



NATIONAL BANK OF GREECE

Strategic Planning & Research Division

Survey of Greek SMEs: Second half of 2013

Special Issue: Innovation



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Survey: Second half of 2013 – Key findings

- The gradual **improvement in business sentiment** observed over the past two years is beginning to help **mitigate the liquidity problem**. The steady turnaround in business outlook is also reflected by the fact that all the indicators measuring the level of vulnerability among SMEs appear to have hit their highest level at the end of 2012.
- Concerning the various **individual sectors** we note that:
 - ✓ Manufacturing continues to be the sector presenting the best picture and the best expectations for demand.
 - ✓ Trade is posting the greatest improvement in terms of business confidence.
 - ✓ Services have sustained their improved picture that emerged at the beginning of the year.
 - ✓ Construction, though still the weakest sector, shows positive signs, mainly in respect of liquidity and delayed payments.
- Improved business sentiment is reflected in SMEs' **more aggressive investment plans**. Specifically, 80% of SMEs intend to carry out some kind of investment in the course of the next two years, compared with 67% at the end of 2012. Access to new markets or products continues to be an investment priority.
- When it comes to **financing**, the situation is improved – with 31% of the SME segment applying for financing, of which 70% are granted the full or part of the amount.
- Likewise, SMEs with uncovered financing needs (42% compared with 33% in H1.2013) seem for the most part to avoid external financing, which partly explains the shift **towards financing via their own resources** (50% of SMEs intend to finance their future investments using equity, compared with 40% the previous year). We note that just 5% of the SME segment stated that unfavourable borrowing terms deter them from applying for financing. Moreover, our survey indicates that a lack of adequate solutions and information deters 1/3 of SMEs from using financing tools they consider significant (the figure exceeds ½ in the case of smaller enterprises).



Special Issue: Innovation – Key findings

Our survey focused on the innovation activity of Greek SMEs, which notably they have been pursuing within a far from supportive environment (as reflected by international and European innovation indices). Combining our findings with the general literature on innovation, we note the following:

- According to international innovation indices, **Greece is in a weak position**. A mere 15% of SMEs are strategically innovative, 50% do not innovate, and the other 35% innovate only sporadically. The relatively strong position of the Greek services sector based on European indicators for innovation (mainly thanks to computer services) is not the case when it comes to the SME segment, which is dominated by tourism enterprises and freelancers.
- **33% of Greek medium-sized enterprises innovate compared with 50% of European medium-sized enterprises** Technological innovation is undertaken by 20% of Greek medium-sized enterprises compared with 35% on average in Europe. We note that since there is no available data for a sample of small enterprises (i.e. with turnover below €1 million) on the European level, it's not possible to compare across SMEs as a whole.
- Innovation is a critical parameter for economic growth and it offers sustainable competitive advantages. According to the findings of our survey, **innovation enhances the financial health of SMEs**, through a multitude of impacts:
 - ✓ Innovative SMEs are more dynamic: 40% of them aim at business growth (compared with 23% of non-innovative SMEs).
 - ✓ They display greater resilience in the face of the crisis: 70% are not facing liquidity problems (compared with 60% of non-innovative SMEs).
 - ✓ They are more export-oriented: 48% produce sales abroad (compared with 31% of non-innovative SMEs).



- The **problems of the wider innovation environment** identified in Greece by international and European indicators **are indeed reflected in the behaviour of SMEs**. Specifically:
 - ✓ Low business spending on R&D is the case in the economy as a whole as well as for SMEs. The same applies to applications for patents and intellectual property protection.
 - ✓ Our survey confirms that a large part of Greek innovative activity (around ½) is not primary, but merely an adaptation of innovations by other enterprises.
 - ✓ The relatively good level of research activity in Greece lacks adequate channels for feeding through to the business sector, meaning that only a small portion of innovative activity by SMEs (20%) arises from collaboration outside the firm. This provides an explanation for why Greece's good level of research activity is not reflected in respective economic outcomes.
- Nonetheless, our survey highlights **two features of recent SME behaviour that could under certain conditions prove beneficial in future**:
 - ✓ While the wider innovation environment seems to have become more hostile over the past five years, the percentage of SMEs that innovate has increased (to 30% in 2013 from 20% in 2008) – most likely because they have realized that this strategy offers a way out of the crisis.
 - ✓ Although exports of innovative products and services continue to be low (reflecting the low level of SME investments in the previous years in new products and services in the international market), our survey indicates a shift of SMEs towards developing such new products and services as a way to increase their exporting activity.
- Accordingly, the desire for innovation seems to exist among SMEs (combined with an export orientation). If policies (and, by extension, the business environment) become more supportive, innovation by SMEs has the potential to increase significantly. It is worth noting that 26% of SMEs state they intend to innovate in future. If we add to that the 16% of SMEs who still remain uncertain, **the percentage of innovative SMEs could exceed 40% in the next two years** (from 30% in the last five years and 20% in the period prior to 2008).



Policies that enhance innovation

Innovation is a complex process that goes hand in hand with many other aspects of **entrepreneurship**. Consequently, key policies that help to foster its growth include the creation of a stable business environment, enhancing access to funds, and the reduction of unnecessary administrative and bureaucratic procedures. However, a significant role is also played by policies related specifically to innovative business activity:

- Fostering **interaction between the forces of innovation (mainly universities and research centers) and enterprises** should be a top priority.
- It is also very important to target public R&D expenditure so that it better **supports business R&D activity**. We note here that business R&D expenditure, although generating higher economic returns compared with public R&D expenditure, is extremely low in Greece.
- **Intellectual property rights** need to be better protected by a reliable and stable legal framework. Indicatively, we note that the property rights index of the World Economic Forum is 3.7/7 for Greece, compared with an average 4.6/7 for Europe.
- Another way to enhance innovation activity could be through policies that promote and foster **business clusters**. It should be noted that the role of business clusters is dual:
 - ✓ Clusters can be particularly effective in helping small enterprises produce primary innovation, which involves high fixed costs.
 - ✓ They can help SMEs adopt innovations rapidly by transferring and adapting technology from abroad, providing small businesses with information on technological advances and support regarding the transfer of technology.



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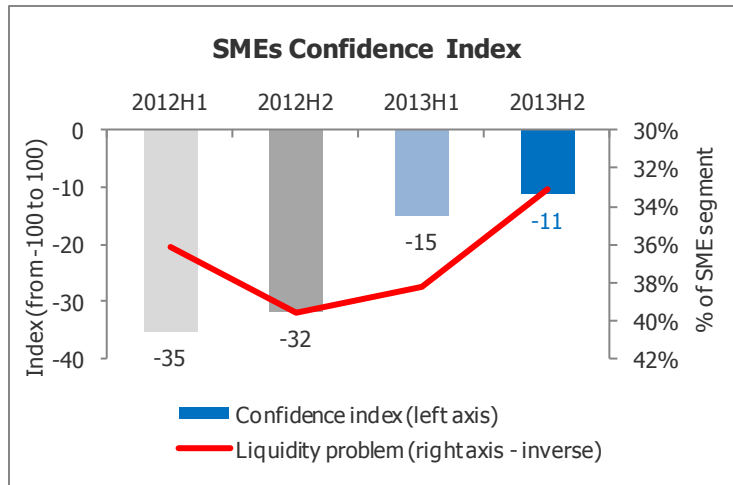
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CURRENT ECONOMIC ENVIRONMENT & BUSINESS CONFIDENCE INDEX FOR SMEs: Second half of 2013

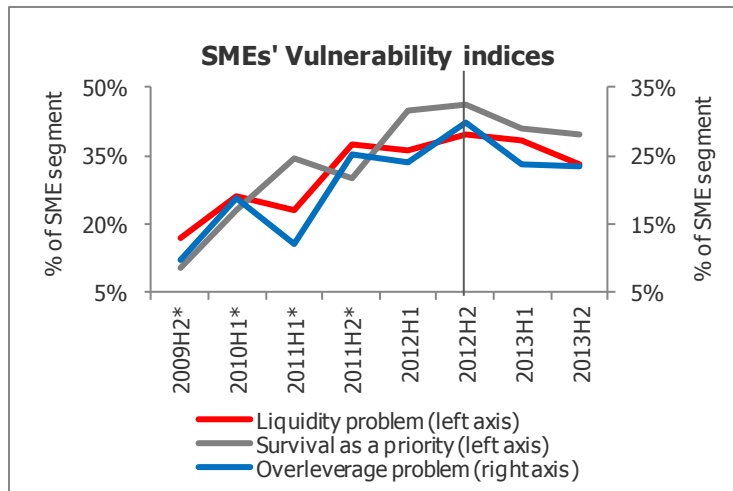




Improvement in the business climate is starting to help mitigate liquidity problems



The business confidence index corresponds to the net balance of answers for decrease (-100), stability (0) or increase (100).

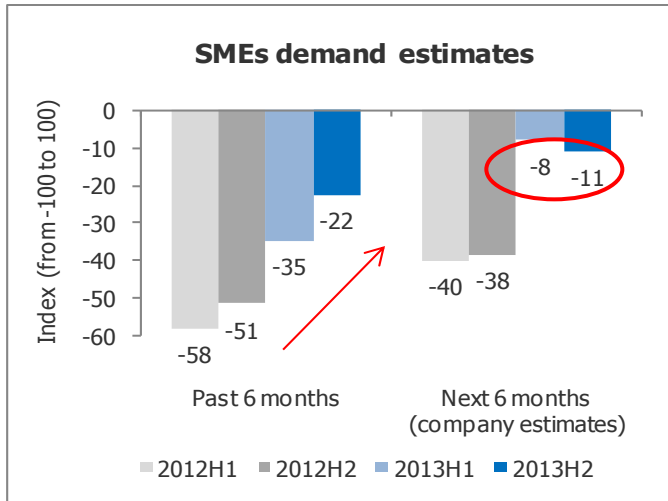


*Figures for the period H2.2009-H2.2011 are estimates based on available observations for a smaller sample of firms with turnover below €1 million.

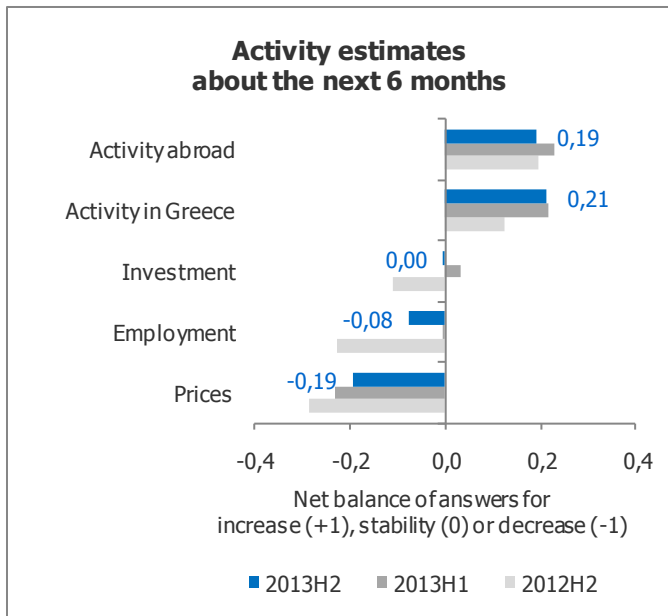
- The Confidence Index for SMEs indicates gradual **improvement in the business climate** over the past two years (up 24 points in 2012-2013).
- Even more promising is the fact that this better picture regarding demand is **starting to give a boost to the financial health of SMEs**. With a delay of six months (i.e. since mid 2012), the severity of the liquidity problem becomes milder, in line with the improvement of the confidence index. For example, it is notable that in a period where financing conditions essentially remained unchanged (see p. 42), the percentage of SMEs stating that they are facing severe liquidity problems dropped to 33% in H2.2013, from 40% in H2.2012.
- Besides the liquidity problems, our survey shows that the other **indices measuring the level of vulnerability among SMEs** (percentage of SMEs pursuing mere survival strategies or encumbered by excessive debt problems) hit their highest levels in H2.2012, and since then have been falling.



However, on the shorter 6-month horizon, SMEs present more reserved expectations



* The index corresponds to the net balance of answers for decrease (-100), stability (0) or increase (100).

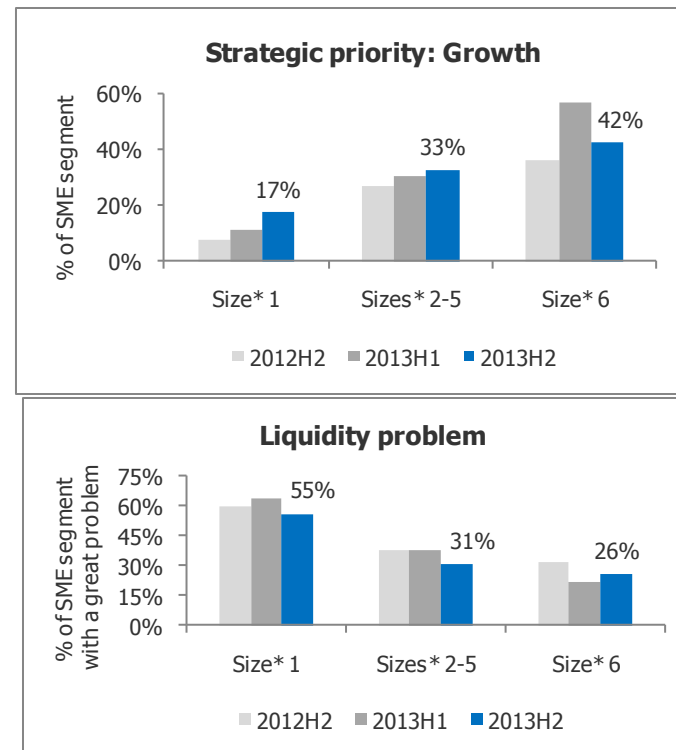
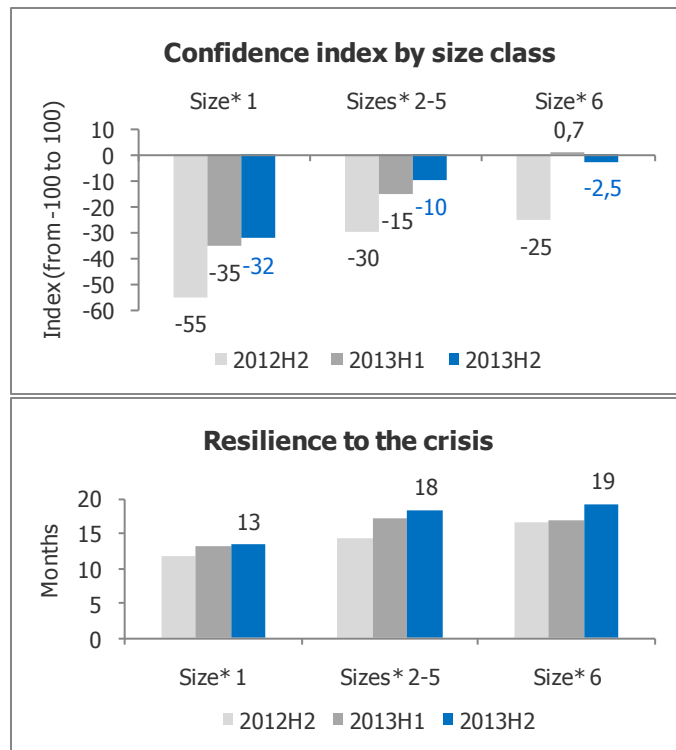


- The improvement in the confidence index over the past six months reflects **improvement in activity** during the previous 6-month period (with 24% of SMEs presenting an increase in activity, compared with 19% in H1.2013).
- However, the component of the confidence index concerning **estimates for demand in the next 6 months has become slightly weaker** (with 23% of SMEs expecting an increase in activity, compared with 25% in H1.2013).
- The **relatively more reserved expectations of SMEs** are also reflected in a number of other indicators:
 - ✓ 14% of SMEs are planning to increase investments within the next 6 months (compared with 17% in H1.2013).
 - ✓ 10% of SMEs state that they will increase employment within the next 6 months (compared with 13% in H1.2013).
 - ✓ 22% of SMEs estimate increased activity in Greece within the next 6 months (compared with 26% in H1.2013).



Variations by size: The larger SMEs look more dynamic and more resilient to the crisis

- **The expectations of SMEs show a positive correlation with their turnover**, as reflected in the confidence index** (divergence of around 30 points between larger and smaller SMEs). In addition, the larger SMEs present greater resilience to the crisis, pursue growth strategies to a greater extent and have fewer liquidity problems.
- The significant improvement presented by **the largest SMEs** in H1.2013 (much greater than that of smaller SMEs) shows a tendency to return to the general course of the business sector. Specifically – though presenting a small downward correction over the past 6 months – the largest SMEs will close 2013 with a confidence index about 20 points higher than a year earlier (an improvement roughly in line with the other SMEs).



