Europe Monitor

Moving towards circularity

As the consequences of climate change, resource scarcity and pollution are becoming increasingly evident, governments and businesses see a growing need to move towards circular economies. While there are several challenges associated with adopting a circular business model, for those that manage to do so, the pay-offs are often substantial.

Global shifts will change how businesses operate

Traditional economic models are poorly suited to address the challenges of resource scarcity, pollution and climate change as they tend to consider resources to be inexhaustible and fail to take the (external) effects of pollution into account. As environmental effects are coupled with rapid urbanisation, and global socio-demographic trends, the urgency to find solutions that take the effects on the environment into account, becomes ever more apparent.

As a response, governments and businesses are exploring alternatives that decouple economic growth from resource consumption through a circular approach – from production, consumption and beyond. This publication outlines what a circular economy is, shares some perspectives for the future and discusses some of the challenges related to the transition to a circular economy (CE).

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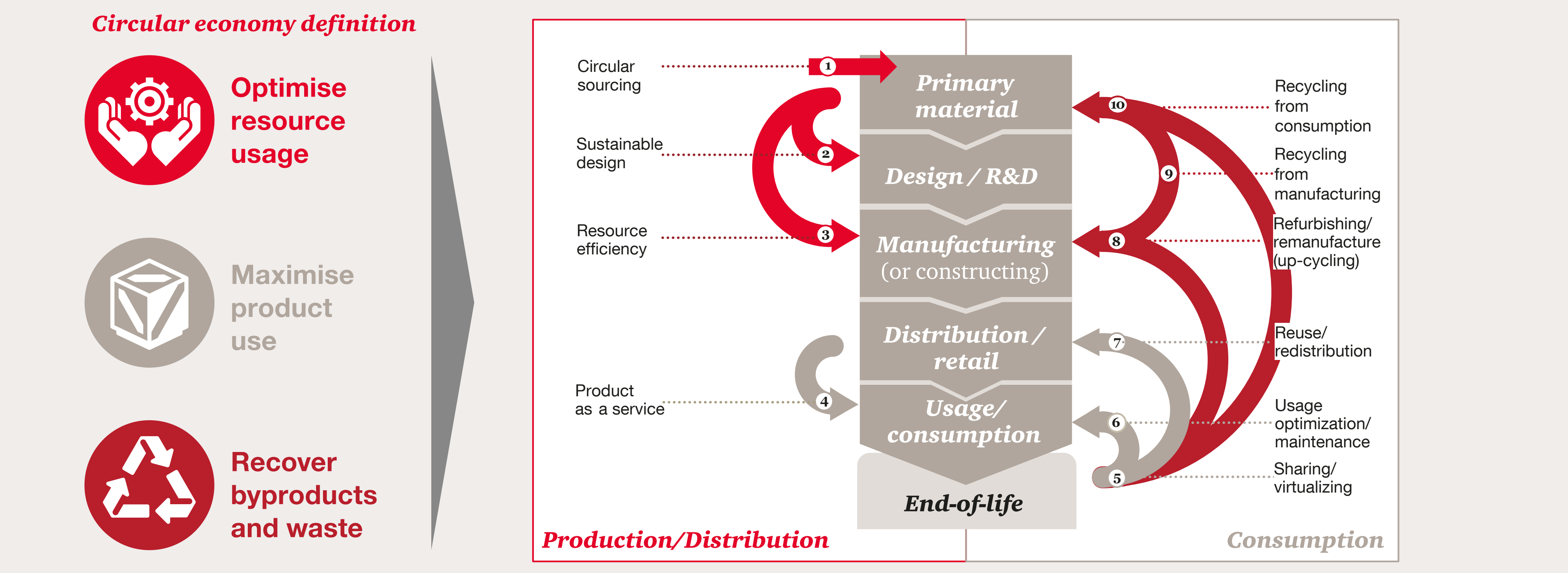
What is a circular economy?

Circular economy is a broad concept, but in essence it can be described as an economic system, which aims to preserve materials as long as possible. It is based on three principles: the optimisation of resource usage, the maximisation of product use, and the recovery of by-products and waste. A circular approach differs from the traditional linear "take-make-dispose" models that typically do not consider materials beyond their useful life-time. In this respect, a circular economic model recognises that raw materials and other resources are not infinite and proposes 'circularity' as a solution to reduce waste. However, more than being just a shift to waste reduction and increased recycling, the circular economy represents a change in paradigm – a new way of thinking and a new approach to economic activity.
As such, moving to a circular economy entails developing new production and consumption patterns that minimise waste as much as possible from the design phase and throughout the life-cycle of a product. In this new economic system, the waste outflow from one agent represents a potential resource inflow for another agent (Blue Economy). Such synergies will be advantageous for both agents as they allow agent A to valorise (a part of) their waste stream, while lowering the cost of sourcing resources for agent B (see figure 1 for examples).

