



JULY 2021

2021 MARKETS AND RISK OUTLOOK

**Risks & Trend
Mapping**

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EXECUTIVE SUMMARY

In addition to the still considerable uncertainties surrounding the health situation, the pandemic has left economies vulnerable to their excessive debt, threatened by defaults which have been retarded hitherto by government crisis management policies. They are also faced with the risk of a global rise in inflation and interest rates at a time when the various countries and sectors are find themselves in situations of a highly desynchronised nature.

One-and-a-half years after the outbreak of the pandemic, the valuations observed in financial markets reflect expectations of an orderly exit from the crisis: a rapid return to prior levels of activity (in 2022 at the latest in France), and a rise in inflation with a limited rise in nominal interest rates, with real rates remaining negative and facilitating debt reduction. There are many uncertainties surrounding this ideal crisis resolution scenario and risk premia appear low, especially in the United States, which could lead to market corrections.

First, **health uncertainties**, with the risk that the vaccination roll-out may be too slow to prevent the appearance of more dangerous or resilient variants of the virus, in emerging countries for example, with the resurgence of the epidemic making further lockdowns necessary. Next, **economic uncertainties**: the uneven nature of the recovery from one economic activity to another represents a risk of major tensions in certain production sectors, where price rises and bottlenecks are already perceptible, fuelling a rebound in inflation, while other areas will probably remain distressed and see a materialisation of the corporate failures retarded so far by government support mechanisms. These divergences between sectors could persist: demand may have been altered structurally by the pandemic, accelerating the change already expected due to climate constraints. Adapting supply to this new demand will require major restructuring of the productive system, with the risk that less flexible economies might not make a success of the capital reallocation and worker reskilling which appear essential. The uneven nature of the recovery is also evident on the macroeconomic level, between major regions, and there are risks of global desynchronisation with a stronger rebound in the United States pushing up US interest rates and then global interest rates, thereby adversely affecting countries lagging behind in the cycle, and even triggering a crisis like in 2013 upon the announcement of a reduction in purchases by the Fed (the 'taper tantrum'). Hence, ultimately, **financial uncertainties**, characterised by the triptych of debt, inflation and interest rates.

Excessive debt burdens were already a worry before the crisis and have increased with the pandemic. The solvency of numerous issuers depends on the ability of the central banks to hold real interest rates at sufficiently low levels. A rebound in inflation, already perceptible post-crisis, could be sustained and then fuelled by climate-related energy transition and production reshoring policies increasing production costs. There could therefore be two opposite risks. The first would be an excessively strong and rapid rise in real interest rates, leading to a surge in defaults and market corrections. The second would be the risk of maintaining real interest rates too low for too long, perpetuating excessive use of debt at the expense of shareholders' funds and capital investment, pushing asset prices up indiscriminately without satisfactorily remunerating risk and time, and eroding the return on investment.

Directing savings to the equity capital needed by businesses remains a challenge, not only to ensure an exit from the pandemic crisis, but also to fund investments in the ecological transition.

The financial market's exceptional contribution to the strengthening of corporate equity in the first half of 2021, in particular with a large number of initial public offerings, is an extremely encouraging sign. The renewed French interest in equity markets noted since March 2020, when the French invested astutely at the bottom of the cycle, is also good news, but whether this is a discerning long-term investment policy remains to be confirmed.

The forced savings induced by the shutdown of economies reached record levels in France, both for total savings (21% of household income in 2020) and for financial savings (12%, or more than twice as much as in 2019). To a very large extent, this has swollen the amount of risk-free investments, with €138 billion in bank deposits (compared with €44 billion on average in previous years), while net life insurance inflows were exceptionally sluggish. The pandemic also saw a major increase in the number of individual shareholders, however, as numerous households dipped into financial markets for the first time, with their transactions increasing from 25 million per

year in 2018 or 2019 to 60 million in 2020. Investments in equities had never been as high since 2006. Households apparently realised capital gains through this investment during the crisis, because on the whole they purchased equities during the first lockdown, when prices were low, and then made sales during the second lockdown once markets had risen. Close analysis of the determinants based on transaction data shows that part of these investments was undoubtedly counter-cyclical and would seem to be related more to the specific features of the lockdown periods than to the application of a deliberate strategy based on an analysis of price levels. At the same time, the boundary between investment and gambling seems to be fading with the advent of new products presenting high risks and often poorly understood for want of financial education, not to mention the ever-increasing number of new scams. Structural problems persist after the pandemic: the inability to diversify household savings effectively in France goes hand-in-hand with problems in meeting the French economy's equity funding requirements to invest in the future, e.g. for the energy transition. Retail investors' access to private equity, through specialist funds which could in some cases be selected as units of account for life insurance policies, could constitute part of the solution if the risks involved are thoroughly mastered and understood.

The Covid-19 shock only temporarily interrupted the trends at work in collective investment management, which, after showing resilience to exceptional redemptions (money market funds in France), saw a resumption of growth in assets under management. The rapid expansion of passive management is structurally modifying the sector, while the expansion of private equity presents increased risks (higher leverage, high valuations).

The expansion of private equity continues at a sustained pace worldwide, with an exacerbation of the risks already identified before the pandemic: increased leverage, high valuations, increase in capital waiting for investment. More generally, the pre-crisis trends have resumed with greater intensity in asset management, and the shock created by the pandemic will ultimately have been only temporary. For example, the fall in assets under management in the spring of 2020 was soon offset by sustained fund inflows which boosted AUM to new record levels at end-2020 (more than €50 trillion under management globally, of which €17.7 trillion in Europe). This trend is again found in French money market funds, where the fund outflows of March 2020 were followed by a rebound which soon more than offset the outflows. The liquidity of these money market funds was maintained, but central banks had to intervene, especially in the money market instruments' underlying market (like on all debt markets), which is now leading to international thinking about the need to strengthen the existing regulatory framework. French equity funds, for their part, saw net inflows during the crisis when their valuation collapsed, which is a counter-cyclicity that is reassuring on the whole but which does not prevent a great diversity of individual situations. The growth of the passive management industry continues, a trend that has been exacerbated in a low-interest-rate environment which is exerting growing pressure on costs and fees. It is accompanied by the promotion of innovative products, in particular ETFs with underlying assets that are often narrow or relatively illiquid, entailing specific risks.

Although there was no major incident during the transition, Brexit leaves unresolved the issues of the European Union's competitiveness and sovereignty, while its dependence on foreign derivatives markets is not diminishing. Moreover, an increasing number of operating incidents on market infrastructures shows their vulnerability even without any malicious acts, while events that are apparently idiosyncratic (Archegos, GameStop, etc.) revive questions regarding market regulation. The growing number of SPACs could reflect a more structural change in primary stock markets, and raise questions concerning the valuation of the target companies.

In the markets, the impact of the pandemic now seems a thing of the past, as the indicators show a return to normal, sometimes rapid (trading volumes, short selling volumes, margins called by clearing houses), sometimes rather longer because it was not until early 2021 that equity market liquidity returned to customary levels. The previous trends now seem to be resuming, such as the large proportion of volumes traded during the closing fixing compared with the continuous trading session on Euronext. As expected, Brexit resulted in a massive transfer of transactions on equities of EU issuers to mainland Europe, without changing the equilibrium by type of place of execution (transparent trading venues, over-the-counter, etc.); it also resulted in a transfer from the United Kingdom to the United States of part of the derivatives activity, notably due to the constraints arising from the contradictory approaches imposed by the EU and the UK regarding the Derivative Trading Obligation.

The United Kingdom's departure now poses the question of future regulatory divergence with mainland Europe, and the latter's competitiveness and sovereignty, when British infrastructures remain indispensable for certain

clearing activities, which will imply risks if they remain in the United Kingdom and also if they are repatriated suddenly to mainland Europe. Apart from these medium-term issues, the transition to new risk-free reference rates, with the demise of IBOR, remains a factor of risk for the coming months. Lastly, the series of serious operating incidents in the past year, without any malicious acts, serves as a reminder of the permanent vulnerabilities of market infrastructures nearly everywhere in the world. With regard to France, Euronext and the TARGET2 settlement system of the European Central Bank both experienced major dysfunctions in October 2020. The Wirecard and Archegos cases, or again GameStop and Robinhood, also remind us of the existence of significant risks, and the limitations of regulation: lack of available data to have a holistic view of the risks, quality of market price formation in an environment in which a security is massively shorted, where retail investors can unite via social media and where they have access to an innovative trading method, apparently free of charge.

	Description of the risks	Level at mid-2020	2020-2021	Level at mid-2021	Outlook for 2022
Financial stability	1. Increased risk premiums, weakening indebted firms or those with assets whose prices do not reflect their fundamentals, which could correct sharply <i>High valuation levels, with very low risk premiums, despite the persistence of major hazards</i>		→		→
	2. Lack of international policy coordination <i>Desynchronisation of economic cycles between major regions (United States leading) and within major regions (heterogeneity of the euro area)</i> <i>Rise in global interest rates under the influence of the rise in US rates</i> <i>Regulatory divergence, especially post-Brexit, with a view to defending competitiveness</i>		→		→
	3. Credit risk, unsustainable debt trajectories, non-performing loans <i>Increase in both private and public debt due to the Covid-19 crisis</i> <i>Defaults remaining to be observed, having been retarded by government support policies</i>		↗		→
Market organisation and functioning	4. Volatility, sudden fluctuations in liquidity conditions, large-scale moves by investors from one asset class to another <i>Resilience to the correction in 2020</i> <i>Stimulus by the authorities (central banks, supervisors, etc.)</i>		→		→
	5. Functioning of market and post-trade infrastructures <i>Resilience to the 2020 episode</i> <i>But growing number of operating incidents even without any malicious attack</i> <i>UK clearing houses post-Brexit: uncertainty regarding the equivalence granted by the EU</i>		↗		→
Financing of the economy	6. Profitability of financial institutions faced with an environment calling into question their business model <i>Rise in interest rates</i> <i>But expected rise in non-performing loans and risk of persistence of interest rates that are too low, calling into question business models</i> <i>Climate and digital transitions</i>		→		↘
	7. Difficult access to financing for companies, especially SMEs <i>Financing ensured during the crisis</i> <i>But limits to debt financing</i> <i>Difficulties in guiding investors to capital products in the turnaround phase</i> <i>Difficulties in obtaining equity financing for long-term investments (climate transition)</i>		→		→
	8. Lack of protection of retail investors in the event of misinformation on the risks associated with certain investments or certain distribution channels <i>Further series of scams</i> <i>Boundary between gambling and investment becoming blurred</i> <i>Pursuit of return in an environment in which the authorities would take measures to ensure that real interest rates remain low</i>		↗		→

Level of risk at mid-2021

Very high	
High	
Significant	
Low	

IN BLUE: main new information that changes the assessment

Change in risk since 2020 or outlook for 2022

Lower	↘
Stable	→
Higher	↗

CHAPTER 1 : FINANCING THE ECONOMY – MACRO-FINANCE

The COVID-19 crisis is unprecedented in its nature and origin (a health-driven economic crisis that paralysed supply and demand, particularly for services), and equally unprecedented in its management. The rapid, massive and coordinated response provided by the public authorities on a global level also marks a return to a more balanced policy mix, which provided a reminder, particularly in Europe, of the importance of budgetary and fiscal policies as a means of cyclical stabilisation alongside monetary policy. Expansionist economic policies, combined with massive vaccination campaigns, led to a recovery in business that was unexpected in terms of its speed and scale, but highly variable depending on the geographic zone and business sector, as well as an equally rapid improvement in the financial environment, due to market expectations for a quick and orderly end to the crisis.

Nevertheless this remains subject to many unknown factors. In particular, management of the crisis has led to an increase in the debt of corporates and sovereigns, whose solvency will depend partly on changes in real interest rates, which for the time being remain at very low levels. Any rise that is too high and too fast could compromise the current recovery and lead to big market corrections. In this context, and with the prospect of the ending of measures to support companies, the priority for companies is still to strengthen their capital structure, by rebuilding their capital to replace the debt they have accumulated, thereby giving financial markets a crucial role in ending the crisis.

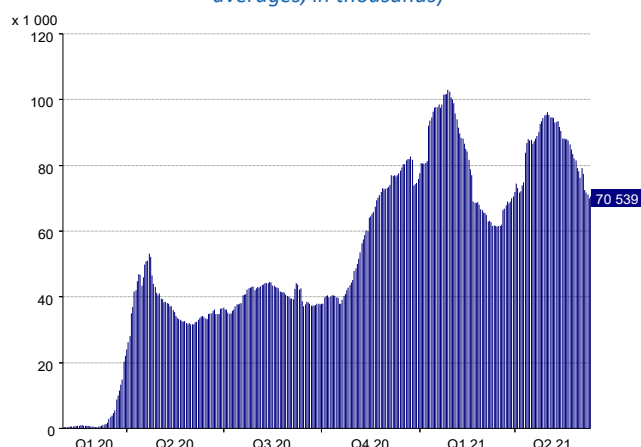
1.1 TRENDS

1.1.1 Disorganised economic recovery

- Uncertainty remains regarding the end of the health crisis

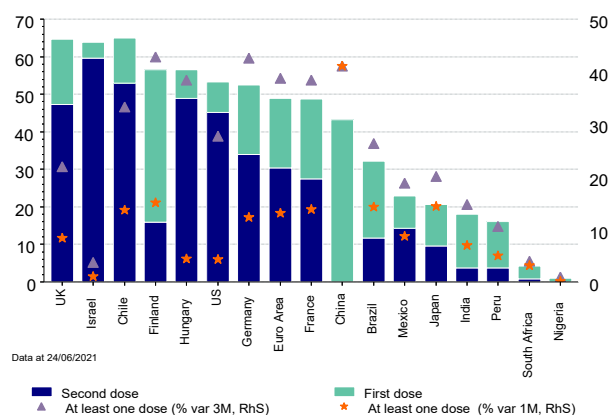
In the summer of 2021, i.e. nearly a year and a half after the start of the pandemic, recent developments in the health situation still remain uncertain, in spite of recent signs of improvement. The number of weekly deaths attributed to Covid worldwide, which had started to rise again from the spring, mainly due to a sudden increase in the epidemic in Latin America and India, has admittedly fallen at the end of the first semester of 2021, but remains at high levels. At the same time, vaccination campaigns have accelerated in the second quarter of 2021, particularly in Europe and, to a lesser extent, in Latin America. Nevertheless, their roll-out rates show a high degree of disparity depending on the country, including within advanced economies. In Israel, most of the population is already fully vaccinated and herd immunity will soon be achieved. In the United States and the United Kingdom, the lifting of health restrictions is well under way, but has been slowed down in the UK due to the spread of the Delta variant. Conversely, in Japan, India and many countries in Africa, the proportion of the population that has been vaccinated was still very slight at the end of June. Yet the slow progress of the vaccination campaign contributes to the emergence of new variants which may be resistant to the vaccines administered, thereby delaying the prospect of a permanent end to the crisis.

Figure 1: Weekly deaths linked to Covid in the world (moving averages, in thousands)



Source: OMS/AMF calculations

Figure 2: Number of people vaccinated per country at 15/06/2021 (as % of the total population)

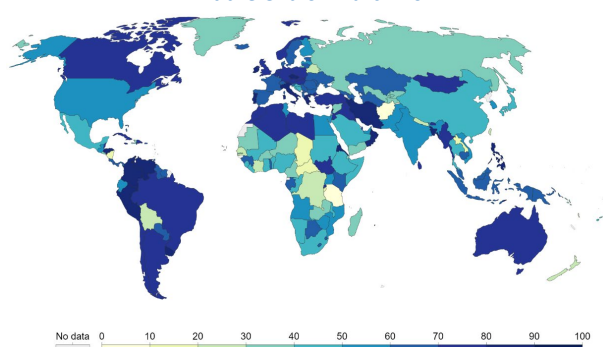


Source: Datastream Refinitiv, AMF calculations

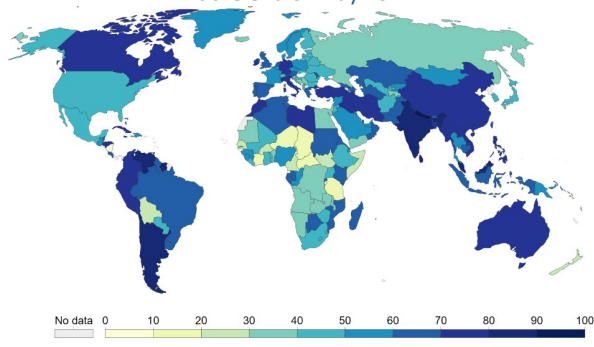
In view of the epidemiological risk which is still high, many countries have maintained or even tightened health restrictions in the second quarter of 2021, although without returning to the levels reached in the spring of 2020 (Figure 3).

Figure 3: Composite index of restrictions linked to Covid

At the end of March 2021



At the end of May 2021



Source: OurWorldInData.org, Hale et alii (2021). "A global panel database of pandemic policies (Oxford COVID-19 Government Response Tracker)."

Note: Composite measurement based on nine response indicators, including school closures, workplace closures and travel bans, rescaled to create a score of between 0 and 100 (100 = strictest).

- A policy mix that is still ultra accommodative to support the economic recovery in developed countries

To encourage a continuation of the economic recovery, most central banks and governments in advanced countries have maintained or even extended the economic support measures introduced in spring 2020, at the start of the crisis.¹

For instance, regarding monetary policy measures, in December the European Central Bank once again increased the amount devoted to asset purchases in the Pandemic Emergency Purchase Programme (PEPP), which now amounts to €1,850 billion.² Net asset purchases will continue at least until March 2022 while collateral easing

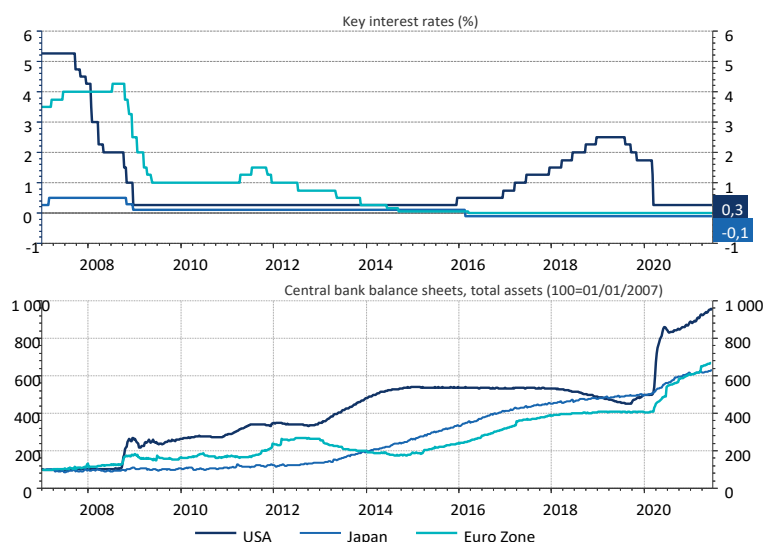
¹ See AMF 2020 Risk Outlook, Chapter 1.

² Initially amounting to €750 billion when it was launched, PEPP was increased by €600 billion at the start of June 2020. We note that in connection with the PEPP, the traditional limits on amounts per country according to the capital key were lifted to allow the ECB to focus its support on countries in the greatest difficulty. At the start of June 2021, the accumulated total value of securities purchased by the ECB under the PEPP amounted to nearly €1.1 trillion.

measures were extended until to June 2022. Regarding measures to facilitate the financing of the economy, four additional Pandemic Emergency Longer-Term Refinancing Operations (PELTRO) are planned by December 2021. In addition, conditions for targeted longer-term refinancing operations (TLTRO) have been eased: banks continuing their efforts to grant credit can now expect to refinance at negative rates of up to -1% (compared with -0.75% previously), i.e. 0.5% less than the current rate of the deposit facility. As regards key interest rates, these remain unchanged,³ and furthermore the ECB has stated that it will keep them at the same level until the 2% inflation target has been reached.

The American Federal Reserve, meanwhile, has left its key interest rates unchanged during the first months of 2021, and similarly, its asset purchase programme remains unchanged at \$120 billion per month. It should be noted that in summer 2020, the US central bank adopted an asymmetrical approach to its employment and inflation targets, which led it to downplay the importance of inflation in conducting its monetary policy. From now on, high unemployment may justify maintaining an accommodative monetary policy, but conversely, low unemployment will not inevitably lead to the adoption of more restrictive measures. Yet in spite of a marked improvement in the employment market, in spring 2021 the unemployment rate remained at a higher level than before the start of the crisis (i.e. 3.5%), which may justify maintaining US monetary policy over the long term, even if there are increased inflationary pressures.

Figure 4: Key interest rates and balance sheets of the central banks



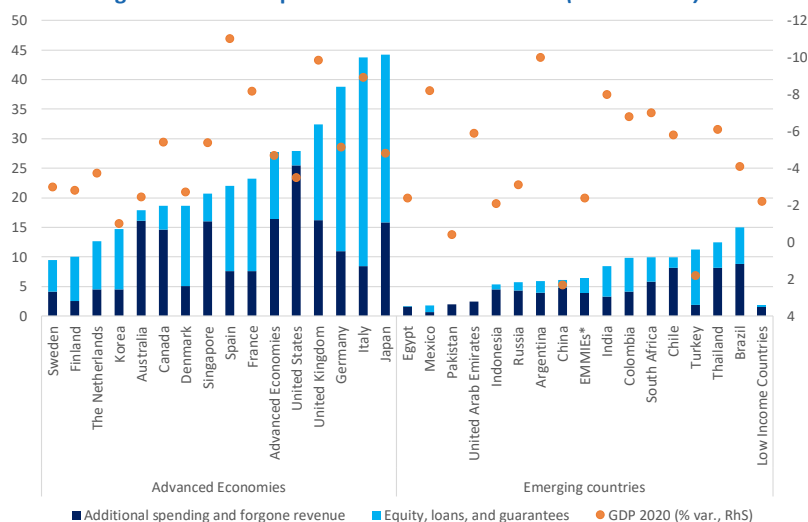
Source: ECB, BOJ, Fed

Last observation: 14/06/2021

For their part, governments have also maintained the highly expansionist direction of their budgetary and fiscal policy. However, the fiscal efforts made appear to be very mixed depending on their state (Figure 5).

³ i.e. -0.50% for the deposit facility rate, 0% for the main refinancing operations rate (refi rate) and 0.25% for the marginal lending facility rate.

Figure 5: Fiscal responses to the Covid 19 crisis (% 2019 GDP)*



Source: IMF

Notes: AE=Advanced Economies; EMMIES=Emerging Market and Middle-Income Economies

* At the end of March 2021

American companies and households have therefore already benefited from three particularly ambitious fiscal stimulus plans since the start of the health crisis, the last of which dates from March 2021, mainly aimed at supporting demand, for a total of \$4.3 trillion (i.e. 20% of GDP).⁴ In addition to these measures, there is the American Jobs Plan bill, which is intended to strengthen the productive fabric in the infrastructure and housing sectors, and strategic business sectors such as electronic components, broadband, research and education.

In the European Union, at Community level, after the measures put in place at the start of the crisis to protect companies and employment in Member States,⁵ an agreement was reached in summer 2020 on a total budget of over €1.8 trillion for the period 2021-2027, which confirmed the new common borrowing capacity. It includes a multi-annual financial framework and a recovery plan (Next Generation EU) comprising almost equal amounts of loans and grants supporting investments in the green and digital transitions. The total amount of €750 billion will be split between Member States, in particular according to the severity of the economic crisis they have to cope with. The plan could therefore help to finance 40% of the French recovery plan. Almost a year after the agreement was signed, the European recovery plan was ratified in May 2021 by all of the national parliaments, as required for its implementation.

□ Strong but disorganised economic recovery

The gradual lifting of health restrictions in China, and then in the United States, allowed an early recovery in global business that was stronger than anticipated. In China, industry benefitted from strong external demand, particularly in the technology and medical equipment sectors. In the United States, as in most advanced economies, household income and access to credit were relatively protected, and industrial production regained its pre-crisis level in less than a year. Moreover, as is shown by the survey data, there has been a marked improvement in the economic situation since the start of the year in services, which have suffered particularly badly since the start of the COVID-19 crisis (Figure 6).

⁴ The Coronavirus Aid, Relief, and Economic Security Act (CARES Act) and the Year-End Covid Relief Bill, both of which were passed in 2020 under the Trump administration (\$2.9 trillion in total, i.e. about 13% of GDP), included aid for households (cheques and unemployment insurance) and for companies (Paycheck Protection Program, PPP). A third fiscal stimulus plan, the American Rescue Plan, for a total of \$1.9 trillion (8.7% of GDP) was passed in February 2021 under the Biden administration. In order to support demand, it provides for payment of a cheque for \$1,400 to taxpayers, further unemployment benefits or an increase in food aid.

⁵ In particular the unemployment insurance measures provided for by the SURE programme (€100 billion) that 19 Member States benefited from, and the €200 billion Pan-European Guarantee Fund to facilitate loans to companies. Including the possibility given to Member States to request the European Stability Mechanism, all of these measures may amount to about 4% of European GDP (i.e. €540 billion).

In Japan and Europe, a recovery has also been observed, but has proved slower. The new lockdown measures introduced at the end of 2020 had a negative impact on business at the start of 2021, particularly for services, in spite of the adaptation strategies, such as the development of distance working, online sales and click-and-collect. The gradual lifting of lockdown measures in the second quarter of 2021 should make it possible to maintain the recovery that is under way, provided that investment efforts by companies, which have proved resilient during the crisis,⁶ continue, and the forced savings accumulated since the start of the pandemic are spent or invested in production equipment.

Figure 6: SMI Purchasing Managers Index

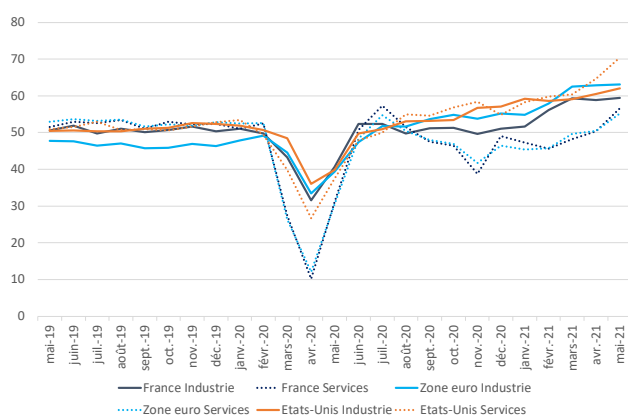
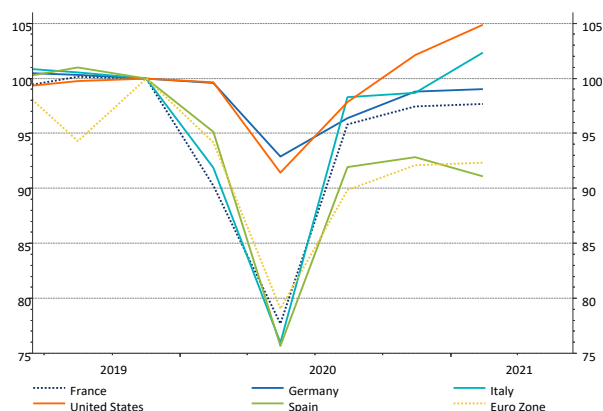


Figure 7: Variation in investments in volume



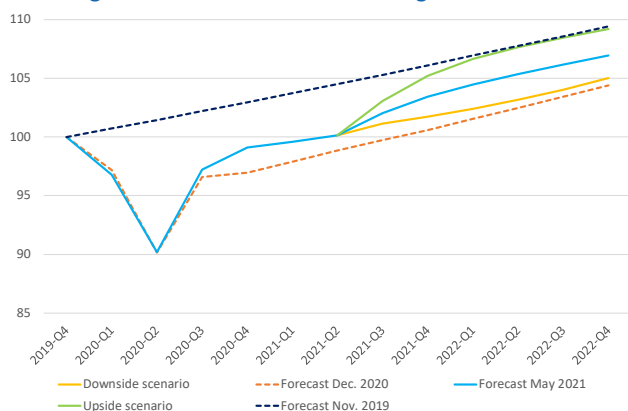
Source: IHS Markit

In spite of the persistence of numerous unknown factors, particularly regarding health, the improvement in economic outlook resulted in growth forecasts being revised upwards, at least in most advanced economies. According to the forecasts from the Organisation for Economic Co-operation and Development (OECD)⁷ published at the end of May, after falling last year by 3.5%, the global economy may increase by 5.8% this year, i.e. 1.6 points more than forecast in December 2020. France, one of the European countries the worst affected by the crisis, could experience a stronger recovery than that of the euro area (i.e. +6% compared with +4%). Nevertheless, in more general terms, the crisis helped to accentuate differences in growth paths, including within the euro area, where economies in the south were penalised in particular by greater dependency on the tourism sector. Still according to the OECD, France and Italy should regain their pre-crisis level of per capita wealth by the summer of 2022, or 2023 for Spain, i.e. respectively one and two years after the United States.

⁶ In previous crises, investment tended in fact to accentuate movements in GDP.

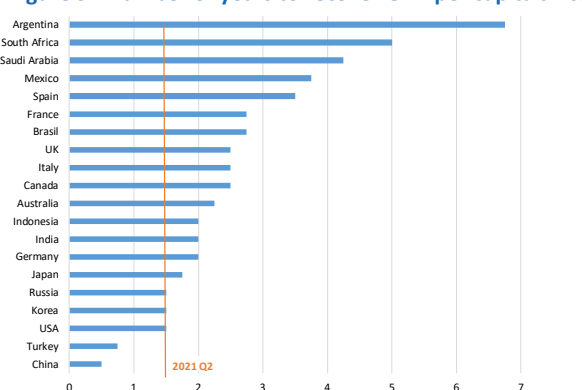
⁷ OECD: World Economic Outlook, May 2021.

Figure 8: OECD revised worldwide growth outlook



Source: OECD

Figure 9: Number of years to recover GDP per capita since 2019 Q4

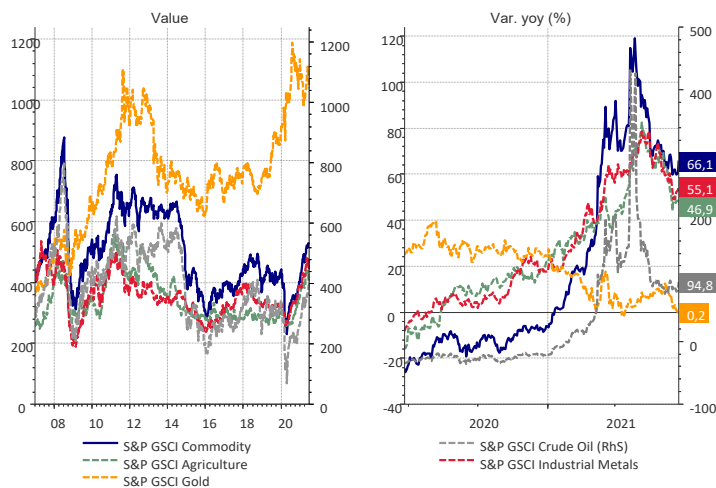


Source: OECD

□ A faster and greater rise in inflation than expected

The rapid revival of global demand, particularly in China, combined with supply that is inflexible in the short term and suffering from chronic under-investment, resulted in a substantial increase in the prices of agricultural and industrial raw materials, as well as the appearance of bottlenecks linked to supply difficulties (Figure 10). In France, according to the French national institute of statistics and economic studies (INSEE), in April 2021 these difficulties affected about 40% of companies in the transport equipment and capital equipment sectors.

Figure 10: Prices of raw materials, S&P GSCI indices

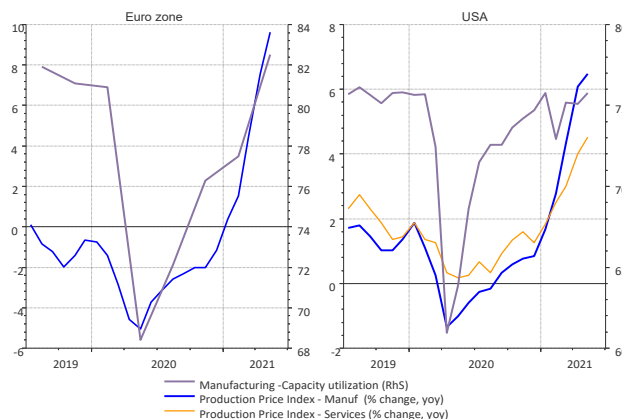


Last observation 29/06/2021

Source: Refinitiv

This sudden rise in prices, which should however be put into perspective in view of the drop recorded previously due to the crisis and long-term historical developments, combined with an increase in transport costs, has already contributed to the increase in industrial production costs in both Europe and the United States since the start of 2021. Although less marked, a similar trend can be seen in the service sector, particularly for services involving contact with the public, for which the introduction of health protocols had a negative impact on unit costs (due to the purchase of equipment or the introduction of capacity limits).

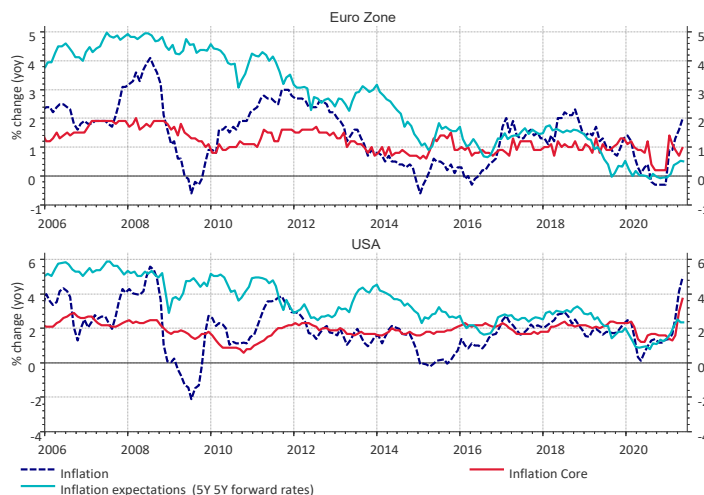
Figure 11: Production costs in Europe and the United States



Source: Refinitiv
Last observation: May 2021

The respective rising trends in the prices of raw materials and production costs both contributed to a sudden increase in inflation in the United States, which rose to 5% in May 2021, i.e. more than double the Federal Reserve's inflation target. Underlying inflation in the United States is also on a rising trend, reflecting strong demand for the consumption of goods and services, deferred until then due to lockdown measures. A rise in inflation was also observed in Europe, but remained more moderate at 2% in May, and was partly attributable to one-off factors, such as an increase in VAT in Germany at the start of the year. Moreover, the impact of the increase in the price of raw materials was partly limited by the concomitant rise in the euro against the dollar. Finally, underlying inflation remains very slight, fluctuating around 1%.

Figure 12: Inflation in the United States and in the euro area



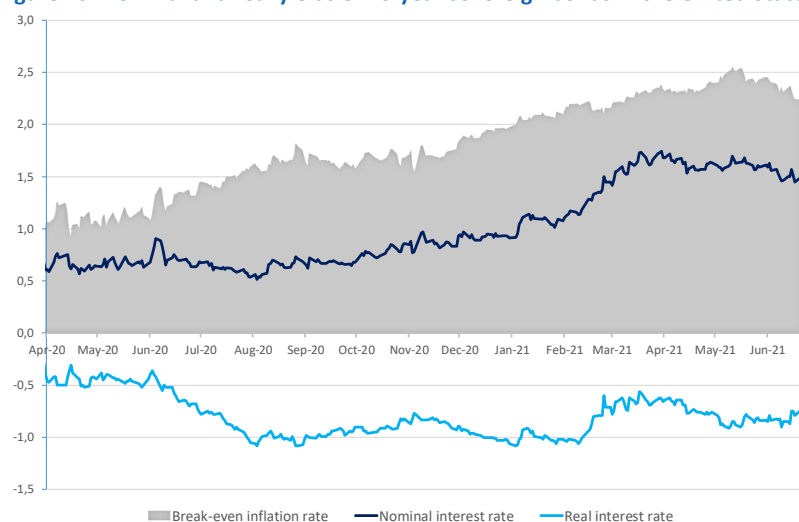
Source: Refinitiv

- Stock market valuations benefited greatly from the economic recovery and the environment of low interest rates

As may be expected, the improvement in the economic outlook and the rise in inflation in the United States resulted in a marked rise in the nominal interest rates of sovereign bonds in the first quarter of 2021. The rise was limited however, due both to the effect of demand, via the steady rate of purchases under quantitative easing, and the effect of supply. In line with its announcement at the start of the year, the US Treasury recovered over \$1,000

billion held on its liquidity account with the Federal Reserve. This liquidity was used to finance some of the government's expenses, enabling the US Treasury to issue fewer securities, contributing to a drying up of the market. Regarding real interest rates, the rise was very modest, which suggests that the recent rise in nominal yields was due to inflation expectations rather than expectations of an acceleration in business, and limits the risks of an increase in the debt burden of borrowers (Figure 13).

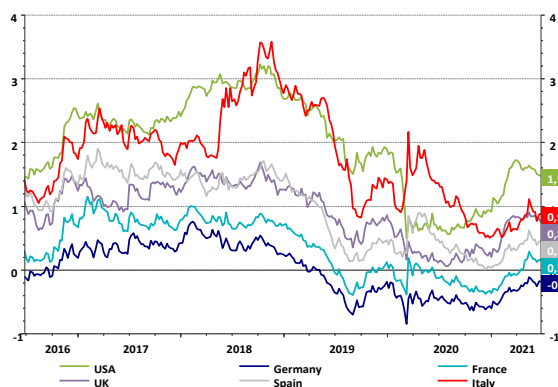
Figure 13: Nominal and real yields of 10-year sovereign bonds in the United States



Source: US Department of the Treasury

A rise in nominal sovereign yields can also be seen in Europe, but to a lesser extent. Within the euro area, 10-year rates moved back into positive territory except in Germany, but pressure on interest rates remains slight for the time being, including in southern countries (Figure 14). The *spread* between the Italian and German 10-year sovereign rates stood consequently close to 100 basis points (bps) by mid-June 2021, i.e. almost the same as at the start of the year and less than before the crisis. In general, European Central Bank operations have made it possible to maintain favourable financing conditions for public and private agents, and risk perception does not appear to have deteriorated significantly since the start of 2021 (Figure 15).

Figure 14: Change in 10-year sovereign bond yields (as %)



Source: Refinitiv

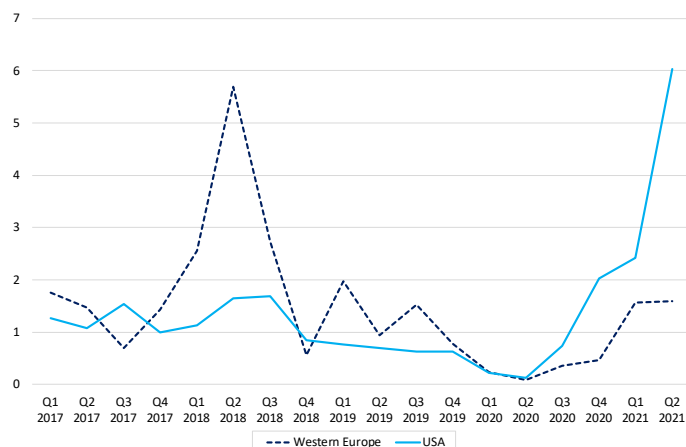
Figure 15: Corporate CDS indices in Europe (bps)



In fact, in the first few months of 2021, there were more credit rating upgrades than downgrades by credit rating agencies in the United States, while the rating drift returned to equilibrium in Europe. Furthermore, regardless of

the region, the amount of debt concerned by upgrades appeared far higher than the amount affected by downgrades (twice the amount at the global level for S&P.)

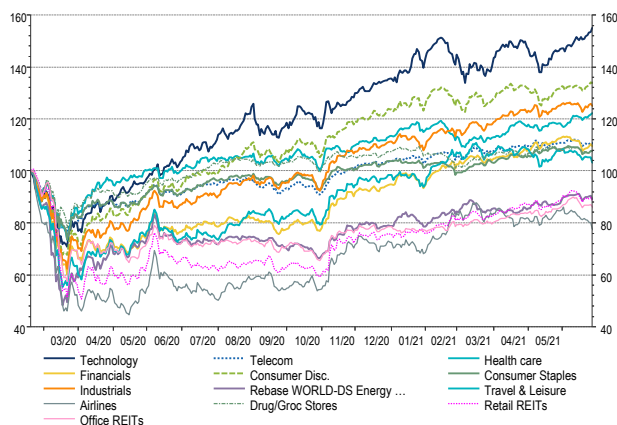
Figure 16: Number of credit rating upgrades relative to downgrades (Moody's, %)



Source: Bloomberg

Although the rise in nominal interest rates in spring 2021 had a negative impact on the performance of cyclical securities, stock market valuations continued to rise sharply on the whole, except in sectors where health restrictions had a lasting impact, such as the travel, leisure activities and non-residential property sectors.

Figure 17: Stock-market developments by sector at the global level (10/02/2020 = 100)

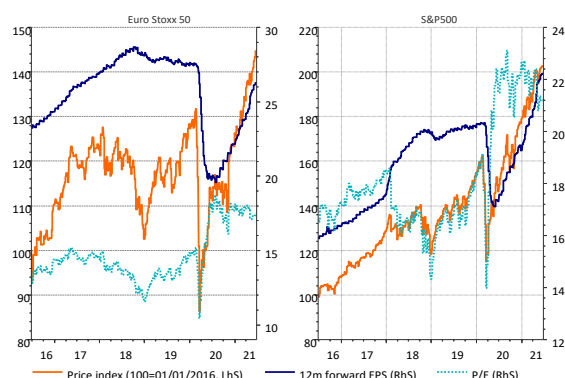


Source: Datastream Refinitiv

Last observation: 29/06/2021

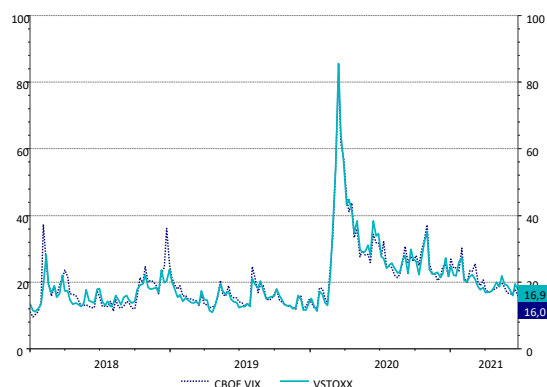
In fact, the improvement in the economic outlook combined with the maintenance of highly expansionary monetary policies remained favourable for equity investments. In less than a year and a half, stock market valuations have regained or even exceeded the already very high levels reached before the start of the health crisis and the ensuing stock market correction. At the same time, volatility returned almost to pre-crisis levels (Figure 19).

Figure 18: Profits expected and stock market valuations



Source: Datastream Refinitiv
Last observation: 29/06/2021

Figure 19: Implied volatility indices



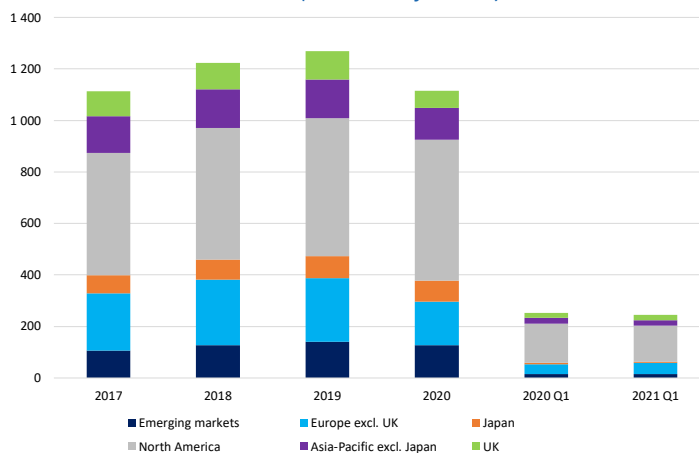
□ Towards a return to more favourable distribution policies

The severity of the crisis led companies to review their distribution policy. Nevertheless, the impact of the crisis proved on the whole to be very temporary and relatively limited: at the global level, the amounts paid in 2020 only fell by 12% or even 10% if we take exceptional dividends into account. Furthermore, this overall assessment conceals great geographic and sector-specific diversity, reflecting both the desynchronisation of economic cycles depending on the zone, and differences in the recommendations made by financial system supervisory authorities, or even by certain governments, regarding distribution policies. Consequently, reductions and cancellations of dividends were particularly marked in Europe, where the economic recovery appeared more half-hearted and where, in 2020, the financial system supervisory authorities called on the institutions under their supervision not to pay dividends or carry out share buybacks. The United Kingdom and France were especially affected. For instance, in France nearly three-quarters of companies listed on the CAC 40 did not pay any dividends in 2020 or reduced their amount, resulting in a fall in payments of 42% compared with 2019, at €29 billion.⁸

Conversely, the United States stood out as an exception: dividends there increased in 2020 in spite of the crisis (+2.4% at \$503 billion), partly offsetting the concomitant drop of 30% observed in share buybacks at \$505 billion for S&P 500 companies. The economic recovery, together with the lifting of restrictions on share buybacks from the second quarter for banks considered sufficiently strong, may therefore represent an important factor supporting more generous distribution policies in the United States in 2021. In more general terms, according to Janus Henderson Investors, after a further drop in the first quarter of 2021, dividends at the global level may rise again by 8% in 2021, thanks to the payment of exceptional dividends, on the favourable assumption of a continuation of the economic recovery.

⁸ It should be noted that in France, the government called on large companies requesting the deferral of tax and social security payments or a secured loan, not to pay dividends or carry out share buybacks in 2020, unless they had undertaken to do so before the start of the health crisis.

