JULY 2020
2020 MARKETS AND RISK OUTLOOK

Risks & Trend Mapping

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EXECUTIVE SUMMARY

The economic shock induced by the health crisis is testing the financial sector’s strength. This sector has been very resilient so far, largely thanks to massive intervention and support by authorities.

Covid-19 triggered an unprecedented macro-economic shock worldwide, affecting both supply capacity and demand. Its repercussions on financial markets represent a shock of a more severe nature than most of the stress tests imagined previously, and which coincided with additional operational problems (unavailability of workplaces, reduced capacity for communication, etc.). The epidemic origin of the crisis contributes to the novel nature of the situation, because its resolution will ultimately depend on the success of health policies. The fall in economic activity and the shock to the financial sector are consequences of this, unlike the previous crisis in 2007-2008 which was purely of financial origin. However exceptional it may be, this situation was in any case not unforeseeable, as proved by a 2012 German parliamentary report, which explored the scenario of a health crisis curiously similar to the one that we are experiencing: a major epidemic wave with public policies to attenuate the epidemic (lockdown, etc.) which merely have a limited effect as long as no vaccine is available, but which cause considerable harm to the economy, to public order and to political life. In the German parliament’s simulation, the initial epidemic wave was followed during three years by gradually smaller repeat waves, leading in all to the death of 10% of the infected population.

Pandemic scenario simulated by the German parliament in 2012

Source: Bericht zur Risikoanalyse im Bevölkerungsschutz 2012

The financial sector’s resilience has been demonstrated by the orderly functioning of contingency plans and the fact that there has been no sign of systemic risk. Accordingly, market infrastructures have remained open, receiving - with high levels of volatility - record volumes of equity trades (a peak of €11 billion daily on Euronext Paris, triple the usual volume) while the level of liquidity on some fixed income markets deteriorated. The crisis even boosted increased use of transparent trading methods for stock markets, which was one of the MiFID II objectives still struggling to be attained. Post-trade services also performed their role: despite sharp price movements, which led to significant margin calls, these calls were honoured and the clearing houses encountered no major difficulty.

Investment funds, for their part, sometimes faced very large redemption requests, and liquidity management tools -which are all available in France- demonstrated their usefulness. The funds considered vulnerable in the stress simulations produced by the European Securities and Markets Authority (ESMA) and the European Systemic Risk Board (ESRB) consequently were not faced with any of the problems feared. Investor procyclicality did not arise for French funds either: despite a steep fall in value, equity funds posted positive net subscriptions (+ €2 billion approximately in March 2020, when the CAC40 saw a 19% decline), while over the same period some 150,000 retail investors entered the equity markets for the first time.

The main difficulties in fact appeared in the segment of money market instruments, where the market froze up, posing the problem of the valuation of money market funds at the very time when they were faced with significant redemption requests: about €50 billion for French funds, i.e. as much as during the 2007 crisis, but within just two weeks this time (versus a semester in 2007). Non-financial companies contributed to this exit move in order to meet their cash requirements, and also because of a probable preference for bank deposits seen as safer in this crisis. This dash for cash explains why all assets including gold saw their value decline in the depths of the crisis. The re-correlation of these asset prices in the event of a major shock illustrates the limits of the benefits of diversification. Central banks’ intervention was ultimately able to restore the functioning of the market for money market instruments, where both issuance and trading were able to resume at the same time. Since French money market funds have in the meantime seen the return of net inflows, their investment in the most liquid and short term assets has substantially increased as a precautionary measure.

However the profound financial imbalances, which were already present at the time of the shock, have been exacerbated by the Covid-19 crisis: the risk of a market correction, excessive debt, political tensions or a disorderly Brexit remain the key vulnerabilities.

Firstly, Covid-19 served as a catalyst for the major risk identified in our previous Risk Outlook: the market correction, which has largely materialised. Nevertheless, valuations may still seem high versus fundamentals, since market prices seem to be pricing in highly optimistic scenarios regarding a return to normal, when the threat of further imminent pandemic waves persists and when whole sectors of the economy will have difficulty restarting. The latest earnings forecasts for listed companies also often seem disconnected from the macroeconomic outlook, which is far gloomier. This disconnect between the financial sphere and the real sphere of the economy is a cause for concern. Securitisation and leveraged finance (Collateralized Loan Obligations - CLOs) will probably be faced with the correlation of risks between countries and sectors in the unprecedented environment created by Covid-19, resulting in losses which have not yet all been perceptible in market prices. Lastly, emerging countries could also trigger a correction, given that many of them (in South America for instance) are in turmoil and with limited capacity to react: a health crisis of more tragic proportions given their healthcare system, the collapse of tourism, disruption of global production lines adversely affecting their industry, the fall in commodity prices, capital outflows, etc.

Secondly, excessive debt is a risk that we highlighted last year and which for its part has been exacerbated by the new Covid-19 context. French corporates entered the Covid-19 crisis with high gross debt levels which will increase very significantly due to the fall in their revenues. Insolvency risk represents more generally vulnerability on a global scale and losses should materially increase in credit markets, as credit rating agencies are indeed notifying. These phenomena have apparently not yet been fully factored in asset prices. If hundreds of thousands of firms have benefitted from short-term fiscal relief and from public/state guaranteed loans, for many of them their solvency would seem to be in jeopardy. The impact on the labour market and on the social climate would be large should many of these companies go bust. Several hundred billion euros of bonds could accordingly move from the
investment-grade to the high-yield category (fallen angels\(^2\)). The impact of the crisis on governments will also propel public debt ratios to levels never previously reached, entailing a paradigm change for the Stability and Growth Pact criteria, the case of Italy being the iconic risk for the euro area. Lastly, the solvency of the hundreds of thousands of small enterprises which benefitted from the tax and social security deferrals is in jeopardy, and hence would have a severe impact on employment and labour relations if there were a surge in bankruptcies.

The past months have highlighted governments' problems to tightly coordinate the carrying out of their functions; their dependence on foreign suppliers for essential products; the rapid abandonment of international collaboration, replaced by policies that are neither cooperative nor coordinated; the heterogeneity of countries' responses, whether in the field of health (combating the virus, closing borders, etc.) or in terms of economic and financial responses (restrictions on the payment of dividends or not, prohibition of short selling or not, etc.); and the sacrifice of freedom of movement. Globalisation is being called into question, and issues of national independence are once again priorities. Furthermore, after the fall in share prices, the valuation levels of some companies expose them to hostile takeovers, a risk against which governments have taken protective measures. Finally, in this rather uncooperative environment, cyber risks are seen to be extremely high, since the expansion of teleworking and the distant use of information IT systems has been rolled out on infrastructures which were not designed for this purpose.

The surge in corporate debt in the depths of the crisis has helped to support the economy but cannot lastingly play such a role in the upturn. Relatively undifferentiated financing by debt at an overall extremely low cost must give way to a more balanced financing with equity remunerating risk and time.

Covid-19 has therefore escalated a risk that was previously at a very low level in our risk outlook: the risk of financing the economy. Banks, which play a major role in this type of financing in Europe, admittedly enjoy stronger levels of solvency, but they entered the crisis with very weak levels of profitability, which could worsen as the crisis goes on. Their price-to-book ratio is thus at levels, which make it very difficult to raise funds in the market: their market capitalisation roughly stands at half their net assets (this ratio ranged between 0.2 and 0.4 depending on banks end March-beginning April, and Deutsche Bank's market capitalisation is a quarter that of Zoom, for example). A period conducive to cross-border bank merger deals could lie ahead.

Furthermore, it is the excessive use of debt, whether bank or market debt, which also represents a major vulnerability in the medium term. Poorly differentiating risks, as reflected by low spreads, the financing of the economy before the crisis, and even more so since the start of the crisis, was based on increased use of debt, with indiscriminate stimulus measures, which in an emergency is legitimate. Yet it will be necessary to switch to a financing model based on equity capital, which alone is capable of withstanding the shocks still to come, and capable of distinguishing between companies so as to efficiently guide investments. The selective recapitalisation of the economy, without abandoning the fight against climate change, therefore poses a threefold challenge.

First, the challenge of investor information, in a completely new environment in which valuing assets is a challenge given the lack of future visibility, over both the short and medium term (appropriate guidance given by listed companies is an issue at this stage of the crisis). When private finance has acquired substantial weight and still has a copious amount of cash to invest, can open markets acquire a role in the allocation of investments by conveying this information into asset prices?

Next, the challenge of guiding savings towards equity capital, when households’ risk-free investments are reaching new records, with about €70 billion placed in cash and deposit accounts in France in 2019, a figure which could reached €100 billion in 2020 after COVID-19–imposed savings. Lastly, the challenge of competition with the financing of general government, for which there seems to be no easy way out, between fiscal consolidation, that would be easier in an upturn, and inflation that cannot be decreed. Inflation could be boosted by the negative supply shock due to Covid-19, by increased production costs as a result.

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\(^2\) Fallen angels are companies with credit rating being downgraded from investment grade to high yield.
of health protection measures and by the return from offshore to domestic production. However the negative demand shock and the fall in the oil price have a contrary effect on prices, aggravating uncertainty over the inflation trajectory.

<table>
<thead>
<tr>
<th>Description of the risks</th>
<th>Level at mid-2019</th>
<th>2020-2019</th>
<th>Level at mid-2020</th>
<th>Outlook for 2021</th>
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<td><strong>Financial stability</strong></td>
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<tr>
<td>1. A rise in risk premia, weakening actors with debt or with assets whose prices do not reflect their fundamental data and which could suffer a sharp correction Persisting high valuations despite March 2020 correction, decoupling of earnings forecasts and macroeconomic outlook (bankruptcies and rating downgrades in sight), threat of a second wave of the pandemic</td>
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<td>2. Lack of international policy coordination Geopolitical tensions (Brexit, United States-China, and within the euro area) Non-cooperative environment even in the health combat Nationalistic and protectionist about-burn</td>
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<td>3. Credit risk, unsustainable debt trajectories, non-performing loans Increase in both private and public debt due to the Covid-19 crisis Global multi-sector recession hurting assumptions of securities diversification Sensitivity of issuers to the recession and Italy as a major risk for the euro area</td>
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<td><strong>Market organisation and functioning</strong></td>
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<td>4. Volatility, sudden fluctuations in liquidity conditions, large-scale moves by investors from one asset class to another Resilience to March 2020 correction Stimulus by the authorities (central banks, supervisors, etc.)</td>
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<td>5. Increase in demand for good-quality collateral, with a role of poorly-controlled re-use and transformation in case of potentially rare collateral supply locally in the event of stress</td>
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<td><strong>Financing of the economy</strong></td>
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<td>6. Functioning of market and post-trade infrastructures Resilience to the correction of March 2020 But cyber risks in a tense environment And likely disorderly Brexit</td>
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<td>7. Profitability of financial institutions faced with an environment calling into question their business model Recession leading to a rise in non-performing loans, banks’ focus on their derivatives operations Aggravation of the low-interest-rate environment; pressure on margins Digital transition</td>
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<td>8. Difficult for companies to access finance, especially SMEs Limits to bank financing, and more generally debt financing Difficulties in guiding investors to capital products in the turnaround phase</td>
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<td>9. Lack of retail investor protection in the event of poor information about the risks associated with certain investments or certain distribution channels Further waves of scams Covid-19 context conducive to fraud</td>
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**Level of risk at mid-2020**

**IN BLUE**: main new information that changes the assessment

**Change in risk since 2019 or outlook for 2021**

- Lower
- Stable
- Higher
CHAPTER 1: FINANCING THE ECONOMY – MACRO-FINANCE

COVID-19 constituted a major global macroeconomic shock of a of an entirely new nature, due to its public health origin and the paralysis of capacities in terms of both supply and demand that it generated during the lockdown period. The immediate consequence of this shock was a sharp stock market correction, reflecting a flight to liquidity and a deterioration in the economic outlook, as well as an abrupt halt in the issuance of securities in the equity and bond markets. Faced with the scale of the deterioration in the macro-financial environment, the public authorities took urgent measures to preserve the liquidity of economic agents and limit the impact of the crisis. This massive and swift reaction led to a stabilisation and then a rebound in valuations and financial market activity, although the extent of the rebound varied from one geographical area, sector and market segment to another. Moreover, this stabilisation remains fragile, given the uncertainties regarding developments in the health situation, the real impact of the crisis on economic players and the intensity of the recovery. In fact, stock market valuations seem - in June 2020, when analysis in this document ends - once again to be at high levels versus fundamentals, a sign of a possible disconnection between the real and financial spheres of the economy. Companies weakened by the crisis and whose stock market value remains highly depreciated could, in the near future, be the subject of cheaply valued takeovers by companies from third countries, which in certain strategic sectors would entail sovereignty risk.

The first consequence of the economic crisis has already been to increase the debt excesses already identified before it broke out as sources of vulnerability on a global level. In particular, non-financial corporations entered the crisis with high levels of gross debt and the risk of insolvency is a major vulnerability for the global economy. In addition to the social impact, its materialisation would have dramatic consequences for States, whose finances are already, in some emerging but also developed countries, extremely deteriorated with limited fiscal room for manoeuvre.

The weakening of non-financial agents also contributes to increasing the risk of contagion from the real to the banking sphere. Stronger than they were during the 2007-2008 crisis, banks – the source of that crisis - are now very much sought after by public authorities to help support the economy. Despite the easing in prudential capital requirements granted by supervisors, the level of capital may nevertheless be insufficient in the case of some European banks, should there be a sharp increase in non-performing loans. The materialisation of such a risk would hamper their ability to support business financing, and thereby contribute to the deepening of the recession.

1.1. TRENDS

1.1.1. A worldwide recession – its extent and duration will depend on developments in the health crisis that caused the initial shock

☐ From health crisis to economic crisis

Coronavirus disease 2019 or Covid-19 appeared at the end of 2019 and then spread extremely quickly all around the planet in March 2020 (Figure 1), leading a large number of countries to adopt strict lockdown measures in order to contain the epidemic. By the end of March, these measures concerned almost 3.5 billion people, or over 40% of the world population.
The health crisis was thus transformed into a major economic crisis, the result of a shock on both the supply side (with the fall in production capacities) and the demand side (due to the restriction of consumption of non-essential goods and falls in income). In France, the loss of activity over the two months of the lockdown has thus been estimated to be 35% by the French Official Statistics Authority INSEE (Institut national de la statistique et des études économiques). The shock was all the more violent as at the same time, and just when demand was at its lowest, the decision of the OPEC countries to increase oil output after the failure of negotiations with Russia to cut supplies, caused oil prices to collapse, hitting hardest those producers whose production costs are the highest, such as American shale oil producers. According to the Organisation for Economic Cooperation and Development (OECD), the French economy could therefore shrink by 11.5% in 2020 assuming that the epidemic fades in the second half of the year, or by more than 14%, with a second wave of infections. The extent of the worldwide recession could reach 6% in 2020 in the most favourable scenario, although these forecasts remain subject to considerable uncertainty. Illustrating the sudden darkening of the economic environment, the outlook surveys showed a collapse in growth forecasts in the spring. The point to stand out here was that the deterioration in the economic indicators was particularly pronounced in the service sector, which traditionally plays a stabilising role in times of crisis (Figure 2). And yet in the spring, the deteriorating outlook seemed to have been taken only partially into account in the profit forecasts of listed companies, which had been revised downwards, but to a lesser extent than in the 2008 financial crisis (Figure 3).

The immediate consequence of the deterioration in the economic environment and perspectives was a brutal stock market correction, reflecting a flight to liquidity: between 19 February and mid-March 2020, the major stock markets around the world fell by between 35 and 40%, while implied volatility reached comparable levels to those during the 2008 financial crisis (Figures 4.1 and 4.2). At the same time, the perception of credit risk and financing terms on bond markets deteriorated for all rating levels, although to a lesser extent than in the great financial crisis or the European sovereign debt crisis. Regarding the sovereign markets, a number of countries that are deemed to be the most fragile in Europe, such as Italy, were affected more markedly (Figures 4.3 and 4.4).
These trends went hand in hand with a sharp increase in demand for liquidity in dollars from financial institutions facing massive withdrawals from money market funds, from economic actors with debt in dollars seeking to meet their repayment instalments in the short term, and from non-resident agents seeking to convert their assets into dollars (considered a safe haven). The sudden increase in demand for the greenback thus drove a sharp rise in the US currency (Figure 5).

- Massive emergency measures to shore up liquidity

Faced with the extent of the crisis, the central banks moved quickly in mid-March to introduce large-scale support measures aimed at preserving the liquidity of non-financial agents (States, households and companies). Among others, these measures included:

- cuts in key interest rates for those (such as the Fed or Bank of England) who still had some room for manoeuvre before the crisis was triggered (Figure 6);
- decisions to guarantee banks’ access to liquidity, along with refinancing operations to encourage them to grant loans, in particular to SMEs, such as the Paycheck Protection Program Liquidity Facility (PPPLF) in the United States. The European Central Bank (ECB), meanwhile, most significantly eased the rules on the amounts, financing terms and acceptable collateral (scope and haircuts) to guarantee loans, and scheduled seven additional refinancing operations to be conducted through to September 2021 as part of a new programme (Pandemic Emergency Longer-Term Refinancing Operations, PELTRO). Finally, in order to avoid international dollar liquidity drying up, the US Federal Reserve entered into a swaps agreement with the central banks of nine countries, in addition to the existing agreements signed with its main counterparts in the 2007 crisis (Figure 5).

Figure 5: Swaps outstanding between the Fed (USD billion) and other central banks and change in the dollar

- The haircuts applied by the ECB to all eligible collateral were reduced by 20% as of 20 April 2020.
- Brazil, Mexico, Australia, New Zealand, South Korea, Denmark, Norway, Sweden and Singapore.

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4 See Chapter 3 p. 66.
6 Notably the dollar swap agreements between the Fed and other central banks.
7 For example, the interest rate applied to the new targeted longer-term refinancing operations (TLTRO III) between 24 June 2020 and 23 June 2021 was lowered by 25 bp and may therefore go as much as 25 bp below the deposit facility rate, meaning -0.75% (depending on the volume of loans granted) and the total amount that may be borrowed was increased from 30% to 50 % of their stock of eligible loans.
8 The haircuts applied by the ECB to all eligible collateral were reduced by 20% as of 20 April 2020.
9 Brazil, Mexico, Australia, New Zealand, South Korea, Denmark, Norway, Sweden and Singapore.
measures aimed at making it easier to raise capital in the markets by introducing new asset purchase programmes and extending the existing ones. After what was considered to be a disappointing announcement of an increase of €120 billion in corporate security purchases made through its APP (Asset Purchase Programme), the European Central Bank (ECB) launched the Pandemic Emergency Purchase Programme (PEPP). From an initial amount of €750 billion in assets for 2020, the PEPP was then increased by €600 billion in early June (making a total of €1,350 billion) and extended until 2021, with the ECB specifying that it intended to hold this debt at least until the end of 2022. For the purposes of the PEPP, the traditional limits on the amounts per country according to the capital key were lifted to allow the ECB to focus its support on the countries in the greatest difficulty, and the securities issued by the Greek government were eligible.\(^{10}\) The Fed, meanwhile, reactivated its previous purchase programmes with no limit on the amounts to be bought,\(^{11}\) including those for businesses (Primary and Secondary Market Corporate Credit Facility). Particular measures were also announced for particular categories of companies or market segments. For example, the treasury bills segment was now eligible for the ECB’s purchase programmes, while the Federal Reserve reactivated the programme dedicated to this segment (Commercial Paper Funding Facility, CPFF).\(^{12}\)

- easing the micro- and macro-prudential rules, such as the capital requirement and bank liquidity ratio rules.\(^{13}\)

**Figure 6 : Key interest rates and central bank balance sheets**

![Graph showing key interest rates and central bank balance sheets.](source)

*Source: BCE, BOJ, Fed*

*Last observation: 06/08/2020*

One notable point is that the main central banks sought to limit the potentially procyclical effects of downgrades by the ratings agencies on corporate financing. Fallen angels\(^ {14}\) were thus made eligible for the Fed’s purchase programmes (as were ETFs invested in speculative debt) and can now continue to be used as collateral in the refinancing operations of the ECB, provided that they have a BB/Ba rating and were still classed as investment grade on 7 April 2020 (against 23 March 2020 for the Fed). More generally, however, it should be noted that the regulatory reliance of financial actors on external ratings has diminished since the 2007-2008 crisis, in particular in the asset management sector, thus limiting the risks of downgrades having a destabilising effect (Box 1).

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10 Unlike purchases under the APP, due to Greece’s high yield rating. See the detailed characteristics of the PEPP in Chapter 2, Box 3 p. 47.

11 As in 2008, the purchases will be made with the support of American asset managers, such as Pimco or Blackrock.

12 See Chapter 2.

13 In addition, the countercyclical buffer obligations were dropped in several European countries. In the case of France, the buffer should have been raised to 0.5% of the weighted assets of the risk from April 2020, but was cut to zero by the High Council for Financial Stability (HCSF).

14 Fallen angels are companies whose credit rating has been downgraded from investment grade to speculative grade.
In the wake of the 2007-2008 financial crisis, the Financial Stability Board called in October 2010 for a reduction at international level in the reliance of financial actors on external ratings, including at a regulatory level, in order to limit the procyclical effects of decisions made by credit rating agencies, which could potentially be detrimental to financial stability. In the United States, all references to ratings were thus deleted from the financial regulations through the Dodd-Frank Act. In Europe, this reliance has been reduced, without disappearing completely.

In the asset management sector, managers are now prohibited from basing their evaluation of fund asset quality solely on external credit ratings, and the regulations impose no obligation to sell any assets that have been downgraded. If a rating is downgraded by a rating agency, the investment management company may therefore consider that the asset still enjoys positive credit quality in its own internal evaluation, according to its methodology. This internal credit risk evaluation process must be conducted independently: the person responsible for awarding the credit ratings internally cannot be the person who manages the portfolio, or the person in charge of that management.

The European banks, however, do still use external credit ratings for the calculation of their capital requirements with regard for credit risk when they adopt standard approaches. They will soon be obliged, however, within the framework of Basel III, not to include changes in external ratings mechanically, only in the case of rating upgrades. For the banks that choose to use internal models, reference to external ratings remains possible, provided that it is not exclusive. In addition, the output floor designed to limit the capital benefits induced by the use of internal models will be defined within the framework of Basel III by reference to the standard approaches, and thus to credit ratings.

Insurance companies also use external ratings for the calculation of their capital requirement for the purpose of spread and counterparty risk according to the Solvency II standard formula. When internal models are used, the reliance on external ratings is eased by insurers using their own rating system.

