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SG Economic and Sectorial Research

The challenges of a low interest rate environment

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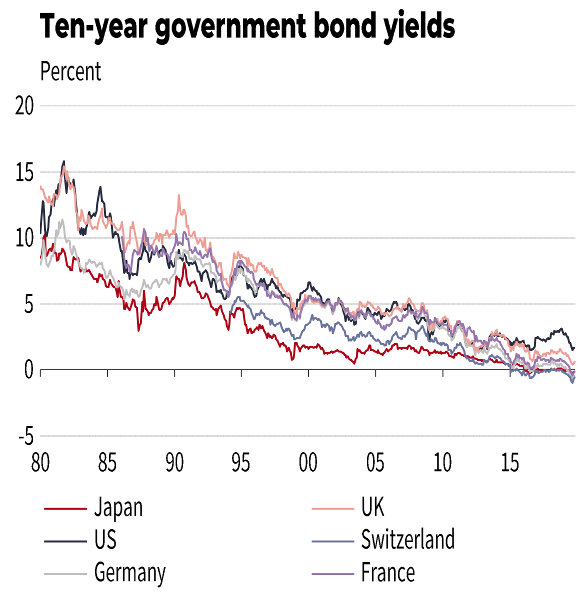
Although a boon for borrowers who find themselves more solvent, the current low interest rate environment is posing real challenges for investors as they see plummeting returns on their savings. In addition, persistent low/negative rates could aggravate a certain number of risks to financial stability, especially by encouraging debt gearing, contributing to a potentially unsustainable rise in the price of assets and prompting certain investors to overexpose themselves in their search for yield. Although nowadays banks, on the whole, are more resilient than prior to the 2008 financial crash, new vulnerabilities are appearing as investors turn to assets offering higher returns but greater risks or less liquidity, issued by non-bank financial players. The new financial system's ability to withstand macrofinancial shocks has yet to be proven.

Since the 1980s, several developed countries have seen a downwards trend in their long-term interest rates for risk-free securities, culminating in today's rates that are bordering on zero, if not actually negative, in line with the estimated "natural" or "equilibrium" rate of interest[1].



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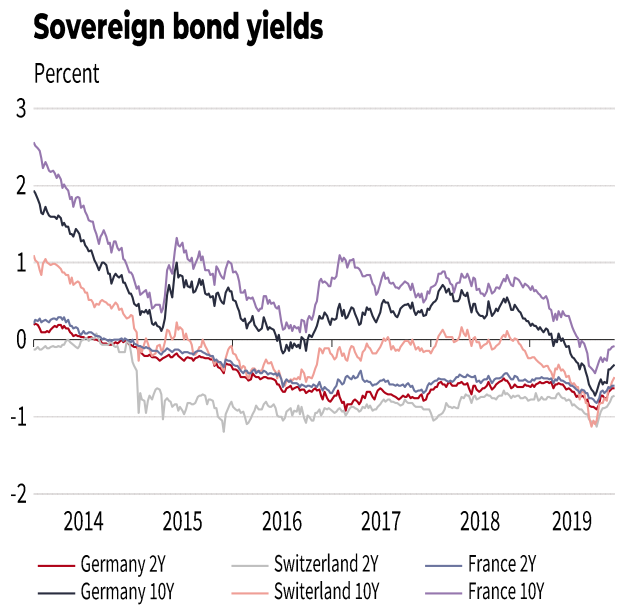


Source: *Refinitiv Datastream.*

[1] The "natural" or "equilibrium" rate of interest can be defined as the real rate of interest in situations of no output gap and stable inflation. See Societe Generale (2019), "The long-term equilibrium rate of interest", *Economics for All*, July.

July.

At first just falling, rates have recently begun to plummet with a multiplication of negative rates of interest. Total global negative-rate debt has now reached record levels of $17 trillion. This is a historical first. One third of the sovereign debt market worldwide - and two thirds in Europe - is now yielding a negative return. However, negative rates are no longer the reserve of sovereign debt, with negative-rate corporate debt now also exceeding $1 trillion.

There are many plus sides to this ultra-low, or even negative, rate environment. It supports economic growth, it reduces interest payments on debt thus increasing borrower solvency (public and private), and it encourages long-term investment projects whose net present value is boosted by a fall in discount factors.