Figure 20: Change in dividends
(in billions of dollars)



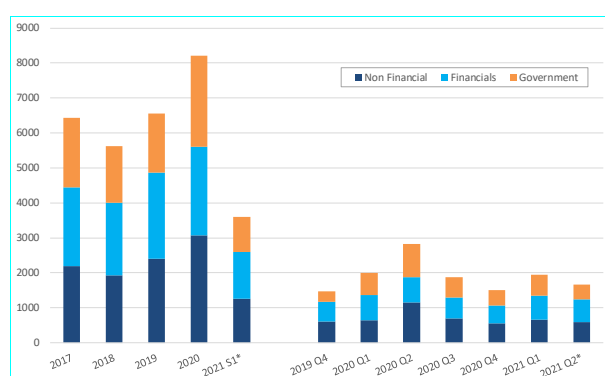
Source: Janus Henderson

1.1.2 Primary markets

□ Bond markets

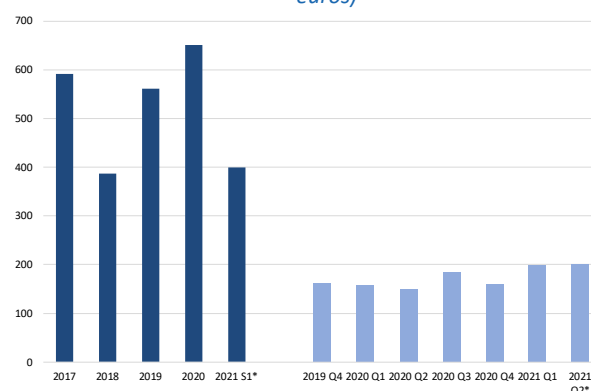
Globally, bond issues for all agents combined increased by 25% in 2020, and remained very buoyant in the first few months of 2021. In a low interest rate environment, government issuance was particularly strong, to finance spending to combat the pandemic and its economic impact. For the private debt segment, except for a few weeks when the crisis first hit, between mid-February and the end of March 2020, non-financial companies also intensified their recourse to the bond markets in 2020 and the first half of 2021. For the high yield market segment, which was more heavily affected at the time of the crisis, here again, business remained very dynamic after the recovery observed in summer 2020.

Figure 21: Bond issues (in billions of euros)



Source : Bloomberg
*Data at 15/06/2021

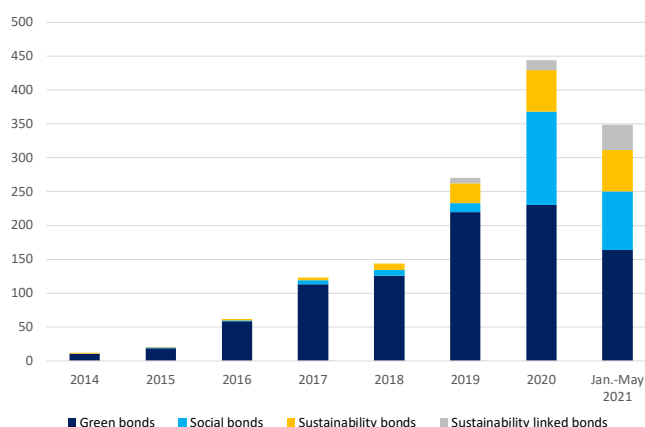
Figure 22: Bond issues in the high yield segment (in billions of euros)



Source : Bloomberg
*Data at 15/06/2021

The whole of the sustainable bonds market (sustainability and sustainability-linked bonds, social bonds and green bonds⁹) has been rising sharply since the start of the health crisis. In particular, the considerable means invested to deal with the pandemic led to a substantial rise in the issuance of social bonds, notably by governments and supranational issuers, led by the European Union¹⁰ and France. Whereas this market segment was still undeveloped in 2019, the amounts issued were close to €140 billion in 2020 and continued to be most dynamic in the first few months of 2021.

Figure 23: Bond issues in the sustainable finance segment
(in billions of euros)



Source: Bloomberg

Note: Prime Standard green bonds; social bonds and sustainability bonds aligned to the ICMA standard

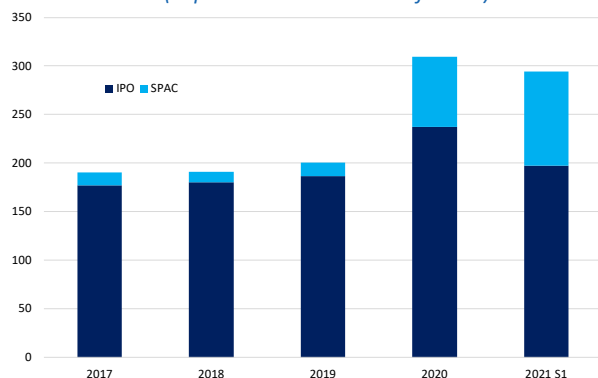
□ Equity markets

The improvement in the financial environment, reflected by the high level of stock market valuations and the return of volatility to very low pre-crisis levels, resulted in a recovery in the market for initial public offerings in the second half of 2020, which continued in the first few months of 2021. In the first six months of 2021, the amount of capital raised globally in these operations was closed to €300 billion, i.e. almost 50% more than in the whole of 2019, the last full base year before the start of the crisis. This trend was due in particular to the rise of special purpose acquisition companies (SPACs), which are listed on the stock exchange solely to raise funds that will then be invested in target companies. In the United States, where SPACs originated and where most of the market segment is still concentrated, SPACs accounted for two-thirds of the amount raised in traditional IPOs in the first half of 2021, compared with less than half in 2020.

⁹ Sustainability bonds are bonds for which the income helps to finance new or existing projects with environmental, social, and/or governance (ESG) targets. A sustainability-linked bond is a bond loan that also has ESG targets, but whose characteristics, and in particular the financial characteristics, may vary depending on whether or not the targets are achieved. A social bond is a bond intended to finance projects that have a positive social impact on the target populations.

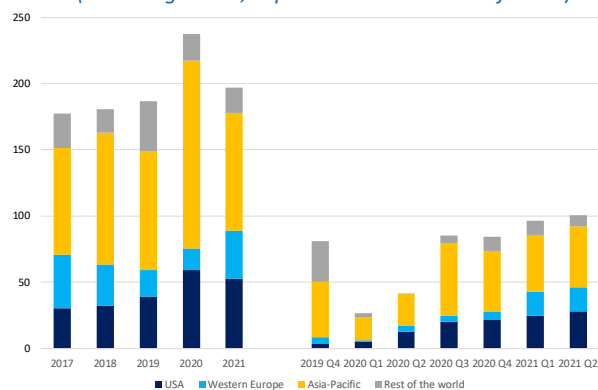
¹⁰ In connection with the Support to mitigate Unemployment Risks in an Emergency (SURE) unemployment reinsurance scheme introduced in 2020 to protect jobs during the crisis.

Figure 24: Initial public offerings
(capital raised in billions of euros)



Source: Bloomberg

Figure 25: Initial public offerings according to geographic zone
(excluding SPACs, capital raised in billions of euros)

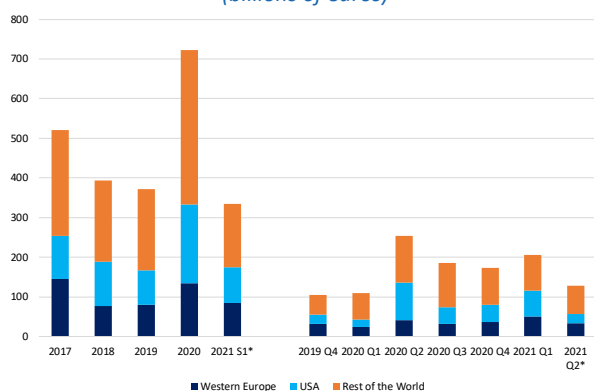


Source: Bloomberg

Nevertheless, traditional IPOs also appeared very dynamic, particularly in the United States, China, and to a lesser extent in Europe, where the amounts raised in the first six months of the year more than doubled compared with those recorded for the whole of 2020. The United Kingdom has been a particularly active market since the start of the year in Europe and concentrates more than a third of the capital raised. In Paris, the number of IPOs increased markedly in the first half of 2021 (about 15 deals, i.e. nearly twice as many as in the whole of 2020) but despite this increase, the capital raised from these IPOs remained low. In China however, there was a marked slowdown in activity at the start of 2021, mainly due to the tightening of regulations in January relating to transparency requirements.

Secondary issues have also been particularly steady since spring 2020. At the global level, in June 2021, the cumulative amounts were up by almost 25% compared with the same period in the previous year. It should be noted that the context of low interest rates, combined with the recovery in the equity markets, remained highly favourable for the convertible bond segment in 2020 and the first few months of 2021, particularly in the United States.

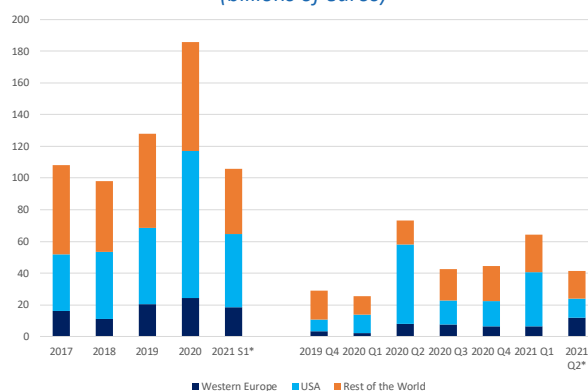
Figure 26: Issues excluding IPOs
(billions of euros)



Source: Bloomberg

*Data at 15/06/2021

Figure 27: Convertible bond issues
(billions of euros)

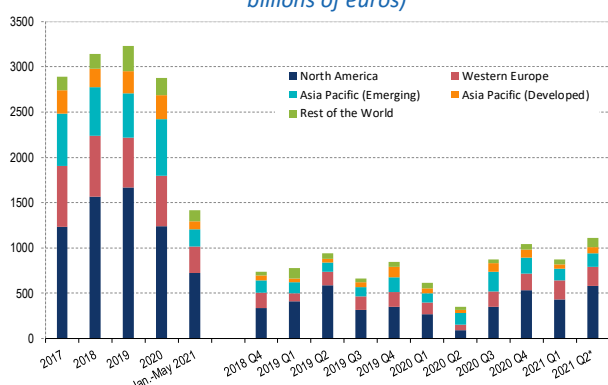


The dynamism of secondary issues was due to two main factors. Firstly, companies heavily affected by the health crisis attempted to rebuild their capital base. Secondly, many issuers who successfully completed external growth operations, financed them by issuing shares, such as the two capital increases totalling €11 billion by the Spanish telecommunications infrastructure operator Cellnex in order to finance several acquisitions, the capital increase of

the Bayer group (€6 billion) in connection with the acquisition of the Monsanto group, and the capital increase (of €2 billion) by Alstom to finance the acquisition of the Bombardier group.

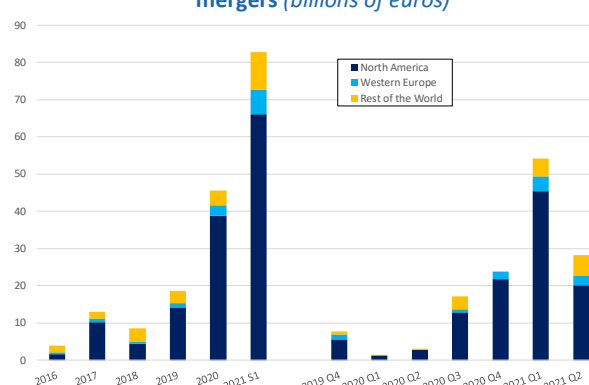
After a period of scarcity at the start of the health crisis, mergers and acquisitions suddenly picked up again from the second half of 2020, exceeding €1 trillion in value in the first quarter of 2021. One of the most active sectors was in particular that of technology securities. SPACs stepped up their investments during this period, at least until the beginning of spring 2021. They therefore represented a significant proportion of the mergers and acquisitions market in the first half of 2021, with over 10% of the total M&A value in the United States. In more general terms, as in previous years the American market was a driver of growth in the market, alone accounting for half of the total M&A value globally at the start of 2021.

Figure 28: Mergers and acquisitions market (total M&A value, in billions of euros)



Source: Bloomberg
*Data at 15/05/2021

Figure 29: Amounts invested by SPACs in connection with mergers (billions of euros)



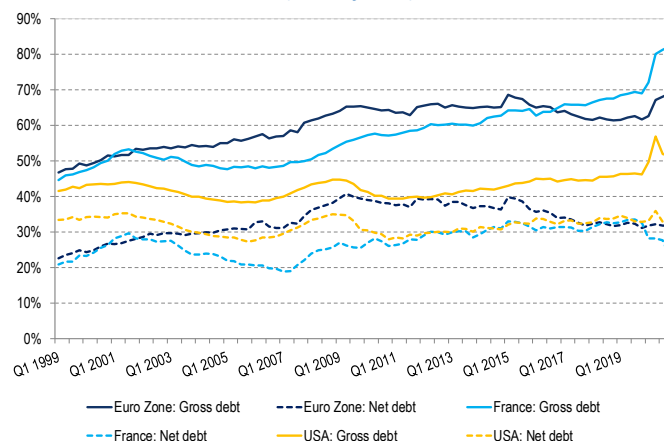
1.2 RISKS

1.2.1 Progressive ending of public schemes and strengthening of capital: two key issues for companies weakened at the end of the health crisis

Government support schemes, particularly through secured loans, measures to defer tax and social security payments, and increased use of bank debt and market-based debt, have made it possible to cushion the initial impact by preserving companies' liquidity in advanced countries. According to Hadjibeyli, Roulleau and Bauer (2021),¹¹ this support made it possible in France to halve the number of companies that became insolvent due to the crisis in 2020 (from 12% to 6%) and the number of bankruptcies recorded remained small (less than 30,000 for the year to April 2021, down 35% on the same period the previous year). Admittedly, the gross debt of companies increased greatly in 2020 and in the first few months of 2021 in both Europe and the United States, but at the same time net debt increased very moderately (Figure 30). In France, the gross debt and cash of non-financial corporations increased respectively by €220 billion and €214 billion between January 2020 and April 2021, with the result that the net financial debt of companies only increased very slightly (by less than €6 billion in the same period). According to the French Banking Federation (FBF) by the end of March 2021 half of French companies that received the government guaranteed loan had kept all of the amount granted on their bank accounts, i.e. about €100 billion out of the €135 billion granted. Nevertheless, companies that resorted to debt the most in 2020 have not all accumulated cash since the start of the crisis. The reassuring assessment at the macroeconomic level therefore conceals diverse individual or sector-specific situations, in spite of the support measures put in place by public authorities.

¹¹ "L'impact de la pandémie de Covid-19 sur les entreprises françaises", Trésor-éco, April 2021. According to the same study, without public support nearly 30% of companies in the accommodation and catering sector would have become insolvent between March and December 2020.

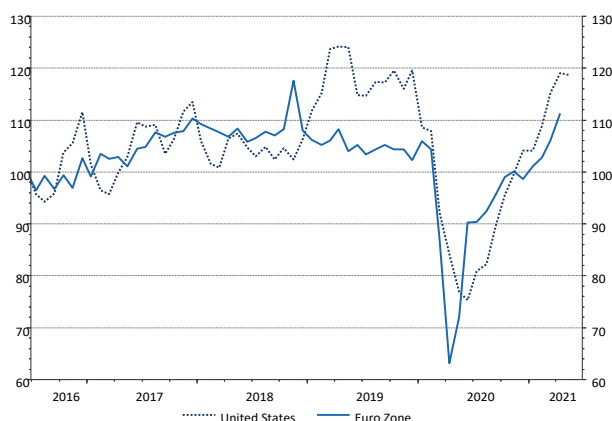
**Figure 30: Consolidated gross debt¹² and net debt¹³ of non-financial corporations
(as % of GDP)**



Source: Banque de France, Federal Reserve, AMF calculations

The increased corporate debt could be a brake on investment in the months and years to come. Admittedly, investment has recovered since summer 2020 in the advanced economies. In both Europe and the United States, orders for capital equipment rose sharply in the first half of 2021 (Figure 31). In France, in the spring company directors in the manufacturing industry forecast a rise in investment of 10% in value in 2021 compared with 2020. But on the supply side of financing, the weakening of companies' capital structure may represent an obstacle to granting loans. Consequently, although it remained at a very high level, there was a slight drop in the number of companies obtaining investment credit in the first quarter of 2021 for SMEs/VSEs and intermediate-sized enterprises.

Figure 31: New orders for capital goods in industry



Sources: Eurostat, US Census Bureau, Datastream Refinitiv

The ending of support measures for companies at the end of the crisis might cause solvency problems for many companies weakened by the crisis. An increase in the number of bankruptcies is therefore expected, which may nevertheless be smoothed if the withdrawal of support is gradual. In France, many measures put in place in 2020

¹² The consolidated gross debt of French non-financial corporations is obtained from data published by Banque de France, which calculates consolidated debt for both domestic and non-domestic intra-group loans. As the data available for US non-financial corporations are less granular, the loans recorded on the asset side of the balance sheets of non-financial corporations are deducted from the total debt shown on the liabilities side to obtain a rough estimate for consolidated debt.

¹³ Net debt is calculated by deducting liquid assets (currencies and deposits, debt securities and units of unit trusts recorded on the asset side of non-financial corporations' balance sheets) from the gross debt.

were therefore extended in May to the rest of 2021, such as the government guaranteed loan (PGE), or for small companies unable to receive one, the granting of exceptional loans, repayable advances or soft loans. Measures to extend the term of payment of tax and social security liabilities are also planned.

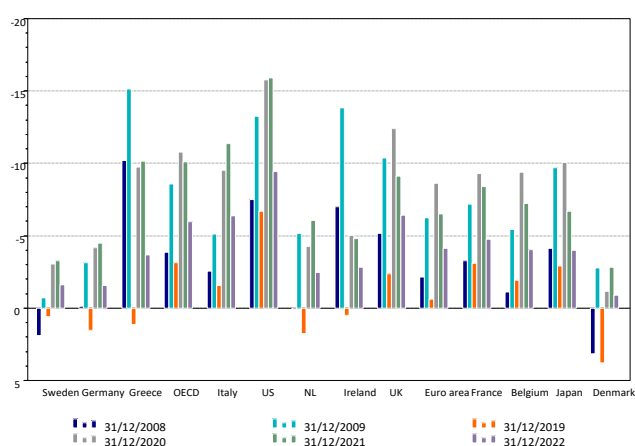
In this context, strengthening the capital structure of companies remains the priority. Moreover, in February 2021 the European Commission made further amendments to its state aid temporary framework adopted the previous year¹⁴. All of the measures, which were to expire this year, were extended until the end of 2021, including the measures to recapitalise companies. Furthermore, until 31 December 2022 Member States will be able to convert puttable instruments into other forms of aid such as direct grants, subject to upper limits. Finally, the amended text also specifies that states can grant aids in the form of guarantees with reduced premiums on newly issued debt instruments which are subordinated.

In France, the 2021 Finance Act therefore introduced a new scheme applicable from April 2021 until the end of June 2022 aimed at SMEs/intermediate-sized enterprises affected by the current economic crisis but deemed viable. It provides for state aid in the form of a guarantee for investors who are refinancing equity loans or subordinated bonds with the Relance label intended to finance investments, for a total of €20 billion. For large and intermediate-sized enterprises affected by the crisis, a €3 billion transition fund was also created to offer financing solutions via loans as well as via equity and quasi-equity, case by case.

1.2.2 The sustainability of public debt in Europe remains a medium-term concern

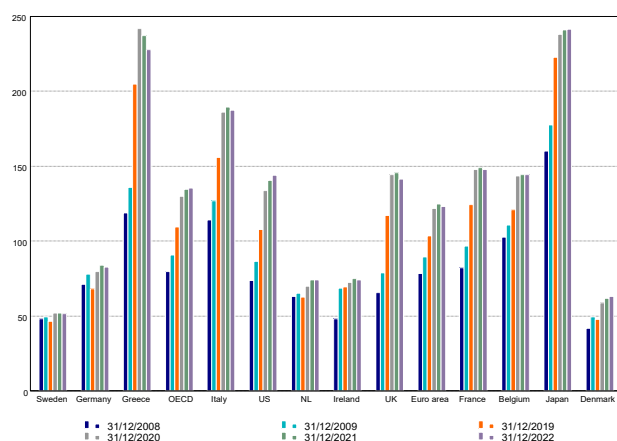
The implementation of automatic stabilisers, as well as specific expenditure incurred in response to the health crisis and the recession, have resulted in a significant rise in public finance imbalances. In the euro area, budget deficits reached 7.2% of GDP in 2020. All the member states posted a deficit of over 3% of GDP, except for Denmark (-1.1%). Meanwhile, public debt in the monetary union increased by 14pp of GDP to 100%. Public finance disparities between Member States have increased sharply in general, with countries that began the crisis with large imbalances seeing the gaps with other Member States widen (Figure 33). According to the OECD, Italy's debt could near 160% of GDP in 2021¹⁵ – more than double Germany's debt ratio and four times that of Sweden – despite recording structural primary surpluses over the last decade.

Figure 32: Public deficit
(as a % of GDP, inverted scale)



Source: OECD

Figure 33: Public debt
(as a % of GDP)



Source: OECD

¹⁴ "Fifth Amendment to the State Aid Temporary Framework to Support the Economy in the Context of the COVID-19 Outbreak".

¹⁵ Gross debt as defined by Maastricht.

Given the scale of the recession and uncertainties surrounding the sustainability of the economic recovery, the suspension of the Stability and Growth Pact (SGP) procedures (initially applicable until the end of 2021) was extended in early June to the end of 2022. This decision, coupled with low real interest rates during the economic recovery, is helping keep another sovereign debt crisis in Europe at bay in the very near term.

However, this possibility of another crisis cannot be ruled out over the longer term, especially if real interest rates rise significantly and outpace the growth rate, or if the SGP rules are reintroduced in their existing form.

As a result of twenty years of reforms in response to past crises, European fiscal rules have become overly complex and poorly implemented. For example, while excessive deficit procedures have been initiated on a number of occasions, no fine has ever been handed down. And while the Pact fails to act as a deterrent, it does have procyclical effects: Member States are required to adopt restrictive budget and fiscal policies during a recession in order to ensure compliance. These adverse effects have been widely documented in the academic literature and are all the more harmful as the fiscal multiplier (i.e. the growth in GDP generated per public euro spent) tends to increase in times of crisis.¹⁶ According to the IMF, an increase in public investment of 1% of GDP would result in a 2.7% increase in growth, a 10% increase in private investment and 1.2% increase in employment.¹⁷ Furthermore, the current fiscal rules mainly focus on limiting the negative externalities of overly lax national fiscal policies on other Member States, specifically with regard to financing rates, however do not take into account positive externalities in terms of trading partner demand.

The European Budget Committee, which in 2019 published a review of the fiscal rules¹⁸ at the European Commission's request, has proposed potential avenues for reform, as detailed in its 2020 Annual Report. Some of these guidelines echo proposals put forward by a number of economists.¹⁹ In addition to making the rules simpler and more flexible (including by taking the diverse range of national circumstances into account), the Committee recommends setting up a sizeable Community budget that could be used for priority investments in the event of a major crisis, and access to which would be made conditional on compliance with European rules. Moreover, growth-oriented investments or spending in other areas (such as the energy transition) should be maintained, even in times of fiscal austerity. However, the Committee is opposed to scrapping quantitative targets in relation to the long-term public debt anchor and to replacing the rules with fiscal standards, as proposed by Blanchard *et al.* (2021).

1.2.3 The spread of a rise in US long-term interest rates could have adverse consequences for the global macro-financial environment

The increase in US nominal rates in the first quarter of 2021 proved to be temporary – and its effects limited in both Europe and emerging markets, in large part due to the active support of the Federal Reserve and ECB through their asset purchase programmes. In the euro area, a rise in long-term rates would seem unlikely in the very short term given the position in the economic cycle and the ECB's rather accommodating monetary policy and resources at its disposal. The Central Bank still has genuine room for manoeuvre through its pandemic emergency purchase programme (by stepping up securities purchases and even increasing the budget dedicated to them) to handle any future tensions, particularly in the most vulnerable countries in the area. With the central banks' upcoming announcements of their future monetary normalisation strategy, this episode has nevertheless highlighted the risk of a rise in long-term interest rates in the United States – with the recovery well underway – spreading to other regions of the globe, where economic recovery is yet to be confirmed.

In the United States, the equity risk premium – which measures the additional return required by investors to invest in listed stocks rather than in risk-free assets – has returned to levels only slightly above those recorded

¹⁶ See OFCE (2016): "*Investissement public, capital public et croissance*" ("Public investment, public capital and growth") for a review of the literature. As such, in times of crisis the multiplier could reach between 1.3 and 2.5.

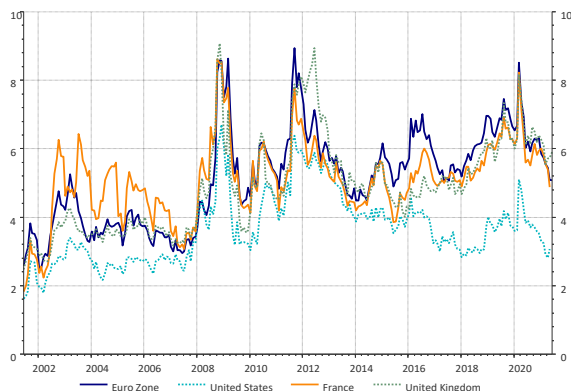
¹⁷ IMF (2020): "Policies for the recovery", FMI Fiscal Monitor, October

¹⁸ "Assessment of EU fiscal rules", August 2019.

¹⁹ See Philippe MARTINA, Jean Pisani-Ferry and Xavier Ragot (2021): "Reforming the European Fiscal Framework", Notes of the *Conseil d'analyse économique* (CAE), no. 63, April.

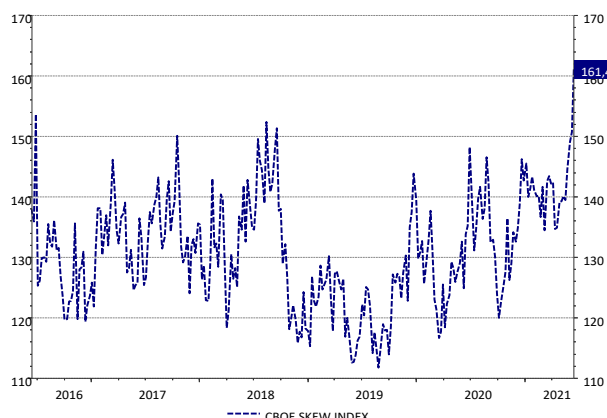
prior to the 2008 crisis. As such, a sharp and rapid rise in long-term interest rates could result in stock market corrections, particularly in growth stocks, which account for most US indices. This risk of a correction, which could then spread to other financial centres, is reflected in all-time highs on the Skew index, which measures the price investors are willing to pay to protect themselves against a price drop.

Figure 34: Equity risk premiums



Sources: Datastream Refinitiv

Figure 35: Skew volatility index



Sources: Datastream Refinitiv

The impact of a rate hike will depend on the change in real rates, and therefore on inflation. This rose in the second quarter, particularly in the US. Although considered temporary by the central banks, this trend may continue – particularly if the wage-price spiral is triggered. In the United States, where the unemployment rate has returned to near pre-crisis levels, such a scenario is by no means unlikely. In comparison, the high level of unemployment in the euro area is helping to ease pressure on wages. Companies may also only pass on a portion of the increased costs caused by the health crisis (higher commodity prices, increased organisation, transport and supply costs) in their sales prices, adversely impacting profit margins. In France, INSEE has stated that the impacts of COVID-related organisational costs on the general consumer price level would be minor, i.e. between 0.1 and 0.3%. A rise in nominal interest rates (in the absence of inflation) would result in an increase in real rates, leading to a decline in companies' and governments' financial positions, ultimately increasing the risk of insolvency.

In emerging markets, a rise in US interest rates could quickly give rise to capital flight and currency depreciation – particularly damaging for countries with high levels of foreign debt in dollars. However, these impacts would be mitigated by an improvement in foreign trade, which would also benefit from stronger external demand and, for export-oriented countries, from higher commodity prices.

1.2.4 SPACs: opportunities and risks of a new approach to public listing²⁰

Following rapid expansion in the United States, SPACs are now gaining ground in Europe. They offer a pathway to listing and stock market growth opportunities. The flexibility of their structure also highlights the need to manage potential conflicts of interest. In addition, since investors' expectations of returns have often been disappointed in the United States, their valuations should be monitored carefully. SPACs do not appear to relax transparency requirements for listing, but their increasing popularity, operation framework may warrant monitoring by the international community.

²⁰ This section summarizes a separate AMF publication bearing the same title.

□ SPACs: complex and flexible structures

In Europe, SPACs do not yet have a strict binding definition or a dedicated regulatory framework.²¹ As such, arrangements tend to vary according to the parties' specific interests and governing laws. The major stages of a SPAC can be described as follows:

- The founders create a non-trading company to merge with an unlisted firm, which they are mandated to identify.²² They acquire a block of shares (promote)²³ at a fixed/preferential price,²⁴ and also preference shares and/or share warrants (BSAs) at a market price. The proceeds of these issues cover the IPO²⁵ and costs of identifying a target company.
 - The SPAC's IPO raises the majority of its capital. Allocated to the merger with the target company²⁶ and/or the buy-out of investors who choose not to subscribe to it, the funds raised are usually held in reserve.²⁷ The founders thus obtain a substantial minority share of the SPAC, essentially by dilution of the funds raised. Investors in the SPAC are also granted preference shares and/or share warrants.²⁸ SPAC shares are primarily placed with institutional investors, often in limited numbers, and rarely with individuals. For example, SPACs are listed on the professional segment on Euronext Paris, with high minimum investment sizes.²⁹
 - There are two possible scenarios:
 - Either the SPAC meets its objective and identifies a company for merger (Initial Business Combination (IBC) or de-SPAC-ing).³⁰ As such:
 - SPAC investors vote on the proposed operation, usually at a General Meeting,³¹ and have the option to withdraw. This can compromise the proposed transaction, in particular if the target requires a minimum cash contribution from the SPAC;
 - The founders provide additional financing if required, or solicit existing investors (e.g. target company shareholders) or third parties (e.g. via private placements – generally Private Investment in Public Equity);³²
 - Once the merger is complete, the founders' preference shares are converted into ordinary and fungible listed shares. Share warrants may then be exercised (e.g. at the end of a set period, or conditional on the share price exceeding a set threshold).
- In the United States, median ownership of the merged company is 11.7% for the founders, and 22.8% for the other investors in the SPAC (Klausner, Ohlrogge, Ruan (2021)).

²¹ In the strict sense, in the United States, the "blank check" company framework, as defined by Rule 419 of the Securities Act is however distinct from that of SPACs.

²² The initial focus of the SPAC bylaws on a specific business sector tends to vary greatly.

²³ At the end of its listing, this block generally represents 20% of the SPAC's capital.

²⁴ Typically, these shares are purchased for a fixed price of \$25,000 in the US, and for one or a few euro cents per share in Europe.

²⁵ "[operating costs are deducted] at the time of the initial investment. Typically, 2% of the SPAC's value and (...) approximately USD 2 million (...) until its merger with the target company." ("SPACs, democratizing Private Equity?" EY 18/02/21).

²⁶ SPACs are generally designed for mergers rather than acquisitions.

²⁷ In the US, this must represent at least 90% of the funds raised.

²⁸ NB: this assumes that, like in France, the preference share and share warrant framework enables the creation of shares with specific rights, thereby differentiating shares subscribed by founders from those offered to investors (as in the [French legal framework](#)).

²⁹ E.g. €1m for SPACs listed in Paris, €100,000 in Amsterdam for Dutch Star Companies One and Two and ESG Core Investments. In the United States, investors are generally institutional as well, but a more significant participation of retail investors is observed.

³⁰ NB: In the United States (not in Europe), stock exchanges require the IBC target book value to be at least 80% of the SPAC reserve amount (held in escrow), which reduces the IBC's options.

³¹ Some SPACs may choose to submit the merger for approval to the Board of Directors.

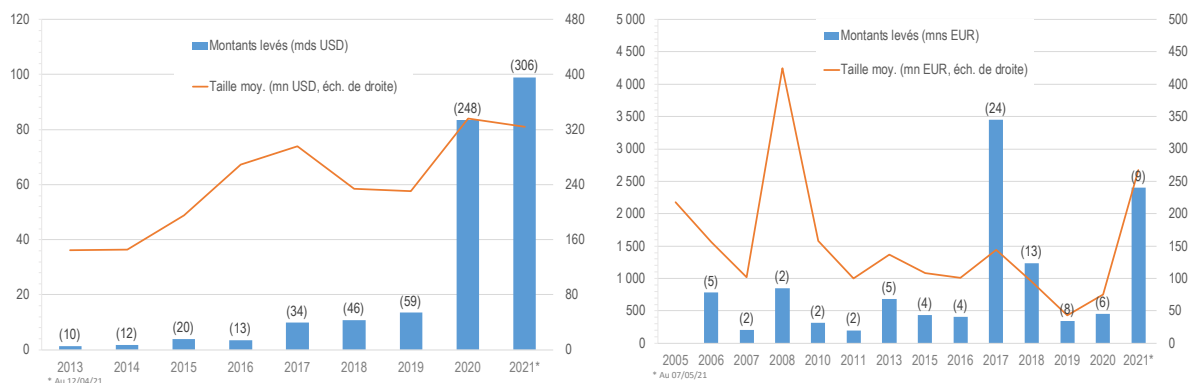
³² PIPE: fund raising generally reserved for private equity funds, by allocating shares at a preferential price (discounted compared to the market). According to Morgan Stanley, PIPEs contributed capital of \$12.4bn to 46 SPACs in 2020. Despite the mass of capital ("dry powder") to be invested by these funds (see Ch. 3), these investments raise questions with regard to listed shares.

- Or the SPAC fails to exercise its acquisition mandate after two years. In this case, the company is liquidated and the funds raised – less the management fees – are reimbursed to the unitholders. In the United States, 11% of SPACs are subject to such liquidation.³³

□ SPACs: a booming market

Initially created in the United States in the 1980s, SPACs have seen a recent surge (Figure 36). Until 2014, the funds they raised represented less than 2% of initial public offerings (IPOs). In 2019, they accounted for 18%. By 2020, this figure had hit 45%. They have since gained ground in Europe (Figure 36), first in the UK and then elsewhere (the Netherlands, France). Backed by some high-profile successes in the United States (in some cases with active participation from celebrities),³⁴ these funds are seeing significant market interest, including more recently in Europe.

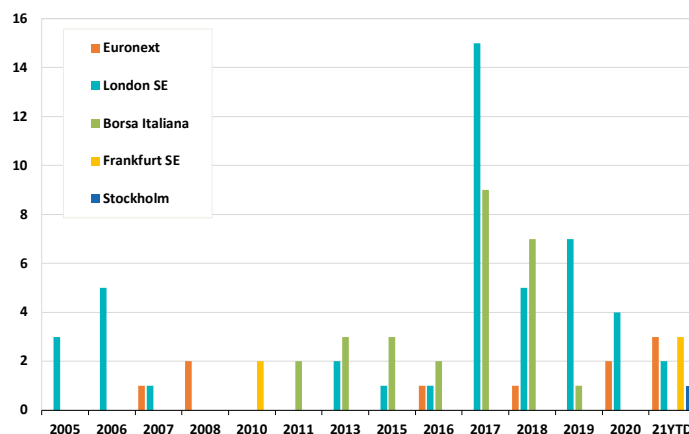
Figure 36: SPAC listing statistics by region: number, amounts raised, average size
United States (ital., USD bn, USD mn/right-hand scale) **Europe** (ital., EUR mn, EUR mn/right-hand scale)



Source: <https://www.spacresearch.com/> ; AMF.

Source: Dealogic; Euronext; AMF.

Figure 37: Historical SPAC listings in Europe by market (nb, 07/05/21)



Source Dealogic, Euronext.

³³ Klausner, et al. (2021). In fact, an additional contribution by the founders often extends the liquidation deadline.

³⁴ Notorious practitioners (e.g. Gary Cohn, former Trump adviser, Chamath Palihapitiya (former Facebook executive), etc.), as well as celebrity sports people and performers (e.g. Jennifer Lopez, Shaquille O'Neil, Serena Williams) have shown interest as sponsors or investors.

□ Range of benefits and risks, to be assessed on a case-by-case basis

After years of public stock market attrition in favour of unlisted financing, coupled with companies going public later and later, SPACs instead highlight the complementary nature of these financing methods. Specifically, they offer an exit pathway to private equity funds seeking to divest (Chapter 3) and appear to be a new area of development for stock markets.³⁵

A SPAC's initial lack of operational activity necessarily limits the content of its initial prospectus, though information on the sector of activity, sponsors and any meaningful conflicts of interest has to be provided. As such, this enables target companies to go public without some of the constraints of traditional initial public offerings (IPOs). They draw also benefit from guaranteed (pre-negotiated) listing prices and a streamlined listing process. However, the balance of requirements for the various listing methods (IPOs, direct listing, SPACs) does not appear to be in question. Notwithstanding this fact, the risk of regulatory competition to attract SPACs warrants consideration from an international standpoint. At this stage, grounding in existing company and stock market laws acts as a safeguard. However, they should be closely monitored by international authorities, especially in light of the rise in these companies' international activities, such as the acquisition of US SPACs in Europe.

Given their often complex legal structure, SPACs are a source of conflicts of interest, particularly for their founders.³⁶ Such conflicts can be seen in the United States, where founders have maintained high profits following completion of the merger, despite an often negative performance for the remaining holders.³⁷ These conflicts are likely to be resolved through transparency, i.e. a reduction in information asymmetries with regard to the safeguards offered, and through incentives to align the various interests. Given the mechanism's flexibility (SPAC diversity) and evolving market practices, a SPAC's ability to ensure fair treatment of holders and generate long-term value is yet to be properly assessed in Europe. The promotion of SPACs to individuals may also prove to be an issue - SPACs are primarily aimed at institutions, which are able to analyse the proposed entities, stakeholder incentives and target company valuation, amongst other things.

Finally, the current craze for SPACs may have an impact on some market valuations, especially in "narrow" market segments and/or in cases where fundamental information is limited (e.g. innovative sectors).³⁸ This highlights the importance of professionalism when valuing targets, and the risk of investing towards the end of self-sustaining and unsustainable increases in prices (speculative bubbles).

1.2.5 The popularity of sustainable finance products during the crisis calls for greater transparency and high-quality information

During the health crisis, governments and supranational organisations made extensive use of the social bond market in order to finance economic stimulus schemes; this helped to develop this loosely structured market segment, which was still in its infancy in 2019. These products are characterised by a vast range of projects, and practices that monitor the use of funds raised and assess results, often based on qualitative rather than quantitative assessments. However, the lack of any guarantees that the amounts raised will actually be allocated to projects with a social objective, as well as uncertainty as to the outcome of these projects, are liable to give rise to poor practice in terms of information provided to investors ("social washing"). This could ultimately undermine confidence in these products and compromise their ongoing development. The June 2020 review of the International Capital Markets Association (ICMA) Social Bond Principles may help improve reporting practices. These principles impose minimum requirements on issuers in terms of eligible projects, as well as the monitoring and assessment of results. These remain optional, however, thereby limiting the potential for improvement, and further complicated by a lack of non-financial data.

³⁵ Lubochinsky, Manière (2021); Eclipse ou crépuscule ? Pourquoi les Bourses n'ont plus la cote; Rapport de l'Institut Messine; February.

³⁶ SPAC founders who also manage private equity funds may have their own conflicts of interest, for example when the SPAC targets companies held by their funds.

³⁷ Before taking share warrants into account. Source: Klausner, Ohlrogge, Ruan (2021); A Sober Look at SPACs; ECGI Working Paper Series in Finance.

³⁸ See e.g. Braw (2021); Tulipmania in Space; Foreign Policy; 12/05/21.

This issue relates more generally to the availability of non-financial data and services. In order to make up for the lack of non-financial data, players in this sector have emerged as key facilitators in the implementation of responsible investment strategies.

Initially covering raw environmental, social and governance data, as well as scores/ratings and analyses of companies' non-financial performance, ESG data providers now offer an extensive range of products and services, adapting to clients' specific requirements – mainly financial institutions (including institutional investors and asset managers) and, to a lesser extent, companies. This includes services such as portfolio analysis, creation of financial indices, controversy monitoring, advice on voting, advice in defining a ESG strategy, and the evaluation and certification of financing products such as green bonds. This diverse offer is liable to give rise to conflicts of interest, which must be identified and managed.

Raw data and ratings available previously have also been improved, now including more regions, sectors, asset classes, as well as the historical breadth of available data. It is also characterised by a broad range of methods for collecting, verifying and processing data, which can result in major discrepancies in assessments of non-financial performance. This is due not only to the lack of consensus on how to define the term “non-financial”, but also the way in which the same concept is assessed. In any case, the level of transparency is generally insufficient to enable investors to interpret ratings, their scope and limitations accurately. Greater transparency from non-financial rating agencies is therefore necessary. This includes data sources, the methods used to improve reliability and exhaustiveness, the processes and remuneration methods for ratings, and the identification and management of conflicts of interest. Based on these findings, at the end of 2020, the AMF, together with its Dutch counterpart, the *Autoriteit Financiële Markten* (AFM), proposed an EU-wide regulatory framework for these players, which would be supervised by the European Securities and Markets Authority (ESMA). In early 2021, the Commission also stated the need to align the increasing demand for non-financial data and services with appropriate regulatory requirements, in order to ensure quality and reliability.³⁹ The AMF also contributes to the work carried out by the International Organization of Securities Commissions (IOSC) on this issue.⁴⁰

³⁹ “ESMA calls for legislative action on ESG ratings and assessment tools”, 29 January 2021.

⁴⁰ See AMF (2020): “La fourniture de données extra-financières : cartographie des acteurs, produits et services” and AMF (2020): “Position Paper: Call for a European Regulation for the provision of ESG data, ratings, and related services”

CHAPTER 2: MARKET ORGANISATION AND INTERMEDIATION

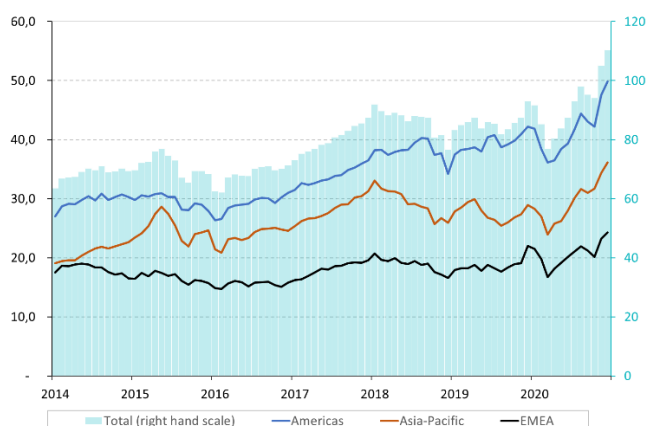
2.1 EQUITY MARKETS

2.1.1 Rising capitalisations and stabilising trading volumes in global markets since the Covid-19 crisis

After falling sharply in the first quarter of 2020 as a consequence of the health crisis (a 13% decline), the market capitalisation of global equity markets swiftly recovered. In November it exceeded the \$100 trillion level and ended 2020 at \$110.35 trillion, up 19% on the end of 2019.

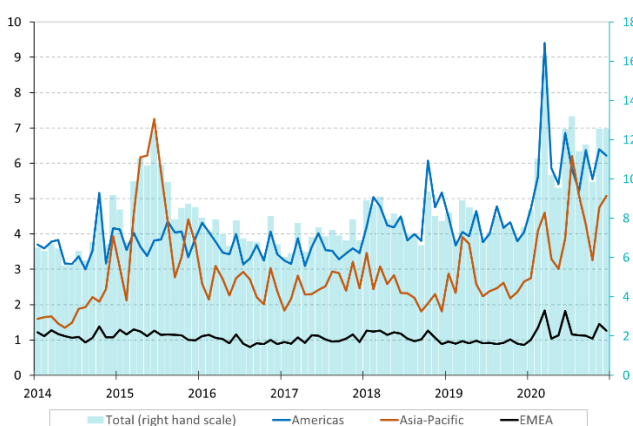
This rise applied to all regions, but to varying degrees: Asian markets especially profited from this rise, with a capitalisation which increased by 25% in 2020. In the United States and in Europe, the Middle East and Africa, capitalisations gained 18% and 11% respectively over the same period.

Figure 38: Market capitalisations
(in trillions of dollars)



Source: WFE, AMF

Figure 39: Equity trading volumes
(in trillions of dollars)



Globally, after reaching record levels in March 2020, trading volumes on trading venues declined over the rest of the year 2020 but remained at rather high levels. Compared with 2019, they increased by around 50% to \$139.093 trillion. This growth is fairly uniform from one region to another: volumes increased 56% in Asian markets, 48% in US markets and 38% for the Europe, Middle East, Africa region.

2.1.2 Market conditions which returned to normal on the French market at the end of 2020

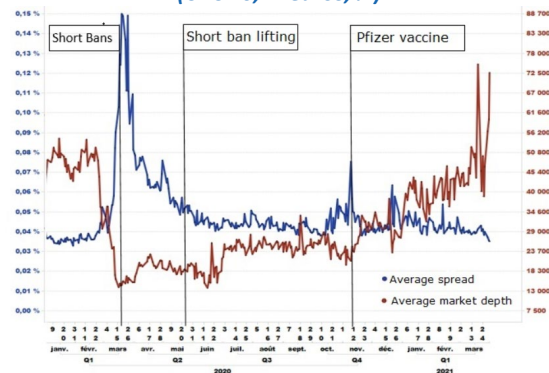
After increasing sharply in March 2020, trading volumes in CAC 40 securities stabilised. The volume stood at €219 billion in Q1 2021, against the backdrop of a constant rise in the CAC 40 since end-October 2020, the date on which Pfizer announced the effectiveness of its vaccine (+15.57% in Q4 2020). While the uptick in activity in the spring of 2020 benefited the continuous trading phase, the share of the fixing in trading volumes on CAC 40 securities increased gradually to as much as 43% of volumes in March 2021.