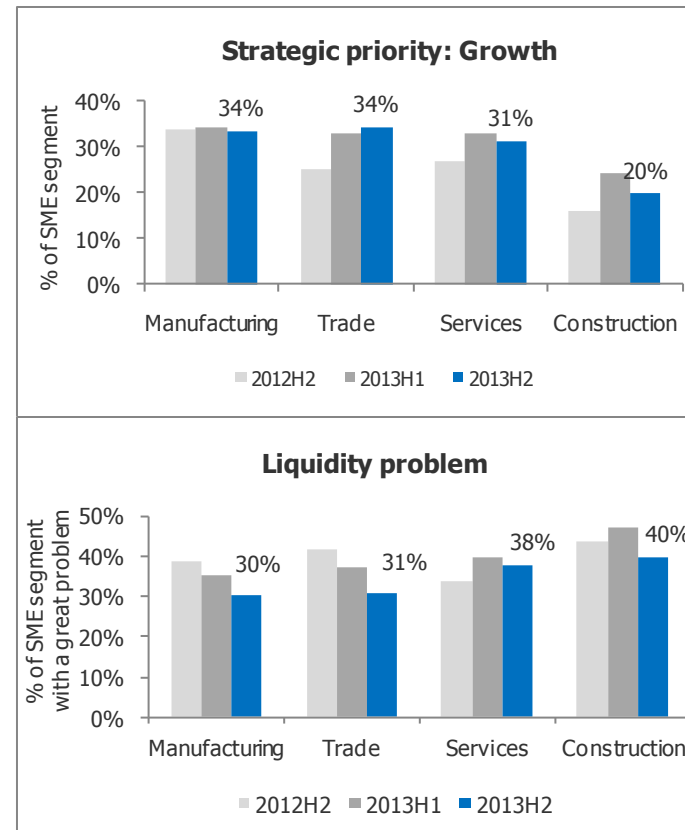
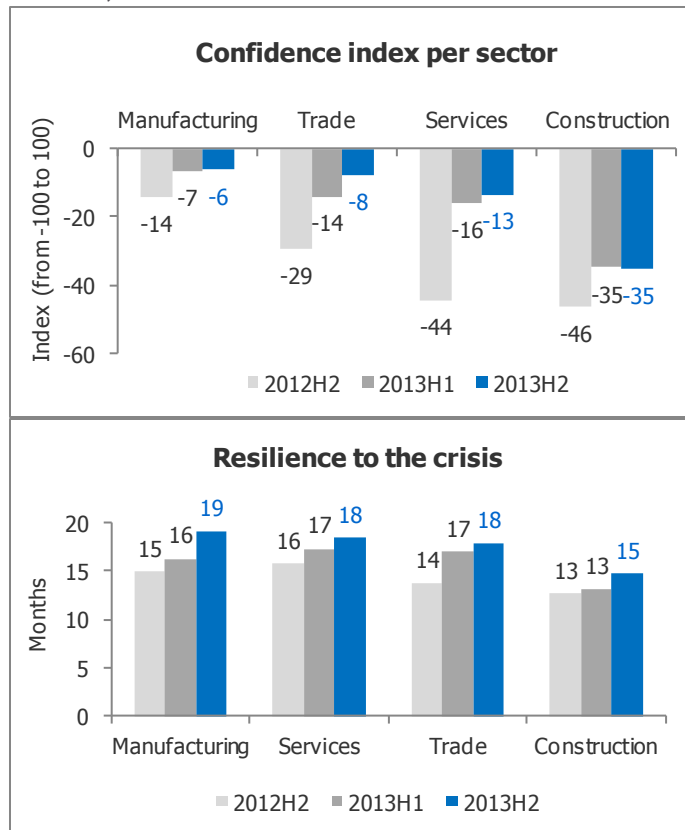
*The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].

**The business confidence index corresponds to the net balance of answers for decrease (-100), stability (0) or increase (100).



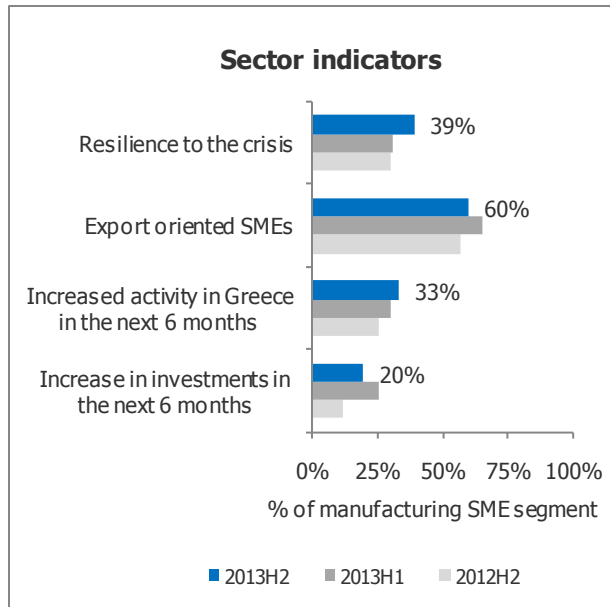
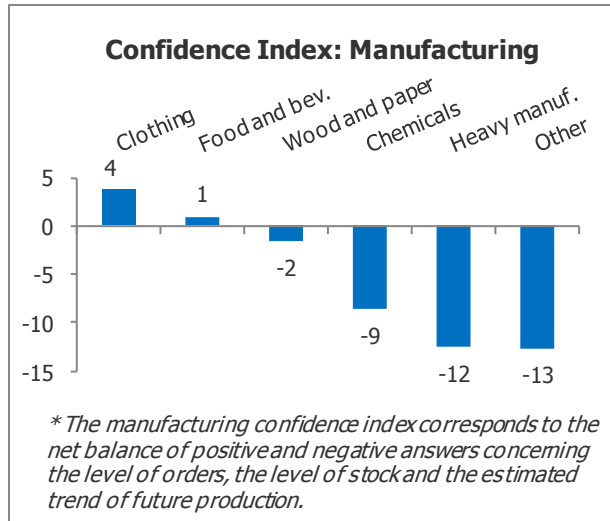
Variations by sector: In 2013 all sectors presented higher confidence index compared with 2012

- The **confidence index** in H2.2013 increased for SMEs in the trade and services sector, while it remained unchanged in the segments of industry and construction. Note that all sectors posted an increase compared with the same period in 2012.
- SMEs across all sectors demonstrate **higher resilience in the face of the crisis** and have **fewer liquidity problems** compared with H1.2013, with manufacturing presenting the best picture.
- The **construction** sector continues remains the most vulnerable in terms of resilience and liquidity, leading to a relatively smaller percentage of construction companies to pursue growth strategies (20% compared with 1/3 of other SMEs).





Manufacturing: The sector presenting the best conditions of current activity and the best expectations for demand

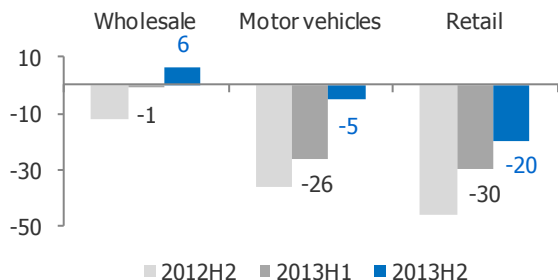


- In H2.2013 manufacturing continues to be the sector presenting **the best picture regarding current and future demand**. Specifically, 34% of manufacturing SMEs posted increased activity in the past semester (compared with 21% for other SMEs), while 31% have positive expectations for the next semester (compared with 20% for the other SMEs).
- The confidence index for manufacturing SMEs remained unchanged. Across the various individual segments, **clothing and food SMEs stand out** (these also display a strong export orientation), while heavy manufacturing (metals and equipment) suffers from decreased orders and increased inventories.
- At the same time, note that manufacturing SMEs:
 - ✓ remain the most export oriented, with 60% being active in foreign sales (compared with 28% of other SMEs),
 - ✓ show a greater tendency to increase investments (20% compared with 13% for other SMEs) and
 - ✓ anticipate further growth in domestic activity in the next six months (1/3 of manufacturing SMEs compared with 1/4 of other SMEs).



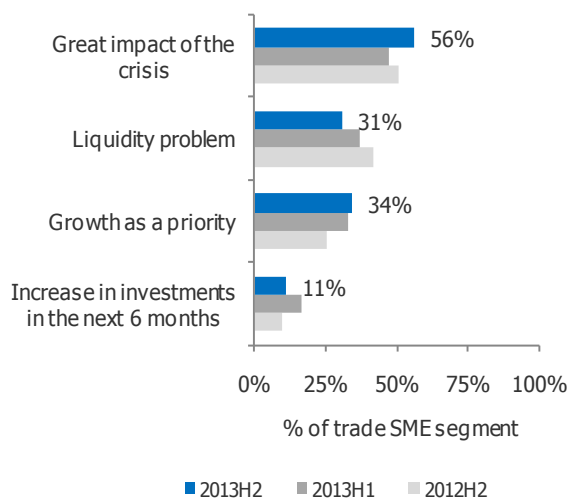
Trade: First signs of recovery after the severe setbacks brought about by the crisis

Confidence Index: Trade



* The trade confidence index corresponds to the net balance of positive and negative answers concerning the level of stock and the trend of past and future demand.

Sector indicators

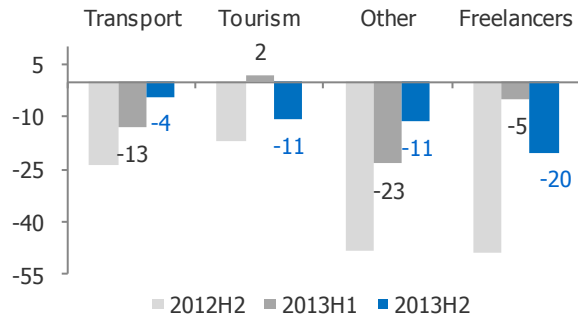


- The trade sector posted the **biggest improvement in the confidence index** in H2.2013 (up by 6 points compared with an average 1 point for other SMEs).
- Although SMEs stating that they have been severely hit by the crisis are still over 1/2 of the trade sector, there are **some signs that they have now found more effective ways to react**:
 - ✓ 34% of trade SMEs are now planning for growth, compared with 25% a year ago.
 - ✓ 31% of trade SMEs claim to be facing severe liquidity problems, compared with 42% a year ago.
- All trade sectors report a steady rise in confidence, with two particular sub-sectors standing out:
 - ✓ **Wholesale trade** presents increased past activity, as well as expectations for further growth in H1.2014.
 - ✓ **Car trade** shows an impressive recovery, with the confidence index up by 21 points during H2.2013.



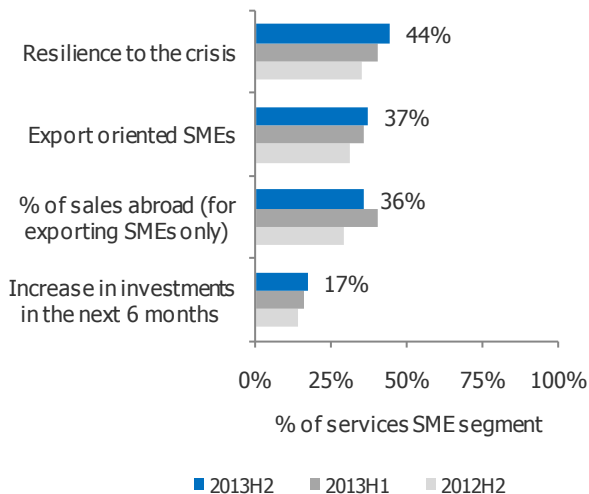
Services: Maintain the improved picture that emerged at the beginning of the year

Confidence Index: Services



** The services confidence index corresponds to the net balance of positive and negative answers concerning the business situation and the trend of past and future demand.*

Sector indicators

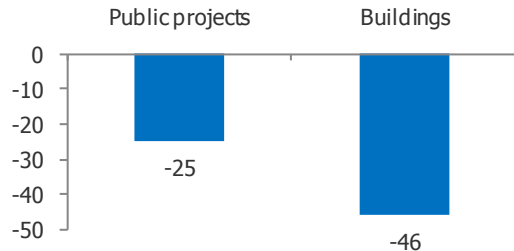


- The **confidence index** for services SMEs remains unchanged at the improved level it achieved at the beginning of 2013 (with the index up by 32 points on average in 2013 compared with 2012).
- If we take a look at the various individual service segments, **transport** presents the most favorable business climate. According to our survey, expectations of **tourism** SMEs for the weaker future demand during the winter semester (due to seasonality) seem to limit the index to low levels – however over the respective 2012 level. At the same time, the confidence index for **freelancers** seems to be adversely affected by the reduced activity in summer 2013 – however remaining at a higher level than the respective semester in 2012 and indicating significantly improved future expectations.
- Along with manufacturing, services SMEs demonstrate the **greatest resilience to the crisis** (44% can hold out for more than a year compared with 35% for other SMEs). At the same time, they are boosted by a **significant degree of export activity**, with exporting SMEs in the services sector producing about 36% of annual turnover abroad (compared with 20% for other exporting SMEs).



Construction: Though still the weakest sector, shows positive signs, mainly in respect of liquidity and investment plans

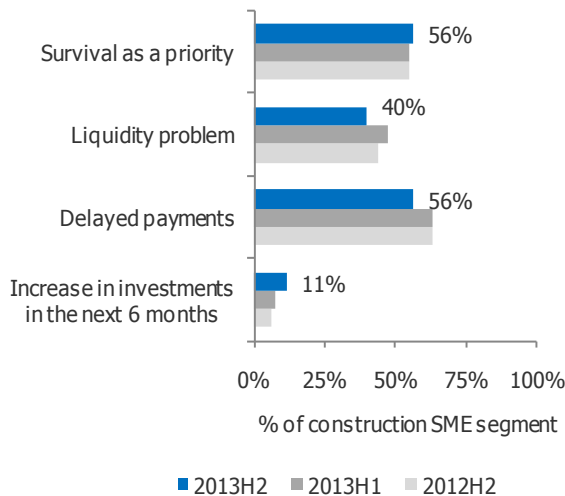
Confidence Index: Construction



** The construction confidence index corresponds to the net balance of positive and negative answers concerning the current backlog and the estimated trend of future demand.*

- The **confidence index** for construction SMEs remained low in H2.2013, showing just a limited improvement compared with the previous year (up by just 12 points on average in 2013).
- In the case of **construction of public projects**, expectations are relatively better than for construction of buildings, as they are boosted by the restart of projects financed by NSRF.
- Construction SMEs still present **the lowest resilience in the face of the crisis** (just 14.5 months compared with 18.5 months for other SMEs) and the highest rate of enterprises struggling to survive (56% of construction compared with 38% of other SMEs).
- However, the **moderation of liquidity problems** has enabled them to reduce delayed payments for loans and suppliers in H2.2013, while more construction SMEs plan to increase their investments in the next semester (11% compared with 8% at the beginning of 2012).