Nevertheless, it poses a real challenge both to investors, who experience plummeting returns, and to financial stability. Persistently low/negative rates can in fact precipitate a certain number of risks to financial stability, because they promote higher indebtedness, they encourage the use of gearing (i.e. a greater debt to equity ratio), they feed a potentially unsustainable rise in the price of assets, including real estate, and they can prompt investors to take excessive risk in their hunt for yields.

Higher indebtedness

Record-breaking global debt

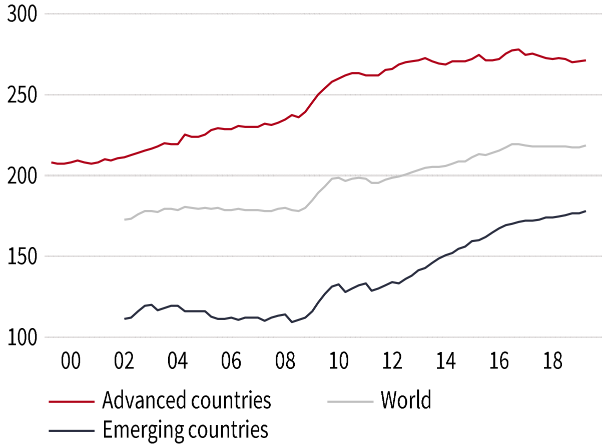
Low rates will obviously encourage economic players to take on more debt. The world has therefore never been in so much debt, with global debt, all countries and borrowers combined, reaching $246.5 trillion or 320% of global GDP[2]. Global non-financial debt (public and private) is currently higher than before the 2008 financial crisis, representing the equivalent of nearly 220% global GDP vs. 179% in March 2008. Over half of this debt was created by the USA, China and Japan, the world's three leading borrowers.

Although the falling interest rates mean that the world has been able to resume a certain level of growth since the 2008 financial crisis and the European crisis of 2011–2012, they have also made the non-financial sector more vulnerable should financial restrictions become tighter or should we see a reversal of the economic trend.

[2] See Institute of International Finance (2019), “Déjà vu – lower rates, higher debt”, Global Debt Monitor, 15 July.

Global debt of the non-financial sector

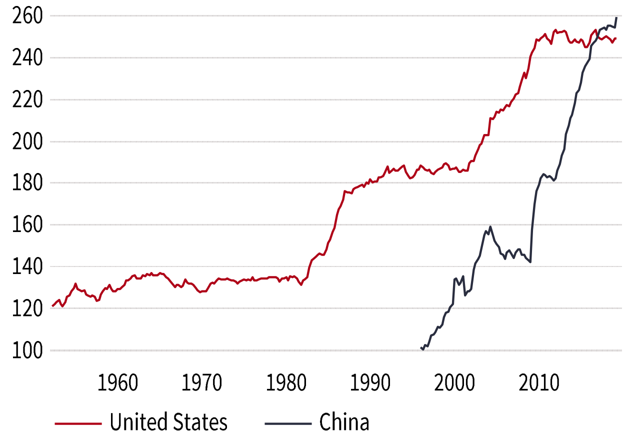
Percent of GDP



Source: Refinitiv Datastream.

Non-financial sector debt

In percent of GDP



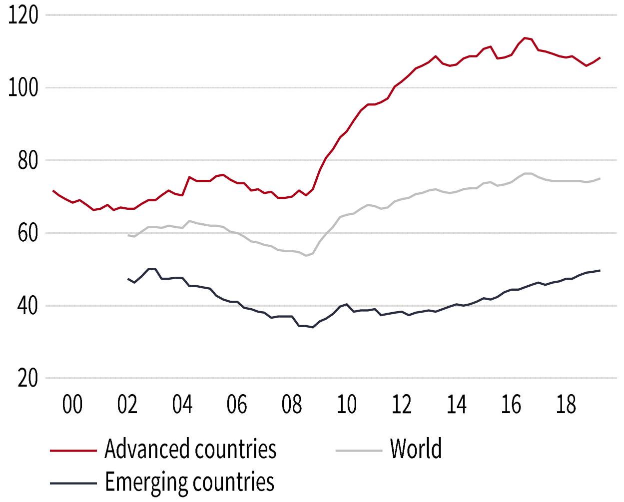
Source: Refinitiv Datastream.

