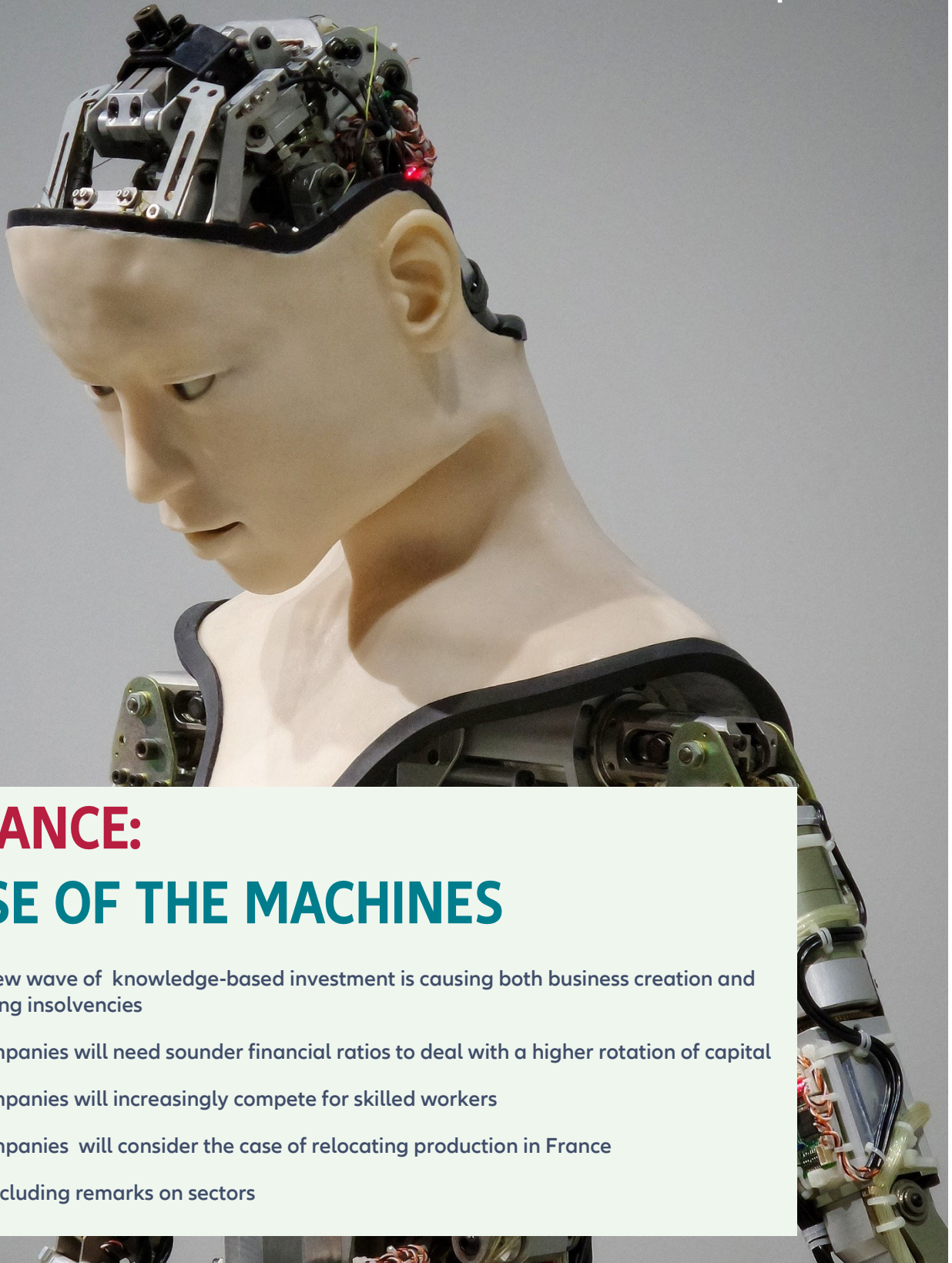


THE VIEW

Economic Research

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FRANCE:

RISE OF THE MACHINES

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- A new wave of knowledge-based investment is causing both business creation and rising insolvencies. After a lost decade, corporate investment is on the rise in France (+3.8% on average in volume in 2017-18) as new technologies drive automation and change production processes across sectors. Information & communication now account for half of investment growth. This new wave of knowledge-based investment is affecting mainly agri-food, retail, accommodation & catering, transportation and other services, a subset of sectors where we observe both increased business creation (+15% in 2018) and rising insolvencies (+6.6%).
- **What does this mean for companies? They will need sounder financial ratios to deal with a higher rotation of capital.** Gross investment of French companies reached a record high level in 2018 (21.4% of the value added, +3pp from 15 years ago), while their net investment value remained muted. This is because the pace of capital depreciation reached a record high level in 2018 – 18.9% of the value added – with knowledge-based information technology being at the top with 30% (against 15% for machinery). Sound financial ratios will be key in the near future as debt-laden companies won't be able to frequently renew their capital and therefore won't be able to withstand strong pressures from competition.
- **Companies will also increasingly compete for skilled workers.** We see a clear decoupling in job creation and growth of salaries between knowledge-based sectors (digital, machinery and engineering) and traditional job-intensive sectors (administrative work, financial industry, distribution and retail). The most striking point is the diverging trend between the retail sector (for the first time in negative territory since 1993, with -2.5k of jobs lost in 2018) and the out-performing ICT sector (jobs related to a tech function made up half of employment creation in 2018 or 70k of new jobs). At the same time, highly qualified workers are likely to be increasingly scarce even in a context of high unemployment, requiring companies to develop hoarding strategies.
- **Companies will consider the case of relocating production in France.** A paradoxical impact of the current innovation wave in France is that it has triggered more trade growth in goods (+4.8% in 2018) and lower trade growth in services (+1.7% in 2018), in contrast to trends observed globally. It seems that the new wave of automation and the increasing degree of digitalization of the logistic function are favoring a relocation of the investment function.



Photo from Unsplash

Rise in insolvencies in sectors
facing the rise of machines

+6.6%

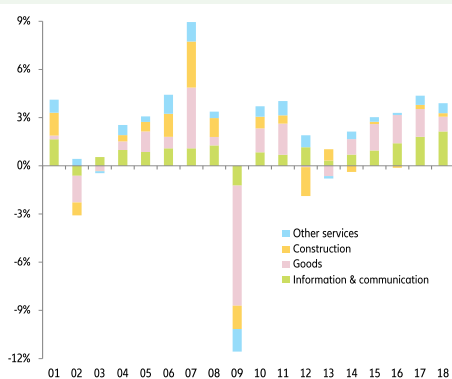
A NEW WAVE OF KNOWLEDGE-BASED INVESTMENT IS CAUSING BOTH BUSINESS CREATION AND RISING INSOLVENCIES

After a lost decade, corporate investment is on the rise in France as new technologies drive automation and change production processes across sectors. In 2016, corporate investment in volume was about the same compared to 2008. But between 2016 and 2018, it grew by +3.8% per year in volume (on average), easily above average GDP growth (+1.9% on average). And it has continued to grow despite staggering capacity utilization rates (from 85.8% in 2018Q1 to 85.1% in 2019Q1). In terms of automation, France has one of the lowest levels of equipment in Europe, with 132 robot units per 10,000 employees (Germany has 309 units, Italy 185 units and Spain 160 units, according to the International Federation of Robotics). However, something of a catch-up is materializing and a wave of knowledge-based investment by new fast-growing companies is behind this trend. In 2017, information & communication became the top investment driver for the first time in France's history. On the FT1000 2018 European fastest-growing companies ranking, Paris came in second with 62 companies, concentrated in technology, business services, retail, transport, energy and agrifood. In these sectors, the innovation wave is sparking both business creation and rising insolvencies. Of course, vulnerability to technological change is not the only reason behind business insolvencies in France, which are structurally high and partly explained by financing gaps. But even when GDP growth is high (2017), when insolvencies should decrease, some sectors, particularly consumer-driven ones, do not show the same pattern, with upward trends in insolvency numbers. Among the three trade sectors, retail trade and car sellers show an upward trend in insolvencies, while wholesale