Individual governments, meanwhile, also implemented fiscal and tax measures to support companies and households. This aid can take the form of direct expenditure, such as financing short-time work, waivers or deferrals of tax and contribution payments, moratoria on rent payments, and guaranteed loans. Those sectors that were hit hardest by the crisis (aeronautical, automotive, restaurant sectors, etc.) also benefited from specific support plans, including States taking a stake in the capital of companies in difficulty.

In a large number of countries, debt guarantees represent the largest part of aid that has been provided. This does not have an impact on public finances as long as the borrowers covered by the guarantees do not default.

If we limit ourselves just to the expenditure actually incurred by the end of May 2020, the fiscal effort varies from one country to another, from 1.4% of GDP for Belgium, to 9% or more for Germany or the United States, compared with 3.4% in Italy and 4.4% in France, according to the Bruegel Institute (Figure 7). If deferred payments are included, aid provided appears much more significant in Europe, at around 13% of GDP in France, 16% in Italy and even 20% in Germany.

As a general rule, it should be noted that the primary aim of these emergency packages has been to cover the liquidity needs of companies (and not to boost their solvency), and most of the measures also result in additional debt or a deferrals of payments, rather than their cancellation, although some will probably never be paid back.

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15 FSB (2010): “Principles for reducing reliance on CRA ratings”.
16 In time, the level of regulatory capital will not be allowed to be less than 72.5% of the weighted assets calculated using standard approaches.
In order to facilitate the financing of these packages, several measures were adopted in March 2020 at European level. In particular, the euro area States were authorised to make use of the European Stability Mechanism (ESM) for an amount of as much as 2% of GDP (upto a ceiling of €240 billion in total), without conditionality. The ESM was introduced after the 2008 crisis, financed by the budgets of the Member States. It allows States to gain access to 10-year loans at the lowest interest rate prevailing in the euro area but the use of this mechanism remains uncertain. This measure comes on top of the €200 billion in loans from the European Investment Bank and the €100 billion granted by the European Commission to finance short-time working in Europe. The States will also benefit from the general derogation clause from the convergence criteria in the fiscal rules provided by the Stability and Growth Pact (limit of 3% of GDP for the budget deficit and of 60% of GDP for public debt). This decision is the first of its kind since this clause was introduced in 2011 and is likely to be applied only temporarily. However; according to the International Monetary Fund (IMF), public debt and fiscal deficit in the euro area are expected to be about 105% and 12% respectively in 2020, suggesting that the situation is likely to be lasting.

The massive reaction by the public authorities has succeeded in stabilising the financial markets. After hitting a peak in mid-March at 280 basis points (bp), the spread between the Italian and German sovereign rates was close to 190 bp by mid-June, versus 130 bp at the end of January. The stock markets also saw a rebound, in particular in the US, but daily volatility remains high, indicating that the situation is far from back to normal. Faced with the great uncertainty surrounding the outcome of the pandemic and the conditions for the resumption of activity, things remain fragile. Indeed, despite the fact that the depreciation of assets affected all securities, the extent of the correction varies from one country and sector to another. Essential activities, health and technologies, for example, have suffered little impact, unlike other sectors, such as passenger transport, tourism, hotels and restaurants, or entertainment, for which the recovery is uncertain and still a long way off (Figure 8).

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17 Pandemic Crisis Support.
18 IMF (2020): World Economic Outlook Update, June 2020
Dividends postponed and cancelled, mainly in Europe

The crisis has led companies to reconsider their distribution policies. In Europe, a number of authorities (ECB, European Banking Authority, European Insurance and Occupational Pensions Authority, European Systemic Risk Board amongst others have recommended that financial institutions placed under their supervision should refrain from any dividend payments or share buybacks, at least until October 2020 with respect to the ECB or until 2021 in the case of the ESRB. \(^{19}\) In addition to these requirements applicable in the financial sector at European level, in France the government has also called upon those large companies applying for a deferral of tax or contribution payments or a State-guaranteed loan not to pay out dividends or make any share buybacks in 2020, unless they had committed to do so prior to 27 March 2020. \(^{21}\) In mid-June 2020, half of the companies in the SBF 120 had therefore accepted either not to pay any dividends in 2020 or to reduce their amount to €36 billion, representing a fall in volume by 45% compared with what had originally been planned. For CAC 40 companies, the trend is even more pronounced: dividend cut or cancellation concern three-quarters of them, representing a decline in volume of more than half (56%) compared to the initial planned amount. On the whole, the situation in Europe contrasts with that in the United States. In fact, dividends reached an all-time high in Q1 2020, partly offsetting the downturn in share buybacks in 2019, an instrument often used throughout history by US companies to reward their shareholders, but one that is increasingly being challenged because considered responsible for drying up cash flow to the detriment of investment in production. The US market, where there has been no regulatory or government decision to oblige companies to modify their dividend distribution policy, should also benefit from a more favourable sectoral composition, given the weight of technology companies that have been spared by the crisis, in relative terms. According to Janus Henderson Investors, dividends should decrease by between 15 and 35% in 2020 on a worldwide level, depending on the scenarios.

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19 "Recommendation of the ECB of 27 March 2020 on dividend distributions during the COVID-19 pandemic".
20 Recommendation of the European Systemic Risk Board of 27 May 2020 on restriction of distributions during the COVID-19 pandemic.
21 The French Association of Private Companies (AFEP) also recommended that those companies that have benefitted from the short-time working measure should reduce the dividends to be paid out in 2020 by 20%.
1.1.2. Activity on the primary markets has been adversely affected, depending on the market segment under consideration

- Fiscal and monetary measures

Bond markets were an important factor supporting bond issuances

In the private debt segment, the stock market correction observed from mid-February resulted in a closure of the bond market in Paris, as in most of the other financial centres in Europe, although only very temporarily. As a general rule, the introduction of ultra-accommodating policy mixes contributed to buoying the primary market from mid-March onwards. The amounts raised then increased sharply across all geographical zones (Figure 10), as companies sought mainly to maintain a sufficient level of cash flow to cope with a possible closure of the markets and the drop in activity and, more marginally, with an eye on making the most of any external growth opportunities that might arise. The amounts raised by French companies were thus close to €76 billion over the first six months of the year, representing almost two-thirds of the amounts raised in the whole of 2019 (€88 billion).
In Europe, this general trend was observed for the best-rated issuers, however. In the high-yield market, activity has remained sluggish since the end of February, while issuance in the US returned to its pre-crisis level from April onwards (Figure 11).

![Figure 11: HY segment bond issuance](image)

**Source:** Bloomberg  
**Data at 06/28/2020**

The financial instability has particularly affected the IPO market

From the beginning of 2020, a pronounced slowdown was perceptible in the global initial public offering market, save the emerging nations in Asia. The deterioration in the macro-financial environment driven by the health crisis resulted in the initial public offering market closing down from the end of March (Figure 12).

![Figure 12: Initial public offerings: amount of capital raised](image)

**Source:** Bloomberg  
**Data at 06/28/2020**
In Europe, the capital raised totalled just over €5 billion in the first half of 2020, down by half on the same period the year before. In Paris, there were only 3 transactions over the period, all in the first quarter, raising €134 million in capital. By way of comparison, only €720 million was raised in the United Kingdom and there was just two transactions over the period in Germany, for an amount of €200 million. The stabilisation and then rebound of the markets in the spring did allow the JD Peet IPO, valued at €2.25 billion, to go ahead on the Amsterdam stock market, however.

However, a more positive trend was sketched by equity issuance from companies that are already listed. Given the considerable market volatility, issuance of convertible bonds and accelerated bookbuilding were given preference over capital increases with preferential subscription rights.

Figure 13: Share issuance excluding IPOs (EUR billion)

Figure 14: Share issuance excluding IPOs (EUR billion)

Source: Bloomberg
Data at 06/28/2020

1.2. RISKS

1.2.1. The risk of financing the economy has increased, with worsening imbalances in debt and deteriorating credit quality

French companies went into the crisis weakened

After managing the liquidity crisis, solvency questions become central

In France, companies in the non-financial sector went into the crisis with high levels of debt, following more intensive borrowing (banks and bonds) over the past decade, in a context of favourable interest rates, to finance organic and external growth operations and boost the levels of liquidity held. The ratio of net debt of French companies to GDP thus increased regularly, from 26% in 2010 to 33% at the end of 2019, and a similar trend has also been observed in the United States (Figure 15). The low-rate environment has also contributed to the survival of zombie companies, the number of which has been increasing constantly in the main developed economies since 2008, with their weight being greater in certain countries in Southern Europe (Italy, Spain) and in certain sectors of activity, such as real estate and commerce, transport, accommodation and food services, which are being hit particularly hard by the crisis today.

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22 A zombie company is a company that is at least 10 years old and whose profitability has not been sufficient to cover the interest associated with its debt for at least three consecutive years (Adalet McGowan, M D Andrews, and V Millot (2017): "The walking dead: zombie firms and productivity performance in OECD countries", OECD Economics Department, Working Papers, no 1372.

23 They are said to have increased as a proportion from 8% to over 12% between 2008 and 2016 (Banerjee et Hofmann: "The rise of zombie firms: causes and consequences", BIS Quarterly Review, September 2018.

During and after the lockdown phase, the government support plans via measures to defer payments of social contributions and taxes and State-guaranteed loans succeeded in softening the initial shock, along with greater borrowing, by preserving the liquidity of non-financial companies in the very short term. As activity recovers, probably at a moderate pace, although the extent and timing of the recovery remain uncertain, their working capital requirements are necessarily going to increase, due to the marked decrease in incoming payments and the increase in expenditure (settling supplier debts, social contributions and taxes, rent and personnel costs). This greater need for financing could make the financial situation of companies a little more fragile in the coming months and raise issues of insolvency for many of them in time, despite the general, sectoral or individual aid and subsidies introduced by governments to help stimulate the economic recovery. Companies might have good reason to ease up on their cash flow and cut back their investments, thereby amplifying the negative effects of the crisis. When surveyed in April 2020, business managers in manufacturing industry forecast a drop of 7% in their investments by value in 2020 compared to 2019, which was 10 points below their forecasts at the start of the year.

The increase in insolvency risk would appear to be particularly pronounced for SMEs and very small companies, in particular those that have benefitted from guaranteed loans and payment deferrals, if the amounts owed to the State are not written off or converted into shares. The amount of cash flow loans backed by the State exceeded €100 billion in mid-June, of which 80% granted to almost 490,000 SMEs and very small companies. If this insolvency risk should materialise, it could trigger payment defaults on the supply side and sourcing disruptions in client-supplier relationships, which would be likely to cause cascading bankruptcies. On the demand side, the increase in the number of job-seekers could end up weakening demand, aggravating the risk of social crisis and, ultimately, weighing down growth.

In May 2020, Moody’s rating agency did in fact revise the proportion of bankruptcies it expects worldwide in 2020 upwards by between 4 and 10 %, according to the economic scenario applied. In France, the French Economic Observatory (OFCE, Observatoire français des conjonctures économiques) has estimated the default rate at 3.2% at the end of 2020 (compared with 1.8% without the pandemic), with a higher proportion in certain sectors, such

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25 The consolidated gross debt of French non-financial companies 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 companies are less granular, the loans recorded on the asset side of the balance sheets of non-financial companies are deducted from the total debt shown on the liabilities side to obtain a rough estimate for consolidated debt.

26 Net debt of French non-financial companies is calculated by deducting liquid assets (currencies and deposits, debt securities and money-market fund units recorded on the asset side of non-financial companies’ balance sheets) from the gross debt.
as hotels and restaurants (12%) or household services (9%). Credit quality has shown a marked deterioration since the crisis. The increase in external ratings downgrades by the credit rating agencies, which was already perceptible in 2019, accelerated through the first few months of 2020. In April, the number of downgrades by Standard & Poor’s and Moody’s already exceeded the total number for 2019 in Europe and the United States alike. In addition, the number of fallen angels over the first five months of 2020 reached a high since 2015, representing over $300 billion in debt rated by S&P, and the number of companies rated BBB (the dividing line between investment grade and high yield) and under negative credit watch has been on the increase since the start of the year. More generally, at worldwide level, the companies placed under negative credit watch by Standard & Poor’s represented 20% of the companies rated in investment grade at the end of May.

Table 1: Moody’s and Standard & Poor’s long-term corporate credit rating downgrades (at 06/18/2020)

<table>
<thead>
<tr>
<th></th>
<th>Western Europe</th>
<th>United States</th>
<th>France</th>
<th>Western Europe</th>
<th>United States</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>139</td>
<td>32</td>
<td>293</td>
<td>108</td>
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<td>4</td>
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<tr>
<td>Q2</td>
<td>180</td>
<td>69</td>
<td>381</td>
<td>128</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Year total</td>
<td>319</td>
<td>217</td>
<td>674</td>
<td>463</td>
<td>26</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Bloomberg

This decline in credit quality is likely to drive an increase in financing costs or even credit rationing, notably for those fallen angels whose loan contracts or issues contain trigger clauses and who do not have the benefit of explicit State support. We could also see fragmentation of the high-yield market between the fallen angels whose debt securities can still be used as collateral in ECB refinancing operations or which remain eligible for the Fed’s asset purchase programmes in the US, and those companies that have traditionally been rated in the high yield segment. It should be noted that the latter have underperformed the fallen angels since the start of the year (Figure 16).

Figure 16: Comparative trends of the ICE Bofa Global Fallen Angel and High Yield Original bond indices since the beginning of 2020 (100=12/31/2019)

Source: Refinitiv Datastream
Data at 06/28/2020

Managing insolvency risk will drive big recapitalisation requirements

Managing insolvency risk and stimulating investment are going to make it necessary in the very short term to reinforce the financial structure of companies, especially those that were already highly in debt even before the start of the crisis and/or have been hit particularly hard by the lockdown measures, or will be with only a very partial resumption of their activity. The recapitalisation operations may take the form of issuance of ordinary or preference shares (equity), but also hybrid securities, such as subordinated securities, participating securities or convertible bonds (quasi-equity).

Such equity or quasi-equity should be submitted to two difficult constraints, which is to say minimising the cost of these operations to the public finances on the one hand, and seeking to maximise their economic benefit, on the other. These requirements would suggest that such operations should be selective in order to drive ultimately an improvement in the quality of the economic fabric, although that is also likely to increase in the short run the social cost to society in return.

In anticipation of these recapitalisation needs, at the beginning of May 2020, the European Commission eased the rules on State aid in order to allow States to take equity stakes on a temporary basis in companies hit by the crisis through to mid-2021. 29 These authorisations are subject to conditions, however. More specifically, only those companies that were not in financial difficulty prior to the crisis and which are unable to raise capital on the markets in satisfactory conditions are eligible, which therefore excludes such zombie companies from the system, among others. In addition, the recipient companies are subject to a ban on paying out dividends and must also respect EU objectives on climate the digital transformation. In order to limit the cost of these operations for the public purse, rules are also provided on the prices at which the securities may be purchased and sold.

In France, the amending finance act for 2020 dated 25 April 2020 provided for a recapitalisation plan of €20 billion for strategic companies that are in difficulty, including SMEs. An aeronautics sector investment fund is to be created, endowed with an initial amount of €500 million, of which close to half (€200 million) would be contributed by the State, with the rest being put up by the actors in the sector. Provision is also made for equity investments within the framework of the Fund for the Future of the Automotive Sector, for an amount of €600 million. At European level, the European Investment Bank also created the Pan-European Guarantee Fund in April 2020. One quarter of its total endowment of €25 billion will be dedicated to strengthening companies’ capital structure, mainly SMEs.

A risk of stock index attrition with the crisis

Since the financial crisis of 2007-2008, the number of companies listed on European stock markets has been in steady decline (Figure 17). This trend could now be amplified due to the small number of initial public offerings, and a possible increase in the number of bankruptcies, and of mergers and acquisitions involving companies that have been weakened by the crisis and lost considerable stock market value, thereby limiting the role of the financial markets in financing the economy via equities.

29 “Amendment to the Temporary Framework for State aid measures to support the economy in the current COVID-19 outbreak”, 8 May 2020. This text amends the temporary framework adopted on 19 March 2020 authorising national measures to support corporate liquidity, such as direct subsidies, tax benefits and early payments, guaranteed or subsidised loans or short-term credit insurance for exports (“Temporary Framework for State Aid to support the economy in the context of the COVID-19 outbreak”).
Faced with the particular risk of takeovers, governments have already started taking measures to protect their domestic markets, and in particular those companies that are considered strategic. At European level, the regulation on the screening of foreign direct investments (FDI), came into force in spring 2019 and provides for enhanced coordination between Member States in the screening of transactions conducted by investors from third countries. This system was completed in March 2020 by guidance from the European Commission. The latter calls upon the 14 Member States that have national FDI screening mechanisms to make use of all tools at their disposal to prevent movements of capital from third countries that might create a risk to security or public order in Europe and, for those States that do not have such mechanisms, to set one up. At the end of May, the European Commission also proposed the creation of a fund of €15 billion to finance investments in strategic companies weakened by the health crisis, within the framework of its plan to support the economy.

This risk is particularly pronounced in France, which ranked third in 2019 in attracting foreign direct investments, behind the United States and China. Since 2014, the number of sectors concerned by the FDI screening system has been increasing constantly. In addition, a decree that came into force in April 2020 further to the PACTE law on company growth and transformation lowered the threshold above which foreign direct investments in French companies can be refused, from 33% to 25% of voting rights. This threshold could be reduced still further to 10%.

Similar measures have been adopted in other European countries, such as Spain, and also in third countries (India, Australia).

- Securitisation: revival on its way?

After a decline in assets under management from €2.3 trillion in 2009 to €1.389 trillion in September 2016 after the 2008-2009 crisis, a modest upturn has been observed (Figure 20) in securitisation issuance in Europe since

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30 REGULATION (EU) 2019/452 of 19 March establishing a framework for the screening of foreign direct investments into the Union.
32 A securitisation transaction: i) creates a financial vehicle that converts a portfolio of loans (assets) into marketable securities (issued as liabilities), ii) issues several asset categories (tranches), with the senior bond tranches bearing a lower credit risk, and the next ones in the order of bond subordination, more and more risk. The equity tranche is not rated by the rating agencies and is paid after all the other bond tranches.
2016, as AUM increased to €1.526 trillion in March 2020. The initial acceleration in growth in securitisation slowed down in 2019, however, and was halted by the crisis.

The upturn in securitisation was more pronounced in France (Figure 18), but the €248.4 billion in AUM at the end of Q1 2020 was still relatively low, representing 16.4% of the European total. These vehicles refinance mainly (Figure 19) financial debt (CDO), residential mortgages (RMBS) and ABS, in which the assets include consumer loans, automobile and credit card financing. The particularity of CLOs, which refinance (leveraged) loans to non-financial companies, is that they manage their loan portfolio actively in order to optimise their risk-return profile. It is for this reason that they are not eligible for the “Simple, Transparent and Standardised” securitisation label (Box2).

If the impact of the current crisis were to spread (geographically and in all sectors), it would correlate the risks on the loans in the portfolios and reduce the benefit of their diversification by securitisation.

Despite its risks, securitisation does enable risk to be transferred to the non-banking sectors and the costs of financing the economy to be reduced. Stimulating securitisation via the STS label (Box2), is therefore an important objective for the central banks and the CMU. Although its success is yet to be assessed, the massive issuance of debt driven by the Covid-19 crisis creates great potential for debt to be refinanced and risks transferred in this way.
In the wake of the 2007-08 crisis, the European Union reinforced the legislative framework to counter the risks inherent to highly complex, opaque, risky securitisation operations. It should be remembered that during the 2008 crisis, (American) securitisation played an important role in amplifying systemic risk by facilitating excessive leverage and risk concentration across the financial sector. Four elements in the securitisation chain played a self-reinforcing role in this respect: i) underlying loan origination practices; ii) issuance of complex and opaque securitised products; iii) over-reliance on credit rating agencies; iv) the leverage of certain investors. The simple, transparent and standardised (STS) securitisation label created since then by the Securitisation Regulation provides a framework designed to limit these risks. It also allows the entities in question to benefit from more favourable eligibility conditions for ECB refinancing operations and institutional investors to benefit from preferential capital requirements. This status makes this a strategic component of the Capital Markets Union (CMU).

The STS label is based on requirements of simplicity, standardisation and transparency. The simplicity requirements ensure, among others, that the vehicle is based on a "true sale" of the assets, that the basket of exposures is homogenous, and that the assets meet predetermined, clear and documented eligibility criteria, preventing any form of discretionary management. The standardisation requirements ensure that generally-used market interest rates are applied, that interest rate risk is managed, that there is a management body with the necessary qualifications, and adequate documentation of the transactions. The transparency requirements ensure that the originators and sponsors provide the markets with information about the transaction, and in particular on past performances and the risks of default and of loss. To obtain the label, the originator and sponsor must also notify ESMA. ESMA publishes the list of notified STS securitisations (including the notifications themselves) on its website.

At the end of 2019, the European Commission published several technical standards concerning the transparency requirements, STS securitisation notifications and the operational standards of securitisation trade repositories, among other things. Once they come into force, the related RTS will clarify the monitoring of market trends.

On 6 May 2020, the EBA published its final report on the framework applicable to synthetic securitisations (meaning those that do not involve any legal transfer of ownership, just a sale of the credit risk linked to the securitised assets), which are not eligible for the STS label at present. Among other things, it recommends certain simplicity, standardisation and transparency criteria that are specific to synthetic securitisation, thereby opening up the possibility of considering the introduction of an STS system for these securitisations. The work conducted within the framework of CMU 2 could pursue this avenue.

Incentives to this effect have been provided, for example, by the COSME Loan Guarantee Facility of the European Investment Fund, which aims to support the provision of €8 billion in loans to SMEs by granting €1 billion in guarantees for mezzanine tranches (intermediary risk) of securitisations issued in this framework. On 10 June 2020, the "High Level Forum on CMU" set up in 2019 by the European Commission within the framework of CMU2 issued recommendations to boost market financing, and specifically securitization.

The report mentions avenues for streamlining the rules involving the transfer of significant credit risk, treatment of the capital of banks, investment firms and insurers for STS and non-STS securitisations, and the HQLA eligibility rules for the liquidity coverage ratio (LCR). It also recommends favourable treatment of synthetic securitisations and proportionality of transparency, as well as due diligence requirements according to whether the transactions are public or private. Finally, the report also recommends a centralised access point to financial information and valuations in a European database, to boost securitisation of loans to SMEs.