Sector indicators



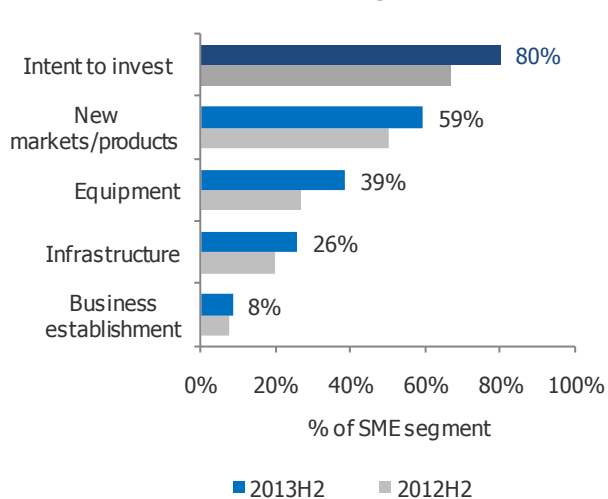
INVESTMENTS AND FINANCING OF SMEs



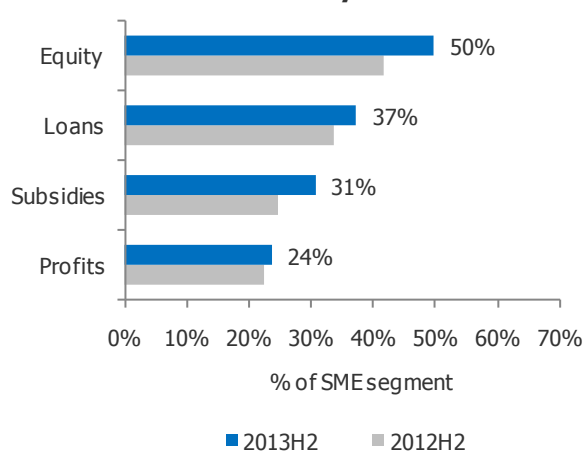


The improvement in the business climate is prompting SMEs to adopt more aggressive investment plans

Type of investments in the next 2 years



Financing of investments in the next 2 years

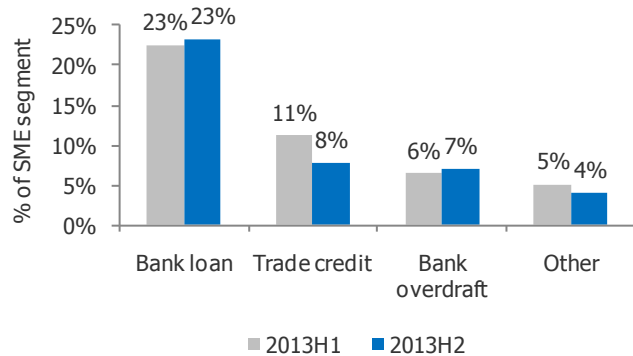


- The general improvement in the business climate in 2013 is reflected in the **investment plans of SMEs**. In particular, 80% of SMEs intend to embark on some kind of investment in the next two years (in new markets or products, equipment or infrastructures) compared with 67% at the end of 2012. A more impressive change in expectations is observed in the trade sector – 82% of trade SMEs state intentions to invest, compared with 64% at the end of 2012.
- The structure of preferences of SMEs remains unchanged, with **expansion into new markets and products being an investment priority** (concerning 60% of SMEs at the end of 2013 compared with 50% a year earlier).
- As far as **financing of future investments** is concerned, SMEs show a shift to equity funds (50% of SMEs compared with 42% a year earlier) and subsidies (31% compared with 25% a year earlier). In total, financing through loans and profits remains at similar levels as in 2012. However, it is important to note that the manufacturing and trade sectors show a higher preference to loans (almost 45% of SMEs intend to borrow), whereas the services and construction sectors tend to depend less on loans for their investment plans (with just 25% of SMEs intending to invest through loans).



Applications for financing by SMEs remained unchanged – at a relatively low level in the case of small businesses

SMEs' applications for financing during the past 6 months

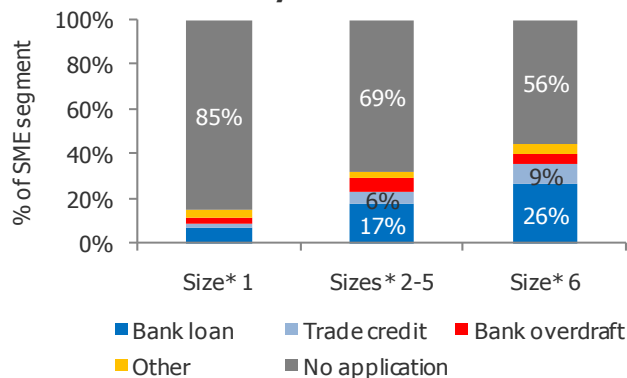


- 31% of the SME segment **requested financing** over the past six months** (down from 35% at the beginning of the year). Specifically:

- ✓ Applications for bank loans and bank overdraft remained unchanged (at 23% and 7% of SMEs, respectively).
- ✓ Applications for trade credit declined (8% of SMEs compared with 11% at the beginning of the year).

- The **size of enterprises** seems to affect the decision regarding financing. Specifically:

SMEs' applications for financing during the past 6 months by size class



- ✓ Although facing the biggest liquidity problems, just 15% of smaller SMEs applied for financing over the past six months.
- ✓ On the other hand, 45% of larger SMEs applied for financing, demonstrating a stronger preference for bank loans.

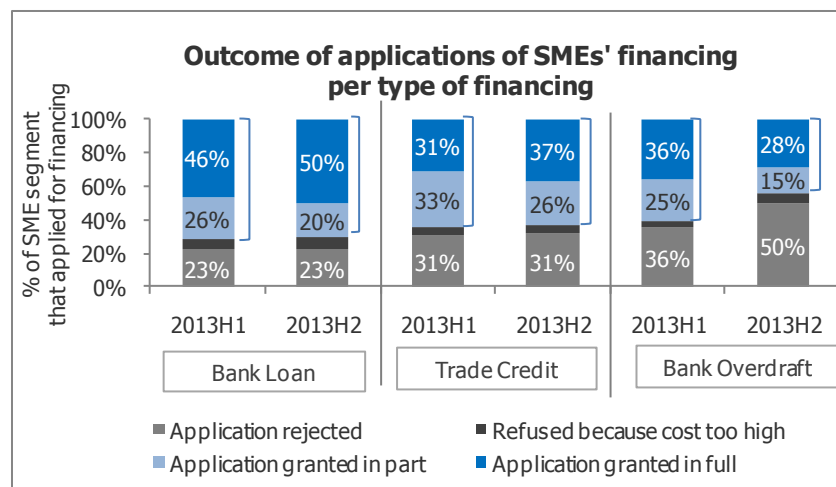
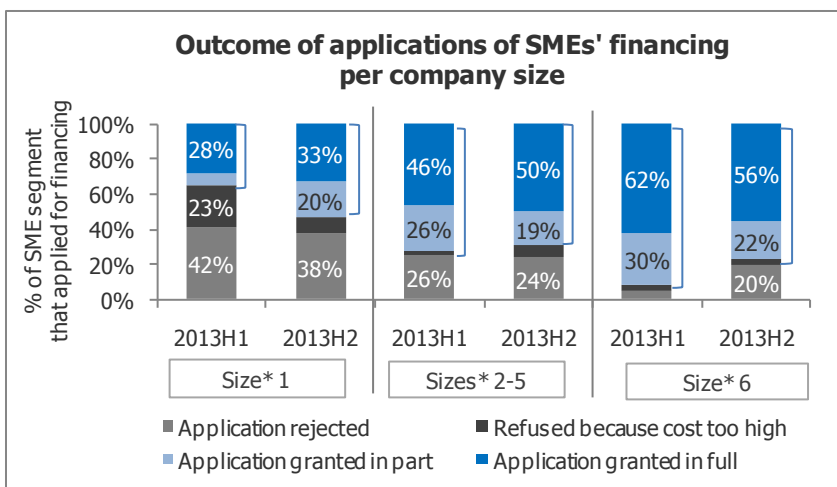
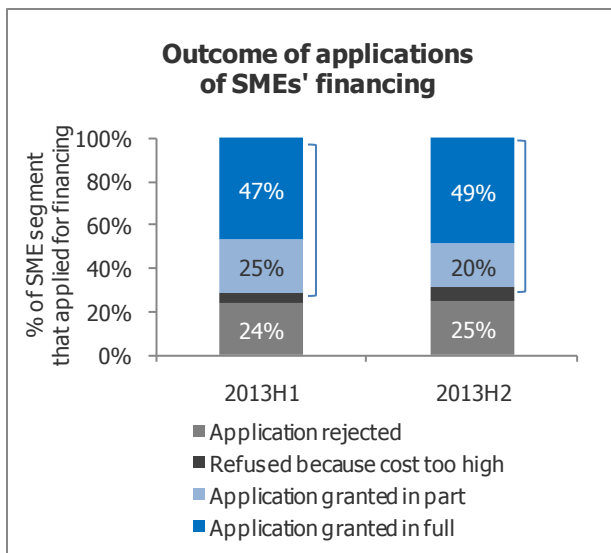
* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=[5-10].

** Note that almost 7.5% of SMEs (or 25% of the ones that applied for financing) applied for more than one type of financing. Hereinafter, all references to total financing reflect the answers of enterprises by order of priority: for bank loans, trade credit, bank overdraft and other financing.



About 2/3 of SMEs got approval for their financing applications

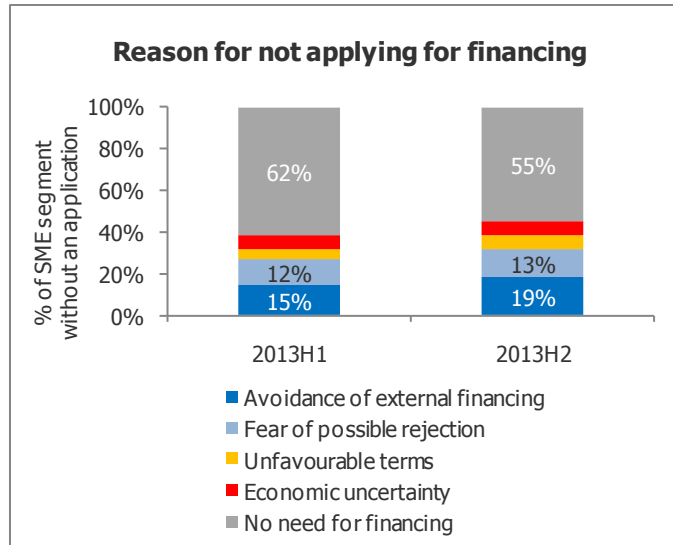
- In H2.2013, **70% of SMEs got approvals for their financing applications** (for all or part of the amount), with most enterprises receiving the full requested financing (49% compared with 47% in the first semester).
- Despite the increased rejections for **larger SMEs**, the share of their approvals is higher than the respective one for smaller SMEs (79% compared with 53%).
- **Bank loan** applications demonstrate higher shares of approvals compared with other forms of financing, while the highest level of rejection is presented by bank overdraft facilities with 1/2 of SMEs' applications being rejected (compared with 36% in the first semester).



* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].



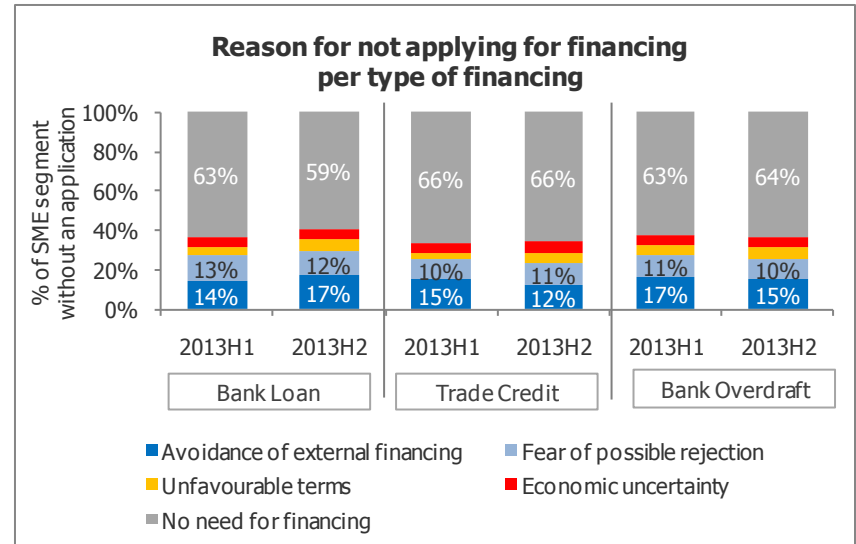
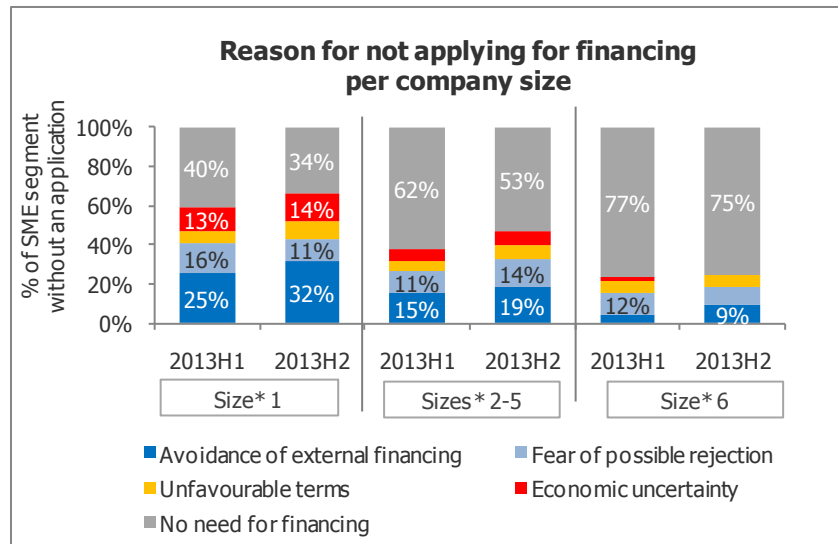
3/4 of larger SMEs that didn't apply for financing stated that they had no financing needs – the respective share for smaller SMEs is just 1/3



➤ The different attitude of small and medium enterprises is reflected in the **reasons why such enterprises didn't apply for financing** over the last six months. In total, 55% of SMEs that didn't apply for any kind of financing considered it unnecessary.

- ✓ **Larger** SMEs decided they didn't need financing at a rate of 75%.
- ✓ Just 34% of **smaller** SMEs considered that they were in fact in no need of financing, whereas an increased share stated that they generally avoid external financing (1/3 compared with 1/4 in H1.2013).

➤ Note that only 5% of the SME segment stated that it was the unfavourable borrowing terms that deterred them from applying for financing.



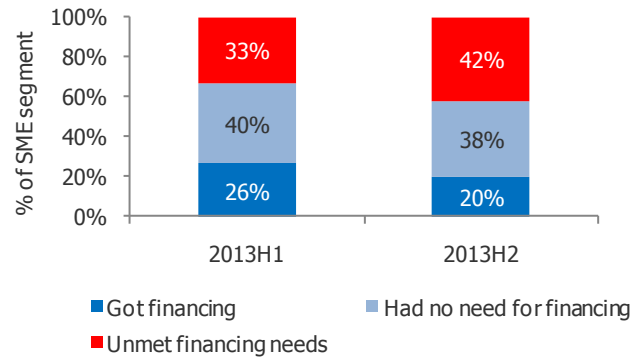
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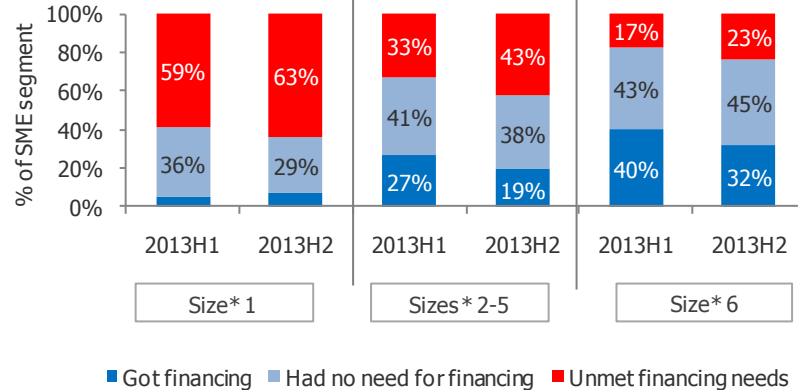
Although approvals remain unchanged, there is a higher share of SMEs with uncovered financing needs, due to the general tendency to avoid borrowing

- To sum up the financing needs of SMEs:
 - ✓ 40% of the SME segment still state that they **don't need financing**.
 - ✓ 20% of the sector **received financing** (corresponding to 70% of SMEs that applied), compared with 26% in H1.2013.
 - ✓ 42% of the sector **in need of financing didn't get it**, compared with 33% in the H1, mainly because they didn't apply for it (largely due to the general tendency to avoid external financing and the shift towards funding through own resources).
- Smaller SMEs continue to report the **higher rate of uncovered financing needs**.