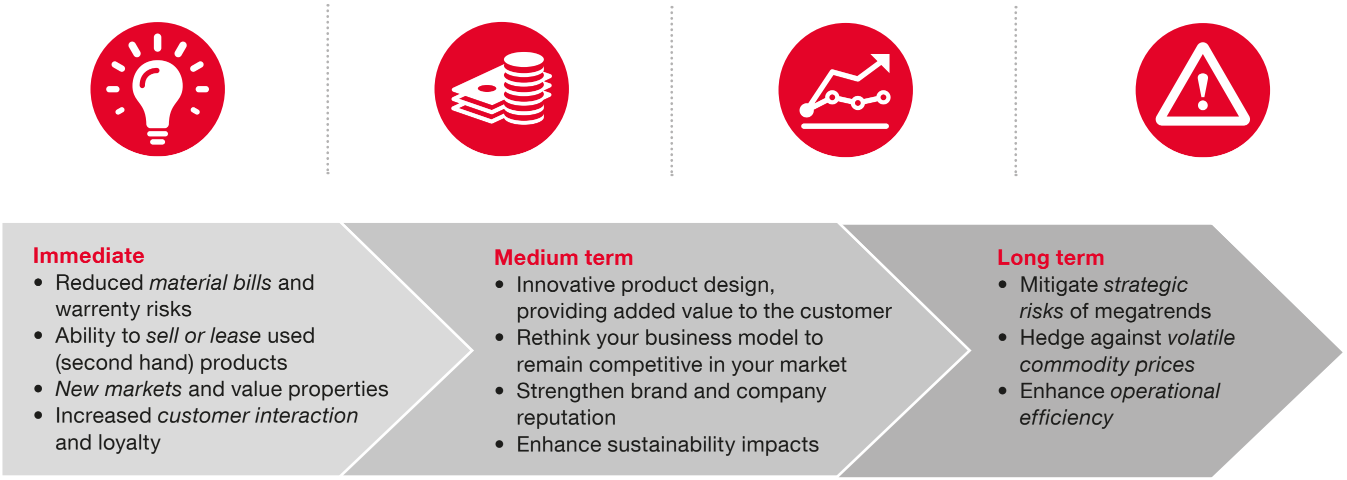
Figure 1 Under a circular strategy, maximum value is derived from the opportunities and value added along the value chain



Source: PwC analysis

Over the past few years, the circular economy has attracted attention due particularly to the potential for economic gains associated with it. Indeed, a circular approach reduces costs – for firms and for society –, mitigates risks, promotes economic activity, creates employment through product and service innovation, and reduces the adverse effects of economic activity on the environment (see figure 2). As with any radical change in business model, however, the time dimension is important, and although immediate benefits exist, the largest pay-off from adopting a circular economic model accrues in the long term.

Figure 2 The benefits of a circular business model and actions to take.



Source: PwC analysis

Furthermore, the circular economy is a concept that can be applied at various levels, from the macro level of countries, regions or cities, to the meso level of industries, the micro level of companies and consumers, and the nano level of individual products. The mode of application as well as the impact of a circular model differs across each of these levels (see figure 3).

Figure 3 The various levels of a circular economy

	What does circular economy mean?	What are circular economy's positive impacts?
Macro (countries, cities...)	• Change *purchasing habits* (favor products & services with low environmental impact…) • *Enforce laws, programs, frameworks* related to CE	• Increase attractiveness thanks to *value / job creations* • *Limit resources rarefaction and dependency* on importations
Meso (inter-industries...)	• Create inter-industries/firms networks • Deploy *industrial symbiosis* where companies exchange flows and mutualize needs	• Increase *dynamism & attractiveness of territories* • Reduce impact on environment • *Create / relocate jobs*
Micro (companies, consumers...)	• *Consume green* (favor products with low environmental impact, recycling…) • *Produce cleaner* (eco-conception, offer services instead of products…)	• *Reduce impact on environment* • Provide *competitive advantage* (improved business model, new markets available…) • Improve *brand image* / reputation
Nano (product, component...)	• Use / extract *environmental-friendly goods* • *Increase life expectancy* of goods through recycling, reuse, repairing)	• *Decrease extraction / consumption* of raw materials • *Increase value of second-use materials* and goods