Public debt

Since the global financial crash in 2008, Government debt in the developed world has risen spectacularly, from 70% GDP in Q2 2008 to 107% GDP in Q4 2018 (after reaching a record high of 114% GDP in Q2 2016), as a direct consequence of a harsh recession, bank bailouts and fiscal stimulus packages.

Public sector debt

Percent of GDP



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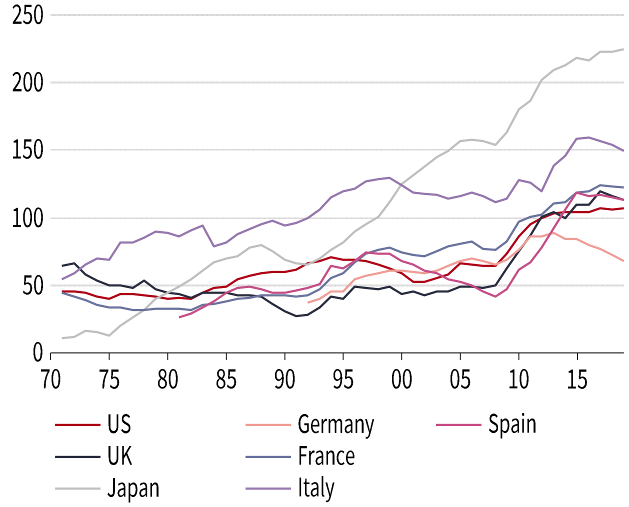
Public sector debt

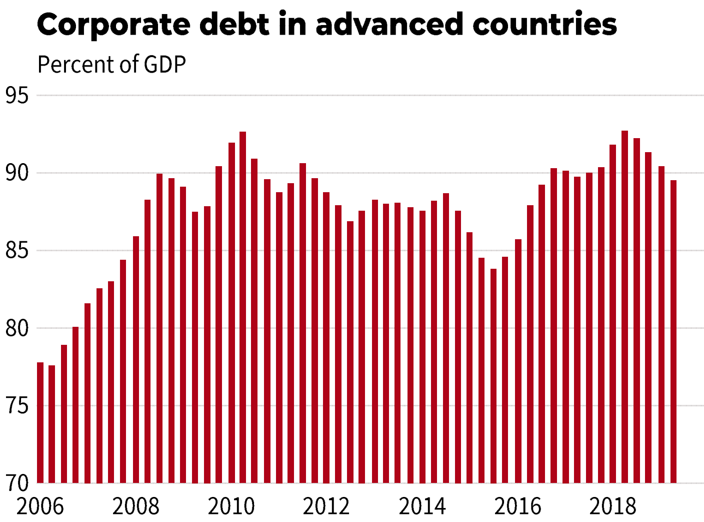
Percent of GDP



Source: Refinitiv Datastream.

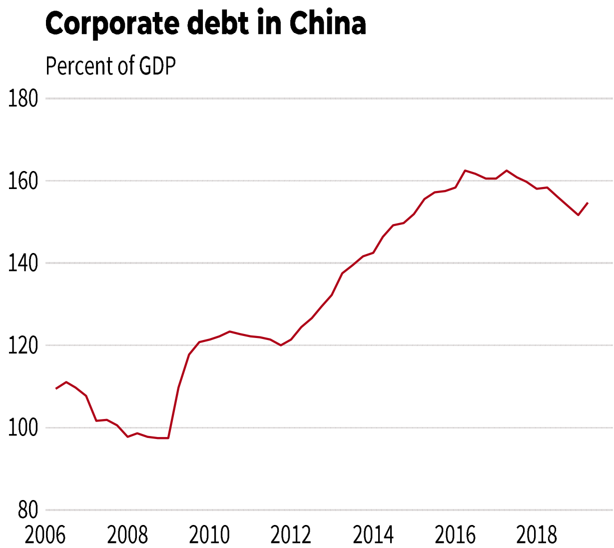
Corporate debt

Likewise, corporate sector debt in advanced economies has climbed to new heights.



Source: Refinitiv Datastream.