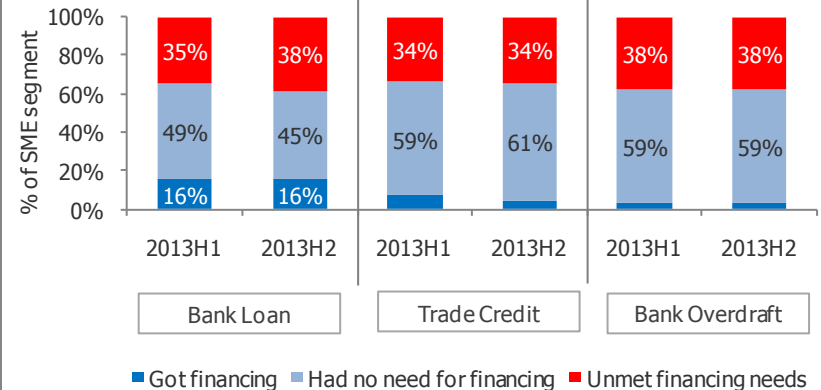
Financing needs of SMEs



Financing needs of SMEs by company size

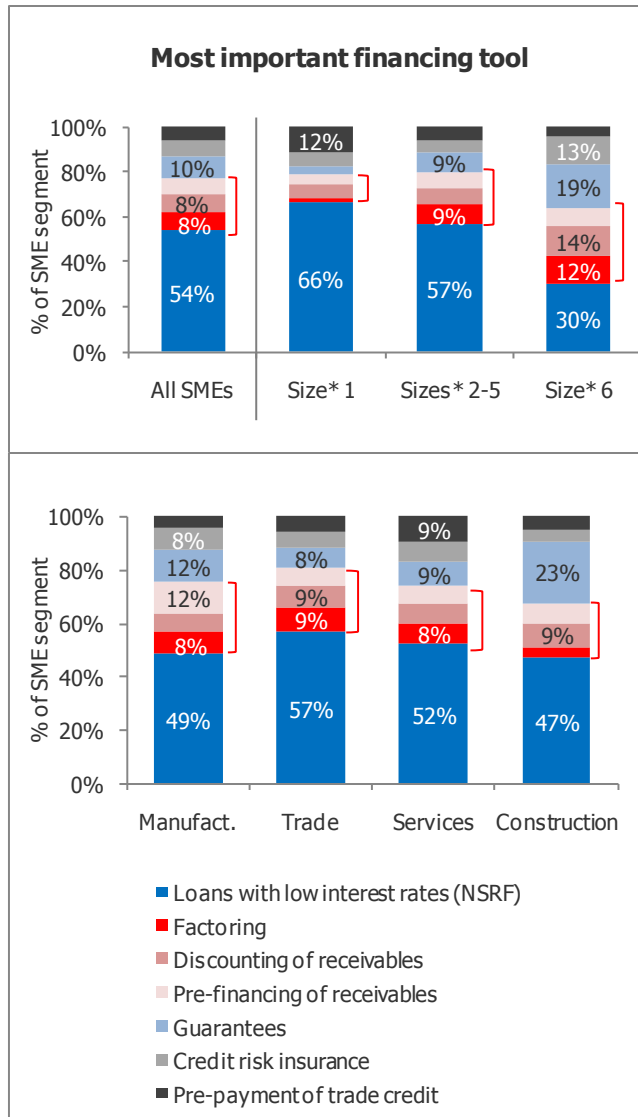


Financing needs of SMEs by type of financing





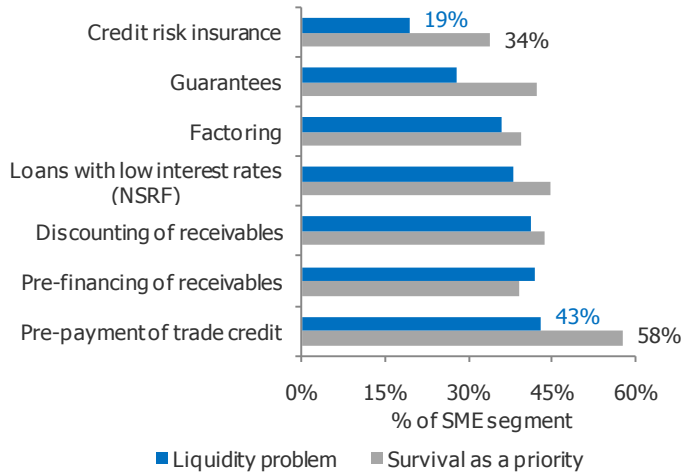
The most important financing tool for 1/2 of SMEs is low interest loans through the NSRF



- Taking a close look at the various financing tools, SMEs clearly prefer **low interest loans through NSRF projects** (first preference for 54% of SMEs). This preference is stronger among smaller SMEs (2/3 compared with 1/3 of larger), while larger SMEs' preferences present a higher variety.
- For other types of financing we note that:
 - ✓ Second in order of preference are **tools for the management of receivables** (factoring, discounting and pre-financing of receivables) that are considered important mainly by larger SMEs.
 - ✓ Third are **letters of guarantee**, which tend to be preferred by larger SMEs, the construction sector (mainly public projects) and heavy manufacturing.
 - ✓ **Credit risk insurance** (mainly for accessing new markets or new partnerships) concerns principally the heavy manufacturing and the services sector.
 - ✓ Provision of liquidity for **pre-payment of trade credit** is preferred mainly by smaller SMEs and the sectors of services and wholesale trade.

Risk insurance is principally used by the more robust enterprises, while pre-payment of trade credit mainly by weaker enterprises

SMEs' characteristics by financing tool they prefer

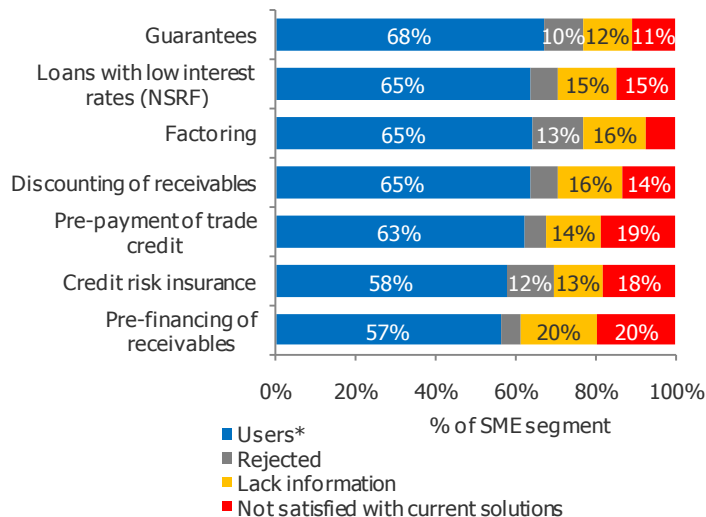


➤ The importance attached to each financing tool also depends on the enterprises' financial condition:

- ✓ Credit risk insurance is mostly sought by the **more robust enterprises** pursuing growth strategies (partly because of the higher degree of export orientation).
- ✓ Provision of liquidity for more early payment of trade credit is considered important by the **financially weaker businesses** experiencing serious liquidity problems and substantial survival needs - and therefore limited access to credit by their suppliers.

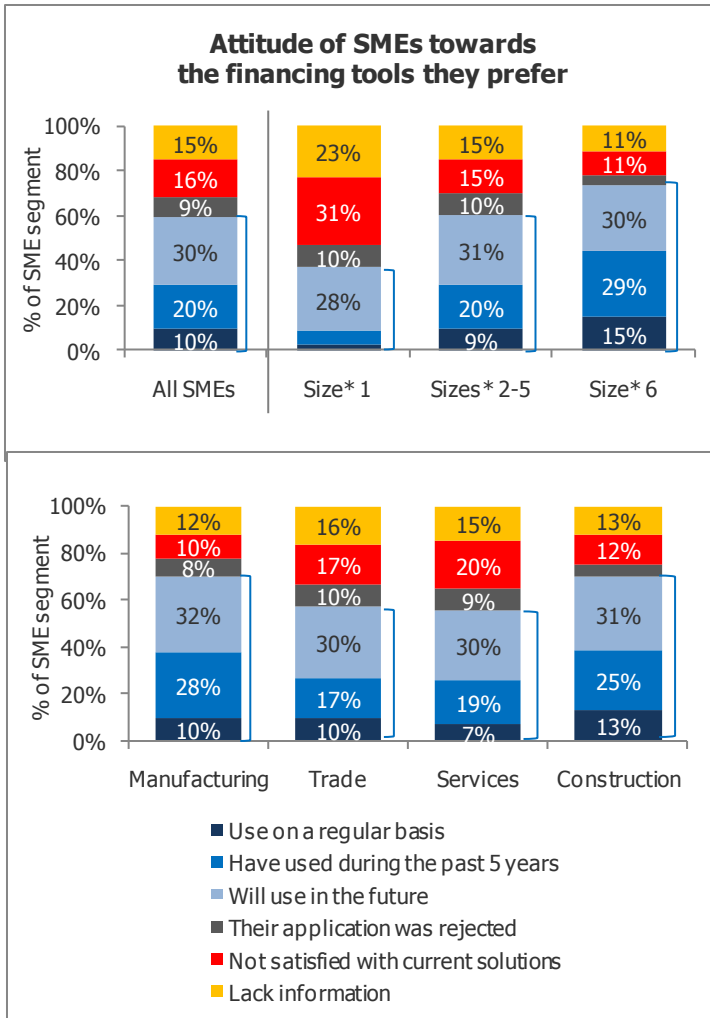
➤ Having examined the preferences of SMEs, a second issue is to identify **the extent to which SMEs use** financing tools they consider important:

Attitude of SMEs by type of financing tool



- ✓ Guarantees present the highest percentage of **users** (nearly 70% of SMEs that consider them a useful tool), with low information gaps or lack of solutions.
- ✓ On the other hand, pre-financing of receivables present **the most issues regarding lack of information and unsatisfying available solutions** (discouraging 40% of potential users, i.e. SMEs that consider it a useful tool).
- ✓ **Rejected applications** are most common in the cases of factoring and credit risk insurance.

1/3 of SMEs do not use the desired financing tools due to lack of information or satisfactory solutions



* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].

- Having analyzed the behavior of potential users of each financing tool, it is important to examine the overall situation in the SME segment concerning the **use of desired tools for each enterprise**:
 - ✓ 60% of the SME segment are – current or future – users of desired financing tools.
 - ✓ 31% of the SME segment cannot use a specific financing tool despite considering it important (half of them due to inadequate solutions offered by banks and the other half due to lack of information).
 - ✓ 9% of the SME segment have tried to use the desired financing tool but their application was rejected.
- 3/4 of the **larger SMEs** use the desired tools (15% on a regular basis). On the other hand, **smaller SMEs** use desired tools at a rate of 37% (mainly referring to their intention for future use), while 31% claim they are not satisfied by the available solutions offered by banks.
- With regard to individual sectors, note that the **highest rates of information gaps or unsatisfactory solutions** are observed in trade and services.

INNOVATION ACTIVITY OF SMEs

Innovation Environment





Before proceeding with the detailed presentation of the results of our survey, it is useful to define the basic terms used for measuring innovation (given the breadth and complexity of innovation as a concept).

- **Innovative Businesses:** Businesses with innovative activity during the reference period (the current period includes the last five years). With regard to what innovation is, we discern the following forms:

I. Technological innovation:

- ✓ New or significantly improved product/service as to its fundamental characteristics, technical specifications and other immaterial features, ways or ease of use. Changes in appearance or simple resale of goods/services of other businesses are not considered innovative products/services. In the framework of the present survey a further distinction is made according to whether the product/service is new for the international market, the Greek market (at national level), the local market or just for the enterprise itself.
- ✓ New or significantly improved processes regarding either the production technology or the provision of products/services, which should have a significant impact on the volume, quality or cost of production. The innovative processes do not include just organizational or management changes.

II. Non-technological innovation:

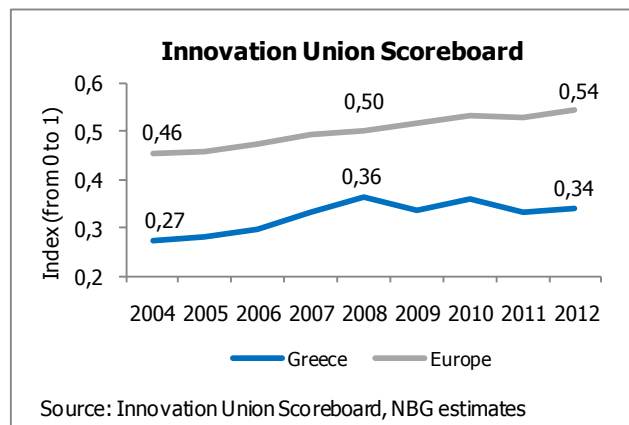
- ✓ New or significantly improved organizational method of the business, which may be relevant to business practices, working environment or relationships with third parties.
- ✓ New or significantly improved marketing strategy for products/services with regard to a product's design or packaging, its placement, marketing or pricing.



- **Sources of innovation**, i.e. the channels through which innovation is generated, include:
 - ✓ Primary innovation, generated for the first time, either exclusively by the business or in collaboration with other businesses and institutions.
 - ✓ Adaptation of some already existing innovation, i.e. the copying of original innovation from Greece or abroad.
- **Collaborations** in which SMEs engage so as to generate innovation can arise from:
 - ✓ Enterprise network, including suppliers, customers and competitors
 - ✓ External partners, including universities, public or private research institutions, and consultants.
- **Patenting of innovation** is the legal protection of innovative inventions, designs and creative projects and may be provided by national, European or international institutions. The main types of industrial property rights are:
 - ✓ Patent: Protection certificate valid for 20 years which is granted to the creator of innovations that involve an inventive activity and are open to industrial application. It may concern a product, method or industrial application.
 - ✓ Trademark: Mark or characteristic design which is applied or relates to products/services and makes them stand out from those of other companies (e.g. name of the company).
 - ✓ Industrial design: The external image of a product, which arises from the special technical features of the product (e.g. shape, color, material).



Innovation activity in Greece lags behind Europe



Innovation index by sector

	Greece	Europe
Total Industry	0,34	0,54
Manufacturing	0,34	0,59
Chemicals	0,50	0,73
Electrical equipment	0,42	0,79
Machinery	0,41	0,68
Rubber and plastic	0,39	0,60
Metalic products	0,36	0,49
Basic metals	0,34	0,57
Paper and publishing	0,29	0,50
Food and beverages	0,29	0,48
Transport equipment	0,26	0,69
Textiles	0,24	0,43
Services	0,38	0,49
Computer services	0,70	0,74
Renting and business activities	0,59	0,70
Information and	0,54	0,77
Transport - communications	0,25	0,36
Wholesale trade	0,36	0,44

Source: European Sector Innovation Scoreboards 2005, NBG estimates

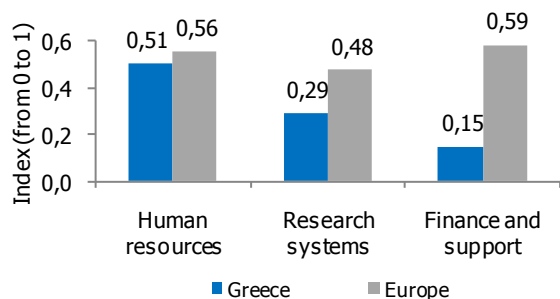
- Innovation offers a strong and sustainable strategic advantage for the economy and the corporate sector - a critical parameter in which **Greece unfortunately lags well behind**. According to the Innovation Union Scoreboard, Greece is ranked among the moderate innovators, with the score being 35% below the European average (0.34 compared with 0.54). Even more alarming is the fact that this gap between Greece and the European average has been growing in the past five years (to 0.20 points in 2012 from 0.14 in 2008).
- The **lag in Greek innovation is most prominent the manufacturing sector** (42% lower than Europe). On the other hand, Greece shows a relatively smaller divergence from Europe in the trade and services sectors, with computer services posting the highest score.
- According to Eurobarometer (European Commission, 2013) innovative enterprises in Greece account for 34% compared with the average 42% in Europe*. Although this difference is not very significant, Greece's lag is further aggravated by the fact that **most innovative businesses in Greece do not generate primary innovation** but just adapt innovation developed by other businesses (36% compared with 21% in Europe).

* These rates concern businesses that developed technological innovation in the period 2009-2011.



The business environment is not favorable for innovation...