Source: PwC Strategy& analysis

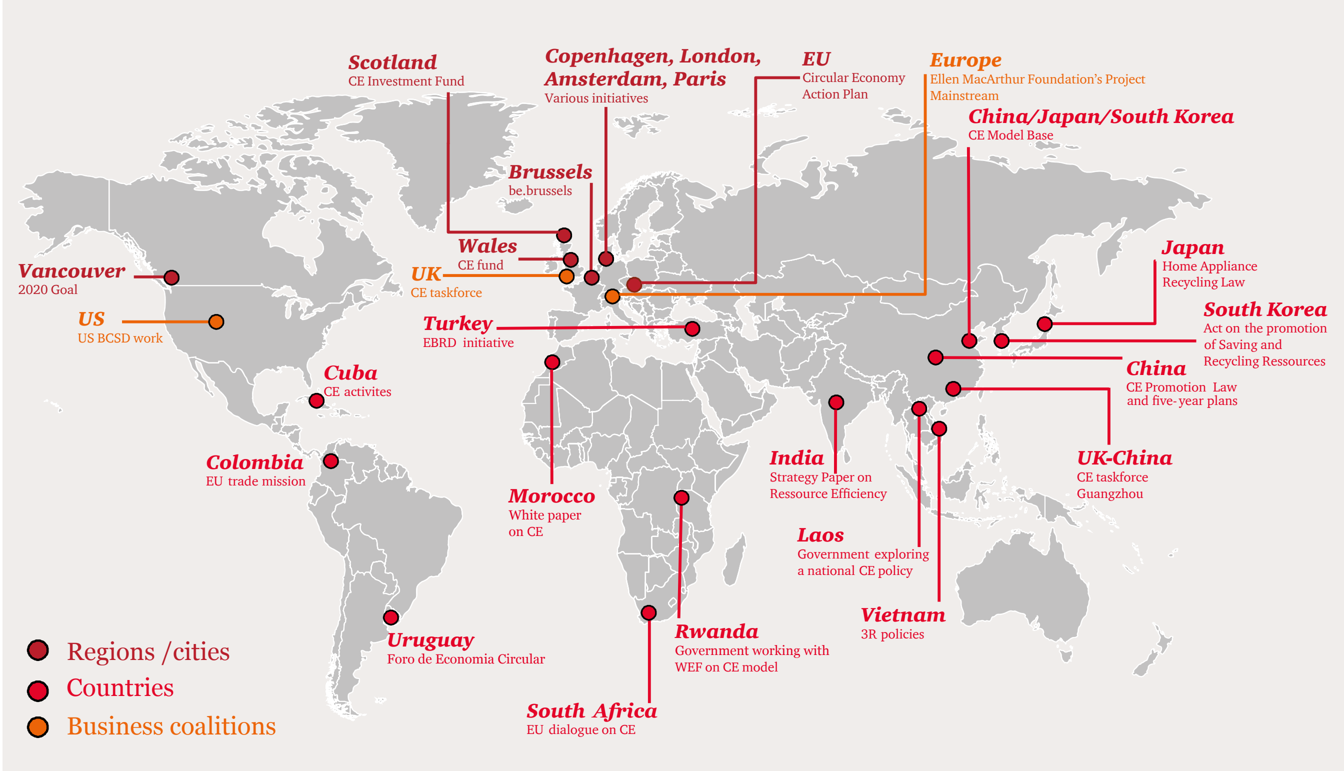
The European context and initiatives at the national and regional levels

The circular economy concept is increasingly gaining traction among European, national and regional policy makers. At the level of the European Union (EU), the promotion and adoption of a circular model is considered critical to increasing Europe's economic competitiveness and resilience. In the 2012 communication *A Stronger European Industry for Growth and Economic Recovery*[1], the European Commission (EC) recommends a focus on investment and innovation, referring specifically manufacturing technologies for clean production, high quality recycling and the move towards a closed-loop economy. While these aspects already closely reflect the principles of a circular economy, in 2015 the EC formally launched its new Circular Economy Package in order to "boost competitiveness, create jobs and generate sustainable growth"[2].

Also at the regional and national levels, there is a plethora of initiatives, and many local regional and national governments are setting up strategies and plans, which formalise the governance, vision and strategic priorities. Most plans emphasise a wide set of measures, including raising awareness and coaching companies, experimentation via pilot projects, education, change in legislation and more – which all provide incentives for businesses to implement circular business models.

In practise however, and when moving from strategy to operationalisation, the optimal governance level for policy implementation is not the European or national, but rather the regional or local level. For example, the implementation

Figure 4 Some examples of Circular Economy projects worldwide



Source: Chatham House (2017), *A Wider Circle? The Circular Economy in Developing Countries*

of a circular economy at the regional level facilitates the development of industrial symbiosis[3] and clustering of enterprises, energy efficiency, territorial connectivity, smart logistics and sharing. Therefore, the regional and local governments will play an important role in the development of a circular economy as we move from plan to action.