China's corporate debt as a percent of GDP is now one of the highest in the world; up nearly 65 points in ten years, it has risen the fastest of all major economies. In the USA, corporate indebtedness has more than doubled since 2008–2009, hitting a historical high of nearly 50% GDP.



Source: Refinitiv Datastream.

Source: Refinitiv Datastream.

Another worrying observation is that companies with a poor credit profile and those already highly in debt are the fastest growing segment. According to the International Monetary Fund (IMF), the stock of BBB-rated bonds (the lowest investment grade, just one notch above speculative grade) has quadrupled, and the stock of speculative-grade credits has almost doubled in the United States and the euro area[3].

Although the proportion of companies with BBB-rated debt is no problem in times of growth, it nevertheless represents a latent vulnerability that could blow up in times of stress or rapid economic downturn. The risk, in fact, is that a macroeconomic or financial shock could cause BBB-rated issuers to slide down into a speculative grade, leading to forced sales by bond mutual funds which are only allowed a certain proportion of at-risk securities in their portfolio. The OECD believes that a financial shock similar to that of 2008 would cause $500 bn in US bonds issued by companies in the lowest investment grade to be downgraded to non-investment grade in the space of just one year, resulting in forced sales that the investors on this market would find it hard to withstand[4].

High asset valuations

Low rates push up financial asset valuations in three main ways:

- They encourage credit creation and the injection of liquidity into the economy, thus in theory pushing up inflation and asset valuations (real estate, shares, bonds etc.) which swell under the weight of demand.
- They drive yield-seeking investors towards more profitable/risky assets, such as speculative-grade shares and debt.
- Asset valuations are as high as interest rates – which are used to discount future dividend flows – are low.

In the USA, financial asset valuations are also being drawn upwards by record levels of financial transactions, such as share buybacks, seen this year. Share buybacks by S&P 500 companies broke a new record in 2018, with $1,038 bn in own-share buybacks, according to TrimTabs RI. JP Morgan believes these share repurchases are being funded primarily by company cash flows and balance sheets.

In recent years, Wall Street has smashed record upon record. The CAPE (Cyclically Adjusted Price-Earnings ratio), also known as the Shiller P/E[5], devised by Robert J. Shiller to gauge stock valuations, stood, at end July, at 30.31 for the USA (having peaked at 33.31 in January 2018), similar to the level seen in the years preceding the 1929 crash (30) and higher than at any other time since 1881 except the years leading up to the bursting of the dot-com bubble in 2000 when it climbed to 44.20.

[3] IMF (2019), *Vulnerabilities in a Maturing Credit Cycle*, Global Financial Stability Reports, April.

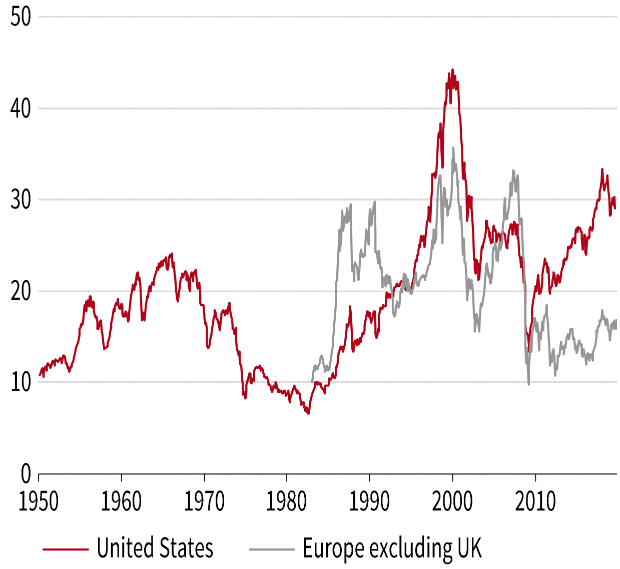
[4] OECD (2019), *Corporate Bond Markets in a Time of Unconventional Monetary Policy*, OECD Capital Market Series, 25 February.

[5] The CAPE or Shiller P/E is designed to correct for errors in the traditional PER (Price Earnings Ratio) by taking the average of ten years of earnings in order to smooth out the impact of business cycles.

US: Measures of house price inflation

Source: Refinitiv Datastream.

