No. 13 | 4 December 2020

RISK&OPPORTUNITIES

Société Générale Economics & Sector Studies

Debt gluts to challenge term premia

Michala MARCUSSEN

Group Chief Economist

Of the many possible economic implications from Covid19, one is clear; debt will increase, be it on public or private balance sheets. While allowing debt to ramp up in response to crisis is justified, the fact that many countries entered the crisis with already very high debt levels has re-opened the debate as to how much debt is too much debt and how low rates are too low rates.

Starting from these two questions, we observe great demands on policy design, and three areas merit particular attention (1) "new deals" to boost growth and transform the economy, (2) the balance between debt and equity on non-financial corporate balance sheets and (3) global co-operation.

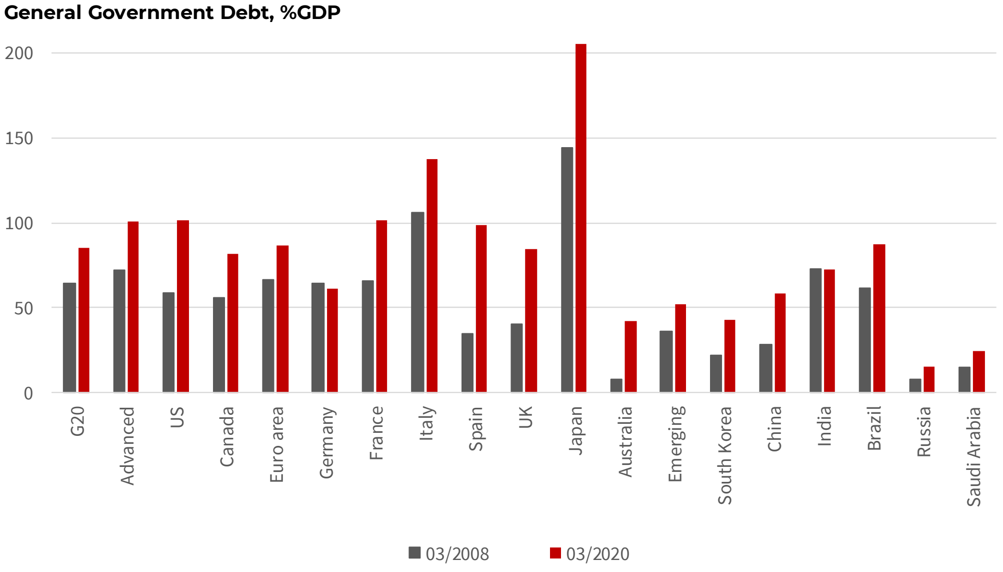
We propose the long-term consensus as a useful way to keep track of the expected effectiveness of policies. Presently, consensus suggests only moderate scarring from the Covid19 crisis on trend growth and holds a firm belief that major central banks can continue to successfully exert significant term premia compression; even longer term. To our minds, however, this view could well be challenged over the coming years.

Well-designed policies would deliver stronger productivity, reduce the debt glut and allow term premia to normalise in an orderly fashion. Conversely, poorly designed policies could see the term premia challenged through stagflation or the effective lower bound. The key point is that all these alternatives to the current consensus would see the expectation of compressed term premia challenged.

How much debt is too much debt?

It's tempting to respond that as long as reasonably priced funding, i.e. nominal interest rates below nominal growth rates, is available then there is no major issue with respect to debt levels; but financial markets can be fickle and funding conditions can change very quickly as experienced during many past debt crises. This argument furthermore overlooks the point that permanently high debt levels may hold back economic growth and exacerbate inequality.

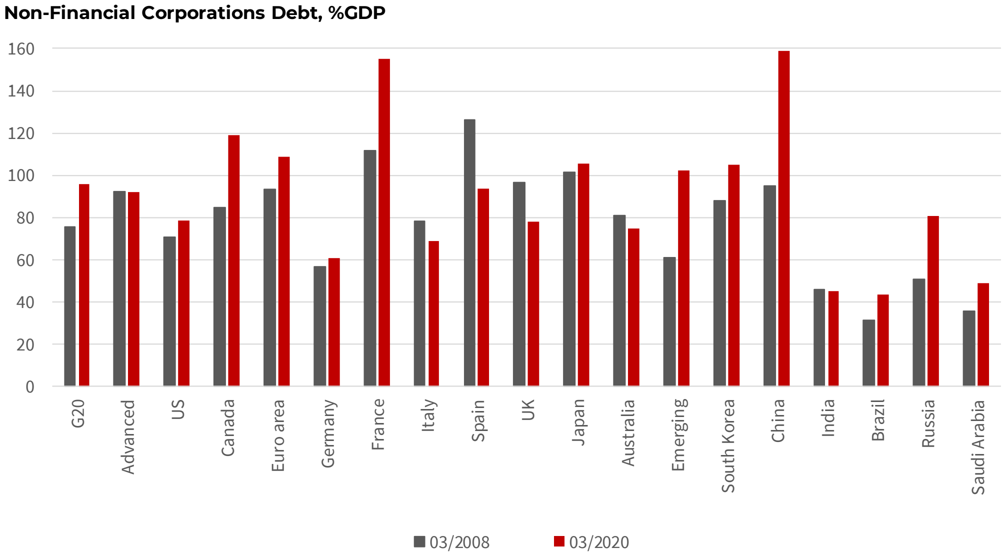
How much debt is too much debt? A look at government debt



Source: BIS, Bloomberg, SG Economic and Sector Studies

When debt is being used to finance investment projects that yield net positive return, be it, for example, public infrastructure, a new corporate production plant, real estate or education, then there should in principle be no problem to service the debt and trend potential growth may even enjoy a boost.