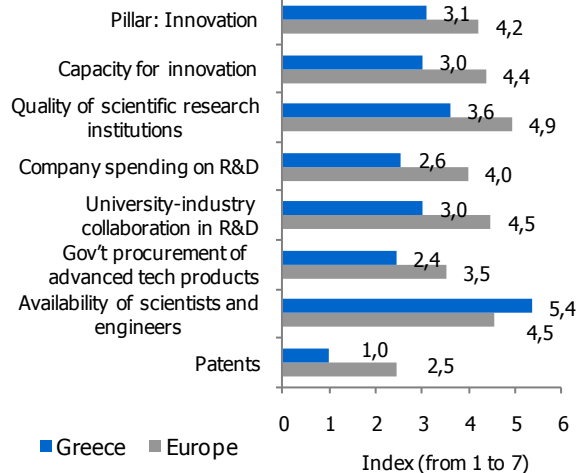
Innovation enablers



Source: Innovation Union Scoreboard 2013, NBG estimates

Index I. Coefficient of innovation including: Human Resources: i) PhD holders, ii) third level graduates, iii) second-level graduates Research: i) international scientific publications, ii) reports on scientific publications, iii) PhD students from non-EU countries. Financing: i) public R&D expenditure, ii) Venture Capital Investments

Global Competitiveness Index: Innovation pillar



Source: WEF/Global Competitiveness Index 2013-2014

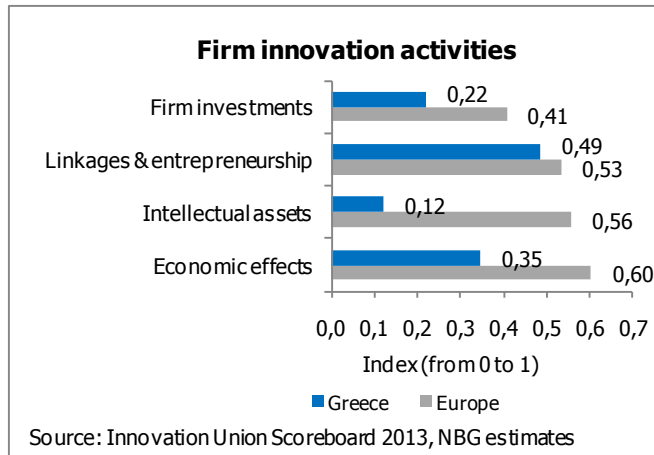
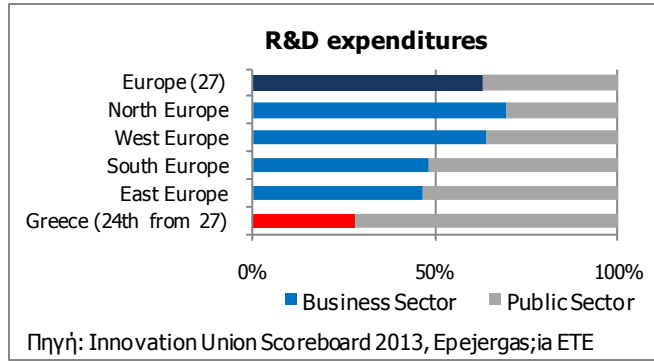
➤ According to the Innovation Survey of the European Commission external factors that enhance the development of innovative activity are:

- ✓ A key parameter for the generation of innovation is the **availability of high-skilled human resources**. In terms of education, Greece stands near the European average, since 29% of its population between 30-34 years old are university-level graduates (compared with 35% in the EU). However, this labor force is not involved in R&D activities of the corporate sector, with R&D personnel amounting to just 28% of employees in Greece, compared with 67% in the EU.
- ✓ **Research activity** is satisfactory in terms of international publications (550/mil. of population compared with an average of 300 in the EU), but research infrastructure fails to attract postgrad students from outside Europe.
- ✓ **Financing** presents the biggest lag, with limited investments such as venture capital to support innovative enterprises and low public spending on R&D (0.4% of GDP compared with 0.8% in the EU).

➤ Although the research sector is relatively strong, its impact on innovation is limited by **weak links and cooperation between universities and enterprises for R&D**. In particular, the World Economic Forum index for university-industry collaboration in R&D presents the highest deviation from the European mean compared with other innovation indicators.



... while low business R&D expenditure lead to limited economic effects



Index II Business Activities includes: Firm investments: i) businesses R&D, expenditure, ii) other corporate costs for innovation, Linkages & Entrepreneurship: i) SMEs with innovative activity outside their business, ii) SMEs with innovative activity through cooperation, iii) publications of private-public sector, Intellectual Assets: i) patents, ii) patents in health and environment, iii) Community trademarks, iv) Community industrial designs, Economic Effects: i) employment in knowledge intensive sectors, ii) contribution of exports of high technology products in the trade balance, iii) exports of knowledge intensive services, iv) sales of new products/services for the enterprise or the market, v) income from patents in other countries.

- **The business sector in Greece accounts for only 28% of total R&D spending** (compared with 63% in the EU). As a result, the already low total R&D expenditure in Greece (0.6% of GDP in 2011, compared with 2% in the EU) basically relies on the public sector.
- Furthermore, innovation by Greek enterprises is to a large extent not primary:
 - ✓ **The protection of intellectual property rights** for innovation by Greek enterprises is limited, while the few existing patents derive mainly from collaboration with foreign enterprises (30% in Greece compared with 8.5% in the EU).
 - ✓ Greek enterprises present **higher non-R&D innovation expenditure** (0.74% of their turnover compared with 0.56% in the EU), such as purchases of equipment or intellectual property rights.
- The limited innovation activity of Greek enterprises is reflected in its weak impact on the economy:
 - ✓ The **balance of trade concerning high technology products in Greece is negative** (-5.7% of exports compared with 1.3% in the EU), whereas exports of knowledge intensive services cover just 5.4% of services exports (compared with 45.1% in the EU).
 - ✓ **Limited patent protection** means low income from their use (0.02% of GDP compared with the average 0.58% in the EU).

INNOVATION ACTIVITY OF SMEs

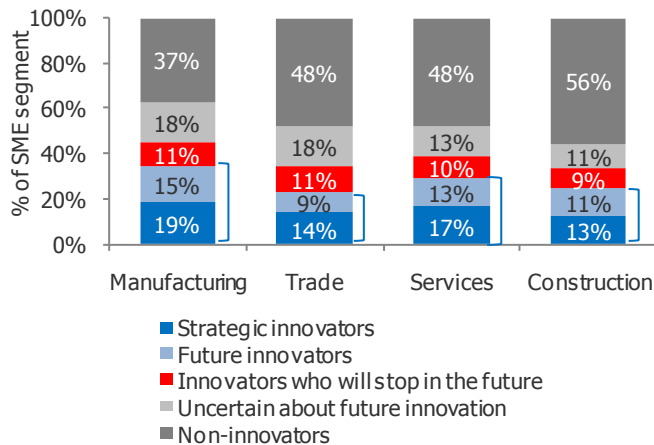
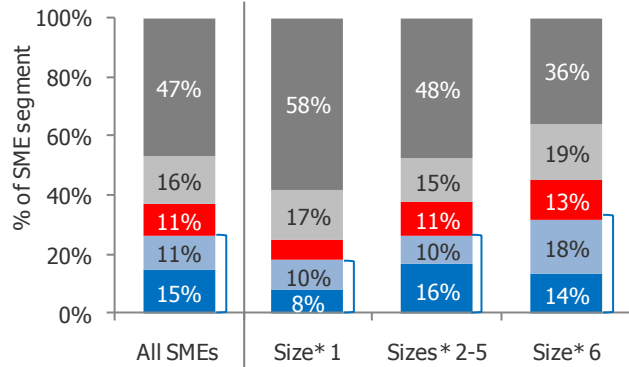
Findings of NBG's survey for SMEs





30% of Greek SMEs innovate, while half of them incorporate innovation in their ongoing strategy

Mapping of SMEs innovation activity



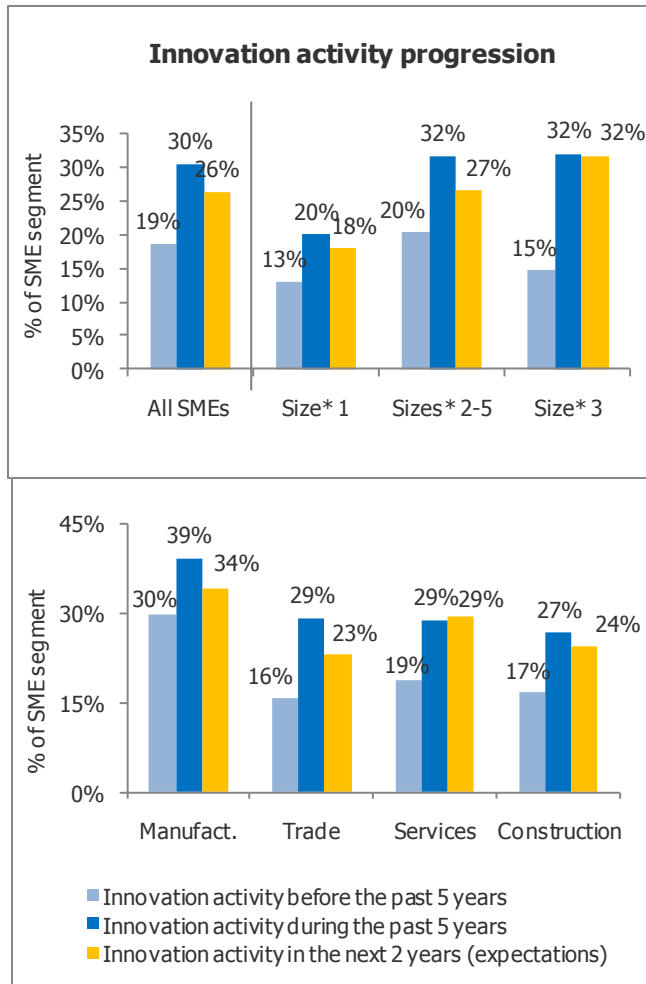
- According to our findings, 30% of Greek SMEs have developed innovative activity in the past five years**. Half of these firms **(15% of SMEs) innovate on a regular basis (strategic innovators)**, given that they started their innovative activity before the crisis, continued this activity over the last five years, and intend to carry on for the next two years as well.
- Almost **1/2 of Greek SMEs are not engaged in innovation** (now or in the future). We note that a small percentage (3% of SMEs) innovated before 2008, but didn't continue probably because of the crisis.
- 11% of SMEs are **enterprises that intend to start innovating in the next two years**, while a similar percentage intends to stop innovating in the same period. The other 16% of SMEs state uncertainty about their future moves (38% of them currently innovate).
- Consequently, **26% of Greek SMEs plan to innovate in the next two years** – however, in practice it could be higher assuming that some of the still uncertain SMEs (16%) will end up innovating.

* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].

** Innovative SMEs for the current period are the ones that stated that during the last five years they have introduced a new or significantly improved product, service, process, organizational method or marketing strategy.



Innovative activity by SMEs increased significantly in the last five years



* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].

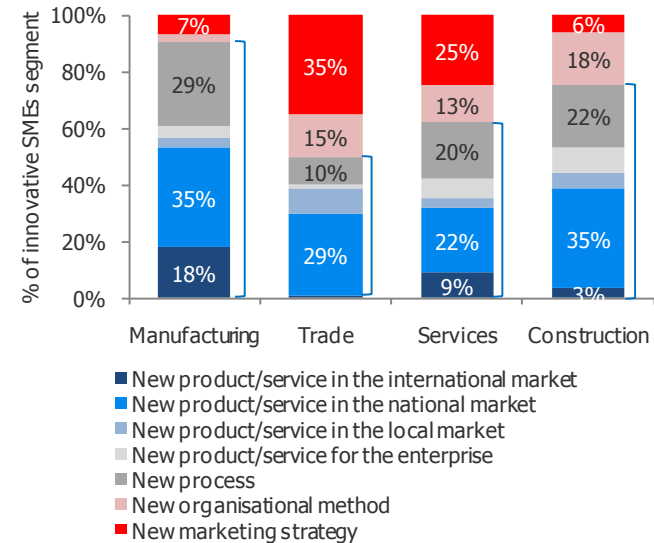
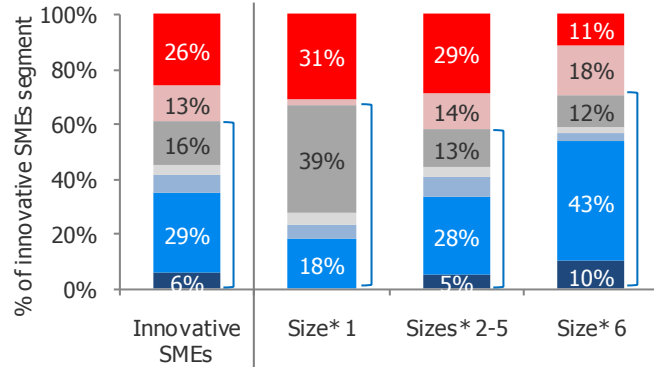
- The tendency to innovate is positively associated with the size of the business, as it concerns 20% of the smaller SMEs (scale 1) compared with 32% of **larger SMEs** (scale 6). On a sectoral level, **manufacturing** stands out (39% of manufacturing SMEs innovate compared with an average of 28% for other SMEs), mainly chemicals and heavy manufacturing (metals, fossils, equipment).
- It is very encouraging that innovative activity by SMEs has **increased during the past five years** compared with the pre-crisis period (30% of SMEs are innovative compared with 19% before 2008). This positive trend is evident through all sectors and sizes – the biggest increase being posted by larger SMEs and the trade sector.
- However, it is **possible that there will be a reduction** in innovative activity by SMEs **in the next two years**, since only 26% of SMEs (1/2 of innovators and 17% of non-innovators) intend to embark on some kind of innovation compared with 30% in the past five years. Note that this decrease is a result of the uncertainty of a considerable number of SMEs as to their future strategy concerning innovation.



Main type of innovation

Half of the innovative SMEs developed new products or services

Main type of innovation activity during the past 5 years



■ New product/service in the international market
 ■ New product/service in the national market
 ■ New product/service in the local market
 ■ New product/service for the enterprise
 ■ New process
 ■ New organisational method
 ■ New marketing strategy

➤ Focusing on the specific types of innovation introduced by SMEs in the past five years, we note that:

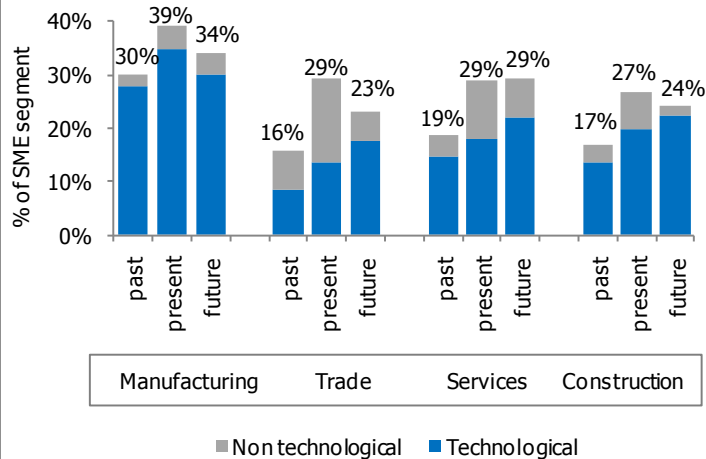
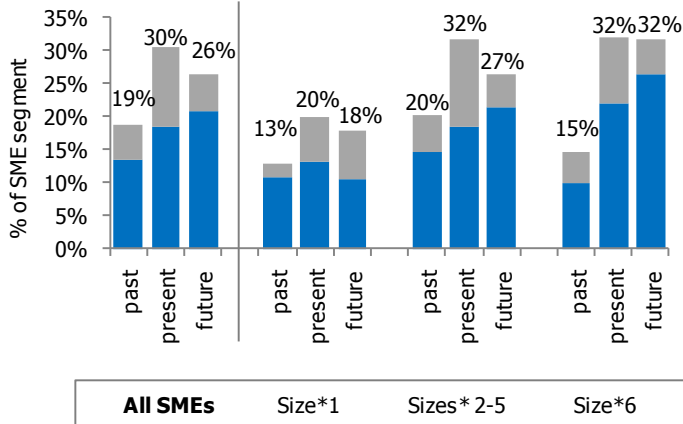
- ✓ The majority of innovative SMEs (61%) focused mainly on the development of **technological innovation**** (45% in the area of products and services and 16% in processes). This mainly concerned the national market, while just 6% of SMEs chose to launch new products/services in the international market as their main type of innovation. Significant activity in the development of products/services in the international and domestic market was reported by **larger SMEs** (scale 6) and the **manufacturing** sector (with wood and heavy manufacturing focusing on international innovation). By contrast, smaller SMEs (scale 1) limit themselves mostly to the development of processes and products or services at local and enterprise level.
- ✓ The remaining 39% of SMEs focused mostly on **non technological innovation****. The activity that stands out in this respect is the development of marketing strategies, mostly by trade SMEs (mainly cars) and services (mainly tourism), because of the nature of their activities.

* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].

** **Technological innovation** includes new or significantly improved products/services and processes, while **non technological innovation** includes new or significantly improved organizational methods and marketing strategies.