The Shiller P/E (CAPE) ratio



Source: Refinitiv Datastream.

The yield race and risk-takers

Leveraged finance at full throttle

At a time of low and even negative interest rates and widespread liquidity, the hunt for yield has driven investors towards ever riskier and low-liquidity assets, which offer higher returns, towards emerging countries or towards high-risk debts from advanced economies in particular junk or high-yield bonds and leveraged loans[6].

Recent years have seen the "leveraged" transaction sector (leveraged loans and high-risk bonds) for less solvent companies explode in size[7]. According to the French Market Regulator, the AMF, total leveraged debt exposure (including high yield bonds) across the globe, often

[6] Leveraged loans are bank loans, typically with variable rates, granted to non-investment grade companies (BB or lower) i.e. companies seen as high risk or with high levels of debt, or created for LBOs (leveraged buy-outs). Finding it hard to issue bond debt on the markets, companies are turning towards the leveraged loan sector. They are called leveraged loans because the debt/EBITDA ratio broadly exceeds industry standards: this applies to all transactions that cause a borrower's indebtedness to climb to over 4x EBITDA, and to all financing for companies owned by LBO funds.

[7] In the United States of America, high-risk or highly indebted companies are all the more eager to stock up on cheap debt as the Trump administration has begun to unravel the banking regulations introduced after the 2008 economic crisis to prevent a new crash. For example, the capital cushion requirements on mid-size banks, in particular, have been eased and the Prudential Financial insurance group has been taken off the list of systemically-important groups monitored by the financial regulators since the 2008 crash.

securitised[8] as Collateralised Loan Obligations (CLO) [9]reached an unprecedented level of $3 trillion[10] in 2018. The risk for investors is that, in their "quest for returns", the rewards are not worth the risk.

Leveraged finance has been growing mainly in the USA[11] where, in 2018,

- Leveraged loan exposure was estimated at $1,2 trillion (12% of US corporate debt), half of which was repackaged as CLOs to then enter the portfolios of individual and institutional investors[12]. The IMF estimates that in 2018, over half of new leveraged loan issues were used to finance financial transactions (share buybacks or dividend payouts, mergers and acquisitions, leveraged buyouts) rather than value-creating investments[13].
- This is on top of the $1.2 trillion in high-yield bonds in circulation.

Higher gearing ratios and lower covenant quality

Leveraged loan exposure is not the only thing on the rise, with an increasing tendency for corporate gearing ratios (debt/EBITDA) to reach 6 or higher. Across the Atlantic, the proportion of highly leveraged loan agreements, i.e. with a debt/EBITDA ratio higher than 5, rose to 75% of leveraged loans in 2018 vs. roughly 25% eight years ago. Just as worrying is the

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8 Securitisation is a financial mechanism whereby an entity (bank, financial institution or company) sells its illiquid assets - i.e. for which there is no real market such as credits - to an intermediate entity created for the purpose, known as a Special Purpose Vehicle (SPV) which, to fund the purchase, issues negotiable debt securities backed by those assets. Securitisation therefore involves pooling assets within a special purpose vehicle and directing the cash flows from those assets into the securities issued by the SPV. The SPV is not a banking establishment; in French law, it is known as a '*fonds commun de créances*', or securisation fund. Securitisation can be used for numerous types of credit, such as residential mortgages (RMBS), commercial mortgages (CMBS), student loans and vehicle finance (ABS), bank loans and varying types of financial instruments (CDO), bonds (CBO) and commercial loans (CLO).

9 Collateralised Loan Obligations (CLO) are marketable debt securities backed by a wide range of financial assets such as bank credit to large corporations, bank credit to SMEs, mezzanine debt, bank loans for funding LBOs or project finance debt. Issued by a special purpose vehicle, CLOs are then sold on the financial markets. There are many reasons for using CLOs. Banks may be looking to reduce their cost of finance, replace old credit with new more profitable transactions, comply with prudential banking requirements or unwind their credit risk by transferring it to investors. However, CLO issues also benefit companies who gain access to an alternative source of funding to bank loans or direct bond issues at attractive interest rates. More generally, CLO issues and securitisation in general offer social and financial advantages because it allows the banks who have securitised their credit (thus removing it from their balance sheets) to reinstate credit lines and offer new loans to other sectors of activity.