The balance that is struck between promoting securitisation and managing risks will also depend on international coordination in this field. At global level, there may be fears of risks of regulatory shopping, since the retention

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33 Cf. European Commission impact study accompanying the Securitisation Regulation (SWD/2015/0185 final; 2015/0226 (COD)).
34 Regulation (EU) 2017/2402.
35 Cf. eligibility conditions stipulated by the description of the ECB monetary policy instruments.
36 Regulation 575/2013 was amended notably by Regulation 2017/2401 (published at the same time as Regulation 2017/2402 on STS securitisation).
37 The European Securitisation Regulation was adopted in December 2017 and came into force on 1st January 2019.
38 Cf. EBA proposal of 06/05/20 for a framework for synthetic STS synthetic securitisations.
39 The restrictive nature of the quality requirements for the loans eligible for this programme has been criticised (Financial Times, Mass securitisation as a device for recovery has no economic value; 24/04/20).
41 Cf. hearing of the EBA of 09/10/19 on the STS for synthetic securitisations and the related discussion paper and presentation.
requirements applicable to securitisation originators seem less strict in the United States, for example. In Europe, greater convergence will also be needed between securitisation regimes that are still largely national.

Innovation also raises questions. First, an examination is required of the importance taken on by vehicles that are not eligible for the STS label, such as CMBS, CLO or even vehicles without tranches (e.g. OFS43), and the fit between bank and non-bank intermediation needs to be clarified. Also, the European Commission issued a consultation on 8 April 2020 on its renewed sustainable finance strategy44 (or Green Deal), which aims, among other things, to assess the capacity of green securitisation to support financing of sustainable development projects, and the need for a specific regulatory framework. Finally, the crisis raises the question of whether it is a good idea to create European financing vehicles that pool public debt, a subject on which there is no consensus as yet.

- Risks of transmission of the economic crisis to the banking and financial sphere

Unlike the sub-prime crisis, the banking sector was not behind the current economic crisis. The banking reforms that have been implemented since the 2008 crisis have enabled the soundness of the world banking system to be reinforced by increasing liquidity and capital requirements (micro-prudential measures), the introduction of countercyclical buffers and a capital conservation buffer for systemically-important banks (macro-prudential measures). In Europe the weight of core capital (CET1) has thus increased regularly since the crisis, although with disparities between northern and southern in Europe (Figure 22).

Figure 22 : Euro area banks Tier 1 capital ratio (%)

Source: Refinitiv Datastream

Although being called upon today by the public authorities to take part in supporting the economy by granting repayment holidays and State-guaranteed loans, the banks are not immune to a major crisis themselves. In fact, the present crisis highlights a certain number of weaknesses observed over the past decade. In addition to investments related to digitalisation, the pressure on fee and commission income competition from online banks, the fact that base interest rates have been kept at low levels over an extended period of time is weighing on the profitability of European banks (Figure 24), while their stocks of non-performing loans left over from the last crisis

42 In the United States, the requirement in the Credit Risk Retention Regulation of a retention ratio of 5% has been effective for securitisations of residential mortgages since 2015, and for the others since 2016, but does grant exemptions (residential mortgage exemption; exemption for qualifying three-to-four unit residential mortgage loans). A revision of these rules has been put out for public consultation until 18/02/20 by the US authorities.
43 Specialised Financing Vehicles (OFS), which are specific to managing debt funds, were created by the Ordinance of 04/10/17. The decrees of 19/11/18 provided the texts for implementing the reform of OFS and the AMF General Regulation (Q1 2019) the rules applicable to them and the adaptation of the securitisation vehicle regime. It stipulates notably their ability to grant loans directly without going via a bank.
44 Cf. consultation on the renewed sustainable finance strategy.
45 Milestones were set out in the Principles for developing a green securitisation market in Europe of 11/09/19 by the AFME.
have still to be absorbed. As a result, the sector is underpriced on the stock markets: bank shares are trading below their book value (Figure 24).

Figure 23 : Return on equity (ROE)

Figure 24 : Price-to-book ratio in the banking sector by country

Source: Refinitiv Datastream

Source: Refinitiv Datastream

Last observation 06/15/2020

Against this backdrop, worsening economic prospects in Q1 have resulted in a deterioration of the perception of risk in this sector. The stock-market correction and entry into recession have already pushed European and US banks to set aside considerable provisions in Q1 2020 for doubtful debts, pursuant to the new CECL standard (Current Expected Credit Loss) and IFRS 9 respectively, under which the banks impair their assets on the basis of the expected losses rather than of incurred losses, taking macro-economic outlook data into account (Figure 25). The size of provisions vary widely from one institution to another, due to their different exposures to the sectors and geographical zones that have been hardest hit by the epidemic, and also to the differences between the banks’ forecasts for the macro-economic assumptions that underlie the expected loss calculations.

Figure 25 : Risk-related costs (provision for doubtful debts)

(EUR million)

Source: Quarterly reports

46 The CECL came into force at the beginning of 2020.
Despite the easing of the prudential rules on capital by the supervisory authorities, this may turn out not to be enough for the European banks in the event of a sharp rise in payment defaults, which might then lead to recapitalisations. According to the ECB, the risk of bank bankruptcies has increased sharply since the beginning of the Covid-19 crisis (Figure 27). Should such a risk materialise, it would hinder the ability of the banks to continue supporting corporate financing, thereby contributing to amplify the recession. It would also contribute to increasing sovereign risk, should the implementation of resolution mechanisms prove insufficient. The real risk of triggering a vicious circle between sovereign risk and banking risk could be slighter than in previous crises, however, insofar as a growing proportion of sovereign securities are now in the hands of the central banks.

Figure 26: Bank CDS and stock market prices in Europe

<table>
<thead>
<tr>
<th>Year</th>
<th>CDS Index</th>
<th>Stock Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>2010</td>
<td>700</td>
<td>600</td>
</tr>
<tr>
<td>2012</td>
<td>800</td>
<td>700</td>
</tr>
</tbody>
</table>

Source: Refinitiv Datastream

Figure 27: Probability of simultaneous bankruptcy of at least two major banks

Source: ECB

Towards growing sovereign risk in the medium term

The activation of the automatic stabilisers due to the recession (lower tax revenues and increased expenditure, especially social spending) and specific expenditure to cope with the health crisis will have a considerable fiscal impact, especially in Europe. The OECD estimated in June 2020 that budget deficits could reach 9.2% in the euro area countries in 2020, or even 11% in the event of a second wave of the epidemic (Figure 28). In France, the deficit is set to be 10.4 or 12% depending on which scenario is applied. Public debt, meanwhile, could increase by 27 points of GDP by 2021 in the euro area, to 113% of GDP (Figure 29). In Italy and in Spain, the increase between 2019 and 2021 could exceed 30 points of GDP.

47 OECD Economic Outlook, June 2020.
The suspension of the rules of the Stability and Growth Pact and interventions of the Eurosystem contributed to easing tensions on the sovereign markets, in particular for Italy, and thus increased the fiscal room for manoeuvre required for the economic stimulus in the States with the biggest debt, thus avoiding the threat of a dislocation of the euro area in the short term, at least for the time being. However, the sharp increase in public debt, which may be accentuated if ever a significant portion of State-backed loans are not repaid, necessarily raises the question of its long-term sustainability.

This will depend to a great extent on how the European recovery plan that is currently under discussion is financed. Conceived very much along the lines of the Franco-German proposal of 18 May 2020, the draft “Next Generation EU” recovery plan published by the European Commission on 27 May 2020, aims precisely to limit the risk of a new sovereign crisis, but everything will depend on the final agreement that is found at the end of the negotiations, given the marked opposition of several Member States. The provisional budget envelope of €750 billion (representing over 5.2% of GDP) would be made up mainly of grants (€500 billion) divided out between the countries according to the impact of the pandemic. In addition, financing of the plan would be in the form of pooled

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46 These are mainly the so-called “frugal four”: Austria, the Netherlands, Sweden and Denmark. They put forward a counter-proposal to the Franco-German plan on 23 May 2020, based on granting one-off, non-pooled loans, subject to compliance with fiscal requirements.
debt, via bond issues by the European Union and with a long maturity, since repayments would be spread from 2028 through to 2058.

Regardless of the stimulus plan, the questions of sovereign debt sustainability will necessarily crop up again if the debt and public deficit rules of the Stability and Growth Pact were to be reintroduced prematurely. Quite aside from the question of the date when the suspension of the rules will come to an end, there may be reflection on changing the criteria of the Stability Pact themselves. The European Fiscal Board had indeed published a report assessing the fiscal rules in summer 2019, at the request European Commission, and the current economic crisis could give rise to some proposals for changes. Other avenues might also be considered, such as ringfencing public debt held by the central bank.

1.2.2. Emerging countries in turmoil

In the emerging nations, the impact of the health crisis is proving to be particularly violent, and some of them, such as Brazil, had not yet reached the epidemiological peak by the beginning of June 2020 or were under the threat of an upsurge of the epidemic. Since the beginning of the year, those emerging countries whose activity is largely dependent on exports and tourism have been hit particularly hard by the fall in trade and travel, while those countries that export commodities are facing the fall in oil and other commodity prices, as world demand contracts (Figure 31 and Figure 32).

The economic crisis is also being compounded by a financial crisis: the upsurge in risk aversion resulted in a flight of foreign capital estimated at €100 billion between February and June 2020, according to the Institute of International Finance (IIF), which is five times higher than in the 2008 crisis or the 2013 taper tantrum. The resulting slide in their currencies has contributed to penalising countries with large current account deficits or external debt, such as Argentina, Turkey or Chile.

Figure 31 : Weight of the tourism sector in the emerging economies (% of GDP in 2018)

Figure 32 : Commodity prices (% changes, Year-to-date, data at 11/06/2020)

Source: Refinitiv Datastream

Faced with the crisis, monetary and fiscal policies have been eased, although to varying extents from one country to another, depending on their fiscal room for manoeuvre. This leeway is particularly limited in Latin America, and also in Turkey and South Africa, where public debt has increased sharply over the past decade. Argentina defaulted on its payments again in May 2020 and the restructuring of its debt is under negotiation. On the whole, the debt of emerging countries has increased considerably since the 2008-2009 crisis, especially in the private sector and in China (Figure 35). These imbalances are likely to be increased by the crisis, raising the question of whether the debt might need to be reduced or even cancelled. The IMF has been contacted by some one hundred countries for emergency aid and has argued in favour of reducing the debt of the 76 poorest countries, while the G20 decided on a moratorium on their debt in April, with those payments falling due in 2020 being postponed to 2022 and spread out until 2025.
1.2.3. Valuation risks

- Despite the correction, stock market valuations remain at high levels

Since the correction in Q1, stock market valuations have shown a significant rebound, especially in the United States where the main indices in June were close to the all-time highs they had posted in February. In this respect, the current stock market trends are significantly different from those observed in the wake of the Lehman Brothers bankruptcy in September 2008 (Figure 36).

![Figure 36: Comparative change in stock market indices in the COVID19 crisis and the Lehman Brothers bankruptcy*](image)

* X-axis: number of months; Last observation: 06/29/2020

This trend reflects selective investment policies in securities of the companies that have been least affected by the crisis, but appears decorrelated with actual growth prospects (Figure 37). The evaluation of the effects of the crisis on companies remains a matter of great uncertainty, with a great risk of corporate profits being revised downwards, which might trigger a new market correction. Thus, in mid-June 2020, out of a sample of 95 SBF 120 companies providing guidance before the crisis, only 23% considered that they were able to maintain or provide the market with information about their level of activity and 2020 results in the context of the COVID 19 crisis, with the latter often mentioning uncertainties that remained significant. In this context, the AMF has issued recommendations in favour of transparency on valuation assumptions and processes as half-yearly account publication time approaches. In addition, the crisis may also have delayed effects, the indirect impacts of which on valuations remain difficult to appreciate, raising fears of effects of the Covid-19 crisis on the economy and corporate valuations at a later date. For example, there are the limits and delays in information about the self-employed and SMEs, sectors that are rich in terms of employment but often vulnerable in terms of financial equilibrium.

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Structural trends also affecting asset valuations

There are a number of structural factors that emphasise the importance of valuation processes. First of all, financing that is not listed and is subject to limited transparency requirements has been on a rising trend for several decades. More particularly, financing via unlisted shares now represents almost 76% of total equity financing of French non-financial companies (Figure 39). Valuation of these amounts by the national accounts has been the subject of European harmonisation work and is based on conservative assumptions. The transaction value of unlisted equities is evaluated by applying a multiple (capitalisation ratio) that was initially calculated for listed equities (taking account of the branch of activity) to the book value of their own funds. Finally, differences in the liquidity of the securities are taken into account: for example, a discount of 25% is applied to the value of the own funds of the unlisted shares,51 corresponding to the liquidity premium of listed shares.

This issue of liquidity becomes particularly important in a crisis context, where various market illiquidity factors are likely to have an effect on the value of securities. Among the liquidity criteria, investors particularly value the ability to trade immediately in such contexts, which can result in considerable illiquidity discounts of as much as 30 to 50% in certain cases.52

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51 Valorisation des actions non cotées : un test européen; Bulletin 124 of the Banque de France; April 2004. NB: implementation of this methodology has undergone adjustments and is currently being revised. Nadauld, Sensoy, Vorkink, Weisbach (2016); Liquidity cost of private equity investments: Evidence from secondary market transactions; NBER Working Paper 22404
52 F. Longstaff (2014); Valuing thinly traded assets; NBER Working Paper 20589.
Another factor that affects corporate valuation is related to the use of financial instruments for which valuation processes can be highly complex. More particularly, use of derivatives and hybrid (convertible) financial instruments can introduce model risk into asset valuation. The entry into force of the IFRS 9 standards allows more forward-looking elements to be taken into account in company valuation, but can also induce model risks.\footnote{J. Witzany (2020); Stressing of Migration Matrices for IFRS 9 and ICAAP Calculations, Prague University, Faculty of Finance and Accounting; Working Paper 1-2020, emphasises the importance of the assumptions for correlation, and the model risks induced by use of rating migration matrices, when application of the ICAAP and IFRS 9 standards is based on multiple macro-economic scenarios.}

A growing need for high quality, comparable non-financial data, which is currently unmet and which presents risks that could hamper the sustainable development of sustainable finance

Extra-financial criteria are increasingly integrated into research, credit ratings, benchmarks and investment strategies, making it necessary to produce robust and comparable information. This issue has been and continues to be the focus of many initiatives at domestic and international levels (Table 2): progress is being made, but many obstacles remain in terms of operational and normative convergence. The coexistence of numerous reporting standards and the lack of assurance for reported data contribute in particular to the overabundance of non-comparable and unreliable data, which are not compatible with the long-term development of sustainable finance. The European Commission has also asked the European Financial Reporting Advisory Group (EFRAG) to launch preparatory work on non-financial reporting standards.
Table 2: Past and present French and international initiatives in non-financial disclosure*

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendations of the FSB’s Task Force on climate-related financial disclosures (TCFD)</td>
<td>06/29/17</td>
</tr>
<tr>
<td>Directive 2014/95/EU of the European Parliament and of the Council as regards disclosure of non-financial and diversity information by certain large undertakings and groups</td>
<td>10/22/14</td>
</tr>
<tr>
<td>Guaranteeing the relevance and quality of companies’ non-financial information, Report by Patrick de Cambourg, President of the Accounting Standards Authority, to the Minister for Finance, May 2019</td>
<td></td>
</tr>
<tr>
<td>Fourth AMF report on the social, societal and environmental responsibility of listed companies</td>
<td>11/14/19</td>
</tr>
<tr>
<td>European Financial Reporting Advisory Group (EFRAG) advice to the European Commission</td>
<td>30/01/20</td>
</tr>
<tr>
<td>European Commission request to the IASB to consider the re-introduction of re-cycling through the profit or loss statement of profits or losses realised upon the disposal of equity instruments measured at fair value through other comprehensive income (FVOCI)</td>
<td>03/19/20</td>
</tr>
<tr>
<td>3rd AMF report on non-financial approaches to collective investment management (to be published)</td>
<td></td>
</tr>
<tr>
<td>EU COM Adjusted work programme</td>
<td>05/27/20:</td>
</tr>
<tr>
<td>* The European Green Deal; The European climate pact (non-legislative), Q4 2020</td>
<td></td>
</tr>
<tr>
<td>* Financing the sustainable transition:</td>
<td></td>
</tr>
<tr>
<td>- Renewed sustainable finance strategy (non-legislative), Q4 2020</td>
<td></td>
</tr>
<tr>
<td>- Review of the non-financial reporting directive (legislative, incl. impact assessment), Q1 2021</td>
<td></td>
</tr>
<tr>
<td>* Commission contribution to COP26 in Glasgow; New EU strategy on adaptation to climate change (non-legislative), Q1 2021</td>
<td></td>
</tr>
</tbody>
</table>

* NB: this table is not intended to be exhaustive, but to illustrate the progress made in the valuation of ESG factors that affect companies. Source: AMF.

The definition of more binding disclosure rules, subject to maximal harmonisation, in the context of the upcoming European Non-financial Reporting Directive (NFRD) could also contribute to significant improvements in this respect.

Given the complexity to access and analyse ESG information at corporate level, ESG data providers, including ESG rating agencies and index providers, are playing an increasingly important role towards investors and issuers. In fact, the market landscape has quickly changed over the last twenty years, with the arrival of new players -such as stock exchanges, index providers or credit rating agencies- and several consolidation movements (Table 3). This can lead to an increasing level of concentration, potential heightened risks of conflicts of interest and issues of market power, even though these activities are unregulated.
Table 3: M&A transactions in the ESG data and rating industry (since 2009)

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Target</th>
<th>Acquirer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>February</td>
<td>Innovest (US)</td>
<td>Riskmetrics (US)</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>Sustainalytics (Pays-Bas)/Jantzi Research Inc. (CND)</td>
<td>Thomson Reuters (US), Riskmetrics (US)</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>Asset 4 (Switzerland)</td>
<td>Thomson Reuters (US), Riskmetrics (US)</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>New Energy Finance (US)</td>
<td>Bloomberg (US)</td>
</tr>
<tr>
<td>2010</td>
<td>March</td>
<td>Riskmetrics (US)</td>
<td>MSCI (US)</td>
</tr>
<tr>
<td>2012</td>
<td>June</td>
<td>Responsible Resarch (Singapore)</td>
<td>Sustainalytics (Netherlands)</td>
</tr>
<tr>
<td>2014</td>
<td>June</td>
<td>GMI Rating (US)</td>
<td>MSCI (US)</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>zRating (Switzerland)</td>
<td>Inrate (Switzerland)</td>
</tr>
<tr>
<td>2015</td>
<td>September</td>
<td>Ethix SRI Advisors (Danemark)</td>
<td>ISS (US), Sustainalytics (Netherlands)</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>Vigeo (France) / Eiris (UK)</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>October</td>
<td>Trucost (UK)</td>
<td>S&amp;P (US)</td>
</tr>
<tr>
<td>2017</td>
<td>June</td>
<td>South Pole (Switzerland)</td>
<td>ISS (US)</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>Sustainalytics (Netherlands) –(40 % stake)</td>
<td>Morningstar (US)</td>
</tr>
<tr>
<td>2018</td>
<td>March</td>
<td>Oekom (Germany)</td>
<td>ISS (US), Sustainalytics (Netherlands)</td>
</tr>
<tr>
<td>2019</td>
<td>January</td>
<td>GES International (Sweden)</td>
<td>Sustainalytics (Netherlands)</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>Vigeo-Eiris (France)</td>
<td>Moody’s Corp (US)</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>Beyond Ratings (France)</td>
<td>London Stock Exchange (UK)</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>Four Twenty Seven (US)</td>
<td>Moody’s Corp (US)</td>
</tr>
<tr>
<td></td>
<td>August. (pending)</td>
<td>Refinitiv (ex Thomson Reuters, US)</td>
<td>London Stock Exchange (UK)</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>Carbon Delta (Switzerland)</td>
<td>MSCI (US)</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>Ethical Corp (US)</td>
<td>S&amp;P (US)</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>Robecosam AG-ESG Ratings Business (Switzerland)</td>
<td>S&amp;P (US)</td>
</tr>
<tr>
<td>2020</td>
<td>January/February</td>
<td>Ecovadis (France)</td>
<td>CVC Growth Partners (US), Bain &amp; Cie (US)</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>Sustainalytics (Netherlands)</td>
<td>Morningstar (US)</td>
</tr>
</tbody>
</table>

Source: Companies’ new releases
CHAPTER 2 : MARKET ORGANISATION AND INTERMEDIATION

With the COVID-19 crisis, the entire ecosystem (service providers, market and post-market infrastructures) has been under heavy pressure: at the height of the crisis, between 10 and 17 March 2020, the markets experienced record volatility levels, daily traded volumes tripled and margin calls increased by almost 35%. This ecosystem has shown itself to be resilient and has remained fully functional, despite the concomitant deployment of contingency plans and the need for a widespread reliance on teleworking, which, since this is still on-going, increases cyber risks.

In equity markets, the spike in volatility came along with a deterioration in liquidity, as spreads rose/widened markedly and market depth fell sharply in the second half of March 2020. Besides, the sharp fall in prices led several regulators to ban new short sales between March 17 and May 18, 2020 in order to limit any form of pro-cyclicality that could amplify unidirectional markets. Since then, liquidity conditions have improved even if they have not returned to their pre-crisis level. The revival of activity has benefitted market transparency, since trading has become concentrated more on lit platforms and on the continuous trading session (rather than at the closing fixing, the share of which had been had been on a rising trend lately).

It was in bond markets that liquidity tension was the most pronounced. Indeed, whereas the gradual deterioration in bond liquidity in recent years had not been worrying, the crisis-driven tension between March 9 and 18, 2020, especially in the high yield and short-term debt segments, has been more a cause for concern. The ECB’s announcements on March 18 and the strengthening of the securities purchase program on 4 June 2020, however, rapidly stabilised the market, though settling at lower levels than in early 2020.

Some effects of this first phase of the crisis remain to be fully assessed, such as the impact of the ban on new short sales, and some risks remain:

- In the short term, the impact of a disorderly Brexit at the end of December 2020 and the associated risks are more than ever present, especially in the post-market area where the European clearing house resolution regime is still yet to be adopted;
- In the longer run, structural changes in the markets after MiFid 2 (transparency, balance between different trading modes, etc.) raise all the more important questions as the upcoming massive recapitalization needs induced by the crisis will necessitate a good degree of transparency and markets than function properly.

2.1. EQUITY MARKETS

2.1.1. Falling market capitalisations and strong growth in global volumes since the Covid-19 crisis

After rising sharply in 2019 (+22% to $93.888 trillion), the global equity market capitalisation posted a 13% decline in the first quarter of 2020 following the health crisis, to $81.689 trillion.

