GLOBAL ECONOMIC AND FINANCIAL CRISIS – A THREAT FOR INNOVATIVE SMEs

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Abstract:
The current crisis is the first of this severity to hit developed countries, since they have shifted to knowledge-based service economies where investment in intangible assets, is of equal importance as investment in machinery, equipment and buildings. SMEs are usually the innovative catalysts of the economy however, as even the big players (states and multinationals) are having trouble tackling with all changes and events - how do small players manage all this confusion? We are all aware of the fact that in many cases governments stepped in the "scene" in order to assist the big players through different measures. They were just "too big" and they could have taken along all others. What about the small players – SMEs in the time of global crisis and their innovative potential? We therefore analysed the impact of the crisis on SMEs and calculated the interconnection (correlation) it had on their innovation potential due to the credit crunch in developed countries.

Keywords: global crisis, innovation, SMEs.

1. INTRODUCTION

In a knowledge-based economy, innovation is the key driver of firm creation, employment generation and, more broadly, economic growth. New business ventures and small and medium-size enterprises (SMEs) play a critical role in supporting innovation and its diffusion across the economy, contributing to the creation of high-wage employment and enhancing productivity growth. SMEs play an important role in the flow of knowledge within innovation systems, not just as knowledge exploiters, but also as knowledge sources, and, increasingly, as "bridges of innovation", which interact with other players as knowledge purchasers, providers and partners (OECD, 2011).

Today we are facing in parts of the world (developing) economic growth like nothing would be happening anywhere. In other parts of the world (developed), after the recession years of 2008 and 2009, a new "downturn" is ahead. Most of the leading papers and journals are speaking of "Time for a double dip?" in (The Economist, 2011) and "Mission impossible: stop another recession" by Financial Times (Roubini, 2011). For the top of 2011, the OECD downgraded forecast of economic growth for 2012, just before the Nice G20 meeting at the end of November 2011.

The crisis has caught SMEs in a vicious circle of poor credit availability, impaired liquidity, rapidly changing export conditions and collapsing business confidence. The crisis has hit SMEs and entrepreneurs primarily in the following ways (IOE, 2009):

- drastic drop in demand for goods and services (e.g. large firms are internalising production and reducing the amount of subcontracting to SMEs; drop in consumer demand, etc.);
- tightening in credit terms, which is severely affecting their cash flows;
- increased payment delays on receivables which - added to an increase in inventories - result in an endemic shortage of working capital and a decrease in liquidity;
- increase in reported defaults, insolvencies and bankruptcies.

If SMEs generate innovation and if SMEs are financing its innovation projects mostly through financial instruments, we will show weather these kinds of projects have been slowed down, due to the crisis and the credit crunch.

2. SMEs AND INNOVATION

The combined forces of globalisation, technological progress and growing market demand have created a new type of innovation: one that is widespread across many agents and sectors. New firms, SMEs and entrepreneurs are key players in this type of innovation. On average across the OECD area, SMEs represent a major share of all firms (99 %), all employment (approximately two-thirds) and all value added (over one-half). These shares vary significantly by country. SME activity shares range from minima of 47,2 % of employment in industry in the Slovak Republic, 52,6 % of employment in services in the United Kingdom and 49,9 % of value added in Ireland, to 85,4 % of employment in industry, 88,8 % of employment in services and 75,2 % of value added in Greece, where SMEs are particularly significant (OECD, 2010).

Not all new and small firms are equal in innovation. On one hand, there is a small group of highly innovative and high-growth-potential firms with important individual impacts on jobs and productivity. However, they make up only a small minority of all SMEs. Anyadike-Danes et al. (2009) calculate, for example, that the six per cent of UK businesses with the highest growth rates generated half of the new jobs created by existing businesses between 2002 and 2008. Innovation is a source of the growth of these types of firms (Mason et al., 2009). The Global Entrepreneurship Monitor survey in 53 countries suggests that only 6,5 % of new entrepreneurs are "high expectation entrepreneurs", who expected to create 20 or more jobs in five years' time. Almost 90 % of all expected new jobs were foreseen by less than one-quarter of nascent and new entrepreneurs (Autio, 2007).

On the other hand, there is the vast majority of SMEs that innovate very little compared to large firms and are associated with only modest growth or decline. Yet these firms should not be neglected either, since even small innovations and small differences in growth amount to a lot, when multiplied by the number of firms involved. However, the recent crisis has brought in considerable thoughts about the relevance of SMEs and has argued that "big is clever" due to three reasons (growth is concentrated around big ecosystems, globalisation favours size and most important challenges for innovators involve vast systems (The Economist, 2011a).

