



# WEEKLY ECONOMIC INSIGHTS

A PUBLICATION OF THE **ECONOMIC RESEARCH TEAM**

## FURTHER SLOWDOWN IN GDP GROWTH IN CHINA

### Our economic and financial analysis of the week's events (p.2)

- **In China, annual GDP growth slowed from 6.2% to 6.0% in Q3, despite the stimulus plan**
- **This is notably explained, according to our analysis, by the fact that the stimulus measures mainly target the private sector...**
- **... and in a context of a sharp slowdown in exports and persisting uncertainties linked to the trade war, as well as lacklustre domestic demand, their effectiveness is limited**
- As a result, although the ongoing China-US negotiations may, at times, reassure international investors...
- ... their very limited progress should be insufficient to spontaneously boost growth
- **The stabilising of the Chinese economy and, therefore, of emerging economies, would depend on additional measures implemented by the authorities, according to our analysis**
- While the Chinese central bank should continue to be at the manoeuvre, **a stronger increase in public investment, notably in infrastructure, would be necessary**
- **In the United States, as we were expecting, the Fed announced that it was resuming its balance sheet expansion** starting from 15 October and through Q2 2020, at least
- To do this, it will purchase Treasury bills, **at a monthly pace of USD60 billion**
- While **the Fed's objective is to alleviate the upwards pressure on US short-term rates...**
- **... the monthly amount of its purchases is substantial and should support the acceleration in global liquidity** in H2 2019 and, especially, in H1 2020

### Focus: Challenges of the future rise in global food demand (p.5)

- ▶ Driven by underlying demographic and economic trends, global food demand should grow by 43.5% between now and 2050
- ▶ The traditional agricultural production model could in theory respond to the change in global food demand...
- ▶ ... but would continue to generate significant climate and environmental costs
- ▶ The shift to a new model based on technological innovation would create new investment opportunities

## FURTHER SLOWDOWN IN GDP GROWTH IN CHINA

### 1. China

The slowdown in Chinese GDP growth continues, despite the stimulus plan

### 2. Fed

New asset purchases for amounts that are far from insignificant

## 1. CHINA: THE SLOWDOWN IN GDP GROWTH CONTINUES, DESPITE THE STIMULUS PLAN

**Sophie Casanova** – Economist, Central Banks, +33 1 40 17 37 15, [s.casanova@edr.com](mailto:s.casanova@edr.com)

The slowdown in Chinese GDP growth was sharper than expected. The y-o-y figure, expected by the consensus at +6.1%, came in at +6.0%, after +6.2% in Q2.

While the Chinese authorities do not provide detailed figures on the changes in GDP components, monthly activity data show that [although this lower momentum of activity results from the weakness of exports, which negatively impacts manufacturing activity, it is also primarily due to the lacklustre domestic demand](#), as reflected in the further slowing of retail sales and total investment during the quarter. Notably:

- ▶ [The trade balance improved slightly](#), with a surplus of USD39.6 billion in Q3 vs. USD35.2 billion in Q2 2019 and USD28.0 billion in Q3 2018. In detail, [however, we note that this trend results from the sharp contraction of imports, with exports having continued to deteriorate](#). In particular:
  - [Total exports contracted by -0.3% y-o-y in Q3 after a -1.0% drop in the previous quarter](#). Their y-o-y change is thus below the average since the start of 2019, which was -0.2%, and that of 2018, of +11.2%. As shown in the table below, this results notably from the sharp contraction in Chinese exports to the US.
  - At the same time, [imports saw their y-o-y figure contract by -6.5% in Q3, after a -3.8% decline in Q2](#). On average since the start of 2019, imports are down -4.9% y-o-y, after a +16.6% increase in 2018.

**Table: China Trade data (YoY % change)**

	Exports				Imports			
	Total	US	EU	Asean	Total	US	EU	Asean
2018 Average	11.2	11.9	10.9	14.9	16.6	1.3	12.4	15.6
Jan-Sept 2019	-0.2	-10.8	4.9	8.5	-4.9	-26.0	0.6	1.0
Q2 2019	-1.0	-8.3	3.2	5.7	-3.8	-28.0	4.9	4.7
Q3 2019	-0.3	-14.8	3.3	12.2	-6.5	-19.0	-5.0	3.8

Source: Bloomberg, Edmond de Rothschild Economic Research

- ▶ [Data for retail sales and total investment also confirmed the weak domestic demand \(see Chart 1\)](#). Thus:
  - [Retail sales recorded +7.6% growth y-o-y in Q3 after +8.5% in the previous quarter](#), thus below the average since the start of 2019, of +8.2%, and that of 2018 at +8.9%.
  - [Total investment also slowed, with y-o-y growth of +5.5% after +5.8% in Q2](#) (+5.8% on average since the start of the year and +6.2% in 2018). By sector, we note [a pick-up, although at a very modest pace, in investment in infrastructure](#), with y-o-y growth of +4.2% in Q3 after +2.8% in Q2 (+3.7% on average since the start of 2019 and +2.9% in 2018). [But, manufacturing investment continued to slow](#): +1.7% in Q3 after +1.9% in Q2 (the ytd average is +4.0% after +7.9% in 2018). [Lastly, real estate investment slowed slightly](#) from +10.9% in Q2 to +10.5% in Q3 (the 2019 average is 11.1%, and that of 2018 +10.0%).
- ▶ The weakness of exports and domestic demand weighs on the pace of manufacturing activity: [industrial production slowed to +5.0% in Q3 after +5.6% the previous quarter](#) (+5.7% on average since the start of 2019 and +6.1% in 2018).

- ▶ To conclude, credit data confirmed that, despite the stimulus plan, notably the measures taken by the Chinese central bank, bank lending had not picked up significantly. This echoes the weakness in manufacturing investment. Bank lending y-o-y growth came in at +12.5% in September, after +12.4% in August (its 2019 average is at +13.1%, and 2018 was +13.0%).

### Implications

- ▶ Q3 data confirmed that there was no stabilising of activity in China despite the stimulus plan.
- ▶ This is notably explained, according to our analysis, by the fact that the stimulus measures this time mainly target the private sector: in a context of a sharp slowdown in exports and persisting uncertainties linked to the trade war, as well as lacklustre domestic demand, their effectiveness seems limited.
- ▶ Thus, although the ongoing China-US negotiations may, at times, reassure international investors, the very limited nature of their progress should be insufficient to spontaneously boost growth.
- ▶ While GDP growth now stands at the low end of the 6.0%-6.5% target set by the authorities, the stabilising of the Chinese economy and, consequently, of emerging economies, will depend on additional initiatives implemented by the authorities.
- ▶ While the Chinese central bank should continue to implement measures, a stronger increase in public investment, notably in infrastructure, would be necessary, according to our analysis.

## 2. FED: NEW ASSET PURCHASES FOR AMOUNTS THAT ARE FAR FROM INSIGNIFICANT

Sophie Casanova – Economist, Central Banks, +33 1 40 17 37 15, [s.casanova@edr.com](mailto:s.casanova@edr.com)

The US Federal Reserve (Fed) announced on 11 October that it was resuming its balance sheet expansion, as from 15 October and through to Q2 2020 at least. To do this, it will purchase Treasury bills, at a monthly pace of USD60 billion.

Its objective is to increase the liquidity available to banks (i.e. their excess reserves) while the sharp rise in rates on the repo market since September tends to show that this has become insufficient<sup>1</sup>. In its press release, the Fed underlined the fact that this was not a monetary policy decision but a technical adjustment aimed to maintain “ample reserve balances at or above the level that prevailed in early September 2019”.