trade does not share the same pattern. This shows that in the value chain of the main goods, downstream players are the most exposed, since there is often more competition for them, while upstream players are more often in a monopolistic situation. This is particularly true for the car value chain (car sellers in front of carmakers). In agrifood, accommodation & catering and transport and other services the upward trend in insolvencies was never broken, but these are also the sectors where business creation has grown the most, particularly in 2018, despite lower GDP growth this year. The 'Trade, transport, accommodation and catering' item grew by +15%, making up half of the growth observed in business creations in 2018. In this subset of sectors, insolvencies also grew by +6.6% in 2018.

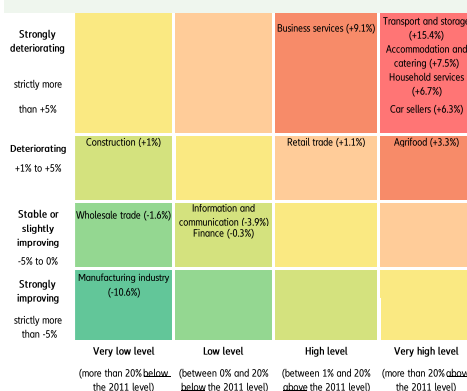
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Chart 1 Corporate investment real growth per investment driver



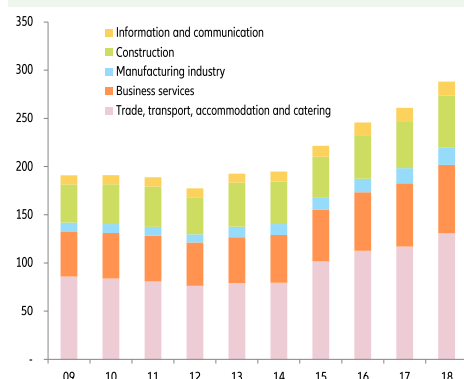
Sources: INSEE Allianz Research

Chart 2 Insolvency trends per sector: Levels compared to 2011 vs. 2019 evolution



Sources: Euler Hermes, Allianz Research

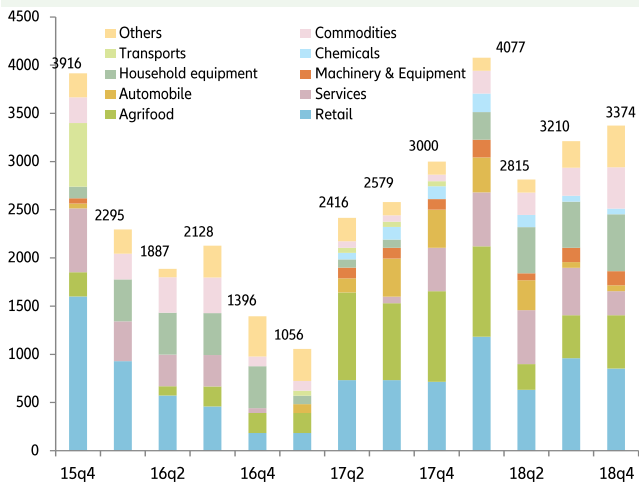
Chart 3 Business creation (thousands, excluding self-employed people)