However, the observed trend is not uniform from one region to another. The decline affected Asian and European markets in particular, where capitalisations lost 17% and 22% respectively in Q1 2020. In the United States, on the other hand, market capitalisations fell by only 0.4%, with a market capitalisation of $25.532 trillion for the New York Stock Exchange in March.
On a global scale, order book transaction volumes in 2019 fell sharply (-24.5%) relative to 2018. On the other hand, they grew strongly during the period of high volatility in the first quarter of 2020 (+86% to $12.4 trillion). This growth came primarily from American markets (+107%), but also from the Europe-Middle East-Africa region (+75%), while Asia-Pacific markets, for their part, posted a 67% rise over the period.

2.1.2. Worse liquidity but greater use of trading systems conducive to market transparency

High levels of volatility went hand-in-hand with a significant deterioration of equity market liquidity, with spreads increasing by up to 15 basis points and market depth declining from €46,000 on average to €14,000 in the heart of the crisis. Although spreads have tightened significantly since the start of April, the depth at the best limit remains impacted and is still very far from having regained its pre-crisis level.

An analysis of trading volumes shows that this growth was based on transparent trading platforms (lit and periodic auctions). It can be noted, for example, that in the French market the proportion of trading volumes on transparent platforms increased over the crisis period to 46.6% on average versus 43.1% in Q4 2019, in particular reaching its peak (up to 57%) during trading sessions corresponding to the heaviest index falls. This increase took place at the expense of over-the-counter (OTC) trading or trading via systematic internalisers (SIs). Also, it can be seen that, on Euronext, the increase in volumes was due to continuous trading volumes, which accounted for more than 70% of trading volumes on the platform in March. These trends reflect the fact that, in extremely volatile periods, market participants prefer transparent platforms to ensure swift execution of their orders as close as possible to price formation.

Moreover, it is interesting to note that high-frequency trader (HFT) activity has also increased, with a market share of 38.6% in the first quarter of 2020, up 3.4% from the previous quarter, with daily peaks as high as 50% in the depths of the crisis. However, this trend to increased trading volumes went hand-in-hand with a decline in their market share in orders submitted to the market (to 60% for pure HFT players) and a relative stability of the ratio of orders to transactions (which did not exceed 20 orders per transaction) despite the sharp increase in volatility. This reflects a change in the behaviour of HFTs during this period, when they proved more aggressive in transactions and comparatively less swift to change their passive orders in light of much wider spreads. These trends, which have been confirmed over the recent period, show that HFTs have not regained the position they had in the order book before the crisis.

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54 Quantity offered at the best bid and ask prices.
55 Except for the session of 18 March, possibly related to the imposition of the ban on short selling (cf. section 2.1.3).
56 Since the coming into force of MiFID II, the market share of trading volumes during the closing fixing has continued to increase, by as much as 40%. See “Growing importance of the closing fixing in share trading volumes”, 2019, AMF, Risks and Trends.
2.1.3. Highly directional markets which led to a ban on short selling

Short selling (a short position) makes it possible to sell equities without owning them, the aim being to then buy the securities back at a lower price and thus generate a profit. This practice therefore implies the expectation of a fall in share prices.

While it is unanimously accepted that short selling contributes to the orderly functioning of markets by providing liquidity in normal conditions, the impact in periods of stress, notably in a very bearish market, is still highly debated.

Due to the health crisis, the leading European stock market indices posted record declines ranging, depending on the jurisdiction, from -20% to -40% between 2 March and 15 March. Therefore, for the purpose of limiting any form of procyclicality, which could amplify the unidirectional nature of the market, several regulators decided to ban short selling, as provided for in the European Regulation on short selling. Article 23 allows an authority to temporarily ban short selling “when the price of a financial instrument on a trading platform has, in a single trading day, fallen significantly relative to the closing price of the previous trading day on that platform.” Since this authorisation is only valid for at most 72 hours, Article 20 of the Regulation provides for the possibility of restricting short selling over a longer period “in exceptional circumstances”.

Accordingly, France, Italy, Austria, Belgium, Greece and Spain banned increased net short positions on all equities admitted to trading on the platforms that they regulate (provided that the most liquid market was located in the country in question). While ESMA considered that the measures taken by the national authorities in question were “appropriate and proportionate”, European coordination, with a ban on all stock exchanges, proved impossible despite the powers granted to ESMA by the Regulation. However, the threshold for disclosure of net

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58 By ‘falling significantly’, the European system means a fall of more than 10% for liquid stocks, and more than 20% on illiquid equities when their price is more than €0.50, and more than 40% when their price is less than €0.50.
59 Such restrictions can, in this case, apply to the whole market, without being limited to values having experienced a “significant drop”.
60 Mostly, this ban was announced on 17 March for application on 18 March throughout the session, as provided for by Article 23, and was then extended several times over longer periods of time pursuant to Article 20.
61 The ban also restricted the possibility of executing transactions on the financial instruments taken into account for calculating the net short position, namely certain derivative products for which the underlying was one of the shares concerned or an index when the weight of the shares covered by the ban represented more than 50% of the basket of shares underlying the index.
62 Article 26 of the Regulation.
short positions to the regulators was lowered throughout Europe, from 0.2% to 0.1%. All the countries concerned nevertheless worked to achieve an orderly exit from the short selling ban, which was lifted from 19 May 2020.

Thus, at the start of the quarter, short positions disclosed to the AMF (exceeding 0.20%) represented about 0.50% of the total market capitalisation. The Covid-19 crisis initially caused this ratio to practically double, before the short selling ban and the normalisation of market conditions led to a reduction in the ratio, which has now returned to below its pre-crisis level.

Numerous voices opposed the implementation of this measure, pointing to the academic research carried out on previous enacted bans (particularly following the 2008 crisis or during the European sovereign debt crises), which concludes that there is a significant deterioration of liquidity and an increase in price inefficiency for the securities concerned.

However, it should be noted that, contrary to past experience, e.g. in 2011 for stocks in the financial sector, this ban did not target a sector or a restricted number of stocks but all the stocks on the markets in question. The fact that other jurisdictions, including markets having similar characteristics, did not decide to apply the ban, should make it possible to have an appropriate counterfactual scenario to assess the effects of this measure. A rigorous, careful investigation should therefore be carried out to determine whether this ban had an impact on the market’s functioning.

2.1.4. Structural changes which are ongoing and call for a revision of the MiFID II directive

Two years after MiFID II came into force, the structure of equity markets has been profoundly altered, notably by the emergence of systematic internalisers (SIs), which is confirmed.

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63 The Regulation provides that any individual or legal entity holding a net short position equal to or greater than 0.2% of the capital of a company whose shares are admitted to trading on a European market, provided that the main market for the equity in question is located in Europe, shall disclose this position to the competent authority within one trading day.


66 For a detailed analysis, see “Systematic internalisers: their role in the equity market structure and in price formation”, AMF, May 2020.
In the French market, systematic internalisers\textsuperscript{67} represent a total market share which now ranges between 15% and 20% depending on the month. It nevertheless appears that SIs’ contribution to transparency and hence to the process of price formation remains most limited/highly marginal:

\begin{itemize}
  \item Only half of these volumes contribute to price formation, i.e. between 8% and 10% of the total trading volumes in French equities.
  \item An analysis of publicly offered prices and quantities reveals that a large part of the activity of SIs is not subject to pre-trade transparency requirements: only 22% of the amounts traded via SIs during the continuous phase are subject to pre-trade transparency for liquid French stocks. This proportion is equivalent to 1.4% of the total amounts traded in the market during this phase on these same stocks.
  \item 40% of the trading volumes via SIs do not comply with the harmonised tick size in September 2019\textsuperscript{68} regime which apply to them since end of June 2020.
  \item Moreover, on half of the price-forming volumes, 46% of the amounts traded via the SIs are apparently traded at an improved price compared with that on Euronext, including 12% with a significant improvement (more than 1 tick).
\end{itemize}

As regards periodic auctions, they nevertheless continue to increase, and now account for around 4% of the volumes traded on venues (versus 0.5% at the start of 2018). During the auction call periods, the operator collects the offers to sell and offers to buy. At the end of this period, uncrossing at the price which maximises trading volume is performed according to rules of priority which may differ depending on the venue. Unlike venues functioning with a central order book, periodic auction operators are only required to disclose the indicative price and volumes for auction selling. Their level of pre-trade transparency is therefore far more limited.

These changes, together with the weight of the SIs and periodic auctions, raise questions regarding MiFID II’s contribution in terms of market transparency and the balance of the regulatory corpus applicable to the various trading methods. These questions are posed, moreover, not only for equity markets but also for non-equity...
markets, especially in the bond segment. An analysis of the transparency measures introduced by the new regulations on bond trading, and in particular on the conditions of access to and use of post-trade transparency data by market participants, shows that trade transparency is currently insufficiently accessible, reliable and appropriate for investors to adopt it fully.\(^6\)^

These developments are currently being studied and are the subject of a consultation initiated by the European Commission in view of a technical review of the regulatory framework.

### 2.1.5. Autocalls: a materialisation of market risks and a potential source of risks to financial stability

The impacts of the Covid-19 crisis on markets have highlighted the vulnerabilities of certain types of product, notably autocalls.

#### Characteristics of autocalls

Autocalls are structured debt products (EMTNs) generally based on equity indices. Their name is due to the fact that they can be “called” before maturity: typically, if, at pre-established periodic contract dates, the underlying index exceeds the level it had when the product was issued, the product pays investors a coupon that is often high (e.g. 8% to 10% per year), and the autocall expires prematurely. Failing that, it expires at maturity. At that date, there are several possible cases: either a high level of the underlying assets justifies a coupon payment, or a limited fall in the underlying assets activates a capital guarantee, or, in the event of a sharp fall in the underlying assets, the protection against extreme risks is deactivated and a capital loss is realised in proportion to the fall in the underlying assets since the product's issuance (Figure 8). In practice, the probabilities of gain are concentrated mainly on the first coupon payment date and the date of expiry, capital losses being realised only at maturity (Figure 47).

#### Table 4 : Exemple d’une structure type d’autocall

<table>
<thead>
<tr>
<th>Issuance date</th>
<th>T0 - at start of year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maturity date</td>
<td>End of year 5 (T5)</td>
</tr>
<tr>
<td>Early repayment</td>
<td>Early repayment at: 100% + i x 10.0% on the 1\textsuperscript{st} year i = 1 to 5 when EURO STOXX 50 is higher or equal to its value at product inception</td>
</tr>
<tr>
<td>Repayment at expiry</td>
<td>If the index is higher or equal to its value at product inception, final repayment at 150% of initial investment value at end of year 5</td>
</tr>
<tr>
<td></td>
<td>Or if the final index value is at most 30% lower than its initial value, reimbursement of the principal (100%, no gain)</td>
</tr>
<tr>
<td></td>
<td>Otherwise, if the index is strictly lower than 70% of its value at product inception, the 100% reimbursement of the principal is reduced by the negative performance of the index.</td>
</tr>
</tbody>
</table>

Source : AMF.

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\(^6\) See “Overview of bond transparency under MiFID II”, May 2020, AMF.
Figure 46: Simulations of the performance of an autocall
(5-year maturity, 10% coupon, capital protection: 70%)

Figure 47: Discounted expected payment streams at issuance of an autocall

Source: AMF - Investor gain or loss simulations according to the trajectory of the product benchmark. Each curve/color indicates a reference index trajectory. The legend indicates the amount of the capital gain or loss according to this trajectory.

Source: Rothschild - Coupon payment dates (e.g. years) are on the abscissa. At expiration (year 8), the probability of coupon payment is very low, the exercise of a capital guarantee probable, and the probability of capital loss more reduced but not negligible.

Autocalls are structured, issued and distributed mainly by investment banks, primarily to retail investors but also to institutional clients and wealth management firms. The market has expanded significantly in some countries in an environment of low interest rates and the search for yield, historically in Japan, and in recent years in South Korea, and more recently in France as a result of active promotion.

En effet, contrastant avec le reste du marché des produits structurés, la commercialisation en France d’autocalls est en progression constante depuis 15 ans. Ainsi, on dénombrait plus de 1 000 autocalls commercialisés entre janvier et novembre 2018 représentant un volume de 10,6 milliards d’euros.

The complex structure and valuation create risks

Autocall issuers are exposed to delta risk (sensitivity of the product’s value to changes in the price of the underlying) and vega risk (sensitivity to price volatility of the underlying). Those exposures are highly non-linear and their hedges vary, although differently, when approaching the capital protection barriers:

- **Delta**: A fall in the price of the underlying towards the protection barriers reduces the delta significantly and discontinuously, thus the need to hedge it by put-down-and-in options. Accordingly, the issuer sells his hedge.

- **Vega**: Exposed to volatility risk (positive vega), the issuer typically hedges this exposure (sale of volatility) by options of identical maturity to the autocall, whose strike price is close to 90% of the level of the underlying at the time of issue. The uncertainty regarding the product’s residual life therefore requires very dynamic hedging, generating major flows in options on the volatility of the underlying. Near the low barrier, the issuer sells the hedge on long maturities to take advantage of movements in the underlying, and when approaching the high barrier (triggering payment of the coupon and expiry of the product), they sell it to buy coverage for the risk of a coupon payment in the near term. These transactions have effects on:
  - The term structure of volatility: The product’s expected maturity decreases when the underlying goes above the high barrier (i.e. the probability of the product being called increases). In that case it is necessary to redeem long coverage and “sell volatility” that is shorter. The opposite occurs when the underlying asset approaches the low barrier, with a need to sell long volatility and buy short volatility. These flows significantly impact the term structure of volatility.
  - The volatility smile, which characterises the heterogeneity of the implied volatility valuations by options: near the high barrier, likely calling encourages the issuer to cover its position by call options. Conversely, near the low barrier, the likely activation of put options makes it necessary to sell the coverage. The issuers thus exert strong pressure on the put seller/call buyer smile.

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70 Source : AMF study.
Generally, these hedging flows tend to concentrate large trading volumes in time and on the derivatives for which there exists a secondary market, often those of the Euro STOXX 50. The magnitude of these hedging flows therefore makes autocall risk management dependent on the growth in and liquidity of the derivative markets concerned, in an environment in which the availability of protection (the natural market counterparties) may be scarce. Hedging transactions can therefore have significant market impacts, especially in narrow futures markets or via their concentration at the closing fixing. In that case they may be self-amplified by the retroactive effect of the price of derivatives on the need for hedging, and even amplify further the price fluctuations of the underlying index (“second-round effects”). The impact of these sales on option prices may also be exacerbated by market participants who anticipate them.

These phenomena create risks for market stability. This is due to the dynamic covering of exposure by autocall issuers which is described in detail below and results in very substantial movements in the vicinity of certain thresholds, movements which may exceed markets’ capacity for absorption and trigger a vicious circle. Indeed, the threshold effects of both delta hedging and vega hedging may have major impacts on market equilibria, especially those of derivatives referencing the Euro STOXX 50. The market impact of the unwinding of positions may also be amplified by the retroactive effect of derivative price fluctuations on the need for coverage. An additional effect is related to the high sensitivity of the products’ value to dividend expectations. This sensitivity increases sharply when the price of the underlying asset falls, as the product’s probable lifetime increases. This generally results in dynamic management of exposure to the dividend futures (or OTC swaps) markets, which are not very liquid for want of natural buyers, and therefore dependent on the provision of liquidity by market intermediaries, and vulnerable to stress. Sharp falls in the index can therefore also have significant impacts on the dividend futures market.

These market risks were illustrated by various past crises: the 2012 Japanese Uridashi crisis (on the Nikkei Index), South Korean autocalss in 2014-2015 (on the Hang Seng CE index), Natixis in Q4 2018 (€265 million loss on South Korean products). They materialised again during the Covid-19 crisis. In Europe, the levels of the main indices went through a critical, so-called “peak vega”, zone leading to a selloff of volatility hedges. As the capital protection barriers approached, this led to selling delta risk option hedges. The revision of the dividend outlook (for Euro STOXX 50 stocks down 50% between the end of February and the start of April 2020) had significant impacts on the dividend futures market. These massive hedge sales therefore took place at the same time as the falls in the index levels. For example, the 38% fall in the level of the Euro STOXX 50 translated into a 60% fall in the Euro STOXX 50 dividend future of maturity 2021 (Figure 48). These adverse market trends resulted in substantial losses realised by traders. In particular, the major French banks booked significant losses on their equity derivatives trading activity, although some also booked losses for not having hedged against dividend risk. These losses seem to be leading some banks to review the dependence of their business model on the activities in question.

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71 It remains difficult to positively demonstrate a causal relation.
72 Société Générale SA and BNP Paribas SA both reported a loss of about €200m on their structured product activities in the first quarter of 2020. Cf. e.g. Financial News: Here’s how French banks lost big in the complex world of structured finance, 15/05/20.
2.2. BOND MARKETS

2.2.1. Market liquidity sharply deteriorated in the depths of the crisis, leading central banks to intervene massively in the markets

- Liquidity indicators which deteriorated significantly before the announcement of the Eurosystem intervention

The level of bond market liquidity is assessed by monitoring three complementary indicators illustrating three different facets of liquidity\(^\text{73}\): (i) trading volumes; (ii) the number of different bonds traded each day; and (iii) the interquartile deviation of trading prices observed over a day’s trading, which provides a measure of the price dispersion at which the most liquid securities were traded.

As for equity markets, trading volumes increased significantly during the crisis, reaching a daily average of €42 billion in the first three weeks of March, compared with €28 billion before the crisis. This peak activity is also found in the number of different bonds traded each day, which increased from 1,200 securities before the start of the crisis to 1,350 securities until the ECB’s announcement of its purchase programme on 18 March (see below). Following that announcement both indicators fell, returning to their pre-crisis levels. Note that the moves seen are not the same for sovereign debt and debt issued by private entities. While the volume and number of bonds traded during the crisis increased for both types of debt, they continued to increase for corporate bonds while being concentrated on a more restricted number of bonds after the ECB’s announcement, and stabilised at their pre-crisis level as of mid-April. Also, the increase in volumes seen following the start of the Eurosystem interventions was due to investment-grade bonds, which alone are eligible for the corporate-bond purchase programmes.

Figure 50: Number of different bonds traded throughout the day
(moving median – 5 days)

Source: AMF, transaction reporting. The green bar corresponds to 18 March, the date of announcement of the PEPP and 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 displayed by market makers, this indicator is based on actually real prices. This is especially important in that, in times of crisis, it is not rare to observe a significant difference between posted prices and the prices at which trading actually takes place in the market. 74

An analysis of this indicator reveals that practised prices deteriorated sharply as of early March, due to the market shock generated by the fall in oil prices on 9 March, and eased only after the announcement of ECB intervention on 18 March. For example, in the corporate segment, the median price dispersion observed increased from about 45 bps to over 250 bps in the depths of the crisis. Likewise, the price differential observed on sovereign debt surged from 12 bps to 70 bps in the same period. Taking credit quality into consideration, we find a deterioration of the same magnitude for investment-grade and high-yield debt. However, although easing was observed on both these segments after the ECB announcement, the stabilisation took place at levels higher than those seen pre-crisis. Moreover, it took place at the expense of high-yield securities, which posted a 50 bp price differential, 75 bps higher than that observed on investment-grade securities.

The red bars refer to the steepest market falls observed (on 9 and 12 March). The green bars correspond to 18 March, the date of announcement of the PEPP and the ECB measures to counter the crisis, and to 26 March, the effective programme starting date.

☐ Short-term debt market suffered severe impact

The market for short-term negotiable instruments (NEU CP: Negotiable EUropean Commercial Paper) is used by financial and non-financial companies to cover their short-term borrowing requirements. Commercial paper issued on this market is an unsecured debt instrument with a maturity of well below one year. This is also a key market for money market funds, which are significant buyers of short-term financial and non-financial debt.

The outstanding debt on the European market stands at €420 billion, including €75 billion in corporate debt issuance. The French market represents a significant proportion of these amounts, with €275 billion in outstanding debt, especially in the corporate segment where the outstanding debt amounts to €57 billion, i.e. 75% of the European market.

Source: Banque de France
From the start of the crisis, this market experienced major disruptions due to a combination of three factors:

- significant redemptions for money market funds (€46 billion in March, cf. Chapter 3), which increased these funds’ liquidity requirements, thus exerting significant pressure on the NEU CP market;\(^{75}\)
- A lack of market animation by financial institutions, which were hardly present for issuance and not very inclined to buy debt, or at prices judged very debased, not only on the corporate debt segment but also on their own securities;
- Lastly, a preference for liquidity by fund managers who wished to ensure they could meet any further spells of redemptions, consequently limiting corporate issuance to longer maturities.

As of March 13, when more than 3 billion euros had been issued in one day by corporate issuers, the latter were only issuing 700 million euros per day the week of March 16 and an average of 170 million the following week before the start of the Eurosystem purchases\(^{76}\).

Faced with this situation, the European Central Bank decided to make sufficiently creditworthy short-term debt securities eligible for the purchase programme (Box 3).

Initially, despite the ECB's intervention, the Eurosystem purchases struggled to:

- boost the revival of issuance on the longer maturities (more than 3 months);
- generate interest for the programme in unsecured securities segments.

The situation has eased significantly since mid-April, with issuance amounts overall on the increase, and new issues on slightly longer maturities. However, in the current situation of crisis and growing cash requirements for companies, the shortfall in issuance for French corporates is estimated at €10 billion by the French Association of Corporate Treasurers (AFTE).

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**Box 3 : Massive intervention by the European Central Bank in debt markets to maintain liquidity**

On 12 March 2020, faced with the economic repercussions of the health crisis, the European Central Bank announced an initial series of support measures, including an expansion of the Asset Purchase Programme (APP) by €120 billion by the end of 2020 to include private-sector securities.\(^{77}\)

These measures, judged insufficient and given a negative reception by the markets,\(^{78}\) together with worsening market conditions and economic outlooks, led the ECB to step up its stimulus policy.

Accordingly, 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, which thus came on top of the APP. On 4 June, the ECB announced a €600 billion extension of the PEPP, giving a total of €1,350 billion allocated, with purchases being made up until “at least the end of June 2021”. These purchases concern all the eligible asset categories under the existing Asset Purchase Programme (APP). Moreover:

- For the first time, short-term debt securities of sufficient creditworthiness also became eligible for purchases.\(^{79}\)
- A derogation to the eligibility criteria for securities issued by the Greek government was granted for purchases made under the PEPP.

Accordingly, since the start of the crisis the Eurosystem has purchased, since 26 March 2020: more than €12 billion worth of private-sector assets under the CSPP, around €70 billion worth of sovereign debt under the PSPP (Public Purchase Programme) and around €235 billion worth of assets under the new PEPP (including 80% of sovereign debt securities, 5% of corporate bonds, 14% of commercial paper and 1% of covered bonds).

While a large part of the purchases were aimed at propping up the secondary markets in March, the Eurosystem intervened more extensively on the primary market in April, profiting from the rebound in issuance.