Nevertheless, the majority of authors confirm the huge importance of SMEs and have shown in various studies how greater small business numbers and business start-up rates are associated with more rapid economic growth (Audretsch & Thurik, 2001; Audretsch & Keilbach, 2005; Acs et al., 2005; Erken et al., 2008). There is also an important link between new and small firm activity and job creation, as new and small firms take up labour released by downsizing elsewhere in the economy and increase national and local competitiveness (Neumark et al., 2008; Haltiwanger, 1999; Halabisky, 2006; Henrekson & Johansson, 2008). Stangler and Litan (2009) for example show that from 1980-2005 nearly all net job creation in the United States occurred in firms less than five years old, while in 2007 two-thirds of the entire pool of new jobs, were created by firms aged between one and five years.

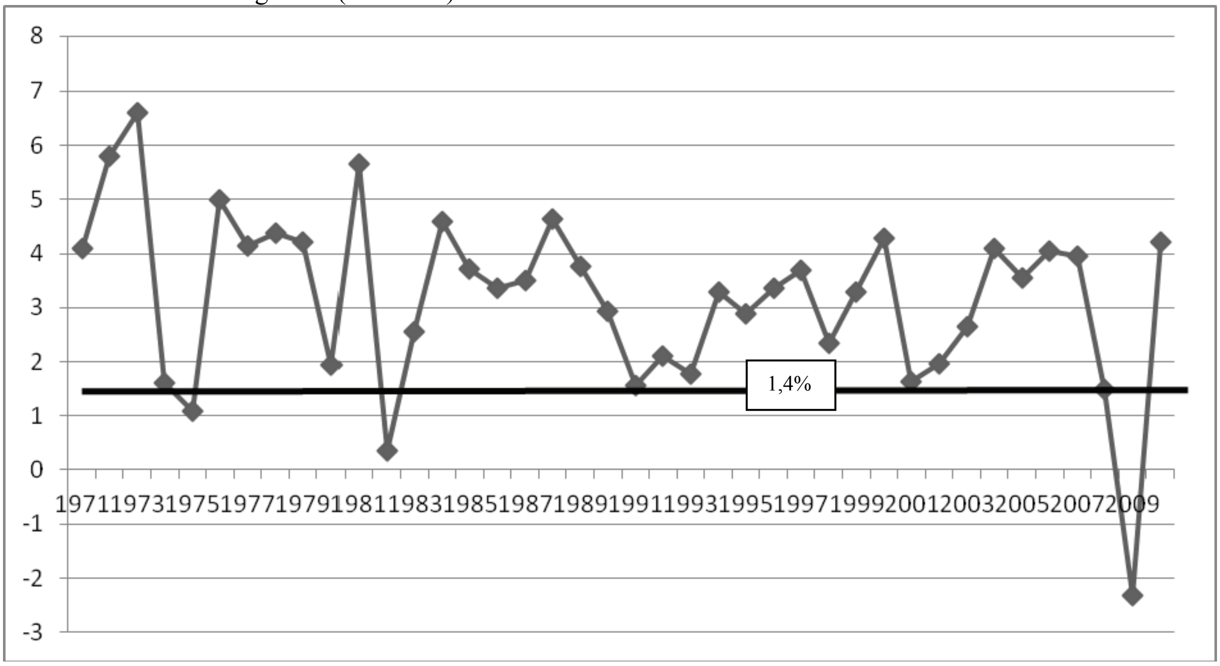
Yet, the innovation process of the 21st century is radically different to that of the preceding one. The change can be resumed as a shift from the "Managed Economy" to the "Entrepreneurial Economy" (Thurik, 2009). In the former, science and systematic large firm R&D was the key. In the latter, entrepreneurship is one of the foundations of innovation. In presenting the shift from the "managed" to the "entrepreneurial economy", Thurik (2009) distinguishes between three major historical phases of innovation and contrasts the importance of SMEs and entrepreneurship in each:

- The Schumpeter Mark I regime. Schumpeter in the first decades of the 20th century saw the entrepreneur as playing a major role in challenging incumbent firms by introducing new inventions rendering current technologies and products obsolete, thus replacing obsolete businesses with new ones in a process of industrial reorganisation or "creative destruction" (Schumpeter, 1934).
- "Managed Economy". Schumpeter later revised his view as the power of large firms began to grow, exploiting high price elasticities of demand. Innovation from the 1940s to the 1970s fits this model: dominated by large corporations able to exploit large economies of scale in production, distribution, management and R&D (Chandler, 1977). Studies suggested that SMEs participated only to a limited degree in innovation in this period, reflecting their low R&D expenditures (Scherer, 1991).
- The "Entrepreneurial Economy". From the late 1970s to today the structures and operations of advanced economies have again been changing. Now, the importance of economies of scale has reduced and the role of new and small firms in innovation and economic development has grown again.