Sources: INSEE, Allianz Research

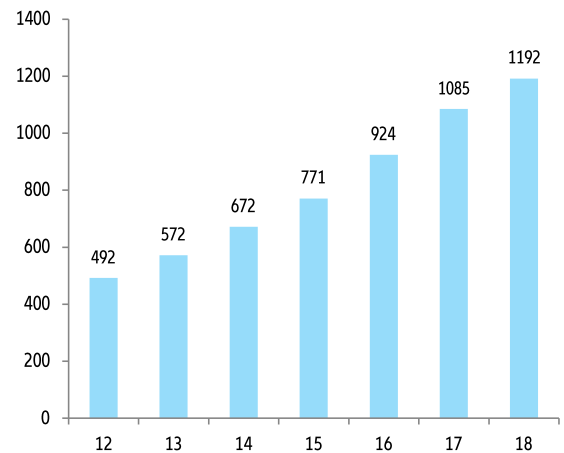


Chart 4 Turnovers (Millions) involved in major insolvencies by sector (4-quarters cumulative data)



Sources: Euler Hermes, Allianz Research

Chart 5 Growth in e-commerce platforms in France



Sources: Fevad iCE, Allianz Research

Major insolvencies were the strongest in the retail, agrifood and business services sectors, which accounted for half of the turnovers involved in major insolvencies (insolvent corporates with turnovers above EUR 50M) in 2018.

In the retail sector, for example, the rapid growth of online food delivery reduces

food sales but also overall billing by the restaurant sector. At the same time, our data shows an increase in business startups in catering and the technology sector is an equally important beneficiary through platform services, related software offerings and the like. The same holds true for the accommodation sec-

tor, where new platform offerings compete with hotels but where there is also intense venture creation activity of ancillary business servicing and complementing platforms.

COMPANIES WILL NEED SOUNDER FINANCIAL RATIOS TO DEAL WITH HIGHER ROTATION OF CAPITAL

French non-financial corporates are facing a higher investment cost, which we estimate at 21.4% in 2018, +1pp above the 2015 level and +3pp compared to 15 years ago.

However, a higher investment does not mean a higher value. Gross investment ratios are not fully representative of corporate realities, since significant depreciation may well cut the true value of their investment. In this context, net investment ratios, which take into account depreciation incurred, can be a much fairer representation of what corporates are effectively adding to their capital stock. Here, the pattern is less rosy with a net investment ratio of 2.5% of the value added in 2018 (+0.7pp above 2015 level and +0.5pp only above the level observed 15 years ago). This is because of a record depreciation rate in 2018 –

18.9% of the value added, according to our estimates.

The main reason for the discrepancy is that information & communication accounts for a wider share of corporate investment in France and this is not neutral in terms of financial costs. The depreciation rate of information technology (IT) is about 30%, while for investment in machinery & equipment average depreciation is much lower (15%) and stable over time. The life expectancy of an investment is now shorter than before, which is coherent with both record gross investment ratios and a widening gap with net investment ratios.

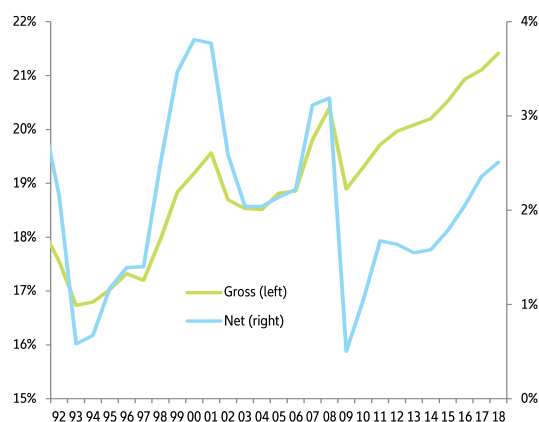
Obviously, this entails a cost. When a corporate wants to borrow in order to invest, the value of its capital can be taken as collateral that may be weaponized in case of bankruptcy. So a higher gap

between the financing needed and the value of the capital can create a financing risk for corporates in France.