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\(^{75}\) In normal times, money market funds manage to honour their redemptions with the cash generated by securities reached maturity.


\(^{77}\) The private-sector securities purchase programme (CSPP, Corporate Sector Programme), one of the components of the APP initiated in 2016, was terminated in December 2018. It had been reactivated since 1 November 2019 for an amount of €20 billion per month.

\(^{78}\) On the same day, the United States banned citizens of most EU countries from entering their territory. The CAC 40 posted the steepest decline in its history during the session of 12 March, when it fell 12.28%.

\(^{79}\) According to the ECB, French securities represent 80% of the securities eligible for the CSPP, with 10% for Belgian corporates.
2.2.2. The 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.

Driven by post-crisis regulatory requirements, the demand for safe assets has increased sharply in recent years, making the repo market’s role all the more important. This market is therefore growing constantly: at the end of 2019, with a value of €8.31 trillion, the European repo market grew by a further 5.9%. This market has experienced some tensions in the past, and more recently in the United States, forcing the Fed to inject around €53 billion on 18 September 2019 by issuing its own repo bid to bring down refinancing costs by increasing the supply of cash.

Like other markets, due to the health crisis the European repo market experienced tensions in the first two weeks of March. Lending rates posted a significant decline during the period: in the general collateral (GC) segment, lending rates on German bonds tightened by around 20 bps, and those on Italian bonds by 8 bps.

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80 See, 2017 “Markets and risk outlook”, AMF.
81 The Fed had not intervened in the repo market for about the past 10 years. The cash injections have continued since then at a rate of between $75 billion and $120 billion per day. Before the health crisis occurred, it was planned that these injections would be maintained until the second quarter of 2020.
However, the announcement on 18 March of implementation of the PEPP contributed to normalisation of the market, which was further reinforced in early April by the addition of temporary measures easing the guarantees for the Eurosystem's credit transactions designed to provide the banks with liquidity by:

- Acceptance of loans granted to non-financial companies, SMEs and self-employed workers, and to households, which are guaranteed by the state and the public sector as collateral for repo transactions;
- Easing of the conditions for acceptance of their credit ratings by the banks themselves, based on internal rating systems approved by the supervisory authorities;
- Raising from 2.5% to 10% the maximum proportion of unsecured debt instruments issued by any other banking group in a lending institution's collateral basket;
- A derogation to the minimum credit quality requirement for debt instruments issued by Greece with a view to accepting them as collateral for Eurosystem lending transactions;
- An across-the-board 20% reduction in the discounts applied to collateral.

These measures, announced on 7 April, are to be reassessed at the end of 2020.

2.3. MARKET INFRASTRUCTURE

2.3.1. Resilient trading platforms despite record trading volumes and volatility

- Exceptionally high volumes

Daily volumes traded reached more than 10 billion euros on Euronext compared to 3 billion euros on average normally. Similarly 19 million orders were placed on a single day at the height of the crisis against 4 million usually. Despite these volumes, the infrastructure was resilient and fully functional, with no incident to report.
Circuit breakers have ensured proper functioning of the market

This crisis provided an opportunity to review the crucial role played by circuit breakers in the markets. These mechanisms allow markets to slow down when volatility becomes excessive by interrupting trading for a few minutes. There are two types of circuit breakers:

- **A market wide circuit breaker**: this is the case on the New York Stock Exchange (NYSE) where the circuit breaker implemented following the flash crash of May 6, 2010 is calibrated to interrupt all trading. Accordingly, the system provides for trading to be suspended for fifteen minutes when the S&P 500 index falls by more than 7%. If the index drops by more than 13%, a second suspension of the same duration takes place. If the index were to lose 20%, the trading session would be suspended. The 7% circuit breaker was activated four times between March 9 and March 18;

- **A trading halt for the asset concerned**: This type of circuit breaker prevails in Europe. On Euronext in particular, trading is automatically interrupted on a security for at least 3 minutes as soon as a price variation of +/- 10% compared to versus the reference price would be/is triggered if the/an order was executed (the threshold is set at +/- 8% for blue chips). In this case, the reference price corresponds to the opening price for the session concerned. A “dynamic” circuit breaker complements this so-called “static” circuit breaker. In this respect, the reference price is adjusted after each transaction and corresponds to the last negotiated price. Thus, any variation of +/- 5% compared to the reference price induces a suspension of activity for at least 3 minutes.
Accordingly, circuit breakers were triggered up to 49 times a day for CAC 40 securities during the most volatile sessions.

2.3.2. Significant margin calls by clearing houses

The rise in volatility also led to a sharp increase in margin calls by clearing houses during the crisis. Thus, on LCH SA, the initial margins held increased by almost 35%. The calls for daily variation margins, for their part, reached on average 2 billion euros in the second half of March versus 600 to 700 million euros on average outside this period.

At this stage, there has been no significant default, apart from the loss of USD 285 million by ABN Amro due to one of its customers’ inability to meet its margin requirements. The positions were closed by the clearing member with no impact on the other members or the clearing house.

This crisis, and the consequent margin calls, led to the resurgence of structural issues and associated risks, the materiality of which could arise in the more or less short term:
The pro-cyclical nature of margins, in particular with the potential impact of rating downgrades in the near future which would move a significant number of investment grade securities to high yield.

The absence of a European resolution regime while the United Kingdom confirmed its effective exit from the European Union on December 31, 2020.

2.3.3. Sharp increase in settlement fails rates but no major disruption of settlement services

The significant rise in trading volumes resulted in a sharp increase in volumes settled by Euroclear in March 2020. This increase as well as the impact of constraints linked to the confinement of back-office teams were reflected in sharply rising rates of settlement fails. Average daily volumes settled amounted to 450 billion euros on average in March 2020, against 350 billion at the end of 2019. Daily settlement fails were of the order of 18 billion euros in March 2020 (i.e. 4%), against 7 billion at the end of 2019.

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However, the increase in settlement fails is spread across all members, as no single member would appear to stand out. In addition, 70% to 80% of fails are settled the day after their occurrence. The rate of settlement fails remained at high levels in April, but returned to normal by the end of the same month.

2.3.4. The massive use of teleworking entails challenges in terms of business continuity

The lockdown led market intermediaries to rely massively on teleworking. This new way of operating presents a number of significant challenges, in particular in terms of audit trail and recording of front office conversations, detection of suspicious transactions, back office processing and regulatory compliance. National market authorities, including the AMF, but also ESMA have sought to offer their best support to players by specifying their expectations and introducing a degree of flexibility where possible (for example by delaying the entry into force of the SFTR or CSDR regulations).

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82 See. Chapter 1 p.13.
83 Regulation (UE) 2015/2365 on the transparency of securities financing transactions known as SFTR regulation (Securities Financing Transaction Regulation).
As with infrastructure, the vast majority of players were able to ensure the continuity of their activities without major issue. The deployment of technological solutions by back offices enabled to comply with registration obligations and to absorb negotiated volumes, thus making it possible to limit the duration of settlement fails (see above). As a result, there has been no massive dysfunction or significant increase in the number of complaints to the AMF.

2.3.5. The crisis exacerbated cyber risk

IT risks, which already existed before the epidemic, were exacerbated by the Covid-19 crisis, which contributed to several vulnerabilities. The large-scale deployment of teleworking could well persist, and the risks involved will probably remain significant.

Teleworking was the preferred solution to ensure operational continuity of the work of companies and government departments, while protecting the health of employees. The unexpected, rapid and massive use of this method of organisation subjected existing information systems to loads exceeding those could have been foreseen, thereby making them more vulnerable. As regards new systems deployed urgently, these could as a consequence be more vulnerable.

The environment of employees working at home proves less conducive to the protection of sensitive information and IT security, since these employees can be more tempted to use programs or applications which are less secure, or even personal equipment. The use of unprotected methods of communication (unsecured audio- or video-conferences, remote document sharing, etc.) also increases vulnerabilities.

The chances of scams succeeding are increased in the environment created by Covid-19: employees are less surprised by the unavailability of their customary partners or by requests for communication taking place via unexpected means. For employees unsettled by the crisis, the vigilance threshold is lowered and they may be less mistrustful faced with what proves, for example, to be an attack taking place via a fake message from their employer (e.g. human resources), a call from a fake supplier, prospecting by a fake new customer, etc. For example, there have been numerous scams exploiting the unmet demand for health protection equipment (hydroalcoholic gels, masks, gloves, etc.).

Cybercriminals can also exploit anxiety due to the pandemic to more easily send ‘boobytrapped’ fake alert emails containing ransomware. Anxiety and fear related to the pandemic make their targets more vulnerable, readerier to open the file or the web link which will corrupt their computer system. Accordingly, the cybersecurity firm Carbon Black noted that ransomware attacks had increased by 148% in March 2020 compared with February 2020, the financial sector being a prime target, with a 38% increase in cyberattacks.

Google, meanwhile, identified in April 2020 an average of 18 million infected emails referring to Covid-19 (in addition to 240 million spams related to Covid-19).

Apart from the specific context of Covid-19, according to a study by the Bank for International Settlements covering 100,000 cyberattacks concerning all sectors of activity (worldwide, 2002 to 2019), it is the financial sector which structurally incurs the most attacks. However, it suffers from them relatively less due to more substantial investments in the security of its IT systems. In contrast, businesses in the field of crypto-assets are apparently extremely vulnerable. Finally, the use of cloud computing is expected to reduce the impact of small-scale attacks but would expose users to a major extreme risk in the event of a large-scale attack endangering the cloud itself.

Cf. newsflashes 61 to 65, “Economic interference” by the DGSI.
2.4. DERIVATIVES MARKETS

2.4.1. A risk level which is stabilising on OTC derivative markets

The total gross notional amount of OTC derivatives worldwide continued to grow, to $558.504 trillion at the end of 2019 after peaking at $640.351 trillion in June 2019. Interest rate derivative contracts still account for 80% of these total notional amounts, at $448.965 trillion.

The growth in total notional amounts has displayed a seasonality effect since 2016, with a tendency to 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.

Despite a slight increase in 2019, the gross market values (the sum of the net asset value of contracts) are tending to stabilise at low levels reflecting the trend to decline observed since the peak related to the 2008 crisis. They stood at $11.599 trillion at the end of 2019.
Gross credit exposure—an aggregate counterparty risk indicator for derivative positions that is not sensitive to compression—has also tended to stabilise, standing at $2.4 trillion at end-2019. It now represents 20% of gross market values, versus 25% in 2008.

All in all, 2019 was a year marked by some stabilisation of the indicators, again confirming the reduction in risks related to OTC derivative operations and the impact of the post-crisis regulations, in particular the central clearing obligation.

In detail, 76% of the notional amounts of interest rate derivatives and 56% of credit default swaps are now centrally cleared, i.e. $344.053 trillion and $4.239 trillion respectively at end-2019.

2.4.2. The entry into force of initial margin requirements put off by one year due to the crisis

The initial margin and variation margin requirements for non-cleared derivatives have gradually come into force since February 2017. At present, they concern counterparties for which the average annual notional amount of transactions on non-cleared OTC derivatives exceeds €750 billion (phase 1 to phase 4).

At the end of 2019, the International Swaps and Derivatives Association (ISDA) estimated the total amount of margins collected by the 27 largest market participants at $1.128 trillion, up 11% from end-2018.

In detail, initial margins received in accordance with regulatory requirements increased significantly to $111.2 billion at the end of 2019, up 29% compared with end-2018. Initial margins paid in accordance with regulatory requirements followed the same trend, increasing by 31% to $112.3 billion. Margins received as discretionary payments, for their part, declined by 8% to $72.5 billion at the end of 2019.

Variation margins also experienced a sharp increase in 2019 (compared with a decline in 2018): variation margins received increased by 10% to $944.7 billion and margins paid by 29% to $754.7 billion over the same period. Note that nearly half 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%). Note that in the case of initial margins received within the framework of discretionary payments, the proportion of cash is around 48%.

On the other hand, variation margins consist of cash (83% for regulatory margins and 71% for margins paid on a discretionary basis).

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89 Here, ‘gross’ refers to the non-collateralised nature of the exposure.
Difficulties identified due to the large number of counterparties affected by the entry of phase 5 in September 2020, which aimed to subject to initial margin requirements entities having positions exceeding €8 billion, had given rise to an initial adjustment to the regulations. In July 2019 the Basel Committee and the IOSCO published a revised regulatory framework stipulating that the threshold applicable in September 2020 would be raised from €8 billion to €50 billion and that the €8 billion threshold would be postponed to September 2021 (thereby splitting the last phase into two).

Due to the health crisis, the Basel Committee and the IOSCO decided, last April, to extend by one year the last two phases of implementation in order to provide companies with extra operational capacity to respond to the immediate impact of Covid-19, and at the same time enable entities to comply properly with these requirements.
CHAPTER 3 : ASSET MANAGEMENT

The shock associated with the coronavirus crisis proved, on a global scale, all the more acute for the asset management industry as 2020 began with very high valuation levels and inflows had been very buoyant in 2019. In France, despite the drops in market values recorded in March-April, simultaneous redemptions remained very limited in equity and diversified funds (equity funds actually registered positive subscriptions), calling into question the traditional assumption that there is a correlation between flows and fund performance. This is reassuring about the risk of a vicious circle between outflows and negative fund performances. Redemptions were mainly concentrated in money market funds, which fell by €46 billion in March, more than double the flows traditionally recorded over this period, reflecting companies’ increased cash requirements. Despite the temporary freeze on the market for monetary instruments (freeze lifted by Eurosystem interventions), these funds remained open. They honored the demands of their investors as bank deposits increased by comparable amounts, recalling the importance of assessing risks at a global level, with due consideration for the interconnections between all the players. The crisis has served as a reminder that the European MMF market remains relatively fragmented: the impact of the crisis differed a lot between the main jurisdictions of domicile, reflecting in particular the different degrees of currency exposure and accounting depreciation rules (funds denominated in dollars, as well as VNAV and LVNAV thus seem to have been particularly concerned by redemption requests).

Systemic risks did not materialise this full-scale stress test, the shock of which may have exceeded the assumptions used in previous theoretical macro stress tests. These exercises did not take into account the presence of liquidity management tools, whereas these facilitate shock absorption by the funds. Even prior to the crisis, the whole range of such tools had been introduced into French law to enable managers to use them. They have accordingly been activated in a number of cases. Wider adoption of these tools was encouraged by the European Systemic Risk Board in its communication of 13 May 2020. 90

The ETF market, despite multiple points of vigilance, has also been generally resilient. With index management, private finance is also an important growth driver for asset management.

In an environment characterised by strong interdependencies and interactions between the different sectors of the financial sphere, active discussions between the different national regulators has proved to be a crucial asset. The process of harmonising the rules and applying them across the different European jurisdictions, along with coordinating efforts effectively, must continue in order to deal effectively with the frequent cases where there is a difference between the asset management company’s country of registration, the fund’s country of domicile and the fund’s country of marketing.

3.1. INCREASE IN THE AUM OF COLLECTIVE INVESTMENT SCHEMES WORLDWIDE

- Cumulative assets under management in worldwide collective investment schemes were close to €50 trillion in December 2019

According to the European Fund and Asset Management Association (EFAMA), the net asset value of collective investment schemes worldwide (open-ended funds, excluding funds of funds) reached €48.9 trillion at the end of 2019, under the combined effect of strong inflows (+€1.9 trillion over the year) and a significant valuation effect (€6.1 trillion over the year).

After the sharp decline at the end of 2018 due to the market downturn (a valuation effect of -€2.6 trillion in Q4), fund assets grew by almost 20% over the twelve months of 2019.

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90 European Systemic Risk Board (2020), Use of liquidity management tools by investment funds with exposures to less liquid assets, 13/05/2020.
Even when omitting the fall in the markets in the fourth quarter of 2018 and using the high point at the end of September 2018 as a benchmark, net asset growth reached 12.8% in fifteen months compared with an 8.0% rise in equity markets over the same period (MSCI World Index)\(^\text{91}\).

**Figure 64**: Net assets of worldwide collective investment schemes, by major fund domicile jurisdiction  
(in EUR trillion, left; as percentage of total, right)

Source: EFAMA, Worldwide historical public report Euro 2019-Q4

- In terms of assets under management, 47% of funds are domiciled in the United States

With €22.9 trillion, the United States accounts for nearly half of worldwide collective investment schemes in terms of where the funds are domiciled.

**Figure 65**: Breakdown of assets under management in Q4-2019 (left) et and historical view by major fund domicile region (right, in EUR trillion)

Source: EFAMA, Worldwide historical public report Euro 2019-Q4

- Worldwide inflows rebounded sharply from 2018, with record inflows in the United States

Net asset growth benefited from the rebound in financial asset prices that immediately followed the correction at the end of 2018, but also from a massive inflow of investments amounting to almost €2 trillion in aggregate, particularly in the second half of 2019. Quarterly inflows in the United States indeed reached an all-time high in Q4 2019, at €361 billion. At the end of the year, US funds recorded net inflows of more than €1 trillion in 2019.

\(^91\) See MCSI World Index (USD), [https://www.cnbc.com/quotes/?symbols_WORLD](https://www.cnbc.com/quotes/?symbols_WORLD); in 2019 alone, the index growth rate was 25.2% (2358.47 at the close on 31/12/2019 compared with 1883.90 at the close of 31/12/2018)
The start of 2020 therefore followed a year of continued strong rises in valuations and very dynamic inflows (with an all-time record for worldwide inflows in Q4 2019). The scale of the stock market correction associated with the Covid-19 crisis is certainly partly due to a starting position that was marked by over-enthusiasm.

Note: According to EFAMA, ETF net assets rose from €3.864 trillion to €4.515 trillion between end-2018 and end-2019, an increase of 16.8% (slightly less than the aggregate growth of all funds). Net inflows into ETFs reached €219 billion over the year (+5.7% of net assets at end-2018, compared with +4.8% for all funds).

3.2. THE AGGREGATE NET ASSET OF EUROPEAN COLLECTIVE INVESTMENT SCHEMES INCREASED BY 16% IN 2019, THAT IS THE LARGEST GROWTH RATE IN 10 YEARS

The aggregated net assets of the European funds reached €16.7 trillion by the end of December 2019. The sector is particularly dynamic in Ireland and in Luxembourg, which translates in a relative erosion of the market shares in other jurisdictions (France, Germany and the United Kingdom).
In terms of inflows, against a backdrop of massive subscriptions worldwide, French, Dutch and UK funds are atypical. These three jurisdictions are among the rare exceptions to have recorded net redemptions in 2019. German, Luxembourg and Irish funds, on the other hand, did benefit from positive flows.

3.3. IN FRANCE, DISCREETIONARY MANAGEMENT SAYS DYNAMIC AND GROWS BY 7% IN 2019

The scope of the asset management industry in France includes both collective investment schemes (i.e. funds domiciled in France, whether managed by French or foreign asset management companies (AMCs)) and discretionary mandates entrusted to French AMCs. Clients may be either institutional investors or retail investors (generally wealthy). According to statistics from the Association Française de la Gestion Financière (French Asset Management Association, AFG), the assets under these mandates amounted to €1.65 trillion at the end of 2019. In addition to this, there is €580 billion in foreign funds managed by French AMCs.

3.4. FOCUS ON FRENCH FUNDS: REVIEW OF 2019 AND INITIAL INSIGHTS INTO THE 2020 CRISIS

This section focuses on funds governed by French law, which thus fall within the AMF’s remit. As in previous releases of the Risk Outlook, the Banque de France’s restated aggregate data series are used to illustrate the historical change. However, in order to provide an initial analysis of recent events, granular regulatory data reported daily to the AMF by fund managers was also used. The aggregation of this individual data enabled the AMF to track the change in the net assets of French collective investment schemes in near-real time (on D+2) and to break down these changes between the effect attributable to inflows and outflows and that associated with the valuation of portfolio assets.

3.4.1. Equity funds: counter-cyclical redemptions?

With cumulative redemptions of more than €30 billion in 2019, French equity funds extended the outflow trend that began in 2018. However, after the sharp correction at the end of 2018, the markets started to rise again in 2019. Equity funds benefited from a valuation effect of nearly €69 billion and reached an AuM of €330 billion by the end of December 2019.
The first few months of 2020 have obviously had a major impact on equity fund valuations. After a loss of €22.7 billion in February, as reported by the Banque de France, AMF data shows that net assets in equity funds fell by more than €47 billion in March as a result of the valuation effect. Daily valuation changes reached -€20 billion on 9 March and as much as -€25 billion on 12 March.

Despite this sharp decrease in value, equity funds did not suffer a wave of panic redemptions and instead recorded net subscriptions in March for a cumulative total of €2.2 billion. Net subscription momentum continued in April (+€1.2 billion) alongside a rebound in valuations (+€20.8 billion).
Figure 71: Proportion of French equity funds (total population of 2,036 funds) by cumulative redemption buckets (left) and cumulative valuation effect buckets (right) since 18 Feb. 2020

Source: AMF, BIO database

Note:
LEFT: On each date, the cumulative subscription/redemption flows since February 18 are calculated. The dotted green line marks the separation between funds benefiting from net inflows (light green area, above) and funds suffering from net outflows (below). The colour gradient marks the relative intensity of redemptions experienced by the funds.
RIGHT: A similar approach is used for cumulative changes in valuation. The dotted green line separates the funds with gains from those with losses (in relation to the valuation of the fund at the beginning of the period) and the colour gradient shows the magnitude of these losses.

Appendix p. 91 displays graphs similar to these ones, but in volume: instead of looking at the number of funds in each bucket relative to the total number of funds, each fund is represented by its total net assets at the beginning of the period (18 Feb.)

As at May 29, only 296 equity funds (out of 2,036 i.e. 15%) had net redemptions over the period exceeding 5% of their opening net assets (as of Feb. 18), even though 1,814 equity funds (89%) had accumulated a valuation loss of more than 10%.

3.4.2. Bond funds: flows and valuation seem correlated on an annual frequency

Figure 72: Assets under management in French bond funds and breakdown between flow and valuation effects (annual figures on left, monthly on right, in EUR billion)

Source: Banque de France, Performance of CIUs

According to Banque de France aggregated figures, assets under management in French bond funds stood at €284 billion at the end of 2019, an increase of nearly €15 billion over the year (one third inflow effect and two thirds valuation effect). Sustained inflows in the first few months of 2020 enabled French bond funds to reach €300 billion at the end of February.
AMF data shows that French bond funds experienced a valuation effect of €15.1 billion in March 2020, along with substantial redemptions (€10.1 billion). In April, bond funds once again saw net outflows (€3.3 billion over the month) while regaining almost €4.4 billion in value.