10 See AMF (2019), "2019 Markets & Risk Outlook", Risk and Trend Mapping, July.

11 Although the leveraged transactions market is much smaller in Europe, it has nevertheless been growing rapidly, especially in the United Kingdom.

12 For comparison, subprime mortgage debt in 2006 in the USA was $1.1 trillion (13% of mortgages). In 2007, 80% of subprime credit was securitised.

13 See Tobias Adrian, Fabio Natalucci, and Thomas Piontek (2018), "Sounding the Alarm on Leveraged Lending", IMFBlog, 15 November.

fact that rules governing leveraged loan issues are being relaxed, and some agreements even contain no contractual clauses whatsoever for protecting the investors (known as covenants)[14]. Investors hungry for returns appear to be tolerating ever-increasing levels of risk. In 2018, approximately 80% of new leveraged loans were "covenant lite" (they contained fewer covenants to protect the lender) compared to 35% in 2007, reflecting the shift of power towards borrowers. This pattern of fewer restrictions for borrowers, and thus less protection for investors, can also be seen in the high-yield bond market.

To recap: leveraged loans are soaring, gearing ratios are rising sharply and loan agreements are less and less protective for lenders. This combination of factors could form a potentially lethal cocktail in the event of an economic downturn and/or sudden tightening of financial conditions, which could drive several overexposed companies to bankruptcy. This would then generate potentially major losses for the exposed investors, losses that could in turn aggravate the financial turbulence and the economic slowdown. Warnings about the perils associated with the surge in high-risk company debt have recently escalated in high places[15].

Who owns the debt of these high-risk companies?

The leveraged loan market is currently characterized by the importance of non-bank investors (special purpose vehicles, investment funds, pension funds, insurance undertakings, hedge funds, exchange traded funds (ETF)[16] etc.). Since the 2008 financial crisis, banks have drastically cut down on their risky and thus capital-hungry activities[17]. They have used securitisation to sell loans to non-bank investors who are not bound by the same regulatory restrictions. As mentioned above, the collateralised loan obligation market is currently flying high, both in the USA - where it reached a record level of $600 bn in 2018[18] - and in Europe. This has had the effect of spreading the credit risk of these loans across the financial system.

[14] Above a certain value, bank loan agreements include a certain number of obligations for the borrowing companies (compliance with a certain number of ratios, restriction on dividend payouts over the loan repayment period etc.). Together, all clauses in a loan agreement designed to protect the lender's rights and prevent default are known as a covenant, a type of safety net. They establish obligations for the borrower such as, for example, early repayment if it exceeds a certain debt-to-EBITDA ratio, or creditor approval for investments.

[15] The International Monetary Fund (IMF), the Bank for International Settlements (BIS), the Organisation for Economic Co-operation and Development (OECD), the Bank of England and Janet Yellen, former chair of the US Federal Reserve, among others, have all issued warnings about high-risk corporate debt.

[16] Exchange Traded Funds, or ETF, also known as trackers in France, are funds listed on the stock exchange and traded like shares. Created in the USA in the mid 1990s and traded in Europe since the turn of the century, their goal is to replicate the performance of an underlying index, which can be very diverse, as supply has increased considerably over time.

[17] In response to the 2008 financial crisis, the Basel III reforms sharply strengthened the regulatory capital ratios demanded of banks.

[18] See AMF (op.cit.).

The Financial Stability Board (FSB) estimates that two-thirds of CLOs are currently held by non-bank investors[19], but it nevertheless highlights the lack of transparency on this market and underlines the need for better information both about the extent of exposure by financial institutions to the highest risk debts, especially leveraged loans (either directly or through bonds backed by these loans), and about the ultimate risk holders[20]. More often than not, lenders do not know where their investments end up[21].

Risk migration to the non-bank sector

"Non-bank financial intermediation" is booming

For several years, non-bank investors have been growing at a much faster rate than traditional financial players. "Non-bank financial intermediation" (also known as shadow banking), to use the term now adopted by the Financial Stability Board, encompasses all credit intermediation activities that take place outside normal banking regulations[22]. Not being bound by the same regulatory restrictions as banks, non-bank institutions do not benefit from the safety nets that come with bank status (e.g. deposit insurance, central bank emergency bailouts) even though they are exposed to a high liquidity risk. Partly due to a lack of transparent data, current regulations tackle non-banking finance in a fragmented way (by type of activity or type of institution) and not as a whole.