### Implications

- ▶ As we were expecting, the Fed announced it was resuming the expansion of its balance sheet to alleviate the upwards pressure on US short-term rates.
- ▶ The fact that the Fed has taken such a decision outside its regular monetary policy meetings confirms that it does not want investors to think that these asset purchases mean a return of quantitative easing.
- ▶ Moreover, dissociating this decision from the monetary policy meetings could enable it to lower its rate at its next meeting on 30 October, given the deterioration in US economic data<sup>2</sup>, without this appearing alarming (which could have been the case if a rate cut and the resumption of the balance sheet increase had been announced at the same time).
- ▶ However, even if the Fed wants to convince that it is not starting its quantitative easing again, the amount of the monthly purchases of Treasury bills it has announced is significant.
- ▶ According to our calculations, the monthly pace of purchases of Treasury bills of USD60 billion per month should lead to a 13.3% increase in the balance sheet by mid-June 2020, i.e. in eight months (see Chart 2), which is far higher than the rate of growth in the balance sheet

<sup>1</sup> For further reading please see our Weekly Economic Insights of 23 September 2019.

<sup>2</sup> See our Weekly Economic Insights of 7 October.

that would be necessary to stabilise the excess reserves of banks at, or slightly above, their September level.

- Thus, beyond the monetary tensions, the Fed's motivation could be to increase expectations of a rise in liquidity. This backs our forecast of an acceleration in global liquidity in H2 2019 and, especially, in H1 2020.

Chart 1: Lacklustre Chinese domestic demand has been confirmed

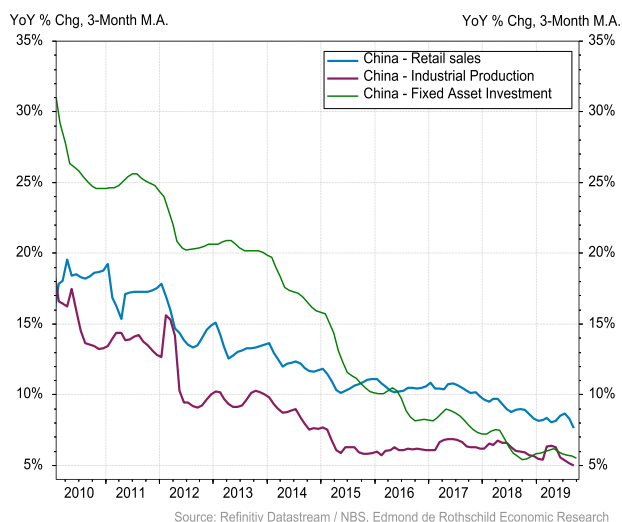
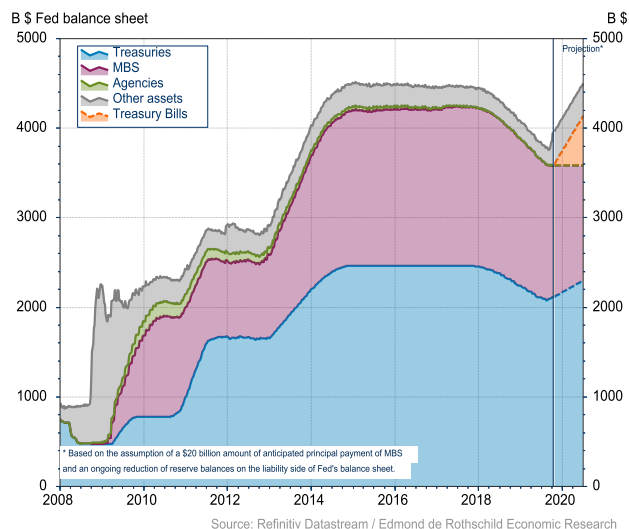


Chart 2: The Fed is resuming the expansion of its balance sheet at a strong pace



## FOCUS THEMATIC INVESTMENT: WHERE TO INVEST TO RESPOND TO THE CHALLENGES OF THE FUTURE RISE IN GLOBAL FOOD DEMAND

**Mathieu Grob  ty** – Economist, Switzerland, Japan and Structural Analysis, +41 58 818 81 57, [m.grobety@edr.com](mailto:m.grobety@edr.com)

*Driven by significant underlying demographic and economic trends, global food demand should grow by 43.5% between now and 2050, and it should consist of more animal products. The traditional agricultural production model could in theory answer the shift in global food demand, but would continue to generate significant climate and environmental costs. How can this challenge be addressed while favouring the transition to sustainable farming? Our study shows that the new agricultural production model must be based on technological innovation, especially in low- and middle-income countries in South Asia and Sub-Saharan Africa. This would open up new investment opportunities that would boost the development of new technologies in high-income countries that would then be adopted by low- and middle-income countries.*

Progress in farming productivity in the 19th and 20th centuries enabled developed economies to free up labour from the primary sector towards the secondary sector. In countries that underwent this industrial revolution, a growing part of the population has had access to a sufficient quantity of food and been able to use resources to consume other goods.

Another revolution is currently underway and will lead to major changes in the food industry in the next 30 years on a scale never seen before. Our analysis highlights two types of disruption.

- ▶ Firstly, consumers in developed countries should shift their food habits to consume more ecological products. This new awareness should result in a change in the composition of food demand and create new markets.
- ▶ Secondly, the dominant trends in developing countries should lead to an acceleration in growth in global food demand.

These shifts represent challenges, but also investment opportunities. According to our analysis, innovation remains the key factor to address these two types of disruption.

- ▶ The food industry should massively increase its R&D spending in order to develop new food products that respond to the changes in the composition of food demand in developed countries towards more environmentally-friendly products. Due to their innovative and disruptive nature, these new markets could generate significant profits through higher margins than in traditional markets.
- ▶ Our analysis also shows that the intensive use of soil and water is not a sustainable solution over the long term to meet the growing food demand in developing countries. Producers in these countries thus must find the investment required to increase their profitability through the purchase of new machines and more efficient agricultural production processes. The food industry also must invest massively in R&D to reduce food waste and thereby meet additional food demand.
- ▶ The first part of our study highlights the underlying trends that explain the shifts in food demand and the channel through which the food industry should respond to them. In the second part, we then address the market implications and investment opportunities that these changes could bring.

### DRIVEN BY UNDERLYING DEMOGRAPHIC AND ECONOMIC TRENDS, GLOBAL FOOD DEMAND SHOULD GROW BY 43.5% BETWEEN NOW AND 2050...

According to our calculations, which are based on the projections of the FAO and the United Nations, world food demand should increase from 19.7 billion kilocalories per day in 2012 to 28.3 billion in

2050, an increase of 43.5% (see Chart 1).<sup>3</sup> In terms of growth, we anticipate an average yearly increase in food demand of 1.5% over the 2012-2030 period. Momentum would slow to 0.7% over the second part of our forecast period (2030-2050). Overall, low- and middle-income countries (LMICs) excluding China remain the contributors to this rise, while the contribution of the rest of the world, i.e. China and high-income countries, is minor (see Chart 2). By focusing on growth drivers in LMICs excluding China, we observe that South Asia and Sub-Saharan Africa account for the major part of the momentum in this region (see Chart 3). This result enables us to draw the first conclusion of our analysis. The 43.5% rise in global food demand that we expect between now and 2050 is mainly concentrated in two markets, i.e. South Asia and Sub-Saharan Africa. This is explained by two factors that represent underlying trends.