Figure 73: Daily change in assets under management in French bond funds since 18 February and breakdown between flow and valuation effects (in EUR billion)

By the end of May, 165 funds (i.e. 13% of the total number of French bond funds) recorded cumulative redemptions (since mid-February) of more than 10% and 61 funds (5%) had suffered cumulated market losses of more than 10% (NB: on March 23rd, almost one quarter of French bond funds had undergone a cumulated market loss exceeding 10%).

Figure 74: Proportion of French bond funds (total population of 1,254 funds) by cumulative redemption buckets (left) and cumulative valuation effect buckets (right) since 18 Feb. 2020

Source: AMF, BIO database

Note:
LEFT: On each date, the cumulative subscription/redemption flows since February 18 are calculated. The dotted green line marks the separation between funds benefiting from net inflows (light green area, above) and funds suffering from net outflows (below). The colour gradient marks the relative intensity of redemptions experienced by the funds.
RIGHT: A similar approach is used for cumulative changes in valuation. The dotted green line separates the funds with gains from those with losses (in relation to the valuation of the fund at the beginning of the period) and the colour gradient shows the magnitude of these losses.

Appendix p. 91 displays graphs similar to these ones, but in volume: instead of looking at the number of funds in each bucket relative to the total number of funds, each fund is represented by its total net assets at the beginning of the period (18 Feb.)
In the bond market segment, we can look more specifically at funds significantly exposed to high-yield debt. The details of fund portfolios at the end of 2019 (source: Banque de France) have been cross-referenced with a rating database obtained from Bloomberg. Absent official regulatory definition, funds for which high-yield (HY) bonds accounted for more than 20% of the value of the securities in their portfolios were considered to be “funds with significant exposure to high-yield debt”. Similarly, funds for which investment grade (IG) securities accounted for at least 80% of the value of the portfolio were considered to be investment grade.92

According to this breakdown, the funds with significant exposure to high-yield debt had net assets of €154 billion as at 18 February 2020, while the mainly investment grade funds had net assets of €37 billion. As at 31 March 2020, high-yield funds had recorded cumulative redemptions of €4.6 billion (-3% of net assets as at 18 February), while investment grade funds had inflows of almost €800 million (+2% of net assets as at 18 February).

3.4.3. Diversified funds: redemptions largely contained during the crisis

Diversified funds ended 2019 with cumulative assets under management of €354 billion, almost €30 billion more than a year earlier. They benefited greatly from the market rebound after the correction at the end of 2018, but recorded net redemptions of nearly €4 billion over the year.

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92 To be considered as high yield, a bond had to be:
- either rated “below investment grade” by at least one of the three main rating agencies;
- or not rated by any of the three agencies.

93 Note: The thresholds are applied after partial look-through (i.e. French bond funds in the portfolio of other French bond funds are looked-through, but successive iterations to see the funds of funds of funds are not carried out). Because of the existence of non-bond securities, units in foreign or non-looked-through funds, and securities not included in the rating dataset, the two categories do not complement each other (i.e. some French bond funds belong to neither).
In March 2020, diversified funds recorded only €5.6 billion in cumulative redemptions, even though they lost more than €27 billion in market value. As was already the case for equity and bond funds, the aggregate figures for this category of funds do not point to procyclicality on the part of investors, who did not show any signs of panic (no run on markets). April was much calmer: diversified funds recovered almost €11 billion in valuation and marginally recorded net subscriptions of almost €80 million.

As of 29 May, only 261 diversified funds (out of a total of 3,347, that is 8%) had to cope with cumulative redemptions of more than 10% of their net assets, even though 1,018 of them (30% of the total) had incurred valuation losses of more than 10%. NB: 73% of the diversified French funds has undergone valuation losses exceeding 10% as of March 23rd.
Figure 78: Proportion of French diversified funds (total population of 3,347 funds) by cumulative redemption buckets (left) and cumulative valuation effect buckets (right) since 18 Feb. 2020

Source: AMF, BIO database

Note:
LEFT: On each date, the cumulative subscription/redemption flows since February 18 are calculated. The dotted green line marks the separation between funds benefiting from net inflows (light green area, above) and funds suffering from net outflows (below). The colour gradient marks the relative intensity of redemptions experienced by the funds.

RIGHT: A similar approach is used for cumulative changes in valuation. The dotted green line separates the funds with gains from those with losses (in relation to the valuation of the fund at the beginning of the period) and the colour gradient shows the magnitude of these losses.

Appendix p. 91 displays graphs similar to these ones, but in volume: instead of looking at the number of funds in each bucket relative to the total number of funds, each fund is represented by its total net assets at the beginning of the period (18 Feb.)

3.4.3.1. Money market funds: all-time record monthly outflows in March 2020 reaching €46 billion

Money Market Funds (MMFs) are collective investment undertakings that “invest in short-term assets and have distinct or cumulative objectives offering returns in line with money market rates or preserving the value of the investment”\(^{94}\). They are essential for the short-term financing of banks and non-financial companies.

Figure 79: Assets under management in French money market funds and breakdown between flow and valuation effects (annual figures on left, monthly on right, in EUR billion)

Source: Banque de France, Performance of CIUs

The very nature of the assets in the portfolio means that the variations in the total net assets are essentially due to subscriptions and redemptions rather than to valuation effects. This has been the case especially since the financial crisis in 2008 and the euro area crisis in 2011, with central banks’ quantitative easing programmes keeping interest rates at very low or even slightly negative levels. However, a comparison between the annual and monthly graphs shows that money market fund flows are highly cyclical within a given year.

Subscription/redemption cycles traditionally very marked for MMFs

Figure 80: Monthly subscription/redemption flows on French money market funds (in EUR billion)

Compared with other types of funds, subscription-redemption flows on money market funds are particularly large: under normal conditions, they can reach 10% of the aggregate net assets of MMFs over one month. They are also highly cyclical, and their fluctuations are notably linked to the cash requirements of both financial and non-financial companies. For example, the end of each quarter, and even more so the end of each half-year, is marked by significant redemption flows: companies withdraw their cash invested in money market funds to settle expenses and to structure their financial balance sheets. Conversely, the first two months of each quarter are traditionally months of substantial subscriptions to money market funds.

The traditional end-of-quarter cyclicality was sharply accentuated in March 2020. Based on the aggregation of individual AMF data, the net assets of French money market funds fell by 14.6% between February and March 2020, the largest monthly decline since the series began. Is this fall linked to the prevailing crisis situation in March 2020? To answer this question, we can look at whether movements in money market funds are linked to the fall in equity markets (changes in the Eurostoxx 50, which here provide a proxy of the health of the macro-financial environment). This analysis shows that, historically, the magnitude of cyclical subscription/redemption flows does not necessarily correlate to the financial environment. As the following table shows, months of sharp declines in net assets have not always coincided with periods of declining equity markets.

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Prior to this, the largest decline was in June 2013 with a 9.5% drop in net assets. Note: As data prior to 2012 was considered less reliable, the choice was made to exclude it from the analysis and focus on the most reliable data.

Additional regressions were conducted to test the relevance of other explanatory variables (e.g. the corporate investment grade and high yield spreads, an indicator of systemic stress, the VSTOXX and the VIX). Given the significance of the market parameter and the depth of the data series, the Eurostoxx 50 was chosen as the explanatory variable for the analysis.
Table 8: Change in money market fund net assets over one month (%)

<table>
<thead>
<tr>
<th></th>
<th>March</th>
<th>June</th>
<th>September</th>
<th>December</th>
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<tr>
<td>2012</td>
<td>4.6%</td>
<td>-1.6%</td>
<td>-4.0%</td>
<td>-4.4%</td>
</tr>
<tr>
<td>2013</td>
<td>0.0%</td>
<td>-9.5%</td>
<td>-6.3%</td>
<td>-4.9%</td>
</tr>
<tr>
<td>2014</td>
<td>-4.8%</td>
<td>-4.3%</td>
<td>-5.2%</td>
<td>-9.3%</td>
</tr>
<tr>
<td>2015</td>
<td>-3.7%</td>
<td>-7.4%</td>
<td>-3.8%</td>
<td>-9.0%</td>
</tr>
<tr>
<td>2016</td>
<td>-2.0%</td>
<td>-7.5%</td>
<td>-2.6%</td>
<td>-6.6%</td>
</tr>
<tr>
<td>2017</td>
<td>3.2%</td>
<td>-6.5%</td>
<td>-3.0%</td>
<td>-6.4%</td>
</tr>
<tr>
<td>2018</td>
<td>0.8%</td>
<td>-2.1%</td>
<td>-5.5%</td>
<td>-4.1%</td>
</tr>
<tr>
<td>2019</td>
<td>-1.7%</td>
<td>0.4%</td>
<td>-4.2%</td>
<td>-8.2%</td>
</tr>
<tr>
<td>2020</td>
<td>-14.6%</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Source: AMF, BIO database
Note: The cells in light orange correspond to the months in which the Eurostoxx 50 (without dividends) fell by between 5% and 10%. The dark orange boxes correspond to months in which the Eurostoxx 50 (without dividends) fell by more than 10%. Note that the most significant changes in money market fund assets are not necessarily those corresponding to these boxes, with March 2020 being the notable exception.

To refine this result, a regression between changes in the Eurostoxx 50 and changes in the net assets of money market funds was conducted. This bivariate analysis indicates a significant correlation and an explained variance of around 30%. Other factors therefore certainly also play a part, but it seems that the stock market cycle has a significant influence on the subscription/redemption flows of money market funds. The representative point in March 2020, below the regression line, shows that the reduction in net assets was stronger than expected, which reinforces the idea that other factors were at work this month.

Figure 81: Relationship between changes (over the last month of each quarter) in net assets (y-axis) and Eurostoxx 50 (x-axis) over the period Q1-2012 to Q1-2020

The relationship between the change in the net assets of money market funds and the stock-market cycle was strongly reinforced by the coronavirus crisis. The same regression without the last observation (March 2020) has much less explanatory power, with an explained variance half as large at around 14%.
A very violent redemption shock in March 2020

The economic crisis induced by the coronavirus pandemic and the introduction of lockdown measures therefore exposed money market funds to huge waves of withdrawals in March 2020 totalling €46 billion, including €26 billion in the week of 16 March alone and a daily peak in redemptions on 17 March of €8.5 billion.

Figure 82: Daily change in aggregated assets under management in French money market funds since 18 February and breakdown between flow and valuation effects (in EUR billion)

Source: AMF, BIO database
Note: Valuation and distribution effects are marginal on money market funds, especially when compared with subscription-redemption flows. For this reason, the yellow and orange bars are barely visible in Figure 80.

A comparison of these figures with Figure 76 reveals the magnitude of the shock: the previous record for monthly redemptions was €33 billion in December 2014, and the maximum for the month of March was €22 billion in 2010.

April 2020 saw assets under management stabilise at around €315 billion, owing in particular to almost €8 billion in subscriptions over the last four days of the month.
The previous graph shows that the redemption phenomenon was concentrated on a limited number of funds. Overall, there were slightly more funds that experienced net subscriptions during the period than funds that experienced net redemptions. Just over a quarter of money market funds experienced cumulative net redemptions of more than 5% of initial net assets. As of May 29th, only 25 funds lost more than 25% of their net assets. Ultimately, no French MMF was forced to suspend redemptions, despite significant redemption volumes in some cases.

A breakdown of the French MMF market shows that redemptions were concentrated on standard money market funds, which fell by close to 17% over the period, while short-term money market funds benefited from net subscriptions (8% over the period). Similarly, redemptions mainly affected UCITS (-15.5%) as opposed to AIFs (+7.8%).

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97 According to Article 10 of Regulation (EU) 2017/1131 on money market funds, a short-term MMF can only invest in money market instruments with a maturity below 397 days, while standard MMFs shall also be allowed to invest in money market instruments with a residual maturity until the legal redemption date of less than or equal to 2 years, provided that the time remaining until the next interest rate reset date is 397 days or less.”

98 In terms of numbers, 83% of money-market AIFs are employee savings funds (this proportion falls to 62% in terms of assets under management as at 18 February 2020). There may therefore be a higher proportion of retail clients in this category, explaining the unusual behaviour.
Possible explanations for these redemptions

Two studies published under the aegis of the High Council for Financial Stability (Benhami et al, 2018, and Chrétien et al, 2020) have highlighted the strong interconnection between entities in the French financial sector and the role of asset management in this network, particularly with regard to the transmission of valuation shocks. The most recent study stressed the need to take investor behaviour into account when modelling subscription/redemption flows and the various trade-offs. The sector analysis must therefore be supplemented by an overview that can shed light on the new equilibria.

As noted in the previous sections, within the scope of funds governed by French law, the main movements in liabilities were concentrated in money market funds. It is a legitimate question to ask where the €46 billion withdrawn from French MMFs over March 2020 went (remember that this flow is almost twice the maximum observed in any month of March since 2006). Analyses are currently being carried out to test the validity of several hypotheses, and quantify their effects:

- Non-financial companies, but also some financial companies, may have chosen to withdraw their cash from money market funds to accumulate safety reserves (cash hoarding) in cash or bank deposits. Banking institutions, which have access to central bank liquidity, may have been considered more secure. The Banque de France reports that bank deposits by non-financial companies (NFCs) increased from €633 billion at the end of February to €674 billion at the end of March (i.e. more than €40 billion in deposits over March 2020), and to €715 billion at the end of April (+€41 billion). By comparison, a year earlier (in March an April 2019), flows in bank deposits by French non-financial companies amounted to only €11 and €9 billion respectively.99 These new deposits from NFCs are much larger than the amount of the new credits obtained by those corporations over the same period of time (€36 billion in March and €25 billion in April, i.e. an excess of €20 billion over those two months).100 The accumulation of cash on the NFCs’ bank accounts cannot therefore be only explained by the disbursement of new loans.

- These same companies may have needed access to their cash to pay residual fixed costs against a background of collapsing activity and possibly to finance the transition to working from home.

- Some financial agents may have used their liquid assets invested in MMFs to pay their margin calls.

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Some investors, including institutional investors, may have traded off their money market investments against buying more dynamic investment vehicles (equities held directly or equity funds) and thus taken advantage of a rebound in stock market valuations. In examining the relevance of this hypothesis, it should be noted that investment flows into French equity funds remained moderate over the period (+€3.4 billion in total for March and April) and that they were more in the same order of magnitude as redemptions from diversified funds (-€5.5 billion). Direct ownership of securities or investment in dynamic foreign funds also remains a possibility.

Lastly, it is conceivable that money withdrawn from French MMFs was simply transferred to MMFs domiciled in other European jurisdictions (Ireland, Luxembourg and France are the three main countries of domicile for money market funds in Europe). According to data published by the national central banks, the net assets of Luxembourg money market funds increased by €12 billion in March and again by €37 billion in April.101 Meanwhile, Irish MMFs recorded redemptions in March (aggregate net assets fell by €12 billion) and significant subscriptions in April (net assets increased by more than €30 billion over the month).102

Pour expliquer cette évolution différentielle entre les principales juridictions européennes, la piste d’un possible « flight to security » au sein de l’univers des MMF, vers des fonds monétaires de type « court terme » et exposés notamment à la dette souveraine va être étudiée.

Par ailleurs, il ne faut pas négliger l’hétérogénéité du marché des fonds monétaires :

Il faut en effet rappeler que co-existent en Europe trois grands types de MMF, qui diffèrent essentiellement par les règles comptables d’amortissement : les fonds à valeur liquidative variable (VNAV), les fonds à valeur liquidative constante (CNAV) et les fonds dont la valeur liquidative est faiblement volatile (LVNAV). Le marché français se compose exclusivement de VNAV, mais le Luxembourg et l’Irlande disposent des trois types. Si les fonds à valeur liquidative constante peuvent sembler sécurisés dans la mesure où ils paraissent garantir la valeur de l’investissement, les règles comptables qui les gouvernent créent en réalité un déséquilibre entre la valeur de marché de l’actif et celle du passif, accroissant de fait le risque de liquidité et la prime au premier sortant ;

Par ailleurs, les MMF européens ne sont pas tous libellés dans la même devise : en plus de l’euro, on trouve ainsi des fonds en dollar américain et en livre sterling. Les fluctuations de change et les possibilités de refinancement dans l’une ou l’autre des devises de référence peuvent donc aussi expliquer des arbitrages ;

Enfin, en les fonds monétaires court-terme peuvent apparaître plus sécurisés que les fonds à maturité plus longue (les MMF standard).

A European-wide analysis using the Morningstar commercial database as input provides some figures to support these explanations. The database is not exhaustive, and some information is not available, but it does provide an idea of the European MMF market.103

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101 The aggregated balance sheet for money market funds, available on the Banque Centrale du Luxembourg’s website, shows that net assets of Luxembourg MMFs (i.e. the value of units issued) increased from €344.0 billion at the end of February to €355.9 billion at the end of March, reaching €392.9 billion at the end of April (data updated to 2 June 2020).

102 Data published by the Central Bank of Ireland shows that net assets of Irish MMFs increased from €573.8 billion to €561.8 billion between the end of February and the end of March. It stood at €592.0 billion on 30 April.

103 The analysis is based on a sample of 513 MMFs domiciled in Europe for which Morningstar provides at least one flow/assets-under-management variable between 1 February and 26 May 2020. They include 159 French MMFs. The cumulative net assets of these funds at the beginning of February reached €1.251 trillion.
The Banque de France is currently analysing the liabilities of French money market funds based on data from depositaries (PROTIDE) in an attempt to determine which categories of investors reacted most strongly in March.
3.5. OPERATIONAL RESILIENCE AND CONTINGENCY MEASURES: WHAT LIQUIDITY MANAGEMENT TOOLS WERE AVAILABLE FOR FRENCH FUNDS?

Since the Sapin 2 Law of 2016, the entire arsenal of liquidity management tools (LMTs) has been available to funds governed by French law. However, the fact that the legislator and regulator have authorised the implementation of the various mechanisms does not mean that the funds have actually adopted these tools. In order to provide an initial assessment of whether they had been included in the funds’ contractual documentation, and in the absence of standardised official reporting to supervisors, the Banque de France and the AMF developed an automated reading application that was tested on all 9,899 prospectuses of AMF-authorised funds that were active as at 31 December 2019.

The initial results of this analysis, which should be published in the near future, show that the vast majority of French funds provide for the option of suspending redemptions in exceptional circumstances and if it is in the interest of the investors to do so (82% of the net assets of French funds).

By contrast, very few funds had anti-dilutive measures in place (swing-pricing was in place for 6% of the cumulative net assets of French funds, and anti-dilution levies for only 2%). During the crisis, at its meeting of 31 March 2020, the AMF Board decided to relax (temporarily) the procedures that asset management companies had to follow when introducing or increasing anti-dilution levies. In particular, fund managers were no longer bound by the requirement to contact each unit holder individually, and the free-of-charge exit option was suspended. This temporary flexibility may have increased the use of the mechanism.

Lastly, redemption gates were applied to 9% of the cumulative net assets of French funds at the end of 2019.

Figure 87: Mention in the prospectus of a gates mechanism
(percentage of funds and net assets, by fund type)

Source: Prospectus analysis, AMF-BdF

Incidentally, the automated reading tool can also be used to identify funds with a side pocket (i.e. funds that have decided to isolate assets that have proved to be impaired or illiquid from the rest of their portfolio: these securities are transferred to a dedicated fund that is managed on a run-off basis). These side-pocket funds may be set up by any fund governed by French law, on the initiative of the asset manager. They were used in particular following the disclosure of the Madoff fraud. Ultimately, side pockets account for only a tiny proportion of assets under

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104 The fund manager’s ability to suspend subscriptions and redemptions (provided that this is indicated in the prospectus) is coupled with the following exclusive authority of the AMF (Articles L. 621-13-2 and L. 621-13-3 of the Monetary and Financial Code): the AMF may require the total suspension (on a temporary basis) of subscriptions and redemptions on any UCITS or AIF governed by French law (“when exceptional circumstances so require and if it is in the interests of unitholders, shareholders or the public to do so”).
management in French funds (0.2%) and are mainly concentrated in hedge funds (where they account for 12% of net assets).

Box 4: Stress tests and the crisis of 2020

The early identification of the funds most vulnerable to a market shock has been simulated at the European level by both the ECB\(^{106}\) and ESMA.\(^{108}\) The Covid-19 crisis provides a natural experiment to see whether the funds identified in this way were actually those that were most affected and whether, faced with the liquidity crisis, their inability to meet margin calls and honour redemptions was actually observed. This was not the case, despite a shock that was in some cases more severe than those simulated, and there was no default by any of these funds as a result of the crisis (even the only one identified as vulnerable by both the ECB and ESMA). The assumptions of these simulations could be improved based on this feedback, which confirms that their conclusions should be treated with caution.

The ECB exercise provides useful information on the stresses related to managing the liquidity of equity, bond and diversified funds that may be caused by margin calls. Despite the severity of the shock of the Covid-19 crisis being close to that of the two scenarios tested by the ECB, the vulnerabilities to margin calls identified by the ECB did not, however, result in a default of French funds being predicted in this situation. Furthermore, the exercise does not make it possible to characterise, in terms of their performance and inflows, the particular vulnerability of French funds to the shocks of the Covid-19 crisis. As it was, there was no default by any French fund from the French sample tested. However, there are two reasons for this. The first is technical: the limited size of the sample of French funds tested (200), and therefore the limited number of vulnerable funds identified in this exercise (43 or 24 depending on the scenario). The two cases in which the AMF observed difficulties in meeting margin calls during the Covid-19 crisis (one by French funds managed by a UK AMC, the other by Luxembourg funds managed by a French AMC) are not included in this sample. Secondly, the discrepancy between stress test predictions and observed phenomena is probably due less to the excessive severity of the scenarios considered and more to a conservative definition of liquid assets (high-quality liquid assets, or HQLA) and to the failure to take into account factors that in practice make managing liquidity stress in funds possible (possibility of contracting credit lines of up to 10% of fund assets, etc.).

ESMA’s liquidity stress simulation exercise (STRESI), conducted in 2019, identifies four bond funds in particular as being particularly vulnerable among the 387 French funds tested. During the Covid-19 crisis, these funds did actually experience more significant decreases in net assets than those experienced by all French bond funds over the period (-6.2%). Two funds were even among the top 10% of French bond funds that suffered the largest decreases in net assets. One fund saw its net assets decrease more sharply than 75% of French bond funds. Lastly, one fund recorded a 10.3% decrease in net assets while the median for French bond funds was 6.2%. These declines in assets under management reflect higher redemption requests than those of other funds in the same category, but in three out of four cases they were lower than the outflows simulated by STRESI. In conclusion, the funds identified as vulnerable by ESMA were especially impacted by the crisis, although they generally experienced lower outflows than those simulated in STRESI. It should be noted, however, that in the case of two funds, cumulative redemptions from 21 February to 3 April, although higher than the liquid assets estimated by ESMA, were honoured. This confirms the need to qualify the definition of liquid assets (HQLA) used by STRESI and to take better account of the liquidity management tools available to the funds in this context.