How much debt is too much debt? A look at non-financial corporates

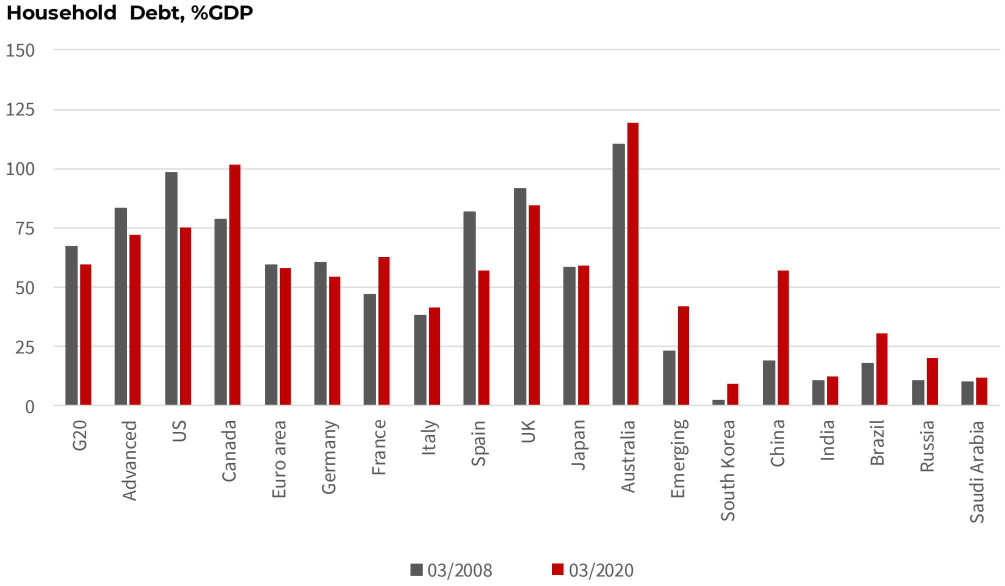


Note, the metric includes intra-group corporate debt.

Source: BIS, Bloomberg, SG Economic and Sector Studies

If debt instead is used to finance government consumption or consumer purchases of non-durable goods, then there is no return with which to service the debt, and, at some point, it will have to be paid back through a reduction of future consumption. In the event of a debt crisis, this reduction of spending may be enforced as a painful sudden stop, plunging the real economy into a potentially deep recession.

How much debt is too much debt? A look at household debt



Source: BIS, Bloomberg, SG Economic and Sector Studies

There are nonetheless instances where raising debt to finance consumption is warranted, and not least for the purpose of counter-cyclical fiscal policies during economic downturns. Such measures can help protect the supply side and limit permanent scarring; the current pandemic is a perfect illustration of when such policies are warranted. A similar case can also be made for individual households and corporations. The point is, however, that this type of debt financed consumption spending should be run only on a temporary basis.

How low rates are too low?

High debt requires low interest rates to remain sustainable, and the major central banks have certainly delivered on this front, with policies that have not only lowered short term interest rates, but the full yield curve, and in some instances even pushed rates into negative territory.

The fact that these monetary policies have yet to drive up consumer price inflation is often taken as an indication that they have not been excessively accommodative; some even argue that this is a sign that central banks need to take rates still lower, even if this means falling much deeper into negative territory. A growing body of economic literature, however, points to several unintended consequences that a lower for longer interest rate environment may exert on both the financial system and the real economy. We outline some of the most important ones below.

Excessive financial risk taking and asset price bubbles: A first issue relates to financial risk taking, with hunt for yield pushing investors to hold riskier assets and increase leverage to enhance returns. Residential property prices have also been lifted by the low rate environment, adding further concerns on inequality notably in large metropoles. While both real and financial asset price inflation is an intended channel of monetary policy, it can also become a source of financial instability when asset price bubbles result.

Substituting equity for debt on non-financial corporate balance sheet: Non-financial corporations have also made use of the low rate environment to increase balance sheet leverage, and while the intended channel of monetary policy is that such funds are then deployed into real investment, it is a concern when cheap financing is channelled into returning cash to investors, via operations such as share buybacks, or to help keep unproductive firms afloat, so-called "zombification". These latter channels result in a misallocation of capital and labour, lowering the trend potential growth rate of the real economy.

Time bought for structural reform may be wasted: Even prior to the Covid19 crisis, central banks and organisations such as the IMF had expressed concerns on these potential sources of risks in their respective financial stability reports. Central banks have also on numerous occasions urged governments to make use of the window offered by accommodative monetary conditions to engage structural reform to boost economic growth and aid the long-term sustainability of public finances. Progress on reform has, however, been generally slow, a factor that over time may again weigh on trend potential.

Moving closer to a reversal rate: Pushing rates deep into negative territory can produce undesirable effects; imagine being charged a significant negative rate on retail bank deposits. In such as case, households would be incentivised to either hold cash, with the risk of theft or fire, or stock up on durables. While encouraging households to spend more may sound desirable, it is worth note that this channel is not unlike what happens during periods of hyper-inflation (except here the alternative asset to bank deposits is not domestic cash, but either stable foreign currency or precious metals). The point is that while consumers during such episodes do indeed spend more on some goods, they also tend to become more cautious and spend far less on non-essentials.

Lending channels rely, moreover, on positive net interest margins and concern is that in a negative interest rate environment, this margin could eventually turn negative, triggering unwarranted credit tightening. The existence of a "reversal rate", at which the accommodative effects of monetary policy reverse and turn contractionary for the real economy is recognised by many central bankers. Like the question as to how much debt is too much debt, the question of how low rates are too low remains unanswered.

With several major yield curves already in negative territory, fear is that we are closer than many would like to the reversal rate and comments from many leading central bankers suggest a reluctance to experiment the idea by pushing rates deeper into negative territory. It is clear also that several central bankers are uneasy about expanding their balance sheets by taking on ever riskier assets.

Phase I of the Covid19 policy reponse

With these thoughts in mind, let's return to the present crisis and the appropriate policy response. The immediate priority is to slow the spread of Covid19, to allow health systems to cope, save human lives and buy time for medical advances to be developed. The various social distancing and lockdown measures adopted, however, impose "sudden stops" on the economy, and this on a global scale.

In a bid to keep the supply side of the economy intact during these stops, governments have delivered both on-budget measures, not least to support furloughed workers and the unemployed, and off-budget measures, offering corporates various forms of credit guarantees, loans and equity injections. Such measures are designed to be only temporary, with the idea that they can be removed once the health crisis ends.