- ▶ The first factor is demographic. The rise in population in this region, which should increase from 4.6 billion in 2012 to 7.1 billion in 2050, while the global population is expected to reach 9.7 billion in 2050, i.e. a 2.7 billion increase between 2012 and 2050 (see Chart 4). As confirmed by Chart 5, growth in the world population is explained solely by the growth momentum in the LMICs excluding China. In this region, South Asia and Sub-Saharan Africa are the drivers (see Chart 6).
- ▶ The second factor is economic. An acceleration in the increase in the standard of living in South Asia and Sub-Saharan Africa (see Chart 7). GDP per capita is expected to double by 2050 in these two regions and reach USD4,000 at constant exchange rates. This rise would enable the population to increase its average food demand, by 250 kilocalories per capita per day in South Asia and by 300 kilocalories per capita per day in Sub-Saharan Africa. In comparison, global food demand is expected to rise by 100 kilocalories per capita per day (see Chart 8).

Chart 9 shows the relative importance of each factor. The main driver of the rise in global food demand is demographic. This factor becomes more significant in the second part of the forecast period, i.e. 2030-2050. It contributes up to 69% in South Asia and 71% in Sub-Saharan Africa over the 2012-2030 period and close to 100% over the 2030-2050 period. As a result, the economic factor (growth in GDP per capita) behind the rise in kilocalories per capita per day has a negligible impact on the expected trend in these two regions. Despite the uncertainty that surrounds these population growth and standard of living forecasts, these two factors represent underlying trends that seem difficult to contain.

### ... WHILE ITS COMPOSITION SHOULD CONTAIN MORE ANIMAL PRODUCTS

The composition of global food demand will also undergo profound changes. Consumption of animal products is expected to increase from 3.2 billion kilocalories per day in 2012 to 4.4 billion, i.e. by 36.7% (see Chart 10). The main drivers of consumption of animal products at the geographical level are similar to those behind the momentum of all food products (see Chart 11). LMICs excluding China would contribute to a 1.1 percentage point of the total 1.5% growth over the 2012-2030 period, while China would contribute 0.2 percentage points (see Chart 12). The momentum would be concentrated solely on the LMICs excluding China over the second part of the forecast period. According to our calculations, population growth in South Asia and Sub-Saharan Africa would be the main factor behind the global rise in consumption in animal products, over both the 2012-2030 and 2030-2050 periods (see Chart 13).

Our analysis also shows a slowing of the momentum of consumption of animal products over the second half of the forecast period. The rise in GDP per capita between now and 2030 would enable the populations of South Asia and Sub-Saharan Africa to adopt food habits that would be concentrated on animal products, while after 2030 the rise in prices would curb this trend. Nevertheless, in 2050, the consumption of animal products per capita per day in South Asia would be

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<sup>3</sup> Our forecasts for food demand combine two very distinct sources. The first is linked to the (2018) forecasts of the United Nations Food and Agriculture Organization (FAO) of the number of kilocalories consumed per capita per day. We have chosen the baseline scenario of the FAO, which is "business as usual" and which reproduces the main trends of the past. As a second source, we used the United Nations' population projections.

16.0% higher than in 2012, vs. 10.5% for all food products combined. The phenomenon would be even more marked in Sub-Saharan Africa, with a 31.4% increase for animal products vs. 13.5% for other food (see Chart 14).

### **THE TRADITIONAL AGRICULTURAL PRODUCTION MODEL COULD IN THEORY RESPOND TO THE CHANGE IN GLOBAL FOOD DEMAND...**

Global agricultural production recorded average yearly growth of 2.3% over the 1961-2015 period. The average growth in supply was also 2.3% for the more recent period of 2005-2015. While we expect global food demand to record average growth of 1.6% over the 2012-2030 period before decelerating to 0.8% over the second part of our forecast period, these growth rates would be sufficient to meet the economic challenge linked to the rise in demand (see Chart 15). A geographic breakdown of agricultural production over the long term also shows that the LMICs would have enough production capacity to meet food demand by replicating traditional production methods (see Chart 16).

### **... BUT WOULD CONTINUE TO GENERATE SIGNIFICANT CLIMATE AND ENVIRONMENTAL COSTS**

Although traditional production methods remain suitable to meet the economic challenge linked to growth in food demand, they are not adequate for meeting the environmental and climate challenge. If the growth and consumption model does not shift towards one that is more socially responsible, the changes in global food demand both in terms of growth and composition will generate significant negative externalities for the environment at a local level and for climate at the global level, as the two effects can reinforce each other.

According to a study recently published in the Science journal, a little more than a quarter of greenhouse gas emissions (26.2%) come from the entire value chain of the food sector (see Chart 17). This study also shows that production is the stage in the value chain that generates the most negative climate externalities and represents 62.0% of total sector emissions (see Chart 18). Contrary to what is commonly believed, transport accounts for just 5.9% of emissions. This study also provides a breakdown by product, finding that 57.0% of emissions come from the value chain linked to animal products.

Concerning the environmental costs at the local level, especially in LMICs, growth in global food demand should increase the excessive use of limited natural resources and exacerbate the climate effect. The traditional agricultural model in LMICs is based on intensive use of soil and livestock as production factors. In low-income countries, for example, the share of soil compared to the use of all other inputs represents 30.1% vs. 19.8% in high-income countries (see Chart 19). Growth in the agricultural production of LMICs over the 1961-2015 period is explained mainly by the more intensive use of factors, while the contribution of the increase in productivity was negligible, especially in low-income countries (see Chart 16). The increase in new farmland was a significant cause of this phenomenon (Fuglie, 2012). Intensive use of the soil factor has a negative impact with the degradation of the quality of arable land and could reduce agricultural productivity over the long term. According to the FAO (2014), 33% of land used for agriculture worldwide is moderately or severely degraded, while a large part of available additional land is not suited to agriculture. The increase in agricultural land through deforestation generates negative externalities on water resources for the irrigation of agricultural land and the climate. The FAO (2017) estimates that agriculture is responsible for around 80% of the world's deforestation. Low-income countries have undergone both the highest net annual loss of forest land and the highest net annual gain in agricultural land. Deforestation generates 20% of the total emissions of the agricultural sector (see Chart 18). Like in the case of intensive soil use, deforestation could reduce agricultural production by limiting water resources, especially as the agricultural sector already represents around 70% of freshwater use in the world and is generally considered one of the main factors causing the world shortage of freshwater (Alexandratos and Bruinsma, 2012).



## HOW CAN THIS CHALLENGE BE MET WHILE FAVOURING THE TRANSITION TOWARD SUSTAINABLE AGRICULTURE? BY ADOPTING A NEW MODEL BASED ON TECHNOLOGICAL INNOVATION

The traditional agricultural production model based on the intensive use of the soil factor in LMICs and which generates a quarter of greenhouse gas emissions is not sustainable from an environmental and climate point of view. In the future, LMIC producers thus must modify their method for producing agricultural products, while consumers must adopt different food habits. Rather than limiting the consumption of animal products via tax incentives, credible substitutes need to be offered to consumers. Rather than wait for LMIC governments to regulate soil use, new technologies need to be developed that will enable production to consume less soil, energy and water.