In sectors such as transport, information & communication, accommodation & catering, trade, transport equipment, electrical equipment and plastics, net investment is below the levels observed in the 2000s, despite a high gross investment effort, which shows they are facing higher depreciation pressures.

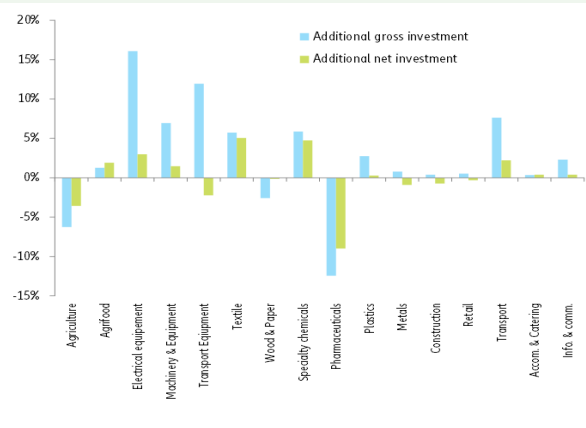
Only two sectors are escaping this trap, specialty chemicals and textiles, exhibiting both gross and net investment ratios at record levels. This means that the investments made by these two sectors have more value added than in other sectors (since these investments benefit from lower depreciation rates).

Chart 6 Gross vs. net investment ratios in non-financial corporates (% of the value-added)



Sources: INSEE, Allianz Research

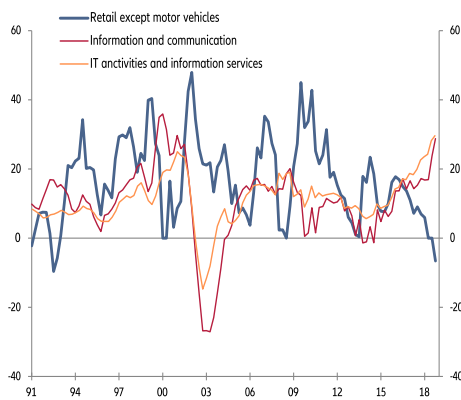
Chart 7 Additional investment in 2018 (2018 minus 2003 ratio), gross vs. net investment definition



Sources: INSEE, Allianz Research

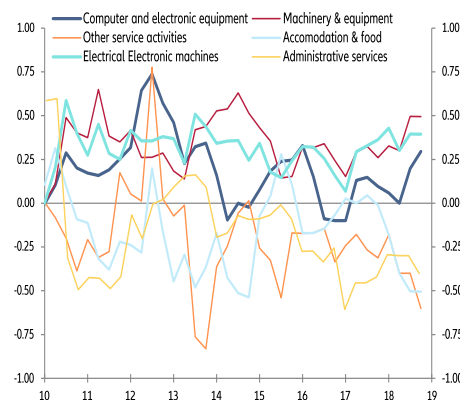
COMPANIES WILL INCREASINGLY COMPETE FOR SKILLED WORKERS

Chart 8 Jobs lost or won compared with median performance of the labor market (thousands)



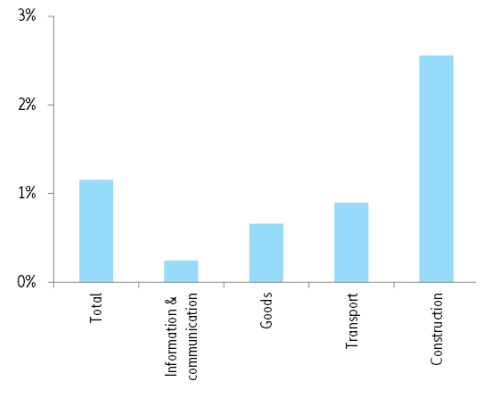
Sources: INSEE, Allianz Research

Chart 9 Relative performance of sectors in terms of salaries compared with median salary growth



Sources: INSEE, Allianz Research

Chart 10 Inflation observed on each investment item (yearly averages)