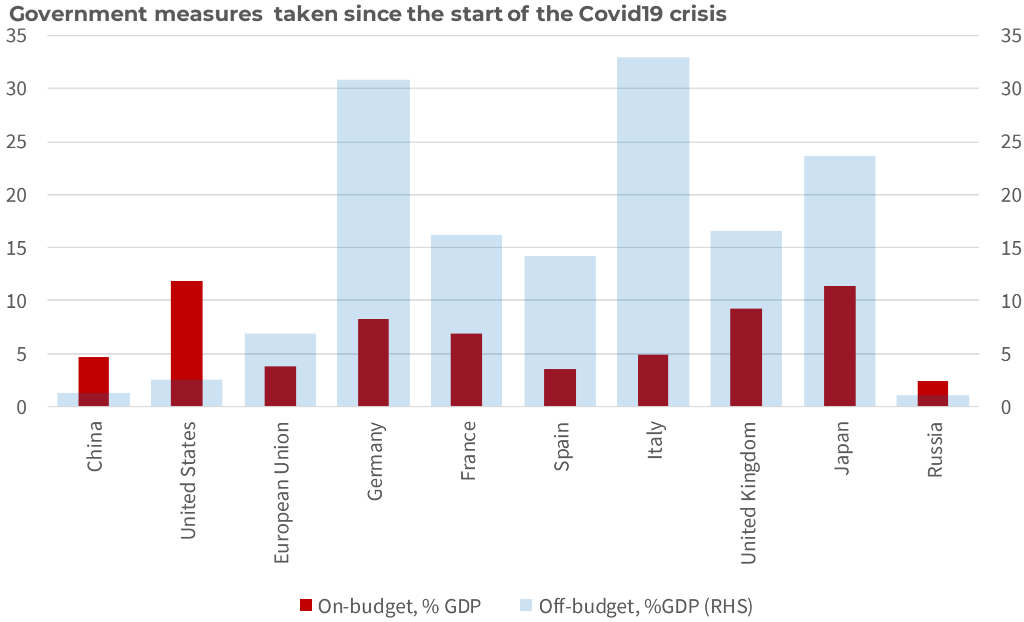
Central banks, moreover, have lowered rates and engaged further aggressive policy balance sheet expansion also with the aim to support the economy, and have already signalled that these accommodation measures are set to remain in place well beyond the end of the health crisis to also deliver support for the subsequent recovery. After staging a sharp sell-off in March, risky asset prices have enjoyed recovery, no doubt buoyed by this initial policy response and more recently by vaccine hopes.

The chart below illustrates both on- and off-balance sheet measures taken to date and it should be noted that the measures included on the chart contain both those that are intended to expire with the end of the health crisis and measures that are intended to support the subsequent recovery.

Uncertainty on the future evolution of the health crisis remains high at the current juncture and several regions around the world have been forced to reintroduce various protective social distancing measures. Logically, this will also see some policy support measures extended.

Attention is nonetheless turning increasingly to policy design for the recovery phase and beyond, and we zoom in below on three dimensions of the current debate: (1) "new deals" to boost recovery and transform the economy: (2) the balance between debt and equity on non-financial corporate balance sheets and (3) global trade arrangements.

An initial determined policy response, but more needed for recovery



Data include measures passed to date and announced measures likely to pass over the coming months. Note, for the EU measures, these are in addition to national measures.

Source: National Governments, IMF Fiscal Tracker, SG Economic and Sector Studies

It will be several years before the effectiveness of these policies is known, but consensus can already today offer a useful guide as to how well these policies are expected to perform. And, as financial markets are driven by such expectations and markets in turn impact the real economy, these may even influence the final efficiency outcome. We conclude our discussion on each of the three policy dimensions with our proposed consensus metric to track.

1. “New deals” for substainable recovery

The idea of boosting public investment, and not least to further green and digital transitions, holds the strong appeal of not only delivering a durable boost to growth, but in the case of the green transition also reducing the risk of future sudden-stop shocks that may otherwise result from climate change. Such policies clearly fall under the textbook case of “good” debt financing; nonetheless, several issues arise in practice.

First, it often takes time to roll out investment programs. Assume for example that a portfolio of projects worth 1% of GDP take five years to be completed; that would then generate an average annual impulse of just 0.2% of GDP, all else being equal. To ensure a much-needed short-term boost to growth, such public investment plans must be either exceptionally large or rolled out in record time. The IMF’s Fiscal Monitor from October 2020 notes the duration of infrastructure projects to run 6 to 15 years, with 3 to 8 years of preparation and 3 to 7 years of implementation. A further point of attention relates to the risk of seeing bottlenecks form in the sectors benefiting from the programmes.

A second concern relates to the efficiency of public investment and history is littered with examples where large sums of public money has been spent only to disappoint. Public-private partnerships are often advocated to address this issue, although some critics have flagged that the return for the tax-payers may be lower than for the private investor.

Third, is the issue of ensuring that such plans deliver jobs where they are needed most. This links in both to geographical mobility and ensuring an efficiency programme of adult reskilling where required. Investing in human capital, both primary education and lifelong learning, is key to addressing inequality and social mobility.

Finally, we note that "new deals" alone are not an alternative to much needed structural reforms. The OECD's 2019 update of its "Going for Growth" initiative found that the responsiveness rate to its recommendations is only just over 30% and that reforms are most often accelerated only when forced by crisis.

This is also often true when it comes to advancing European integration. The 2011/12 European debt crisis brought the European Stability Mechanism (ESM), Outright Monetary Transactions (OMT), aggressive expansion of the ECB balance sheet and Banking Union (although it has yet to be completed). The Covid19 crisis has seen its own set of new measures emerge, including the ECB's Pandemic Emergence Purchase Programme (PEPP) and the EU's €750bn Next Generation (albeit that the latter is still pending approval as we head to press).

TRACKING PROGRESS WITH THE LONG-TERM CONSENSUS

The polices outlined above will take time to deliver; several years in some instances. It will thus be a long-time before the success or not of the current policy response will be known. Consensus, however, can offer a useful guide as to the expected effects. Such expectations also drive financial markets, which are an important feedback loop to the real economy. If markets believe policies will succeed, this alone increases their chance of success.

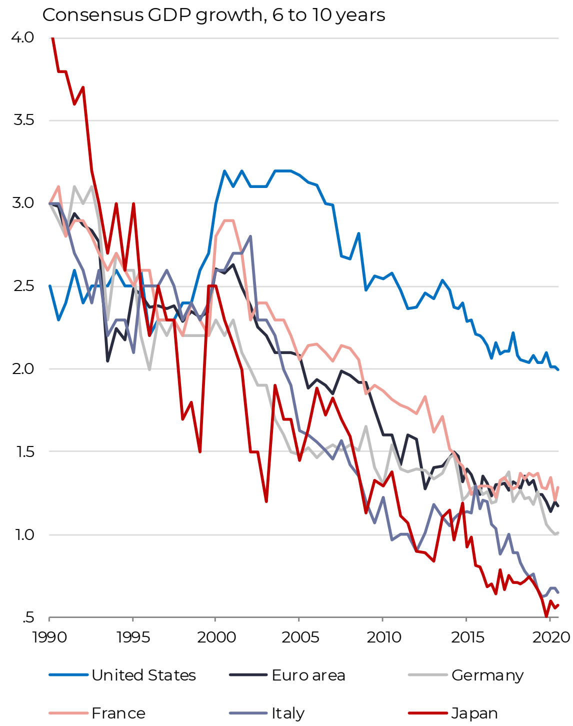
We zoom in here on the long-term consensus over the six to ten-year horizon from Consensus Economics as a good proxy with which to track expectations on trend potential growth. Combined with the UN population projections, the productivity component of long-term growth, which is a key target for "new deal" type policies, can be proxied. Note, we focus here on the advanced economies and return to emerging economies later on.