Innovation remains the key determining factor to meeting the challenge. Over the 1961-2015 period, if developing countries had caught up with developed countries in terms of productivity gains, annual growth in agricultural production would have reached 1.4% while maintaining the level of use of production factors such as soil. This rate would meet the rise in global food demand while limiting negative externalities on the environment and the climate. As shown in Chart 16, the higher the level of development, the more the trend in agricultural production is explained by productivity. The role played by the factors decreases with income per capita. Furthermore, Chart 19 shows that the level of development is positively correlated with the intensity of utilisation of machines in the production process and negatively correlated with the use of soil and livestock. It is thus essential to innovate and address the challenge by adopting an agricultural production model that is similar to that of developed countries, which is based more on higher productivity through the use of new high-technology machines and less on inputs.

We note that R&D spending in the area of agricultural and food more than doubled between 1980 and 2011, up from 27.4 billion dollars at constant prices in 1980 to 69.3 billion in 2011 (see Chart 20). While spending in 1980 was concentrated in high-income countries, the contribution of middle-income countries is now significant. We also note that the private sector invests more, with a share that stood at 44.9% in 2011 vs. 34.9% thirty years earlier (see Chart 21). Innovation remains the key determining factor to address the challenge. The solution would consist of increasing the efficiency of the production processes through technological innovations by choosing investments that maximise the positive impact on the environment and climate.

## THE SHIFT TO THIS NEW PRODUCTION MODEL WOULD CREATE NEW INVESTMENT OPPORTUNITIES

In order to be able to address the environmental and climate challenge arising from the growth in global food demand, our analysis highlights the necessity to invest in companies that innovate in order to develop:

- 1) **New technologies that improve the overall efficiency of agricultural production processes.** These new technologies would operate on the supply side and address the challenge arising from changes in the quantity of food demand. They would be able to stabilise, even reduce, the intensity of use of factors such as soil, fossil energy and water.
- 2) **New food products providing consumers with substitutes to traditional animal products.** These new products would operate on the demand side and meet the challenge created by changes in the composition of food demand. They would stabilise, even reduce, the consumption of animal products and lower the environmental footprint.

The development and financing of this type of new technology and of new products would be done in developed markets. The target markets would be those developed countries in which margins and demand would offer investors satisfactory returns. These solutions could be adopted in a second stage by producers and consumers in low- and middle-income countries.



## RÉFÉRENCES

- Alexandratos, N. and J. Bruinsma (2012), "World agriculture towards 2030/2050: the 2012 revision", ESA Working paper No. 12-03, Rome, Food and Agriculture Organization.
- Food and Agriculture Organization – FAO (2014), "Building a common vision for sustainable food and agriculture – Principles and approaches", Rome.
- Food and Agriculture Organization – FAO (2017), "The future of food and agriculture – Trends and challenges", Rome.
- Food and Agriculture Organization – FAO (2017), "The future of food and agriculture – Alternative pathways to 2050", Rome.
- Fuglie, K.O. (2012), "Productivity growth and technology capital in the global agricultural economy", In Fuglie, K.O., Wang, S.L. & Ball, V.E., eds. Productivity growth in agriculture: An international perspective. Oxfordshire, UK, CABI.
- Fuglie K.O. (2015), "Accounting for growth in global agriculture", Bio-based and Applied Economics 4, pp. 201-234.
- United Nations – UN (2019), "World Population Prospects 2019", available at <https://population.un.org/wpp/>.
- Pardey, P.G., C. Chan-Kang, J.M. Beddow and S.P. Dehmer (2016), "Agricultural R&D is on the Move." Nature, pp. 301-303.
- Poore J. and T. Nemecek (2018), "Reducing food's environmental impacts through producers and consumers", Science 360, pp. 987-992.

