleased to organise a roundtable, which saw the presence of representatives from the Consulate General of Italy in Chongqing, the China-Italy Chamber of Commerce, the Green Growth Group, the School of Business Administration of Chongqing University, the School of Business of Kansas University, the Chongqing Green and Intelligent Technology Centre, and other key local enterprises. The seminar was chaired by Mr Francesco Silvestri, Acting Director of the Galileo Galilei Italian Institute.

The research presented by Professor Chanaron has been carried on by the then-candidate of a Doctorate in Business Administration programme – Mr Luo Rui – and concluded in May 2014. The research focused on the capabilities to innovate of high-tech small and medium-sized enterprises (SMEs), a paramount topic both in France and in China, and drew a comparative analysis between SMEs in the two countries.

In the research the assumption is given that innovation is a three-stage process: invention, innovation and imitation. The main research question arising is that of what the main stage for hi-tech SMEs in China and in France is. Moreover, the study investigates if any difference exists in the innovation capabilities of hi-tech SMEs between the two countries. The researcher set up a very complex model, taking into consideration the following variables: profit, age and size of the firm, expenditure in research and development, number of new product launched every year, number of innovation projects developed in cooperation with other players, patent intensity, level of involvement in innovation activities, education level of the managers, and managerial experience.

Regarding data collection, it was conducted through a pilot study consisting of five face-to-face interviews to French companies, and another five telephone interviews to Chinese companies; the ten SMEs were then asked to fill up a questionnaire. In a second stage, Mr Luo was able to develop a refined questionnaire, sent to a much larger number of SMEs: 1220 French and 1303 Chinese. The return rate of questionnaires was, for both countries, lower than 8 percent, which, even being relatively low, is still acceptable for an academic research. The companies were selected respecting the same proportion of each industry for the two countries, so as to maintain the validity and reliability of data. Without entering into details, the speaker continued with the statistical methods used in the research: descriptive analysis, analysis of variance, linear regression collinearity test, and linear regression model.

Managerial experience



Different interesting aspects emerged from the descriptive analysis of the personal profiles of respondents. Firstly, Chinese managers are typically much younger than French managers, showing an age unbalance between the two countries. On the contrary, there seem to be no difference in gender ratio of the managers among two countries. Moreover, most Chinese managers hold bachelor degrees, whilst most French managers possess master degrees. Finally, Chinese managers' managerial experience is typically shorter than

French managerial experience: 67 percent of Chinese managers have less than ten years of experience, compared to the only 28 percent of the French.

The research found that the difference among French and Chinese responders is not significant in terms of number of founders and employees of the companies. As for the age of firms, again, Chinese SMEs have

shorter life, which in the most cases is less than ten years. As Professor Chanaron noted, this is not a big surprise, since, even if China is coping rapidly with Western standards, it is still quite a young player in the field. A similarity among Chinese and French SMEs is the number of employees, which on average amounts for less than 29 people.

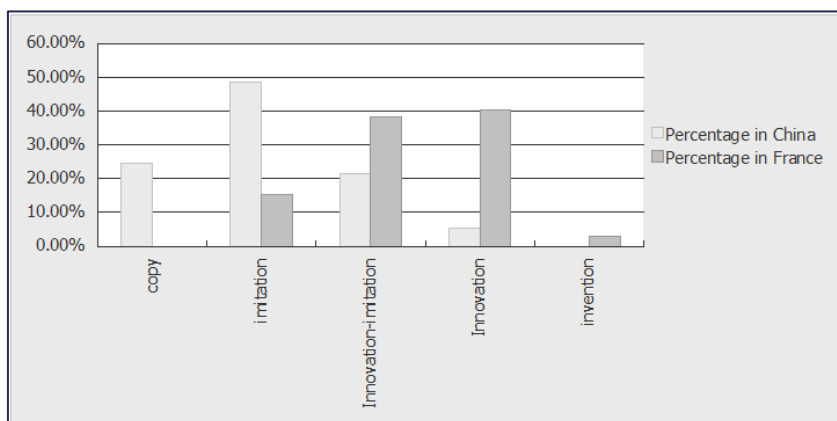
Present innovation capabilities are higher in France. In fact, more than 40 percent of firms in France are likely to engage in innovation and invention activities, compared to the only 5.2 percent of firms in China. Managers of the two countries showed different attitudes: French managers tend to value more their involvement in innovation activities; the data – the speaker said – is not very significant though. This is explained by the fact that, even if China has been less involved in these kind of activities during the last five



years, yet there seem to be better prospects for the future for Chinese SMEs compared to the French ones. This conclusion is drawn by the observation of the attention Chinese managers declared they will reserve to innovation in the coming five years, as well as of the significantly increasing emphasis putted on innovation in the last years.

Mr Luo identified five different stages of innovation, according to which companies have been classified. The lowest level, which is the one of copying innovation, includes only Chinese SMEs. On the contrary, the highest stage, which is the one of invention, exclusively comprises French companies. SMEs in France look at innovation and innovation imitation for nearly 79 percent, while only the 27 percent of the Chinese SMEs dedicates to the same activities.

Innovation stage



Comparing resource capabilities, the major differences between China and France are in size, which proved to impact more China, and experience and age, which have a bigger effect on French SMEs.