As observed below, part of the decline in the long-term growth expectations is linked to demographics, and this trend is set to continue over the coming decade. Question is whether the expected decline in productivity can be reversed, and this is where well-designed economic policy can make a big difference.

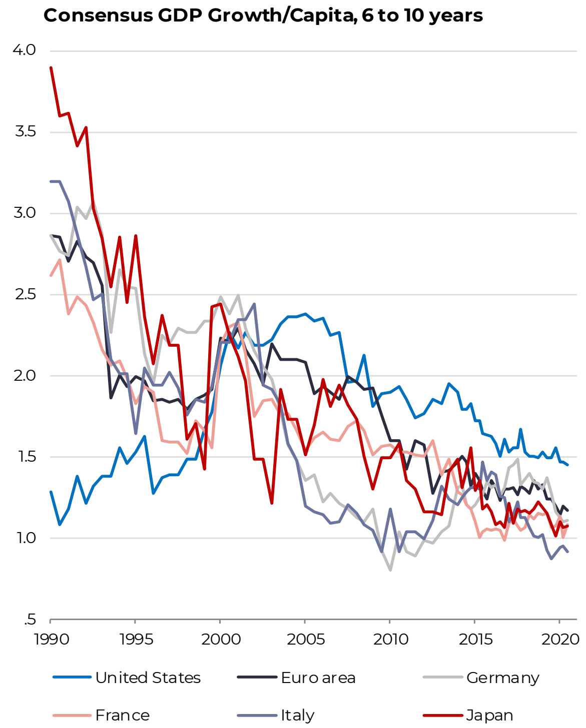
Judging from the shifts in consensus to date, there does not seem to be much optimism built in yet, although some may point to the absence of a sharp fall in response to the Covid19 crisis as a positive development, indicating that the consensus presently sees limited permanent scarring from the crisis (the latest data point is from October).

Turning the clocks back to the Great Financial Crisis (GFC) of 2008/09, it is notable that trend productivity expectations have declined significantly over the past decade, opening the debate as to the existence of a secular stagnation. Just looking at the US, we note that the decline in long-term expectations post the GFC seems to have come in two phases; a first decline just after the crisis and a second decline that began in late 2013 as the recovery disappointed.

Declining trend growth expectations ...



... driven not just by demographics



Source: Consensus Economic, UN Population Division, SG Economic and Sector Studies

2. Coroporates need more equity capital

Returning to the second element of our policy focus, we believe that balance sheets deserves special mention. One of the positives in the Covid19 crisis is that banks entered it from a position of much stronger balance sheets than was the case a decade ago. Rather than being part of the problem, banks this time round have so far been part of the solution. For this to remain that case, it is important that recovery is secured to avoid a wave of non-performing loans and defaults.

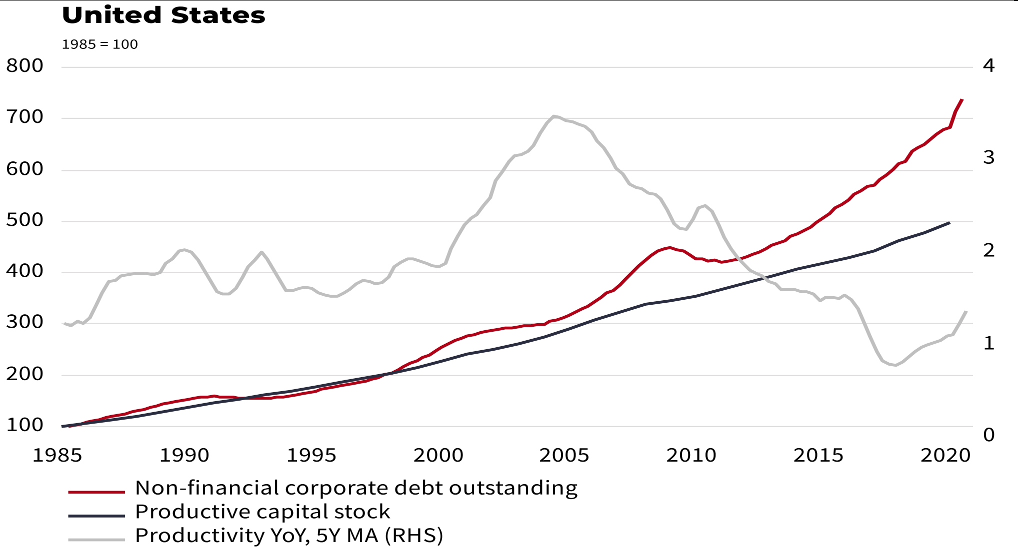
The Covid19 crisis, however, highlighted vulnerabilities in non-bank financial intermediation and the relevant authorities are presently looking to strengthen this channel of financial intermediation.

A further point relates to the already highly indebted position with which numerous corporates entered the crisis; a situation that the crisis has only aggravated. One of the main conclusions from the Great Financial Crisis (GFC) of 2008/09 was that banks required more capital, and it seems likely that the conclusion from the Covid19 crisis is that so too do non-financial corporations.

Engineering such a transformation will take time and require numerous changes to systems; not least the tax treatment of debt compared to equity capital and the above-mentioned oversight of non-bank financial intermediation and macro-prudential policies, that today primarily act through bank channels.

Just zooming in on the US, the chart below provides an illustration of how the expansion of corporate debt has failed to translate into similar pace expansion of the productive capital stock. A similar trend has been observed in other advanced economies and concern is that when persistent, this may weigh structurally on productivity. This also links into the idea that firms are leveraging up balance sheets in order also to engage into various operations that return funds to shareholders, such as equity buybacks.

A disconnect between corporate debt and productive capital stock



Source: Refinitiv, SG Economic and Sector Studies

If the trends observed above are extrapolated over time, it is not hard to see how ever higher debt levels can lead to ever lower productivity outcomes and a so-called “zombification” of the economy. Studies from several institutions, including the

BIS[1], have found evidence of an increase in the number of "zombie" firms, preventing efficient capital and labour allocation and weighing on trend potential growth.

A final point worth note is that while the cost of debt has declined substantially over past decades, this has not been true for equity. The concern is that equity financing may be better suited to investment in intangibles, such as patents and software development, while debt financing may be better suited for tangible assets that produce stable cash flows and offer collateral.