3. GLOBAL ECONOMIC AND FINANCIAL CRISIS

Economic downturns and recessions are actually nothing special, since they come around almost every 10 years. If we look at picture 1, we can notice the cyclical downturns of world economy. It happened in mid 1970s; at the beginning of 1980s; at the beginning of 1990s; at the beginning of 2000s and it was bound to happen around 2010. We can say that we had a crisis almost every 10 years. Just that economic memory is often short, which is one reason, why financial crises and bubbles tend to recur with such frequency.

Picture 1: World GDP growth (annual %)



Source: Prepared on the WB data (world development indicators database).

Note: Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2000 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

The difference with the recent crisis was the magnitude and how synchronised it was: this wasn't just a regional event, like the Asian financial downturn of the late 1990s, but a global crisis, at least in its onset. The numbers are striking. According to estimates by the World Bank (WB), the total world economy contracted by 2,1 % in 2009 – an unprecedented fall in the post-war era. In the OECD area, there was an economic contraction of 4,7 % between the first quarter of 2008 and the second quarter of 2009. A plunge in global trade was another sign of the seriousness of the crisis. Worldwide, the volume of world trade in goods and services fell by 12 % in 2009, according to the WTO. Unemployment rose sharply, reaching a post-war record of 8,7 % in the OECD area – that meant an extra 17 million people were out of work by early 2010 compared with two years earlier. The situation became – and remains – especially serious for young people: in the OECD area, the employment rate for young people (15–24 year-olds) fell by more than 8 percentage points. In countries like France and Italy, about one in four young people are unemployed, while in Spain it's more than two in five. Job creation traditionally lags recovery, so even if economies rebound strongly, high rates of unemployment won't vanish for some time yet (Keeley and Love, 2010).

Another legacy of the last recession is debt. Governments borrowed heavily during the crisis to keep financial institutions afloat and to stimulate activity. By the end of 2011, government debt in OECD countries was typically equal to about 100 % of GDP – in other words, the value of their total output of goods and services. Since SMEs are financing the majority of their projects by loans and other financial instruments, how were they affected? Was there space for lending to SMEs at all?