**Figure 40: Trading volumes on Euronext Paris
(CAC 40 securities, EUR billion)**



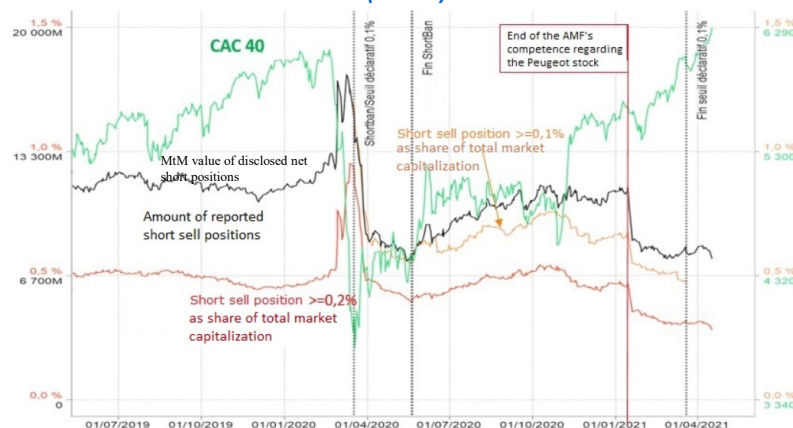
Source: Refinitiv, AMF, transaction reporting.

**Figure 41: Change in equity market liquidity at the
best limit
(CAC 40, in euros, %)**



This high volatility also went hand-in-hand with a significant deterioration of equity market liquidity, with spreads which increased by up to 15 basis points and a market depth⁴¹ which had declined from €46,000 on average to €14,000 in the depths of the crisis. Although spreads have tightened significantly since the start of April, it was not until the first quarter of 2021 that the depth at the best limit and spreads returned to their pre-crisis levels. In Q1 2021, for example, the spread moved around an average of 4 bps and the depth around €50,000.

**Figure 42: Change in disclosed net short positions in French equities
(in EUR)**



Source: Bloomberg, AMF, disclosure of net short positions.

Reading note : at the end of April 2021, short positions reported to the AMF (above 0.20%) represented approximately 0.30% of total market capitalization (red curve), or an amount equivalent to 7.5 billion euros (black curve). The orange curve represents the cumulative short positions reported to the AMF as a share of the total market capitalization when the reporting threshold was lowered to 0.10% (from March 16, 2020 to March 19, 2021).

At the start of the first quarter of 2020, the short positions disclosed to the AMF represented about 0.50% of total market capitalisation. This ratio had almost doubled in March before the measures banning an increase in short positions came into force (on 17 March 2020) and market conditions improved. It had thus returned to a very low level of 0.40% at the end of the ban (on 18 May 2020), settling at its pre-crisis level until Q3 2020. The close of the year on a very optimistic note and amid highly favourable market conditions led to a reduction in disclosed short positions to around 0.45%. The continuation of this trend in Q1 2021 (with the CAC gaining 9.29%), combined with

⁴¹ Quantity of best price bids.

the end of the AMF's competence regarding the Peugeot stock⁴² resulted in an exceptional reduction in short positions disclosed to the AMF, to a low level of 0.3% of the total market capitalisation.

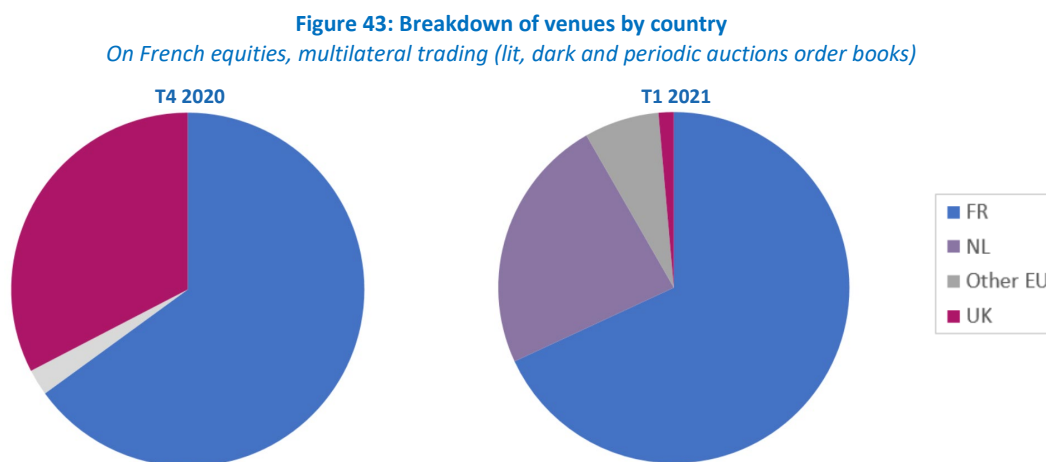
The first quarter of 2021 also marked the end of the ESMA decision to lower the threshold for disclosure of net short positions to the authorities to 0.1%. This measure, which had been applied since 16 March 2020, expired on 19 March 2021 and the disclosure threshold is now 0.2% again.

2.1.3 Brexit led to a massive transfer of trading volumes from UK venues to European venues

As a result of the Share Trading Obligation (STO)⁴³, equity markets saw a massive transfer in trading volumes from UK venues to European venues, located mainly in the Netherlands and France.

Brexit therefore entailed an almost complete transfer of the multilateral activity based on order books⁴⁴ (i.e. on lit, dark, periodic auctions order books) from each UK venue to its sister venue in Europe, managed by the same operator.⁴⁵

This caused a collapse in multilateral trading on UK venues, which fell from 32.6% in Q4 2020 to 1.4% in Q1 2021. The volumes were transferred mainly to venues in the Netherlands (+23.6%), and France to a lesser extent (+3.1%).



Source: Refinitiv MSR, AMF

However, the UK venues maintain a significant activity in French equities via the OTC market transferred to venues (off-book on-exchange). These transactions are prearranged bilaterally before being recorded on the venue and are not dependent on the liquidity available on the venue. They can therefore continue to be executed in the United Kingdom (even by French investment services providers (ISPs)) provided that these transactions are not price-forming (a requirement to benefit from a waiver of the STO). This business, which is still massively located in

⁴² The French group Peugeot S.A. (PSA) and the Italian-American firm Fiat Chrysler Automobiles (FCA) merged on 16 January 2021 to form the Stellantis entity. Its registered office is situated in the Netherlands but the main market for the security is in Italy. Short selling disclosures regarding the new entity are therefore made to the Italian market authority (Consob).

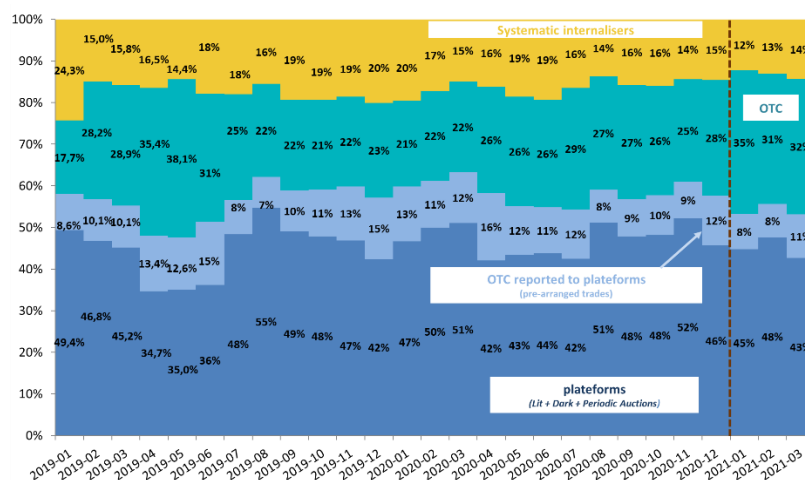
⁴³ Only equities having an ISIN code beginning with the identifier of a country in the European Economic Area (EEA) are concerned by the share trading obligation. ESMA considers that the number of ISIN codes in the EEA traded on a UK venue in pounds sterling (GBP) is limited and that trading in these shares can reasonably be considered as non-systematic, ad-hoc, occasional and infrequent. As a consequence, this trading is not subject to the trading obligation pursuant to Article 23 of MiFIR.

⁴⁴ Trading resulting from anonymous, multilateral matching of orders. The corresponding transactions may be submitted to pre-trade transparency or not. They are different from those resulting from a bilateral negotiation between mutually identified participants. This negotiation generally takes place off the venue, which is used only for its post-trade services (clearing, settlement and delivery), publication and to comply with the STO. These transactions deviate from pre-trade transparency by virtue of transparency waivers of the "negotiated transactions" type. This category corresponds to the OTC market reported on a venue, also called *off-book on-exchange* (because deemed to be executed on the venue).

⁴⁵ Due to the absence of an equivalence issued by the Commission for UK trading venues, the latter have had to set up in business in Europe (either in the form of new venues or else as an extension of the activity of existing ones) to be able to continue to offer securities subject to the European STO for trading.

London, for 89% (versus 99% previously), allows the UK venues to have a 16% market share on all the amounts traded on venues for French equities. However, the business remains less strategic, because it generally does not contribute to price formation and conventionally generates less revenue for the venues.

Figure 44: Change in market share by place of execution
(French market, market share in amounts traded)



Source: Refinitiv, securities within French competence

Following the United Kingdom's departure from the European Union, the equity market structure by major category of place of execution apparently shows a marked increase in OTC activity at the expense of that on trading venues: the OTC share posted an increase of 6 percentage points, from 26.4% in Q4 2020 to 32.5% in Q1 2021, whereas the activity on trading venues posted a decline of 3 percentage points over the same period.

This trend, which concerns the non-price-forming OTC market in particular, seems in fact to be explained by the lengthening of intermediation chains following the creation of new EU entities in the context of Brexit (cf. Box 1): intra-group transfers between a UK entity and an EU entity generate additional OTC transactions. Hence, in absolute amounts and not in percentage terms, OTC volumes post a sharp increase, whereas volumes on trading venues, especially lit venues, or on systematic internalisers, remained practically constant between December 2020 and January 2021.

Moreover, the FCA has announced that it will no longer apply the capping mechanism on volumes exempted from pre-trade transparency (Double Volume Cap) from MiFIR to EU equities on UK trading venues. However, the elimination of this measure, which aimed at limiting the activity of dark pools, was not accompanied by a revival of volumes on dark UK venues (whose market share even fell slightly, to 0.3%, in March).

There are therefore no real impacts of Brexit on the market structure according to the place of execution, and in particular no deterioration in the process of price formation and transparency. Brexit even went hand-in-hand with reduced fragmentation. For example, the Cboe group, after the takeover of Chi-X (Cboe CXE) by BATS (Cboe BXE), had maintained the various order books of these two separate operators.⁴⁶ It took advantage of Brexit to rationalise its various places of execution and concentrate liquidity on a single trading venue for each type of trading: lit, dark based on firm orders, dark based on indication of interest (IOI), periodic auctions, etc. This merger of Cboe CXE and BXE into DXE had the beneficial effect of reducing fragmentation.

In France, the landscape has also changed significantly in terms of market participants: 23 new entities have been authorised since the end of 2018, whether business start-ups or transformations of branches into subsidiaries. Brexit also strengthened existing investment firms through the attachment of the European branches to the French

⁴⁶ The two platforms differed in particular through different pricing models, with Cboe BXE sometimes experimenting with innovative models.

entity, but also through authorisation extensions to supplement a product offering for clients. The Paris marketplace therefore now has five new OTFs (operated mostly by inter-dealer brokers) and four new MTFs.

Box 1: Operational impacts of Brexit on reporting and the performance of monitoring and supervision tasks

A significant increase in reports received

Trading volumes received since the start of 2021 for French investment services providers are up sharply (Source: MiFID II transaction reporting). The AMF now receives more than 100 million transactions per month (compared with about 40 million per month in 2018 and 2019, and 67 million per month in 2020).

Most of the increase in the number of transactions between 2019 and 2021 is due to growth in the number of equity transactions (which represent 80% of the total number of transactions reported). In addition to growth related to the presence of new Brexit market participants, there is also a structural increase in the number of transactions due to an increase in trading volumes and a decline in the average amount of transactions (significant increase in volumes traded by retail clients in particular).

In terms of amounts traded, the growth in equity amounts traded by all French ISPs was about +40% between 2019 and 2021.

Trading volumes received since the start of 2021 for the branches of French investment service providers are relatively stable compared with 2020 (about 2.5 million transactions per month), but with a very different breakdown both by firm and by country of origin. In 2020, about 60% of the volumes reported by incoming branch offices received by the AMF came from the United Kingdom. It is now Germany which is the main country of origin of incoming branch offices in France, ahead of Ireland.

A lengthening of intermediation chains means a loss of information for market monitoring

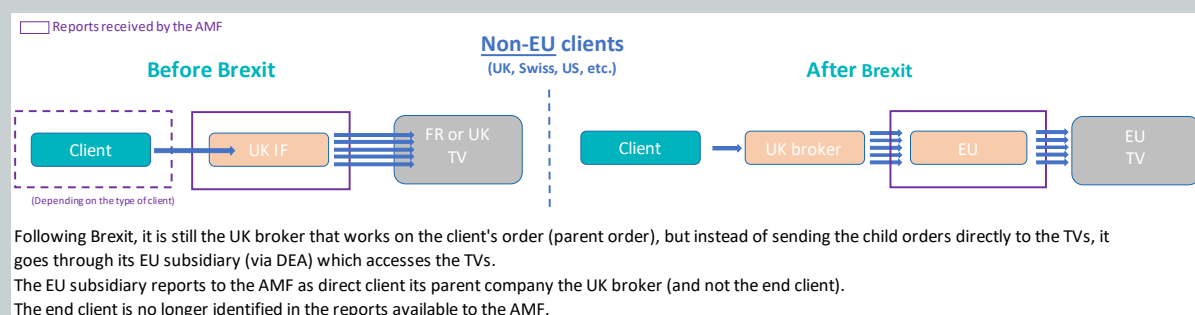
In the runup to Brexit, British and American groups adapted their intermediation chains in 2020, having major impacts for market monitoring. These changes took place on two levels: access to trading venues (membership) and customer services. Previously, British and American groups obtained access to European and UK trading venues through a single entity, their London entity.

Once these groups had a continental entity and authorisations that were suitable/fit to operate, access to the European trading venues was transferred to this continental entity in the groups. These transfers took place throughout the year 2020. Thus, since Brexit, European clients have been served directly by this continental entity.

On the other hand, transactions for other clients – those located in the United Kingdom or in other third countries - and proprietary trading activities are still intermediated by the UK entity. In this case, the UK entity accesses the European trading venues through its continental subsidiary.

In these circumstances, the loss of reporting from UK market participants following Brexit in some cases deprives the AMF of the information needed to identify the end client of transactions on French instruments (even if part of the chain of transactions continues to be reported in Europe), as illustrated by the following graph.

Characteristic intermediation chain of UK brokers serving non-EU clients



The AMF therefore considers that it has lost visibility concerning 35% of the amounts traded on French equities and their derivatives. Regarding derivatives reporting (EMIR) and securities financing transactions (SFTR), the loss is estimated at 5% and 10% respectively in terms of volume, but the impacts in terms of amounts are probably more substantial.

The loss of British reporting constitutes a real operational challenge for performing the AMF's tasks, in particular for supervision of the market for French securities. Although stronger cooperation with the FCA is currently able to partly compensate for this loss of visibility in the short term, by simplifying the formal requirements for requests for information in the event of suspicions of insider trading, and in the longer-term a more systematic exchange agreement could be a desirable development.

2.1.4 The GameStop case calls into question the "zero fee" and "payment for order flow" models which claim to give access to the markets at no cost to retail investors

In January 2021, the high volatility detected in US stock markets, where securities such as GameStop saw their price soar under buying pressure from retail investors (cf. Box 2), led the authorities to raise questions concerning the impacts of the development of the "zero fee" and "payment for order flow" (PFOF) venues on which their model is based.

PFOF is a practice by which market makers pay brokers to obtain the flow of their clients' orders. Thus, the market makers can profit from this flow which is not matched against the rest of the market, while clients benefit from a reduction in their transaction costs, because the fees charged by the brokers can be subsidised by the payments that they receive from the market makers.

This practice, which has existed for a long time in the United States, has developed more recently in Europe among brokers not charging their clients fees.

One of the main criticisms of PFOF is that this arrangement creates a conflict of interest with observance of the obligation of best execution of orders received which is incumbent on brokers. More precisely, brokers may be incentivised to route their clients' orders to the highest bidder rather than to the market maker or trading venue offering the best prices and/or fastest execution.

Added to this is the fact that this practice impacts market transparency, with a potentially negative effect on the efficiency of the price formation process.

This is partly due to the fact that market makers may be incentivised to increase their quoted spreads because of the payments made in the form of PFOF. Also, PFOF apparently creates a significant 'cream-skimming' phenomenon, i.e. a diversion of the order flow from the least informed agents, detrimental to the liquidity of the market of origin and to the process of price formation.⁴⁷

Lastly, this practice could lead retail investors to the wrong conclusion that they are trading for free and hence, be encouraged to trade more and on higher risks products. This phenomenon is especially significant in that connection to these venues takes place via applications that are very easy to use, and which increasingly aim to attract young investors.⁴⁸

Consequently, in the United States the SEC has launched an enquiry to examine PFOF practice and the means employed by brokers to attract clients to their venues.

In Europe, ESMA has also taken position on the subject, and considers that although the probability of occurrence of a GameStop scenario in Europe remains low (cf. Box 2), the question of PFOF must nevertheless be analysed in detail in order to ensure continuing compliance with the MiFID II provisions on conflict of interest management, the best execution obligation and inducements.

Box 2: The GameStop case

GameStop is a US company specialised in the distribution of video games, and listed on the NYSE. Since 2019, faced with competition from game streaming or cloud gaming, it has been in great difficulty and has posted record losses which have obliged it in particular to restructure its debt and suspend any dividend payment. Its share price, which was \$56 in 2012, stood at around \$4 in 2019.

And yet, in January 2021, under heavy buying pressure, its price experienced extreme volatility which significantly impacted US markets: GameStop shares rose to as much as €347 on 27 January before falling back very sharply to only €63.77 at the Wall Street close on 5 February. At the height of the speculation, its share turnover ratio on the stock exchange climbed to as much as 200% in a single trading session.

This market movement occurred against the backdrop of a conflict between retail investors, determined to save this company, and hedge funds (such as Melvin Capital or Citron) which had accumulated large short positions in the stock. Hence, numerous

⁴⁷ See in particular, "Cream-Skimming or Profit-Sharing? The Curious Role of Purchased Order Flow"

David Easley, Nicholas Kiefer (nicholas.kiefer@cornell.edu) and Maureen O'Hara, *Journal of Finance*, 1996, vol. 51, issue 3, 811-33.

⁴⁸ This phenomenon is known as the 'gamification' of trading.

retail investors, encouraged by certain communities on social media,⁴⁹ coordinated their efforts to buy GameStop shares massively and thereby exert strong buying pressure, at the expense of the positions taken by the hedge funds. This pressure drove up the share price dramatically, generating a short squeeze and forcing the short sellers to buy back their positions urgently, in order to limit their losses or meet their margin calls.

A momentum amplified by several factors

Extremely large net short positions

The very high level of net short positions made the stock's valuation extremely vulnerable. The cumulative total of net short positions sometimes exceeded the free float (up to 150% of the float had been shorted) as a result of securities lending chain practices.

Now, although a person holding securities can lend them only once, the same securities can then be lent several times by different investors.⁵⁰ Thus, the GameStop security borrowing rates in the securities lending and borrowing market were close to 30% in January, and on several occasions reached peaks of up to 60% in 2020.

Increasingly active participation of retail investors facilitated by the emergence of "zero cost" trading venues

In the United States, the development of trading platforms of the "zero fee" type has helped largely democratise access to the stock market in a country where the stock market culture is historically stronger than in France. Some of these platforms, such as Robinhood in the present case, operate on a model that is very attractive for retail investors by proposing a price model without fees and without account keeping fees.⁵¹ This apparently free service can be explained by the fact that they remunerate themselves indirectly, by directing their flows of orders for trade execution to various partners in exchange for payments (*payment for order flow*). This compensation varies depending on the profits derived from the flow by the partner brokers, and it may therefore provide an incentive for platforms to propose more conspicuously the products providing them with the best margins, such as highly leveraged products, without the consequences of these investments being clearly explained to clients. Thus, in the United States, retail investors are increasingly active in derivatives markets. These trading platforms, which already have a strong presence in the United States, are starting to develop in Europe with the advent of players such as e-Toro.

A case which seems unlikely in France

Today, French equities are far from showing individually a cumulative level of short positions similar to that seen in the United States. They are also far from posting the share turnover ratios observed in the US markets: for CAC 40 and SBF 120 stocks, this ratio is on average around 0.2%, with a median of around 0.3%, and it seldom exceeds 1%.

Although new retail investors did enter the market during the Covid-19 pandemic (as was seen in the United States), their number remains comparatively smaller (+150,000 new investors in France in March-April 2020). The number of active investors trading in the markets via leveraged products is even smaller.

The observed average amounts invested in 2020 also remain limited.⁵² To cause a significant move in a company's share price, large amounts of money are required, and an ability to hold onto/run positions for a long time without unwinding them, while facing possible risks of losing money, risks that are magnified by any leverage.

Therefore the conditions conducive to the occurrence of such an episode in France are not met at this stage.

Apart from the issue of payment for order flow, the GameStop case also raises other questions concerning:

- market efficiency, with a risk of decorrelation between a company's share price and its fundamental worth;
- regulations relating to the concept of price manipulation: the concepts of collusion and an artificial price level are among the indicators of a likely price manipulation but are not sufficient to establish it. It is, in theory, not prohibited to bet on a price rise and to disclose this;

⁴⁹ Notably the Reddit forum, a major US website bringing together thousands of amateur traders.

⁵⁰ Now, an investor who buys securities in the market may have acquired them, unknowingly, from a short seller. In other words, they acquire securities that were borrowed from another investor. Once these securities have been bought, they may likewise decide, in turn, to lend them, and so on.

⁵¹ Moreover, Robinhood decided to suspend trading in GameStop shares (and in other very volatile securities) for several hours on 21 January 2021 (cf. Section 1.3.1.). This suspension is undergoing investigation by the US authorities.

⁵² See the studies on retail investors' behaviour in the stock market, AMF, April 2020.

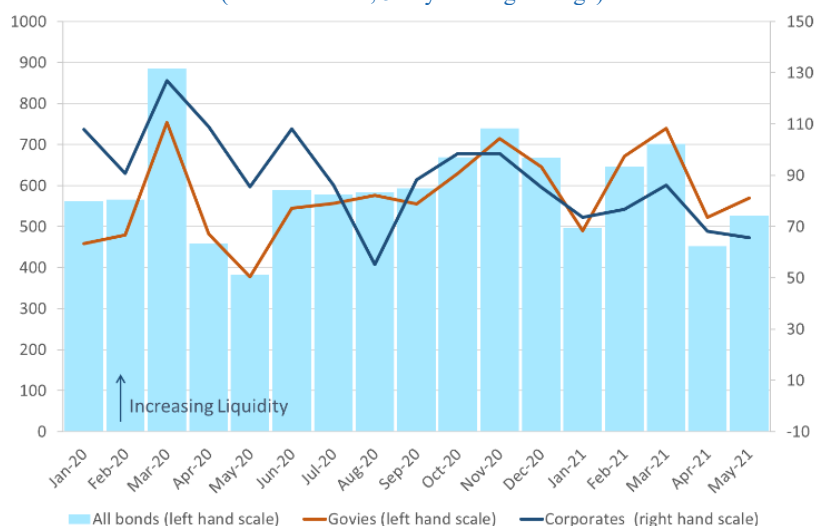
- the functioning and role of the social media in amplifying market movements;
- the benefit of transparency regarding short selling. Is the publication of short positions and levels of securities lending and borrowing not conducive to the short squeeze phenomenon?⁵³

2.2 BOND MARKETS

2.2.1 Bond market liquidity

The level of bond market liquidity is assessed by monitoring three complementary indicators illustrating three different facets of liquidity:⁵⁴ trading volumes, the number of different bonds traded each day and, lastly, the interquartile deviation of trading prices observed over a day's trading, which gives a measure of the price dispersion at which the most liquid securities were traded.

Figure 45: Trading volumes on French bond markets
(in EUR billion, 5-day moving average)



Source: AMF, trade activity reporting

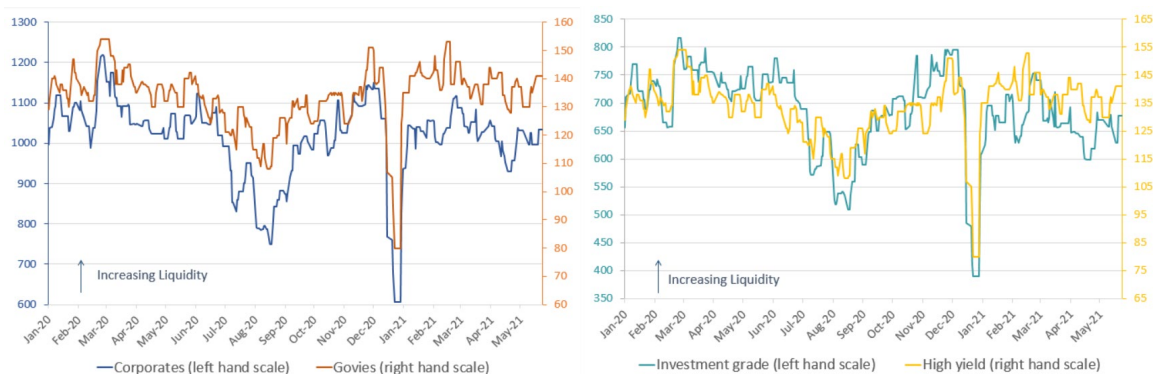
After increasing significantly in the depths of the health crisis, reaching a daily average of €42 billion in the first three weeks of March, compared with €28 billion before the crisis, trading volumes levelled out on bond markets. Volumes have averaged €600 billion per month since June 2020, albeit with a slight fall noted in the second quarter of 2021, to €500 billion per month.

The number of different bonds which were actually traded each day is also relatively stable, excluding the falls traditionally seen in summer and at the end of the year. Thus, on average 140 different sovereign bonds and 1,000 different corporate bonds have been traded each day since the start of 2021.

⁵³ The short squeeze refers to a forced winding-up of short positions which takes the form of forced buying of securities to cover those positions.

⁵⁴ see O.Guéant, "Measuring liquidity on the corporate bond market", AMF, April 2020.

**Figure 46: Number of different bonds traded during the day
(moving median – 5 days)**

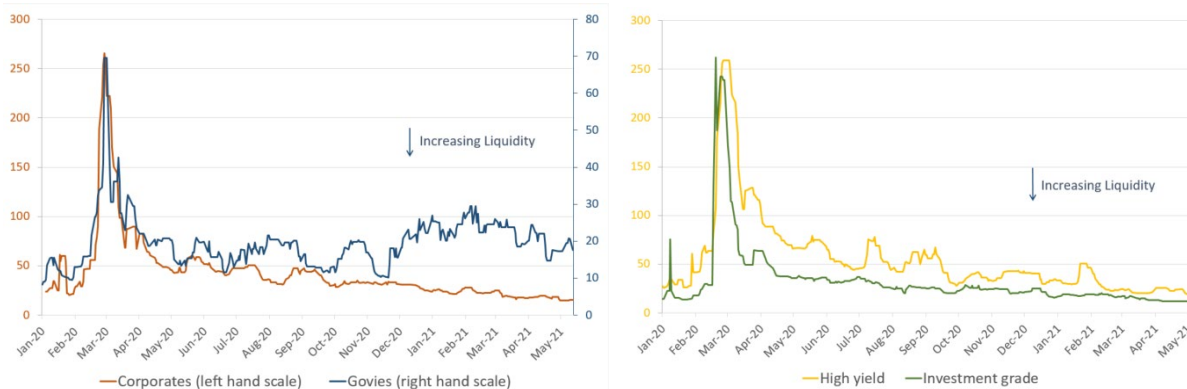


Source: AMF, trade activity reporting. The green bar corresponds to 18 March, the date of announcement of the PEPP and the ECB measures to counter the crisis.

The interquartile deviation of prices is a direct measure of the cost related to liquidity consumption. This is because, unlike a measure which would consider the spreads posted by market makers, this indicator is based on the prices actually practised.⁵⁵

Analysis of this indicator reveals that practised prices have eased significantly since the start of ECB intervention, on 18 March 2020, and returned to their pre-crisis level. For example, in the corporates segment, the median price differential has diminished constantly to about 15 bps, whereas it had increased to as much as 250 bps in March 2020. Likewise, the price differential observed on sovereign debt stands at 20 bps at end-May 2021. Note, however, that on this segment, this differential has tended to increase since the start of 2021 and stands at a slightly higher level than that noted in January 2020. Taking credit quality into consideration, we find a positive trend for investment-grade and high-yield bonds, which have likewise regained their pre-crisis level.

**Figure 47: Transaction price interquartile median of the 100 most-traded bonds
(in basis points – 10-day moving median)**



Source: AMF, trade activity reporting

Thus, the massive ECB support (see box x) to maintain accommodative financing conditions, notably through massive purchases of both corporate and sovereign bonds, has apparently not negatively impacted bond market liquidity.

⁵⁵ See "Study of the liquidity of French bond markets", 2015, AMF, Risk and Trend Mapping and "Measuring liquidity on the market for corporate bonds", 2019, AMF, Risk and Trend Mapping.

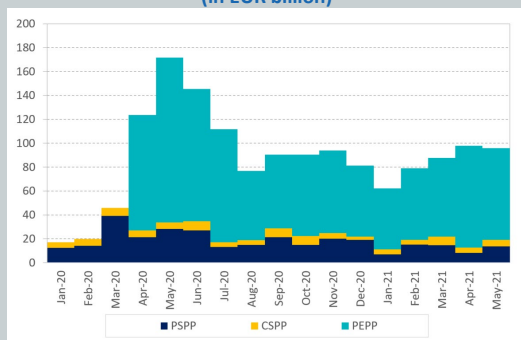
Box 3: Increasing support from the European Central Bank

On 18 March 2020, the ECB announced the launch of a new asset purchase programme, the €750 billion Pandemic Emergency Purchase Programme (PEPP) invested in sovereign and corporate debt securities, coming on top of the Asset Purchase Programme (APP) already in force since the end of 2014. After being raised to €1,350 billion in June 2020, the overall PEPP allocation was increased by €500 billion to €1,850 billion in December 2020. Purchases are set to continue until March 2022, moreover.

Thus, since March 2020, the Eurosystem has bought more than €80 billion worth of private-sector assets under the CSPP, around €275 billion in sovereign debt under the Public Purchase Programme (PSPP), and more than €1,100 billion worth of assets under the new PEPP. While the purchases initially aimed at restoring liquidity in the short-term debt market (14% of the purchases concerned commercial paper between March and April 2020), they were allocated for 98% to sovereign debt securities and 2% to corporate debt securities.

Lastly, in the corporate segment, while the Eurosystem's interventions took place mostly on the primary market (62% of the PEPP amounts between March and May 2020), the purchases now mostly concern the secondary market, accounting for 64% of the amounts purchased.

Figure 48: Trend of amounts purchased per programme (in EUR billion)



Source: European Central Bank

Table 1: Breakdown of Eurosystem purchases (in EUR billion, as at 11 June 2021)

Programme	Holdings	%
Public sector purchase programme (PSPP)	2 408,80	58%
Corporate sector purchase programme (CSPP)	279,10	7%
Pandemic Emergency purchase programme (PEPP)	1 126,30	27%
Covered bond purchase programme (CBPP)	291,40	7%
Asset-backed securities purchase programme (ABSPP)	28,60	1%
Total purchases	4 134,20	100%

2.2.2 Stabilisation of the European repo market

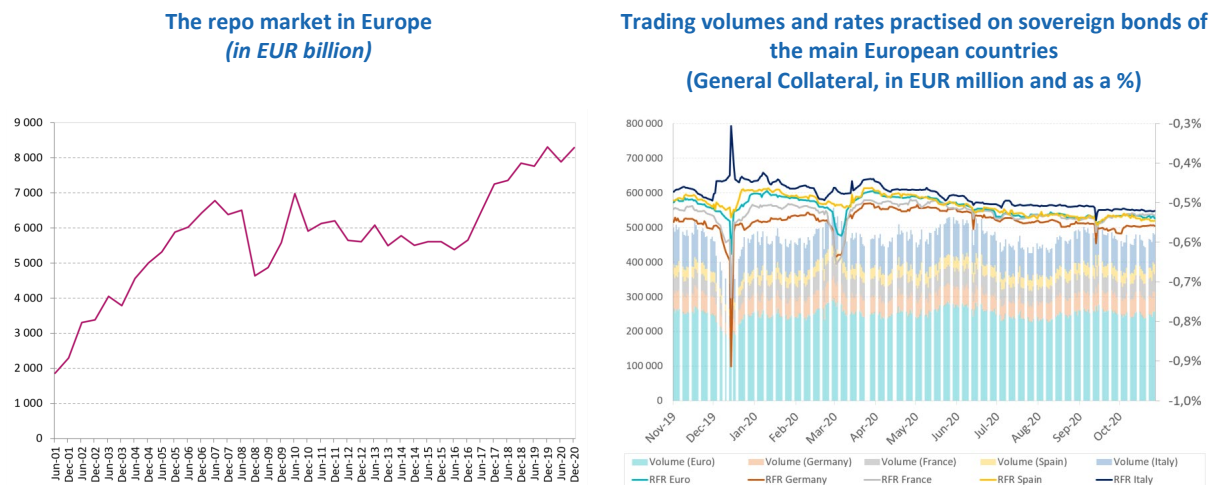
The repo market permits short-term (anything from overnight to one year) borrowing of cash in exchange for securities, particularly the safest government debt, which acts as collateral.⁵⁶ This market experienced strong growth in the wake of the 2008 financial crisis, boosted by regulatory requirements which entailed a stronger demand for safe assets.⁵⁷

After peaking in 2019, with outstanding exposure of €8.310 trillion, the European repo market stabilised at €8.285 trillion at end-2020, thus posting a slight decline of 0.3%.

⁵⁶ The good-quality securities accepted as collateral by all the players in this market form a basket called the *General Collateral Basket (GC basket)*.

⁵⁷ It also experienced strong tensions in December 2016, with an unprecedented rise in repo rates (cf. Market and Risk Mapping, 2017) and again in September 2019 in the United States, forcing the Fed to inject around €53 billion (cf. Market and Risk Mapping, 2020).

Figure 49: Growth of the European repo market



Source: ICMA, European Repo Market Survey, Repo Rate Funds

A stabilisation of rates on this repo market was also noted at the end of 2020 after significant tension in the first two weeks of March, when lending rates on the General Collateral (GC) segments tightened by around 20 bps on German and French bonds. Thus, at the end of 2020, lending rates posted lower levels than at the start of 2020 on this same segment, with smaller differences between euro-area sovereign debt: -0.559% for German sovereign bonds, -0.532% for French sovereigns and -0.540% for Spanish sovereigns.

2.2.3 An initial analysis of securities financing transactions based on SFTR reporting

The Securities Financing Transaction Regulation (SFTR)⁵⁸, enacted in November 2015, transposes in the Community framework the recommendations expressed by the FSB in August 2013, and in particular those introducing transparency requirements for securities financing transactions, by establishing reporting.⁵⁹

SFTR reporting thus concerns four types of transactions:

- Repo transactions (REPO);
- Securities lending transactions (securities and commodities lending and borrowing: SLEB);
- Buy-sell back and sell-buy back transactions (SBSC);
- Margin lending transactions (MGLD).

Its entry into force, which began in July 2020, took place in three stages:

- From 13 July 2020 for financial counterparties such as investment firms, credit institutions, clearing houses and central securities depositories;
- From 12 October 2020 for insurance companies, UCITS and AIF managers, and pension institutions;
- From 11 January 2021 for eligible non-financial counterparties.

In addition to the reports sent directly to the competent authorities, the four central securities depositories authorised in Europe⁶⁰ (Trade Repositories - TR) must publish statistics each week on the reports received, to inform market participants and the public on the state of the European market.

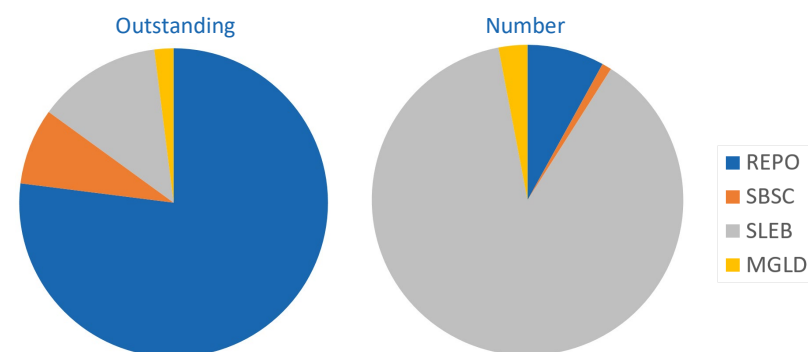
⁵⁸ Regulation 2015/2365 of 25/11/2015 on transparency of securities financing transactions and reuse.

⁵⁹ The FSB recommendations on securities financing transactions transposed in SFTR are four in number: Recommendations 1 and 2 correspond to the obligation for the competent authorities to gather additional data on the use of SFTs; recommendation 5 concerns the obligation of transparency of fund managers with regard to their investors; and recommendation 7 provides for regulation of the re-use of securities deposited as collateral.

⁶⁰ DTCC, Regis-TR, UnaVista and KDPW.

An initial analysis of these data⁶¹ shows that, at the end of 2020,⁶² repo transactions accounted for most of the SFTs in value terms, even though securities lending and borrowing transactions were more numerous.

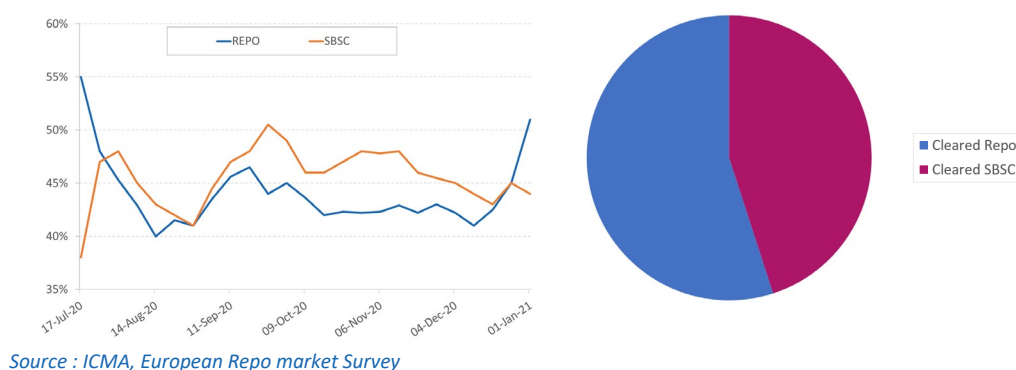
**Figure 50: Types of SFTs
(european market)**



Source : ICMA, European Repo market Survey

The cleared amounts represented 51% of the total notional amount for all repo and Sell/Buy-sell back transactions at the end of 2020. In detail, they stood at 43.7% for repos and 50.9% for SBSCs.

**Figure 51: CCP cleared repos as share of loan value of all outstanding repos (July-December 2020)
and composition (end 2020)**



Source : ICMA, European Repo market Survey

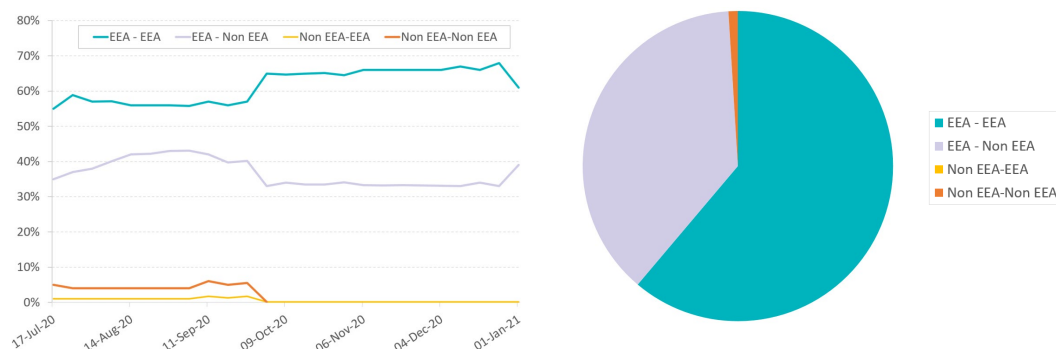
An analysis of places of execution shows that around 42.5% of the notional amounts of repo transactions stem from a transaction on a European trading venue (i.e. a place of execution identified by a European MIC code).⁶³ Moreover, transactions between two European counterparties accounted for slightly more than 60% of the notional amounts. Transactions between a European counterparty and a non-European counterparty also accounted for a significant proportion of these amounts, at 39.4%.

⁶¹ Aggregation of the data published each week by the central securities depositories. Source: ICMA, European Repo Market Survey, December 2020

⁶² These data include the transactions of UK counterparties until the end of 2020. At 1 January 2021, UK transactions were excluded from the European area and were the subject of specific reporting. Although the UK repo market constitutes a large proportion of the European market, anomalies in the weekly statistics mean that it is not possible, at this stage, to make granular comparisons after 1 January 2021.

⁶³ The MIC code (ISO 10383) is a four-character alphanumeric code to identify all financial markets, regulated or not, and trading venues.

Figure 52: Location of counterparties as share of loan value of all outstanding repos (July-December 2020) and composition (end 2020)



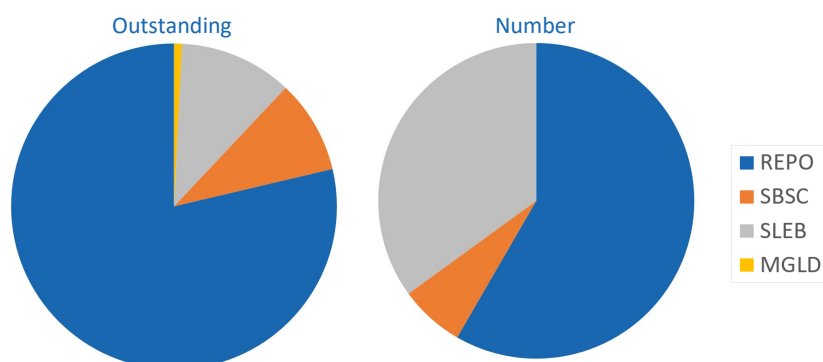
Source : ICMA, European Repo market Survey

At this stage the data relating to collateral cannot be used due to aggregation methods which are not uniform from one TR to another.

An initial analysis of the volume and amount reported by type of product shows that repo and buy-sell-back (RT/BSB) transactions dominate, accounting for 89% of the total amounts reported, compared with 11% for securities lending (SL)

On the French market, an initial analysis based on data collected during the first six months of application of the Regulation⁶⁴ shows that repo transactions predominate, accounting for nearly 80% of the amounts reported, far ahead of securities lending/borrowing (11% of amounts reported)⁶⁵.

**Figure 53: Types of SFTs
(French market)**



Source : AMF, reporting SFTR

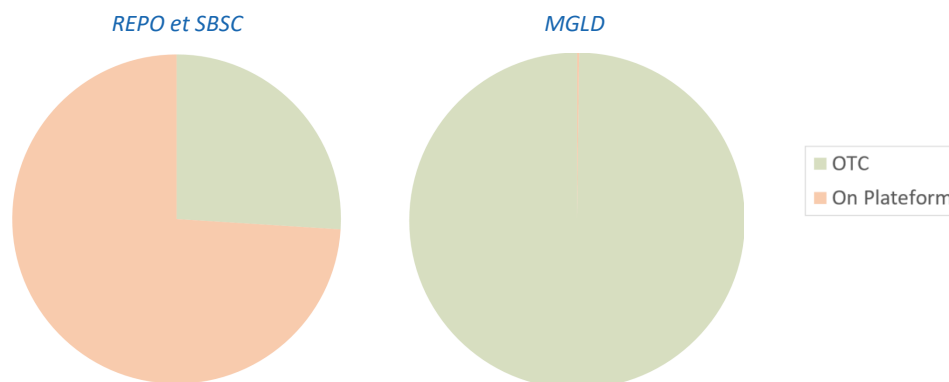
Banks and credit institutions contribute the majority of the amounts reported on repo and securities lending. Investment funds account for a small share (2-3%) of the amounts reported.

Lastly, 74% of repo and SBSC transactions are carried out on platforms, whereas the securities lending market comprises only 1% of platform transactions, the rest being carried out exclusively in OTC.

⁶⁴ See « Initial analysis of SFTR reporting data », AMF, June 2021.

⁶⁵ This preponderance of repo transactions, compared to European data, is linked to the fact that the AMF is the competent authority for LCH SA and therefore receives all its transactions. At the European level, 35% of repo transactions are estimated to be cleared and LCH SA has a market share of 85% of these cleared repo transactions. Conversely, very few loan transactions are cleared. See the study for more details.