Main type of innovation *More innovative products in the international market are expected in the next 2 years*

Types of innovation activity



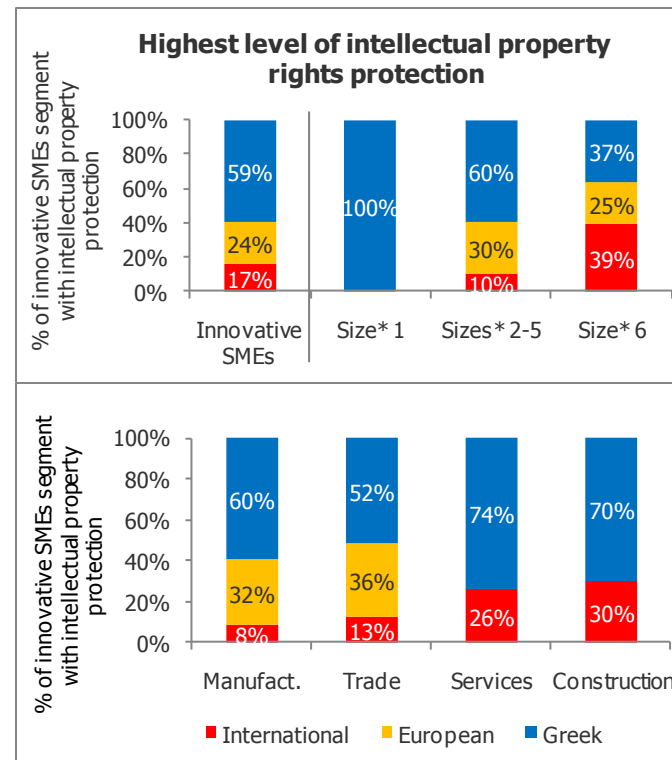
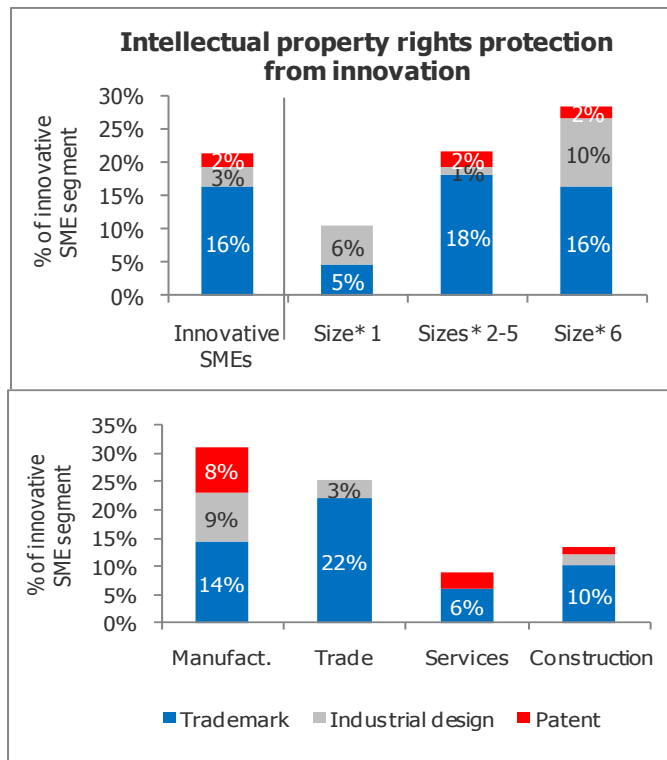
*The **past** takes into account: the period before the last five years (pre-crisis); the **present**: the past five years; and the **future**: the next two years.

- As far as future innovation of SMEs is concerned, we note a **shift of innovative enterprises towards technological innovation**, which leads to more sustainable comparative advantages.
- The expected increase in technological innovation arises **mainly from the shift** of SMEs towards innovative products **in the international market** (up from 6% now to 16% of SMEs in the next two years), while **innovation in the domestic market** is also rising (this still being the main type of innovation).
- A decrease in technological innovation is seen only in **manufacturing** SMEs (as the higher willingness for international innovation is offset by the expected decrease in innovative products in Greece) and in **smaller SMEs** (scale 1) due to a substantial decline in new processes.
- It is worth noting that in the past SMEs tended to **stick to the same type of innovation** (53%). By contrast, in the future the minority of SMEs intends to stick to the same kind of innovation (38%), posting a clear shift towards the creation of new products/services on the international or Greek market.



Just 20% of innovative SMEs secure intellectual property rights for their innovative activities

- 20% of innovative SMEs have applied for intellectual rights protection for their innovation, a trend that **correlates positively with the size of the business** (28% of larger compared with 10% of smaller SMEs).
- The most common **type of intellectual property rights protection** is the trademark, while patents and industrial design are mainly preferred by **manufacturers** (heavy manufacturing and wood), which is the sector reporting the highest degree of rights protection.
- The securing of innovation rights applies mainly to the domestic market (60% of SMEs), while **protection on an international level** is sought by larger SMEs. The safeguarding of innovation rights at the European level is preferred by the manufacturing and trade sectors, while services and construction prefer protection on the broader international level.



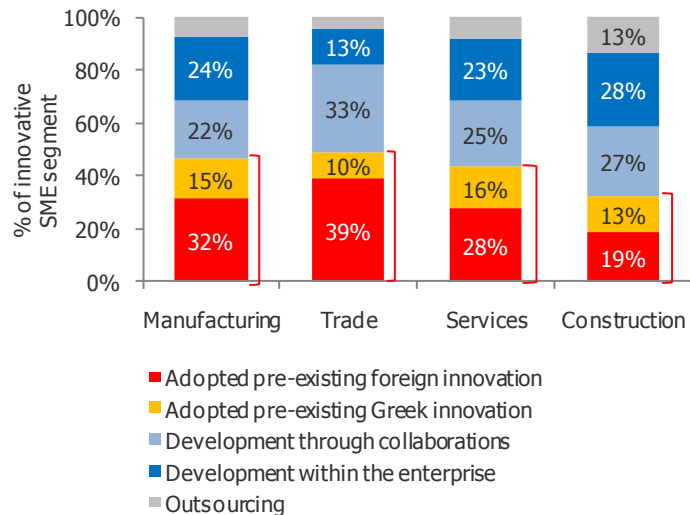
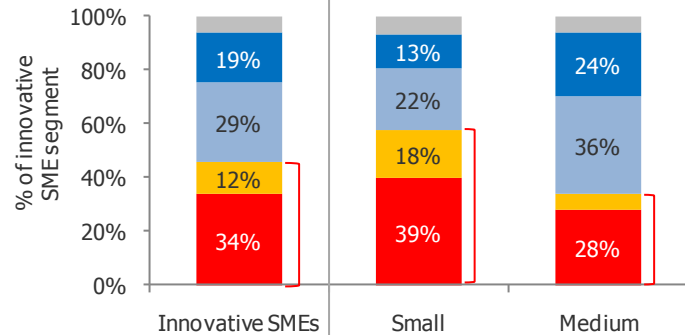
* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=[0-0.1], 2=[0.1-0.5], 3=[0.5-1], 4=[1-2.5], 5=[2.5-5] and 6=[5-10].



Sources of innovation

Only half of innovative activities concern primary innovation

Main source of innovation



- To a large extent (around 46%) the innovative activities of SMEs arise from **adaptation of existing models**, mainly from international markets. This practice is implemented mostly by small enterprises, while medium-size ones resort mainly to development of primary innovation (65% compared with 43% of small enterprises), mainly through collaboration and, to a smaller extent, internally (via the firm's employees).
- With regard to individual sectors, **adaptation of pre-existing foreign innovation** is mainly the case for trade (mainly wholesale traders, at 70%), transport services and metals and equipment manufacturing (heavy industry). By contrast, construction SMEs resort least of all to adaptation of models (1/3 of construction firms against 1/2 of the other SMEs) and instead tend to resort the most to **outsourcing** in order to develop innovation.
- The contribution of individuals **within the enterprise** to innovation development is more common in the sectors of food manufacturing and car trade, while **collaborations** serve to enhance innovation in tourism services and chemical manufacturing.

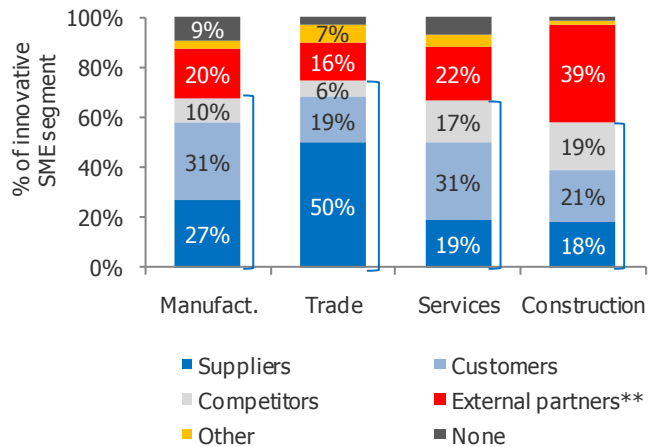
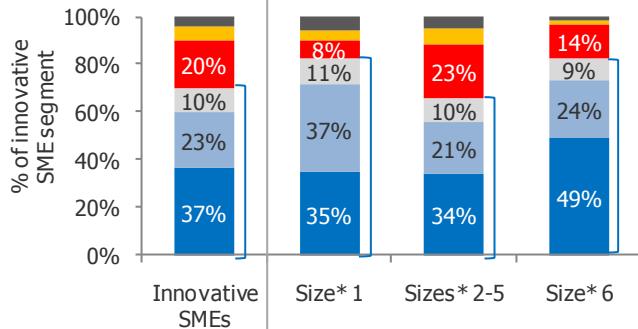
* Small enterprises are those reporting turnover of (0-1)€ million and medium-size enterprises are those reporting turnover of (1-10] € million.



Sources of innovation

70% of collaborations arise from the enterprise network

Most useful type of collaboration for innovation activity



** External partners include universities, public and private research institutions, and consultants.

- The collaborations promoted by SMEs for innovation development are mainly through the **enterprise network** in which they operate (given that 70% of enterprises resort to suppliers, customers and to a smaller extent competitors), while collaboration with **external partners** (universities, research institutions and consultants) is sought by 20% of innovative SMEs.
- The kind of collaboration does not appear to be associated with the **enterprise size**, beyond the fact that larger SMEs prefer cooperating with suppliers, and smaller firms with customers.
- More differences can be seen in terms of sectors. Specifically:
 - ✓ **Suppliers** tend to strengthen mainly innovative activities in trade (retailers) and manufacturing (mainly food).
 - ✓ Manufacturers (especially clothing), freelancers and wholesale traders appear to collaborate with **customers**.
 - ✓ **Competitors** and to a greater extent **external partners** seem to contribute to innovation by construction SMEs (at a rate of 40%, compared with 20% among the other SMEs) and metal and equipment manufacturing.

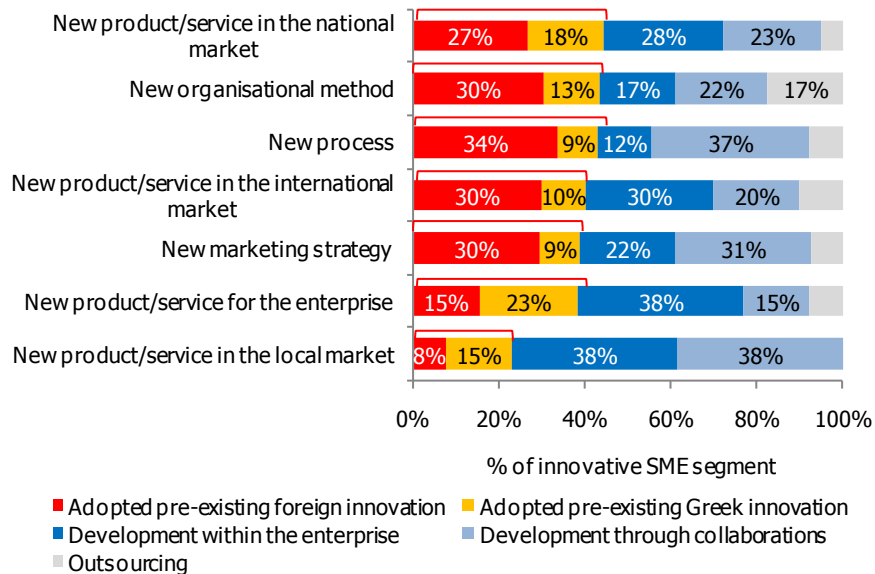


Sources of innovation

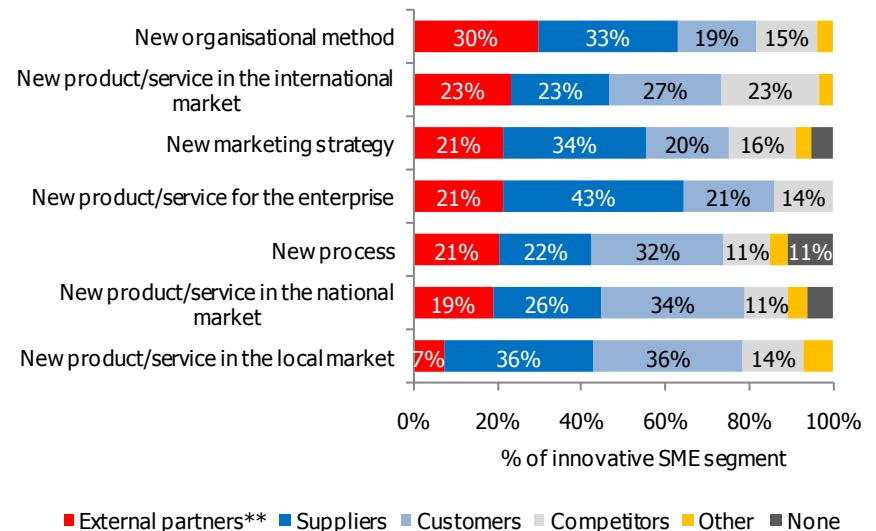
Primary innovation leads mainly to new products for the domestic market or the enterprise

- Irrespective of the type of innovation, almost ½ of SMEs **adapt existing innovations** mainly from abroad – apart from innovation in the local market where adaptation accounts for just 24% of innovative SMEs. With respect to **sources of primary innovation**, employees contribute mainly to new products for the business and the local market, collaborations contribute to the development of new processes, while external partners contribute mainly to organizational innovation.
- Concerning the **main collaborations** that enhance the development of innovation, enterprise networks (mainly suppliers and customers) dominate in all the types of innovation. External partnerships (universities, research centers and advisors) are used mainly in respect of organizational innovation and to a smaller extent for new products at national and local levels.

**Sources of innovation activity
by type of innovation**



**Main cooperations
by type of innovation**

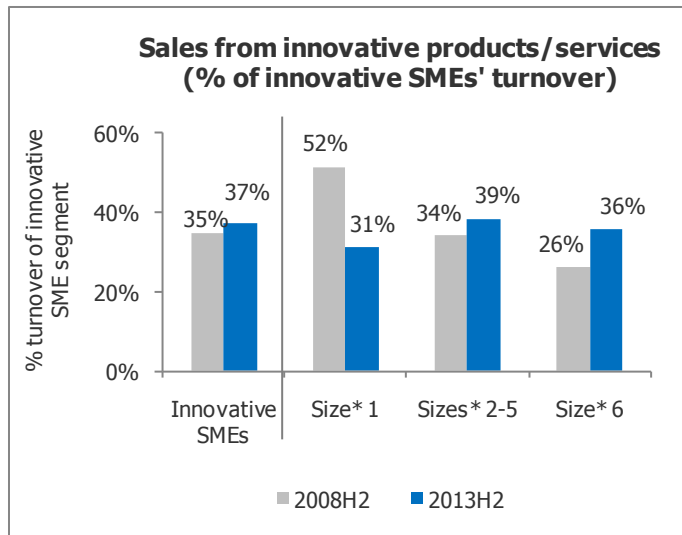


** External bodies include universities, public or private research centers and advisors.

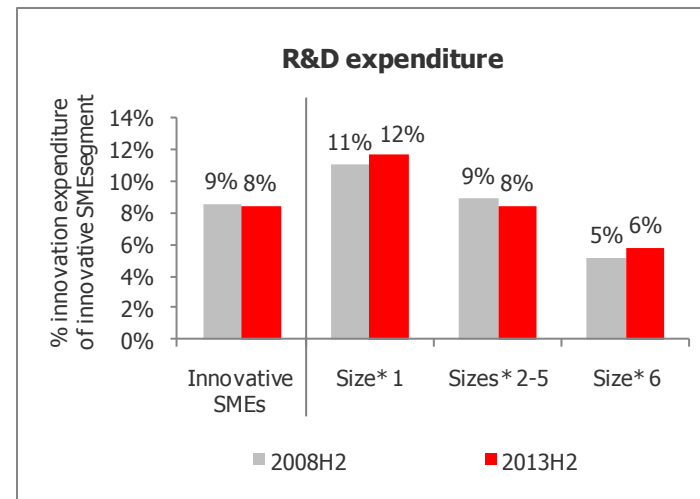
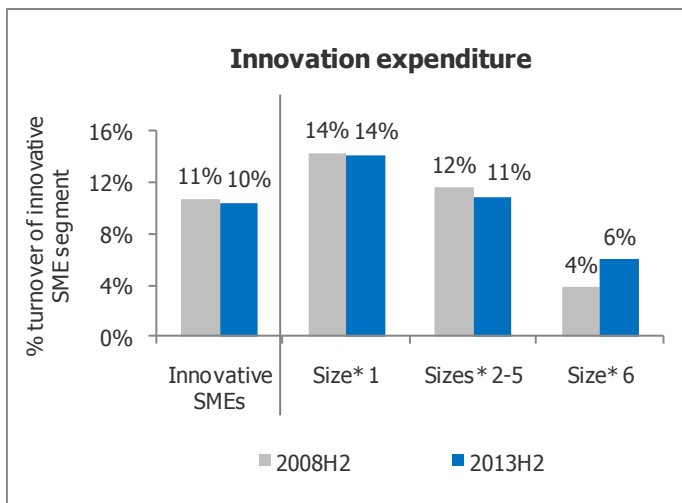


Innovation expenditure and contribution to turnover

More than 1/3 of the innovative enterprises' turnover arises from innovative products



- Innovative products and services contribute 37% of innovative SMEs' turnover. 10% of SMEs' turnover is earmarked for **innovation expenditure**, of which just 8% concerns **R&D**.
- The **crisis** seems to have made the introduction of innovation less feasible for smaller SMEs. Specifically, while in the past higher expenditure led to a greater contribution by innovation to turnover, over the last 5 years (despite stable expenditure) the respective contribution fell from 51% to 31%.
- Innovative activity by **smaller SMEs** requires more resources over time (as a percentage of turnover) compared with larger SMEs – which indicates the existence of high fixed costs for innovation development.