Sources: INSEE, Allianz Research

We look at employment dynamics in the French economy to identify the sectors where machines have added jobs and those experiencing job destruction. We observe the sectors where job creation came at a quicker pace than the average job creation in the overall economy and then estimate a broad amount of jobs lost or won by each sector from the difference from median and observed patterns. The most striking point is the diverging trend between the retail sector (for the first time in negative territory since 1993, with -2.5k of jobs destroyed in 2018) and the out-performing ICT sector (jobs related to a tech function made up half of employment creation in 2017). What we have observed in the US (a destruction of jobs in the retail sector because of machines replacing the

workforce in this sector) seems to now be happening in France.

The difference between highly demanded types of jobs and those progressively less attractive is also very informative. We calculate a median yearly growth of salaries in France and then produce the difference for each sector between its own growth and the median value. The spread reveals that sectors contributing to automation are currently those experiencing a stronger progression of salaries, while labor-intensive sectors underperform at this level.

The changing nature of investment also has consequences on the overall price environment. Innovations allow for additional output at a lower cost, but nation-

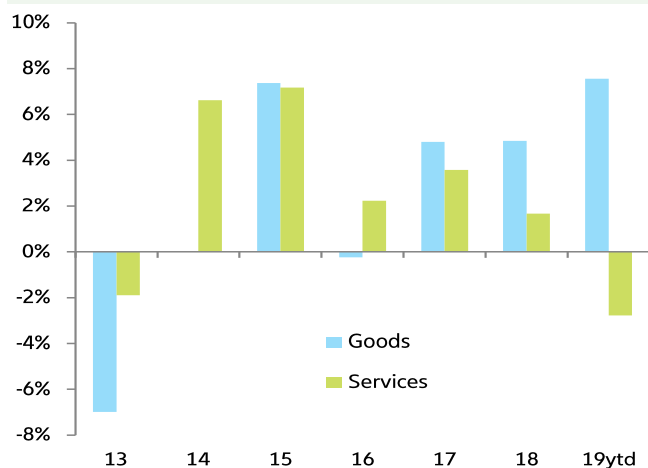
al statistics can sometimes fail to take this into account.

Aghion et al. (2018) have estimated that in France prices may have grown by -0.4pp less per year than previously thought, which also means that real GDP growth would be +0.4pp per year above what was previously calculated by statistical agencies.

The impact of innovation on prices is likely to have grown recently in France, since the growing investment component (information & communication) is at the same time the investment item which was exposed to the lowest inflation rate.

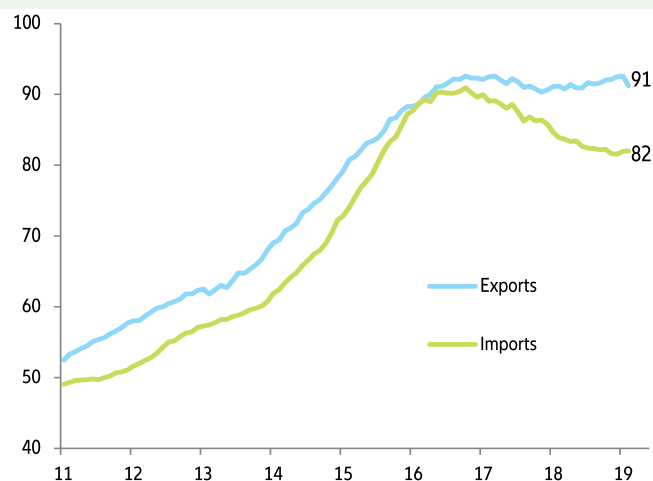
COMPANIES WILL CONSIDER THE CASE OF RELOCATING PRODUCTION IN FRANCE

Chart 11 France, evolution of nominal exports of goods and services



Sources: INSEE, Allianz Research

Chart 12 Trade in services, R&D and intellectual property fees (12-months sum, EUR bn)



Sources: INSEE, Allianz Research

A paradoxical impact of the current innovation wave in France is that it has triggered more trade growth in goods (+4.8% in 2018) and lower trade growth in services (+1.7% in 2018), in contrast to trends observed globally. It seems that the new wave of automation currently at play, and the increasing degree of digitalization of the logistic function, are favoring a relocation of the investment function. There is a growing home bias in terms of investment and the home country is more likely to be chosen for internationalization purposes, which in turn plays negatively on FDI flows.