While this is a granted simplified view, reality is that if the abundant supply of low-cost debt is indeed encouraging companies to finance lower productivity investment and enhance rewards to shareholders through financial leverage strategies, then this may de facto be "crowding out" the more productive investments that require equity financing. Taken in aggregate over longer periods of time, such a situation would lead to a structural decline in productivity growth as observed on chart 6.

CONSENSUS OUTLOOK ON TERM PREMIA AND DEBT SNOWBALLS

Rebalancing the equity-debt mix on corporate balance sheets neither will, nor should, happen overnight. Longer-term, however, successfully achieving such a goal coupled with well managed fiscal policies and structural reforms, should not only boost trend growth, but also lower the need for central banks to hold large stocks of assets on their balance sheets and structurally compress term premia, be it to support private or public balance sheets.

Conversely, there is also the risk that central banks lose control over term-premia if policy errors trigger inflationary shocks or if the effective lower bound is reached. We return to this point later on, but it should be noted already here that is the combined expectations on growth/productivity, interest rates and inflation that offer the full picture as to how consensus views policy effectiveness.

For safe sovereign bonds, yields can analytically be broken down into an expectation on real short rates, inflation and a term premium. To gauge expectations on term premia, we return to the consensus, focusing again on the six to ten-year horizon to capture trend expectations. One simple metric to gauge the term premium is to look at the difference between the consensus outlook for the 10-year bond yield and the 3-month rate; this metric suggests an expectation of the term premia normalising longer-term. At the same time, we note a sharp divergence between this metric and that implied by market pricing derived from the Fed's ACM[2] term premia.

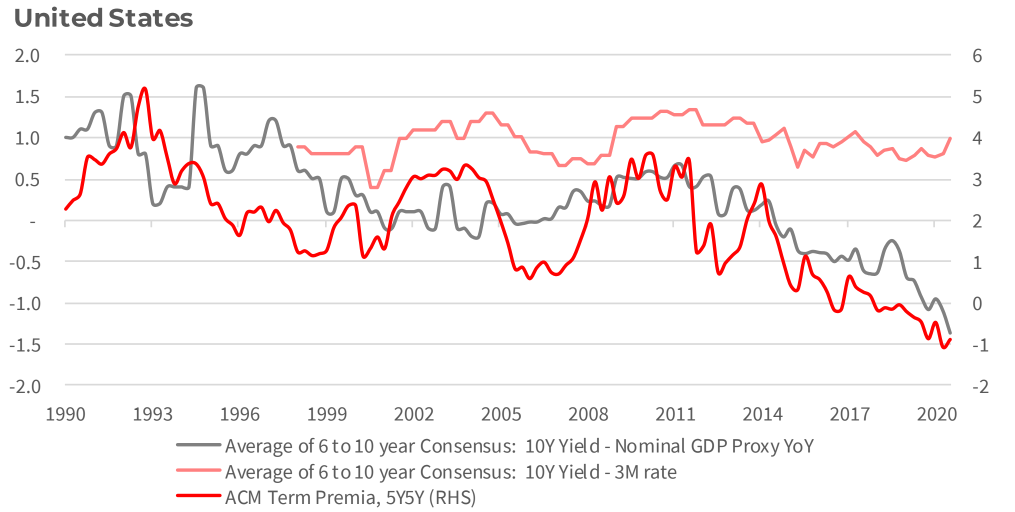
[1] Banerjee R.N., The Rise of Zombie Firms: Causes and Consequences, BIS Quarterly Review, September 2018

[2] The ACM term premia was developed by Tobias Adrian, Richard Crump and Emanuel Much and details can be found here.

As an alternative, we could also consider a "Wicksellian"[3] term premium, which we can proxy by taking difference between outlook on interest rates (r) and nominal GDP growth (g), again drawing on the six to ten-year outlook with the idea of looking through the cycle to capture long-term structural expectations.

As seen from the chart below, the consensus outlook on "r-g" correlates well to the Fed's ACM term premia. The component "r-g" is also a key metric for debt sustainability; as long as this is negative then the debt servicing burden will help reduce debt; should it turn positive, then this component will add a debt snowball effect.

A link between term premia and "r-g"

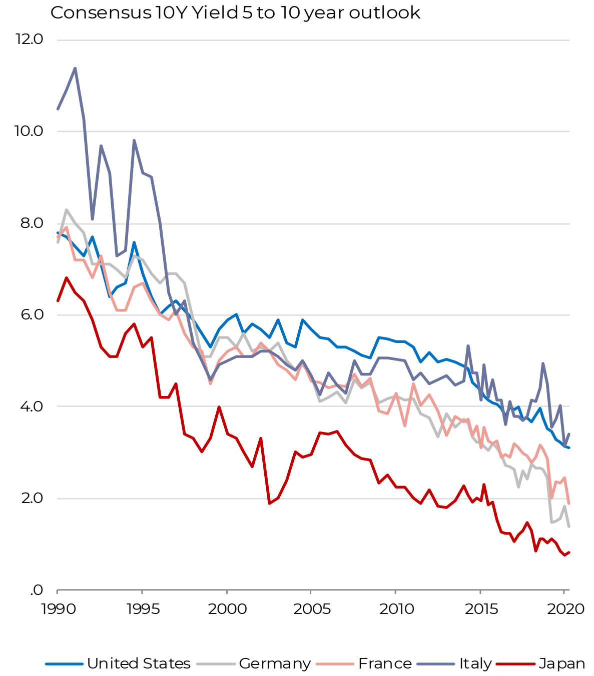


Source: Consensus Economics, NYFRB, Refinitiv, SG Economic and Sector Studies

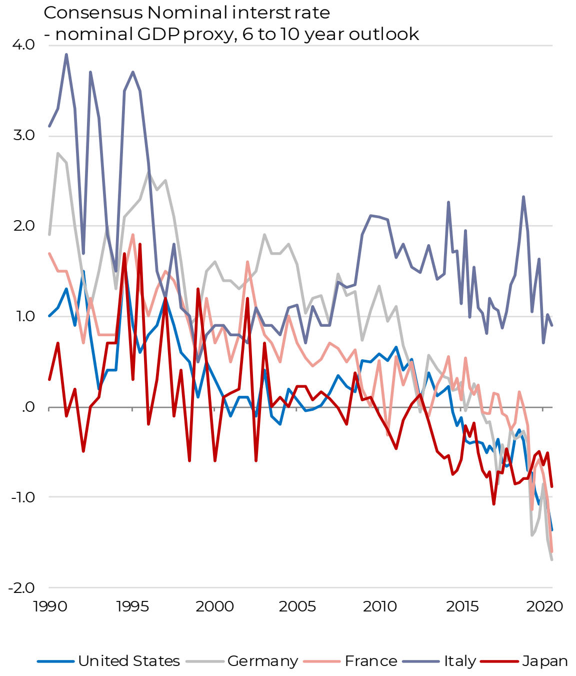
Returning to "r-g", data is available only for the major advanced economies and we zoom in here on the US, Germany, France, Italy and Japan. As seen, bar Italy, there has been a long-term decline in this term premia proxy. We attribute the initial decline in the 1990s to reduced inflation volatility as central banks successfully delivered price stability and a perception of less volatile economic cycles. To our minds, the compression into negative territory post the Great Financial Crisis has to a large extent been driven by the expansion of central bank balance sheets. This is, moreover, very much an intended consequence of these monetary policies.