3.6. ETF in the Crisis: A Generally Resilient Market but Some Areas to Watch:

The growth of passive management is reflected primarily in the development of ETFs. During this crisis, the growth of ETFs has had varied fortunes. In the United States, assets under management (Figure 88 experienced a significant correction in February (-5.8%) and especially in March 2020 (-12.6%). However, this change is exclusively the result of valuation effects, mainly attributable to equities. US ETFs actually continued to benefit from positive net inflows (Figure 88). This was the case even in March 2020, despite the contrasting trends in the different product categories within them, with $33.3 billion of inflows from domestic equity ETFs alone offsetting the outflows of $18.4 billion from bond ETFs and $10.7 billion from international equity ETFs. As a result, net inflows amounted to $72.5 billion in the first quarter of 2020, similar to the average for the previous two years ($79.2 billion).


The changes in Europe contrast to some extent with those in the US. While the change in assets under management (Figure 89) was similar (-18.1% in the first quarter of 2020 vs -17.2% in the US), this decrease is more largely attributable to the €25.8 billion outflow recorded in March 2020 (€9.9 billion in the first quarter, Figure 91). This outflow, which is primarily attributable to equity ETFs, Smart Beta strategies in particular (Figure 91). Conversely, there was relative stability in the inflows to bond ETFs, which remained positive, and especially to ETFs based on ESG strategies. In addition, there was renewed interest in ETF trading by retail investors (Figure 90).

**Source:** ETFGI, AMF. Note: the color indicates the number of transactions carried out before the COVID-19 crisis - investors who have never traded since early 2018 are in orange, the most active investors in blue.
Liquidity generally resilient ...

As macro-prudential and market authorities have been questioning the liquidity transformation risks\(^{107}\) of ETFs and their vulnerability to liquidity shocks,\(^{108}\) it is appropriate to examine this market in the light of the Covid-19 crisis. In particular, the US market highlights the most remarkable and contrasting changes in this respect.

Firstly, the ETF market has been relatively resilient in times of crisis.\(^{109}\) For example, the SPY ETF (the main S&P 500 index ETF), despite a 25% fall since its historical high in February 2020, recorded, without major disruption, trading volumes of more than $50 billion for 14 consecutive days, with an all-time high (all listed instruments combined) of $113 billion on 28 February. More generally, ETFs have had an increased role on secondary markets: during the first half of March, as ETF trading volumes consistently and significantly exceeded 30% of stock exchange trading volumes, even reaching 40%, whereas in normal times this ratio is below 30%, closer to 25%.

In Europe, reflecting the orderly operation of the markets, ETF volumes traded on platforms subject to pre-trade transparency requirements grew by 4% during the crisis (Figure 92), as investors favoured transparency. Flows to systematic internalisers, on the other hand, fell by almost 6%.

\(^{107}\) The extent to which they offer greater liquidity than their underlying assets.

\(^{108}\) M. Pagano, A. Sánchez Serrano, J. Zechner (2019); Can ETFs contribute to systemic risk?; Report of ESRB’s Advisory Scientific Committee n°9; June; H. Peirce (2019); SEC Commissioner remarks at FSB/IOSCO Joint Workshop on ETFs and Market Liquidity; 10 June 2019; IOSCO (2020); Factsheet.

\(^{109}\) S. Antoniewicz; ETFs are Passing the COVID-19 Crisis Test; ICI Viewpoint; 17/03/2020.
In addition, ETFs have actively contributed to the price discovery process. For example, on 9 and 12 March prior to the markets opening, when trading of S&P 500 Index Futures was suspended (after a 5% drop in price), ETFs on the S&P 500 index continued to be traded and participated in price formation at the opening of the stock exchanges.\footnote{ETFs have played a measurable role in market price formation for the past 20 years (Hasbrouck, J. (2003), Intraday Price Formation in US Equity Index Markets, Journal of Finance 58), but it tends to be stronger than that of index futures. Wermers R., J. Xue (2015); Intraday ETF Trading and the Volatility of the Underlying; Lyxor AM also shows that the contribution to price formation is informed.}

Circuit breakers (mechanisms to suspend trading) have been activated on numerous occasions on US markets without causing problems comparable to those experienced in August 2016, indicating that the circuit breaker reforms in the United States\footnote{See. chapter 2 on circuit breakers on Euronext.} have been successful.\footnote{The specific rules prevailing in France are described in ETFs: Characteristics, Overview and Risk Analysis – The Case of the French Market; AMF Risks and Trends; 2017.}

... but tensions have been high in certain market segments

In the US, 100 ETF and ETN closures\footnote{Against a backdrop of strong product substitutability, iShares, Vanguard, State Street, Invesco, Schwab and Fidelity have announced their commitment to enhancing the clarity of ETF and ETN product designations (Wall Street Journal, Investment Giants Want Exchanges to Enforce Labeling System for ETFs, 13/05/2020).} (more than half being ETFs) were recorded from the beginning of the year to 20 April 2020 (compared with 60 launches\footnote{Mostly newly listed “non-transparent” active ETFs.}), an unprecedented situation. Of these, 32 were either leveraged or inverse ETFs and often pledged on the oil market. Mandatory redemption mechanisms for ETNs are triggered when an indicative minimum value is reached. This can be expressed in terms of either a maximum decline (e.g. 60%) from the previous closing price or the previous month’s valuation, or in absolute terms (e.g. $5 per share). When this value is reached, the issuer must automatically set an early closing date and make a cash payment to investors. On the stock exchange, delisting occurs when an ETF or ETN falls below the minimum price required by the stock exchange. If this happens, the product is automatically delisted and trades can only be executed over-the-counter (OTC). This does not mean that the fund is closed, but it does mean that investors have to manage positions that are extremely difficult to close. In theory, they can liquidate their positions OTC, but this can be difficult and costly for retail investors.
Bond ETFs, the category most affected by redemptions of units, have sometimes experienced valuation difficulties. On some days they traded at significant discounts to the value of their underlying assets (Table 9).\(^{115}\) High-yield bond ETFs in particular\(^{116}\) traded at significant discounts, signalling failures in the price formation process in an environment of outflows and declining assets under management. The iShares MSCI Philippines ETF, for example, posted a 15% discount to its net asset value (NAV) on 16 March. It is estimated that on 26 March 2020, some 700 ETFs had traded at a deviation of more than 1% from their NAV during the Covid-19 crisis. K. Pan, Y. Zeng (2017)\(^{117}\), ETF Arbitrage Under Liquidity Mismatch, actually show the limits of arbitrage in the event of a liquidity shock and explain them, on the one hand, by certain constraints on funding liquidity provision and, on the other hand, by possible conflicts of interest related to the dual role of Authorised Participants, which simultaneously act as arbitrageurs and market makers.

<table>
<thead>
<tr>
<th>Ticker</th>
<th>Fund name</th>
<th>AUM (mds USD)</th>
<th>Deviation from NAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGG*</td>
<td>iShares Core U.S. Aggregate Bond ETF</td>
<td>72.24</td>
<td>-4.36 %</td>
</tr>
<tr>
<td>BND*</td>
<td>Vanguard Total Bond Market ETF</td>
<td>51.61</td>
<td>-2.73 %</td>
</tr>
<tr>
<td>LQD</td>
<td>iShares iBoxx USD Investment Grade Corporate Bond ETF</td>
<td>29.75</td>
<td>-2.26 %</td>
</tr>
<tr>
<td>VCI7</td>
<td>Vanguard Intermediate-Term Corporate Bond ETF</td>
<td>27.18</td>
<td>-3.21 %</td>
</tr>
<tr>
<td>BNDX</td>
<td>Vanguard Total International Bond ETF</td>
<td>26.77</td>
<td>-1.10 %</td>
</tr>
<tr>
<td>VCSH</td>
<td>Vanguard Short-Term Corporate Bond ETF</td>
<td>23.86</td>
<td>-4.73 %</td>
</tr>
<tr>
<td>SHV</td>
<td>iShares Short Treasury Bond ETF</td>
<td>23.53</td>
<td>+0.06 %</td>
</tr>
<tr>
<td>BSV</td>
<td>Vanguard Short-Term Bond ETF</td>
<td>23.01</td>
<td>-1.32 %</td>
</tr>
<tr>
<td>MBB</td>
<td>iShares MBS ETF</td>
<td>22.04</td>
<td>-0.26 %</td>
</tr>
<tr>
<td>SHY</td>
<td>iShares 1-3 Year Treasury Bond ETF</td>
<td>21.73</td>
<td>+0.01 %</td>
</tr>
</tbody>
</table>

* On 12 March 2020, AGG’s discount was 4.43% and BND’s 6.2%. Source: ETF.com, AMF

To what extent is the liquidity of ETFs substitutable or additional to that of the underlying assets? In this case, do ETFs see themselves as a means of packaging and placing bonds that would otherwise not sell, at the risk of not being able to offer the desired liquidity in extreme circumstances? To what extent are ETFs sensitive to external shocks to market liquidity? There are divergent views on the liquidity transformation of ETFs and the fundamental nature of the liquidity provided by ETFs.\(^{118}\)

Nevertheless, some ETFs, whether money market funds or short duration bond ETFs, are increasingly being used as substitutes for cash. An ETF such as the iShares 1-3 Year Treasury Bond ETF benefited from massive inflows in early March in a flight to quality, only to see an equally massive outflow when the Federal Reserve announced support measures and investors switched to corporate investment grade ETFs, which are now considered low-risk. As part of its Secondary Market Corporate Credit Facility (SMCCF) of 23 March 2020,\(^{119}\) the Federal Reserve announced that it now has the power to acquire “up to 20% of the assets of any ETF that provides broad exposure to the investment grade bond market". However, ETFs will remain ineligible as collateral for the Federal Reserve’s Primary Dealer Credit Facility transactions. Notwithstanding, this intervention had immediate stabilising effects, as in the example of the iShares iBoxx USD Investment Grade Corporate Bond ETF, which jumped 7.4% and raised $1.06 billion on the day of the announcement.\(^{120}\)

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\(^{115}\) Note: Since the NAV of bond ETFs is generally valued at the bid price, bond ETFs are normally traded at a premium (L. Crigger; Bond ETF Premiums Become Discounts; ETF.com of 20/03/2020).

\(^{116}\) For example, BlackRock’s flagship High Yield ETF (symbol HYG) and its competitor, State Street’s JNK.


\(^{118}\) As shown in a review of the literature on this point by L. Grillet-Aubert (2020); Opportunities and Risks in the Financial Index Markets; AMF Risks and Trends; June.

\(^{119}\) Federal Reserve, Policy Tools, Secondary Market Corporate Credit Facility.

\(^{120}\) K. Greifeld, Traders Pour USD 1bn Into Biggest Credit ETF to Front-Run Fed, Bloomberg 24/03/2020.
It is therefore questionable to what extent the Federal Reserve’s intervention can be interpreted as providing liquidity of last resort in the US bond ETF market.\textsuperscript{121,122} This could lead to renewed questions about the systemic importance of certain asset management companies or ETFs. Various interconnections within the financial system are likely to be highlighted: the very nature of ETFs as hybrid products (collective investment funds and listed products) places them at the centre of an interconnected trading system. With regard to asset management companies, several risks have been highlighted by stakeholders. Some have stressed the operational risks that the concentration of activities by certain passive management firms poses, where shortfalls could cascade to the underlying asset markets, affect the transactions of Authorised Participants and market makers, and ultimately harm end investors and listed companies. Others highlight the risks resulting from conflicts of interest associated with the multiple activities of the main passive management companies. Particular attention has been paid to BlackRock, whose widespread use of the Aladdin risk management system was questioned,\textsuperscript{123} and to the role it was assigned in implementing monetary policy in the United States and in Europe by the European Commission to develop environmental, social and governance criteria useful for banking supervision.

3.7. PRIVATE FINANCE: INCREASINGLY IMPORTANT FOR MARKET-BASED FINANCE

Private finance\textsuperscript{124} is playing an increasing role in financing the economy. The Covid-19 crisis has and will have a direct impact on this sector, particularly on refinancing the debt of certain target companies and certain funds, and even on the solvency of some of them. In this context, the effects on fund solvency will have to be observed over time, particularly in light of a possible equity and debt “refinancing wall” at some point in the next few years. However, several factors seem to be to the sector’s advantage. Firstly, apart from the riskiest segments of venture capital, private finance seems relatively under-exposed to the most fragile economic sectors. Secondly, the funds have very large amounts of cash to invest (dry powder) which should lead to them playing an important role in recovering from the crisis. It is worth noting here a structural change in the sector that favours increasingly debt financing over equity financing. It is therefore contributing increasingly to the rise in the economy’s debt, starting with that of its target companies. It is important for supervisors to have the means to ensure appropriate monitoring of the resulting risks, in particular to assess the risks associated with the debt position of both funds and target companies.

- Private finance has an increasing role in financing the economy

Having almost tripled in 10 years (x2.7),\textsuperscript{125} worldwide assets managed by private equity funds grew by 10% in one year to reach an all-time high of $6.5 trillion by mid-2019 (Figure 93). Private equity (+12.2% to $3.9 trillion in 2019, eight times the assets managed in 2000) is the main contributor to this increase. Within private equity, “mega funds” have been particularly strong. Funds with more than $1 billion in assets under management account for 80% of capital raised. Those with more than $5 billion in assets under management account for more than 50% of capital raised. Furthermore, the venture capital segment, especially in Asia, is particularly strong, with the percentage of leveraged buyouts (LBOs) falling from 75% to just over 50% in 10 years. There are similar trends in Europe, where fundraising accelerated to €109.3 billion in 2019. Comprising €78.8 billion of this total, LBOs still dominate the sector, however.

\textsuperscript{121} Financial Times, Central banks prop up fund industry with $100bn injection; Fitch says scale of support points to the systemic importance of $55tn asset management market, 04/05/2020. Government support would then be comparable to that provided for the liquidity transformation of mortgage-backed securities in 2008.

\textsuperscript{122} It should be noted that the Central Bank of Japan, which has made extensive use of ETFs (including equity ETFs) as part of its asset repurchase policy, tends to take the opposite approach, by opening a loan facility for ETFs that it has on its books. (Financial Times, Japan acts to avert ETF market liquidity squeeze; Loan facility to give brokers access to portion of central bank’s $256bn holdings for up to a year; 19/12/2019).


\textsuperscript{124} Understood at first glance to be investment funds specialising in the acquisition of unlisted securities (equity and debt). See 2018 Risk Outlook for a discussion of the scope of this concept.

\textsuperscript{125} For comparison, to estimate the valuation effect, the CAC 40 price index rose 76.4% over the same period.
The shock of the crisis negatively affects the financial equilibrium of private equity funds

Despite the increase in the valuations of assets (Figure 95) that would have allowed funds to realise capital gains, there has been a decrease in divestments in Europe in recent years (Figure 94). Furthermore, in an environment in which acquisition prices (valuation multiples, see Figure 95) and the debt of the companies targeted for investment...
by LBO funds had increased in recent years, there is likely to be pressure on (re)financing the debt of those target companies, as is already the case in the United States (Figure 96). At the extreme, this could result in recapitalisation requirements and fund failures. These developments are expected to accentuate the impact of the crisis on fund performance.

There are already several signs that the crisis is having such an impact. For example, French leasing services provider Loxam saw the price of its 5.75% high-yield bond maturing in 2027 fall by more than 50% between March and mid-April 2020, pushing the yield on its bonds to more than 20%. In any case, liquidity pressures have emerged. A particular vulnerability to the crisis of early stage venture capital can be observed. With a 38% downturn in activity, there are fears of pro-cyclical effects and impacts on innovation. The European market for leveraged finance (loans and high-yield debt) froze in March and April 2020, in an environment where LBOs’ leveraged debt does not benefit directly from central bank support programmes. As a result, high-yield debt rates almost tripled in March. The credit spread of European junk bonds jumped to close to 700 bps. The S&P European Leveraged Loan Index fell by more than 20% to 78.92 on 24 March. However, it did not reach a point as low as in 2008-2009 (59.05 on 1 January 2009) and rebounded to over 80 in the weeks that followed, whereas it took a year after the major crisis at the end of 2008 to climb back to over 70. It would appear that we are now witnessing fewer “fire sales” induced by investor de-leveraging than in the previous crisis, and more tactical asset reallocations from portfolios to safer assets.

However, banks were affected by the freeze on ongoing brokering transactions, in particular the warehousing of leveraged credits for collateralised loan obligation (CLO) issues. These credits, which remained on their books, therefore carry a heavy burden in terms of capital requirements. The need to absorb this stock is likely to hamper market recovery. The amounts involved on banks’ balance sheets are smaller than in 2007 (€18.5 billion at the onset of the crisis compared with €32 billion in 2007), and these positions are less concentrated among a small number of institutions. However, these impacts from the crisis should result in banks tightening financing conditions, particularly for lines of credit of CLOs, and reduce the supply of leveraged financing. Overall, while a milder effect than during the crisis of the previous decade is expected, it should nevertheless have transitional but prolonged impacts on these leveraged finance markets.

If no immediate effects are felt, these pressures on private equity refinancing could lead to the emergence of a “liquidity wall” within a few years. It will therefore be important to assess whether, as in the aftermath of the 2008-2009 crisis, an extension of credit maturities will help to allay these fears. In this sector, where investors have long-term investment horizons, gains from the closure of funds tend to be reinvested and fed into new fundraising. In an environment of sustained low interest rates, restrictions on the liabilities of institutional investors (insurance and pension funds), which have replaced banks among private equity investors (Figure 97 shows that this trend is now also affecting the venture capital segment), could possibly increase the difficulties in refinancing private finance funds.

Lastly, the impact of the funding crisis could be mitigated by the funds’ sector biases, with 81.2% of their exposure in Europe (Figure 98) being to the four sectors of ICT, Consumer Goods & Services, Business Products & Services and Biotech & Healthcare and 5.7% to the sectors of Energy & Environment and Transportation. Another breakdown by category (Figure 99) further clarifies this perception. These funds therefore seem less exposed to the sectors hardest hit by the Covid-19 crisis.

126 The correction in valuation multiples observed in Europe in 2019 was not observed in the United States.
127 This is borne out by the sustained pace of issuance of leveraged loans and collateralised loan obligations (CLOs), the main buyers of such loans) until the autumn of 2019 (S&P LCD).
130 See Moinade (2013).
131 In this case, this extension resulted in the use of “Amend and Extend” refinancing trades amending the contractual clauses of the loans (covenants) and extending their maturities. It is questionable whether this type of arrangement is likely to be used in the wake of the current crisis.
**Figure 95:** LBO valuation multiples in Europe

**Figure 96:** Credit spread between loans rated BB and B (bps)

**Figure 97:** Funds raised by European venture capital by type of investor (amounts raised in EUR billion, proportion of these amounts)

*Source: Pitchbook

*Source: S&P LCD

*Source: Europe Invest*
Crisis also creates investment opportunities for private equity, which has very significant investment capacity. This raises questions about its role in financing the post-crisis economy. After a 14% annual increase since 2014, the amount of investment capital (dry powder) available to private equity funds reached a new worldwide record of $2.3 trillion by mid-2019, compared with $2.1 trillion at the end of 2018. This increase is largely attributable to private equity funds and mega funds, which together account for $1.4 trillion, and display the fastest-growth in dry powder, namely 16% per year since 2014. Compared with the (rolling) average of funds raised over the previous three years, funds committed by investors and not yet invested (dry powder) have grown by 31% since 2016.

For their part, private debt funds could be a substitute for banks in the worst affected segments (distressed debt). In particular, there has been a reorientation of large US private equity funds towards this type of activity, as reflected in the following examples.

Apollo Global Management, a private equity fund management company listed in the United States, already provides an example of the effects of the crisis. It highlights several types of impact. Firstly, the immediate effects of the crisis on its profitability, with a loss of $2.3 billion recorded in Q1 2020, in line with the other US giants in the sector, as a result of a 21.6% depreciation of its private equity portfolio. Secondly, out of $5.2 billion of investments in Q1 2020, $3.4 billion were made by its credit arm. However, the firm has $40.5 billion in dry powder.

Source: Preqin

Source: Thomson LPC, Pwc

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For example, losses of $1.29 billion for KKR, 1.07 billion for Blackstone, €612 million for Carlyle.
The company is currently investing through its ninth flagship fund, a $24.6 billion vehicle whose LBO strategy has given way to distressed credit.

- Monitoring the activity and risks associated with investing in unlisted companies remains unsatisfactory, particularly with regard to debt.

Assessing the activity and risks related to the private equity industry is based primarily on the use of information and market data from consultants, specialist data vendors (Preqin, PitchBook, Burgiss, Cambridge Associates, S&P LCD, etc.) and professional associations (American Investment Council, BVCA, Europe Invest, BVK, France Invest, etc.). These sources are used to assess certain aspects of activity based on industry-specific activity indicators (fundraising, dry powder, investments, etc.). They are, however, piecemeal, the methods are not fully harmonised and, more importantly, do not establish any clear link between the activities under consideration and the legal status of the entities in question. Without this link, reconciling the authorities’ supervisory data with the market participants’ activity monitoring remains difficult.

The need for quality data is all the more necessary given the sector’s strong growth in assets under management and financing flows, as we have seen, and the many potential risks it poses associated with:

- the effects of market opacity, particularly in terms of managing conflicts of interest, and of risks to investor protection at a time when access to private equity investment is gradually being opened up to less sophisticated investors (“retailisation”);
- negative externalities arising from the use of unlisted financing to the detriment of financing that is publicly traded on organised markets (stock exchanges, etc.);
- the risks of excessive leverage of funds and their targets (see below);
- the international nature of the investments, where applicable, in a context where, according to Europe Invest, 45.6% of European private equity fundraising comes from investors from non-European countries (28.6% from the United States and 16.1% from Asia-Pacific).

In Europe, the activity of private equity funds regulated as collective investment vehicles is subject to the requirements of the AIFM Directive. The reporting requirements introduced by the AIFM Directive were initially prompted mainly by a desire to monitor hedge funds after systemic episodes such as the LTCM and Amaranth failures, which revealed the extent of uncontrolled position-taking on futures markets. As its primary purpose is not to examine risk-taking by private equity funds, current AIFMD reporting does not take into account the specific

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133 Despite the quality and usefulness of these sources, as in the case of hedge funds, the categories of private finance (private equity, debt, etc.) and market activities concerned are based more on market practices than on strict legal definitions, which often vary from country to country. The scope covered is therefore vague and market coverage rates are difficult to assess. Crucially, cross-border activity is not well understood. Furthermore, activity indicators are favoured over indicators relating to risk (leverage, etc.), valuation, pricing and so on. Professional associations publish information on financing flows, not on assets under management.