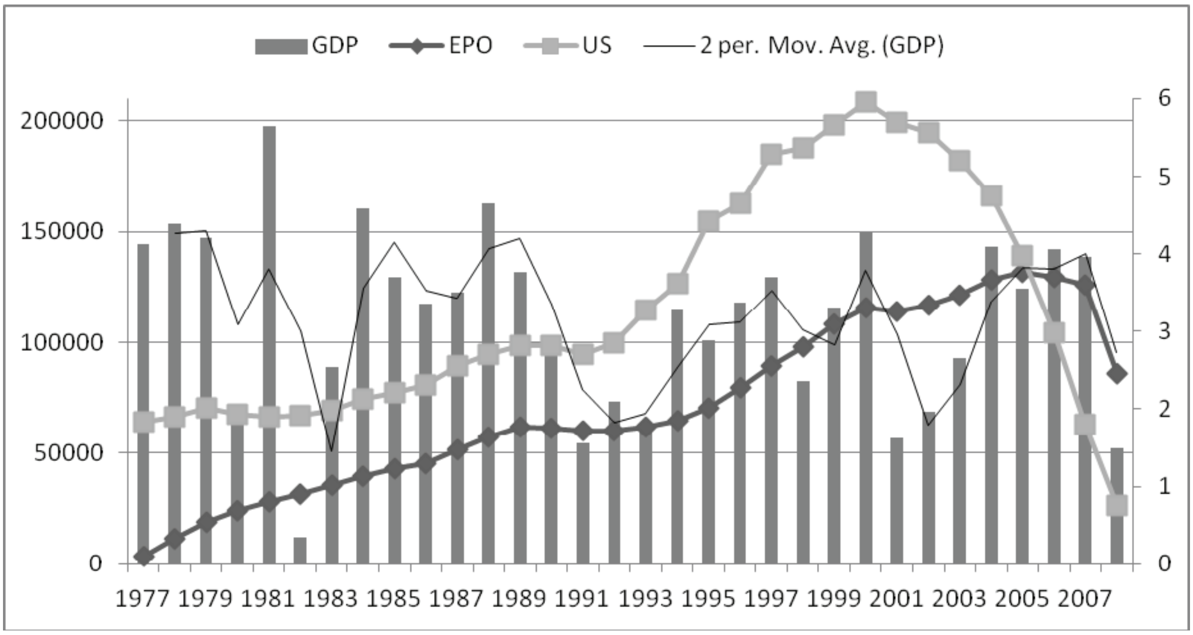
4. CRISIS AND INNOVATION

Innovation is one of the most fundamental processes underpinning economic growth, the driver of growth in output per unit of labour and capital invested. However, at the present time, SMEs have been especially hit hard. It is important to stress that SMEs are generally more vulnerable in times of crisis for many reasons (OECD 2009):

- it is more difficult for them to downsize as they are already small;
- they are individually less diversified in their economic activities;
- they have a weaker financial structure (i.e. lower capitalisation);
- they have a lower or no credit rating and
- they are heavily dependent on credit.

So - is there an effect of the crisis on innovation potential of SMEs? Already on the picture 2 we can easily observe the parallel between the two months moving average of GDP growth and the number of applied patents in US and EU for the recent decades. It is an even more alarming information to look at the data for the year 2008 (1^{st} part of the crisis), as the number of patens in US fell below the amount of applied patents in the 1970's. In EU the number reached the amount of mid 1990's, which can in fact be an alarm for the 'lost generation scenario'. Nevertheless, we can already conclude that there obviously is some interconnection between economic growth (GDP growth) and innovation (applied patents).

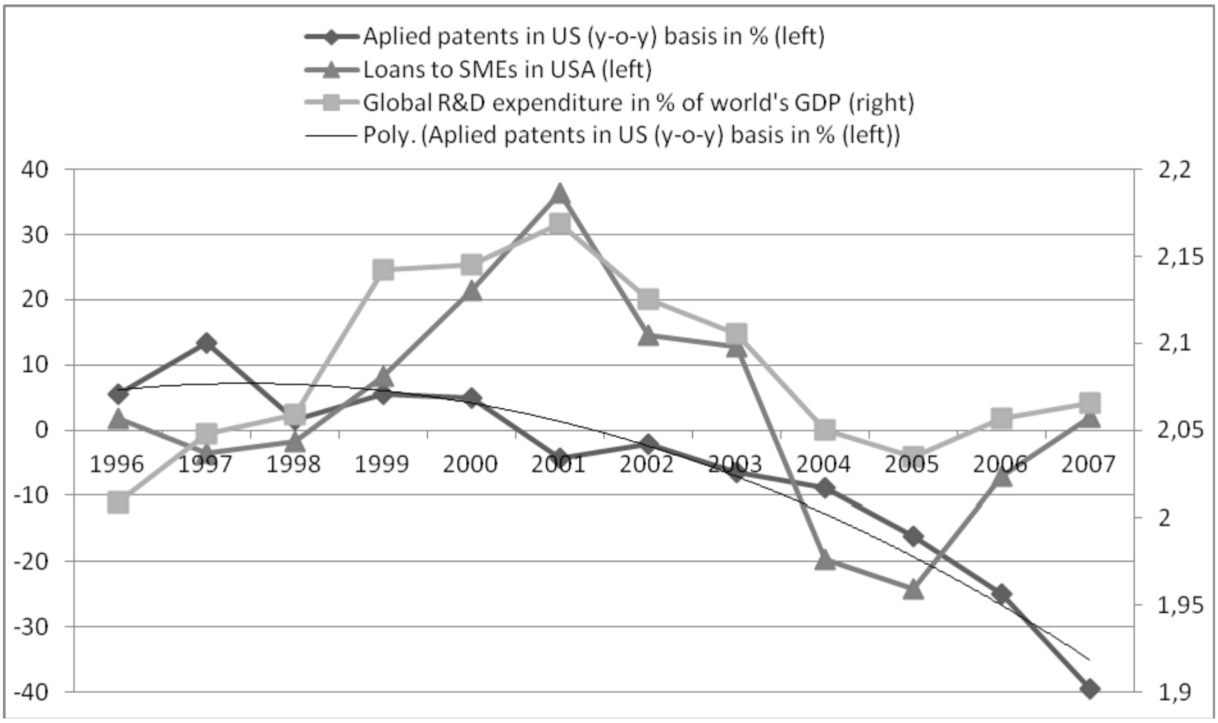
Picture 2: World GDP growth in % (right), the amount of applied patents to European patent organisation - EPO and United states patent and trade mark office - USPTO (left)



Source: Own calculations prepared on the basis of WB, OECD and EUROSTAT data.