This growing localization of investment at home also means that French corporates are also adding technology: Just as the technological content of domestic investment is growing, France's international trade of technology (R&D and intellectual property fees) has gone down. Interestingly, this downturn was in perfect time conjunction with the recovery of domestic investment and its shift in terms of digitalization processes. Broadly speaking, it means that automation lowers the share of labor in the cost of a product and that digitalization shortens a trade route, making exports more competitive and feasible than before.

From 2011 to 2016, French corporates tended towards investing abroad rather than exports. Since 2016, they have prioritized the export function instead, and we expect this trade pattern to remain the new normal in the years to come.

CONCLUDING REMARKS

ON SECTORS

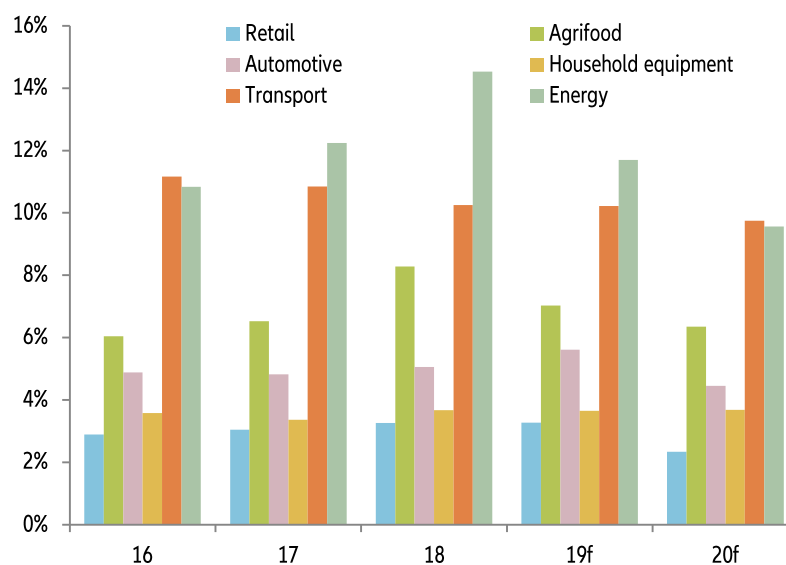
Whilst there is great opportunity for machinery in our view, we see risk for the retail, accommodation, automotive and transport sectors. In these sectors, traditional business models are particularly prone to being displaced by new ones characterized by a much greater presence of machines. A greater investment burden means higher financial strain and a need for greater cash generation. This gets compounded by likely reducing financial strength in the relevant sectors due to increasing fragmentation and the demise of a number of large corporates with sizeable balance sheets. We find it concerning to see decreasing expected capex to sales ratios at the major companies in

a number of the sectors that we have identified above. This indeed means lack of ability to keep up with the rise of machines.

At the same time, a greater degree of automation also increases specialization and inter-dependency within industry value chains in a number of sectors. We see this to be the case particularly in the automotive sector but also in a number of industrial goods sectors. Shocks may draw wider circles and create greater unsettling than in the past and hence increase counterparty risk.

We also believe that some sectors are yet to undergo this process, notably energy where machines will significantly alter the landscape especially for the customer-facing businesses but also for upstream services, an important sector in France.

Chart 13 Capex to sales ratios for major industry sectors



Sources: Bloomberg, Euler Hermes, Allianz Research

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