Chart 1

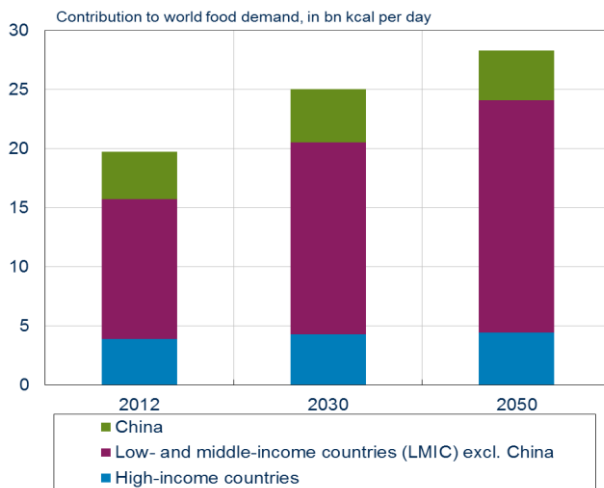


Chart 2

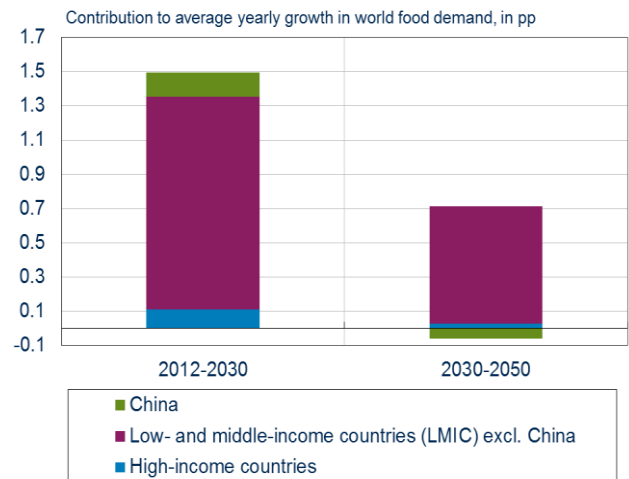


Chart 3

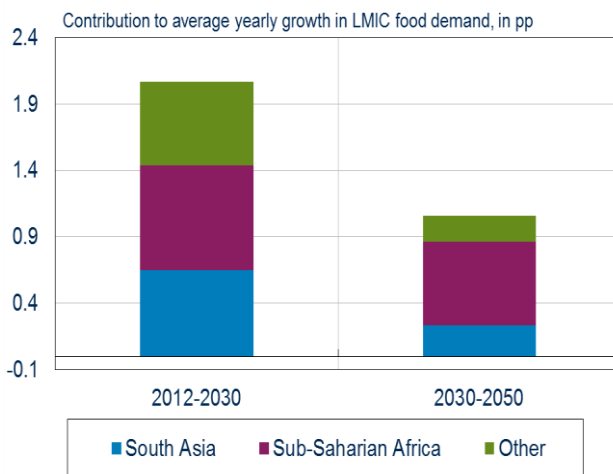


Chart 4

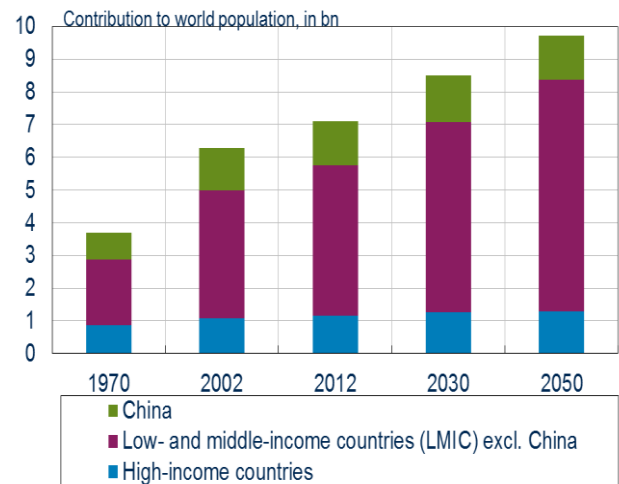


Chart 5

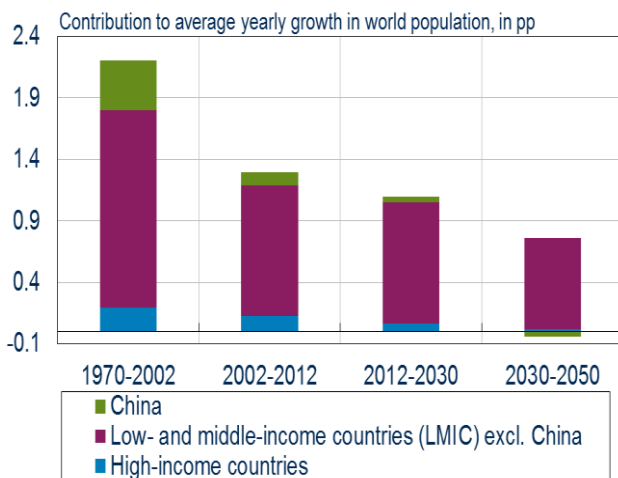


Chart 6

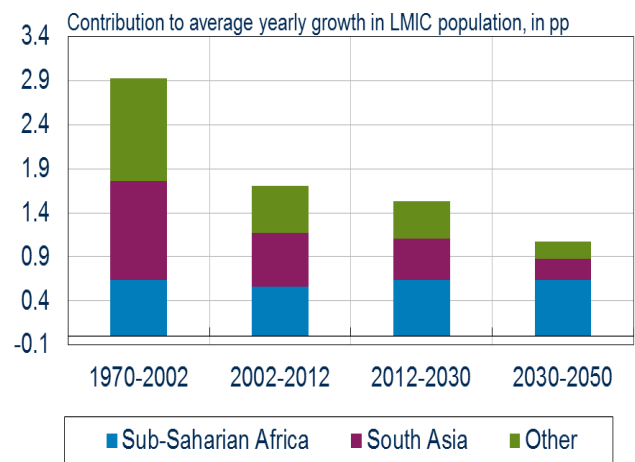
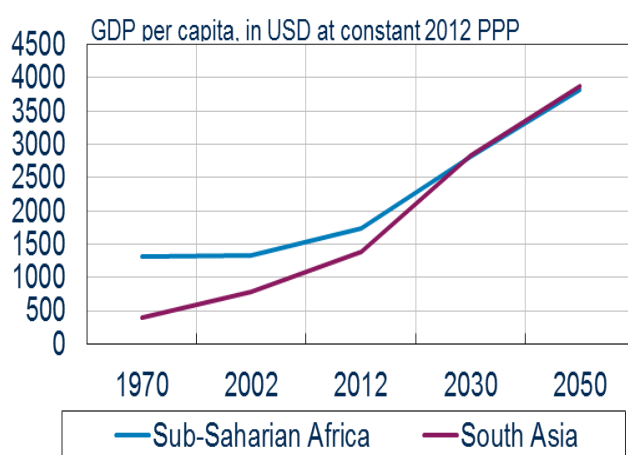
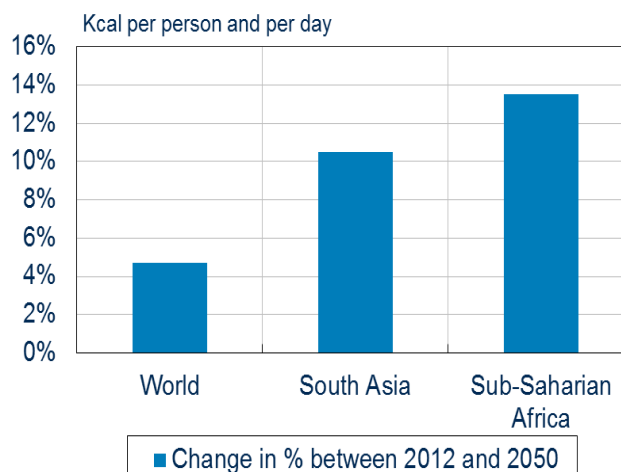


Chart 7



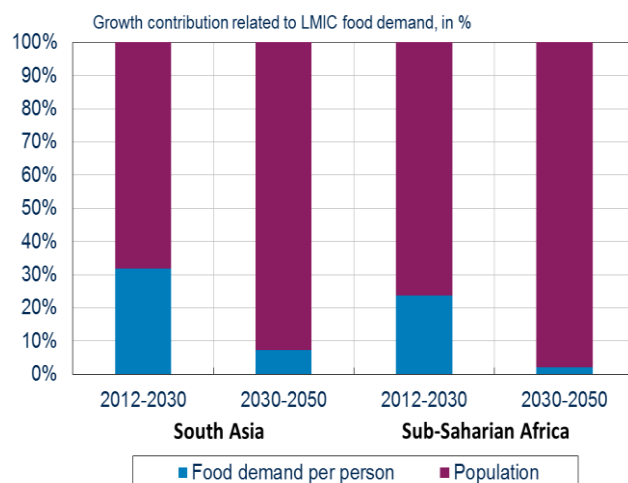
Source: FAO, Edmond de Rothschild Economic Research

Chart 8



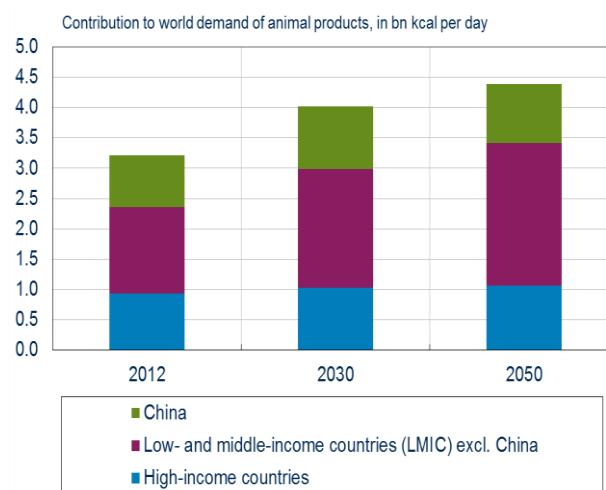
Source: FAO, Edmond de Rothschild Economic Research

Chart 9



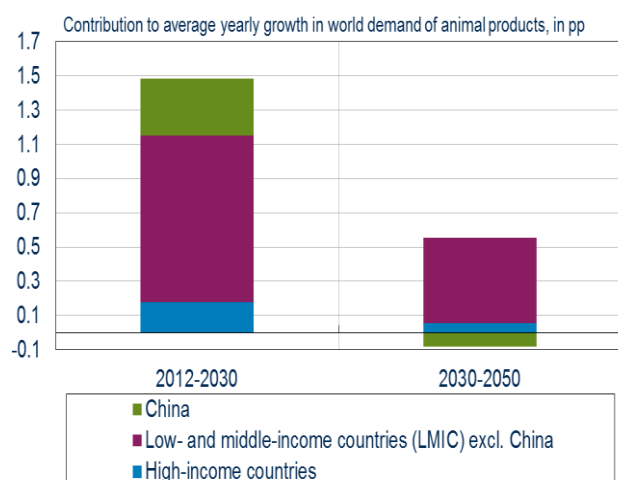
Source: own calculation based on FAO and UN, Edmond de Rothschild Economic Research