Figure 54: Share of OTC and on-venue transactions
(French market)



Source : AMF, reporting SFTR

2.3 MARKET INFRASTRUCTURES

2.3.1 Margin calls which have returned to normal

During the health crisis, due to high volatility, margin calls by the clearing houses increased significantly: *up to around 35% for initial margins on LCH SA and around 300% for daily variation margin calls which reached a record level of €4 billion on 20 March 2020.*

These calls decreased sharply as the situation returned to normal (decline of volatility) to regain average levels of approximately €33 billion for initial margins and €700 million per day for variation margins.

Figure 55: Changes in initial margins and variation margins
(in EUR million)



Source: LCH SA

While there was no significant default in the depths of the health crisis,⁶⁶ the high volatility observed in January 2021 in US markets, related to the GameStop case (see above), had consequences for the margin calls of the broker Robinhood. Under buying pressure, the broker saw its margin calls multiplied by five, reaching \$3.7 billion on 28 January, far exceeding its capacity. As a consequence, the NSCC clearing house (National Securities Clearing Corporation) decided unilaterally to reduce these requirements to \$700 million after Robinhood agreed to suspend all transactions by its clients on the most volatile securities.⁶⁷

This discretionary management of margin calls creates a significant moral hazard and raises questions concerning the credibility of this CCP's risk management model.

More recently, on 26 March 2021, the Archegos hedge fund, which had invested in highly leveraged products concentrated on a few shares, was incapable of honouring its margin calls following the fall in the Viacom share price.⁶⁸ The counterparty banks were then forced to liquidate their positions, resulting in substantial losses and even the need for Crédit Suisse and Nomura to strengthen their shareholders' equity.

In Europe, crisis management systems in CCPs, which were lacking until now, were finalised at the start of 2021. The Regulation on a framework for the recovery and resolution of central counterparties⁶⁹ was published in the Official Journal of the European Union on 22 January 2021.

The adoption of these measures provides a response to the potential systemic impacts of difficulties which might endanger a CCP.

Moreover, major question marks still exist upstream concerning the impacts of volatility peaks on margin calls due to their procyclical nature. As a consequence, in November 2020 the FSB included the issue of margins in its 2021 work programme⁷⁰ with a view to analysing the dynamic of margin calls for cleared and non-cleared derivatives, and management of the liquidity risk stemming from these calls by the counterparties.

Box 4: The Archegos case

Archegos Capital Management is an American capital management company of the family office type. At the end of March 2021 this company was unable to meet its margin calls and went bankrupt, generating losses of more than €10 billion for the counterparty banks. The company was committed to a long-only strategy with substantial leverage (up to 500%) on a concentrated basket of a few stocks in US and Chinese equity markets (e.g. Viacom, Discovery, Baidu, Tencent Music). To do so, Archegos had apparently taken out Total Return Swaps (TRS) and Contracts For Difference (CFDs) with several banks including Crédit Suisse, Goldman Sachs and Nomura. The resulting peak exposure was estimated at around €50 billion for an amount of approximately €10 billion in shareholders' funds.

On 22 March, the price of one of the shares in which Archegos was heavily invested (Viacom) fell by around 30% due to the announcement of a capital increase poorly received by the market, generating a significant increase in margin calls for Archegos. Faced with the fund's inability to honour its margin calls, the counterparty banks were forced to liquidate their positions, entailing significant sales of the underlying equities and sharp falls in the share prices given the degree of concentration of these positions on a few securities.

Unwinding these positions apparently caused losses of approximately €10 billion for the counterparty banks, and those most severely affected, Nomura and Crédit Suisse, had to consolidate their shareholders' funds.

2.3.2 An equivalence decision which is merely temporary for central counterparty clearing houses in the United Kingdom

Given the importance of the British CCPs, the European authorities had to adopt continuity measures in order to prevent risks of a "cliff edge effect" resulting from Brexit for derivatives clearing in Europe. Accordingly, on 21 September 2020, the Commission published an equivalence decision on the regulatory framework for CCPs based in

⁶⁶ Only ABN Amro posted a loss of \$285 million on 26 March 2020 after it proved impossible for one of its clients to meet its margin requirements. The positions were closed by the clearing member without any impact for the other members or the clearing house in question.

⁶⁷ This offer of a reduction in margin calls was applied to all the brokers who accepted this suspension. Source: Risk.net, "Hero or Villain? NSCC draw fire for Robinhood margin waiver", 31 March 2021.

⁶⁸ On 22 March, the announcement of the Viacom capital increase was not well received by the market, and caused a fall in the share price from \$95 to \$65 in the space of two days, and hence a large margin call for the counterparties of Archegos.

⁶⁹ Regulation (EU) 2021/23 of 16 December 2020.

⁷⁰ "Holistic Review of the March Market Turmoil", FSB, November 2020.

the United Kingdom. This decision, which in particular enables them to continue to clear derivatives denominated in euros, is nevertheless temporary, because it applies only from 1 January 2021 to 30 June 2022.

In the wake of the Commission's decision, on 28 September 2020 ESMA published its decision on recognition of the three British CCPs⁷¹ and classified:

- LME Clear as Tier 1,⁷² which implies a principle of "deference" to the UK authorities for supervision of the CCP.
- LCH Ltd and ICE Clear Europe Ltd as Tier 2, with ESMA having powers of direct supervision over these entities.

This decision is also temporary and will lapse on 30 June 2022.

In its decision, the Commission remains silent regarding a potential renewal and, moreover, it mentions explicitly that:

- the significant volume of contracts denominated in EU currencies that are cleared in the United Kingdom creates a major challenge for the maintenance of financial stability;
- the exposure of EU clearing members to British CCPs should be reduced.

ESMA also undertook to perform an assessment in order to determine whether the British CCPs or some of their clearing services are of such a magnitude that they have a substantial systemic aspect and therefore cannot be recognised as equivalent by Europe.⁷³

Dependence on the United Kingdom could effectively prove risky: for Tier 1 entities, whenever the European Commission believes that the applicable law in a third country is equivalent, an institution located in that third state may, while complying with the legislation applicable in said state and being exclusively supervised by its local regulator, offer its services in the European Union without having to apply EU law or apply for authorisation/be subject to the supervision of the competent authority of the European state in which it is based or proposes to offer its services. ESMA's powers are therefore extremely limited. Likewise, even though Tier 2 CCPs are in principle subject to direct supervision by ESMA, they could have less strict standards than EMIR applied to them whenever the third-country legislation in question fulfils the same objectives as EMIR (principle of comparable compliance).⁷⁴

On the other hand, relocating in Europe will provide participants with a stable and demanding regulatory framework with regard to risk management (EMIR). It will also limit moral hazard, by which, in the event of a crisis, systemic UK CCPs could have to take decisions adversely affecting the EU's financial stability while benefiting from the emergency provision of liquidity in euros by the Eurosystem.

However, this relocation is not without risk either, especially in the transition phase. It implies that each position be closed and that new contracts be established with a European CCP. Apart from the commercial risks, with high costs entailed by the unwinding of positions, potential losses of client clearing business,⁷⁵ but also the fragmentation of liquidity, questions remain concerning the capacity of the European market for absorbing this migration without being disrupted either on the operational level or in terms of supply, hence entailing risks for the EU's financial stability.

Although the initial objective of the Commission, with its temporary equivalence decision, was to allow market participants time to migrate their clearing business to European CCPs, the move/shift would seem, in practice, very

⁷¹ These ESMA decisions will lapse at the end of the 18-month equivalence period.

⁷² The CCPs recognised as equivalent can be classified in three categories: Tier 1 CCPs, of non-systemic importance, Tier 2 CCPs, of systemic importance, and Tier 3 CCPs of substantial systemic importance, i.e. representing a risk for the stability of the Union such that the requirements defined by the text regarding equivalence would not be sufficient.

⁷³ Article 25 of EMIR.

⁷⁴ "BoE governor warns EU over derivatives clearing power grab", Financial Times, 24 February 2021.

⁷⁵ "Client clearing" means when direct members of a CCP intermediate clearing for the transactions of counterparties which are not members of the CCP. "Direct clearing", on the other hand, is when the direct member of the CCP clears its own transactions.

slow: for interest rate derivatives in euros,⁷⁶ the market share of Eurex was only 6.1% at the end of the first quarter of 2021 (i.e. 2.2% growth compared with Q1 2020).

Given the risks incurred, it is therefore especially necessary to prepare the European stakeholders sufficiently ahead of the termination of the equivalence decision.

2.3.3 Operational risks which materialised when major malfunctions occurred

During the health crisis, the entire ecosystem (service providers, market and post-trade infrastructure) proved resilient and remained fully operational despite the simultaneous roll-out of contingency plans and the forced widespread introduction of teleworking which became protracted, thereby increasing cybersecurity risks.

In the past few months, however, a series of major incidents has affected various systems, including those considered most dependable.

On 19 October 2020, for example, Euronext experienced a problem which forced it to suspend its markets for several hours, from 9.50 am to 12.30 pm, and which significantly impacted its close. In addition to Paris, the Brussels, Amsterdam, Lisbon and Dublin markets, likewise run by Euronext, were affected. Following this incident, Euronext put in place a remediation plan to improve the resilience of its trading system and its monitoring, together with crisis management and communication processes in the event of a serious incident.⁷⁷

In recent months, other significant malfunctions have affected major stock exchanges:

- The Tokyo stock exchange was paralysed for the whole day on 1 October 2020, due to a hardware failure which disrupted the transmission of market information;
- Xetra, the trading platform of Deutsche Börse (DB), experienced two successive failures in the space of three months at the start of 2020, leading, in both cases, to a suspension of trading for several hours. This disruption affected the equities and derivatives segments, and the five other German stock exchanges sharing DB's infrastructure.

These malfunctions did not just affect stock exchange platforms. On 23 October 2020, a major incident also affected the TARGET2 settlement system of the European Central Bank, causing a suspension of service for almost ten hours due to a software fault in a network device.

Accordingly, whereas worries tended to focus on cyber risks resulting from attacks, which remain prevalent as demonstrated by the two attacks suffered by New Zealand that targeted its markets and its Central Bank⁷⁸, these various incidents are a reminder that operational risk remains present even in the absence of malicious outside intervention, and that it can have significant consequences.

It is against this backdrop that the next annual CCP stress tests, provided for by EMIR and defined jointly by ESMA and ESRB, will endeavour, for the first time, to assess operational risk (dependence on external services, risk monitoring facilities).

⁷⁶excluding OIS, Basis, ZC, VNS and FRAs. Source: Clarus, "Cleared Swap Volumes and Share – 1Q 2021"

⁷⁷ The implementation of this plan is regularly watched by the AMF in the Euronext College of Regulators.

⁷⁸ The New Zealand Stock Exchange was paralyzed for four days in August 2020, and the Central Bank was hacked in January 2021.

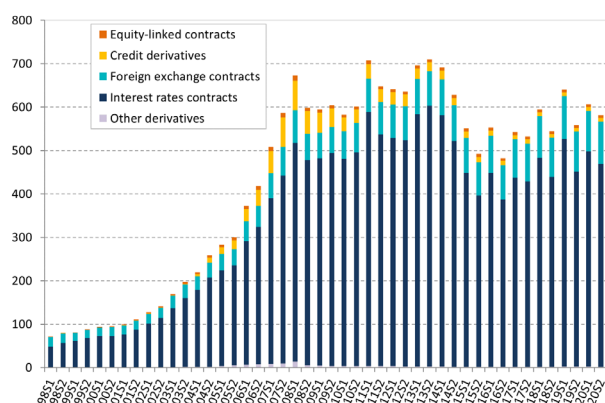
2.4 DERIVATIVES MARKET

2.4.1 Amounts at risk which are rising again for OTC derivatives

The total gross notional amounts of OTC derivatives worldwide were relatively stable, at \$582.059 trillion at the end of 2020. Interest rate derivative contracts still account for 80% of these total notional amounts, at \$466.494 trillion.⁷⁹

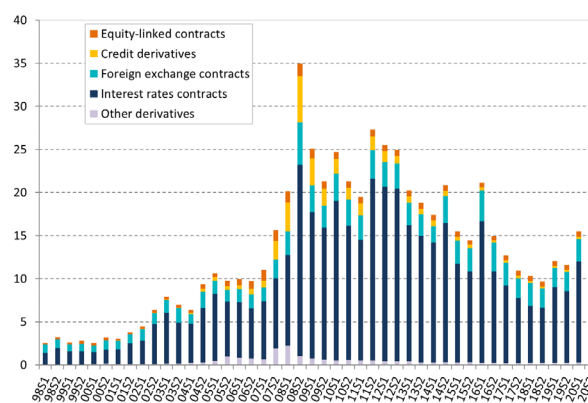
The gross market values (the cumulative liquidation value of contracts), which measure the amounts at risk, have started rising again significantly, standing at \$15.782 trillion at the end of 2020 versus \$11.599 trillion at end-2019. This rise was driven mostly by interest rate derivatives and forex contracts in the second half of 2020, related to the fall of the US dollar against the other main currencies.

Figure 56: OTC derivatives - global notional amount
(in trillions of dollars)



Source: BIS

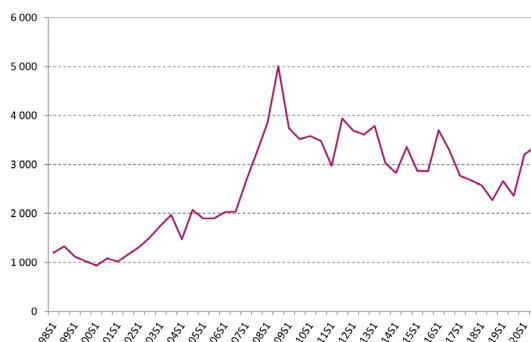
Figure 57: Amounts in gross market value
(in trillions of dollars)



Source: BIS

Gross credit exposure⁸⁰ – which adjusts gross market values for cross-exposures between financial institutions, thus representing an aggregate counterparty risk indicator for derivative positions that is not sensitive to compression – also increased significantly to \$3.4 trillion at the end of 2020. It continues to account for 20% of gross market values.

Figure 58: Gross credit exposure
(in trillions of dollars)



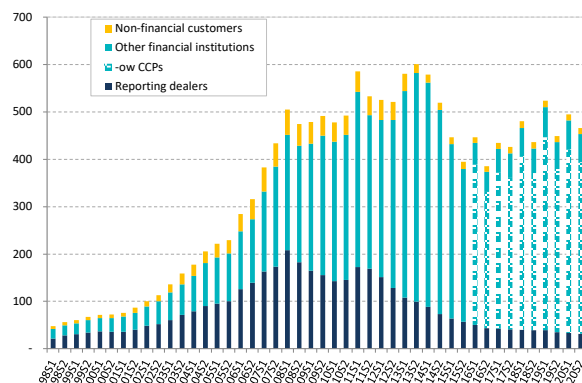
Source: BIS

⁷⁹ The growth in total notional amounts has displayed a seasonality effect since 2016, with a recurring decline between the first and second halves of the year. This seasonality effect could be accounted for by a reduction in positions related to a desire to manage end-of-year regulatory constraints.

⁸⁰ Here, 'gross' refers to the non-collateralised nature of the exposure.

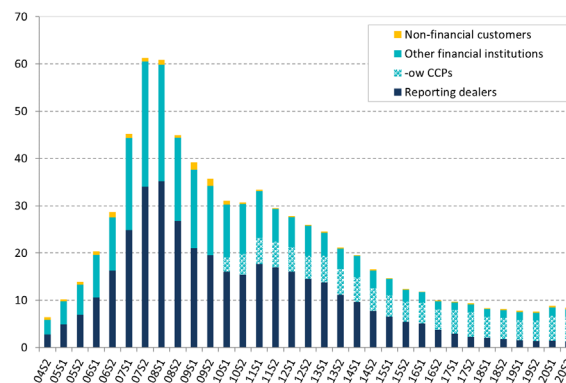
The proportion of cleared credit derivative outstandings continued to increase, with 62% of the notional amounts of credit default swaps which are now centrally cleared, i.e. \$5.222 trillion at the end of 2020, while the proportion of interest rate derivatives seems to have stabilised at 78% of the notional amounts, i.e. \$362.540 trillion at end-2020.

Figure 59: Global (notional) interest-rate derivative outstandings by type of counterparty
(in trillions of dollars)



Source: BIS

Figure 60: Global (notional) credit default swap outstandings by type of counterparty
(in trillions of dollars)



Source: BIS

All in all, 2020 was characterised by a renewed rise in risk indicators relating to activities on OTC derivatives. This rise was very pronounced in the first half, and it apparently held up in the second half. This contrasts with the relative stability of total notional amounts.

2.4.2 Increasing use of US trading venues in response to the derivative trading obligation since the entry into force of Brexit

Article 28 of MiFIR requires that certain categories of derivatives be traded on trading venues (Derivative Trading Obligation: DTO). These derivatives are a subset of more liquid OTC derivatives subject to the central clearing obligation introduced by EMIR. This concerns interest rate swaps denominated in euros, US dollars or pounds sterling, swapping fixed rates against variable rates, and two types of indexed credit derivatives.⁸¹ This obligation to trade on trading venues refers to European venues or venues of third countries having an equivalence decided by the European Commission.

Following Brexit, and in the absence of an equivalence decision issued for UK venues,⁸² this obligation creates a conflict of rules for the UK branches of French market participants trading derivatives subject to the DTO.

This is because, based on the rules resulting from MiFIR and the rules applicable in the United Kingdom, derivatives traded by UK branches of European firms are subject to both the DTO applicable in Europe and the DTO applicable in the United Kingdom. For want of an equivalence, these derivatives can therefore be traded neither on European venues (not recognised in the United Kingdom) nor on UK venues (not recognised in Europe), thus obliging the branches in question to use US venues (swap execution facilities, or SEFs), because they benefit from an equivalence both in Europe and in the United Kingdom.

An analysis of the data on the activity of French investment service providers on interest rate derivatives swapping a fixed rate against a variable rate in the three currencies, Euro, GBP and USD, or euro-denominated indexed credit derivatives, shows:

⁸¹ For more details, see [Public Register for the Clearing Obligation under EMIR](#)

⁸² Unlike CCPs, for which the Commission has published a temporary equivalence decision under EMIR, trading venues based in the United Kingdom did not receive an equivalence under MiFIR. Any European counterparty which traded derivatives subject to the DTO on these venues would therefore not comply with MiFIR.

- a stability of total post-Brexit volumes comparable to the quarterly volumes traded in 2020 before Brexit;
- a transfer of volumes to European or US trading venues, in accordance with the rules stipulated by the DTO; and
- the transfer to US trading venues took place almost exclusively for business conducted from their UK branches by French ISPs.

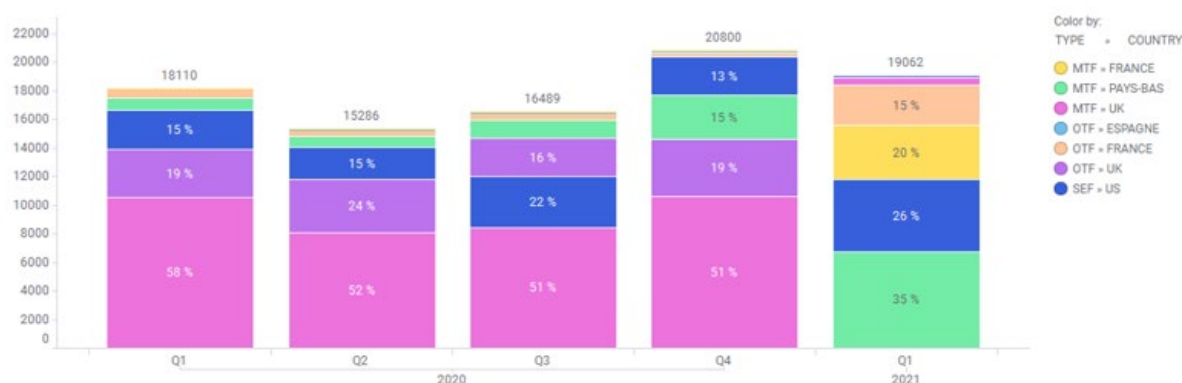
In detail, with regard to interest rate derivatives, we note quarterly volumes in line with the volumes observed in 2020 and a transfer mostly to European trading venues (for 35% to Dutch MTFs, 35% to French MTFs or OTFs) and 26% to SEFs.

With regard to credit derivatives, the quarterly volumes are also similar to the volumes noted in 2020 but this time the very great majority of the transfers were to SEFs (63% of the euro-denominated index CDS traded in Q1 2021 were on SEFs, versus 23% on average in 2020).

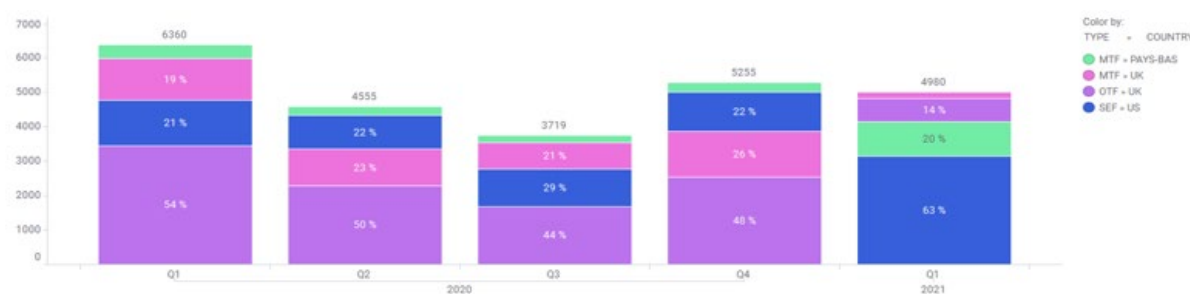
For these two segments, this transfer to SEFs mostly concerns volumes traded from the United Kingdom, since volumes traded on SEFs from France are very small.

Figure 61: Activity of French ISPs on fixed- versus variable-rate interest rate swaps in EUR, GBP or USD and on index CDS
(number of transactions)

Fixed- versus variable-rate interest rate swaps in EUR, GBP or USD



Index CDS



Source: AMF, trade activity reporting

Brexit therefore resulted in a substantial transfer of liquidity to the United States rather than a repatriation to continental Europe.

At this stage, ESMA has nevertheless decided not to change its requirements concerning the DTO,⁸³ considering that no adaptation is needed and that the application of the share trading obligation as it is does not represent a risk for the stability of the financial system. The consequences of this decision should nevertheless be considered, given the significant migration of transaction flows to the United States and the side effects in other areas such as clearing, where the risks could prove substantial. Indeed, transactions which take place in the United States can also be cleared via US CCPs, and part of the risks previously identified for British CCPs could also apply to US CCPs.⁸⁴

2.4.3 Bilateral margin exchanges

The initial margin and variation margin requirements for non-cleared derivatives have gradually come into force since February 2017. Due to the health crisis, in April 2020 the Basel Committee and the IOSCO had decided to extend the last two phases of implementation by one year in order to provide extra operational capacity for companies whose legitimate priority was to respond to the immediate impact of Covid-19, thus allowing them time to comply with these requirements.

At present, therefore, these requirements concern counterparties for which the average annual notional amount of transactions on non-cleared OTC derivatives exceeds €750 billion (phase 1 to phase 4⁸⁵).

At the end of 2020, the International Swaps and Derivatives Association (ISDA) estimated the total amount of margins collected by the 32 largest market participants at \$1.491 trillion, or 32% more than at end-2019. This growth reflects the sharp increase in margins subsequent to the financial crisis.⁸⁶

In detail,⁸⁷ the initial margins received in accordance with the regulatory requirements increased significantly to \$136.6 billion at the end of 2020, up 23% compared with end-2019. The initial margins paid in accordance with the regulatory requirements followed the same trend, increasing by 23% to \$138.6 billion. Margins received as discretionary payments also increased by 12% to \$81.2 billion at end-2020.

Variation margins also experienced an even greater increase in 2020, related to the health crisis: variation margins received increased by 35% to \$1.2739 trillion and margins paid by 59% to \$1.1492 trillion over the same period. Around 40% of the variation margins received and paid are within the framework of discretionary payments.

The initial margins received in accordance with regulatory requirements consist mostly of sovereign securities (84%). In the case of initial margins received within the framework of discretionary payments, the proportion of cash is around 47%.

Conversely, variation margins consist of cash (85% for regulatory margins and 72.7% for margins paid on a discretionary basis).

⁸³ https://www.esma.europa.eu/sites/default/files/library/70-155-8842_esma_statement_on_dto_final.pdf.

⁸⁴ At this stage, the US CCPs recognised by ESMA are classified in the Tier 1 category and are therefore not systemic.

⁸⁵ The entry into force of the initial margin requirements was staggered in six phases, according to the amounts of the positions concerned, from February 2017 (phase 1) for the largest exposures (more than €3 trillion) to September 2022 (phase 6) for the smallest ones (from €8bn to €50bn).

⁸⁶ See Market and Risk Mapping, 2020. It also partially reflects the increase in the number of participants in the survey used to calculate these figures. In 2019, the number of participants was 27. The five new participants for 2020 are financial counterparties of smaller size, concerned by phases 2 and 3. Thus, on a like-for-like basis for the largest entities (phase 1), the increase in margins is 28%.

⁸⁷ The initial or variation margins can be received or paid by a counterparty. A counterparty which receives margins does not necessarily post any, and conversely.

Table 2: Amounts of margins paid and received
(in billions of dollars, all jurisdictions combined)

Margin type	Contribution origin	Direction	2020	2019	2018	2020/2019
Initial margins	Regulatory obligation	paid	138,5	112,3	75,2	23%
		received	136,6	111,2	73,7	23%
	Discretionary contribution*	paid	10,6	11,0	10,1	-4%
		received	81,2	72,5	74,1	12%
Total marges initiales		paid	149,1	123,3	85,3	21%
		received	217,8	183,7	147,8	19%
Variation margins	Regulatory obligation	paid	716,6	383,2		87%
		received	713,7	465,3		53%
	Discretionary contribution*	paid	432,6	371,5		16%
		received	560,2	479,4		17%
Total variation margins		paid	1 149,2	754,7	583,9	52%
		received	1 273,9	944,7	858,6	35%
Total		paid	1 298,3	878,0	669,2	48%
		received	1 491,7	1 128,4	1 006,4	32%

(*) payments made by entities or for contracts not falling within the scope of the regulatory obligation

Source: ISDA

2.5 THE BENCHMARK REGULATION

2.5.1 2021: a pivotal year for the adoption of alternative risk-free rates

The ongoing pandemic did not undermine the will to reform "risk-free rates" (RFRs) by substituting alternative rates for the reference rates used. Within the framework of the regulatory requirements this entails, the reforms and the transition to new RFRs made substantial progress. Transition plans have been rolled out by the major banks and market infrastructures (e.g. clearing houses), which have substituted RFRs for the existing rates and adopted suitable contract fallback clauses to manage the cessation of calculation of the rates in use. Supported by the authorities, the finance industry is devoting substantial resources to systematise the identification of exposure to IBORs, implement the transition processes and develop appropriate systems. However, despite the progress made, major shortcomings remain to be resolved. In particular, the treatment of certain types of contracts (e.g. syndicated loans) cannot be automated, and certain types of market participants (e.g. non-financial corporations) have adopted a wait-and-see stance. Even in derivative markets, which are the most advanced, adoption of the RFRs is still limited/slight. In this context, a major challenge concerns USD LIBOR, for which the transition deadline has been pushed back to June 2023⁸⁸.

2.5.2 Progress on reforms and on management of the transition to alternative RFRs

OVERNIGHT AND TERM-RFRs ARE SPECIFIED — THEIR ADOPTION IS WIDELY ATTESTED⁸⁹

The market approximation of the concept of risk-free rate of at most one-year maturity has historically⁹⁰ been based on the interest indications for unsecured interbank loans ("IBOR"). The reforms⁹¹ amend their methodologies to increase their representativeness. Since the use (and even calculation) of these rates is, in many cases, due to cease, alternative nearly risk-free rates (RFRs) are substituted for them.⁹² New methodologies are adopted for the RFRs calculated by central banks. As regards overnight rates, €STR (Euro Short-Term Rate) and SONIA (Sterling Over-Night Index Average), replacing EONIA and GBP LIBOR, aim to represent a broad universe of

⁸⁸ Save for 1-week and 2-month maturities.

⁸⁹ Cf. AMF Risk Outlook 2018/19, e.g. on the amounts based on European IBORs, and on the provisions of the Benchmark Regulation.

⁹⁰ For long-term rates (e.g. 5 years or more), the benchmark generally used is the government bond yield.

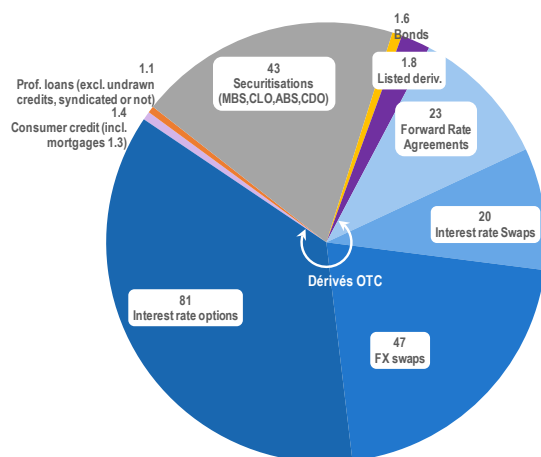
⁹¹ The approximation of theoretical short-term rates previously based on unsecured InterBank Offered Rates proved fragile and manipulable during the crisis in the context of illiquidity. It therefore motivated the reform of these rates at the instigation of the British FSA ("Wheatley Report" of Sept. 2012), IOSCO and the FSB. Cf. AMF Risk Outlook 2018 and 2019, e.g. on the evaluation of the amounts benchmarked against European IBORs and the provisions of the Benchmark Regulation (BMR).

⁹² In some cases, as for EURIBOR, the existing interest-rate methodology has been amended.

actual transactions of lending firms,⁹³ even beyond the interbank sphere. The SOFR (Secured Overnight Financing Rate), alternative to the overnight LIBOR in dollars,⁹⁴ entails an even more pronounced change, being actually based on secured interbank borrowing rates (repos). For longer maturities, the choice of RFRs is more open. In Europe, EURIBOR has been maintained by adapting its methodology (2019 Risk Outlook). Further adjustments aim in addition to limit the use of models and expert opinions in this context,⁹⁵ when its calculation cannot rely on the observation of actual transactions. Beyond EURIBOR, the calculation of the reference rates previously in use is generally destined to be suspended, and it is generally recommended (FSB (2014)) to replace it with backward-looking rates, i.e. rates compounding overnight RFRs and calculated near maturity (compounded in arrears).⁹⁶ The European Central Bank calculates accordingly indices of €STR compound rates for maturities of 30, 90 and 180 days.⁹⁷ Similar rates are calculated for the UK SONIA and the SOFR (see below).

The scope of the reforms aimed at effective adoption of the RFRs is broad. To assess their progress, therefore, requires a combination of the relevant criteria: the maturity date (between overnight and one year) and the currency of the rates in question, but also the use made of them – i.e. the contracts or instruments concerned;⁹⁸ the types of issues (operational, legal, etc.) and agents (financial service providers, users, etc.) concerned. More than \$400 trillion in notional amount of derivatives, credits and other financial products are benchmarked against IBORs.⁹⁹ LIBORs by themselves represent about €230 trillion in notional amount, including 76.7% OTC derivatives (Figure 62).

Figure 62: Breakdown by type of instrument/contract of the 223 trillion dollars of exposure to USD LIBOR at end-2020 (in USD trillions)



Source: ARRC, Federal Reserve.

Numerous examples testify to an effective use of RFRs, since the issuance of bonds indexed on the SOFR and SONIA in the autumn of 2018¹⁰⁰, including the use, since February 2021, of the €STR for calculating the *Livret A* passbook's interest rate in France. In derivative markets, this is supported by the use made of them by central counterparty clearing houses (CCPs). In October 2020, for example, the CME and LCH adopted the SOFR for the valuation (discounting of future payment streams) of interest rate swaps in dollars and for calculating the price alignment

⁹³ 50 banks subject to the money market statistical reporting requirements of the ECB (MMSR) for €STR. The members of the Wholesale Markets Brokers' Association (WMBA) for SONIA.

⁹⁴ Calculated by the New York Federal Reserve and published at 8 am New York time.

⁹⁵ In April 2020, for example, 92% of the index calculation contributions used models and expert opinions (level 3 of the methodology). The interest-rate administrator EMMI has adapted its methodology. Since 19 April, transactions exceeding €10m (and no longer €20m) are eligible for their calculation, as are those settled up to three days after the transaction date (T+3) ([Methodology review](#) of 02/02/21).

⁹⁶ These rates compound the daily values of the overnight rate over the period of reference, and are typically set a few days before its end in order to be able to calculate the applicable rate and carry out payments in due time.

⁹⁷ Mandate: [EU Guideline 2019/1265](#). Methodology: [ECB compounded €STR average rates and index calculation and publication rules](#).

⁹⁸ A distinction is made, in particular, between money market transactions, secured or unsecured; indexed deposits; syndicated or bilateral loans, commercial or housing; derivatives, possibly listed and/or cleared; and investment funds, e.g. money-market or total return.

⁹⁹ Source: Bank for International Settlements (March 2019). See, e.g., [UBS](#) for an evaluation of the IBOR market in five major currencies.

¹⁰⁰ With the support of the World Bank (cf. [World Bank prices largest ever Sterling Overnight Index Average \(SONIA\) bond](#); 27/09/18).

(price alignment interest, or PAI),¹⁰¹ i.e. the interest payable on margins. Similarly, on 11 June 2021, ICE Clear Credit, ICE Clear Europe and LCH CDS Clear adopted the SOFR and €STR as alternatives to the Fed funds and EONIA for CDSs, a market of \$2.3 trillion notional amount. The use of RFRs is also accompanied by changes in the structure of secondary markets to improve their liquidity. For example, Tradition has launched Trad-X, an electronic order book (CLOB) for trading interest rate swaps. Its success remains to be evaluated, but it has already contributed to the formation of pools of liquidity, e.g. for SOFR vs Fed funds swaps in the context of the transition of CCPs to the SOFR in the last quarter of 2020. The CFTC¹⁰² has supported the process and, from 26 July 2021, recommends using the SOFR on the interdealer market in place of the LIBOR for "linear" swaps.

□ The transition is managed proactively by the main players

The major bank players have generally carried out mapping work to identify contracts benchmarked against critical indices, and to assess the necessary adaptation of systems for the use of RFRs in new and existing contracts, even in cases where the fallback clauses are triggered. In the first place, the transition management concerns the cash management systems and accounting processes. Besides, since the entry into force of the Benchmark Regulation on 1 January 2018, the players have developed the insertion of fallback clauses in the contracts concerned (see below). The transition represents a strategic challenge for banks. Apart from the management, including commercial management, of legacy contracts based on IBORs, the transition affects generally the risk management processes, their own issuance, their product offering and the provision of client support services.

Regarding derivative contracts, the transition will be implemented primarily by the central counterparty clearing houses which are organising a switchover in December 2021 for cleared LIBOR contracts in EUR, CHF, JPY and GBP.¹⁰³ And yet, based on the ISDA evidence of the adoption of RFRs by interest rate derivatives, the use of RFRs, except those in pounds sterling, generally remains a minority practice (Figure 63 and Figure 64). It accounted for less than 2% of those in euros in April 2021.¹⁰⁴ Failing substitution, fallback clauses are generally adopted, which designate an alternative index in the event of the permanent cessation of use of the reference rate. The high percentage of insertion of such clauses in contracts by the major bank players is notably the result of the adherence of many counterparties to the ISDA protocol,¹⁰⁵ whose framework contracts, with a high degree of legal protection,¹⁰⁶ take the place of a fallback clause, thus enabling LIBOR-linked contracts to switch massively to RFRs. And yet, the disappearance of most IBOR at the end of 2021 will trigger the simultaneous transition of trillions of dollars of derivatives contracts in notional amounts and could induce operational risks that it could be preferable to avoid.

¹⁰¹ PAI: interest on the variation margin of cleared transactions. PAA (price alignment amount): cumulative net present value of settled-to-market transactions for which the variation margin is treated as a settlement rather than as a guarantee by US CCPs.

¹⁰² As part of a "SOFR First" initiative. Cf. "[CFTC's Interest Rate Benchmark Reform Subcommittee recommends July 26 for transitioning interdealer swap market trading conventions from LIBOR to SOFR](#)"; 08/06/21.

¹⁰³ LCH and CME described their conversion processes in detail on 18 March 2021 (via a circular No. 4146) and 12 April 2021 respectively.

¹⁰⁴ NB: as reiterated by the FCA, these data could be disturbed by "technical" compression operations and the issuance of LIBOR swaps vs LIBOR in the form intended for risk management.

¹⁰⁵ Protocol published on 23/10/20, taking effect on 25/01/21 ([IBOR Fallbacks Protocol](#)).

¹⁰⁶ In the U.S., for example, the Department of Justice has reduced the potential for antitrust recourse by the parties losing due to the change.

Index of RFR adoption by interest rate derivatives

Figure 63: Overall index (USD trillions; adoption index: ratio, right-hand scale)

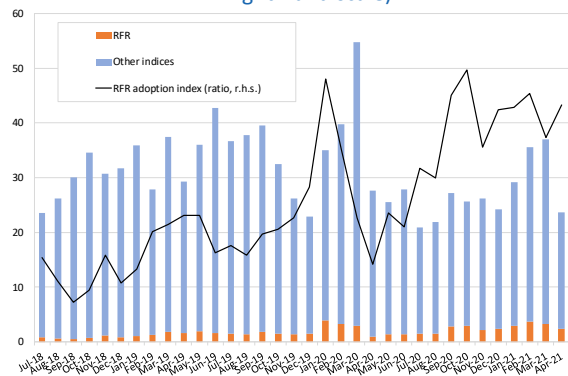
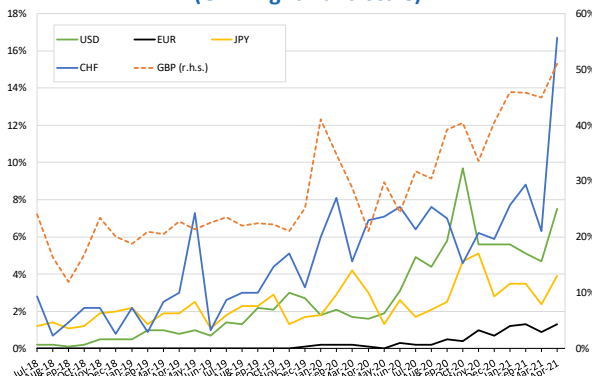


Figure 64: Indices by currency (GBP: right-hand scale)



Source: ISDA - Clarus, AMF. Note: Risk-weighted amounts traded (DV01) for contracts in USD, EUR, JPY, GBP, AUD and CHF. DV01: notional amounts measuring the discounted value of contracts following a parallel shift of one basis point on the yield curve. Cf. ISDA White Paper, Clarus.

- The authorities support the transition and acquire powers

Central banks are facilitating and coordinating the finance industry's work regarding the transition.¹⁰⁷ Within this framework the actors have contributed in particular to adapt the risk-free rate methodologies, perform monitoring of the transition and clarify the fallback clauses and the legal framework associated with the transition. The banks' transition plans are also under supervision of the prudential and market regulators. As a member of the supervisory boards of the EURIBOR and LIBOR critical index administrators, the AMF has an overall view of the banks' contributions to their fixing and monitors their methodological changes. It is also a member of the Financial Stability Board, and also takes part with Banque de France (ACPR) in its work on the transition to RFRs.¹⁰⁸

Against this backdrop, in response to the decision of the ICE Benchmark Administration Limited (IBA) to stop their calculation, the timeline for the transition of 35 LIBOR rates was specified by the FCA on 5 March 2021¹⁰⁹ (Table 3). In particular, it pushes back its time frame for dollar rates beyond 2021. This announcement is decisive, notably because it specifies the dates at which the LIBOR rates, which have become non-representative, will trigger the contractual clauses ("trigger events") defined by the ISDA and recommended by the ARRC (USD LIBOR). The announcement of the end of LIBOR has also enabled calculation of the spread, calculated as the median over five years of the difference between RFR and LIBOR,¹¹⁰ which is added to the RFR in the fallback clauses.

¹⁰⁷ [Working group on euro risk-free rates](#) of the ECB; [Working Group on Sterling Risk-Free Reference Rates](#) of the Bank of England; Alternative Reference Rates Committee (ARRC) of the US Federal Reserve Board and New York Fed.

¹⁰⁸ At the end of 2020 the FSB published a roadmap (Global transition roadmap) specifying the actions to be taken by financial and non-financial corporations for the transition to RFRs. The AMF contributed to the collection of data and qualitative information for the BCBS report (2020) on [Supervisory issues associated with benchmark transition: Report to the G20](#) to be discussed at the G20 in July 2021.

¹⁰⁹ FCA announcement on future cessation and loss of representativeness of the LIBOR benchmarks; 05/03/21.

¹¹⁰ Cf. calculation of this spread for the currencies and market makers concerned [published](#) by Bloomberg.

Table 3: Dates of cessation of the 35 LIBOR rates

Curr.	Tenors	Spread adj. fixing date	Result
31/12/21:			
EUR	All tenors (O/N, 1 week, 1, 2, 3, 6 and 12 months)	5 March 2021	Permanent cessation
CHF	All tenors (Spot Next, 1 week, 1, 2, 3, 6, and 12 months)	5 March 2021	Permanent cessation
JPY	Spot next, 1 week, 2 months and 12 months	5 March 2021	Permanent cessation
JPY	1 month, 3 months and 6 months	5 March 2021	Non-representative. "Synthetic" rate possible for 1 additional year.
GBP	O/N, 1 week, 2 months and 12 months	5 March 2021	Permanent cessation
GBP	1 month, 3 months and 6 months	5 March 2021	Non-representative. "Synthetic" rate possible for a "further period" after 2021
USD	1 week and 2 months	5 March 2021	Permanent cessation
30/06/23			
USD	Overnight and 12 months	5 March 2021	Permanent cessation
USD	1 month, 3 months and 6 months	5 March 2021	Non-representative. "Synthetic" rate possible for 1 "further period" after end-June 2023

Source: FCA, Gibson Dunn.

The authorities possess also specific powers. The Benchmark Regulation (BMR) makes it possible to designate critical indices as unfit for use as a benchmark for contracts and financial instruments. On 10 February 2021, it was amended to give the European Commission the power to appoint a replacement for any index of critical importance which is destined to disappear or ceases to be representative.¹¹¹ The British FCA can also designate non-representative benchmarks as unfit for use as benchmark indices. A change in the UK Benchmark Regulation plans¹¹² to extend these powers and enable it, for a non-representative LIBOR, to demand the use of a "synthetic LIBOR" by contracts in sterling and yen not making the transition (tough legacy contracts).¹¹³ This would facilitate the liquidation of residual contracts which would not have made the transition by end-2021. The methodology for this rate would be amended by the FCA, and its calculation and publication required for 10 years. In the United States, the Federal Reserve¹¹⁴ supports draft federal legislation to facilitate contract conversion (following the initiative of the same type by the State of New York).

2.5.3 The transition remains to be finalised, and risks persist

There are still significant risks. They primarily concern non-financial corporations, generally not well prepared, and contracts, loan contracts in particular, for which the transition poses specific legal difficulties, which may possibly require renegotiation on a case-by-case basis. They also concern derivatives markets, where residual and/or technical aspects remain to be dealt with. More structurally, liquidity appears a prerequisite for adoption of the RFRs. This concerns, in particular, the transition from LIBOR rates in dollars, for which it is apparently becoming fragmented.

- Difficulties specific to certain loan contracts and non-financial corporations adopting a wait-and-see attitude

The transition affects various types of credits and contracts that are possibly not well identified: simple loans, syndicated loans, private placements, commercial contracts, intra-group financing, etc. Even the large banks may face difficulties, for example, for syndicated loans that could require renegotiation between the multiple stakeholders (e.g. lead manager, agent banks, borrowers). In this situation, some have devoted additional resources to renegotiate certain LIBOR contracts (repapering) by the end of 2021, and further out for those in dollars. Other types of contracts are also concerned. For example, the European Commission has relayed concerns relating to certain loans benchmarked against CHF LIBOR, considered by large banks as "tough legacy" because they come under legislation specific to retail investors which would require renegotiation to amend their indexing clauses.

¹¹¹ EU Regulation No. 2021/168 enacted on 13/02/21 amending Art. 23 of the Benchmark Regulation (BMR) and EMIR. It also allows the European Commission to designate an index to replace a third-country index which might be no longer usable in the EU because it could severely disrupt the market. Option Finance; Transition Benchmarks: a European legislative solution; 07/05/21.

¹¹² Under the UK Financial Services Bill which is planned to be put to the vote by the summer of 2021.

¹¹³ Tough legacy contracts have neither a legally and operationally robust reversion clause, nor an agreement on an RFR.

¹¹⁴ See, for example, the [speech](#) by Mr Van Der Weide on 15/04/21.

Apart from the amendment of the contracts themselves, the transition requires an alignment of loan contracts and their hedging. This may entail significant operational challenges in terms of systems and transition management processes. In practice, operational impacts should be perceived above all by corporate treasurers, whose systems will have to adapt to the use of compound rates near maturity, for example to be able to calculate rates in the runup to expiry of the reference period. This requires appropriate resources and planning, given the deadlines for adaptation of the systems required to maintain the expected level of automation and avoid manual adjustments. In general, however, non-financial corporations seem to be adopting a wait-and-see attitude. As the practitioners admit, their treasurers are far from having all mapped and hierarchically ranked their risks.¹¹⁵ For example, the largest companies are only very gradually adopting the ISDA protocol for their interest rate swaps. Only 14 of the 100 largest listed companies (more specifically the 25 top capitalisations of the S&P 500, FTSE 100, EURO STOXX 50 and Nikkei 225 indices) had adopted it as at 8 March 2021.¹¹⁶ As a reminder, failing adherence to the ISDA framework agreement, it is necessary to negotiate fallback clauses bilaterally or to manage the transition proactively by cancelling the contracts in place and replacing them with contracts using RFRs.