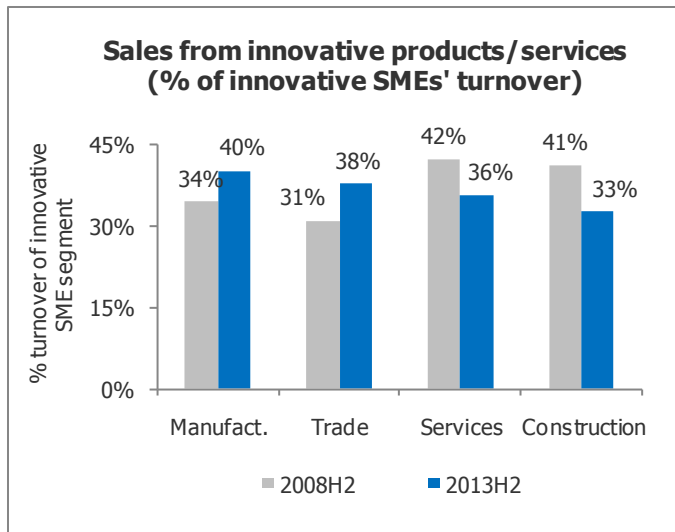


* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=[0-0.1], 2=[0.1-0.5], 3=[0.5-1], 4=[1-2.5], 5=[2.5-5] and 6=[5-10]].

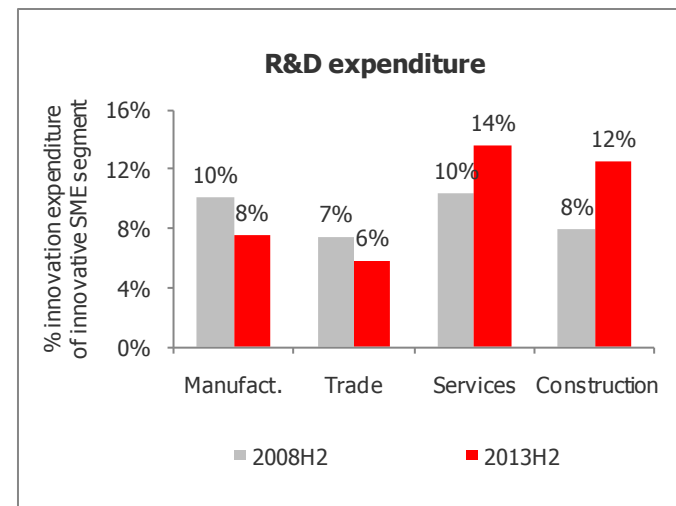
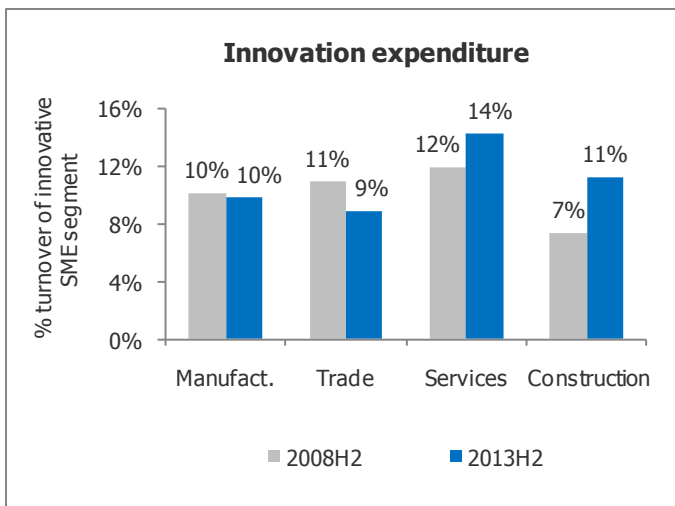


Innovation expenditure and contribution to turnover

The return on investment in innovation is higher in manufacturing and trade



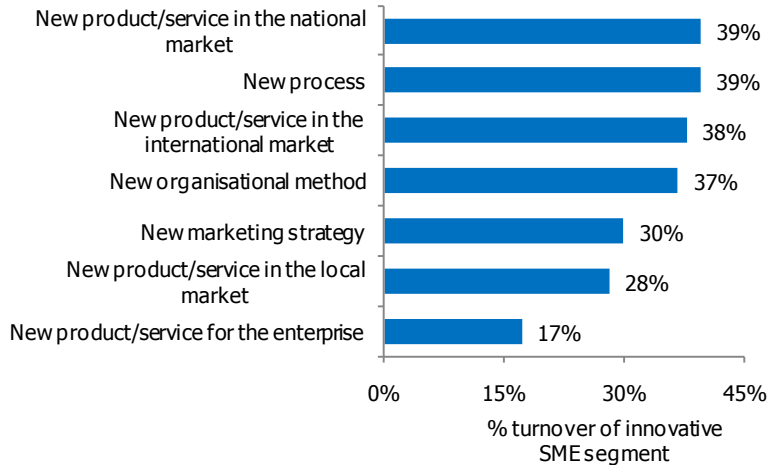
- Innovative activity appears to generate a greater return in **manufacturing** (especially heavy manufacturing and wood) and **trade** (wholesale and motor vehicles), where SMEs with relatively lower innovation expenditure achieved a higher contribution to turnover (as well as an increase compared with the previous 5 year period).
- By contrast, in the **services** and **construction** sectors, despite the higher innovation expenditure of the last 5 years (especially by freelancers), innovative products and services made a lower contribution to turnover.
- Note that the sectors with the highest innovation expenditure (as % of sales) also place **greater emphasis on R&D expenditure** (as % of innovation expenditure).



Innovation expenditure and contribution to turnover

The return on investment in new products for the national or international market is high

**Sales from innovative products/services
(% turnover of innovative SME segment)
by type of innovation**

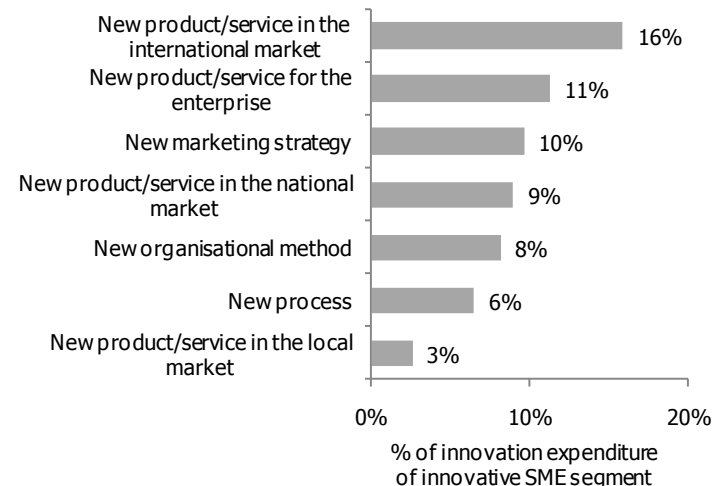


- Innovations that concern the launch of new products at national and international markets, as well as the launch of new processes **have a higher impact on the innovative SMEs' turnover** (circa 40%).
- The development of new products for the enterprise seems to require the highest **innovation spending** (13% of turnover), despite their lower contribution to turnover (just 17% of innovative products).
- Innovation expenditure **focuses mostly on R&D** when international innovation is concerned, while such spending is hardly used for innovations at local level.

**Innovation expenditures
by type of innovation**



**R&D expenditure
by type of innovation**

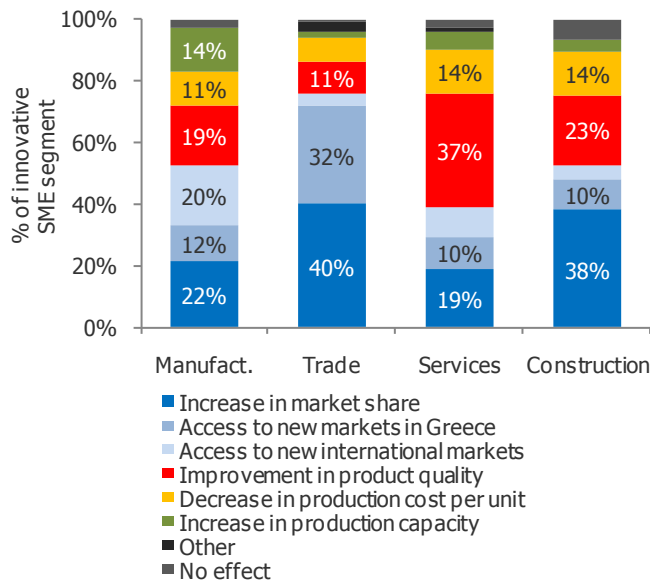
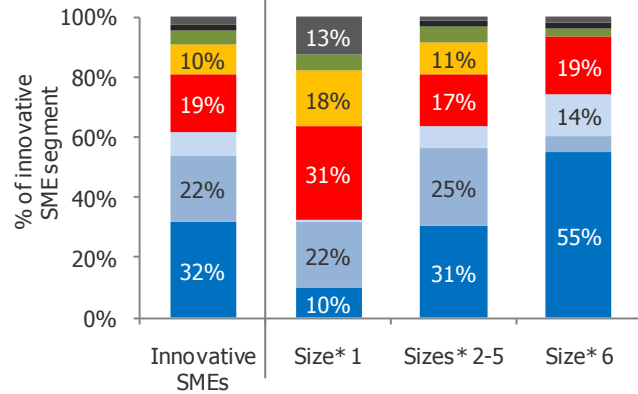




The business results of innovation

Increase in market share the key benefit of innovation

Main objective of innovation activity



- The key benefits gained by SMEs that pursued innovative activity over the last 5 years were the **increase in market share** within existing markets (32% of innovative SMEs) and **access to new markets** (especially in Greece), while a considerable share of SMEs sought **improvement in product quality** (19% of innovative SMEs).
- The impact of innovation on SMEs shows variations from the mean, depending on the size of the business, the sector, and type of innovation they chose. Specifically:
 - ✓ An increase in market share was achieved by 55% of **larger SMEs** (scale 6), against 10% of the smaller ones (scale 1), which may be linked to the greater emphasis placed on the development of new products in Greece and abroad. On the other hand, **smaller SMEs** have focused more on process innovation, which has led to improvement in production quality and reduction in unit production costs. Note that innovation activity had no impact for 13% of smaller SMEs.
 - ✓ Concerning the individual sectors, **manufacturing SMEs** (mainly food and wood) gained the most access to new international markets. Access to new markets in Greece was reported mostly by **trade SMEs**, while improvement in production quality was the result of innovation by **service SMEs**.

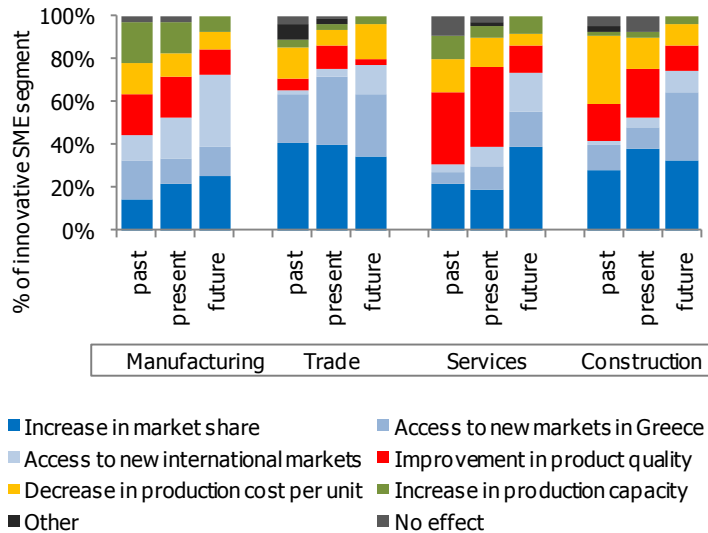
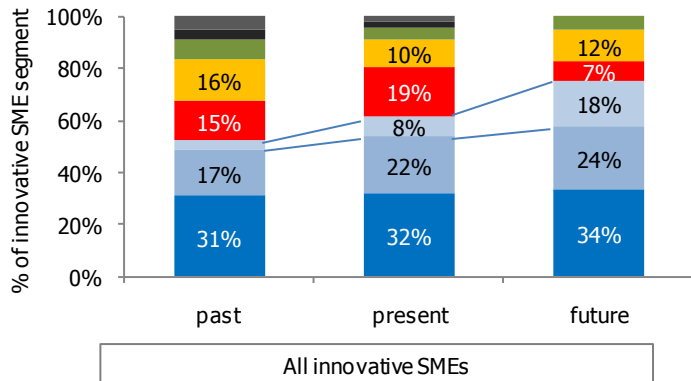
* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].



The business results of innovation

A strong trend towards export activity through innovation is expected in the next 2 years

Main objective of innovation activity



- The **primary targets** of innovative activity over time are the increase in market share and the access to new markets in Greece (concerning more than half of SMEs).
- **For the next 2-year period we identify a marked shift by SMEs to innovation in international markets**, while the target of quality (the importance of which had increased after the crisis) has now been downgraded.
- Despite the different impacts of innovation on each sector in the past, future targets seem to be similar for all sectors. Note, however, that:
 - ✓ **Manufacturing** SMEs are focusing even more on new products in the international market, reducing innovation for quality improvement and increase in production capacity.
 - ✓ **Trade** presents the highest stability in terms of innovation impacts.
 - ✓ **Services** (mainly freelancers and transport) in the past placed greater emphasis on quality, while in the future they look to increase their market share.
 - ✓ **Construction** SMEs increase their focus on new markets, especially in Greece (mainly construction of buildings).

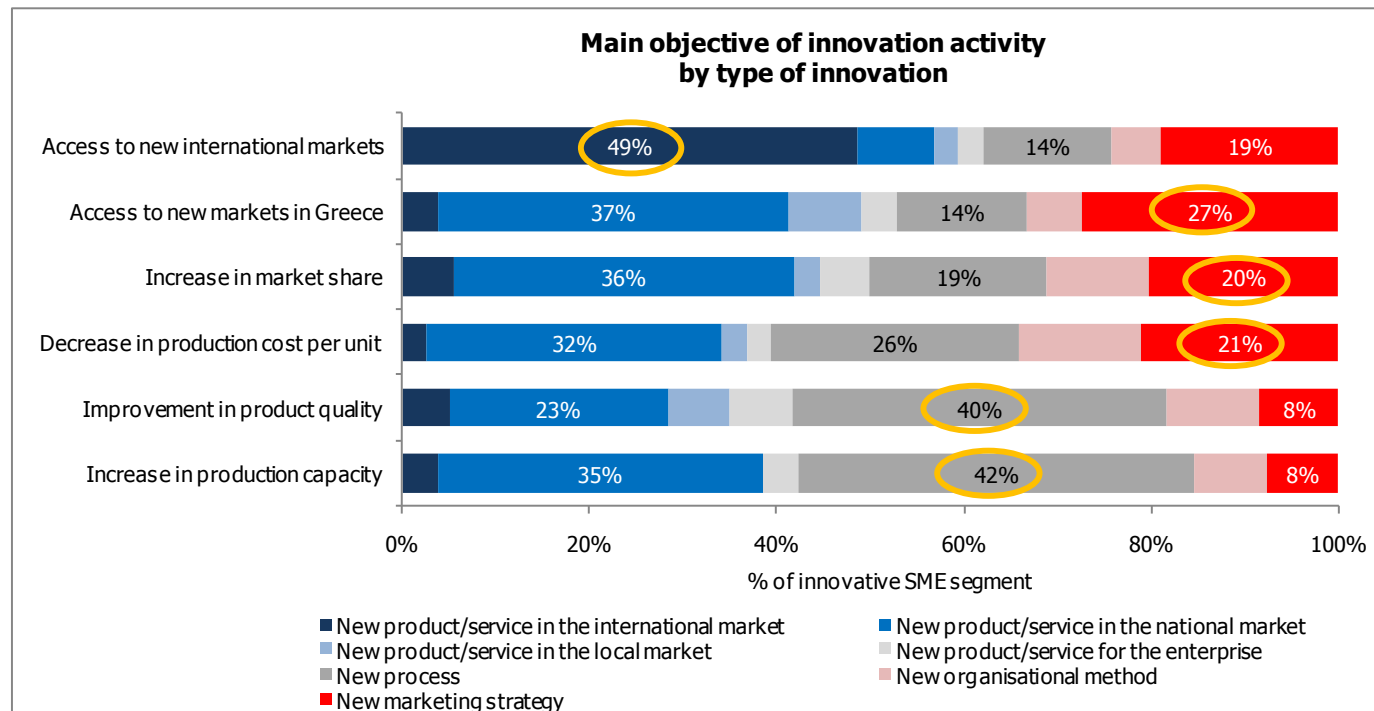
* We take into account for the **past**: the period before the last 5 years (before crisis), for the **present**: the last 5 years and for the **future**: the targets for the next 2 years.