Numerous conclusions were drawn. First of all, the differences in innovation capabilities between hi-tech SMEs in China and hi-tech

SMEs in France are significant. The research shows that French companies are more innovative than their Chinese counterparts. The firm size – meaning the number of employees of the firm – has significant impact on the innovation capabilities in various industrial sectors. The SMEs’ age has no significant correlation with the level of innovativeness. The level of education of the entrepreneurs shows no significant impact on hi-tech SMEs’ innovation stage, suggesting that education level is not a hindrance to the SMEs innovation capabilities. The speaker highlighted that, in his opinion, this last aspect is extremely complex and needs to be further examined.

The innovation stage is positively correlated to the intensity of patents: the more advanced the innovation stage of the SME, the more capabilities it has in acquiring patents. Moreover, attitude and involvement in innovation activities and managerial activities are positively correlated with the innovation stage, which shows that the influence of the entrepreneur plays a vital role to innovation in hi-tech SMEs. This confirms that managerial capabilities of entrepreneurs are of key importance to SMEs.

Finally, SMEs enter into more innovative stages due to resources, which proves that R&D expenditure is profitable. This study provides evidence that cooperation is one of the key factors for innovation in hi-tech SMEs.

Q&A session

The methodology was exposed in a very clear fashion – a participant commented – especially with regard to the scientific process leading to the conclusions. Professor Chanaron explained that, together with a British and a Dutch colleague, he had already developed research on the topic five years before, comparing SMEs in the UK, Netherlands and France. The questionnaire used in the previous study was therefore extensively used to carry on the research presented during the seminar. As the speaker underlined, a very rigorous description of the methodology, from the very beginning of the research, up until the end, is a requirement of the Doctorate programme.



During the discussion, cultural difference was said to be one of the bigger hindrances in gaining coherent answers to the questionnaires. The speaker explained that this is the reason why the elaboration of questionnaire is a very delicate part. The procedure requires to firstly elaborate the questionnaire in French, then to translated it into Chinese, and finally carry on a reversed translation, so as to verify if there is any difference in the understanding and interpretation of the questions when using another language. In fact, the level of comprehension among the two languages is considered a limitation to the research.

Professor Chanaron tackled a question about the potential future trends among Chinese and French high-tech companies. French entrepreneurs should not be necessarily considered the best innovators in the Western world. Even if an increasing trend in SMEs innovation capabilities is registered, in certain sectors innovation is simply not needed. Considering also other research studies about Chinese SMEs, it is evident that they have been accelerating quite significantly their level of innovation during the last five years, and the trend is most likely to continue in the same direction. A main driver of this behaviour is the understanding that Chinese SMEs will not survive in the long run, unless they develop their own innovation capabilities. At present, Chinese manufacturing sector is widely copying what is created elsewhere and making profit on that. Yet, the speaker said that, in his opinion, Chinese entrepreneurs are aware that if they want to go global, they need to change their strategy, and in five or ten year-time, they will reach the level of innovation of their Western counterparts.

One of the most interesting conclusion is that, while R&D expenditure is positively correlated to innovation, on the contrary, the variable of age it is not, which is quite surprising – as it was noted. Therefore innovation can be achieved through systematic efforts, not just relying on young people and their ideas, unlikely what common sense suggests. One of the main conclusion of Professor Chanaron's previous research is that any company, in any industry, and with any size can be innovative, if innovation is the company's core strategy, and if there is appropriate organisation from research to deployment of new products.

Some general considerations were made on the topic: China is at present perceived as a country where everybody is copying and imitating, and not innovating. In the Europe of the 50s and 60s, SMEs were having the same behaviour. The factors leading to the step moving from imitation to innovative quality, that brings SMEs to success could be the subject of further investigation.



Also, it is important to analyse how SMEs can be innovative in a marketing approach. China's managerial experience is still pretty limited compared to the Western counterparts. Filing the gap is just a matter of time for Chinese SMEs; cross fertilisation and support by the central government could be crucial to this aim. With regard to management in SMEs, in the area of Grenoble, and more generally in France, there is probably a weakness in the education system at national level,

which lacks elements of finance and marketing. Innovation to bring real and long lasting economic success needs a good marketing management. Besides government intervention, cross fertilization could represent a solution for European companies, thus implying management expertise coming from big structured companies. For example, what has been happening in Italy since a few years, is that when key managers of big groups leave their positions, they are hired as CEOs or CFOs in SMEs, therefore bringing in their personal experience and competence. As a result, the core of product innovation remains in the small and medium-sized company, but the new managerial component allows the firm to move forward in a more structured way. Furthermore, from the perspective of education and its impact on innovation capabilities, China will need more systematic efforts to improve its capabilities, especially in higher education.

The debate looked at the dimension of legal regime and intellectual property protection. The general impression is that Chinese respondents to the survey invest less in innovation and more in imitation and copying. Within an environment where intellectual property protection is high and strong, investing in innovation and being successful means to possess a competitive advantage in the long term. On the contrary, when intellectual property protection is low, the best use of capital is different, and imitating is more advantageous. Considering Chinese firms which have achieved patents or are investing in R&D, it would be interesting to see if their behaviour is conditional on being provided with intellectual property protection.

The debate followed with some considerations on the difference between innovation in Europe and China. In more detail, it seems that Chinese managers are not pushed to innovation, because they do not need it

to be successful; also, they do not give importance to history of enterprises as they do in Europe. On the last point, the speaker commented that his impression is that history is not that important even in Europe, and that it does not have much of an influence on innovation.