Last but not least, Europe has been pioneering in the adaptation of a circular approach but the economic benefits of a closed-loop system means that it is not a 'nice to have' system for rich countries alone. Indeed, developing countries as diverse as Rwanda, India or Turkey have seen the benefits of a circular approach to economic activity and implemented their own pilot projects - in collaboration with development organisations or on their own initiative. Moreover, China was the first country to establish a countrywide CE strategy as early as 2006 and a CE law in 2008. Figure 4 gives an overview of some of the projects in place worldwide.

1 CCOM(2012) 582
2 CCOM(2015) 614
3 Industrial symbiosis describes synergistic opportunities offered by geographic proximity.

Perspectives for the future

As we move forward, technological, societal and economic developments all open up opportunities to create a truly circular economic system. More specifically, servitisation,[4] new partnerships, and technological and digital innovation create opportunities for businesses to adopt circular business models.

1. In recent years, many businesses, across sectors, have experimented with servitisation. From a perspective of a circular economy, servitisation has the advantage of offering an alternative path to profitability beyond increasing production through incentivising the manufacturer to design for circularity and preventing value leakage. A successful example of servitisation can be found in the Netherlands, where Philips and Dutch architect Thomas Rau developed the pay-per-lux service, in which offices pay for light instead of lamps. Philips returns the materials of broken lamps into the production process.
2. Another trend is the development of new partnerships. Businesses are increasingly looking for partners that could utilise their waste streams, while conversely others are seeking waste streams in order to reduce input costs. An example is how Vlaamse Waterweg, the company responsible for the maintenance of inland waterways in the Flanders region of Belgium, was able to commercialise and sell dredging waste to be used for construction works. This type of partnership is expected to become more common as the depletion of resources globally lead to higher and increasingly volatile raw material prices.
3. A third trend is increased quality and quantity in recycling. Recent large investments in recycling processes aim to improve the cost-competitiveness and increase both the quantity of as well as the quality of recycled materials. As an example, Desso, a manufacturer of carpets has been innovating around recyclable carpets and has been steadily increasing the proportion of recycled material in its products.
4. Last but not least, a well-functioning flow of information is essential for the transition towards a circular economy. New technologies such as blockchain can offer opportunities for high-volume information transfers that are transparent, reliable and secure.

Cross-sectoral challenges for the circular economy

While there are several challenges associated with adopting a circular business model, technological innovation, digital transformation and business model innovation can help companies succeed. However, some cross-cutting challenges related to the fundamentals of supply and demand in a market economy are worth mentioning.

Price competition: For many materials, the competition with conventional raw materials remains a challenge. At present, the value chain of some recycling products involves relatively high costs compared to conventional and proven raw material processing techniques, as these are more mature.

4 Servitisation refers to the shift of focus from selling products only, to creating value by adding services to a product or replacing the product with a service altogether.

Perceptions about quality: Many businesses and customers alike still perceive the quality of recycled material as inferior to that of conventional raw materials. Technical and quality standards are frequently not fully defined for recycled products and lead to a competitive disadvantage. The lack of awareness among consumers about recycled products is a barrier to entry for the introduction of recycled products.

Ensuring sufficient quantity: As for any source of supply, it is essential to guarantee a sufficient and continuous flow of materials to producers and consumers.

Lack of information: Businesses often lack knowledge about the possibilities of re-using their waste. Less materials being recycled than possible can lead to value leakage.

Governments and policy makers can undertake several actions to overcome these challenges or to reduce their adverse effects. Perceived quality concerns may be addressed by setting up and facilitating certification processes and quality norms for recycled materials, which strengthen confidence in product quality and solve the issue of lacking or incomplete standards that currently exclude recycled materials from being used in certain processes. Likewise, educating potential customers is important to create awareness. Moreover, certification processes and quality norms empower recycled materials. For example, recycled content is in high demand in the packaging industry as it allows for eco-premium pricing in consumer goods.

The challenges with regard to the quantity and availability of materials can be reduced by identifying and tracking product information to facilitate the flow of materials. This information can also be used to improve design choices.

Finally, price competition can be stimulated through investment in recycling technologies, through research grants or by increased sourcing of recycled materials by public authorities. Also, an extension of 'the polluter pays' principle can make the price of raw materials reflect its true cost, and increases the competitiveness of recycled materials. Finally, a focus on remanufacturing as opposed to recycling can be interesting, as the embedded value in a remanufactured product is greater than the embedded value of pure materials. The remanufacturing industry is highly profitable and amounts to $US 90 billion of turnover in the US.

Some takeaways…

The concept of the circular economy is evolving fast, and increasingly drawing societal and political attention. Even though significant challenges exist concerning the implementation of circular business models, the pay-off can be large for those businesses that find a way to overcome these challenges.