[3] Jones, Brad (2014), Identifying Speculative Bubbles: A two-pillar surveillance Framework, IMF WP/14/208

Low for longer interest rates expected ...



... and well below the nominal growth



Note, the nominal GDP proxy is the sum of the consensus outlook for real GDP growth and consumer price inflation.
Source: Consensus Economics, SG Economic and Sector Studies

Note, that in the case of Italy, "r-g" remains positive also explaining why, despite running many years of primary budget surpluses, the country struggles to reduce its debt load. This reflect the fact that investors continue to demand a high credit risk premium to hold Italian debt.

3. Mind global trade arrangements

Further to the need for corporate/debt equity rebalancing and decisive action on domestic policies, the evolution of multilateralism is to our minds the last key major policy determinant for the global recovery. One of the positives observed during the Covid19 stress was the willingness of the Federal Reserve to offer dollar liquidity internationally, to the benefit of both the global financial system and the US economy. The understanding of the benefits of multilateralism are regrettably not always so readily understood.

Protectionism was already an issue prior to the Covid19 crisis and concern is that this could now be further amplified, and not least in sectors considered critical such as food, health care, energy and digital technology. While it is fair that countries want to ensure level playing fields and the security of their citizens, it is important that this does not morph into costly protectionism.

Emerging economies have benefitted tremendously from the expansion of global supply chains that have seen millions lifted out of poverty to the benefit also of the advanced economies. Even absent protectionist tariffs, global supply chains have come under pressure from new technologies and the prospect of various green taxes, making the case for outsourcing of production and service centres less compelling.

Further headwinds could come from changes to consumer spending patterns. International tourism and travel are set to remain subdued until the related health risks are very significantly reduced. More structurally, the increased focus on the circular economy and broader environmental issues could see consumer appetite for ever more goods shift away from what has been a major driver for many emerging economies.

While digitalisation and greening of economies should ultimately be positive for economic growth, managing the transition is important. A multilateral response can help secure positive outcomes for all both in terms of growth and in terms of reduced pressure from migratory flows that may otherwise result.

One notable trend already apparent pre-crisis is the increased volume of trade between emerging economies and greater regional integration holds significant potential to generate growth. In some instances, this is true even on a national basis; in India, for example, there has been a strong policy push to move the country to a more unified single market by removing fragmentation across state border. In the case of Africa, AfCFTA (African Continental Free Trade Area Agreement) aims to give the region a significant boost through trade. The African Development Bank (ADB) estimate that inter-regional trade today stands at just 16% compared to just under 60% in Europe, 51% in in Asia and just under 40% in North America, and identify AfCFTA as one of the initiatives with potential to lift the regions trend potential.

In debating emerging economies, it is worth making the point that too little debt can be as problematic as too much debt. Russia and China offer good examples. Simply put, in the case of Russia, economic sanctions have encouraged the government to trim back debt and boost currency reserves and has also placed constraints on corporates. The resulting economic isolation, however, has had a detrimental impact on economic growth, already visible pre-crisis. China on the other hand has seen significant debt expansion over the past decade, even allowing the economy to act as a source of global demand of last resort in the wake of the Great Financial Crisis. Not all the investments financed, however, have proven profitable and today the concern in China is that the country has too low productivity for its stage of development and a very high debt burden to manage.

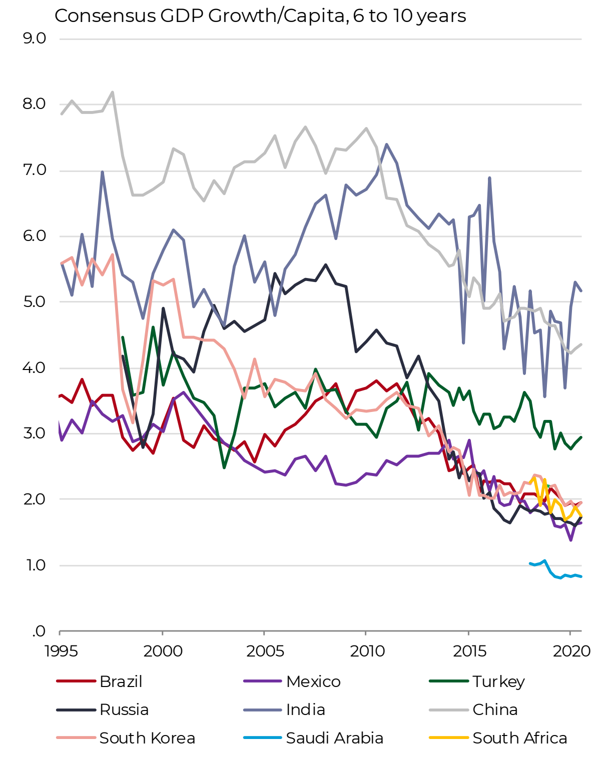
Tracking global and regional trade expectations on EM consensus

As already hinted at above, numerous factors will influence the long-term outlook of each individual emerging economy but taken as a group, we believe that the combined long-term consensus can offer clues as to how consensus sees global and regional trade arrangements evolving.