- Even in derivative markets, the quickest in managing the transition, substantial work remains to be done

With regard to interest rate derivatives, CCPs' switch to RFRs should significantly increase the adoption of RFRs. Other more specific developments could facilitate the transition. For example, certain swaptions could become exercisable as cleared swaps. However, the change in CCPs' discount rates and PAIs does not concern bilateral swaps, for which the provisions (Credit Support Annexes) remain to be amended independently. Indeed, non-cleared bilateral contracts have not all adopted a fallback clause (standardised or contractual). Moreover, certain contracts, e.g. "nonlinear contracts" (options, swaptions, etc.) require further technical developments. Valuation models must also adapt. The ISDA model managed by IHS Markit, used notably for non-cleared CDS, must integrate RFRs. Moreover, the yield curve by maturity date will have to temporarily sustain discontinuities which will require appropriate management.¹¹⁷ In practice, a swaps portfolio typically contains hedges maintained over the years, and illiquid currency swaps, with optional or non-standard clauses. Once the fallback clauses have been triggered, it will be necessary to reconcile cash flows. Previously, the coupon was known beforehand. In the present case, the use of compound rates near maturity will leave little time to detect payment discrepancies in the accounts, which could result in disputes.

In this context, the liquidity of products based on RFRs appears as a major criterion for assessment of transition progress; but assessing the impact of triggering the fallback clauses "*depends on acceptance of the doctrine that the market has already priced cessation into observable legacy benchmark swap rates*".¹¹⁸ This point is attested, for example, by the reminder given by the Swiss National Bank that, at the end of 2020, swap trading volumes on SARON remained lower than those on the CHF LIBOR.¹¹⁹ It is also attested by the Bank of England's exemption of yen-denominated contracts from the obligation of clearing swaps on RFRs applicable from 6 December 2021, since doubts have been expressed concerning the liquidity of swaps on TONAR after the transition (a reform of the TIBOR remains possible). The liquidity criteria will also be decisive for assessing progress on the rate reform in dollars.

- USD LIBOR: more open questions

Regarding the LIBOR to SOFR in the United States, the transition timeline prolongs a number of question marks and risks. Generally speaking, RFRs entail a more pronounced change than for the aforementioned IBORs.

¹¹⁵ L'Agefi Hebdo; LIBOR: Gare au sprint final; 19/01/21 quotes AFTE representatives in particular on this point.

¹¹⁶ More specifically, 6 companies of the S&P 500 (Apple, Coca-Cola, Microsoft, Procter & Gamble, UnitedHealth Grp, Walt Disney), 6 of the FTSE 100 (BHP, BP, Compass, Glencore, Royal Dutch Shell, Tesco), 1 of the EURO STOXX 50 (Iberdrola) and 1 of the Nikkei 225 (Hitachi). Bloomberg data is quoted by Risk.net; Corporates remain on swaps fallback sidelines; 29/04/21.

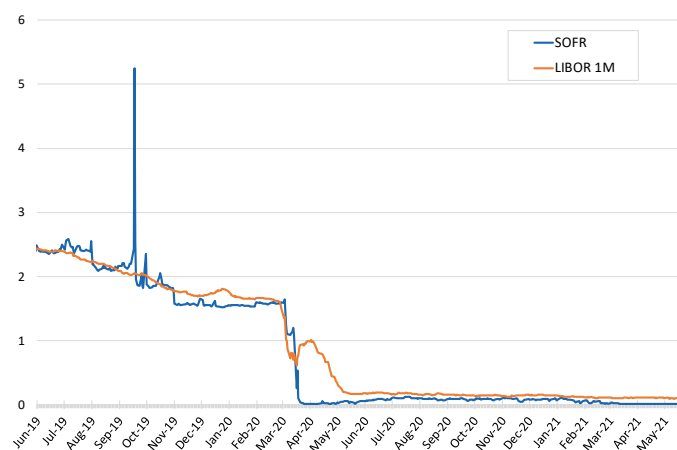
¹¹⁷ Cf. Murex; "Cliff effect might demand risk calculation agility until Libor cessation"; Risk.net.

¹¹⁸ TriOptima, CME Group; "Options to mitigate the challenges of index cessation fallbacks and conversion"; 01/06/21.

¹¹⁹ Cf. [Introductory remarks](#) by Andrea Maechler at the press conference of 17/12/20.

This is firstly because the secured lending (repo) market becomes their new reference universe. Excepted a spell of volatility on this market in September 2019¹²⁰, the spread of SOFR with overnight LIBOR (Figure 65) has remained generally stable. Although the authorities encourage the use of alternative rates to the Fed funds, they do not plan to suspend their calculation or use as a reference.

Figure 65: SOFR, overnight LIBOR and 1-month LIBOR (%)



Source: Federal Reserve Bank of Saint Louis; AMF.

Furthermore, concerning the rates at longer maturities, such as the SONIA and €STR, the transition to a compound rate near maturity (term SOFR) is recommended. Although the ARRC has not endorsed a rate, it has announced the choice of the CME as administrator of the term SOFR¹²¹, favouring thereby a reference to the futures market, thus rejecting the ambitions of IBA and Refinitiv in this respect (which favoured a reference to swap markets¹²²). Three criteria will be adopted to select this rate: growth in outstanding SOFR-linked derivatives, deepening of the liquidity of SOFR derivatives market, and the growth of Treasury products, including credit benchmarked against the SOFR.

However, the recommendation to use term-SOFR is less prescriptive than elsewhere, and the authorities even left room for a certain creativity with regard to alternative rates. The latter mainly has two separate purposes, for the benefit, above all, of commercial credit and syndicated loans: the inclusion of a credit risk premium and a liquidity premium (adding to the compound overnight rates). Five providers have developed such rates. Two already serve as references: the Bloomberg Short-Term Bond Yield (BSBY), used by loan contracts and derivatives,¹²³ and the Ameribor, sponsored by 170 US regional banks, the 30-day version of which is already used, while the 90-day version was launched on 19 May 2021. Three others promote rates that could be used soon: IHS Markit (launched on 1 June 2021), ICE (Bank Yield Index), and SOFR Academy whose AXI index is announced for the third quarter of 2021. Meanwhile, the US Treasury Secretary, Janet Yellen, has expressed concern:¹²⁴ "Some of LIBOR's shortcomings may be replicated through the use of alternative rates that lack sufficient underlying transaction volumes". On this occasion the SEC Chair, Gary Gensler, stated that the BSBY "has many of the same flaws as LIBOR". The CFTC's accusation, in February 2021, that a Nomura trader had manipulated the prices of interest rate swaps on a page of Refinitiv Eikon – namely providing information from telephone transactions (deemed to represent 90% of the interdealer market), but also from the ICAP electronic trading venue iSwap - underscores the risk of an excessive market fragmentation.

¹²⁰ Anbil, Anderson, Senyuz (2021); "What Happened in Money Markets in September 2019?"; FEDS Notes; 27/02/20 provides detail on the causes identified for the bout of volatility and describes the Fed interventions that stabilised the market.

¹²¹ CME computes 1, 3, and 6 month rates. Proposed as reference for derivatives as of June 2023, they can be used by cash contracts until then.

¹²² The reference to OIS avoids making assumptions for some maturities of the yield curve, but OIS liquidity remains limited.

¹²³ Since April 2021, the BSBY has been used, for example, as reference for floating rate notes and syndicated loans. Moreover, a commercial agreement with the CME provides for BSBY futures in Q3 and clearing of BSBY swaps in Q4 2021.

¹²⁴ On 11/06/21, at the meeting of the Financial Stability Oversight Council.

CHAPTER 3 : ASSET MANAGEMENT

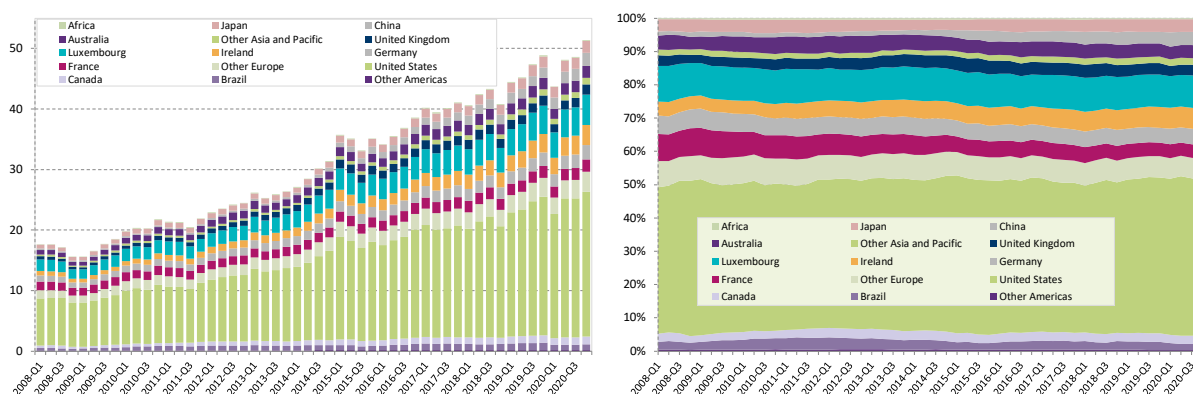
3.1. 2020 REVIEW OF COLLECTIVE INVESTMENT SCHEMES WORLDWIDE:

2.2.1 Despite a record drop at the beginning of the pandemic, and thanks to the strong inflows that followed, assets under management in collective investment schemes continued to grow in 2020, rising by 5% in one year and crossing the €50 trillion threshold for the first time ever at the end of December 2020

At the end of 2020, the European Fund and Asset Management Association (EFAMA) estimated the total net assets (TNA) of undertakings for collective investment (UCIs) worldwide to be €51.4 trillion (vs. €48.8 trillion a year earlier, an increase of 5.2%). TNA thus exceeded €50 trillion for the first time ever, despite the dramatic crisis caused by the coronavirus pandemic. This increase in net assets year on year was essentially due to an inflow effect (€2.3 trillion) and very marginally to a valuation effect (+€200 billion).

However, the effects of the pandemic were clearly visible: in Q1 2020, funds' total net assets posted the most dramatic drop since data has been compiled (Q1 2008), both in absolute terms (-€5.1 trillion) and relative terms (-10.4% vs. 'only' -9.0% in Q4 2008, just after the Lehman Brothers' bankruptcy and the worsening of the subprimes crisis).

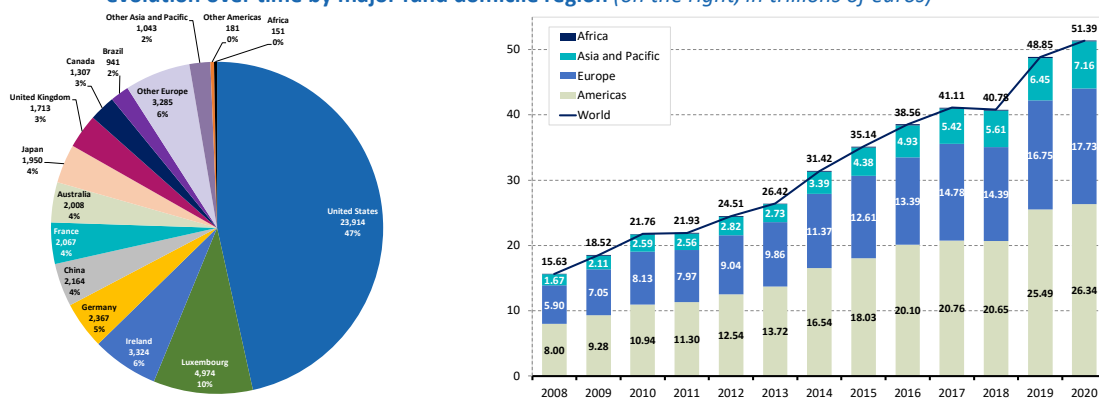
Figure 66: Total net assets of undertakings for collective investment worldwide by major fund domicile jurisdiction
(in trillions of euros on the left, as a percentage of the total on the right)



Source: EFAMA, Worldwide historical public report Euro 2020-Q4

2.2.2 The geographic structure of the market (in terms of domiciles) remains the same

Figure 67: Breakdown of total net assets in Q4-2020 (on the left) and evolution over time by major fund domicile region (on the right, in trillions of euros)

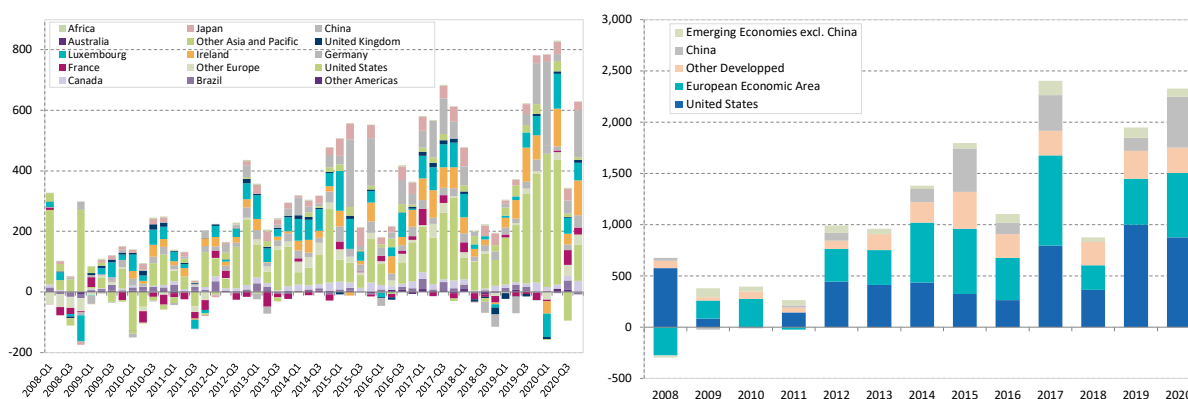


Source: EFAMA, Worldwide historical public report Euro 2020-Q4

2.2.3 In aggregate, net subscriptions were robust in 2020. The United States and China even managed to record positive inflows in Q1 2020, despite the beginning of the Coronavirus crisis

Growth in total net assets during 2020 was almost exclusively due to inflows. American funds attracted nearly €880 billion over the year (essentially during the first two quarters, and mainly in money market funds). With a little over €640 billion, European funds also recorded significant inflows, but this time concentrated in the last three quarters (with the notable exception of Germany, all major European domicile jurisdictions, including the United Kingdom, had net outflows in Q1, representing a total of -€120 billion). Finally, Chinese funds posted nearly €500 billion in inflows over the year, with more than half (€275 billion) in Q1 alone. Chinese money market funds alone recorded €183 billion of inflows in Q1.

Figure 68: Changes in net subscription redemption flows by country or domicile region
(quarterly analysis on the left, annual on the right, in billions of euros)



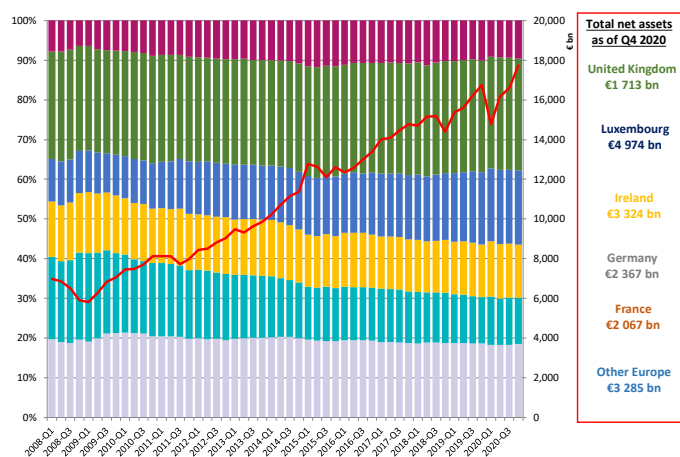
Source: EFAMA, Worldwide historical public report Euro 2020-Q4

3.2. BREAKDOWN OF THE EUROPEAN MARKET

3.2.1. With €17.7 trillion in total net assets, European undertakings for collective investment set a new record

Total net assets of funds domiciled in Europe grew by €908 billion during 2020, reaching €17.7 trillion at the end of last year. Luxembourg remains the leading European fund domicile jurisdiction, with nearly €5 trillion in total net assets (28%). Ireland accounts for 19% of the market, Germany 13%, France 12% and the United Kingdom 10%.

Figure 69: Evolution of total net assets of funds domiciled in Europe, broken down by jurisdiction (in billions of euros)



Source: EFAMA, Worldwide historical public report Euro 2020-Q4

Inflows were particularly pronounced for Irish funds (€235 billion in total over the year, or +7.6% despite net outflows of €41 billion during Q1). Net inflows for German funds totalled 4.5% (€102 billion distributed over all four quarters), while French funds took in €71 billion over the year (+3.6%, concentrated in the last two quarters). With nearly €150 billion in 2020, inflows of Luxembourg funds represented only 3.2% of net assets at the end of 2019 (net inflows were positive over the last three quarters, but following net outflows of -€77 billion in Q1).

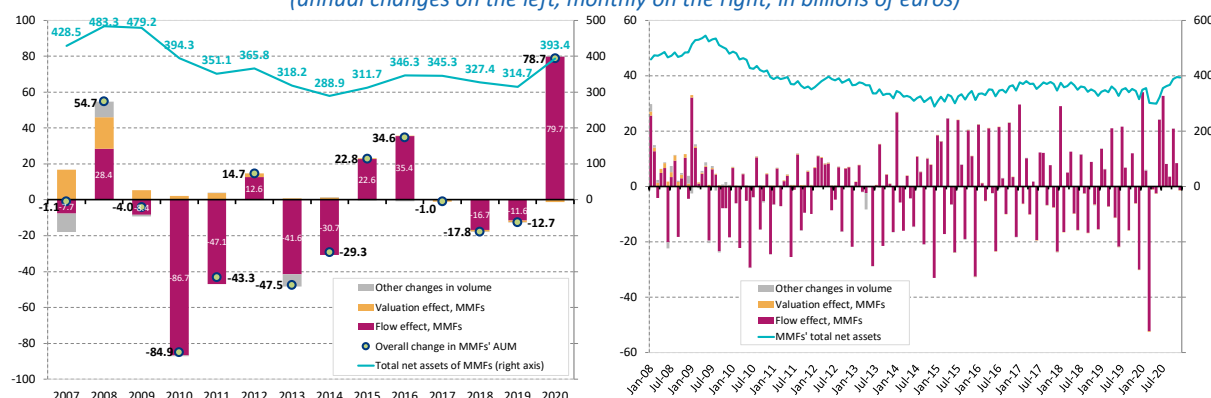
3.3. FOCUS ON FRENCH FUNDS: AN EVENTFUL YEAR IN 2020 DUE TO THE PANDEMIC

We take particular interest here in funds domiciled in France, under the AMF's jurisdiction. For the long time series, the data used in this section is the aggregate series restated by the Banque de France (monthly and annually), and for the detailed analysis of 2020, granular supervisory data reported to the AMF was used.

3.3.1 Money market funds: record annual inflows over the year despite a record monthly outflow in March 2020

According to statistics published by the Banque de France, the total asset under management (AUM) in French money market funds (MMFs) grew by 25% (€78.7 billion) in 2020, from €314.7 billion at the end of 2019 to €393.4 billion at the end of 2020. The valuation effect is very weak for MMFs, as they only invest in very short-term debt securities. This spectacular shift in AUM was therefore a result of record net subscriptions (€79.9 billion over the year). However, the €52.4 billion net outflow in March alone (14.8% of their net assets as of the end of February) was the most violent redemption wave ever experienced by French MMFs.

Figure 70: French money market funds' AUM and breakdown of flow and valuation effects
(annual changes on the left, monthly on the right, in billions of euros)



Source: Banque de France, UCI Performance

3.3.2 Traditionally, subscription-redemption cycles are very pronounced for French MMFs

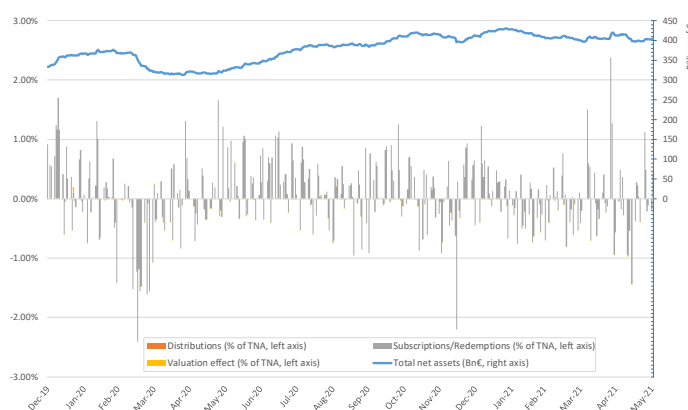
Unlike the other two major European domicile jurisdictions for MMFs (Ireland and Luxembourg), the French money market is known for highly cyclical subscription/redemption flows through the year, with significant outflows at the ends of quarters. This phenomenon seems to be driven by the behaviour of investors who invest their free cash throughout the quarter and then make withdrawals to pay quarterly charges or reinforce cash assets in the balance sheets they publish. Redemptions in March 2020 were massive, even once corrected for traditional cyclical trends. However, all French (and more generally, European) money market funds were able to pay redemption requests in a timely manner, without having to introduce any restriction.

3.3.3 A violent redemption shock in March 2020; high inflows since May 2020

The economic crisis caused by the pandemic and lockdown measures exposed money market funds to massive waves of withdrawals in March 2020, reaching €46.4 billion in France, including €27.2 billion during the week of 16 March alone, with redemptions peaking on 17 March (€8.4 billion). According to the AMF's supervisory data,

French MMFs took in €88.1 billion between May and December 2020, posting +€2.5 billion in subscriptions in May 2020, +€21.3 billion in June 2020 (despite the fact that June is traditionally a net redemption month) and +€33.1 billion in July 2020. Inflows were lower in August 2020 (+€5.5 billion) and September 2020 (+€2.6 billion), before rising to significant levels again in October 2020 (+€22.4 billion). After +€5.4 billion in November 2020, the first month with net outflows since the crisis was December 2020 (-€4.6 billion, which is still the lowest redemption level ever seen for a month of December).

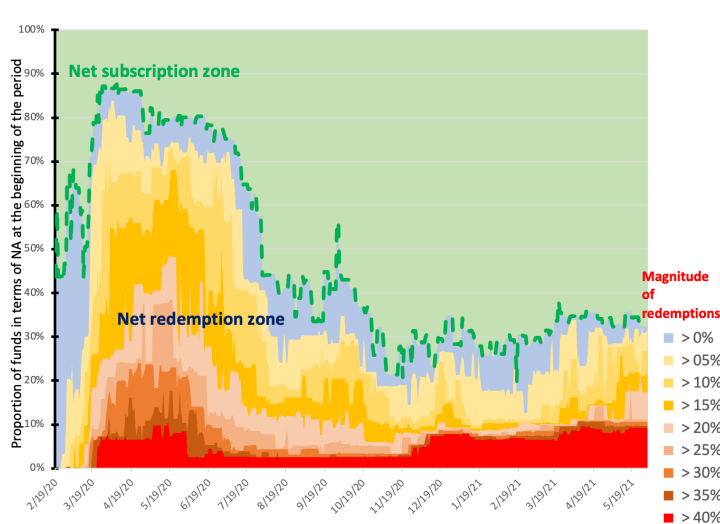
Figure 71: Total net assets of French money market funds since 31 Dec 2019, and breakdown of flow and valuation effects (in billions of euros)



Source: Autorité des Marchés Financiers, BIO database

NB: Valuation and distribution effects are marginal on money market funds, especially when compared to subscription-redemption flows. The yellow and orange bars are therefore almost invisible in the previous figure.

Figure 72: Evolution of the repartition of French money market funds by total net redemption bucket



Source: Autorité des marchés financiers, BIO database

Note:

On each date, we calculated cumulated subscription/redemption flows since 18 February 2020 (right before the beginning of the crisis). The dotted green line separates funds with net inflows (light green section, above) and funds with net outflows (below). The colour gradient shows the relative intensity of redemptions recorded by funds.

The figure above demonstrates that, due to subscriptions during summer 2020, a lot of money market funds were able to compensate the redemptions faced in March and April 2020. However, we note that at the end of December 2020, nearly 10% of French MMFs (in terms of total net assets at the beginning of the period) still had net redemptions representing more than 40% of TNA.

A variety of statistical and econometrical techniques were applied in an attempt to explain the differences between redemptions within the same class of MMF (short term or standard). The study, which should be published shortly, does not allow us to conclude that investors are ultra-sensitive to performance on the French market (i.e. investors do not leave a fund as a reaction to a variation of a few basis points in returns). Additionally, neither the different liquidity ratios of the funds, nor portfolio structures seem to explain statistically why some funds were subject to major redemptions, and others not. It seems that we must look more in depth at the individual motivations of a few major investors in order to understand the redemption trend for French MMFs during the March 2020 crisis.

Box 5: MMF crisis diagnostic and international studies in progress

a) Diagnostic and pending questions

The 2020 edition of our Risk Outlook already included (pp. 67-74) some quantitative information regarding the extent of the MMF crisis in Europe and France.¹²⁵ Although we have managed to improve our understanding of this tense episode in the course of the year (through an analysis of MMF portfolio distortion),¹²⁶ the questions of what motivated investors, where redeemed investments were directed and how short-term finance markets (STFM) function are still to be investigated. Here, we suggest several areas for reflection, drawing attention to the aspects of the diagnostic that remain open to discussion.

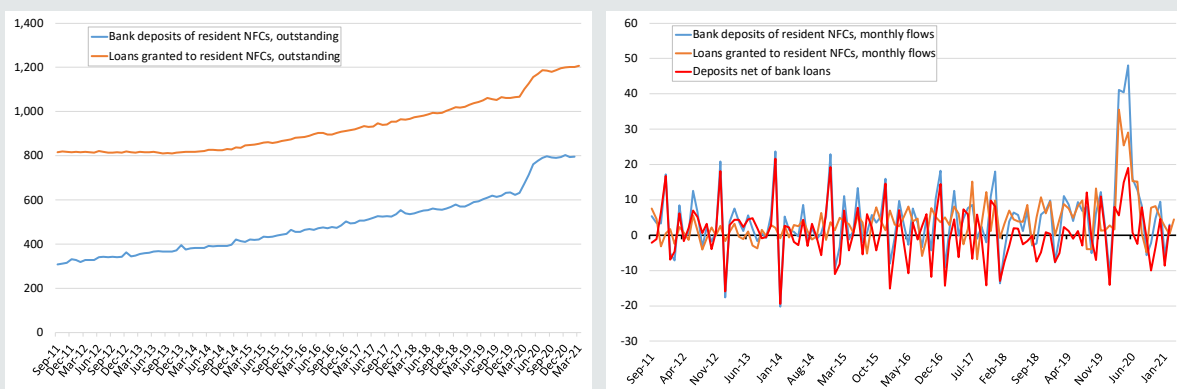
▪ **Investor behaviour and liquidity transfers**

The liabilities data collected by the AMF during the crisis from the main managers (covering about 60% of the MMF market at the end of February 2020) revealed significant redemptions from non-financial corporations (NFCs) and insurers. This information was then confirmed through a Banque de France survey on depositories (on a sample covering about 70% of the market), which showed that the redemptions observed between the end of February and end of March 2020 came mainly from insurers (approximately €17 billion) and non-financial corporations (approximately €13 billion).

○ **Non-financial corporations**

According to the French Association of Corporate Treasurers (*Association française des trésoriers d'entreprises*, AFTE), it is the freeze of the primary short-term financing market (and thus the impossibility to issue commercial paper (CP) to finance working capital requirements (WCR) and additional expenses related to the crisis), that led non-financial corporations to withdraw a portion of their assets invested in MMFs and take out bank credit lines. However, the question of where NFCs stored the cash that was released remains open. The data published by the Banque de France demonstrates a significant accumulation of liquidity in their bank accounts starting in March 2020 (inflows of more than €40 billion each month between March and May 2020). Even after correcting these raw flows for new loan issuances, we observe net positive flows of nearly €6 billion in March, €15 billion in April and €19 billion in May 2020. An analysis of the origin of these deposits will be necessary in order to confirm that some NFCs merely traded off MMFs for banks deposits. Understanding the reasons for these decisions will complete the diagnostic of the crisis. The impacts of this inflow of deposits on banks' capacity to intervene on the short-term financing market should also be studied in detail.

Figure 73: Resident non-financial corporations' bank deposits compared with loans granted to NFCs:
amounts outstanding on the left, flows on the right (in billions of euros)



Source: Banque de France, BSI1

¹²⁵ AMF (2020). [2020 Markets and Risk Outlook](#). Risks and Trends, July 2020.

¹²⁶ Pierre-Emmanuel Darpeix and Natacha Mosson (2021). [Detailed analysis of the portfolios of French money market funds during the COVID-19 crisis in early 2020](#). Risks and Trends, 2021.

○ Insurers

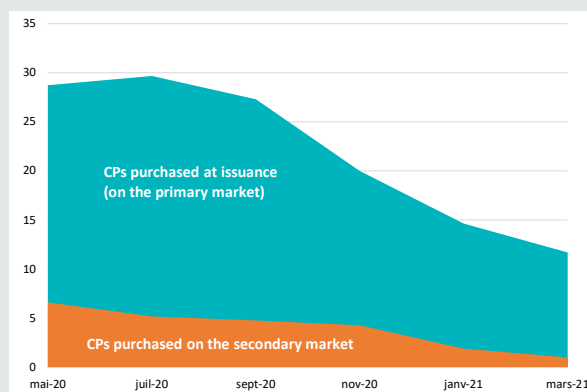
We have even less information on insurers. The European Central Bank (ECB)¹²⁷ documented a probable connection between the margin calls that some Dutch insurers and pension funds had to pay in order to keep their positions in derivatives open and their redemption requests to MMF denominated in euros in Ireland and Luxembourg. However, this link could not be established for French insurers and the reasons behind the redemptions require further study.

■ **Short-term finance markets - STFM**

The other grey area pertains to how the market for very short-term debt security (i.e. commercial paper – CP) operates. Whether it is NEU-CP in France (market supervised by the Banque de France), Euro-CP in Europe or American CP, the crisis froze the short-term finance markets. Issuers were no longer able to obtain financing on the primary market (renew CP arriving at maturity or raise additional short-term debt), and investors (including MMFs) could no longer find counterparties willing to buy the paper they wanted to sell. In Europe, some banks agreed to partially make the market by redeeming their own issues. After the ECB announced its Pandemic Emergency Purchase Program (PEPP),¹²⁸ banks also agreed to purchase some CP from non-financial corporations (provided they could then sell them back to the ECB). It is important to note that asset managers are not eligible counterparties for ECB programmes, and therefore could not sell the paper directly to national central banks. It is also important to highlight that not all non-financial corporation CP were eligible for the PEPP programme. Only securities with high enough ratings from the leading rating agencies¹²⁹ were accepted (while the ratings provided by other agencies, even when accredited by the European regulator (ESMA), were not taken into account). The uncertainty about whether securities were eligible or not, as well as the conditions for national central bank intervention (prices, quantities) may have led to confusion for some market players. Although the STFM freeze can be seen as a consequence of MMF redemptions (which happened to be all on the sell side at the same time on the secondary market), the opposite can also be argued. According to the AFTE, the freeze of the primary STFM market caused MMF redemptions (as non-financial corporations could no longer issue securities to finance their WCRs, they fell back on other sources of cash, i.e. bank loans and MMFs).

In order to understand the effects of the 2020 crisis on risk, MMFs must be considered as part of a much broader short-term financing ecosystem, which includes STFMs, MMFs and investors. Generally speaking, the STFM is considered opaque and suffers from the absence of a market-maker.¹³⁰ The STFM clearly presents structural risks that could be significantly diminished by an extensive reform.

Figure 74: PEPP: non-financial corporations' CP in the balance sheet of the European System of Central Banks (in billions of euros)



Source: European Central Bank, PEPP

Data regarding the Banque de France's presence on the NEU-CP market during the crisis is not public. However, aggregate data from the European System of Central Banks (ESCB) provides an indication of the extent to which European central banks intervened on the NFCs short-term finance market (note: CP issued by financial corporations were not eligible for the PEPP). Although the NEU-CP market cannot be distinguished from the Euro-CP market, we do observe several important elements: more than €35 billion of CP were purchased between March and May, essentially on the primary market. The outstanding

¹²⁷ ECB (2020). [Financial stability review](#), November 2020 (Box 8, pp. 100-102).

¹²⁸ Page on the ECB website: <https://www.ecb.europa.eu/mopo/implement/pepp/html/index.en.html>.

¹²⁹ Standard & Poor's, Moody's, Fitch and DBRS Morningstar. See https://www.ecb.europa.eu/mopo/implement/app/html/cspp_cp-faq.en.html.

¹³⁰ We note that it is extremely difficult to assess the size of the CP market in Europe. There are two main types of paper: French NEU-CP and Euro-CP more generally in Europe. The Banque de France publishes information on AUM, rates and issues for NEU-CP on its [website](#), but the Euro-CP market is much less transparent. The European Central Bank only publishes [series](#) on a very limited scope of the European CP universe, those that have been STEP accredited (Short-Term European Paper). For example, at the end of February 2020, [non-financial corporations' STEP securities](#) had €21.6 billion in AUM. On the same date, the Banque de France indicated that [non-financial corporations' total assets in NEU-CP](#) amounted to €60.4 billion. We were unable to find aggregate information on non-financial corporations' assets in Euro-CP.

amount of CP held by the ESCB shrunk significantly starting in the summer, indicating that securities arriving at maturity needed not be rolled over. By the end of March 2021, the ESCB was holding only €12.8 billion in CP. European central banks therefore only intervened on the STFM very temporarily, and almost exclusively (more than 80%) on the primary market (i.e. new issues). By occasionally injecting liquidity on the primary short-term finance market, the ESCB essentially supported non-financial corporations, and indirectly MMFs. Once the STFM liquidity crisis had passed, French MMFs benefited from very high inflows. They could then take over from central banks and invest in new issues. The AFTE noted that the Banque de France had not needed to intervene on the NEU-CP primary market for several months.

b) International workstreams:

In the decade following the 2008 crisis, MMFs were subject to extensive structural reforms, first in the United States with the 2014 SEC reform (Securities and Exchange Commission, [Money Market Fund Reform](#), with full entry into force on 14 October 2016), then in Europe with the 2017 MMF Regulation ([Regulation \(EU\) 2017/1131](#), with entry into force on 21 July 2018).

The MMF redemption wave led to many analyses, conducted by both national regulators and international organisations. Even before summer 2020, the International Organization of Securities Commissions (IOSCO) collected supervisory data from its members in order to conduct an initial comprehensive analysis of how the crisis had proceeded and what the consequences were. This analysis was shared with the Financial Stability Board (FSB) very early on and published in November 2020.¹³¹ The primary results of the analysis were used by the FSB in the box on MMFs in their holistic review of the market “turmoil” in March.¹³²

The FSB set up several working groups, both technical and policy-oriented, in order to further analyse the crisis (by mapping and quantifying interconnections, for example) and suggest potential policy options that would strengthen MMF resilience in this type of crisis. These policy options and their consequences are currently being debated.

At the same time, the European System Risk Board, the European Securities and Markets Authority (ESMA) and the ECB are also working to assess the pertinence of several policy options in order to introduce reforms in 2022, using the planned review of the MMF regulation as an opportunity.¹³³

Although we can only commend the impressive international mobilisation regarding MMFs, and the pace at which, on a global level, studies to understand better how this type of fund operate are advancing, the risk is that we may not address the real source of the problem as long as several elements of the crisis diagnostic remain to be analysed, and specifically:

- Investor behaviour, reasons for redemption and the destination of outflows are still poorly understood on the whole, more than a year after the crisis. Yet it was a massive liquidity reallocation, rather than a liquidity crisis, that occurred. In parallel to the redemptions for corporate MMFs, we saw considerable amounts accumulate in sovereign debt MMFs and non-financial corporations’ bank accounts, which could therefore not be allocated to finance the economy. Similarly, when margin calls were paid, the cash did not disappear; it simply changed hands.
- Additionally, the way in which short-term finance markets operate (STFMs fall under the supervision of central banks in Europe) remains very opaque and characterised by an almost non-existent secondary market (investors traditionally keep these short-term securities in the portfolio until maturity). The lack of a market-maker of last-resort makes this market very vulnerable to liquidity crises. A reform targeting solely MMFs, which does attempt to remedy the gaps in the CP market, would not address the real problem.

It is therefore important to remain vigilant: MMFs play a major role in the short-term financing of the economy. They were significantly affected by the March-April 2020 crisis and yet were still able to meet all the redemptions, even though the underlying commercial paper market was frozen. The cash withdrawn likely accumulated in the bank accounts of certain non-financial corporations, and therefore did not provide short-term liquidity to other companies that had been counting on the NEU-CP market for financing. The ECB’s intervention reopened the market for some specific securities. Once the liquidity crisis had passed, French MMFs received very substantial inflows that they then invested in new NEU-CP issues. They could thus take over from the central banks, which were able to quickly withdraw their support. The events of 2020 constituted an acute exogenous crisis for MMFs, extraordinary both for the extent of the crisis and how quickly things returned to normal.

¹³¹ IOSCO (2020). [Money market funds during the March-April episode – Thematic note](#), OR03/2020, Nov.2020, 25p.

¹³² FSB (2020). [Holistic review of the March market turmoil](#). 17 Nov, 2020: 56p. (pp.19-20)

¹³³For example:

FSB (2020). [EU non-bank financial intermediation risk monitor 2020](#), n°5, October 2020.

ECB (2020). [Financial stability review](#), May 2020 (Box 7, pp. 85-88).

ECB (2021). [How effective is the EU Money Market Fund Regulation? Lessons from the COVID-19 turmoil](#). *Macprudential Bulletin*, 12: Apr2021

ESMA (2021). [Consultation on EU money market fund regulation – legislative review](#). 26 March 2021

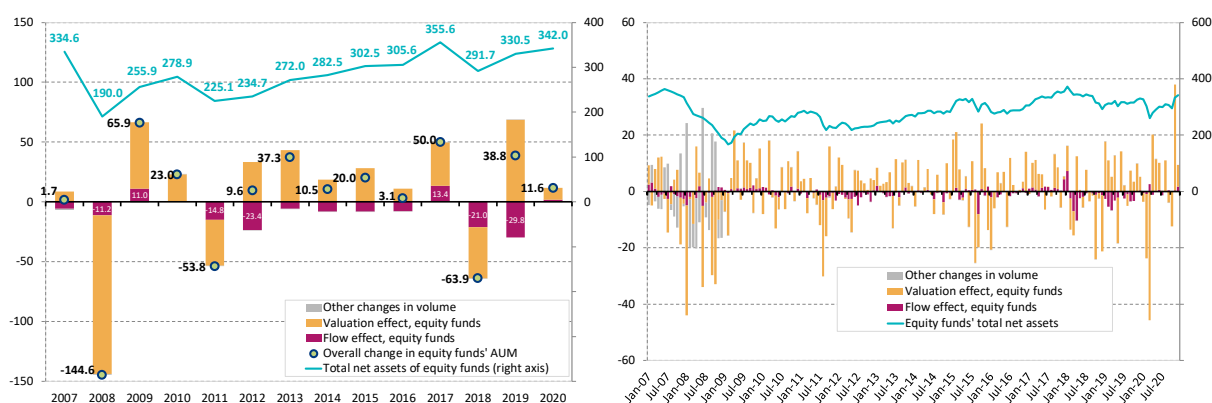
3.3.4 Equity funds: no procyclical run overall, but significant variation in investor behaviour depending on the fund.

During 2020, French equity funds recorded a net inflow of €1.8 billion and a positive valuation effect of €9.9 billion. AUM totalled €342 billion at the end of December 2020, versus €330.5 billion a year earlier.

Monthly data demonstrates the intensity of market stress during the first quarter. With a drop of €71.5 billion in valuation over the first three months of 2020 (-21.6% of end-December 2019 net assets), including €45.7 billion in March alone, equity funds were hit hard. Yet, monthly redemptions were very minimal in January and February 2020 (-€600 million and -€900 million, respectively), and we observed the highest monthly inflow of the year in March, with €2.6 billion. Investors seem to have taken advantage of the drop in prices to invest money in equity funds (countercyclical behaviour).

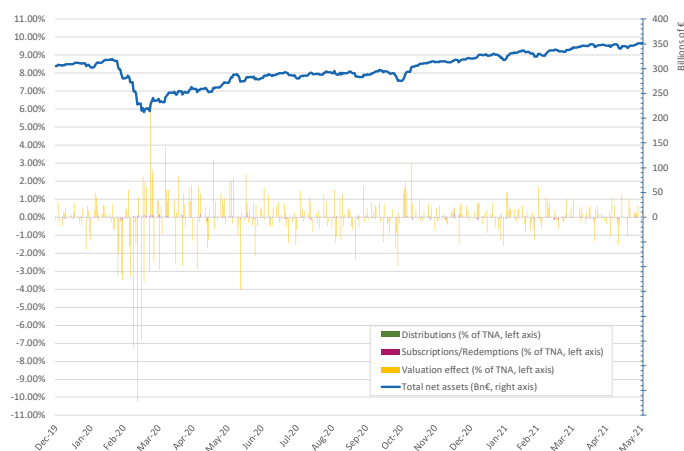
In November 2020, the monthly valuation effect on French equity funds amounted to €37.6 billion: with a rebound worth 12.8% of net assets as of the end of the previous month, this is the highest spike in valuation observed since the beginning of the data series (between 30 October and 30 November 2020, the CAC-40 gained 924 points, or a rise of 20.1%).

Figure 75: AUM of French equity funds and breakdown of flow and valuation effects
(annual series on the left, monthly on the right, in billions of euros)



Source: Banque de France, UCI Performance

Figure 76: Total net assets of French equity funds since 31 December 2019, and breakdown of flow and valuation effects (in billions of euros)



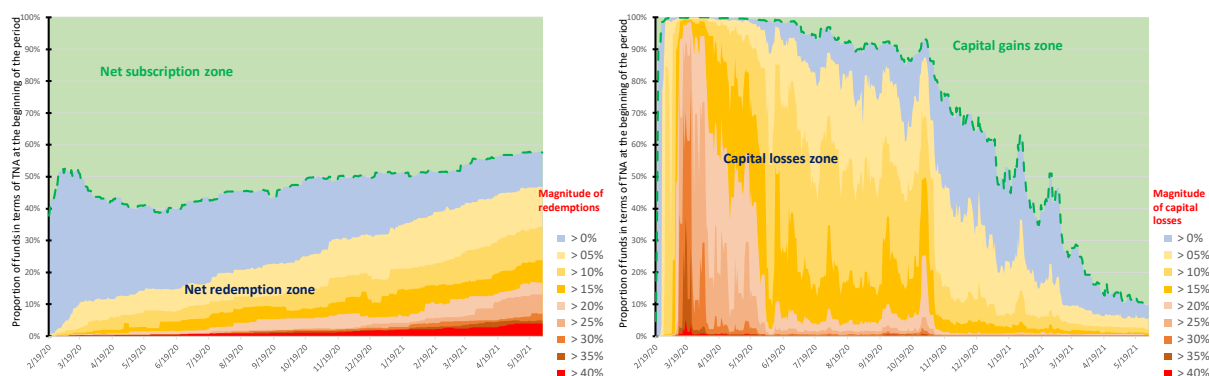
Source: Autorité des marchés financiers, BIO database

Note: differences between our data and that of the Banque de France come primarily from variations in the classification methods applied by the two institutions to allocate funds within a given category. Recall that since the 2017 [FROG initiative](#), the AMF's 'equity' and 'bond' classifications are optional, and 'diversified' has disappeared.

Investors did not abruptly flee equity funds when the crisis hit, and on the contrary invested at the low point during March 2020. The AMF's higher-frequency daily data confirms that daily variations in total net assets for equity funds were dominated by valuation effects (with a drop exceeding 10% of net assets on 12 March), with flows that are barely discernible on the figure (at their highest, redemptions on a day hit 0.17%, on 13 May).

We must note, however, the extreme diversity in redemption and valuation situations among French equity funds. Figures showing total changes in redemptions and total valuation effects (Figure 77) reveal that the situation of funds with significant outflows deteriorated progressively. For many funds experiencing net outflows during the crisis, the situation did not improve in 2020: 10% of equity funds (in terms of initial total net assets) showed cumulated redemptions exceeding 5% of their net assets in mid-March 2020. This figure was 30% by the end of the year and 40% at the end of May 2021. We also notice that it took a long time to recover from the initial valuation losses due to the crisis. At the end of 2020, 30% of equity funds were still showing capital losses of more than 5% (in terms of initial net assets). Note that on 31 December 2020, the CAC-40 was still 8% below its mid-February level, just before the crisis began. Good performances in early 2021 brought almost all equity funds back into positive territory compared to the pre-crisis situation: only 10% of equity funds were still showing a capital loss on 31 May 2021.