Although non-bank finance first emerged in the 1980s following the deregulation of the financial markets and the development of information technology, since 2010 the sector has been experiencing tremendous growth, boosted in particular by persistently low bank rates that have pushed investors to seek out higher returns outside the traditional banking system. Non-bank financial intermediation currently accounts for over 30% of global finance. In 2017, the global volume of assets managed by the shadow banking system was a colossal $116.6 trillion (source: FSB). It is hard to pinpoint the sector due to the highly diverse nature of the activities and institutions concerned, the complexity of some of its structures and the (long) list of its components which vary depending on the definition used. Among those are, for example, collective property investment schemes, investment funds, special purpose vehicles, private equity funds, hedge funds, exchange-traded funds, brokers of all types, as well as a whole range of "investments" such as credit default swaps (CDS).

[19] The Financial Stability Board (FSB) is an organisation of central banks and regulators created in 2009 by the G20 to monitor the stability of the financial system.

[20] Financial Stability Board (2019), *Global Monitoring Report on Non-Bank Financial Intermediation 2018*, 4 February.

[21] For example, a private investor who purchases an ETF may be unknowingly invested in the US leveraged loan market.

[22] Non-bank financial intermediation comprises all financial institutions that are not central banks, insurance undertakings, pension funds, public financial institutions or other financial auxiliaries. See Financial Stability Board (2019), op.cit.

Non-bank finance plays a valuable role because it offers:

- An alternative to bank financing, thus fostering the supply of financing and supporting economy activity,
- Higher returns than those offered by the traditional banking system.

However, it is also a source of risk,

- By generating arbitrage opportunities that weaken the scope of banking regulations,
- By distorting competition to the detriment of traditional banks bound by strict regulations,
- By carrying a systemic risk, either directly given the potential vulnerability of some of its components to runs (mass investor withdrawal in times of market stress)[23], or through its links with the traditional banking system (via finance transactions, credit lines, liquidity or cross-investments, or even by being subsidiaries of banks).

There is a lot of cross-over between traditional banking institutions, institutional investors (pension funds, insurance companies) and non-bank intermediaries.

Systemic risk

As the hunt for returns intensifies, so vulnerabilities are being transferred to the non-bank sector whose members have become key players in areas where banks have traditionally played a leading role, such as credit risk transfer, maturity/liquidity transformation and leverage. Today, banks, as a whole, are better capitalised than before the 2008 financial crisis and are therefore more resilient. However, the Financial Stability Board highlights the existence of weaknesses that increase the vulnerability of the financial system to systemic risk[24]. It underlines the major role not only of non-bank players but also of institutional investors (pension funds, mutual funds, insurance companies) on less liquid markets (corporate bonds, unlisted, property etc.) or markets with only shallow liquidity (e.g. CLOs) that could easily dry up in the event of a widespread deterioration in market sentiment.

For the FSB, out of the the $116.6 trillion in non-bank finance in 2017, $51.6 trillion (14% of global financial assets, accounting for 75% GDP of the countries studied) is a latent source of systemic risk that could blow up at a time of stress. Nearly three-quarters of these potentially higher-risk activities are, according to the FSB, concentrated in just six countries: USA (29%), China (16%), Cayman Islands (10%), Luxembourg (7%), Japan (6%) and Ireland (5%). Collective investment vehicles (in particular money-market, bond, mixed and hedge funds, some real estate funds, funds of funds, exchange traded funds (ETF) and mutual funds) are by

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[23] A bank run is a panic-driven event where a large number of an establishment's clients fear it is about to become insolvent and rush to withdraw their money as quickly as possible. It is often a self-fulfilling event because, faced with the sudden demand on its funds, the establishment's liquidity dries up and it can no longer honour its undertakings to counterparties, leading it to bankruptcy. If mistrust sets in, the panic can become contagious and quickly spread across the whole financial system.