We can receive additional confirmation on the close interconnection of innovation and crisis by comparing global expenditures on research and development (R&D), with loans to small companies in USA. Calculated Pearson's correlation coefficient $\mu_X = E(X)$, σ_X^2 is 0,82, which represents a very strong positive correlation.

Picture 3: Global R&D expenditure in % of world's GDP and loans to small firms in USA (net percentage of banks tightening standards for C&I loans to small firms)



Source: Own calculations prepared on the basis of WB and OECD data and Senior Loan Officer Opinion Survey on Bank Lending Practices (USA).

The high correlation between the two parameters proves the fact that the majority of innovative projects in SMEs are usually financed by loans. In tight credit conditions, SMEs are troubled with liquidity problems and are consecutively not eligible for loans. Thus, their innovative projects are postponed and in this sense also the number of applied patents. Normally governments and companies can provide more financial resources for innovation (that usually gives results only after some time) in the 'good times'. On the other side, in the 'bad times', all resources are usually needed, for the short turn activities and are therefore expenditures for R&D, on the side road. Neglecting these activities on the long run, can result in a long turn recession or even the lost generation scenario (like shown on picture 2, where we can see the return of 1970's in the USA).

Although there is only a small positive calculated correlation (0,2) between applied patents and R&D expenditures, it can still be explained. A closer look at picture 3 shows us that until the year 2000, global expenditures for R&D have been growing, while the number of applied patents has been in the same period dropping. Having in mind this, we can observe the rapid decline (it is also the turning point on the polynomial trend line) in applied patents after millennium, when expenditures for R&D started declining. Although the coefficient does not show a strong correlation, we can prove the close interconnection with some additional explication.

Recessions are thus not a good time for innovation although some of the most innovative ideas were launched just after recessions in the past. Many of today's leading firms such as Microsoft or Nokia were born or transformed in the "creative destruction" of economic downturns. And several of today's leading technology firms such as Samsung Electronics, or Google strongly increased their R&D expenditures during and after the "new economy" bust of 2001.

5. CONCLUSION

It is clear that SMEs are the key catalysts of innovation, development and even broader – sustainability of the economy as a whole. It is clear, that after the biggest global recession in decades, the year 2012 is again demanding. It is clear, that SMEs are usually more vulnerable in the time of the crisis, than the big players, as we have also presented. However, the crisis should not damage the drivers of long-term growth, but should instead be used as a springboard, to accelerate structural shifts towards a stronger, fairer and cleaner economic future.

As presented in the paper, there is an important connection between loans and R&D expenditures and consecutively applied patents. GDP growth, approved loans, R&D expenditures and applied patents move in parallel, though with some delay. If one part is missing, there is trouble for the whole chain. The development of SMEs is therefore of outmost relevance for the recovery from the global financial and economic crisis, since it is clear that policy enabling innovation in new and small businesses, will have benefits not just for improving products and services and increasing efficiency but also for meeting the job creation challenge of high unemployment. In the short to medium term there is a real opportunity for governments to use policies for entrepreneurship and SME innovation to meet productivity and job creation objectives at the same time.

To answer our question from the beginning of the paper, "if innovation potential of SMEs has been slowed down due to the credit crunch", we can shortly answer - yes. Additionally, we have presented that it has been also the case through the economic cycles in the past, yet it did not stop the most innovative companies from being even more innovative, so why should it be now for the first time in history. Our findings compliment the research field, since it has been often looked at SMEs and their role in the time of crisis. Some studies have focused on financing SMEs in the time of crisis, yet we are not aware of a paper interconnecting SMEs and the crisis, through their innovation potential, what we have tried to perceive in this paper. If more recent data on patents for different countries would be available, we could calculate the correlation for different countries and later compare results internationally, which represents possibilities for further research.

Does that mean that we do not have to worry at all? Certainly not, since the years ahead of us are not forecasted as easy ones. It is therefore going to be very hard to get the developed economies back into hi gears, where they were in the last decades of the 20th Century. However, if we do not succeed in doing so, we have the lost generation scenario just ahead of us and the social & economic circumstances, which are 'too much' alike to the ones just before the World War II.

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