Figure 77: Evolution of the repartition of French equity funds by redemption and valuation bucket



Source: Autorité des marchés financiers, BIO database

Note:

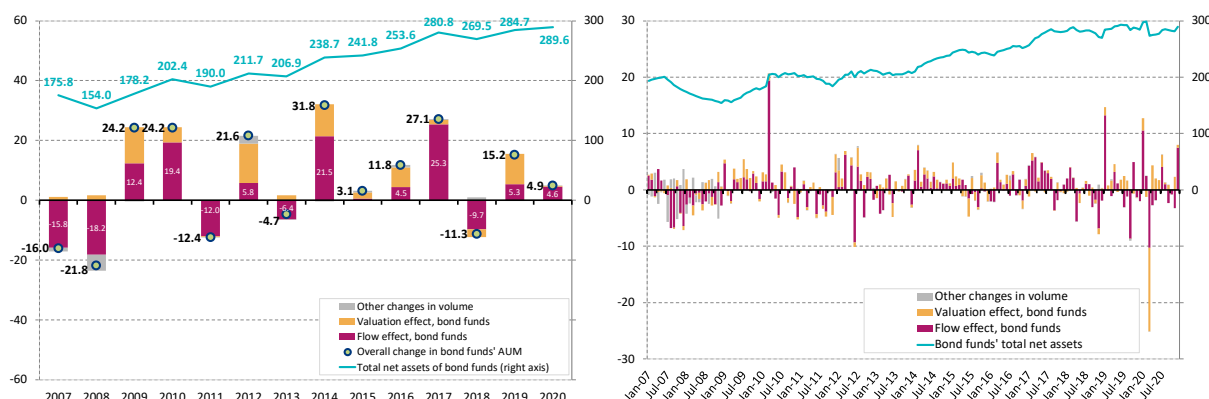
LEFT: On each date, we calculate cumulated subscription/redemption flows since 18 February 2020 (right before the beginning of the crisis). The dotted green line separates funds with net inflows (light green section, above) and funds with net outflows (below). The colour gradient shows the relative intensity of redemptions recorded by funds.

RIGHT: We use a similar method for cumulated valuation variations. The green dotted line separates funds in capital gain and those in capital loss (compared to the fund's valuation at the beginning of the period) and the colour gradient shows the magnitude of capital losses.

3.3.5 Bond funds: significant redemptions in March 2020 along with a substantial drop in valuation

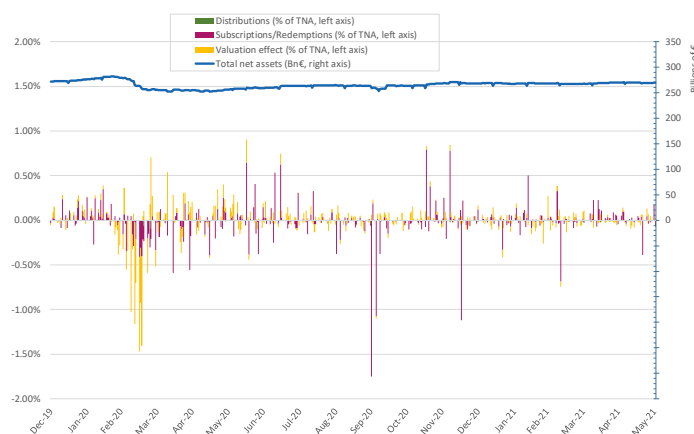
AUM in French bond funds stood at €289.6 billion at the end of 2020, that is €4.9 billion (1.2%) more than a year earlier. The majority of this increase in AUM was due to inflows (€4.6 billion). As with equity funds, bond funds posted a sharp drop in valuation during March 2020 (€14.8 billion, or 5.0% of the previous month's net assets). This is the most significant monthly valuation effect ever recorded for bond funds, both in nominal and relative terms. It was to take nine consecutive months of positive valuation effects (caused by a gradual decrease in rates in the period following the sharp hike in mid-March) to compensate this loss. March 2020 also saw the greatest redemption wave in history, with €10.2 billion withdrawn (-3.7%). In relative terms, this record was only beaten in June 2012 (-4.4%), during the European sovereign debt crisis.

Figure 78: AUM of French bond funds and breakdown of flow and valuation effects
(annual series on the left, monthly on the right, in billions of euros)



Source: Banque de France, UCI Performance

Figure 79: Total net assets of French equity funds since 31 December 2019, and breakdown of flow and valuation effects (in billions of euros)



Source: Autorité des marchés financiers, BIO database

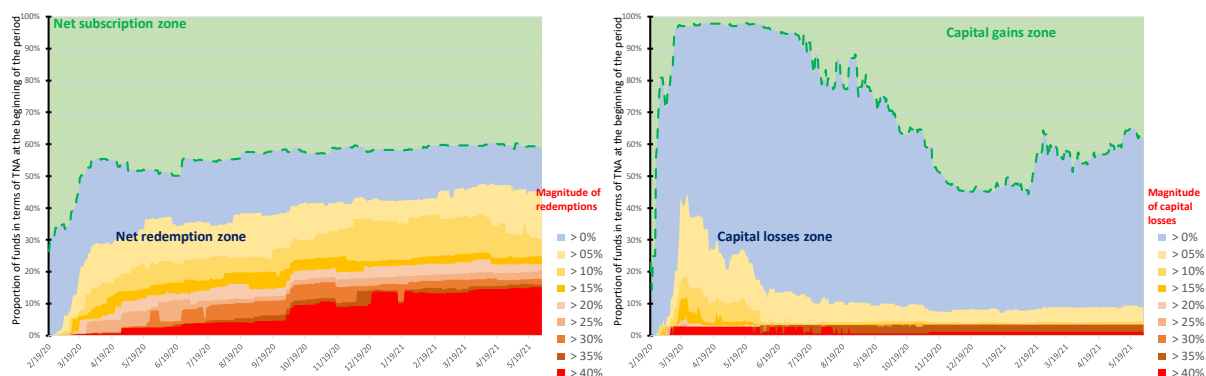
Note: differences between our data and that of the Banque de France come primarily from variations in the classification methods applied by the two institutions to allocate funds within a given category. Recall that since the 2017 FROG initiative, the AMF's 'equity' and 'bond' classifications are optional, and 'diversified' has disappeared.

The following figure (Figure 80) again highlights the extreme diversity of individual funds' situations. The proportion of funds that had accumulated more than 5% in redemptions over the period did not decline with time (it still stood at 42% in 31 December 2020 and 45% in 31 May 2021), which indicates that funds that were subject to redemptions were unable to offset them with new subscriptions after the crisis. The proportion of funds having experienced more than 40% in total redemptions even exceeded 10% at the end of December.

In response to a May 2020 recommendation by the ESRB, ESMA coordinated collection of data by the national supervisory authorities (including the AMF) on the population of funds with high exposure to private debt or real estate assets, in order to see how these funds, primarily invested in securities considered illiquid, reacted to the March-April 2020 crisis. The analyses were presented in a report published in November 2020¹³⁴ and conclude that the vast majority of funds were able to redeem their shares without distorting portfolios. However, they also documented valuation difficulties for the illiquid assets held in portfolios.

¹³⁴ ESMA (2020). [Report: Recommendation of the European Systemic Risk Board \(ESRB\) on liquidity risk in investment funds](#). ESMA34-39-1119, 12 November 2020.

Figure 80: Evolution of the repartition of French bond funds by redemption and valuation bucket



Source: Autorité des marchés financiers, BIO database

Note:

LEFT: On each date, we calculate cumulated subscription/redemption flows since 18 February 2020 (right before the beginning of the crisis). The dotted green line separates funds with net inflows (light green section, above) and funds with net outflows (below). The colour gradient shows the relative intensity of redemptions recorded by funds.

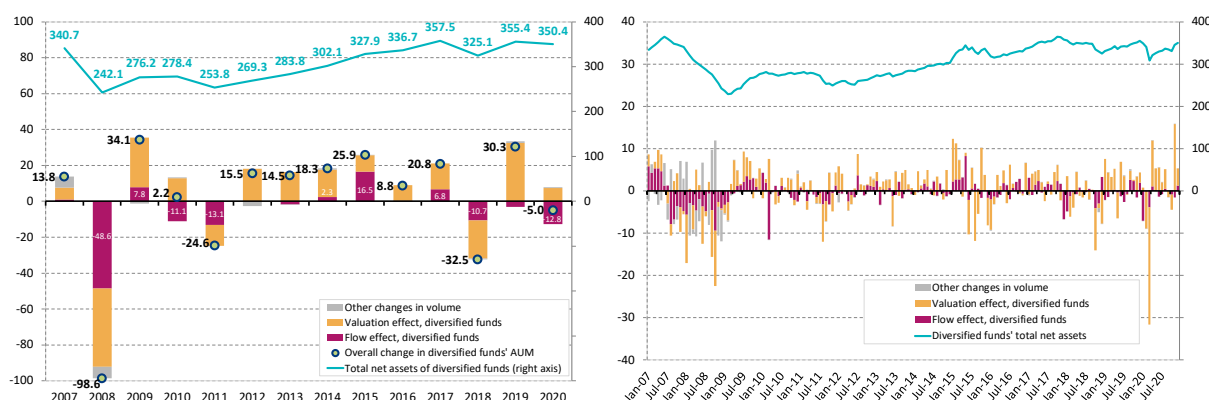
RIGHT: We use a similar method for cumulated valuation variations. The green dotted line separates funds in capital gain and those in capital loss (compared to the fund's valuation at the beginning of the period) and the colour gradient shows the magnitude of capital losses.

3.3.6 Diversified funds declined slightly in 2020 due to redemptions that occurred before the crisis began (January 2020)

Diversified funds are the only major category of French funds whose AUM declined in 2020: they stood at €350.4 billion at the end of 2020 versus €355.4 billion a year earlier (–€5 billion, or -1.4%). The valuation effect was generally positive over the year (+€7.3 billion), but total redemptions amounted to €12.8 billion (including €7 billion for the month of January 2020 alone: more than half of cumulated annual redemptions had already taken place before the March 2020 crisis).

As with bond and equity funds, the negative valuation effect was very significant in March 2020 (–€27.8 billion, or -8.2% of the previous month's assets). This was the largest drop in monthly valuation for diversified funds since statistics have been recorded, in both nominal and relative terms. Given the extent of the loss of valuation in March 2020, redemptions were extremely limited (redemptions were not visibly procyclical). The November 2020 rebound (the CAC-40 gained 20% in one month) led diversified funds to break the record for sharpest rise in a month since 2007 (+€15.8 billion, or 4.8%).

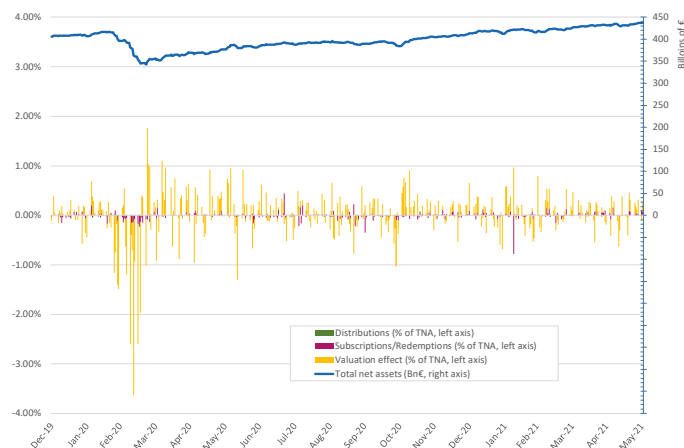
Figure 81: AUM of French diversified funds and breakdown of flow and valuation effects
(annual series on the left, monthly on the right, in billions of euros)



Source: Banque de France, UCI Performance

During the crisis (between mid-February and mid-March 2020), the decline was primarily due to the drop in valuation, and only to a lesser extent due to investor withdrawals. The daily valuation variation hit -3.4% on 12 March 2020. Daily redemptions did not exceed 0.25%.

Figure 82: Total net assets of French diversified funds since 31 December 2019, and breakdown of flow and valuation effects (in billions of euros)

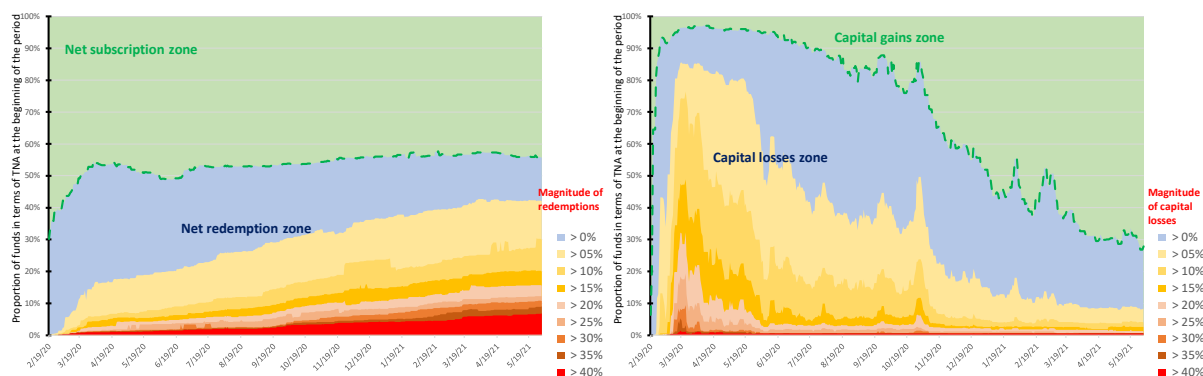


Source: Autorité des marchés financiers, BIO database

Note: differences between our data and that of the Banque de France come primarily from variations in the classification methods applied by the two institutions to allocate funds within a given category. Recall that since the 2017 [FROG initiative](#), the AMF's 'equity' and 'bond' classifications are optional, and 'diversified' has disappeared.

As with equity and bond funds, the funds that recorded the most significant redemptions seem to have had difficulty in obtaining new inflows. Funds totalling more than 5% in redemptions amounted to 10% of the population of diversified funds at mid-March 2020, 20% at the end of May 2020, 37% at the end of December 2020 and 42% at the end of May 2021. Offsetting capital losses was faster.

Figure 83: Evolution of the repartition of French diversified funds by redemption and valuation bucket



Source: Autorité des marchés financiers, BIO database

Note:

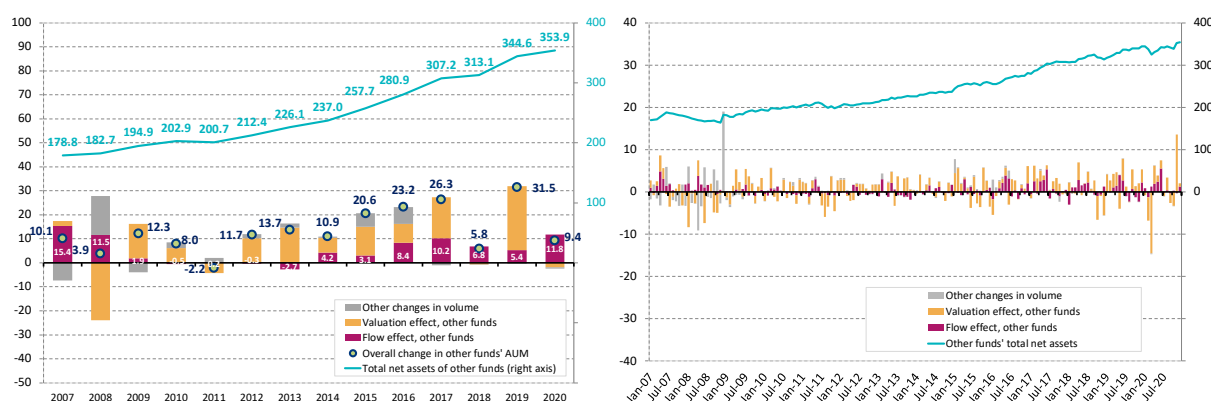
LEFT: On each date, we calculate cumulated subscription/redemption flows since 18 February 2020 (right before the beginning of the crisis). The dotted green line separates funds with net inflows (light green section, above) and funds with net outflows (below). The colour gradient shows the relative intensity of redemptions recorded by funds.

RIGHT: We use a similar method for cumulated valuation variations. The green dotted line separates funds in capital gain and those in capital loss (compared to the fund's valuation at the beginning of the period) and the colour gradient shows the magnitude of capital losses.

3.3.7 Other funds: a heterogeneous residual category of funds the evolution of which is driven by profit-sharing and incentive contributions to employee savings plans

At the end of December 2020, the other types of French funds stood at €353.9 billion, compared to €344.6 billion one year earlier (+€9.4 billion, or an increase of 2.7%). The Banque de France includes all employee savings funds in this category (whatever the underlying assets, for approximately €142 billion at the end of 2020),¹³⁵ as well as real estate funds,¹³⁶ private equity funds and to a lesser extent formula funds and hedge funds.

Figure 84: AUM of other French funds and breakdown of flow and valuation effects
(annual series on the left, monthly on the right, in billions of euros)



Source: Banque de France, UCI Performance

During the first quarter 2020, the drop in valuation of 'other' funds hit €20.8 billion, including €14.5 billion (-4.3%) during March 2020 alone (the greatest monthly drop in nominal terms, but not in relative terms, since the drop in January 2008 was 4.7%). In Q1 2020, net flows were positive (€0.9 billion). In particular, net subscription flows were observed for March 2020.

As often happens for this remaining category of funds, 2020 inflows primarily occurred between April and June (Q2), which corresponds to profit-sharing and incentive payments into employee savings plans. In 2020, Q2 inflows reached €9.8 billion,¹³⁷ versus €8.2 billion in 2019.

In November 2020, valuations rebounded by €13.6 billion or 4% on the month. This was the greatest appreciation in a single month (nominal and relative) since data has been recorded.

Figure 85 below shows changes in AUM for real estate funds by regulatory regime, using the AMF's supervisory data. During 2020, net assets in real estate collective investment undertakings (OPCIs) open to retail investors increased from €21.9 billion to €23.4 billion (+6.8%), while those open to professional investors grew 4.3% (from €54.1 to €56.4 billion) and real estate investment trusts (Sociétés civiles de placement immobilier, SCPI) reached €62.3 billion from 59.8 one year earlier (+4.2%). Although growth remained positive, it was significantly lower than in past years. It is also of note that the analyses by the AMF in France, and ESMA more generally at the European

¹³⁵Note: according to the French Financial Management Association (*Association française de la gestion financière*, AFG), the total assets in French employee savings schemes for asset managers that are members of the AFG stood at €147 billion on 31/12/2020. <https://www.afg.asso.fr/wp-content/uploads/2021/03/210318-actifs-grs-au-31-12-20.pdf>

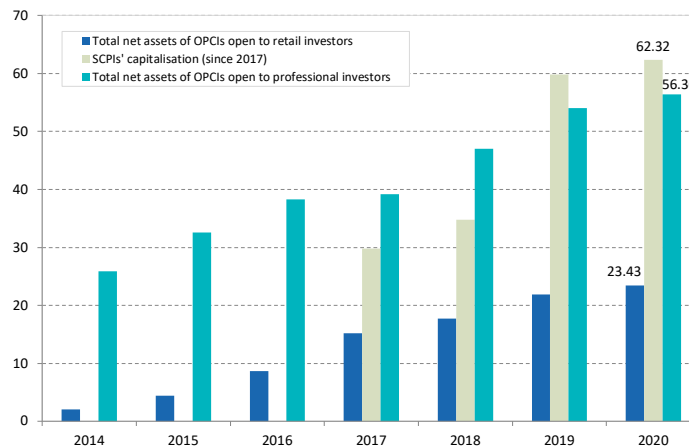
¹³⁶ In April 2021, the French Association of Real Estate Investment Companies (*Association Française des Sociétés de Placement Immobilier*, ASPIM) listed the following valuations on its [website](https://www.afg.asso.fr/wp-content/uploads/2021/03/2021-03-18-afg-etudes-eco-epargne-salariale-2020.pdf):

- Real estate UCIs (general public): €20 billion on 31/12/2020
- OPPCIs (professional real estate investment undertakings): €89 billion on 31/12/2019
- Alternative Investment Funds (AIFs): €25 billion on 31/12/2018

¹³⁷Note: the AFD indicates that investment of incentive and/or profit-sharing contributions received by employees accounted for 60% of the €16 billion in gross inflows on employee savings scheme funds in 2020 (€9.6 billion). See: <https://www.afg.asso.fr/wp-content/uploads/2021/03/2021-03-18-afg-etudes-eco-epargne-salariale-2020.pdf>

level,¹³⁸ revealed the difficulty in valuing certain assets that are highly illiquid by nature (like real estate) within the context of the pandemic and a major decrease in number of transactions.

Figure 85: AUM of French real estate funds
(in billions of euros)

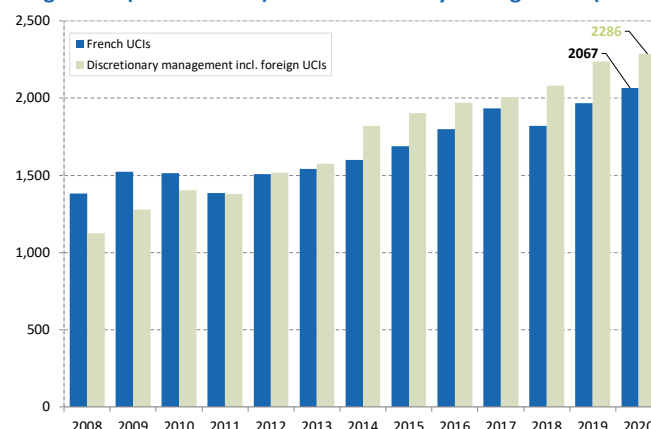


Source: Autorité des marchés financiers, BIO database

3.4. FRENCH MARKET: INSIGHTS INTO DISCRETIONARY MANAGEMENT

The French management industry includes collective management (i.e. funds domiciled in France, whether they are managed by French or foreign asset management companies) and discretionary management mandates entrusted to French asset management companies. Clients may be institutional investors or retail clients (usually high net-worth investors). According to the statistics of the French Asset Management Association (AFG), at the end of 2020, assets under management for these mandates reached €1.68 trillion, while the financial management in France of foreign funds exceeded €600 billion.

Figure 86: French asset management market:
collective management (French funds) and discretionary management (French AMCs) (€bn)



Source: Association Française de la Gestion Financière

¹³⁸ ESMA (2020). [Report: Recommendation of the European Systemic Risk Board \(ESRB\) on liquidity risk in investment funds](#). ESMA34-39-1119, 12 November 2020.

3.5. THE KEY ROLE OF FRENCH LIFE INSURANCE IN THE DISTRIBUTION OF FRENCH FUNDS

In a recent study,¹³⁹ the AMF quantified the share of insurers among French fund investors. This analysis made it possible to quantify the intermediation of the fund investment of French households through unit-linked life insurance. It also improves the previously limited knowledge of the liabilities of funds subject to AMF supervision.

It is not easy for the regulator and even fund managers to obtain the detailed structure of fund liabilities down to the end holder. And yet, from an accounting viewpoint, the liability of one entity is roughly equivalent to an asset for other entities.¹⁴⁰ To make up for the lack of precise data on liabilities of French funds, the AMF analysed the holding of these funds by French insurers, who are major institutional investors on the market.

Insurance is broadly divided into two segments: "non-life", which corresponds to all property and liability insurance policies, and "life" which mainly comprises investment products (guaranteed-capital euro funds and unit-linked contracts). Insurers regularly collect premiums from their policyholders, and invest the money until they have to pay benefits (compensate a policyholder for a loss or pay out a life insurance policy). Premiums are calculated on the basis of the likelihood of occurrence of claims and the expected return on investment.

Life insurance is generally regarded as intermediated savings. In the case of the euro fund, the insurer guarantees the policyholder the capital invested and thus bears a large part of the market risk. In contrast, with unit-linked policies, the market risk is assumed fully by the policyholder: the insurer only undertakes to reimburse an amount corresponding to the value of the assets (usually fund units) that it has purchased with the money entrusted by the policyholder. Legally, the owner of the assets is the insurer, the policyholder only has a claim on the insurer corresponding to the value of the assets serving as unit of account. If the assets lose their value, the policyholder's claim drops accordingly. This identical transposition of market fluctuations means that, in practice, the policyholder can be compared to an end investor in the funds underlying the unit-linked products (the main differences with a direct investment are the advantageous tax treatment of life insurance and the remuneration of the insurer, which is additional to that of the fund manager). In this respect, unit-linked life insurance policies are one of the main distribution channels for French funds.

The French authority in charge of supervising insurance companies (the Autorité de Contrôle Prudentiel et de Résolution, ACPR) provided the AMF with details of the funds in the portfolios of French insurers as at 30 June 2020 (insurer by insurer, broken down into non-life and life segments, with the life segment being further subdivided into euro funds and unit linked products).

Table 4: Funds in the portfolio of French insurers, classified according to the domiciliation indicated by the ISIN

	Non-life insurance		Life insurance		Total
	euro	euro	unit-linked	Total (euro + unit-linked)	
FR: France	26,530,374,141	222,986,716,465	227,480,692,067	450,467,408,532	476,997,782,673
FR: France not in BIO	227,204,077	3,027,361,008	552,555,778	3,579,916,786	3,807,120,863
LU: Luxembourg	3,678,347,799	40,505,760,971	55,498,897,358	96,004,658,329	99,683,006,128
IE: Ireland	2,454,333,004	13,403,567,628	3,748,125,356	17,151,692,984	19,606,025,987
TW: Taiwan		33,924,518	1,686,546,726	1,720,471,245	1,720,471,245
DE: Germany	3,804,105	85,364,966	1,069,756,379	1,155,121,346	1,158,925,451
Other ISIN funds	55,084,218	1,632,871,046	310,338,700	1,943,209,746	1,998,293,965
Funds without ISIN	8,908,906,571	74,254,183,040	18,835,388,647	93,089,571,687	101,998,478,259
TOTAL	41,858,053,916	355,929,749,643	309,182,301,011	665,112,050,654	706,970,104,570

Source: Insurer portfolio reporting (ACPR), BIO database (AMF)

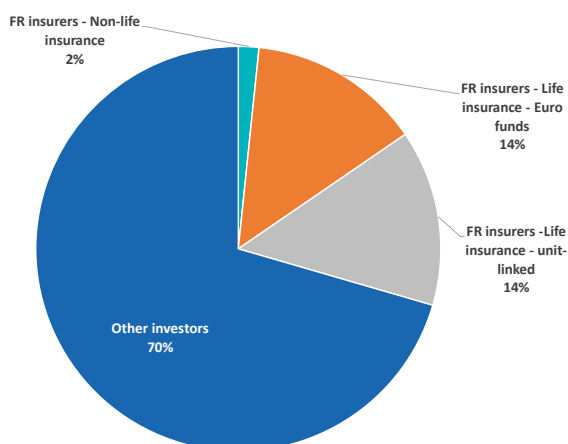
¹³⁹ Pierre-Emmanuel Darpeix and Natacha Mosson (2021). Identification of funds distributed through life insurance policies or insurer investment vehicles: New data collected and first analysis in terms of liquidity management tools. *Risks and trends*. June 2021. https://www.amf-france.org/sites/default/files/private/2021-06/fonds_portefeuilles_assureurs_0.pdf.

¹⁴⁰ See Édouard Chrétien, Pierre-Emmanuel Darpeix, Sébastien Gallet, Laurent Grillet-Aubert, Guy Lalanne, Anna Malessan, Marko Novakovic, Dilyara Salakhova, Brice Samegni-Kepgnou and Éric Vansteenberghe (2020). *Exposures through common portfolio and contagion via bilateral cross-holdings among funds, banks and insurance companies*. Working paper of the French High Council for Financial Stability (Haut Conseil de Stabilité Financière (HCSF)). June 2020

At the end of the second quarter of 2020, total investments of French insurers stood at €2.666 trillion. Their asset portfolio amounted to €707 billion invested in fund units, of which €477 billion, i.e. more than two-thirds, was in funds supervised by the AMF.

By the same date, according to AMF data, the cumulative net assets¹⁴¹ of French funds stood at €1.617 trillion. In aggregate, therefore, French insurers accounted for 29.5% of the liabilities of funds domiciled in France. The non-life activity, with €27 billion, is marginal in terms of the funds' liabilities. Conversely, the two life segments (euro funds and unit-linked funds) each account for around 14% of French fund liabilities.

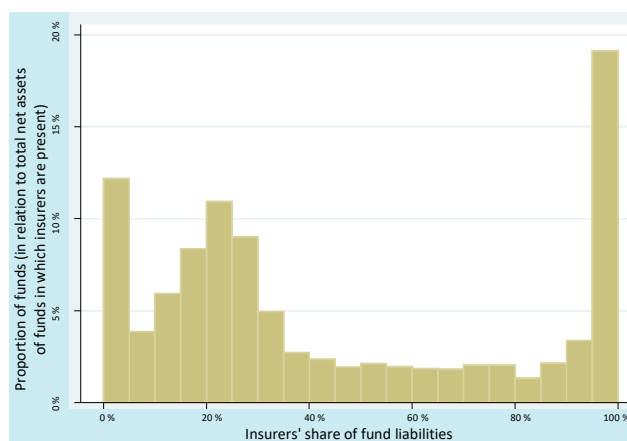
Figure 87: French insurers on the liabilities side of French-domiciled funds (as a % of the net assets of French funds)



Source: Insurer portfolio reporting (ACPR), BIO database (AMF)

The total net assets of French funds identified in insurers' portfolios amounted to €1.06 trillion in June 2020. Insurers accounted on average for 45% of the liabilities of the funds in which they invested. However, this average hides a very broad range of situations. Some funds are almost exclusively held by insurers, while others are only marginally so.

Figure 88: Histogram of insurers' share of the liabilities of funds in which they are present



Source: Insurer portfolio reporting (ACPR), BIO database (AMF)

Note:

The funds are divided on the horizontal axis according to the insurers' share of their liabilities (each bar corresponds to a 5% bucket). The height of the bar corresponds to the total net assets of the funds in each bucket in relation to the total net assets of the funds where insurers are present (€1.06 trillion).

¹⁴¹ It is recalled that the total net assets of a fund are the price of a unit multiplied by the number of units issued by the fund. Contrary to what this name may suggest, in accounting terms it is a liability for the fund.

Funds with more than 80% of their liabilities held by insurers for their euro-denominated contracts represent a total net assets of €116 billion. Likewise, funds that are more than 80% used for unit-linked products amount to €130 billion.

This study goes beyond quantifying the weight of insurers in the liabilities of French collective investment schemes and highlights a very marked group structure: on the one hand, insurers invest mainly in funds managed by asset management companies belonging to the same group; on the other hand, and reciprocally, asset management companies manage almost exclusively investments from insurers in the same group. This result appears unsurprising, given that some large insurance groups have specifically created asset management subsidiaries to manage the group's assets through dedicated funds. However, this practice may raise a number of questions regarding:

- management of conflicts of interest within the group (the insurer advises and distributes funds managed by a related asset management company) and the impartiality of the financial advice;
- the risk of step-in (the insurer might be tempted to come to the rescue of its AMC in difficulty to avoid a reputational risk);
- the ease with which policyholders can introduce into their contracts unit-linked products indexed on funds managed by asset management companies that do not belong to the same group as their insurer but which could potentially be more suited to their investor profile;
- pileup of the manager's and insurer's fees for the end client.

More generally, intermediation by insurers of investment in household funds may entail risks in terms of liquidity management. The liquidity offered to investors is one of the sales arguments put forward by life insurers, who can put pressure on management companies to slow down the introduction of liquidity management tools (LMT) in the funds used as unit-links. It appears that the degree of adoption of gates (partial suspension of redemptions) and swing pricing (adjustment of the net asset value to pass the cost of market liquidity on to redeeming investors) is much lower in funds used as unit-links than in other funds.

In parallel with wider adoption of liquidity management tools and an effort to educate investors to facilitate their acceptability, it is important to understand how LMTs' implementation by funds and by insurers articulate. In cases where the underlying fund stops publishing a net asset value per share (e.g. it is suspended), there exists no price at which unit-linked contracts could be redeemed, and they are therefore also mechanically suspended. On the contrary, when a fund imposes gates, shares continue to be valued, and unless the insurance company also imposes a gate on the unit-linked contract (a decision which must be approved by the ACPR), the insurer must keep on offering liquidity on the contract (consequently, there would be a liquidity mismatch between the assets and liabilities of the insurer). Nevertheless, some analysts argue that the fees paid out by the policyholder to the insurer remunerate the liquidity offered on the contract, which should thus remain guaranteed even when the underlying fund is gated.

3.6. THE CONTINUED GROWTH OF PRIVATE EQUITY FUELS SME FINANCING BUT ALSO THE RISKS IDENTIFIED PREVIOUSLY (LEVERAGE AND HIGH VALUATIONS)

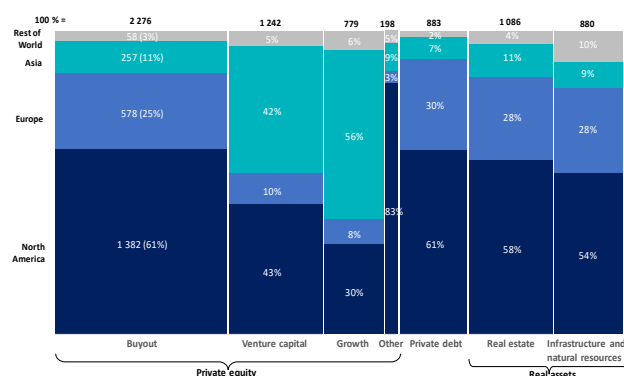
3.6.1 The private equity industry continues to grow despite the health crisis

Continuing the trend observed in recent years despite the Covid crisis, global assets under management by private equity funds grew by 5.1% in one year (at the same rate as asset management, see 3.1)¹⁴² to reach a new all-time peak of \$7.4 trillion (Figure 89). As a result, private equity assets grew by 6% to \$4.5 trillion in 2020, or 61.2% of private finance - a concept that includes unlisted asset funds (e.g. unlisted equity and debt, real estate,

¹⁴² Source: McKinsey (2021). As in previous years, aggregate data on private finance should be used with extreme caution. In Europe, trade associations do not release data about assets under management. Market data (from consultants, data vendors, professional associations) do not allow comparison with monitoring data. In the United States, the SEC is also questioning the need for data collection on private finance (*Mind the (data) gap*; Keynote address by C. Crenshaw; 14/05/21).

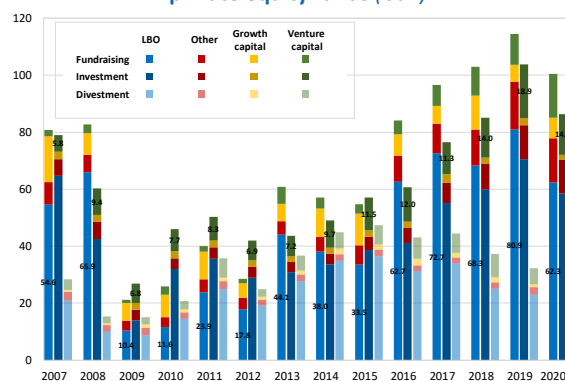
infrastructure)¹⁴³ – compared with 60% in 2019. Nevertheless, this increase reflects contrasting developments: the share of Leveraged Buyout (LBO) funds in private equity assets under management continued to decline between 2019 and 2020, from 53.6% to 50.6%. Conversely, the share of venture capital in private equity assets continued to rise (from 25.6% to 27.6%).¹⁴⁴ In Europe, LBOs nevertheless remain dominant (Figure 90), their share of total private equity assets under management being 74.8% (compared with 77.8% in 2019), whereas in the United States they represent only 59.8% by now. In Europe, the slight annual decline in fundraising to €100.5 billion in 2020 revealed a strong contribution from fundraising in France and Benelux (27.8%) (Figure 91). This is consistent with the increase in venture capital activity observed in 2020 based on French supervisory data: assets under management in this category of funds increased by 6.5%¹⁴⁵ (Table 5), almost exclusively due to inflows. Additionally, there were many authorisations for private equity management companies, especially entrepreneurial and venture capital. They accounted for 15 of the 43 new authorised management companies, the same as in 2019, when this number increased significantly due to the Brexit effect.¹⁴⁶

Figure 89: Global private finance assets under management in 2019



Source: Preqin, McKinsey, AMF.

Figure 90: Fundraising and divestment by European private equity funds (€bn)



Source: Europe Invest, AMF.

Table 5: Trend in French private equity funds under management*

	Number of funds Dec. 2020	AuM (NAV, €m) Dec. 2020	Annual change in assets (%)
Retail venture capital funds (FCPI)	268	6,837	7.9
Retail local investment funds (FIP)	310	2,549	-10.5
Retail private equity investment funds (FCPR)	1,446	68,267	7.1
Total	2,024	77,653	6.5

Source: AMF. * Excluding professional funds and Free Partnership Companies.

3.6.2 Transactions and fund-raising continue previous trends: rising valuation multiples and historically high dry powder levels

As well as being disparate across fund categories and geographical areas, the development of private equity has also been uneven over time. Despite the sharp drop in activity (fund-raising, investments, fund closures) in the second quarter of 2020,¹⁴⁷ the economic stimulus policies restored confidence and asset valuations, thereby

¹⁴³ See 2020 Risk Mapping for a discussion of this definition.

¹⁴⁴ NB: the share of private equity assets in the residual category (excl. LBOs, VC and growth capital) rose from 2.8% in 2019 to 4.4% in 2020.

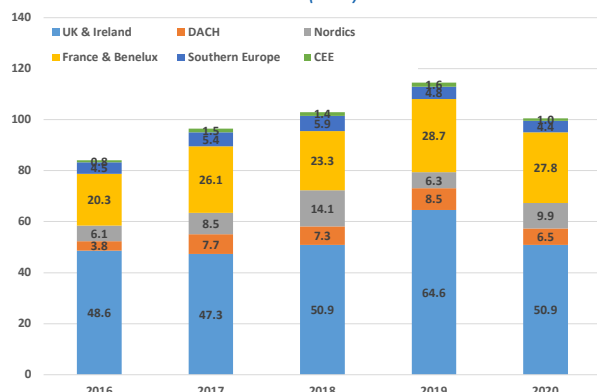
¹⁴⁵ The "Macron" and PACTE laws (2015 and 2019 respectively) have benefited private equity (see footnotes 39). In 2020, the increase to 25% of the tax reduction for investments in SMEs boosted the creation of retail local investment funds (FIP) and retail venture capital investment funds (FCPI), thus curbing their decline (AMF 2020 annual report). For more information about trends in the French asset management sector, see also AMF (2021); Key figures for asset management in 2019; 01/04/21.

¹⁴⁶ See the AMF 2019 Annual Report on the establishment of some UK investment management companies in the European Union.

¹⁴⁷ See Bain & Co (2021); Private Equity Market in 2020: Escape from the Abyss. Nevertheless, the effects of the economic situation varied from one sector to another. We also note that in 2020, some limited partners were unable to meet their commitments to respond to planned calls for funds.

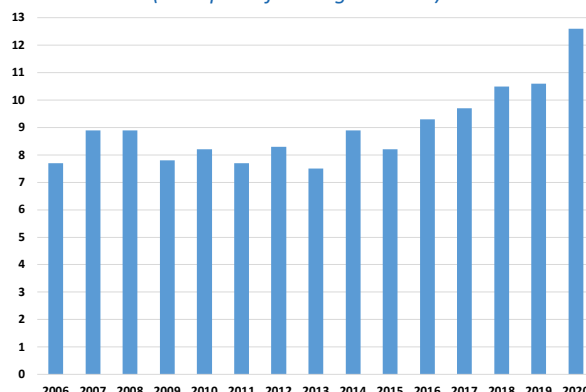
avoiding write-offs. The level of losses remained close to that of previous years, well below that of 2008 to 2010 (Figure 93). Additionally, after a sharp decline in the first half of the year, overall private equity performance recovered quickly, resulting in a net annual internal rate of return (IRR) of 10.6% for the first nine months of the year.¹⁴⁸ This trend sustained the rebound in fund-raising,¹⁴⁹ which was very high at the end of the year. Ultimately, as the funds raised remain higher than the investments, in 2020 we can observe (Figure 90 for Europe) a further increase in the capital to be invested (dry powder) (Figure 94), in this case at a record world level of \$2.9 trillion. This has led to renewed tension over the valuation of investment targets.¹⁵⁰ In Europe, LBOs were acquired for 12.6 times their EBITDA in 2020, a level well above that of 2019 (10.6x) and those of the last 15 years. It was between 7x and 9x between 2006 and 2016 (Figure 92).¹⁵¹

Figure 91: Europe: annual funds raised per geographical area (€bn)



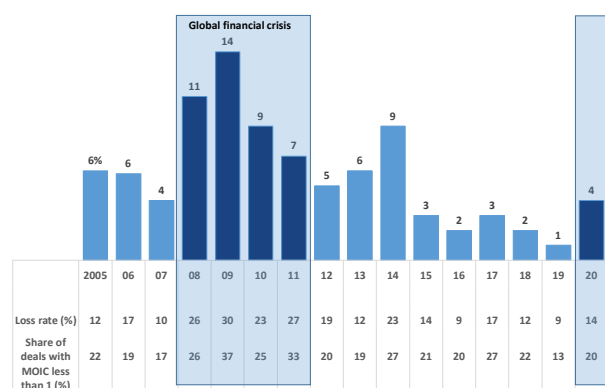
Source: Europe Invest, AMF.

Figure 92: Valuation of LBO transactions in Europe (multiples of average EBITDA)



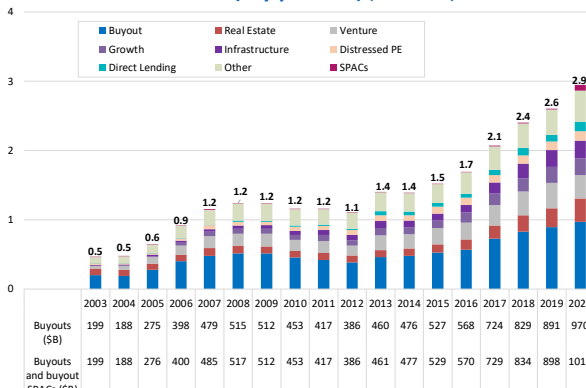
Source: S&P LCD; Bain (2021), AMF.

Figure 93: World - Write-off rate on LBO disposals (€bn)



Source: CEPRES Market Intelligence; Bain & Co (2021).

Figure 94: World - Uninvested funds committed by investors (dry powder) (\$trillion)



Notes: Other includes fund-of-funds, secondaries, natural resources and mezzanine; buyout includes buyout, balanced, coinvestment and coinvestment multimanager funds; SPACs fund-raising used as best proxy for SPACs dry power; buyout SPACs estimated as approximately 50% of total SPACs directed to buyout deals; discrepancies in bar heights displaying the same value are due to rounding.

Source: Preqin; Reuters; SPACInsider; Bain.

¹⁴⁸ Source McKinsey (2021); Global Private Markets Review; 2020, a year of Disruption in Private Markets

¹⁴⁹ McKinsey and Hamilton Lane's review of the vintages of the various fund family strategies underlines the materiality of the relationship between the inflows of a vehicle and the performance of its immediate predecessor.

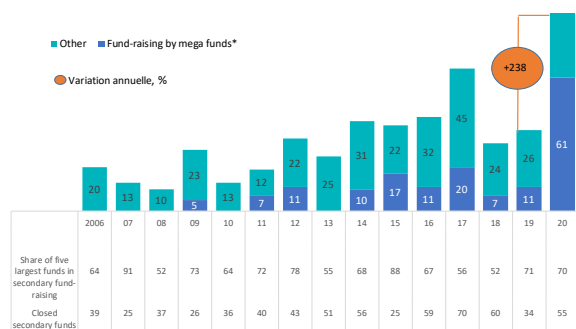
¹⁵⁰ This tension also encourages other financing modes, e.g. direct financing or through management mandates of target companies, in the form of co-investment (of limited partners), or financing by SPACs (see Chapter 1).

¹⁵¹ NB: this observation is qualified by a correction of the value of the targets of their cash and debt (PitchBook, Figure 98). On a separate note, the recent divergence of multiples in the US and Europe is attributed to different sizes of stimulus packages (hence the difference in the performance of listed small caps) and the weight of the "IT" and "Healthcare" sectors in transactions (38% in the US versus 31% in Europe).

3.6.3 Risks also linked to the increasing complexity of operations and the rise in debt

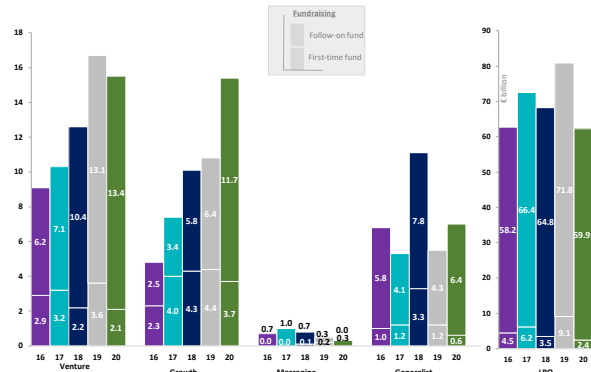
The continued sharp reduction in private equity fund closings, despite high valuation levels, can be explained by a number of factors, such as the expectation of higher than achievable returns or the difficulty of finding an exit in primary equity markets (see below and Chapter 1). In any event, it has led to a sharp increase in fund refinancing by continuation funds^{152,153} (Figure 95 and Figure 96), transactions that were previously often restricted to the specific transfer to a new investor of the fund shares and associated rights and liabilities of an existing investor (Limited Partner or LP). While these transactions (secondaries) allow LPs to liquidate all or part of their holdings, they also reflect the desire of general partners (GPs) to sell their entire portfolios and their refinancing or liquidity needs. They are also accompanied by an increase in the complexity of transactions,¹⁵⁴ and often by portfolio restructurings and asset sales (strip sales), the setting up of refinancing structures (e.g. preferred equity), or hybrid forms in which the sale by the general partner to a new limited partner of interests in an existing fund is concomitant with the commitment of that limited partner to invest in a new fund (stapled sales). For example, preferred equity structures allow funds to be raised from certain investors in return for preferential equity stakes, i.e. senior to the limited partners' ordinary shares, and entitling them to a preferential return, based on a specific portfolio or asset. These transactions give rise to conflicts of interest, particularly regarding the valuation of assets sold, the allocation of proceeds from asset sales between outgoing and remaining investors, and the remuneration of managers.¹⁵⁵ More generally, the development of these secondary transactions extends the investment period of private equity funds, which is likely to reduce return expectations, for example when new funds take over assets at already high valuation levels.