Chart 10



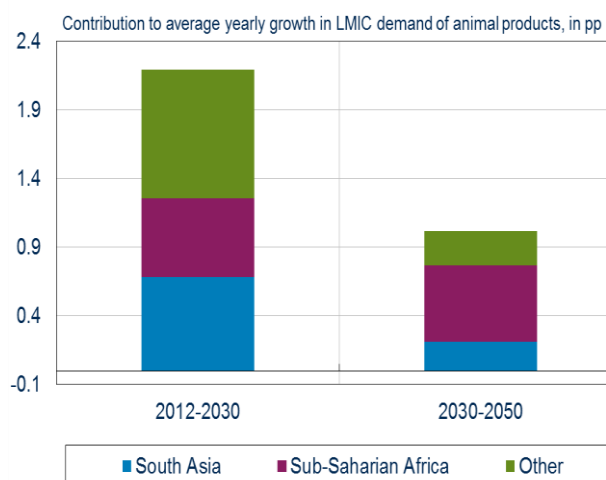
Source: own calculation based on FAO and UN, Edmond de Rothschild Economic Research

Chart 11



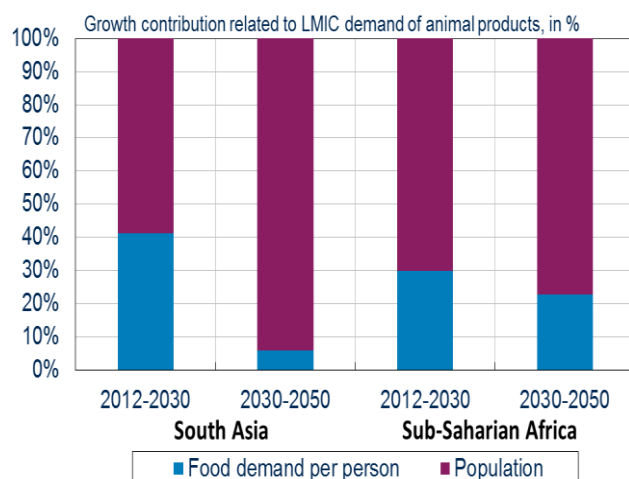
Source: own calculation based on FAO and UN, Edmond de Rothschild Economic Research

Chart 12



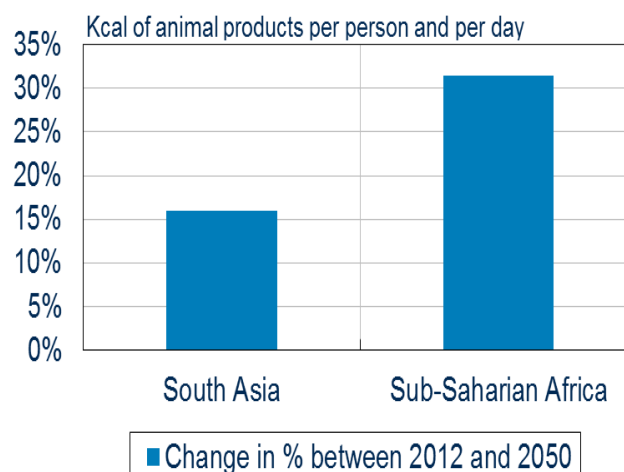
Source: own calculation based on FAO and UN, Edmond de Rothschild Economic Research

Chart 13



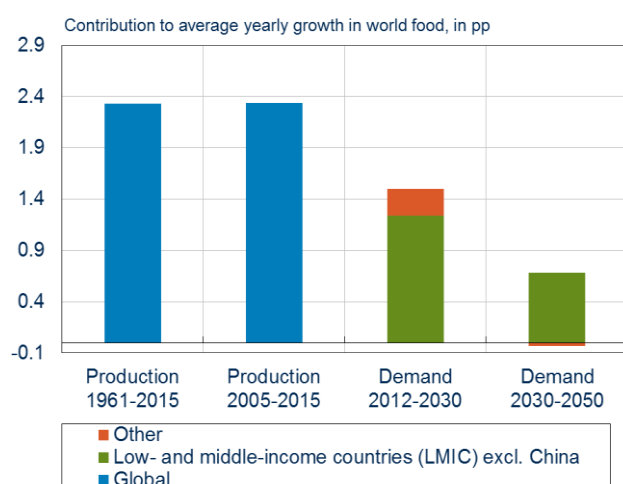
Source: own calculation based on FAO and UN, Edmond de Rothschild Economic Research

Chart 14



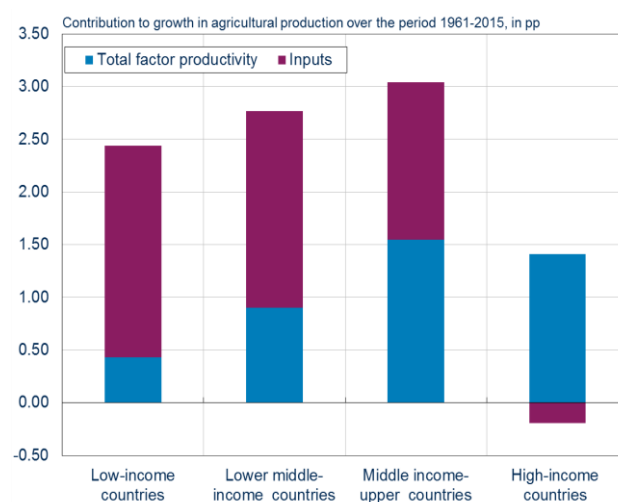
Source: FAO, Edmond de Rothschild Economic Research

Chart 15



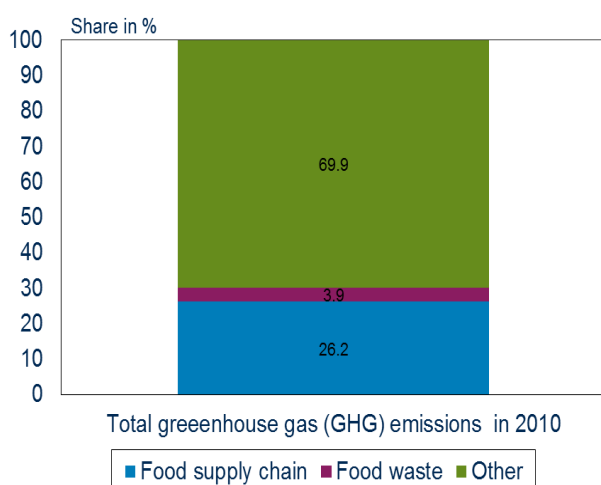
Source: Fuglie et al. (2012,2015), FAO, UN, Edmond de Rothschild Economic Research

Chart 16



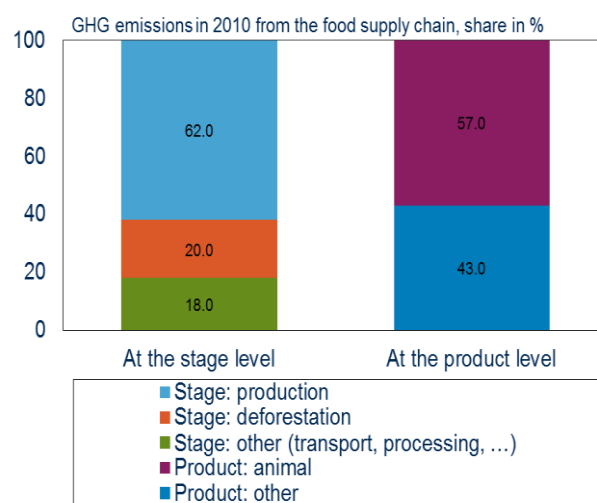
Source: Fuglie (2012, 2015), Edmond de Rothschild Economic Research