Macroeconomic Update Europe

Macroeconomic Update

While the European economy is still going strong, the latest figures show a slight slowdown in Eurozone real GDP growth in early 2018, in line with our previous expectations. Consumer spending is expected to grow less strongly in 2018 and trade related risks remain in the external environment.

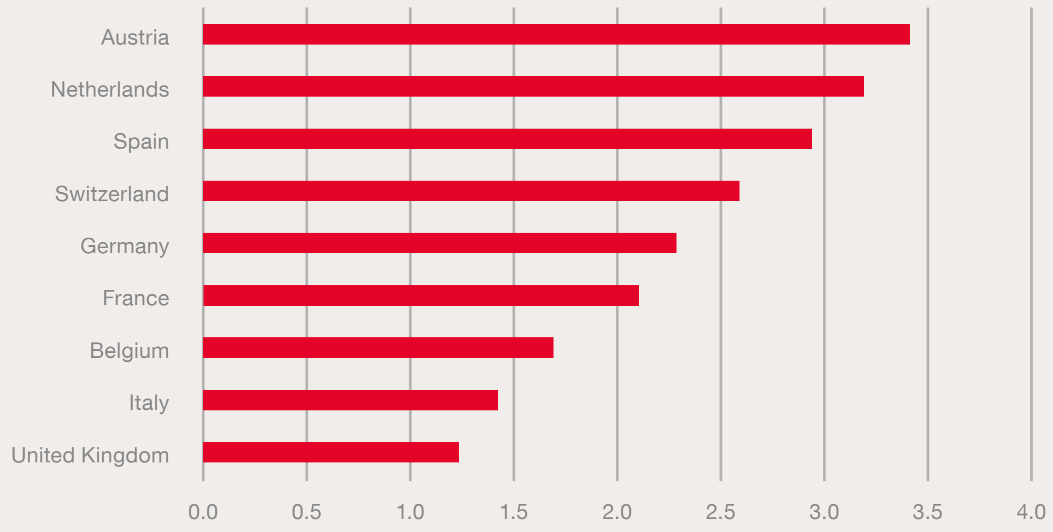
GDP growth

In line with earlier signals of slowing growth in the Eurozone, the latest figures show a slowdown in Eurozone real GDP growth to 2.5% year-on-year in the first quarter of 2018 – although the drop follows a multi-year high of 2.8% in the last quarter of 2017. In terms of peer comparisons Austria, the Netherlands and Spain continue to perform particularly well, while Italy, Greece and the UK continue to underperform at 1.4% GDP growth for Italy and Greece and 1.2% for the UK.

While private and government consumption, investments and exports, all supported growth in 2017, external demand has made a relatively larger impact on growth since the beginning of 2018. Particularly in Germany, where consumer spending contributed strongly to GDP growth in 2016 and 2017, the trend is set to dampen. Fixed investments and exports are instead expected to contribute more to GDP growth going forward, in relative terms.

Unsurprisingly, further down-side risks exist in Italy due to the latest bout of political instability. A no-confidence vote against the government in Spain, and the subsequent political developments has further raised the risks of Eurozone instability with spikes in both Italian and Spanish bond yields at the end of May. Furthermore, leading and coincident indicators released so far in 2018, confirm that Turkey's economy is slowing, albeit from relatively high growth levels (see country update for more details).

Figure 5 GDP growth in the first quarter of 2018 (annual % change), selected advanced European economies



Source: IHS Markit

Private consumption

Despite the reports of subdued internal growth dynamics, the European Commission's consumer confidence indicator increased slightly in the EU as a whole and remained broadly unchanged in the Euro area.

Nevertheless, early and preliminary data from the first quarter 2018 suggest that consumer spending has slowed, compared to the last quarter of 2017, and overall private consumption is expected to be a relatively less important driver of economic growth in 2018.

Macroeconomic Update

Capital investments

The European Commission's business climate indicator for the euro area picked up slightly in May as export expectations increased, while at the same time production expectations worsened substantially. In the first quarter of 2018, investments remained high in Austria, the Netherlands and Spain.

Net exports

The threat of a worsening international trade environment from US-initiated protectionism and/or sanctions remains the main external risk to the European economy. To date however, export figures from early 2018 are up in all markets covered by this publication, but the increase is less pronounced than in the last quarter of 2017. Despite this, on an annual basis net exports are expected to be a relatively more important contributor to the European economy in 2018 than in the past years.