Figure 95: Fundraising by secondary private equity funds
(\$bn; per year of closing)



Source: Preqin, McKinsey.

Figure 96: Fundraising in Europe: proportion of primary and secondary funds (€bn)



Source: Invest Europe.

In a context of low interest rates, we have already noted the risks associated with private equity leverage (2020 Markets and Risk Outlook). However, the proportion of firms targeted by LBOs with leverage ratios of 6 or more reached a record level of 80% in the United States in 2020, with this ratio even exceeding 7 for more than half of the targets (Figure 97), while in Europe, a leverage ratio of 4 is considered as justifying specific risk monitoring by the credit companies that are exposed to it.¹⁵⁶ Such risks appear also in the fund structure. For example, there has been an increase in the use of bridge financing,¹⁵⁷ i.e. credit lines that facilitate fundraising and can replace it

¹⁵² In this case, the assets of an existing fund are transferred to a new fund (continuation fund), usually managed by the same general partner. Limited partners of the pre-existing fund have the temporary option of selling all or part of their holdings in the fund to other existing or new limited partners. The fund created therefore extends the existence of the initial portfolio, by modifying the investor base, if necessary.

¹⁵³ We also observe a strong concentration of secondaries in a limited number of large transactions (Figure 29).

¹⁵⁴ Clifford Chance (2019, 2020); Decoding the secondary market-Part I, II, III & IV.

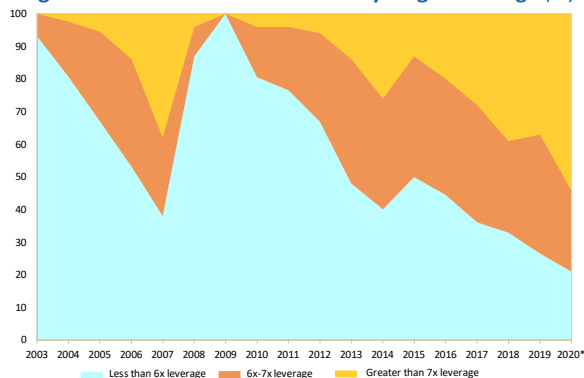
¹⁵⁵ Clifford Chance and some industry representatives report a debate on the subject.

¹⁵⁶ For the record, the European Central Bank's May 2017 guidelines define leveraged debt as that of firms whose borrowings and loans are more than four times their EBITDA and include by default that of firms controlled by private equity funds. Specific requirements for risk monitoring by credit institutions are formulated on this basis.

¹⁵⁷ In the absence of precise measurement, trends are documented by practitioner observation, e.g. PwC (2019); Bridge financing in private equity: An overview of the main benefits and risks or Pitchbook(2020) ; Creative capital: How cash-strapped funds bridge the liquidity gap; 03/06/20.

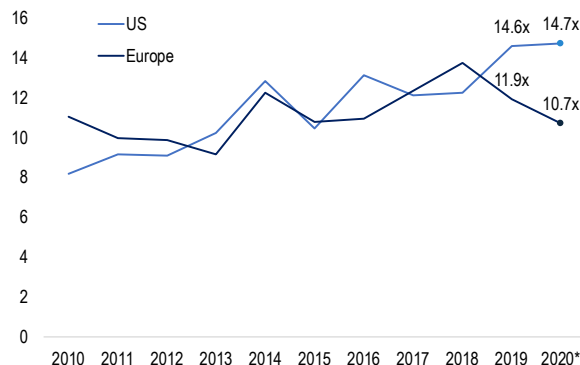
temporarily. In another order of ideas, this recourse to bridge financing tends also to overestimate the funds' IRRs,¹⁵⁸ by delaying the raising of funds, and raises questions about transparency for the holder.

Figure 97: Breakdown of US LBOs by target leverage (%)



Source: Thomson LPC, PwC, Bain & Co, AMF.

Figure 98: LBO: multiple VE/EBITDA median



As at 31 December 2020. Source: PitchBook, AMF.

3.6.4 Opening up private equity to retail investors: opportunities and risks

Lastly, we are seeing an increasing opening up of the private equity market to retail investors. In the United States, this expansion was reflected in 2020 by a broadening of the notion of accredited investor¹⁵⁹ and harmonisation of the notion of qualified investor, as well as by the Department of Labor's removal of legal uncertainties regarding access to private equity for defined contribution pension plans.¹⁶⁰ This opening has given rise to a public debate¹⁶¹ and now raises questions about the information available in the industry.¹⁶²

In France, in line with the above-mentioned development, several changes contribute to shift retail savings towards private equity financing:

- New legislation¹⁶³ has allowed the development of so-called "Evergreen", namely open-ended, retail private equity investment funds (FCPRs)¹⁶⁴ where FCPRs were previously closed to redemptions.¹⁶⁵ At end May 2020, 12 had been authorised for total assets amounting to more than €700 million (with some of them still raising funds);
- The "Relance"¹⁶⁶ label for private equity funds and UCITS with a significant proportion of their assets invested in equity and quasi-equity of listed or unlisted French SMEs and SMIs. Of the 176 funds that had obtained the label by the end of May 2021, 95 were private equity funds, with 23 of them open to retail investors;

¹⁵⁸ Despite guidelines issued by the Institutional Limited Partners Association (ILPA) on this issue, practitioners are noting an increase in the use and duration of these credit lines. (Pitchbook (2020)).

¹⁵⁹ See August 2020 review of SEC Regulation D Rules 501(a) and 144(a). According to the SEC, 13% of households meet the criteria for accredited investors and while 2% meet that of qualified investors

¹⁶⁰ See *Department of Labor* information letter of 3 June 2020 of non-objection to the diversification of investments by including private equity in the portfolios of 401k and other individual retirement plans under the Employee Retirement Income Security Act (ERISA).

¹⁶¹ Hearing of the Congress Financial Services Committee of 11/09/19 (Private market exemptions as a barrier to IPOs & retail investment), 19/11/19 (America for sale? Examination of the practices of private funds); legislative proposal of 18/07/21 (Stop Wall Street Looting Act).

¹⁶² In a speech on 14 May 2021 entitled "Mind the (Data) Gaps", SEC Commissioner Caroline Crenshaw noted: "For the most part, we do not know who invested in (...) private market offerings or how their investments performed", and called for more data to fill these gaps.

¹⁶³ The Decree-Law (PACTE) 2019-1172 promotes investment in the economy through the expansion of private equity. For life insurance, it defines the criteria for investment by individuals in professional funds (retail venture capital investment funds and professional specialised funds) and removes the investment caps in the authorised funds (retail private equity investment funds, retail venture capital investment funds and retail local investment funds) and units in venture capital companies. It also eases the rules for retail private equity investment funds (redefinition of liquid assets, fund of funds) and reduces their borrowing requirements (professional private equity investment funds, retail private equity investment funds).

¹⁶⁴ Their statutory life span is 99 years. In practice, some funds have an initial holding period.

¹⁶⁵ In general, these retail private equity investment funds have a 10-year life span.

¹⁶⁶ Launched on 19 October 2020 (up till 31 December 2022), the [Relance](#) label is attributed by the French Ministry of Finance for four years.

- The promotion by BPI France and the Ministry for Finance of a fund, *Entreprise 1*, dedicated to the financing of start-ups and unlisted SMEs,¹⁶⁷ with a minimum investment threshold of €5,000 and an investment period of 6 years, extendable by one year. This type of fund presents a specific balance between the benefits of increased diversification, and the costs incurred, by the fund of funds structure.

As the access to professional funds investing directly in unlisted shares remains generally limited,¹⁶⁸ France however maintains a high threshold of protection.

The examination of private equity risks requires holders to consider the specific nature of the funds - including their legal nature and applicable regulatory requirements; their structure (e.g. fund of funds); their strategy (LBO, VC, etc.); their sector focus,¹⁶⁹ etc. The examination of liquidity sources is appropriate for open-ended funds. Liquidation (the disposal of assets) can also be tricky at the end of a fund's life, as some funds may find it difficult to meet the liquidation deadline. In general, the suitability of the strategy for the liquidity offered and the recommended investment horizon/lifetime of the funds needs to be assessed. Where appropriate, a larger fund size may also help to spread risk, reduce operating costs, etc.

More generally, and especially for LBO funds, the assessment of the risk/return profile of private equity funds remains a matter of debate. Several recent academic contributions point out that outperformance compared to similar stock market investments may be low compared with the costs and risks involved.¹⁷⁰ This point refers to the structural difficulties of valuing the assets of these funds¹⁷¹ and remains open.¹⁷² Facilitating retail access to these funds could, however, lead to a re-examination of the ways in which they are presented - e.g. the discretionary nature of the calculation of displayed returns and comparisons with stock market performance.

3.7. ETFs: DRIVING ASSET MANAGEMENT GROWTH, THEIR INNOVATION CAN SOMETIMES BE RISKY FOR INVESTORS

Although ETFs currently account for only 13.9% of global unlisted mutual fund assets, they represent a much higher proportion of inflows (Figure 100)¹⁷³ and their share of assets under management is growing strongly (Figure 99). Above all, their importance has become decisive for the formation of liquidity and prices in secondary markets for financial instruments.¹⁷⁴ They have therefore been the focus of a number of risk analysis studies¹⁷⁵ and their regulatory framework has, over the past decade, been specified at global level and adapted at regional and, where

¹⁶⁷ Subscription to this fund opened on 01/10/20. See key investor information of the BPI France Entreprises 1 retail private equity investment funds. The fund's aim to collect €95 millions of assets under management was reached ahead of the stated deadline.

¹⁶⁸ For example, the selection of units of such funds as units of account in life insurance is reserved for subscribers: i) investing at least €100,000 or ii) at least €10,000 for an ELTIF; or iii) considered, after assessment, to have the necessary experience, knowledge and competence to make their own investment decisions and to properly assess the risks involved.

¹⁶⁹ The SEC opened the 16/09/20 debate of its Asset Management Advisory Committee on non-listed investment with the following questions: "Should access only be via a diversified pool (fund of funds)? Should access be via an intermediary and should they act in a fiduciary capacity? What disclosure should investors be provided? Should there be restrictions on underlying investments? (Asset class; Only other PE funds; Minimum size requirements; Minimum % held by "qualified" or "large" investors) Should there be differentiated access? (retail vs. "super" retail) Should there be an incentive for funds that can show true market pricing and secondary trading. Who are "main street" or "retail investors" (individuals; IRAs; 401(k)s)".

¹⁷⁰ See, for example, J. Lerner (Harvard), Remarks to the SEC AMAC Private Investments Subcommittee; 16/09/20 and L. Phalippou (Oxford); An Inconvenient Fact; CFA France Roundtable; 25/11/20. More generally, studies show a very wide dispersion of performance across funds, the absence of economies of scale (the size of the funds does not boost their performance) and the absence of a long-term decline in returns.

¹⁷¹ Affecting the equal treatment of incoming and outgoing holders, valuation is particularly an issue for open-ended funds.

¹⁷² See, for example, "Private equity performance under the spotlight"; Financial News; 24/05/21.

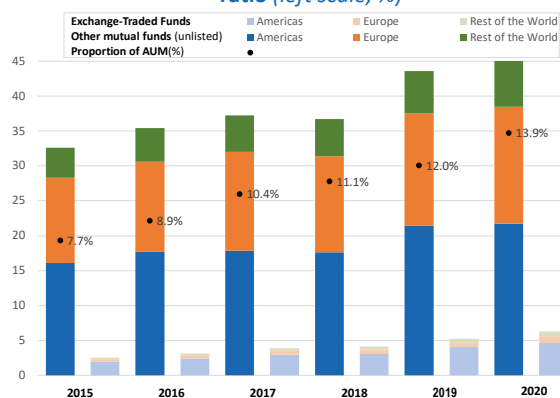
¹⁷³ As established by academic research, equity ETFs appear to outperform unlisted mutual funds, particularly over long holding time horizons (Figure 112).

¹⁷⁴ See, for example, J. Hasbrouck (2002).

¹⁷⁵ AMF (2017); ETFs: characteristics, overview and risk analysis et AMF's 2020 Markets and Risk Outlook assess ETFs' secondary market risks (liquidity, price formation). L. Grillet-Aubert (2020); Opportunities and risks in financial index markets reviews the extensive academic literature.

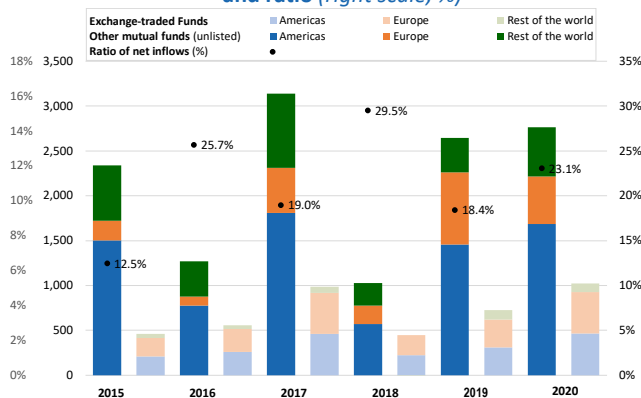
appropriate, national level.¹⁷⁶ This work is now being extended in various international bodies.¹⁷⁷ Based on a review of market trends, the following focuses on certain risks for retail investors related to recent economic developments and innovations in equity ETFs, without prejudice to other risks that may relate to the functioning of other asset classes or strategies.

Figure 99: ETF vs. mutual funds: global AUM (\$trillion) and ratio (left scale, %)



Source: IIFA, AMF calculations

Figure 100: ETF vs. mutual funds: global inflows (\$billion) and ratio (right scale, %)



Source: IIFA, AMF calculations

3.7.1 A fast-growing global and European ETF market

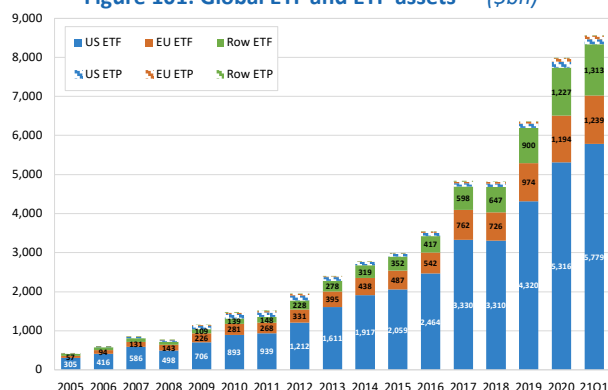
After virtually uninterrupted growth over the past 15 years (Figure 101) global ETF assets under management reached \$8.3 trillion at the end of the first quarter of 2021, an increase of \$2.1 trillion since the end of 2019. This trend has been observed both in the United States and Europe. However, while in 2019 there was strong growth in Europe (41.5% annualised) compared to the US (23.1%), this was not the case in 2020, with assets under management rising by 11.8%¹⁷⁸ (30.5% in the US). This was due in particular to an interruption in equity ETF inflows in Europe at the start of the health crisis (see AMF 2020 Markets and Risk Outlook) that was not observed in the United States. Nevertheless, the inflow dynamics have converged since then, with European domiciled ETFs posting €48.3 billion in net inflows in the first quarter of 2021, the highest in the history of ETFs (Figure 102). This inflow was mainly attributable to equity ETFs, which raised €42.4 billion over the period. Bond ETFs recorded more limited inflows €4.3 billion over the period (€36.8 billion in 2020). Ultimately, despite an average annual growth of 22.9% in European ETF assets over 15 years, the US accounts for 69.4% of the global market, Europe 14.9% (€1.1 trillion), and the rest of the world as much as Europe.

¹⁷⁶ See for example, the IOSCO's principles for the regulation of the ETFs (2013); ESMA's Guidelines on ETFs and other UCITS issues (2014). In the U.S., the SEC clarified in 2019 the relationship between the ETF regime and the mutual fund regime (Investment Company Act of 1940).

¹⁷⁷ In particular, IOSCO has investigated the role of ETFs, especially bond ETFs, during the March-April 2020 market volatility episode and the impact of the development of passive management on the efficiency of equity markets and on the governance of listed companies. The ESRB has extended its previous work on financial stability issues.

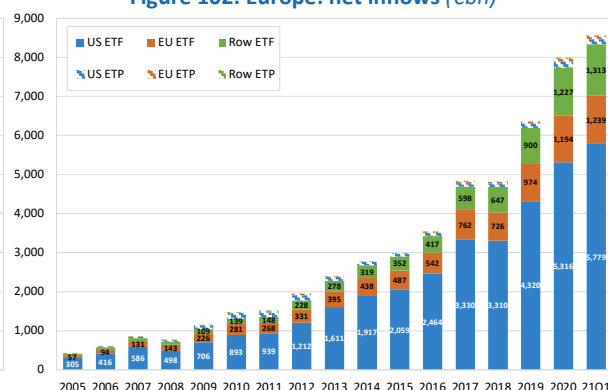
¹⁷⁸ Increase in euros (22.8% in dollars).

Figure 101: Global ETF and ETP assets¹⁷⁹ (\$bn)



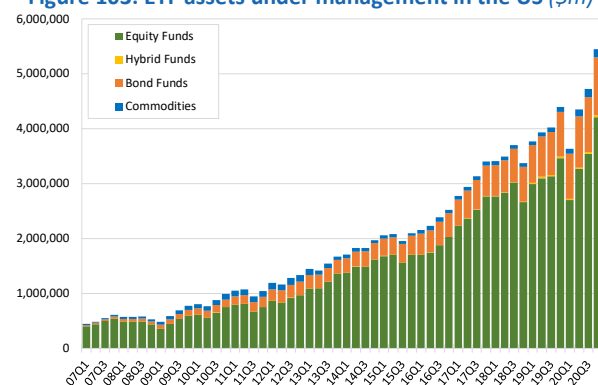
Source: ETFGI, AMF.

Figure 102: Europe: net inflows (€bn)



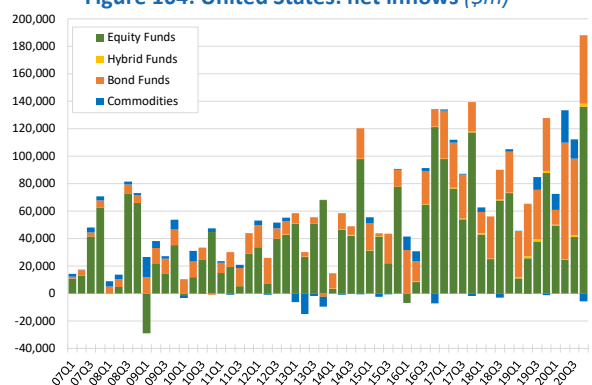
Source: Morningstar, AMF.

Figure 103: ETF assets under management in the US (\$m)



Source: ICI, AMF.

Figure 104: United States: net inflows (\$m)



Source: ICI, AMF.

3.7.2 ETFs are shifting the balance of the asset management industry

The European ETF market is characterised by a profusion of supply. Despite having four times less in assets under management, the number of ETFs (main listings) is comparable to that of the United States (Table 6), reflecting both a multiplication of the strategies on offer¹⁸⁰ and a duplication of the offering by competing managers. If we also take into account multiple listings on 30 European platforms (compared with 3 in the US), there are 8,487 ETF listings. The European market therefore appears fragmented.

Table 6: Number of listings per region (Feb. 2021)

	Total ETF listings	Main ETF listings	Assets under management (\$m)
Africa	161	158	27,183
Asia-Pacific	2,822	2,602	1,082,069
Canada	1,075	873	215,355
Europe	8,487	2,356	1,393,728
Latin America	555	47	13,265
United States	2,442	2,442	5,730,418
Total	15,542	8,478	8,462,018

Source: CFRA's ETF Database, ETF.com.

¹⁷⁹ In Europe, Exchange-Traded Funds are, strictly speaking, UCITS and are required to include this status in their name. More generally, ETFs refer to exchange-traded investment funds that aim to replicate the performance of underlying financial indices. Some similar exchange-traded products including debt products, Exchange-Traded Notes (ETNs) and Exchange-Traded Commodities (ETCs) do not have fund status. Exchange-Traded Products include these products which are considered separately from ETFs.

¹⁸⁰ See analysis of financial index innovation in L. Grillet-Aubert (2020).

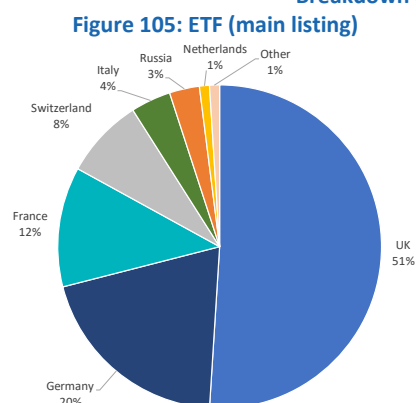
In particular, the takeover by Amundi (5th largest European ETF manager, 6.1% market share, Table 7) of Lyxor (3rd largest, 7.3%) announced on 7 April 2021 creates the 2nd largest ETF manager in Europe after BlackRock (44.3%), thus unseating Germany's DWS (11%). In this industry with large economies of scale, three players managing more than €100 billion stand out in Europe, while the fourth player, UBS, is well below this threshold. However, the streamlining of product ranges expected to result from the merger may be limited by factors such as the geographical and asset class diversity of European ETFs. In this respect, Lyxor, with 24% of its ETFs distributed in Germany and 14% in the UK (Figure 106), offers Amundi, which sells 91% of its ETFs in France, access to the most developed and competitive European markets (Figure 105 and Figure 106). BlackRock has developed mainly in the UK and Germany (79% and 10% of assets under management respectively), DWS in Germany, the UK and Italy (48%, 35% and 15%). Judging by the specific nature of savings and investment behaviour observed, the demand for ETFs should reveal certain national peculiarities (e.g. preferences for the domestic market, for certain strategies or asset classes), thus justify a degree of fragmentation. Moreover, bond and commodity ETFs accounted for 25% and 8.4% of assets under management in Europe in February 2021; equity ETFs accounted for 65% (78% in the US). Preserving diversified ranges across asset classes could also reduce their consolidation potential. However, the US giants (e.g. Vanguard, State Street, Invesco), although managing smaller amounts in Europe, have aggressive pricing policies and their ETF's ability to attract inflows (Table 7) create strong competitive pressure. The European market therefore represents a hub of growth and is of strategic importance for the asset management industry. Despite its already high concentration (the five largest managers have a combined market share of 80.3% -or 75.1% before the merger), it could still have potential for consolidation.

Table 7: 10 main ETF management companies in Europe (end 2020)

	Net inflows (€bn)		Assets under management (€bn)		Market share (%)	
	2020	2019	2020	2019	2020	2019
iShares (BlackRock)	51.1	49.1	466.3	408.9	44.3 %	44.4 %
Xtrackers (DWS, Deutsche Bank group)	13.3	7.5	115.9	97.3	11.0 %	10.6 %
Lyxor (Société Générale group)	0.6	-5.3	77.3	74.8	7.3 %	8.1 %
UBS	4.7	14.0	67.4	62.0	6.4 %	6.7 %
Amundi (Crédit Agricole group)	5.7	8.8	64.1	56.8	6.1 %	6.2 %
Vanguard	6.5	6.7	54.4	47.1	5.2 %	5.1 %
SSGA (State Street)	3.1	7.3	40.8	38.7	3.9 %	4.2 %
Invesco	5.6	8.4	40.5	32.2	3.8 %	3.5 %
WisdomTree	0.6	1.0	23.5	19.8	2.2 %	2.2 %
BNP Paribas	0.4	0.5	12.4	11.8	1.2 %	1.3 %

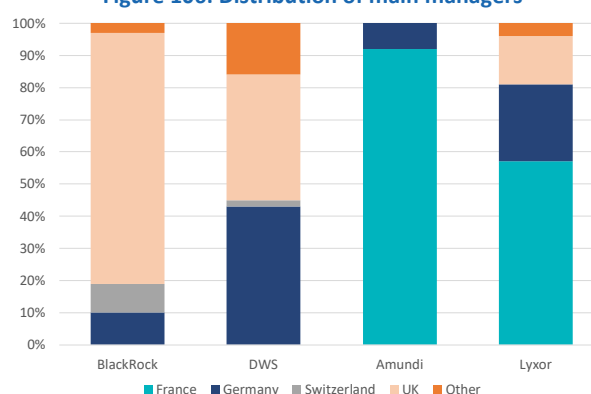
Source: Morningstar.

Breakdown of European ETF AUM per country



Source: CFRA, ETF.com.

Figure 106: Distribution of main managers



Source: CFRA, ETF.com.

Box6: Focus - Potential for investors to misjudge risk in ETFs targeting short-term performance in narrow and/or illiquid market segments

The momentum of equity ETFs on both sides of the Atlantic (Figure 101 and Figure 103) was driven by renewed investor interest, which benefited thematic, smart beta, sustainable development strategies and sector allocations.

In particular, it reflects (Figure 111) the surge in thematic strategies which, focusing on narrow universes without being limited to a single sector, seek to take advantage of technological innovation (digital, cybersecurity, FinTech, clean tech, biotech, space tech, etc.) or changing lifestyles and consumption patterns (telecommuting, vegetarian products, cannabis,¹⁸¹ etc.), incorporating sustainability criteria (ESG) where appropriate. Often using management techniques that are themselves innovative (big data, artificial intelligence),¹⁸² these strategies give rise to a range of systematic management products, typically in the form of ETFs, with lower fees than traditional active management, although significantly higher than traditional ETFs. An emblematic example of these strategies is the success of Ark Invest, a New York-based ETF management company founded in 2014, which has become one of the top 10 ETF¹⁸³ managers in the US. The principle is twofold: formulate criteria for identifying companies whose rapid growth is justified by a promise of disruptive innovation in order to capture sources of high short-term returns; and then launch ETF marketing campaigns on this basis that maximise rapid collection. The appeal for investors (Figure 43) is certainly based on the recognised benefits of the transparency of these listed vehicles and their relatively low management fees, but above all on the expectation of high returns - such as the flagship ETF ARK Innovation (+175.2% annual return at the end of March 2021) - and this expectation may be justified by stories giving significant credit to the expertise of the promoters of the product, without always providing precise information on the factors underlying the expected returns.

Some analyses highlight the risks of these strategies, which are particularly aimed at retail investors, especially via trading platforms such as Robinhood that popularise stock market investing (Figure 107 and Figure 108). Ben David, et al. (2021)¹⁸⁴ show for example that in the United States, specialised ETFs (sector or thematic), although initially investing in stocks whose prices are rising strongly, have an average performance¹⁸⁵ of -4% per year after the launch of the ETF, and this persists for 5 years. This also explains the high number of ETFs of this type that disappears every year¹⁸⁶ (Figure 109). From an informational point of view, innovation-related themes often have little historical information at the time of their launch to allow analysis of their fundamental relevance. The risk of past return chasing¹⁸⁷ is demonstrated by a marked correlation between inflows and past performance (Figure 110).¹⁸⁸ This pro-cyclicality of investors, for strategies targeting narrow markets or illiquid securities, is likely to impact the prices of the underlying assets and amplify the ETF's volatility.¹⁸⁹ Indeed, some strategies tend precisely¹⁹⁰ to focus on highly specialised and/or small-cap companies, possibly at the cost of low

¹⁸¹ These cannabis ETFs are mostly listed in the US or Canada, but do exist in Europe (e.g. HANetf The Medical Cannabis and Wellness UCITS ETF Acc. under German law or Rize Medical Cannabis & Life Sciences UCITS ETF USD Accumulating ETF under Irish law) They have been noted for the narrowness of their benchmark universe and the high correlation of the stocks in the index.

¹⁸² We note here the intriguing result of Dessaint, Foucault, Frésard (2021); "Does Alternative Data Improve Financial Forecasting? The Horizon Effect"; SFI Research Paper according to which: "Alternative data (...) makes long-term forecasts less informative, while increasing the informativeness of short-term forecasts".

¹⁸³ According to Bloomberg; Cathie Wood's Ark joins top 10 ETFs with Tesla-heavy fund; 11/01/21. NB: most of Ark's ETFs are actively managed.

¹⁸⁴ Ben David, Franzoni, Kim, Moussawi (2021); Competition for attention in the ETF Space; NBER Working Paper 28369. The study draws in particular on Bordalo, Gennaioli, Shleifer (2016); Competition for attention, Review of Economic Studies 83, 481-513, which measures the limitations of investor rationality in terms of their preference for qualitative criteria that differentiate the products proposed in relation to price ("Starbucks" effect). This explanation is consistent with Cooper, Gulen, Rau (2005); Changing names with style: mutual fund name changes and their effects on fund flows; Journal of Finance 69, 2825-2858 which shows the ability of marketing to attract fund flows and Brown, Cliff (2005); Investor sentiment and asset valuation; Journal of Business 78-2, 405-440 which shows the predictive nature of indicators of investor sentiment.

¹⁸⁵ Measured by the alpha of a Carhart four-factor model.

¹⁸⁶ Having been liquidated or merged with better performing funds.

¹⁸⁷ On the limitations of investors' ability to "time" their investments and their consequences, see Friesen, Sapp (2007); Mutual fund performance flows and investor returns. An empirical examination of fund investor timing ability; Journal of Banking and Finance 31, 2796-2816.

¹⁸⁸ Figure 109 shows that equity-based ETF have a positive net inflow when their performance is positive. For specialised ETFs, inflows are high when performance is very high (12%), but they are also negative (outflows) when performance is negative, which indicates a level of pro-cyclicality. Broad-based ETFs are much less sensitive to outflows, even when they are very marked.

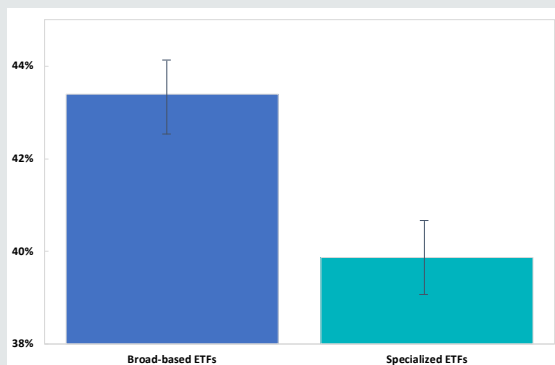
¹⁸⁹ Some market participants have expressed this concern (Bloomberg; Cathie Wood's power in some stocks is even bigger than it seems; 27/02/21).

¹⁹⁰ For example, Ark Invest has amended the prospectuses of its funds so that a given stock can represent more than 30% of their assets and a fund can hold more than 20% of a listed company. In this context, the importance of the contribution of Tesla shares to the performance of Ark's ETF has, for example, been highlighted. Note that this would not meet the requirements applicable to a European UCITS ETF.

portfolio diversification and high concentration of holdings.¹⁹¹ Ben David, et al. (2021) conclude that when it is risk-adjusted, the performance of specialised ETFs is not very appealing on the whole, or at least less than that of broad-based ETFs. Their growth is largely due to the fact that the equity ETF industry promotes this type of product (which has higher management fees than those of traditional ETFs) and which, in the United States, represents 36% of its revenues compared to only 18% of assets under management.¹⁹²

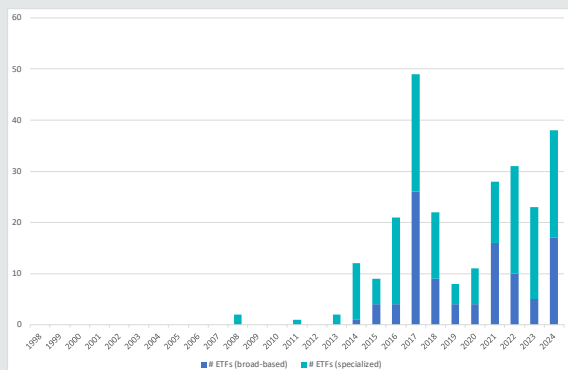
Specialised ETFs (sector or thematic)

Figure 107: Proportion of institutional ownership



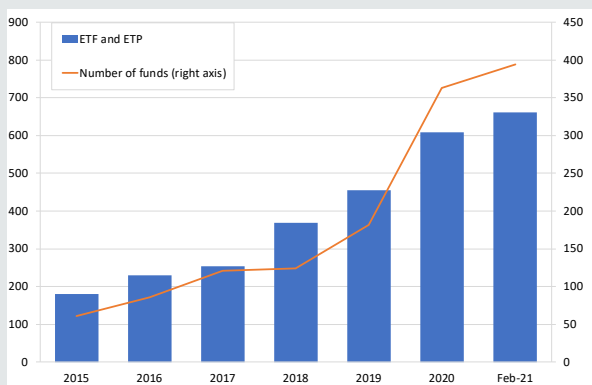
Source: Ben David et al. (2021).

Figure 109: Number of ETF closures



Source: Ben David et al. (2021).

Figure 111: Thematic ETFs: total AUM (\$bn, 2020)



Source: ETFGI, AMF.

Figure 108: Number of Robinhood users per unit of AUM (number/\$m)

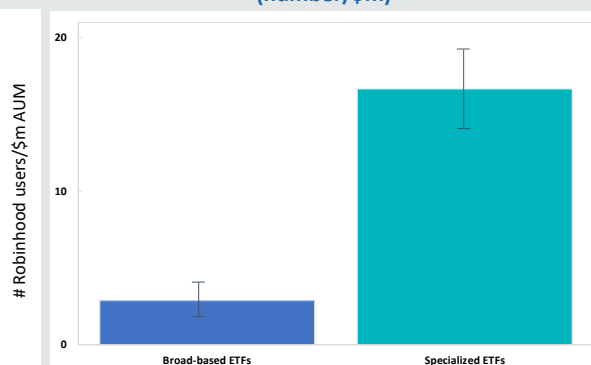


Figure 110: Relation between inflows (vertical axis) and fund performance (horizontal axis)

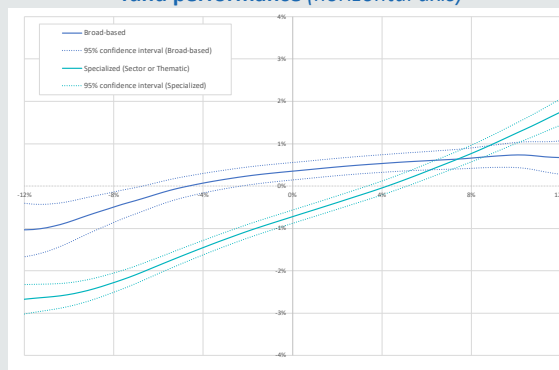
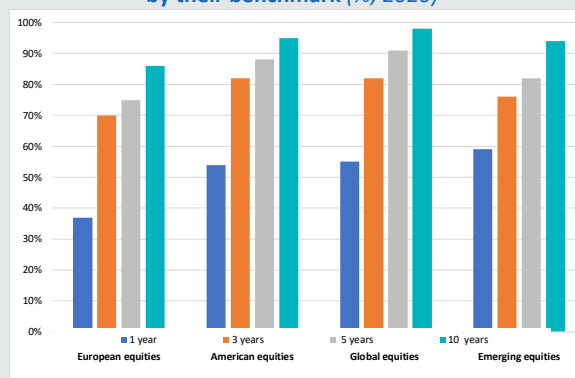


Figure 112: Europe: share of unlisted index funds beaten by their benchmark (% , 2020)



Source: SPIVA Europe Scorecard, AMF.

¹⁹¹ The specific characteristics of certain themes may also lead to investments in stocks that are fairly peripheral to the relevant universe. Carpenter Wellington plc; ARK Capital and the rise of themed ETFs: A trend to Last?; 12/04/21 notes that the ARK Space Exploration ETF invests in companies such as Deere & Co., Lockheed Martin and Boeing or even Netflix whose activity is only marginally related to space exploration.

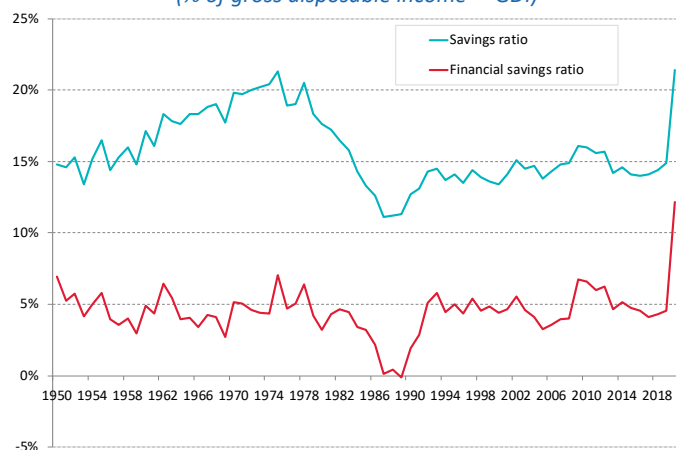
¹⁹² It should be noted, however, that ETFs in Europe suffer more generally from a lack of distribution compared to other types of funds which allow distribution networks to benefit from higher retrocessions.

CHAPITRE 4 : HOUSEHOLD SAVINGS

4.1 2020 WAS A YEAR OF RECORD SAVINGS AND INFLOWS

2020 was a year marked by the Covid-19 pandemic, which led to numerous restrictions and lockdown periods. Against a backdrop of restricted consumption capacity resulting in forced savings, the household savings ratio surged in 2020 to 21.4%, its highest level since the Second World War. The financial savings ratio followed the same trend, but amplified, standing at 12.2% (Figure 113). The financial savings ratio thus more than doubled between 2019 and 2020, exceeding the previous record set in 1975 by more than 5 percentage points. This increase in financial savings can be explained more by an increase in financial investments than by credit flows, since the latter were stable or even down in the first two quarters of 2020.¹⁹³ French households thus over-saved during this crisis period, with excess household financial savings over the full year 2020 amounting to €115 billion according to estimates by the Banque de France. This trend seems to be continuing at the start of 2021, with an excess of financial savings between the Q1 2020 and the Q1 2021 amounting to €142 billion, i.e. an increase of €27 billion between January and March 2021.

Figure 113: Household savings ratio and financial savings ratio
(% of gross disposable income – GDI)

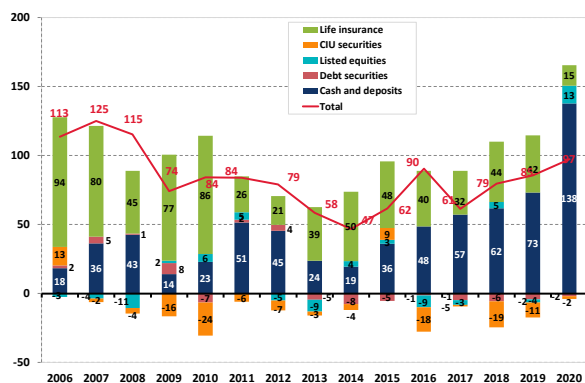


Source: INSEE, Datastream

Bank investment products greatly profited from this increase in savings, as investment flows for the "cash and deposits" item reached an all-time high of €138 billion (versus an annual average of €44 billion between 2010 and 2019). Transferable deposits and demand deposits benefited especially from this record savings flow, capturing 125 of the €138 billion (Figure 115). A renewed interest in equity markets was also perceptible, with a net inflow of €12.9 billion for the listed shares, a much higher amount than anything seen in the past 15 years, given that the previous record set in 2010 was €5.8 billion. Life insurance inflows were sluggish, with €14.8 billion in net inflows, life insurance posted its all-time lowest net inflows, although it does seem to be picking up strength in the first four months of 2021 according to the initial estimates of Banque de France.

¹⁹³ For more details, refer to the Banque de France's news release on [the impact of the Covid-19 crisis on the financial situation of businesses and households in April 2021 \[only available in French\]](#).

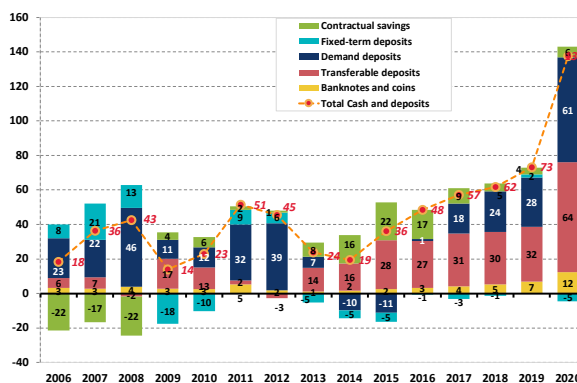
Figure 114: Households' main net financial investment flows*
(annual flows, EUR billion)



Source: Banque de France, National financial accounts, 2010 base, calculations by AMF

(*) Households excluding self-employed individuals and Non-Profit Institutions Serving Households (NPISH).

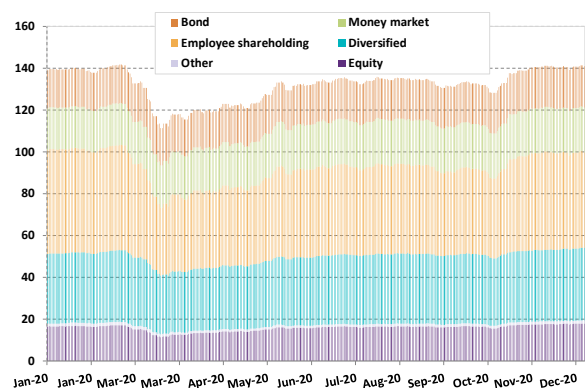
Figure 115: Breakdown of investment flows in the "cash and deposits" item
(annual flows, EUR billion)



Source: Banque de France, National financial accounts, 2010 base, calculations by AMF

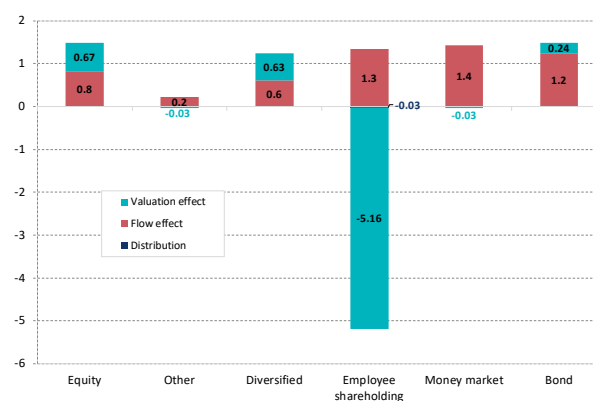
The net assets of employee savings funds (Fonds Commun de Placement d'Entreprise: FCPEs) also increased by €2.0 billion in 2020, to €141.0 billion (Figure 116). All types of funds saw an increase in their assets except employee shareholding funds (fonds d'actionnariat salarié), hit by a strongly negative valuation effect of -€5.2 billion, which was partially offset by a positive flow effect (€1.3 billion). The other funds showed a positive flow-valuation balance. In aggregate, French FCPE were boosted by a positive flow effect of €5.7 billion, minus a negative valuation effect of €3.7 billion.¹⁹⁴

Figure 116: Change in net assets of FCPE by classification



Source: AMF BIOO

Figure 117: Breakdown of the change in net assets of FCPE



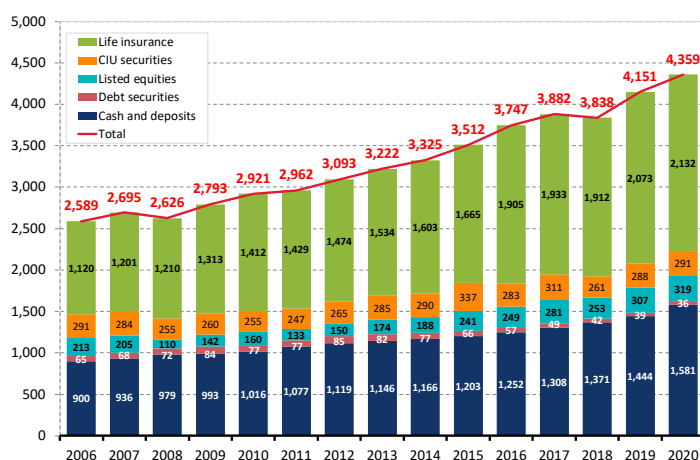
Source: AMF BIO

Household financial savings are therefore abundant and largely invested in relatively low-yield, risk-free instruments. At the end of 2020, households' main financial assets amounted to €4,359 billion, 49% of which were invested in life insurance¹⁹⁵ and 36% in cash and deposits (Figure 118).

¹⁹⁴ However, it is to be feared that the amounts invested in employee savings funds in 2021 will be lower, as a consequence of the health crisis which adversely affected corporate profits and hence incentive bonuses and profit sharing.

¹⁹⁵ For the universe of households, self-employed individuals and NPISH, the Banque de France data show that at the end of 2020, the life insurance pocket consisted of 80.6% of euro funds. Although the universe studied here is slightly different, because it excludes self-employed individuals and NPISH, we can nevertheless make the assumption that there is a very high proportion of euro funds in the life insurance policies of French households.

Figure 118: Households'* main net financial assets***
(annual amounts, EUR billion)



Source: Banque de France, National financial accounts, 2010 base, calculations by AMF

(*) The change in assets from one year to the next is the result of the sum of flow effects, valuation effects and effects related to "other changes".

(**) Households excluding self-employed individuals and Non-Profit Institutions Serving Households (NPISH).