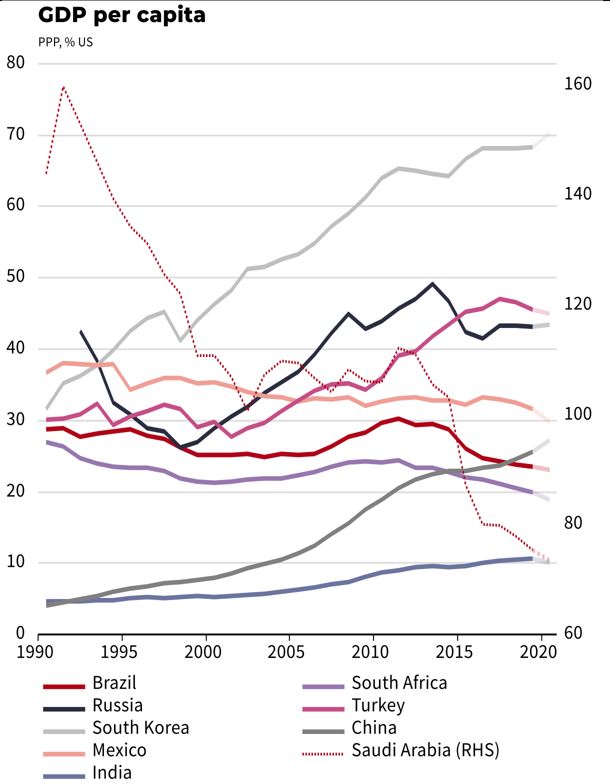
While it is normal for countries to see trend potential growth decline as GDP per capita increases, the concern in recent years is that many countries have seen trend GDP per capita growth fall off far too quickly, entrapping these economies in structurally low growth at a far to early stage of their development.

To our mind, shifting patterns in global and regional trade offer part of this explanation and we suggest this combined metric as a granted very approximate, but to our minds nonetheless useful one to track in coming years.

EM growth per capita is slowing ...



... and in some cases far too fast



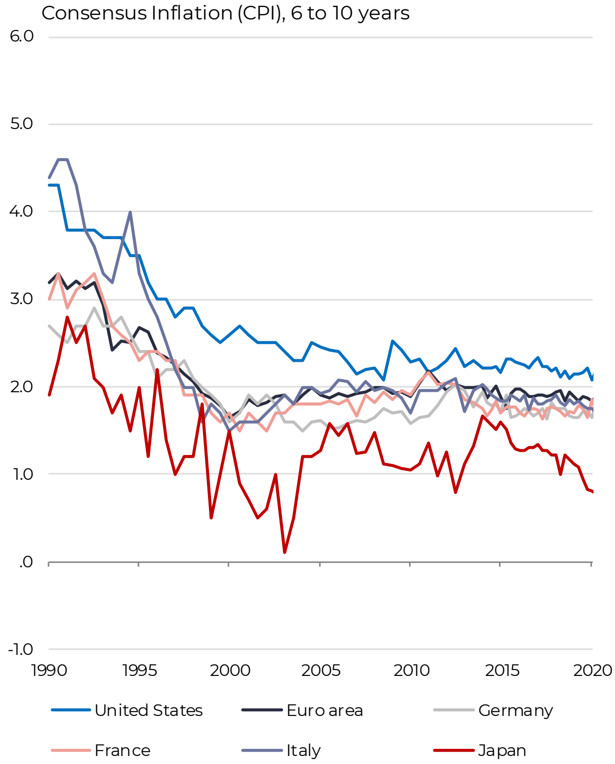
Source: Consensus Economics, IMF, Refinitiv, SG Economic and Sector Studies

Mind inflation expectations

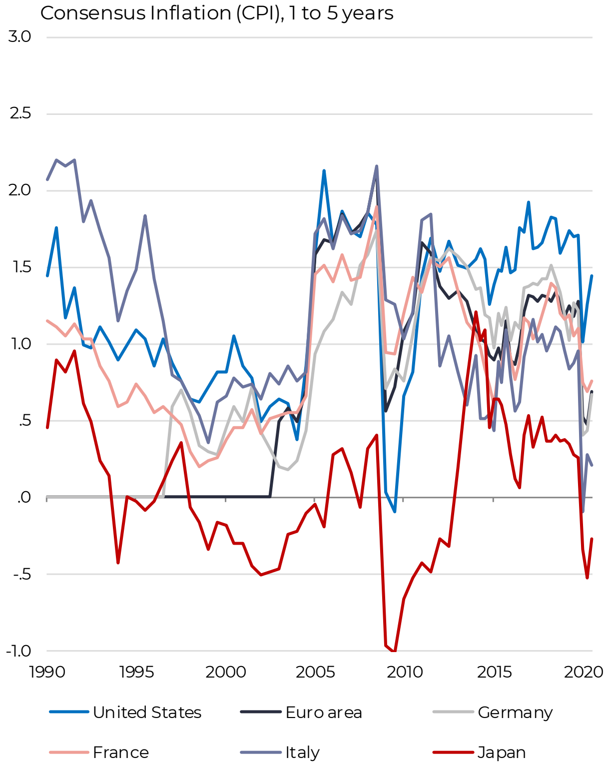
In concluding our discussion on policy design, we return to inflation. Fears that aggressive expansion of central bank balance sheets would drive inflation higher were already raised as a concern in the policy debate in the wake of the Great Financial Crisis but were not reflected in the consensus at the time, and nor did these materialise subsequently.

Quite to the contrary; central banks have been left somewhat frustrated by the seeming inability of even very accommodative monetary policies to drive inflation expectations higher. Indeed, the stability of the consensus inflation expectations, in contrast to those for GDP growth and bond yields, have been remarkable. Taking the average of the one to five-year consensus on inflation, we note that this has nonetheless declined.

Fairly stable long-term inflation expectations …



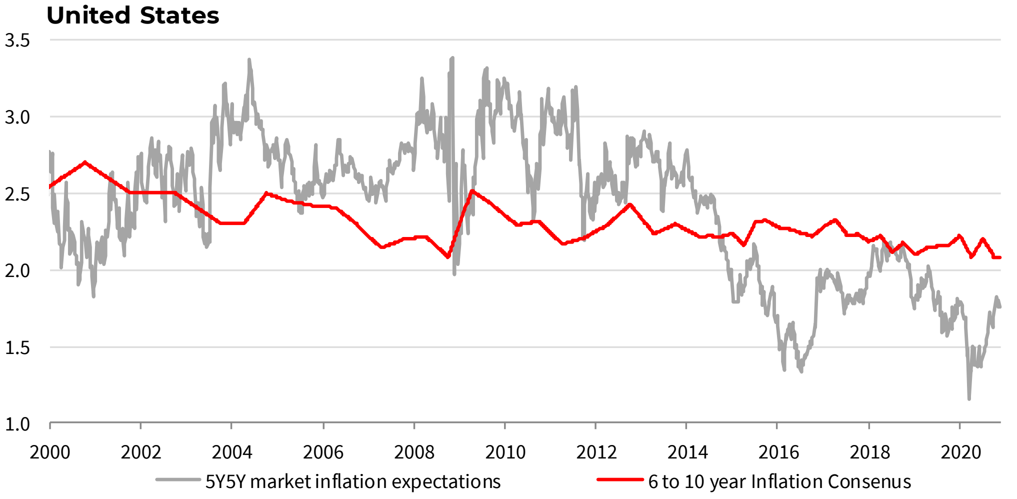
but near-to-medium term far from target



Source: Consensus Economics, SG Economic and Sector Studies

The 5Y5Y inflation expectations from financial markets are also useful metrics to consider but capture both the expected medium-term outlook for inflation and an inflation term premium. The chart below zooms in on the US and compares market expectations to those of the consensus from economists; the differential between the two can be considered a simple proxy for the inflation related component of the term premium.