Government expenditure

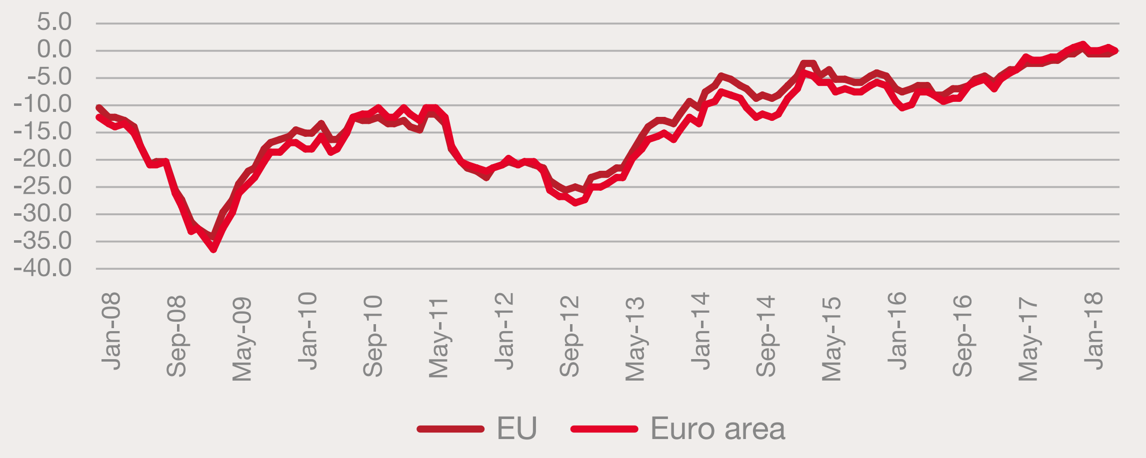
Government consumption growth remained largely stable in the euro area, and both the EU and Eurozone government budgets are looking healthier. Budget deficit levels are on a downward trend, although high government debt is still a persistent phenomenon in many countries.

Italy remains a risk, particularly in view of its new populist government's intention to implement an expansionary budget that would see breaches of both the EU's deficit and debt rules.

Labour markets

Labour markets in Europe and the euro area continue to improve and unemployment in the euro area has improved further (to 8.3% in April) on the back of solid economic expansion in all countries covered by this publication.

Figure 6 European Commission's Consumer Confidence Indicator, May 2018



Source: European Commission

Particularly Germany has outperformed expectations and data suggest that unemployment rates have continued to drop, against earlier expectations that they would not decline further.

While unemployment figures are improving, the total number of hours worked in the European economy still remains below its pre-crisis level (by 3%) as the number of part-time (including involuntary part-time) jobs is still high. On the other hand, going forward we have also highlighted growing signs of labour shortages in some markets and sectors – particularly in some parts of Germany, suggesting that employment growth is set to moderate in 2018, and wages may start to rise.

Macroeconomic Update

Inflation

In May this year, Eurozone inflation reached an unexpected 1.9%, and is thus reaching the European Central Bank's target of close to, but below 2%. This raised speculation about an end to quantitative easing as new forecasts by the ECB put inflation at 1.7% for the full year 2018. In response to the re-emerging risks in the Eurozone periphery however, the winding down of quantitative easing is only expected towards the end of 2018, and a gradual rate hike is expected only in 2019.

Figure 7 Key economic indicators, selected European economies – June 2018

	GDP growth (% change)*	**Industrial production** (% change)****	**Consumer spending** (% change)*	**Capital investment** (% change)*	**Unemploy-ment rate** (%)***	**Consumer prices** (% change)***
Eurozone	2.5	3.0	-	-	8.5	1.9
Austria	3.4	3.5	1.6	4.7	4.9	1.9
Belgium	1.7	3.6	1.3	2.5	6.3	1.5
France	2.1	1.8	1.1	3.4	9.2	1.8
Germany	2.3	3.9	1.3	3.9	3.4	1.4
Italy	1.4	3.3	0.8	4.5	11.2	0.6
Netherlands	3.2	6.1	3.3	6.1	3.9	0.7
Spain	2.9	4.8	2.8	3.5	15.9	1.2
Switzerland	2.6	-	1.0	3.4	-	0.8
Turkey	7.2	6.9	11.0	9.7	9.9****	10.9
United Kingdom	1.2	2.9	1.0	4.3	4.1**	2.4

NB: Figures are the latest available values, reported quarterly unless otherwise stated, year-on-year change (where applicable). Consumer prices are reported according to the CPI methodology. Italics are forecasts.
* First quarter 2018, ** February 2018, *** April 2018, **** March 2018.
Source: IHS Markit and Eurostat

Country Update: Turkey

Country Update: Turkey

The Turkish economy continued to grow at a significant pace of 7.2% in the first quarter of 2018, compared to 7.4% in the previous quarter. However, leading indicators and market conditions indicate a slowdown for the period ahead. Although delayed, the Central Bank's response to the recent sharp lira depreciation both reduced inflationary risks and bolstered the bank's independence and credibility.