Mobilising these savings to finance recovery from the crisis will probably be a major challenge in coming years, with the aim being to direct household savings towards the equity financing of businesses.¹⁹⁶ However, the current period characterised by high valuations (see Chapter 1) might not be the most suitable time for investment in equities. Massive investment at the top of the cycle generates future losses and further discourages savers from investing in this type of asset. The optimal strategy for investment in equities is rather one of regular investment together with regular portfolio rebalancing (cf. Darpeix & Mosson).¹⁹⁷

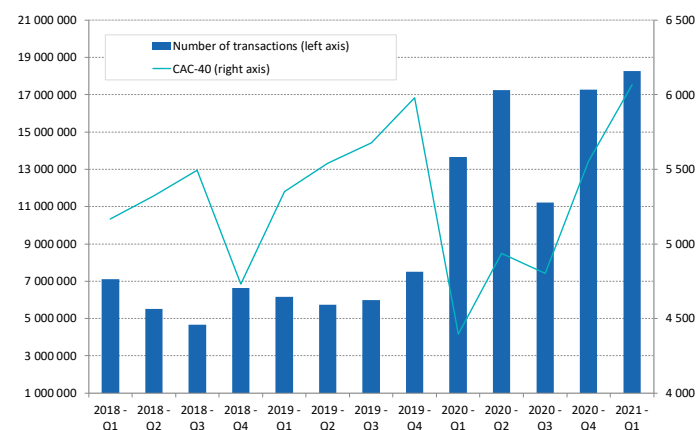
¹⁹⁶ One of the first initiatives was the launch of the Entreprises 1 fund by BPI France on 1 October 2020, which has already reached its target size of €100 million. At the same time, the Relance label was created and at 1 March 2021 it comprised 147 labelled funds with €13 billion in assets under management, which could increase to €24.5 billion if the funds in course of launching reach their fundraising targets (source: [Ministry of the Economy, Finance and Economic Recovery \[only available in French\]](#)). The funds collected by these two types of investment vehicles appear modest for the time being compared with the €138 billion flow invested in cash and deposits.

¹⁹⁷ Darpeix, P.-E. & Mosson, N. (2018). The comparative performance of different investment strategies in French assets. AMF Risk and Trend Mapping, Feb. 2018

4.2 RECORD FRENCH ACTIVITY IN EQUITY MARKETS SINCE THE START OF THE COVID CRISIS: AN EFFECT OF SAVERS' FORCED IDLENESS OR AN OPPORTUNISTIC DECISION?

Retail investors have been extremely active in financial markets since March 2020.

Figure 119: Number of transactions per quarter performed by retail investors in France on listed shares in Europe and level of the CAC 40



Source: AMF RDT data, Refinitiv

Whereas they had performed about 25 million equity transactions per year in 2018 and 2019, French retail investors executed almost 60 million transactions in 2020, of which around 14 million in the months of March and April 2020 alone. These two months by themselves accounted for 23% of the total number of transactions in 2020, versus 16 % in 2018 and 2019. This trend was also observed in other countries, notably in Belgium and Italy where an increase in retail investors' participation in financial markets was noted.¹⁹⁸ This significant retail investor activity could be a sign of optimisation behaviour: they apparently took advantage of falling valuations due to the health crisis to invest, thereby adopting a counter-cyclical behaviour favourable not only to their personal interest by entering markets when prices are low¹⁹⁹ but also to financial stability. A second possible explanation for the strong appeal of financial markets could be spare time, or even boredom. For example, it could be that the periods of lockdown punctuating the past year allowed certain retail investors looking for the right moment to invest to take the time to study the market, but it could also have led to speculation by certain retail investors thirsting for adrenalin or activity.

The remainder of this section proposes quantifying these hypotheses. To do so, we used the AMF's transaction reporting data by isolating the transactions performed by French retail investors on ordinary shares in 2020. The objective therefore was to examine whether the number of transactions can be explained more by the performance of the security bought or sold on the one hand, or by the lockdown periods on the other hand. The reporting data show, among other things, for each transaction performed, the ID of the individual, the date of the transaction, the ID of the traded security and the direction of the trade (purchase or sale). We therefore chose to calculate the cumulative net purchases for each security and each date,²⁰⁰ and hence to disregard any specific features related to individuals. Also, in order to distinguish between the effects of lockdowns and any counter-cyclical effects, we added dummy time variables equal to 1 if the date corresponded to a period of lockdown in mainland France.²⁰¹ Performance, meanwhile, was calculated between 1 January 2020 and the day before the date

¹⁹⁸ ESMA Report on Trends, Risks and Vulnerabilities, No. 1, 2021, page 34.

¹⁹⁹ For example, a one-year investment on the CAC 40 from mid-March 2020 would have increased by 61.3%.

²⁰⁰ We thus calculate for each security and each date the difference between the number of transactions on the buy side and the number of transactions on the sell side.

²⁰¹ The spring lockdown extended from 20 March to 7 May, the autumn lockdown extended from 30 October to 11 December.

of the transaction.²⁰² In addition to these two factors, we also checked the nationality of the traded security in order to test for the possible existence of home bias.

The equation to be estimated for full-year 2020 for net purchases was as follows (where the index i represents a traded security and t represents the time):

$$\text{Net purchases}_{i,t} = \text{Performance}_{i,t-1} + \text{nationality of the security}_i + \text{Spring lockdown}_t + \text{Autumn lockdown}_t + \text{Performance}_{i,t-1} * \text{Spring lockdown}_t + \text{Performance}_{i,t-1} * \text{Autumn lockdown}_t$$

The equation is estimated by a panel model with random effects.

Table 8 presents the results and shows that over full-year 2020 the number of net purchases was barely or not correlated to the rise in the security's price since 1 January. Indeed, model (2) with time effects show an inverse and significant correlation between the net purchases and the performance, whereas the coefficient is insignificant for model (1) with individual effects. On the other hand, the significant positive coefficient attached to the "Spring lockdown" variable suggests that this period of restriction is associated with more net purchases. Conversely, the significant negative coefficient attached to the second lockdown in 2020 shows that this period is associated with more net sales.

Table 8: Regression analysis of the number of net purchases

	Panel model with random effects	
	Net purchases	
	(1)	(2)
Performance between janvier et t-1	0.002 (0,006)	-0.012*** (0.004)
French stocks	30.967*** (3.253)	36.221*** (0.918)
Spring lockdown	20,325*** (1.288)	18,436*** (3.298)
Autumn lockdown	-9.513*** (1.255)	-7.664** (3.379)
Performance x Spring lockdown	-0.040** (0.019)	-0.048** (0.019)
Performance x Autumn lockdown	0,056*** (0.010)	0.044*** (0,010)
Constant	-0.845 (1.277)	0.733 (1.305)
Observations	419 513	419 513
R ²	0.001	0.004
Adjusted R ²	0.001	0.004
F Statistic	507.228***	1,640.484***
Note : * p<0.1 **p<0.05 ***p<0.01		

NB: Column (1) corresponds to the individual effects model while column (2) corresponds to the time effects model.

Source: AMF.

Besides, the cross variables of the performance and the lockdown periods show that French retail investors adopted in general a counter-cyclical behaviour during the first lockdown but were more pro-cyclicals during the second lockdown (Tableau 9).

²⁰² We choose to remove from the sample three stocks for which the performance is very high. These data don't correspond to errors but were nevertheless removed to prevent the results from being driven by those three securities.

Table 9: Coefficient of the cross variables

	Model (1)	Model (2)
Performance x Spring lockdown	-0.038	-0.06 **
Performance x Autumn lockdown	0.058 ***	0.032 ***

Source : AMF.

Furthermore, one distinction should be noted between the two lockdown periods: the first period is associated with net purchases whereas the second is associated with net sales. During the autumn lockdown, the growth and average level of the CAC 40 were higher than during the first lockdown (Table 10). French retail investors were therefore although influenced by the overall financial environment and market developments.

Table 10: Performances and average levels of the CAC 40 during the lockdown periods

	Spring lockdown	Autumn lockdown
CAC 40 performance	11%	20%
Average value of the CAC 40	4,406	5,378

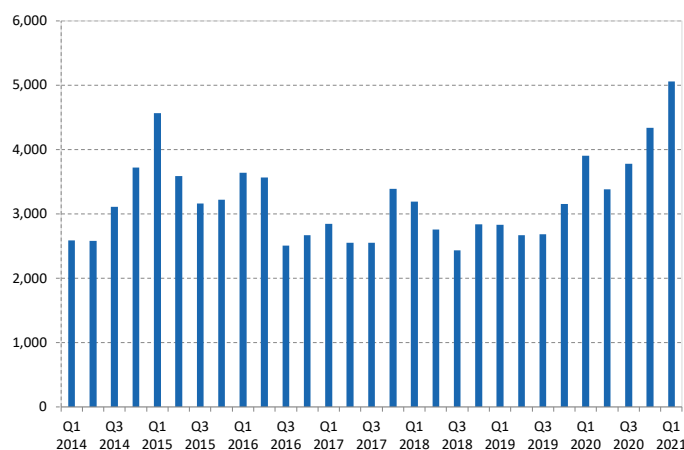
Source: Refinitiv, AMF calculations

The lockdown periods therefore apparently greatly influenced retail investors in their decision to invest, although without ignoring the financial environment.

4.3 THE MACRO-FINANCIAL ENVIRONMENT SEEMS TO BE POORLY KNOWN ESPECIALLY BY THE YOUNGEST AND LESS AFFLUENT

During the previous quarters, requests²⁰³ to the AMF Épargne Info Service (EIS) increased and reached a record numbers in the first quarter of 2021, with slightly more than 5,000 requests recorded.

Figure 120: Number of requests to EIS per quarter



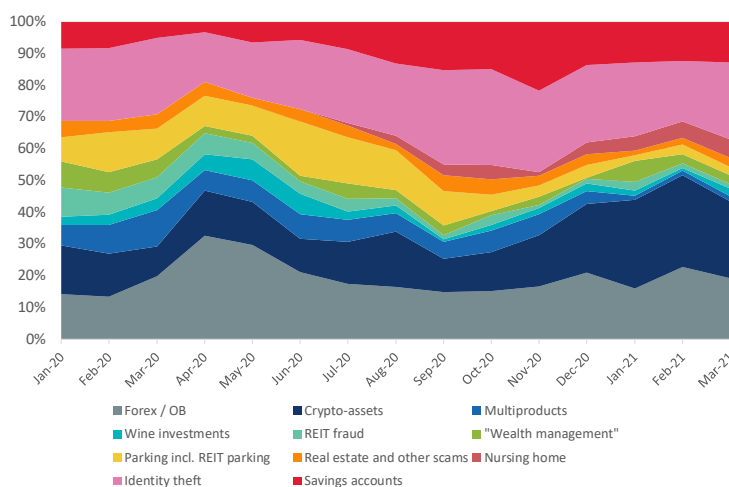
Source: AMF

In the first quarter of 2021, these requests mainly concerned crypto-assets (27%), identity thefts (22%), forex and binary options (19%), and fake passbook savings accounts²⁰⁴ (13%).

²⁰³ Requests to EIS include warnings, complaints and requests for information.

²⁰⁴ "Fake passbook savings accounts" are scams consisting of proposing to retail investors an investment on a bank passbook savings account at a very attractive rate. These passbook savings accounts are in reality pure scams and the amounts "invested" are then stolen without any great chance of being able to retrieve them.

Figure 121: Breakdown of requests to EIS by product



Source: AMF

Some savers looking for returns were therefore tempted to turn to atypical products for investing. Yet, plenty of scams such as identity theft and fake passbook savings accounts exist. It therefore seems interesting to ask ourselves whether certain types of investors may be more liable to be victims of such frauds. To obtain some answers to this question, we took the results of the [latest AMF Savings and Investment Barometer](#) which questions French people concerning their preferences and perceptions regarding investments. We therefore selected a few questions from this barometer providing information on savers' expected returns and knowledge of the macro-financial environment according to their age and financial wealth.

First, we analysed the respondents' knowledge of the interest rate paid by the *Livret A* passbook savings account.²⁰⁵ Of all those surveyed, only three out of 10 respondents were able to give the correct answer (i.e. 0.5% at the time of the survey).

Figure 122: Percentage of correct and incorrect answers to the question "What is the current interest rate of the *Livret A* passbook?"



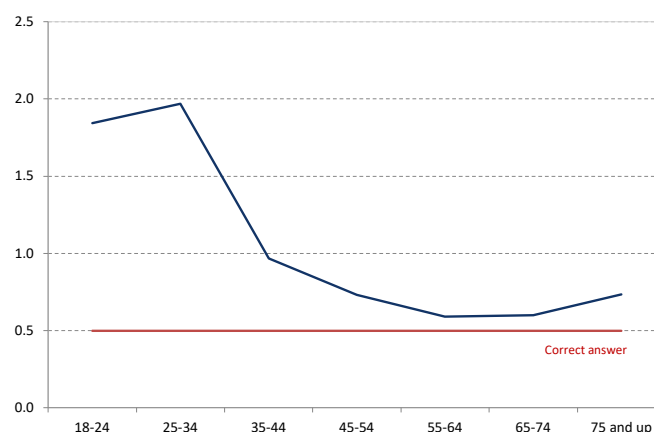
Source: AMF Savings and Investment Barometer, 2020

The details of the answers by category provide several items of information. First, we find that the percentage of incorrect answers or abstentions decreases with age: young savers have limited knowledge of this investment vehicle, unlike their elders. 91% of those in the 18–24 age group do not know the interest rate of the *Livret A* passbook (68% did not reply and 23% gave an incorrect answer). Moreover, the second graph shows that the proportion of correct answers increases with financial wealth.

²⁰⁵ The survey was conducted in September 2020, when the interest rate of the *Livret A* was 0.5%.

Regarding the estimates given by the respondents, we can once again note a major disparity according to age. Those in the 25-to-34 age group estimate on average that the Livret A rate is around 2%, versus 0.6% for those in the 55-74 age group.

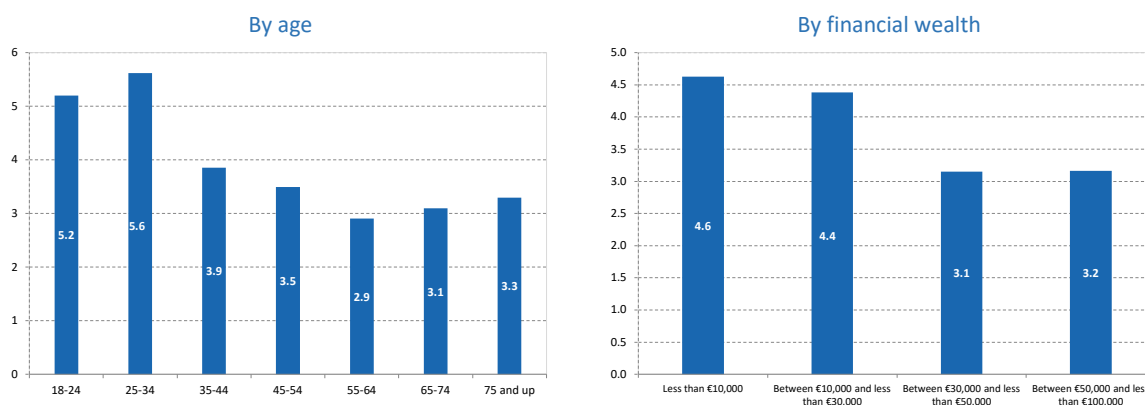
Figure 123: Average of answers obtained to the question "What is the current interest rate of the Livret A?"
By age



Source: AMF Savings and Investment Barometer, 2020

A supplementary question asked those surveyed what a satisfactory rate for a risk-free investment would be, in their opinion. On average, the respondents estimated that a 3.7% interest rate is appropriate for a risk-free investment, which reveals a general lack of awareness of the current macro-financial environment. This estimate increases to 5.6% for the 25–34 age group compared with 2.9% for the 55–64 age group. Likewise, the rate announced is higher for low levels of financial wealth.

Figure 124: Average of answers obtained to the question: "At present, above what rate of return do you consider the return on a risk-free investment to be satisfactory?" (as a %)



Source: AMF Savings and Investment Barometer, 2020

For sake of comparison, we have to go back to 2010 to see French government 10-year sovereign bonds paying interest rates of approximately 3.7%.

Figure 125: 10-year French government bond yields (as a %)



Source: Thomson Reuters Refinitiv

This survey therefore seems to reveal certain individuals' lack of awareness of the macro-financial environment, especially younger and less affluent savers, which could facilitate scams such as "fake passbook savings accounts" for these populations. Especially since the low interest rates paid by regulated passbook savings accounts could lead some savers towards these scams which propose, on the face of things, secure investments at an attractive rate.

4.4 ARE RETAIL INVESTORS ALWAYS WELL AWARE OF THE RISKS THAT THEY TAKE?

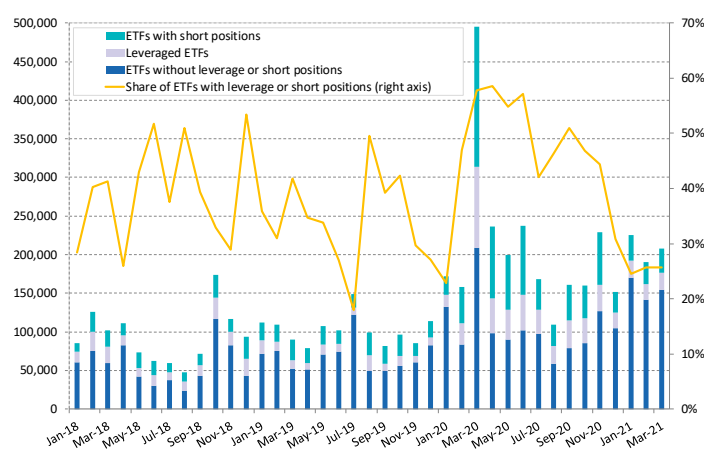
4.4.1 Some French retail investors use leveraged ETFs and ETFs replicating the inverse of an index

Apart from equities, French retail investors have also been active in exchange traded funds (ETFs). Although ETFs are used less than equities, [the AMF Active Retail Investor Dashboard](#) nevertheless shows that 233,000 retail investors placed at least one buy or sell order on this product category in 2020 (versus 1,344,000 active investors in equities). ETFs can replicate the performance of a basic index or include more risky conditions which are potentially less intelligible for retail investors. The aim of this section is therefore to characterise in greater detail the ETFs in which retail investors invest, examining specifically whether these investors are active in leveraged products or products taking short positions and therefore betting on a market decline. Eliner (2021)²⁰⁶ showed an inverse relation between the return obtained by a retail investor and the level of leverage employed. For example, the use of a product having a leverage effect of 1:2 reduces the return by 1.3 basis point, and this reduction is 9.6 basis points for products with a leverage level of 1:400. Moreover, the existence of leverage for ETFs, whatever its level, reduces the return obtained. Also, products replicating the inverse of the underlying assets may be less intelligible for a retail investor than a conventional ETF, which is why these two types of product (leveraged ETFs and ETFs replicating the inverse of the underlying assets) are examined specifically in the remainder of this section. Since the start of 2018, French retail investors have bought or sold 2,995 different ETFs. Of these 2,995 ETFs, 113 are leveraged and 38 different products take short positions. Despite the small proportion represented by these products in terms of their number, Figure 126 shows that they capture a significant proportion of transactions. Since 2018, the share of leveraged ETFs and ETFs taking short positions out of total transactions on ETFs has ranged between 18% and 59%. The highest proportions were reached in March and April 2020, a period during which French retail investors were particularly active.²⁰⁷

²⁰⁶ Eliner, L. (2021). *More Is Not Always Better: On the Use of Leverage by Retail Investors*.

²⁰⁷ However, it should be noted that the period from 17 March to 18 May 2020 was marked by a temporary ban on net short positions imposed by the AMF. During this period, investors could use ETFs taking short positions on condition that the investment did not create or increase their net short positions in the securities covered by the ban.

Figure 126: Number of transactions (purchase or sale) carried out by French retail investors on ETFs



Source: AMF, RDT data

This divergence between the small number of leveraged ETFs in the overall sample and their significant proportion in the total number of transactions suggests that these products capture a large number of transactions. An analysis of the ETFs that recorded the most transactions over the entire period (January 2018–March 2021) or over 2020 alone shows that the leading five products stand out very clearly: at least 100,000 buy or sell transactions were performed on each of these ETFs between January 2018 and March 2021 (at least 75,000 for 2020, respectively) and over the period together they account for 2,291,400 transactions (1,241,572 in 2020, respectively) out of a total of 5,449,504 transactions (1,972,485 in 2020, respectively), i.e. 42% of all transactions for the period 2018–March 2020 and 63% of transactions in 2020. Now, of these five ETFs, the two leading ones include a leverage effect and/or short positions, and by themselves represent 33% of all the ETF transactions of French retail investors between 2018 and March 2021. This finding can partly be explained by the fact that the recommended holding period might be shorter for leveraged ETFs or inverse ETFs, thus generating more transactions for these products.

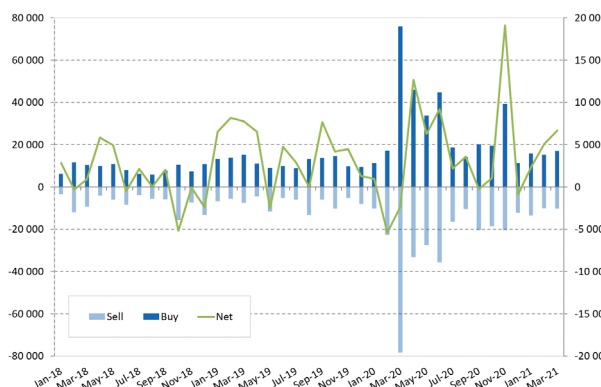
Table 11: ETFs having recorded the most transactions by French retail investors

Name of the fund	Number of transactions since 2018	Number of transactions in 2020
ETF1 (inverse with leverage)	1,172,545	658,347
ETF 2 (with leverage)	635,340	331,602
ETF 3 (without leverage or short positions)	187,002	96,410
ETF 4 (without leverage or short positions)	150,661	79,981
ETF 5 (with leverage)	145,852	75,232

Source: AMF, RDT data

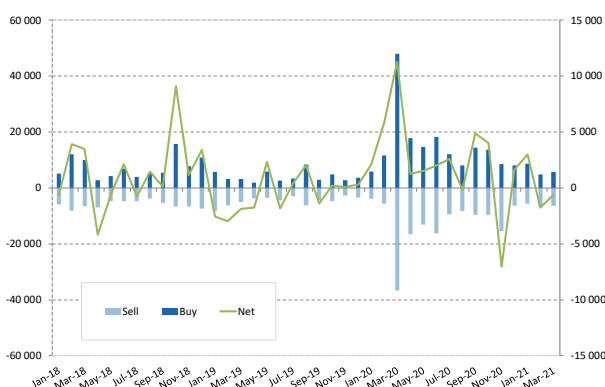
For the two most traded ETFs, we now break down transactions on the buy side and sell side. We note, therefore, that the ETF 1 taking short positions recorded significant net purchases in April and November 2020, whereas the ETF 2 incorporating a leverage effect was bought significantly in March and sold in November 2020.

Figure 127: Number of transactions (purchase or sale) carried out by French retail investors per month on the ETF 1



Source: AMF, RDT data

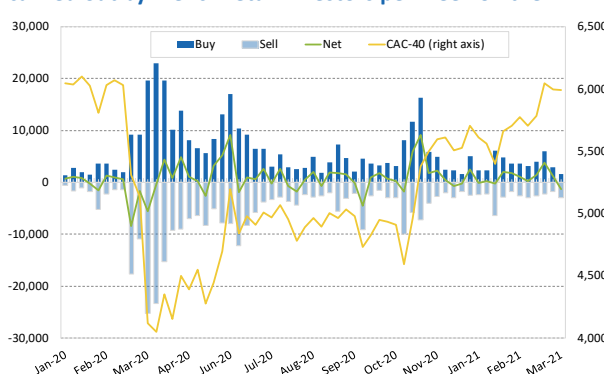
Figure 128: Number of transactions (purchase or sale) carried out by French retail investors per month on the ETF 2



Source: AMF, RDT data

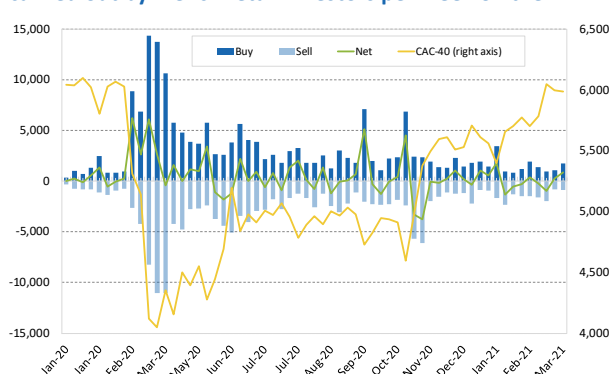
The weekly data show that the ETF 1 taking short positions with leverage saw significant net buying in early June and mid-November 2020 and heavy net selling at end-February and end-September 2020. The leveraged ETF (ETF 2), meanwhile, recorded net subscriptions at end-February, mid-March, end-September and end-October 2020, and net redemptions at end-May and early November.

Figure 129: Number of transactions (purchase or sale) carried out by French retail investors per week on the ETF 1



Source: AMF, RDT data

Figure 130: Number of transactions (purchase or sale) carried out by French retail investors per week on the ETF 2



Source: AMF, RDT data

However, we should not forget the small proportion of households' financial wealth represented by these ETFs, because their cumulative assets under management amounted to €431 million at end-March 2021 (all investors combined). Moreover, the AMF receives very few complaints regarding these products via its Epargne Info Service unit.

4.4.2 The growing use of non-fungible tokens in the fields of sport and art could entice retail investors to invest more

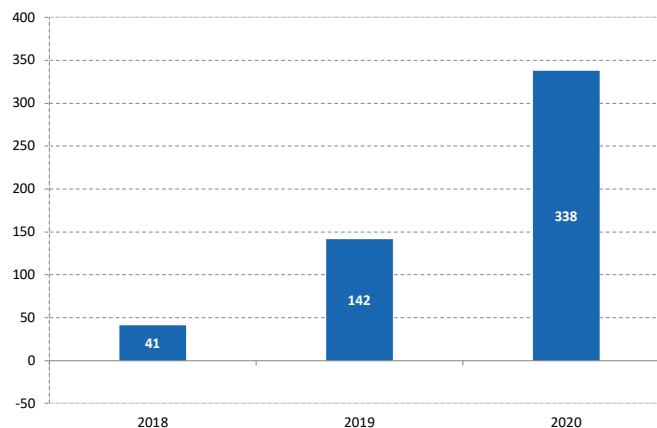
Of the crypto-assets, non-fungible tokens²⁰⁸ (NFTs) are experiencing a growing boom. NFTs are crypto-assets endowed with unique identification codes and metadata which make them unique and thus non-fungible digital assets. In general, they represent an individual asset (tangible or intangible) with a unique value. Some recent sales did not go unnoticed, such as the first tweet in history, bought for USD 2.9 million.²⁰⁹ NFTs are used especially for

²⁰⁸ Non-fungible tokens should also be distinguished from Initial Coin Offerings (ICOs). ICOs are fundraising campaigns whereas NFTs are unique tokens.

²⁰⁹ In March 2021, Twitter co-founder Jack Dorsey sold his very first tweet in the form of a non-fungible token.

buying works of art, and are increasingly found in the online gaming universe. In the latter case, NFTs can be used as rewards or form an integral part of the game to represent each character (an athlete or racehorse, for example, whose value depends on certain characteristics). Big names in video games and sport are starting to take an interest in this segment, and this could increase the popularity of these tokens. On the global level, the capitalisation of the NFT market remains modest (USD 338 million), but it could increase rapidly if applications in everyday life were to become increasingly widespread.

Figure 131: Capitalisation of the market for non-fungible tokens (in USD million)



Source: *Non-fungible tokens yearly report 2020, NonFungible.com*

If such were the case, this could be a future risk for retail investors. It is to be feared that the use of NFTs in games or sport may conceal the risks involved in this market. First, the risk of fraud and swindling should not be forgotten, since anyone can create an NFT on any object (tangible or intangible).²¹⁰ Moreover, on the back of certain investors' enthusiasm for these assets, recent sales have broken price records. This is the case, for example, of the digital collage "*Everydays: the First 5000 Days*" produced by the artist Beeple, which sold for USD 69.3 million in March 2021. The appeal of these assets could therefore make it all the more complicated to estimate their fundamental worth especially since NFTs are unique deeds of ownership that do not prevent the underlying asset from being replicated which can lead to a situation where multiple NFTs on apparently similar assets exist. Lastly, due to their nature, these assets are not as liquid as other crypto-assets, because they are unique.

4.5 ARE SAVERS' INVESTMENTS ALWAYS WELL DIVERSIFIED?

4.5.1 Retail investors who made their first investment on the occasion of the privatisation of Française des Jeux have been relatively inactive since

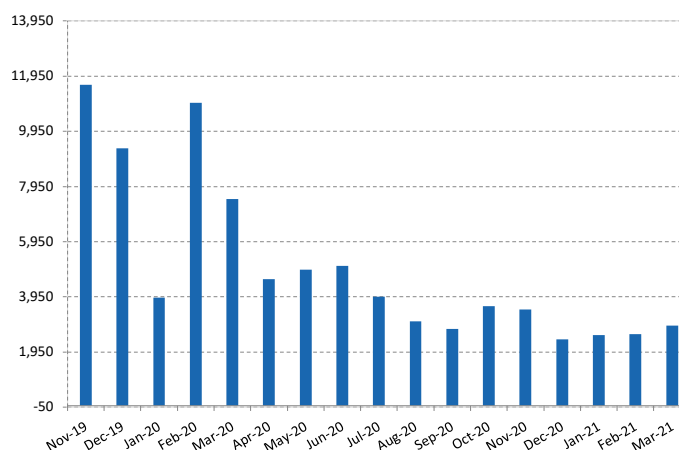
The initial public offering (IPO) of Française des Jeux (FDJ) in November 2019 aroused real enthusiasm among retail investors, and especially investors who had performed no transaction on financial instruments since 1 January 2018. Retail investor demand can partly be explained by the favourable conditions offered to them such as a 2% discount on the price or the distribution of one free share for every ten shares bought provided that the securities are held for at least 18 months. 535,000 individuals resident in France invested during the privatisation of FDJ, of whom 322,558 invested in November 2019 for the first time since 1 January 2018.²¹¹ In March 2021, 86% had held

²¹⁰ The draft Regulation of the European Parliament and of the Council on Markets in Crypto Assets (MiCA), published in September 2020, includes NFTs at this stage. If the text is not amended, NFT issuers will have to be incorporated in the form of an entity having a legal personality and comply with a number of obligations. On the other hand, NFTs will probably not be the subject of a White Paper. However, this text published in September 2020 can still be modified before its final adoption.

²¹¹ In this section, we examine the behaviour of French retail investors who had never performed transactions on financial instruments between January 2018 and October 2019 and who invested in November to buy shares in Française des Jeux.

onto their FDJ shares, while 14% had sold all or part²¹² of their FDJ shares. Slightly more than half of these sales took place within five months following the initial public offering of FDJ (Figure 132). The great majority of investors therefore held onto their FDJ shares, which does not seem surprising to the extent that keeping the shares for at least 18 months allow investors to receive one free share for every ten shares held. Now, at end-March 2021, when the present analysis ends, the 18-month period was not yet completed.

Figure 132: Number of sell transactions on FDJ shares acquired by French retail investors who had performed no transaction since 1 January 2018



Source: RDT data, AMF

It seems worth posing the question as to whether these retail investors came to the stock market only to buy the FDJ security or whether this first step in financial markets encouraged them to make other transactions. Now, only 82,766 of the 322,558 retail investors in question (or slightly more than 25%) have executed a financial transaction on a security other than FDJ since November 2019.

Table 12: Breakdown of the 82,776 retail investors according to the number of transactions performed since November 2019

	Number of retail investors having performed
1 transaction	17,123
Between 2 and 5 transactions	27,975
Between 5 and 10 transactions	12,471
Between 10 and 20 transactions	9,697
More than 20 transactions	15,500

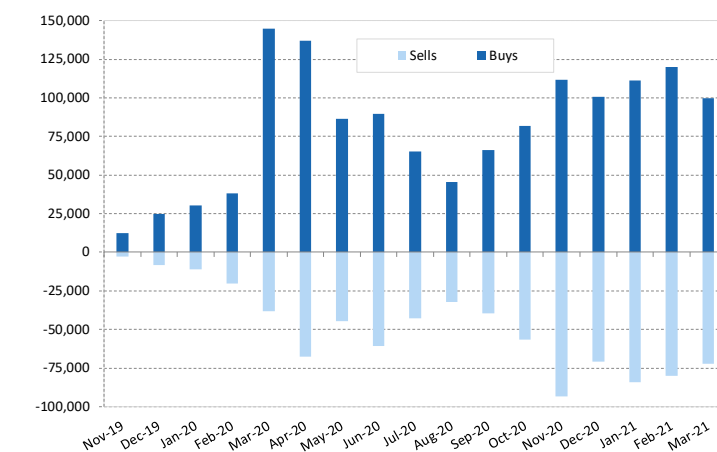
Source: RDT data, AMF

These retail investors having performed at least one transaction on a security other than FDJ were relatively inactive, because 54% performed at most 5 transactions (buy and sell transactions combined).

Moreover, these retail investors generally adopted a similar behaviour to that of other retail investors, being active especially in March and April 2020 (Figure 133).

²¹² Here we look at the number of transactions and not the number of shares sold.

Figure 133: Number of transactions performed on securities other than FDJ by French retail investors who entered the market at the time of the FDJ IPO



Source: RDT data, AMF

Few French retail investors appearing in financial markets at the time of the initial public offering of FDJ seem to have acquired other financial securities²¹³ and therefore diversified their portfolio of equities held directly, which leads us to raise questions concerning the diversification of retail investors' financial portfolio as a whole.²¹⁴ These findings seem consistent with the results of [the AMF study on retail investors](#) showing that around two-thirds of those investing directly in shares through a securities account or an equity savings plan had only 10 different companies or less in their portfolio.

4.5.2 Investing in a few crypto-assets does not always guarantee a sufficient diversification

Most crypto-assets saw their prices surge at the end of 2020 and the start of 2021, enabling them to post exceptional performances, around 1437% for Bitcoin. However, these very strong performances should not hide the risks associated with this asset class. First, crypto-assets are products whose performance is highly variable. Between the start of January 2019 and the first quarter of 2021, the volatility of the MSCI World Index was 13.1, versus 131.3 for the CMC Crypto 200 Index excluding Bitcoin, 232.2 for the CMC Crypto 200 Index including Bitcoin and 321.0 for Bitcoin. The price of these assets can therefore be very sensitive to rumours or public announcements. Moreover, there is still a risk of loss if you forget your public or private keys (for more details refer to [Risk Mapping 2020](#), pages 98 to 100). The investment is also liable to counterparty risk if the crypto-assets were to be stored on a platform that could go bankrupt. Lastly, crypto-assets are an asset class within which diversification is not necessarily easy. The coefficient of correlation between the six leading crypto-assets in terms of capitalisation (at the start of June, excluding stablecoins) therefore always appears positive, and greater than 0.5. The lowest correlation is found between Bitcoin and Dogecoin (0.56) and the highest concerns the Ether-Cardano pair (0.95). A portfolio consisting of several crypto-assets will not necessarily be a diversified portfolio.

²¹³ It is worthwhile giving a reminder here that the reporting data available to the AMF only cover transactions performed since 2018. It therefore seems possible that certain "old" investors already having an equity portfolio performed no transaction between 2018 and November 2019 and then decided to buy shares in FDJ. In this case, it would be wrong to consider these investors as "new" investors.

²¹⁴ Due to a lack of granular information on the financial wealth of French retail investors, we reason here on a restricted universe which does not take into account any holdings of financial products other than equities, or indirect holdings via life insurance policies.

Table 13: One-year correlation between various crypto-assets (without adjusting for the common trend)

	Bitcoin	Ether	Ripple	Cardano	Binance Coin	Dogecoin
Bitcoin						
Ether	0.87					
Ripple	0.71	0.86				
Cardano	0.86	0.95	0.82			
Binance Coin	0.82	0.93	0.93	0.92		
Dogecoin	0.56	0.87	0.85	0.81	0.85	

Last review: 7 June 2021

Source: cryptowat

Table 13 could give a distorted picture, because the study period includes a surge phase in the BTC price from which crypto-assets as a whole profited. Most of them saw a sharp rise in their price at the start of 2021. Table 14 therefore adjusts the correlations for the trends.²¹⁵ The correlations remain positive on the whole, but are lower. Moreover, some correlations involving Dogecoin are now hardly significant, or non-significant. Some crypto-assets therefore seem to allow efficient diversification in the crypto-asset universe. On the other hand, even after adjusting for the trends, the two main crypto-assets, Bitcoin and Ether, remain highly correlated.

Table 14: One-year correlation between various crypto-assets (adjusting for the common trend)

	Bitcoin	Ether	Ripple	Cardano	Binance Coin	Dogecoin
Bitcoin						
Ether	0.63					
Ripple	0.50	0.50				
Cardano	0.39	0.65	0.56			
Binance Coin	0.61	0.69	0.53	0.49		
Dogecoin	0.20	0.46	0.24	0.35	0.30	

Last review: 7 June 2021

Source: cryptowat

4.5.3 Retail investors seem to mostly hold equity and diversified funds in their unit-linked life insurance policies

The detailed analysis of French households' financial wealth presents two major difficulties:

- The main data available come from the national financial accounts for households. For this latter category of individuals and for non-financial companies (NFCs), banks and insurers' statement of liabilities makes it possible to estimate precisely the holdings of bank deposits and life insurance policies. On the other hand, the data concerning financial securities are estimated implicitly by allocating either to households or to NFCs, according to a breakdown specific to each financial product, what could not be allocated to other economic agents (banks, insurance companies, general government) for which the data are known with certainty. The data for households (and NFCs) are therefore merely estimates, for both direct and indirect product holdings.
- French households hold far fewer financial products directly than indirectly (life insurance), which requires an effort to establish transparency in order to describe savers' financial wealth in detail.

This section sheds light on the second difficulty listed above, by characterising the fund held by insurers for unit-linked life insurance policies. To do so we worked on three sources of data: (1) data reported by the ACPR showing details of the funds present in the portfolio of French insurers as at 30 June 2020, (2) AMF data on French investment funds, and (3) data from data providers specialised in the investment fund sector (Lipper, Six Financial

²¹⁵ To eliminate the trend from the series, the first difference was calculated.

and Morningstar). The first source of data identifies the funds held insurer by insurer, breaking them down between non-life and life segments, itself subdivided between euro funds and unit-linked funds. It was thus found that at the end of June 2020 French insurers as a whole held €707.0 billion in funds, of which €665.1 billion was held by the life segment (Table 15). Thanks to the AMF's regulatory data, to information given by the ACPR, to the data from data providers and to public information, it is possible to determine a classification for €697.4 billion of these assets (i.e. 98.6% of the sample).

Table 15: Funds in the portfolio of French insurers according to classification
(in EUR billion)

	Non-life segment	Life segment			Grand total
	euro	euro	Unit-linked	Total (euro + unit-linked)	
Equity funds	6.1	50.2	103.7	153.9	160.0
Other funds	2.8	15.2	20.4	35.6	38.5
Diversified funds	5.4	46.6	110.5	157.1	162.5
Real estate funds	8.0	51.5	34.2	85.7	93.8
Money market funds	5.7	66.1	9.3	75.4	81.1
Bond funds	10.4	81.6	30.1	111.7	122.1
Private equity / debt fund	2.8	35.8	0.9	36.7	39.5
No information	0.6	8.9	0.0	8.9	9.6
Total	41.9	355.9	309.2	665.1	707.0

Source: ACPR, AMF, Lipper, Six, Morningstar. Calculations: AMF.

For all insurance vehicles combined, Table 15 shows that "conventional" funds (equity, diversified, money market and bond funds) represented three-quarters (74.4%) of the funds held by French insurers as at 30 June 2020.

Focusing solely on funds held by insurers for unit-linked policies (i.e. funds for which the market risk is assumed fully by the policyholder), the findings remain similar: "conventional" funds account for 82% of funds held. We note a preponderance of equity and diversified funds, which represent around 70% of the funds held by insurers for unit-linked policies. Conversely, the share of real estate funds remains modest, at 11.1%, and the share of private equity / debt funds is marginal (0.3%).

Table 16: Funds held by French insurers for unit-linked policies according to classification
(in EUR billion and as a %)

	Holdings of French households	Holdings of French insurers
Unit-linked life insurance	309.2	100.0%
Of which equity funds	103.7	33.5%
Of which other funds	20.4	6.6%
Of which diversified funds	110.5	35.7%
Of which real estate funds	34.2	11.1%
Of which money market funds	9.3	3.0%
Of which bond funds	30.1	9.7%
Of which private equity / debt funds	0.9	0.3%
Of which no information	0.0	0.0%

Source: ACPR, AMF, Lipper, Six, Morningstar. Calculations: AMF.

This exercise shows therefore that French savers seem to hold mostly equity funds and diversified funds via their unit-linked life insurance policy and relatively few fixed-income products or funds with poor levels of liquidity, such as real estate funds or private equity / debt funds. Whereas French households apparently hold €645.9 billion in financial products (listed equities, bonds and CIU securities) directly according to the national financial accounts, they also hold approximately €309.2 billion of investment funds via their unit-linked policies. They would therefore appear to own €955.1 billion worth of financial products versus €1,580.1 billion in bank products. However, it should be noted that the funds held by insurers do not result entirely from retail investment, since companies can

also own life insurance policies. Moreover, here we analyse the funds held by French insurers, whereas French savers can subscribe a life insurance policy with a foreign insurer. Nevertheless, this analysis makes it possible to produce an initial estimate of the funds invested in by retail investors through their life insurance policies.

LIST OF ACRONYMS

ACPR	Autorité de contrôle prudentiel et de résolution	IPO	Initial Public Offering (introduction en bourse)
AFG	Association française de la Gestion Financière	IRR	Internal Rate of Return
AFM	Autoriteit Financiële Markten	ISBLSM	Institution sans but lucratif au service des ménages
AFTE	Association Française des Trésoriers d'Entreprises	ISDA	International Swaps and Derivatives Association
AIF	Alternative Investment Funds	LBO	Leveraged BuyOut
APP	Asset Purchase Programme	LCH	London Clearing House
ARCC	Alternative Reference Rates Committee	LMT	Liquidity management tools
ASPIM	Association française des sociétés de placement immobilier	MiCA	Markets in Crypto Assets
BTC	Bitcoin	MIF	Directive sur les Marchés d'Instruments Financiers
CBOE	Chicago Board Options Exchange	MIFIR	Markets in Financial Instruments Regulation
CCP	Central Counterparty Clearing House	MMF	Money Market Funds
CDS	Credit default swap	NAV	Net asset value
CFA	Chartered Financial Analyst	NEU CP	Negotiable EUropean Commercial Paper
CP	Corporate papers	NFT	Non-Fungible Tokens
CSPP	Corporate Sector Purchase Programme	NYSE	New York Stock Exchange
DTO	Derivative Trading Obligation	OECD	Organisation for Economic Co-operation and Development
ECB	European Central Bank	OFCE	Observatoire français des conjonctures économiques
EEA	European Economic Area	OPCI	Real Estate Collective Investment Undertakings
EFAMA	European Fund and Asset Management	OTC	Over the counter
EIS	Épargne info service	PACTE	Plan d'Action pour la Croissance et la Transformation de l'Entreprise
ELTIF	European Long Term Investment Funds	PELTRO	Pandemic emergency longer-term refinancing operations
EMIR	European Market Infrastructure Regulation	PEPP	Pandemic Emergency Purchase Programme
ESCB	European System of Central Banks	PPPLF	Paycheck Protection Program Liquidity Facility
ESG	Environmental, social, and/or governance	PPP	Paycheck Protection Program
ESRB	European Systemic Risk Board	PSPP	Public Sector Purchase Programme
ESMA	European Securities and Markets Authority	RFR	Alternative Nearly Risk Free Rates
€STR	Euro Short-Term Rate	SCPI	Société civile de placement immobilier
ETF	Exchange Traded Fund	SEC	Securities and Exchange Commission
ETN	Exchange Traded Note	SEF	Swap Execution Facility
EU	European Union	SFTR	Securities Financing Transactions Regulation
FBF	French Banking Federation	SGP	Stability and Growth Pact
FCA	Financial Conduct Authority	SL	Securities Lending
FCPE	Fonds commun de placement d'entreprise	SOFR	Secured Overnight Financing Rate
FCPI	Fonds Commun de Placement dans l'Innovation	SONIA	Sterling Over-Night Index Average
FCPR	Fonds communs de placement à risque	SPAC	Special Purpose Acquisition Companies
FDJ	Française des Jeux	STFM	Short term finance markets
FED	US Federal Reserve	STO	Share Trading Obligation
FIP	Local Investment Funds	SURE	Support to mitigate Unemployment Risks in an Emergency
FPCI	Fonds Professionnel de Capital investissement	TLTRO	Targeted longer-term refinancing operations
FPS	Fonds Professionnels Spécialisés	UCITS	Undertakings for Collective Investments in Transferable Securities
FPS	Fonds professionnels spécialisés	WCR	Working Capital Requirements
FSB	Financial Stability Board (CSF)	WFE	World Federation of Exchanges
GC	General Collateral		
GDP	Gross Domestic Product		
GDI	Gross Disposable Income		
HCSF	Haut Conseil de Stabilité Financière		
IBC	Initial Business Combination		
ICI	Investment Company Institute		
ICMA	International Capital Market Association		
ICO	Initial Coin Offering		
ILPA	Institutional Limited Partners Association		
IMF	International Monetary Fund		
INSEE	French national institute of statistics and economic studies		
IOSCO	International Organization of Securities Commissions		

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