Chart 17



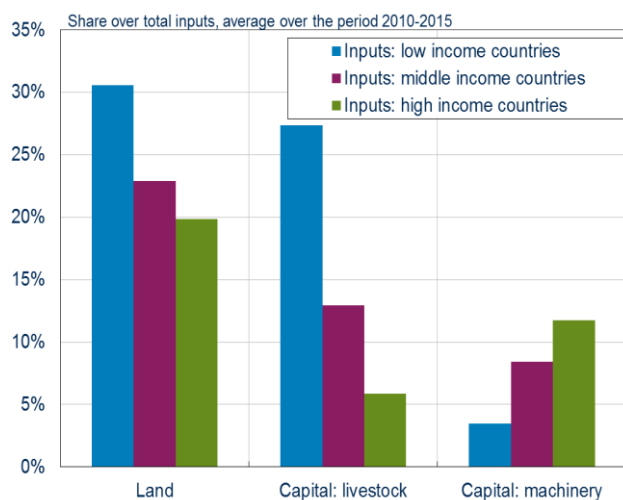
Source: Poore and Nemecek (2018), Edmond de Rothschild Economic Research

Chart 18



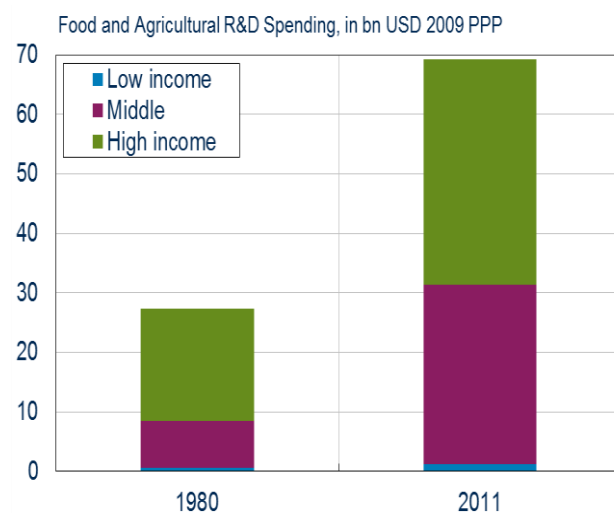
Source: Poore and Nemecek (2018), Edmond de Rothschild Economic Research

Chart 19



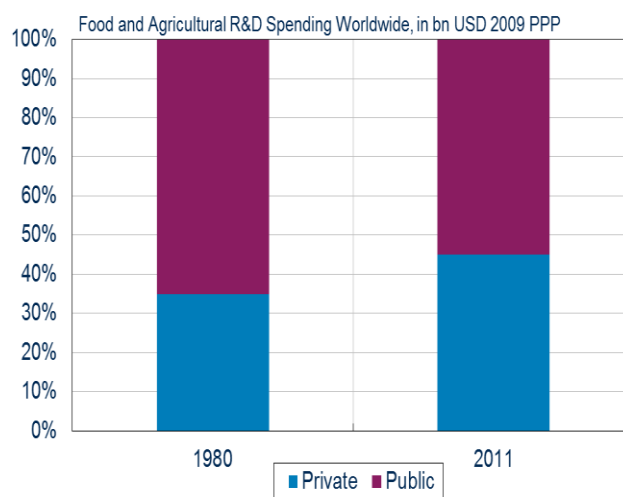
Source: Fuglie (2012, 2015), Edmond de Rothschild Economic Research

Chart 20



Source: Pardey et al. (2016), Edmond de Rothschild Economic Research

Chart 21



Source: Pardey et al. (2016), Edmond de Rothschild Economic Research

## APPENDIX 1 - LATEST CHANGES ON FINANCIAL MARKETS

PERFORMANCE IN LOCAL CURRENCY 18.10.2019	LAST PRICE	WEEKLY CHANGE	MONTHLY CHANGE	YEAR-TO-DATE CHANGE	1-YEAR CHANGE
<b>Equities</b>					
World (MSCI)	2'195	0.7%	-0.1%	16.5%	6.4%
United States (S&P 500)	2'986	0.5%	-0.2%	19.1%	7.9%
Eurozone (Euro Stoxx 50)	3'579	0.3%	0.2%	19.3%	11.5%
Germany (DAX)	12'634	1.0%	1.3%	19.6%	9.3%
France (CAC 40)	5'636	-0.5%	-1.0%	19.1%	10.8%
Spain (IBEX 35)	9'330	0.6%	1.6%	9.2%	4.9%
Italy (FTSE MIB)	22'322	0.7%	0.9%	21.8%	17.0%
Portugal (PSI 20)	4'977	-0.5%	-0.8%	5.2%	-1.0%
United Kingdom (FTSE 100)	7'151	-1.3%	-2.6%	6.3%	1.4%
Switzerland (SMI)	9'965	-0.5%	-0.9%	18.2%	12.3%
Japan (Nikkei)	22'493	4.4%	1.9%	12.4%	-0.2%
Emerging Markets (MSCI)	1'024	1.2%	0.3%	6.0%	5.4%
<b>Sovereign Bonds, 10Y (change in basis point)</b>					
United States	1.75%	2.5	3.2	-93.1	-143.9
Eurozone					
Germany	-0.38%	6.0	13.9	-62.4	-84.2
France	-0.08%	5.0	14.5	-78.6	-91.6
Spain	0.25%	0.9	0.9	-117.1	-149.0
Italy	0.93%	-1.5	0.3	-181.6	-255.7
Portugal	0.20%	-0.3	-4.9	-152.2	-181.9
United Kingdom	0.71%	0.4	8.1	-56.8	-86.7
Switzerland	-0.59%	6.1	17.6	-33.9	-60.5
Japan	-0.13%	4.8	7.6	-13.4	-28.0
Emerging Markets (local currency)	3.85%	1.6	-6.6	-98.8	-143.9
<b>Corporate Bonds (change in basis point)</b>					
United States (IG Corp.)	2.91%	0.9	-11.1	-39.4	-129.9
Eurozone (IG Corp.)	0.49%	2.4	3.2	-24.7	-61.5
Emerging Markets (USD)	4.91%	-6.4	-7.6	39.4	-121.6
<b>High-Yield Bonds (change in basis point)</b>					
United States (HY Corp.)	5.67%	-21.7	9.0	-3.9	-86.6
Eurozone (HY Corp.)	3.56%	-3.5	20.3	66.3	-47.3
<b>Convertible Bonds</b>					
United States (Convert. Barclays)	53	-0.1%	-0.8%	12.5%	4.0%
Eurozone (Convert. Exane)	8'037	0.0%	0.0%	9.3%	5.4%
<b>Commodities</b>					
Commodities	401	0.7%	1.9%	2.7%	-3.6%
Gold	1'488	0.4%	-1.3%	16.1%	21.5%
Crude Oil (Brent)	59	-2.5%	-8.8%	10.9%	-26.4%
<b>Currencies</b>					
Dollar Index	97.3	-1.1%	-1.2%	1.2%	1.7%
EURUSD	1.12	1.2%	1.5%	-2.7%	-2.7%
GBPUSD	1.29	2.5%	4.0%	1.3%	-0.3%
EURCHF	1.10	0.1%	-1.0%	2.4%	3.9%
USDCHF	1.02	-1.2%	-0.5%	0.3%	-1.1%
USDJPY	108.53	0.1%	0.9%	-1.0%	-3.8%