The business results of innovation

Exporting activity requires innovative products for the international market

- The type of innovative activity pursued is linked to a large extent to its impact on the business or the anticipated objective. Specifically:
 - ✓ The **development of new products and services for the international market** is a prerequisite for exporting activity.
 - ✓ The development of **non-technological innovation** (mainly through new marketing strategies) is used mostly to increase market share, access new markets in Greece and reduce unit production costs.
 - ✓ Finally, innovation through the development of **new processes** contributes mainly to improved quality and capacity of production.

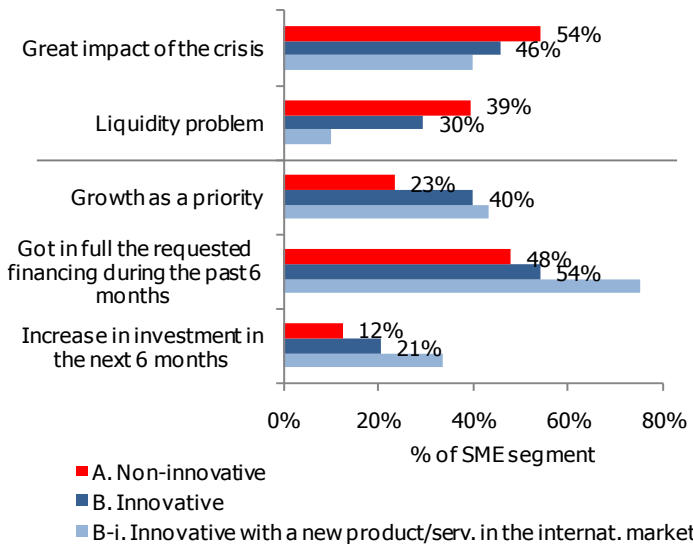




The business results of innovation

Innovation enhances SMEs' financial health

Innovative vs. Non-innovative SMEs

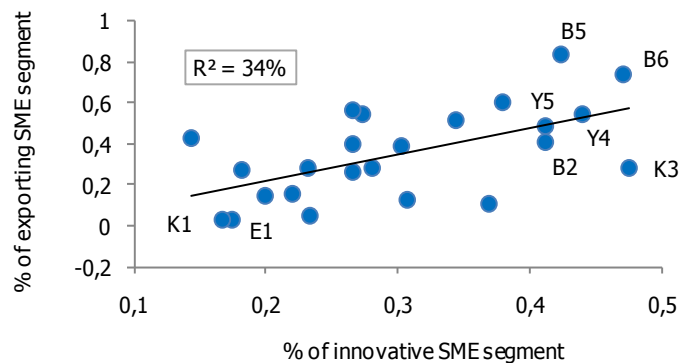


- **Innovative activity appears to enhance SMEs' financial health**, by helping them cope with the harsh economic environment. Specifically,
 - ✓ Innovative firms have suffered a **smaller impact from the crisis** (46% of innovative firms compared with 54% of non-innovative firms) and face less severe liquidity problems.
 - ✓ Their better financial health enables them to **pursue growth strategies** (40% of innovative SMEs compared with 23% of non-innovative SMEs) as well as increased investments over the next 6 months.

- Among the innovative SME segment, we distinguish those that develop **new products and services for the international market** as being the category with the highest degree of innovation. This particular type of innovation leads to performance that is better than the average for innovative SMEs, generating a significant advantage **in terms of liquidity**.

- It is worth noting that **innovative SMEs are more export-oriented** than non-innovative ones. Specifically, 48% of innovative SMEs export, against 31% of non-innovative ones. Furthermore, it is notable that sectors presenting high innovation are also the more export-oriented (such as large manufacturers), while sectors presenting low innovation are the least export-oriented (such as small trade and construction).

Innovation and Exporting activity



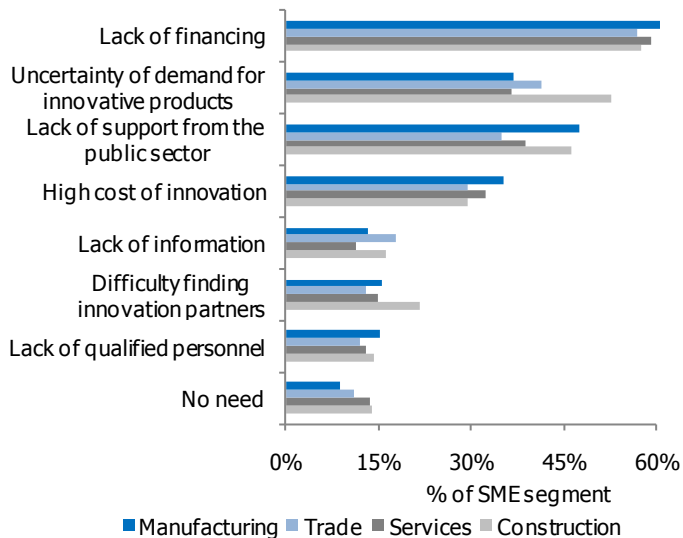
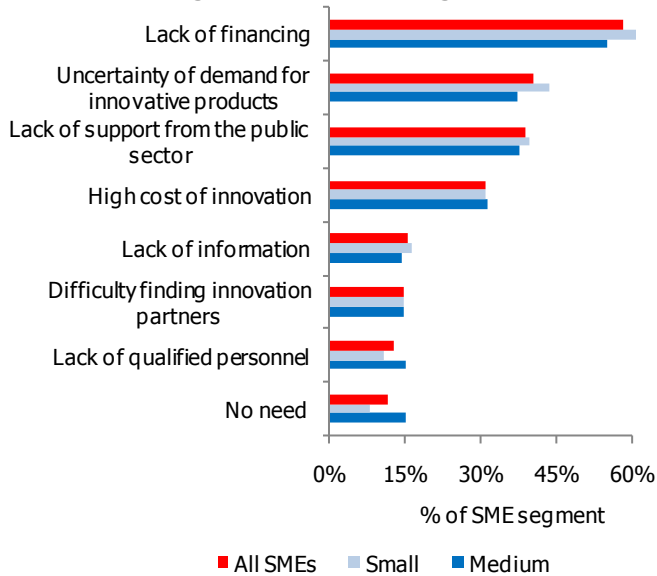
* The scale of 1-6 in the graphs above indicates turnover in € millions: 1=[0-0.1], 2=[0.1-0.5], 3=[0.5-1], 4=[1-2.5], 5=[2.5-5] and 6=[5-10], while the capital letters indicate sectors (I=industry, T=trade, S=services and C=construction).



Factors that impede innovation

Lack of financing identified as the key impediment for innovation

Limiting factors concerning innovation



- The key factor impeding innovation by SMEs is the **lack of financing**, which concerns about 60% of SMEs, irrespective of size and sector.
- Next comes the **uncertainty regarding demand for innovative products**, which concerns 40% of SMEs. The problem is more acute for small enterprises, as well as for the construction sector (53% of construction, against 40% of other SMEs), and the motor vehicle trade.
- Of great importance is also the need **for support by state and European bodies for innovation** (this also concerns 40% of SMEs), mainly for manufacturing and the construction SMEs.
- The **high cost of innovation** is considered to be of less importance, and concerns mostly the motor vehicle trade and freelancers, while **difficulty in finding innovation partners** tends to concern the construction and the wood manufacturing sectors.

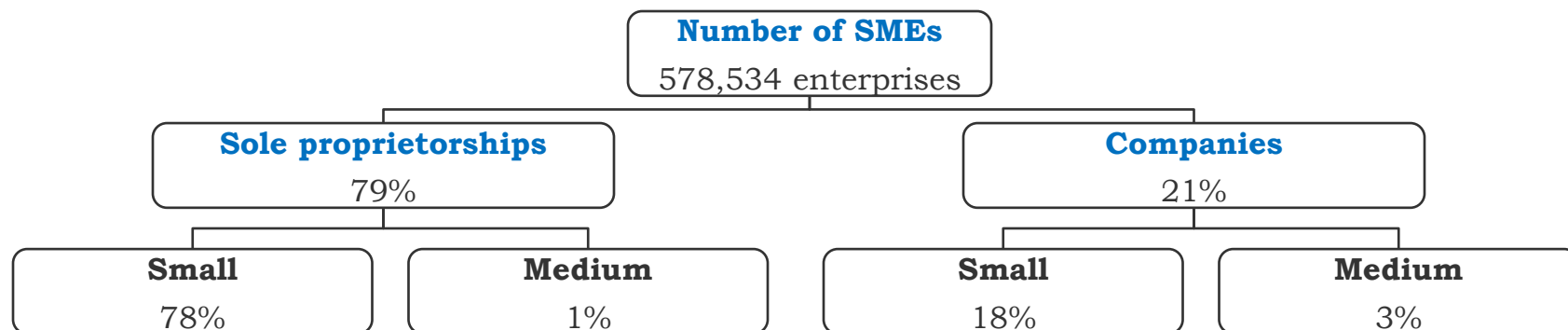
* Small enterprises are those reporting turnover of (0-1)€ million and medium-size enterprises are those reporting turnover of (1-10) € million.

ANNEX

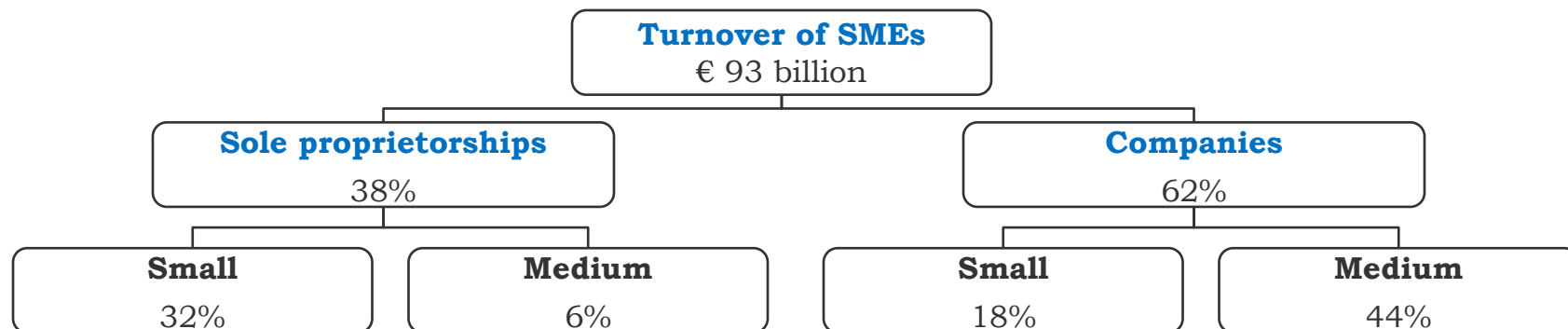




Mapping the SME segment in Greece**



* For the purposes of the survey, small enterprises are those reporting turnover of less than €1 million and medium-size enterprises are those reporting turnover of between €1 million and €10 million.



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** Data correspond to NBG's estimates for 2012 (Sources: Eurostat, SBA Factsheets, EL.STAT.)

- The circa 580,000 SMEs in Greece generate turnover of around €93 billion.
- 4/5 of SMEs are sole proprietorships, which account for a corresponding share of the total domestic business sector (compared with just ½ of the business sector in Europe).
- Although sole proprietorships comprise the majority of SMEs, the greater share of turnover (over 60%) is generated by companies of various legal status (SA, limited partnership, limited liability, etc.).



Sample Description

Sample structure (number of companies)					
Turnover (million €)	Manufacturing	Trade	Services	Construction	Total
(0 - 0,1]	40	40	40	40	160
(0,1 - 0,5]	40	40	40	40	160
(0,5 - 1]	40	40	40	40	160
(1 - 2,5]	40	40	40	40	160
(2,5 - 5]	40	40	40	40	160
(5 - 10]	40	40	40	40	160
Total	240	240	240	240	960

*Due to changes in the availability of data, there is a possibility of deviations of circa 10 per cent.

Greek SMEs structure (based on turnover contribution)					
Turnover (million €)	Manufacturing	Trade	Services	Construction	Total
(0 - 0,1]	1%	4%	5%	1%	11%
(0,1 - 0,5]	3%	14%	6%	2%	24%
(0,5 - 1]	2%	9%	3%	1%	15%
(1 - 2,5]	3%	11%	4%	2%	20%
(2,5 - 5]	3%	8%	3%	1%	15%
(5 - 10]	3%	8%	3%	1%	15%
Total	15%	53%	23%	8%	100%

Source: Hellenic Statistical Authority - business register 2007

- Our survey examines a sample of enterprises with a turnover of below €10 million, which, for the purposes of the analysis, we define as small and medium-size enterprises (SMEs).
- Enterprises were selected using a stratified sampling method, in line with the standards of similar surveys carried out by international organizations. Specifically, a total of 960 enterprises were selected in such a way as to enable even distribution of the sample on the basis of two key factors: scale of turnover (6 scales) and activity sector (Manufacturing, Trade, Services, Construction).
- In order to draw conclusions that are representative of the SME segment, answers were weighted according to the participation of each sub-set in the total turnover of the segment. Thus, findings were arranged (i) by size, (ii) by sector, and (iii) for the entire SME business sector. In line with the methodology, the segments are weighted on the basis of their shares in total turnover and not the number of enterprises.



Constructing a business confidence index

- *In order to construct a confidence index for SMEs, we included a number of basic questions regarding the level of business activity in the previous and in the coming half year. The model for the questions is based on the harmonized questionnaire recommended by the OECD and the European Commission, thereby enhancing the comparability of the index.*
- *The Index questions offer 3 alternative answers: increase (+), no change (=), decrease (-) or above normal (+), normal (=), below normal (-). To begin with, we convert the number of answers per category (+,=,-) to percentages and then we calculate the net result by subtracting the (-) from the (+). Last, the confidence index for each sector is the average of the net results for the following questions:*
 - ✓ *For **manufacturing**: The level of orders, inventories, and future production trend.*
 - ✓ *For **services**: The business situation of the firm in the previous half year, past and future demand trend.*
 - ✓ *For **trade**: Level of inventories, past and future demand.*
 - ✓ *For **construction**: Level of backlog, and future employment trend.*
- *For the SME sector, the business confidence index has been estimated as a weighted average of its subsectors (the weights being the shares of the sectors' turnover in the economy).*
- *By carrying out the survey on a regular 6-month basis we should be able to form a picture of SMEs' course over time, as reflected in the index. To draw reliable conclusions, comparison will be made between the current index level and its long-term average (so as to correct possible over-optimism or over-pessimism bias).*



- *Company: TNS ICAP*
- *Methodology: Quantitative research in the form of Computer Aided Telephone Interviewing - C.A.T.I., using a 20-minute structured questionnaire.*
- *Sample: A total of 960 interviews:*
 - ✓ *480 enterprises with annual turnover up to EUR 1 million (freelancers, sole proprietorships, unlimited companies, limited partnerships, limited liability companies, SAs)*
 - ✓ *480 enterprises with annual turnover between EUR 1 million and 10 million (unlimited companies, limited partnerships, SAs, limited liability companies)*
- *Geographical coverage: Athens, Thessaloniki, Heraklion, Ioannina, Kavala, Larissa, Patras.*
- *Sampling: multi-stage, stratified, non-proportional sampling for sector, turnover size and geographical area in each of the two sets of samples.*
- *Statistical error: in each of the two sets of samples of 480 enterprises the maximum statistical error is estimated at +/- 4.5% at a 95% confidence level.*
- *Period of survey: 20/9/2013 – 31/10/2013*
- *Survey framework: The survey was carried out in line with ESOMAR and SEDEA (Association of Greek Market and Opinion Research Companies) codes of conduct and the quality control requirements set by PESS (Quality Control in Data Collection). A total of 65 researchers and 4 reviewers with experience and know-how in business surveys participated in the field research.*

NATIONAL BANK OF GREECE

Strategic Planning & Research Division

Survey of Greek SMEs

December 2013



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