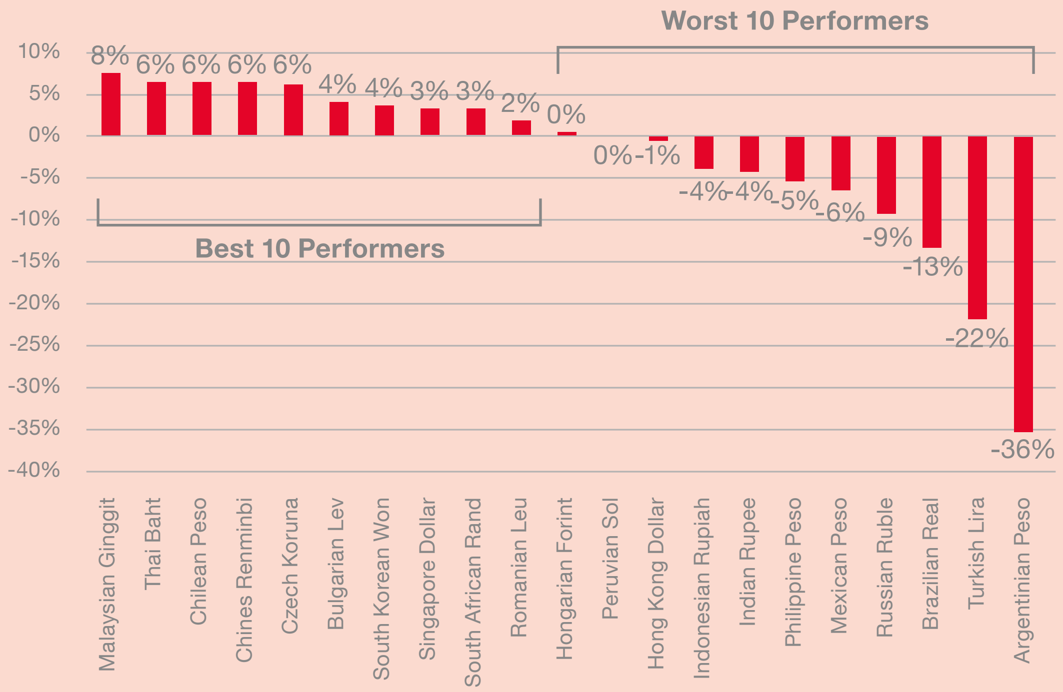
Challenging days for the Turkish economy…

As expected, emerging markets (EMs) are struggling with the interest rate normalisation process in advanced economies. In addition to global geopolitical risks, the increase in US interest rates have become top of the agenda for EM investors. Emerging economies with higher external funding needs have been affected and will need to respond to those developments in order to manage their risks.

Turkey is among the economies that suffered most from the recent EM sell-off in May 2018. Its misfortune lies at the intersection of its own political and economic challenges with the global and regional developments around it. In addition to concerns about inflation and a large current account deficit, recent election campaigns have created higher risks for the economy and led to a sharp currency depreciation. The delayed response from Central Bank supressed investor appetite and increased the downside pressures on the Turkish Lira. The lira is the second most depreciated currency over the past 12 months, following Argentinean Peso (as of end of May 2018).

Although policy measures implemented in 2017 led the Turkish economy to post the highest economic growth within G-20, it did so at the expense of its external balance. A credit guarantee fund that raised the loan base by ~250 billion Turkish Lira brought about an overheating risk for the