Source : Bloomberg

## APPENDIX 2 – MAIN ECONOMIC INDICATORS

Main Economic Indicators - Released (14 - 18 October) and to be released (18 - 25 October)						
<b>US</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
16/10	Retail Sales, MoM	Sep	0.3%	-0.3%	0.4%	0.6%
16/10	Retail Sales, Control Group, MoM	Sep	0.3%	0.0%	0.3%	--
17/10	Housing Starts, month	Sep	1320k	1256k	1364k	1386k
17/10	Building Permits, month	Sep	1350k	1387k	1419k	1425k
17/10	Industrial Production, MoM	Sep	-0.2%	-0.4%	0.6%	0.8%
17/10	Manufacturing Production, MoM	Sep	-0.3%	-0.5%	0.5%	0.6%
22/10	Existing Home Sales, month	Sep	5.45m	5.38m	5.49m	5.50m
24/10	Durable Goods Orders, MoM	Sep P	-0.7%	--	0.2%	--
24/10	New Home Sales, month	Sep	701k	--	713k	--
<b>Euro zone</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
14/10	Industrial Production, MoM	Aug	0.3%	0.4%	-0.4%	--
16/10	Core HICP, YoY	Sep F	1.0%	1.0%	1.0%	--
16/10	HICP, YoY	Sep F	0.9%	0.8%	0.9%	--
24/10	Manufacturing PMI, month	Oct P	46.0	--	45.7	--
24/10	Services PMI, month	Oct P	51.9	--	51.6	--
24/10	Composite PMI, month	Oct P	50.3	--	50.1	--
24/10	ECB - Refinancing rate		0.00%	--	0.00%	--
24/10	ECB - Deposit rate		-0.50%	--	-0.50%	--
<b>Germany</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
15/10	ZEW Survey Current Situation, month	Oct	-23.6	-25.3	-19.9	--
15/10	ZEW Survey Expectations, month	Oct	-26.4	-22.8	-22.5	--
24/10	Manufacturing PMI, month	Oct P	42.0	--	41.7	--
24/10	Services PMI, month	Oct P	52.0	--	51.4	--
24/10	Composite PMI, month	Oct P	48.8	--	48.5	--
25/10	IFO Business Climate, month	Oct	94.5	--	94.6	--
<b>France</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
15/10	HICP, YoY	Sep F	1.1%	1.1%	1.1%	--
23/10	INSEE Business Confidence, month	Oct	106.0	--	106.0	--
24/10	Manufacturing PMI, month	Oct P	50.2	--	50.1	--
24/10	Services PMI, month	Oct P	51.6	--	51.1	--
24/10	Composite PMI, month	Oct P	51.0	--	50.8	--
<b>Switzerland</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
17/10	Exportations réelles, GM	Sep	--	2.5%	-4.4%	-3.9%
17/10	Importations réelles, GM	Sep	--	-	1.0%	1.4%
21/10	M3 Money Supply, YoY	Sep	--	2.6%	2.7%	--
<b>UK</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
15/10	ILO Unemployment Rate, month	Aug	3.8%	3.9%	3.8%	--
16/10	CPI, YoY	Sep	1.8%	1.7%	1.7%	--
16/10	Core CPI, YoY	Sep	1.7%	1.7%	1.5%	--
17/10	Retail Sales, MoM	Sep	-0.2%	0.0%	-0.2%	-0.3%
21/10	Rightmove House Price Index, MoM	Oct	--	0.6%	-0.2%	--
21/10	Rightmove House Price Index, YoY	Oct	--	-0.2%	0.2%	--
22/10	CBI Trends Total Orders, month	Oct	-30	-	-28	--
<b>Japon</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
15/10	Industrial Production, MoM	Aug F	--	-1.2%	-1.2%	--
18/10	CPI, YoY	Sep	0.002	0.002	0.003	--
<b>China</b>						
Date	Indicator	Period	Consensus	Actual	Prior	Revised
14/10	Imports, YoY	Sep	-6.0%	-8.5%	-5.6%	--
14/10	Exports, YoY	Sep	-2.8%	-3.2%	-1.0%	--
14/10	Trade Balance, month	Sep	\$34.75b	\$39.65b	\$34.84b	\$34.78b
15/10	CPI, YoY	Sep	2.9%	3.0%	2.8%	--
15/10	PPI, YoY	Sep	-1.2%	-1.2%	-0.8%	--
15/10	New Yuan Loans CNY, month	Sep	1360.0b	1690.0b	1210.0b	--
15/10	M2 Money Supply, YoY	Sep	8.2%	8.4%	8.2%	--
18/10	Fixed Assets Ex Rural, YTD YoY	Sep	5.5%	5.4%	5.5%	--
18/10	Industrial Production, YoY	Sep	4.9%	5.8%	4.4%	--
18/10	Industrial Production, YTD YoY	Sep	5.5%	5.6%	5.6%	--
18/10	Retail Sales, YoY	Sep	7.8%	7.8%	7.5%	--
18/10	Retail Sales, YTD YoY	Sep	8.1%	8.2%	8.2%	--
18/10	GDP, QoQ	3Q	1.5%	1.5%	1.6%	--
18/10	GDP, YoY	3Q	6.1%	6.0%	6.2%	--



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#### EDMOND DE ROTHSCHILD (SUISSE) S.A.

Rue de Hesse 18 – 1204 Genève – T. +41 58 818 91 91 |  
Rue de Morat 11 – 1700 Fribourg – T. +41 26 347 24 24  
Avenue Agassiz 2 – 1003 Lausanne – T. +41 21 318 88 88  
Via Ginevra 2 – 6900 Lugano – T. +41 91 913 45 00  
Beethovenstrasse 9 – 8002 Zürich – T. +41 44 818 81 11

#### EDMOND DE ROTHSCHILD (EUROPE)

Luxembourg – Boulevard Emmanuel Servais 20 – 2535 Luxembourg – T. +352 24 88 1  
Belgique – Avenue Louise – Louizalaan 480/ Boite 16A – 1050 Bruxelles – T. +32 2 645 5757  
Espagne – Paseo de la Castellana 55 – 28046 – Madrid – T. +34 91 364 6600  
Portugal – Rua D. Pedro V 130 – 1250-095 Lisboa – T. +351 21 045 4660

#### EDMOND DE ROTHSCHILD (FRANCE)

47, rue du Faubourg Saint-Honoré – 75008 Paris – T. +33 1 40 17 25 25  
116, rue de Jemmapes – 59800 Lille – T. +33 3 62 53 75 00  
27, rue Auguste Comte – 69006 Lyon – T. +33 4 72 82 35 25  
Hôtel de Saige 23, cours du Chapeau Rouge – 33000 Bordeaux – T. +33 5 56 44 20 66  
165, avenue du Prado – 13008 Marseille – T. +33 4 91 29 90 80  
11, rue La Fayette – 44000 Nantes – T. +33 2 53 59 10 00  
6, avenue de la Marseillaise – 67000 Strasbourg – T. +33 3 68 33 90 00  
22, rue Croix Baragnon – 31000 Toulouse – T. +33 5 67 20 49 00  
Succursale Italiana, 36, Corso Venezia – 20121 Milano Italia – T. +39 02-760611

[www.edmond-de-rothschild.com](http://www.edmond-de-rothschild.com)