Market inflation expectations include a term premium



Source: Consensus Economics, Bloomberg, SG Economic and Sector Studies

Near-term, it seems reasonable to expect continued low inflation as the Covid19 shock is set to remain deflationary. Looking further ahead, question is whether the inflation outlook could shift. We would argue that a virtuous policy cycle, with focus on lifting trend potential growth ensuring the green and digital transition, delivering the necessary structural reforms also to reduce inequality, rebalancing the financial system to ensure a better split between debt and equity on non-financial corporate sheets, pursuing regional integration and favouring multilateralism globally would not only serve to boost growth and gradually normalise term premia, but should also manifest in a convergence of short-term inflation expectations to a still stable medium-term outlook. Overall, such a scenario still be favourable for debt dynamics.

Poor policy design, and not least with excessive reliance on government consumption as opposed to investment, and increased protectionism have the potential to lift both short and long-term inflation expectations in a disorderly fashion. This would amount to a stagflation shock and prove particularly challenging for central banks.

Central banks could also face a challenge if poor policy design were to result in deflation, similar to what was observed in the past in Japan. Combined with interest rates already at the effective lower bound on interest rates, such a scenario would see central banks battling rising real interest rates, that in a continued low growth world would also push term premia higher.

Presently, both consensus and financial market pricing shows that there is little concern that such scenarios could materialise. The key difference, however, between today and a decade ago is that both governments and financial markets have become ever more confident that central banks can deliver low rates forever and that protectionism is seen by many politicians as an easy way to win favour with electorates.

CONTACTS

Michala MARCUSSEN
Group Chief Economist
+33 1 42 13 00 34
michala.marcussen@socgen.com

Olivier de BOYSSON
Emerging Markets Chief Economist
+33 1 42 14 41 46
olivier.de-boysson@socgen.com

Marie-Hélène DUPRAT
Senior Advisor to the Chief Economist
+33 1 42 14 16 04
marie-helene.duprat@socgen.com

Ariel EMIRIAN
Macroeconomic analysis
+33 1 42 13 08 49
ariel.emirian@socgen.com

François LETONDU
Macro-sector and macro-finance analysis
+33 1 57 29 18 43
francois.letondu@socgen.com

Constance BOUBLIL-GROH
Central and Eastern Europe, Russia
+33 1 58 98 98 69
constance.boublil-groh@socgen.com

Olivier DENAGISCARDE
Macro-sectoral analysis
+33 1 58 98 74 22
olivier.denagiscarde@socgen.com

Juan Carlos DIAZ MENDOZA
Americas
+33 1 57 29 61 77
juan-carlos.diaz-mendoza@socgen.com

Clément GILLET
Africa
+33 1 42 14 31 43
clement.gillet@socgen.com

Erwan JAIN
Macro-sector analsis
+33 1 58 98 05 35
erwan.jain@socgen.com

Alan LEMANGNEN
Euro area, France, Germany
+33 1 42 14 72 88
alan.lemangnen@socgen.com

Simon RAY
Macro-finance analysis, UK
+33 1 4213 70 80
simon.ray@socgen.com

Valérie RIZK
Macro-sector analysis
+33 1 58 98 82 85
valerie.rizk@socgen.com

Danielle SCHWEISGUTH
Western Europe
+33 1 57 29 63 99
danielle.schweisguth@socgen.com

Edgardo TORIJA ZANE
Middle East, Turkey and Central Asia
+33 1 42 14 92 87
edgardo.torija-zane@socgen.com

Bei XU
Asia
+33 1 58 98 23 14
bei.xu@socgen.com

Yolande NARJOU
Assistant
+33 1 42 14 83 29
yolande.narjou@socgen.com

Société Générale | Economics and Sector Studies | 75886 PARIS CEDEX 18

Subscribe to the Economic Studies series:

https://www.societegenerale.com/en/news-and-media/economic-studies/our-economic-research

DISCLAIMER

This publication reflects the opinion of Societe Generale S. A.'s Economic and Sector Research department at the date of publication. This opinion is subject to change at any time without notice. It is provided for information purposes only, and does not constitute an investment recommendation or an investment advice within the meaning of current regulations. This publication has no contractual value.

Neither the information contained in, nor the analyses expressed therein constitute in any way an offer to sell or a solicitation to offer to subscribe, purchase, sell a product or execute a transaction and shall not engage the liability of Société Générale S. A. or any of its entities, in compliance with current regulations. Then, should a retail or a professional client, or eligible counterparty obtain this publication, they should not base any investment decisions solely on the basis of this publication, and must seek independent financial advice.

The accuracy, completeness or relevance of information derived from external sources is not warranted, even if it comes from sources reasonably believed to be reliable. Subject to the current regulations, Societe Generale S. A. does not accept any liability in this respect. The economic information mentioned in this document is based on data valid at a given time, and may therefore change at any time.

Societe Generale S. A. is a French credit institution authorized and supervised by the Autorité de Contrôle Prudentiel et de Resolution ("ACPR"), regulated by the Autorité des Marchés Financiers ("AMF") and under the prudential supervision of the European Central Bank ("ECB").

Societe Generale S.A. is also authorized by the Prudential Regulation Authority and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our authorization and regulation by the Prudential Regulation Authority, and regulation by the Financial Conduct Authority are available from us on request.

Notice to US Investors: this document is issued by non-US SG economic analysts or affiliates on economic studies are issued solely to major US institutional investors pursuant to SEC Rule 15a-6. Any US person wishing to discuss this report or effect transactions should do so with or through SG Americas Securities, LLC. SG Americas Securities LLC has its registered office at 1221 Avenue of the Americas, New York, NY, 10020. (212) 278-6000.

Notice to Asian investors: this document is prepared for and intended to be distributed in Asia solely to sophisticated and professional clients. You should therefore be appropriately qualified as a professional, accredited, wholesale, expert or institutional investor (however defined in your local jurisdiction).

This publication may not in any way be reproduced (in whole or in part) or transmitted to any other person or entity without the prior written consent of Societe Generale SA.