Figure 8 Emerging markets currencies against USD in the past 12 months



Source: Bloomberg

Country Update: Turkey

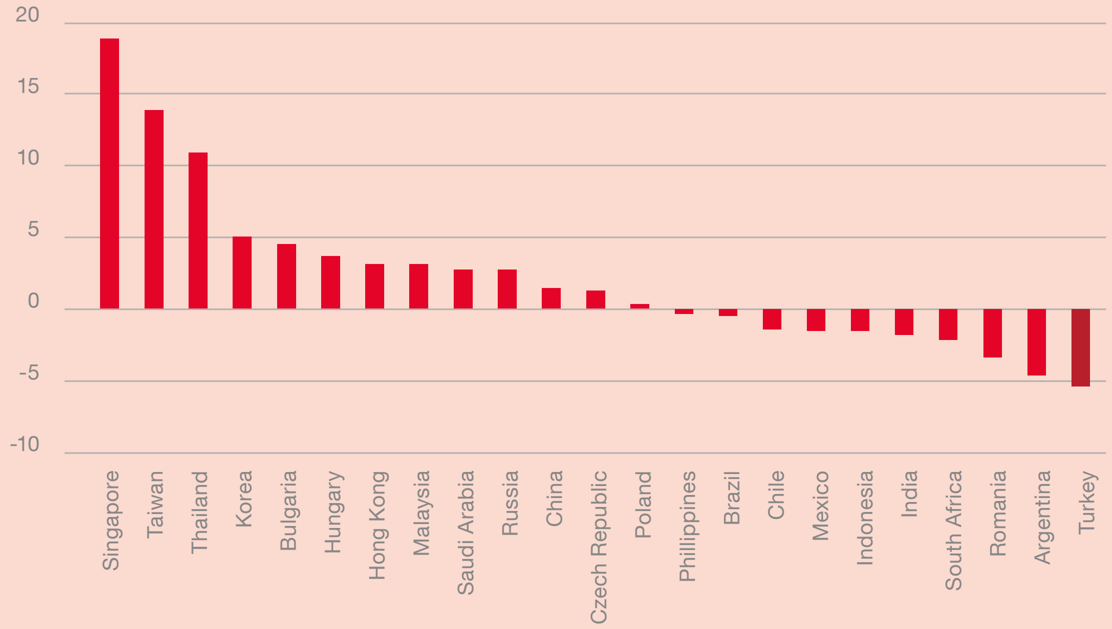
economy which already had the highest current account deficit among its peers. While the economy continued to grow at a fast pace, leading indicators and market conditions indicate a slowdown for the period ahead due to the elevated risk premium of Turkey. By adding more than US$ 200 billion net open FX position to non-financial corporates, Turkish markets were influenced negatively due to relatively high gross external financing needs.

The upsurge in oil prices was another factor which negatively affected Turkey's current account deficit as energy constitutes nearly 16% of Turkey's total imports. A $US 10 increase in oil prices is estimated to raise Turkey's current account deficit by $US 4.4 billion. As Brent oil prices grew more than $US 15 per barrel year-to-date and is expected raise further, this will add close to $US 9 billion in additional costs for the Turkish economy.

The continued exchange rate pass through, higher core inflation and cost-increasing producer prices, in addition to the hike in oil prices, means that inflation remains the weakest link in the Turkish economy. Annual consumer price inflation stood at 12.2% as of June 2018 and has been stuck at double-digit levels since February 2017 (with an exception of July 2017). Annual inflation still shows some upside risks.

In addition to the early election decision's impact on expenditures, recent campaigns for the June presidential and parliamentary elections has created some risks to fiscal discipline and high inflation. The Central Bank has a crucial role to safeguard price stability, while the government should maintain fiscal discipline. Last but not least, higher consumption would mean higher imports and an even larger current account deficit, although the currency depreciation is expected to limit this effect.

Figure 9 Current account deficit in emerging economies in 2017, current account deficit to GDP (%)



Source: Bloomberg

Country Update: Turkey

The dollar Index (DXY) has seen an increase since mid-April which led all EM currencies to depreciate. As the Turkish Lira decoupled negatively compared to other EM currencies due to its vulnerabilities, an efficient Central Bank intervention in terms of monetary policy was needed to safeguard price stability (since there was a significant lag between the benchmark bond and CBRT's average cost of funding). The response from the Central Bank was significantly delayed, but recent rate hikes and the simplification in the monetary policy raised investor appetite and lead to an appreciation in the currency.

Emerging countries occasionally deal with short-term economic and political storms as they move towards maturity. For policy-makers the crucial thing is to implement necessary policy measures in order to prevent profound impacts on the economy. Turkey has a strong ability in crisis management due its historical experience, the country is believed and hoped to take rapid and effective measures in the post-election era.

1. The continued growth in US economic activity and President Trump's policies may bring about more rate hikes than expected (especially in 2019) which will continue to support the US dollar in global markets. Thus risks remain for EM currencies as investor appetite is set to dampen.
2. In addition to the presidential and parliamentary elections in June 2018, Turkey will hold local elections in March 2019 that will lead politics to dominate the agenda and hopefully structural reforms will not be of secondary importance.

Since Turkey has a strong crisis experience, the country is believed to carry out essential policies immediately after June elections irrespective of the outcome. Moreover, its robust fiscal dynamics will enable the country to manage its own risks through policy reform. As such Turkey will not need any external support for now, such as for example Argentina has resorted to. The Central Bank's stance is crucial under the current market dynamics. On the other hand, austerity measures expected in the post-election period will moderate growth. The policy implementations are believed to lower demand through relatively higher interest rates. Thus the implications will be positive for both price and financial stability.

In this context, EMs should be evaluated with medium and long-run opportunities in mind. As mentioned above, emerging countries occasionally struggle with short-term economic and political issues as they move towards maturity and any investment decision should take this into account. With this in mind, the Turkish economy can be expected to benefit from a favourable demographics, from the recovery process in the region provided the country takes the necessary efficient and solid economic policy steps.

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