[24] The risk that difficulties encountered by a non-bank finance structure spread, through contagion, to the whole financial sector, with major repercussions for the entire economy.

far, says the FSB, the largest systemically important category (accounting for over 70% of all assets with a potential systemic risk), followed by special purpose vehicles (10%) then broker-dealers (8%).

In conclusion, low rates are a double-edged sword

Ultimately, although a persistently low rate environment poses undeniable risks that call for a particularly ambitious micro- and macro-prudential policy, it also creates a tremendous opportunity for financing new growth-driving public investments (especially in infrastructure such as transport, broadband, energy, digital, hospitals and emergency care, education, research, schools, and the energy and ecology transition) and for taking advantage of the low cost of interest to reduce public debt. Not forgetting the benefits of cheaper financing both for individuals and for companies, making it easier for them to invest, own property and access consumer credit.

The disadvantages of ultra-low rates arise when they become entrenched: in addition to the risks they pose to financial stability, they are also likely to cause damaging distortions on the allocation of productive resources by making funding accessible to less profitable projects or by allowing non-viable undertakings to survive, which can have a longer-term downward impact on the potential growth rate of the economy. Moreover, by driving up property prices, low interest rates can lead to housing exclusion for certain sections of the population – especially first-time-buyer modest households.

Low rates: risks and opportunities for financial institutions

For banks

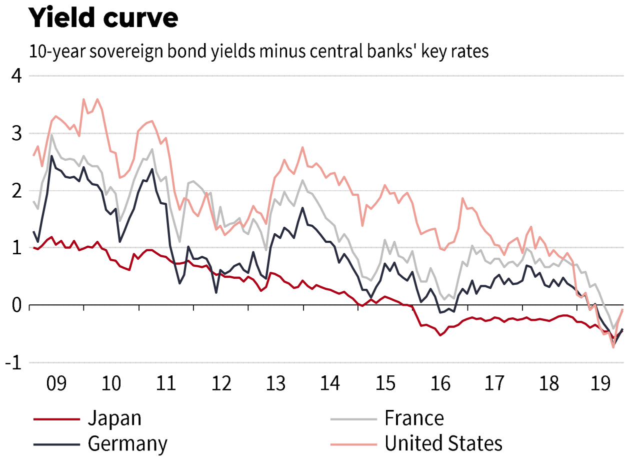
➔ Initially, lower rates have **positive effects**...

- A higher volume of loans (low rates support economic activity by reducing the cost of finance and thereby making it easier for households and companies to access credit).
- A fall in the cost of risk tied to better borrower solvency.
- Capital gains on various fixed-rate assets (bonds, real estate).
- A fall in the cost of financing.

➔ ... but a durably low interest rate environment will **weigh on bank profitability** and on **credit conditions**

- Falling rates, combined with a flatter yield curve tighten net interest margins[25], which are, historically, a primary element of banking income.
- Banks, furthermore, are reluctant to pass on negative central bank deposit rates (if applicable) to retail clients.
- Hence, a sapping of banks' interest rate margins which could, eventually, force banks to trim credit supply to the real economy.
- Macroprudential authorities, which are increasingly concerned about elevated non-financial sector leverage and elevated real estate valuations, are taking actions, which, at present, work primarily through bank balance sheets and dampen credit supply.

[25] The net interest margin is the return on long-term loans minus the cost of refinancing short-term liabilities adjusted by the cost of risk.



Source: *Refinitiv Datastream.*

- Over time, these negative side effects of durably low and in some cases negative interest rates will combine to have a dampening effect on the real economy[26].

For long-term investors, such as insurance and pension funds

➔ A **risk to profitability and to savers' return**

— While a lower rate environment will initially deliver capital gains on long duration fixed income portfolios, the persistance hereof will become increasingly problematic as long-term investors are forced to reinvest their matured securities at ever lower rates. This is especially problematic for products that offer fixed-rate guarantees.

— In addition, insurance and pension funds are suffering from a mechanical increase in the value of their liabilities discounted by market interest rates (in accordance with regulations).

— Longer term, these investors run the risk of having insufficient assets to cover their commitments (retirements etc.).

[26] See in particular Claudio Borio and Leonardo Gambacorta (2017), "Monetary Policy and Bank Lending in a Low Interest Rate Environment: Diminishing Effectiveness?", BIS Working Paper no. 612, February.

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