135 In particular, assessing the performance (i.e. the risk/return profile) of private equity investment remains subject to academic research (see, for example, Phalippou L., O. Gottschalg (2009); The Performance of Private Equity Funds; Review of Financial Studies 22:4, 1747-1776 https://doi.org/10.1093/rfs/hhn014, Harris R., T. Jenkinson, S. Kaplan (2016); How Do Private Equity Investments Perform Compared to Public Equity; Journal of Investment Management 14-3, 2016Q3, http://dx.doi.org/10.2139/ssrn.2597259).

136 For example, in France, the PACTE Law expands the range of funds eligible to life insurance policies by reducing investment limits. A sophisticated investor or an investor paying a premium of at least €100,000 can therefore invest up to 50% of the value of the policy in private equity (the limit otherwise remains at 10%), see “L’assurance-vie se réorganise”; Option Finance; 30/04/2020. In the United States, the SEC is also proposing to facilitate access to holdings in unlisted firms (see “SEC proposes to update accredited investor definition to increase access to investments” of 18/12/2019 and the proposed legislative amendment to the related definition of “Accredited Investor”).

137 See the work of the United States’ House of Representatives, in particular the hearings conducted by its Committee on Financial Services: “Examining private market exemptions as a barrier to IPOs and retail investment”; 19/09/2019 and “America for Sale? An Examination of the Practices of Private Funds”; 14/11/2019. See also from the CFA Institute: Rosov S. (2019); Capital Formation: Public vs Private Markets; CFA Report 2018-12.

138 Note: On 25/03/2020, the European Commission published its “Guidelines to protect critical European assets and technology in current crisis”. In France, acquiring control of companies in sensitive sectors (as defined by Articles L. 151-3, R. 153-2 and, where applicable, R. 153-4 of the Monetary and Financial Code) is subject to prior authorisation. The European Commission has compiled a list of national mechanisms for screening foreign investment in Europe.

139 In France, the main vehicles listed are FCPRs, FCPIs and FIPs (see Table XXX and 2018 Markets and Risk Outlook).
nature of private equity activities. This reporting could therefore be improved in a number of respects (classifications used, etc.). For example, it does not ask for information on dry powder and in particular does not take into account the specific nature of private equity debt leverage.

On this last point, firstly, the reporting requirements only concern leverage at the fund level without considering the entire structure put in place to invest in the target companies. Mainly for tax reasons, these funds typically create vehicles (Special Purpose Vehicles or SPVs) through which they invest in the target companies (see Trend and Risk Mapping 2019). The leverage of the structure put in place (the financial package comprising the fund and the SPV(s) through which it invests in the target companies) is generally incurred by the SPV, not by the fund itself. An economically meaningful consideration of leverage must therefore look at the whole package, not just the fund, as is currently the case. The current review of the AIFM Directive could improve this point.

Secondly, private equity is primarily a form of capital investment, where the fund’s yield should ultimately increase through the debt leverage provided by the companies targeted by the fund’s investments. This point is illustrated in the diagram in Figure 102. Once the funds have acquired control, the companies targeted for private equity investment are generally encouraged to issue debt (C) to refinance the fund’s acquisition of the company. Refinancing is then typically achieved by paying dividends to the shareholders, which in this case are the funds. Although this leverage is at the heart of the fund’s economic logic, it is not, by its very nature, comparable to the leverage of the fund (A) or (B). It must be considered specifically for its dual nature of corporate debt and debt whose purpose is to refinance the fund. Information on this type of leverage (C) is very limited; it has increased significantly in the United States (Figure 101) but questions remain open as to the European situation. In Europe, lending banks are however required to identify it. The Single Supervisory Mechanism (SSM) requires such lending to be systematically recorded as leveraged debt. It might therefore be worth considering requesting information on the leverage of private equity funds’ target companies as part of the review of AIFMD reporting.

Figure 102: Private equity fund leverage

Source: AMF

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140 Question 3 (p. 37) of ESMA’s AIFMD Q&A of 04/12/2019 (ESMA34-32-352) states that the leverage of the target company is not taken into account even if its purpose is specifically to repay the debt incurred by the fund to finance the acquisition of the target company.

141 The ECB Guidance on leveraged transactions of May 2017 defines leveraged debt as issuers’ debt with a leverage ratio in excess of 4%. As an exception, it also includes the debt of firms controlled by private equity funds regardless of their debt ratio.
3.8. WHAT ARE THE MAIN TRENDS AFFECTING ASSET MANAGEMENT COMPANIES AT THE TIME OF THE COVID-19 CRISIS?

First trend: Increasing market concentration

Among the main structural changes in the asset management industry, at the worldwide level there has been a continued trend by the main players towards an increasing concentration of assets under management, with a growing polarisation between the largest asset management companies on the one hand and numerous new entrants and smaller specialists on the other. This concentration accelerated after the 2008 financial crisis, reaching a new peak at the end of March 2020. According to the US firm Flowspring, 142 1% of asset management companies managed 61% of total assets under management at the end of March, 243 times more than 50% of the smallest asset management companies. This ratio stood at 208 at the end of 2019 and at 105 in 2010.

This increasing concentration is primarily the result of the search for economies of scale, and increasing returns to scale. 143 Merger and acquisition transactions are evidence of this, particularly in the United States where, in 2019, Franklin Templeton acquired Legg Mason, created an asset management company with more than $1 trillion in assets under management, and Invesco acquired OppenheimerFunds, an active management specialist, from Massachusetts Mutual Life Insurance for $5.7 billion. These companies will join the ranks of the large asset management companies managing more than $1 trillion in assets (12 companies at the beginning of 2019, see Table 1). In the United Kingdom, Jupiter Asset Management launched a bid in February 2020 to acquire Merian (Old Mutual) for £370 million. This bid did not prevent net outflows of £2.3 billion and £2.6 billion respectively in the first quarter of 2020. 144

In continental Europe, the consolidation of the sector reaches limits, as illustrated by the unsuccessful merger attempts launched by DWS (Deutsche Bank Group) 145 and the Swiss company GAM. 146 The integration of distribution channels into “bank insurance” groups and the shareholder structure of the asset management companies owned by such groups result in a predominantly “closed architecture” distribution model that limits the interest of such transactions. For instance, among the transactions noted, Amundi’s acquisition in January 2020 of Banco Sabadell’s asset management business for €430 million, like its previous acquisition of Pioneer Investments from UniCredit, 147 was accompanied by a ten-year distribution agreement with the Spanish bank. Given this situation, European players therefore tend to favour strategic partnerships. 148

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143 L. Grillet-Aubert, S. Rifaldi (2009); Will retail investors benefit from economies of scale generated by the mutual fund industry?: Risk and Trend Mapping No. 7.
144 Jupiter: Outflows affected the Bond (£1 bn), European Growth (£0.7 bn) and Alternatives (£0.6 bn) strategies. Merian: The most affected fund was the Global Equity Absolute Return fund (£1.4 bn alone). Note that two significant consolidation transactions in 2017, the mergers of Henderson Group with Janus Capital and of Standard Life with Aberdeen AM, were also followed by sharp declines in assets under management in 2018.
145 The press reports in particular on discussions with UBS and less advanced discussions with Amundi and AXA IM.
146 An openness to discussions with potential buyers was expressed at the end of 2019, as part of the Group’s restructuring.
147 The acquisition announced on 03/07/2017 led to the integration of Pioneer Investments, a process that was completed in 2019, following staff reductions and IT migration, through the absorption of two Luxembourg-based vehicles, Amundi Funds II (formerly Pioneer Funds) and Amundi Sicav II (formerly the Pioneer Funds feeder Sicav) by the umbrella Amundi Funds Sicav governed by Luxembourg law (approximately 90 sub-funds compared with more than 150 initially with the three Sicavs).
148 Deloitte cites for example the partnerships of BNPP and Fortia (compliance); AXA IM and Dreams (innovative services); CANDRIAM and IBM Watson (automation of administrative tasks); and IZNES and a group of 20 management companies (fund register/blockchain maintenance).
Digitalisation is radically transforming the operational processing chains and organisation of asset management companies, by integrating management, marketing and sales processes, in particular.

Second trend: digitalisation

Digitalisation is demonstrated by the increase in related spending by asset management companies (see Figure 103, for Europe). It reflects, firstly, a desire for rationalisation – to control costs in the medium term – and, secondly, the effects of innovation in portfolio management and the increased customization of product offerings, against the backdrop of an emergence of new technologies and data sources (see Focus on data). More specifically, these innovations relate to:148

- The client relationship (digitalisation of the commercial relationship, personalisation of the offer and advice, Know Your Customer);
- Portfolio management (use of new types of data, artificial intelligence);
- Automation of back/middle office processing (e.g. use of blockchain);
- Risk management with frequent and extensive use of outsourcing, in particular with innovative start-ups (e.g. RegTech)150 or integrated platforms (e.g. Aladdin from BlackRock).151

Digitalisation is radically transforming the operational processing chains and organisation of asset management companies, by integrating management, marketing and sales processes, in particular.

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151 For a description of Aladdin, see, for example, Arner, Birdthistle, Buckley, Zetsche (2020); Financial Operating Systems; European Banking Institute Working Paper Series 58; University of Hong Kong Faculty of Law Research.
Third trend: Concentration of product range

There is a trend towards a concentration of the product range around passive management (see section 3.6), on the one hand, and certain specialised or alternative management products aimed at satisfying a search for additional yield (e.g. investment in “private” securities, see section 3.7) and/or ESG criteria, on the other. These types of strategies are not completely unrelated — some active management strategies can be offered in the form of systematic index-linked management, and active ETFs, although still small in terms of assets under management, are growing rapidly. As far as passive management is concerned, there is still significant development potential in Europe judging by the advanced development of the US market. Moreover, this growth increases the competitive pressure on on-going fees mentioned above. This seems to suggest that the largest funds have the ability to attract subscriptions (“winner takes all” effect, Figure 104) and ressortir. In the United States, the ten largest management companies attracted 81% of positive mutual fund inflows in 2018. The corresponding figure in the more fragmented European market was 29%. Furthermore, BCG has linked this effect to the market downturn at the end of 2018, which could be repeated following the COVID-19 crisis.

Source: McKinsey, AMF.

Figure 103: Change in functional costs in Western Europe (base 100 in 2007)

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Source: McKinsey, AMF.
Figure 104: The “winner-takes-all” effect is stronger in the United States than in Europe

Net flow ranking by player (2018, billion USD)

Sources: Simfund, Strategic Insight; BCG, AMF

Note: The analysis excludes MMF and includes funds of funds; variable annuities are excluded in the US.
1 C. Schwab ($30 bn), Fidelity ($21 bn), Dimensional Fnd Adv. ($16 bn), Ed. Jones ($16 bn), PIMCO ($14 bn), TIAA ($10 bn), First Trust ($9 bn).
2 85% in 2017.
3 Mercer ($14 bn), Baillie Gifford ($11 bn), SSGA ($9 bn), BlackRock ($8 bn), L&G ($8 bn), Allianz GI ($7 bn), Royal London ($7 bn). 4 35% in 2017

Fourth trend: Unit profitability under pressure pression

Profitability is highly sensitive to changes in assets under management, which is itself determined essentially in the short term by market trends, as shown in Figure 105. However, BCG shows that, although the increase in assets under management resulted in a 2% annual increase in industry income in 2019, this actually masks a decrease in unit income: as a ratio of assets under management, income fell from 26.2 bps to 25.3 bps between 2018 and 2019. The 4% increase in costs over the period (i.e. double the rate of income growth) also contributed to increased pressure on margins. In France, however, the profitability of portfolio management companies remained above 20% in 2018 (Figure 105).

Figure 105: Change in operating margin of asset management companies and CAC 40 companies

Source: AMF, Key figures for asset management in 2018; November 2019

156 En France, entre 2013 et 2018 ces commissions de gestion ont représenté près de 80 % des produits d’exploitation des sociétés de gestion de portefeuille. Il en résulte une forte corrélation entre les indices boursiers et la marge d’exploitation des sociétés de gestion.
Appendix  Figures: Monitoring of the population of French funds by redemption and cumulative valuation tranches (as a percentage of NAV at the beginning of the period)

MONEY MARKET FUNDS (€366 billion as of February 18, 2020)

EQUITY FUNDS (€353 billion as of February 18, 2020)

BOND FUNDS (€323 billion as of February 18, 2020)
Of which BOND FEEDER FUNDS (€16 billion as of February 18, 2020)

Valuation effect

Inflows/redemptions effect

Of which IG BOND FUNDS (€35 billion as of February 18, 2020)

Valuation effect

Inflows/redemptions effect

Of which HY BOND FUNDS (€155 billion as of February 18, 2020)

Valuation effect

Inflows/redemptions effect

DIVERSIFIED FUNDS (€341 billion as of February 18, 2020)

Valuation effect

Inflows/redemptions effect
CHAPTER 4: HOUSEHOLDS SAVINGS

The covid-19 crisis has not been without consequences for household savings and has intensified the trends observed in 2019: increase in the household savings ratio, massive investments in risk-free banking vehicles and renewed interest of some households for equities in a counter-cyclical approach, but all of which probably correspond to an opportunistic short-term strategy rather than a long-term investment.

For retail investors already exposed to equity markets, the Covid-19 crisis may have resulted in financial losses, which could lead to increased wariness of risky assets if past behaviour is anything to go by. In the wake of the fall in the markets in 2008, French households shied away from equities, behaving in a procyclical manner and chose not to take advantage of the strong rebound that followed (rather than an increase in risk aversion, it was their expectations of price movements that were pessimistic). This increased wariness combined with a search for yield in a low interest rate environment that is likely to continue, could encourage these retail investors to turn to products that are not suitable for them, which are highly risky or complex such as the private equity, structured products or crypto-assets.

Beyond the choice of financial product, the choice of tax wrapper should not be overlooked because not all have the same advantages and disadvantages. Given this, it is important for savers to carefully assess the characteristics of each proposed tax wrapper in order to choose the most suited to their profile.

Lastly, many retail investors rely on their real estate assets to meet future ageing-related expenditure, and a significant proportion of their assets are therefore invested in real estate, either directly or indirectly. It is therefore a legitimate question to ask what impact the Covid-19 crisis might have on residential and commercial real estate and consequently on households.

4.1. THE COVID-19 CRISIS HAS ALREADY EXACERBATED THE TRENDS OBSERVED IN 2019 ON HOUSEHOLD SAVINGS: INVESTMENT IN RISK FREE AND LIQUID VEHICLES, ETC

For the third year in a row, the savings ratio for French households rose to an annual average of 14.9% in 2019. This trend has intensified in the first quarter of 2020. During this period, the household savings ratio jumped to 19.6%, of which 10.4% related to financial savings (a level not seen since the late 1970s). This was due to the Covid-19 crisis and the lockdown measures that prevented French households from spending and instead generated forced savings. The lifting of the lockdown measures will not necessarily put a brake on savings, as some French people will want to err on the side of caution given the high level of uncertainty and worsening economic conditions. Unemployment, which is expected to rise, and increased uncertainty are two factors that actually benefit savings, not to mention the deterioration in public finances. Savings behaviour will be determinant for the future macro-economic trajectory: the consumption of the savings surplus could foster the economic recovery.
At a time when the need for individual financing of ageing-related expenditure is becoming more pressing, French households have never placed so much in risk-free and low-yielding banking vehicles. In 2019, a new record was set, with €73.3 billion invested by retail investors in currency and deposits. Life insurance inflows were also buoyant, reaching €49.0 billion, the highest level since and including 2015. Of this €49 billion, just over €44 billion was invested in euro-denominated funds.

The attractiveness of liquid and risk-free savings for retail investors also increased in the first three months of 2020. During this period, €35.3 billion was invested in cash and deposits by households, self-employed individuals and non-profit institutions serving households (vs €89.0 billion in 2019). It could increase over the rest of the year if households were to anticipate a future rise in taxes as a result of increased public spending in response to the health crisis. This effect, known as the Ricardo-Barro effect or Ricardian equivalence, highlights a trade-off between household spending and savings depending on the health of public finances and has already been seen in France in the past. For example, an INSEE study\(^{158}\) shows that a Ricardo-Barro effect may be seen in France when the impact on public finances is fairly significant, which will be the case with the Covid-19 crisis.

Analysis over a prolonged period (1971-2011) shows a temporary increase in household spending following an improvement in the structural primary balance, which disappears over the long term. However, the correlation between household spending and public savings seems to exhibit non-linearities. The response of households would therefore appear to be stronger when there are significant changes in public savings. Conversely, small changes in the structural primary balance would have no impact on household behaviour.

After the subprime crisis, households did save more, either because they were expecting a future tax increase or as a precautionary measure\(^{159}\). The decrease in the savings ratio over the period 2010-2013 could similarly be explained by an improvement in public finances.

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\(^{159}\) It is difficult to estimate with certainty which of these two effects played the greater role. Nevertheless, the econometric regressions tend to favour the first hypothesis since the change in household savings is explained by the change in the government balance and not by unemployment or consumer confidence.
Despite the keen interest for bank savings, 2019 also saw the return of some retail investors to the equity markets. Net life insurance inflows had been more oriented towards unit-linked products since 2016, and the initial public offering (IPO) of Française des Jeux in November 2019 sparked interest from many retail investors.

4.2. FALLING EQUITY MARKETS AND THE SEARCH FOR YIELD COULD LEAD SOME RETAIL INVESTORS TO TURN TO RISKIER PRODUCTS

4.2.1. With the Covid-19 crisis, some previously identified risks have materialised for savers exposed to financial markets

The Française des Jeux (FDJ) IPO in November 2019 was extremely popular among retail investors. A total of 535,000 retail investors resident in France invested when FDJ was privatised, including 340,000 who carried out no transactions since 1st January 2018. The rate of directly held shares increased to 6.9% in March 2020 (compared with 6.2% one year earlier), according to figures issued in the annual survey of investment holdings carried out by Kantar TNS on a sample of 12,000 people aged 15 and over160.

Some French retail investors also invested in investment funds through their life insurance policies shortly before the start of the health crisis. Since 2016, net inflows (not including interest, reserves for profit participations and transfers161) were directed more towards unit-linked products and this trend has intensified since the end of 2019 (Figure 108). This is mainly due to changes in the range of insurance products on offer, which now suggest the option of directing all or part of savings towards unit-linked products.

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160 For more details, see: AMF (2020), Rebound in the number of share owners. The AMF Household Savings Observatory Newsletter No. 39.

161 Not taking account of interests, reserves for profit participations and transfers allows to assess the real amounts invested by households. A different approach is however possible, especially thanks to the Banque de France data, which include those elements and give a broader vision of the flows.
However, no asset class has been left unaffected by the crisis. Between 21 February (the date defined as the start of the crisis) and 5 June, net assets for all asset classes fell: -8.8% for equity funds, -7.1% for bond funds and -7.1% for diversified funds.\textsuperscript{162} There is therefore a risk that the increasing investment by retail investors at the top of the cycle, shortly before the crisis, could lead to financial losses, increase their future wariness and deter them from financial markets, whereas a post-crisis period is favourable from a financial point of view for retail investors (and useful for the financing of non-financial corporations). In a climate where long-term financing needs are growing, a sound strategy for retail investors with a sufficiently long investment horizon who want to diversify their savings while accepting some risk includes buying equities when their value has fallen (see Darpeix and Mosson (2018, 2019)).\textsuperscript{163}

4.2.2. Prolonged low interest rate environment and potential wariness of financial markets could create new risks with products whose risks are not well assessed

The measures taken by central banks in response to the health crisis are expected to prolong the low interest rate environment. The search for yield and the potential wariness of the financial markets from retail investors who have suffered losses could lead them to invest in complex or risky assets that they may not understand or even invest in unregulated products or be drawn in by investment scams.

- Attractive yields from private equity should not overshadow inherent high risks

In a low interest rate environment, yields from private equity can be particularly attractive to an investor. According to a study by France Invest in partnership with EY,\textsuperscript{164} the net annual performance of French private equity firms was 11.3% for a 10-year investment ending at the end of 2019. The PACTE law (Action Plan for Business Growth

\textsuperscript{162}Regarding FDJ, it should be noted, however, that despite a 39% drop in its share price between 21 February 2020 and 19 March 2020, the share price increased by 38% between the company’s IPO and 5 June 2020.


and Transformation) has made it easier for retail investors to access this asset class, although the risks inherent in this investment and the impact of the Covid-19 crisis on this sector (see Chapter 3) should not be overlooked.

An implementing decree for the PACTE Law now allows certain retail investors to invest in Professional General Investment Funds (FPVGs), Professional Private Equity Funds (FCPIs) and Specialised Professional Funds (FPSs) through unit-linked life insurance. This decree therefore broadens the possibilities for private equity investment, as previously only holding units in Retail Private Equity Funds (FCPRs) was possible in life insurance. Given the double-digit yields posted over the past few years and the low interest rate environment, some retail investors could be drawn to invest in these types of products. Nevertheless, investment in the newly eligible products is highly regulated and will only be available to a limited number of retail investors, which should help to limit the risk of poor marketing.

Are there any unpleasant suprises with structured products carrying a conditional guarantee?

The popularity of structured products among retail investors has increased steadily since the early 2000s. Structured products are financial products whose behaviour depends on a mathematical formula that is known in advance and describes the various possible scenarios. Their performance is conditioned by the level of the underlying asset, often a blue chip equity index (Euro STOXX 50, CAC 40 or a related proprietary index that affects dividend payments). Driven by attractive yields and a conditional or even total guarantee, investment in such products has increased steadily in France (excluding the period 2012-2014) and has accelerated significantly since 2016, reaching an all-time high in 2018. The low interest rate environment and the search for yield has led to the gradual move away from total capital protection. However, a growing number of structured products sold in France include a conditional guarantee that may continue to be attractive to retail investors: the capital repaid at maturity is reduced if the performance condition on the underlying asset is not met (the “reverse convertible” mechanism). As a general rule, the formula attached to the product stipulates that, at maturity, the principal is repaid at 90% or 100% of the nominal amount only if the value of the underlying asset has not decreased by more than X% from its initial level. Typically, this barrier level is set at around 40%. The number of products with such a mechanism has seen almost unabated growth for nearly 20 years and, at the end of the period, accounted for 93% of products sold (or 88% of volumes representing almost €10 billion).

Until the Covid-19 crisis, the strong past performance of the markets, including in early 2020, had led to the early redemption of many products. Despite the fall in equity markets (which backed 96% of the products), it would appear that losses on structured products are still limited for the time being, as the fall in the equity markets was significant but short-lived, since this was followed by a rebound. Nevertheless, future losses cannot be ruled out; it depends on how the stock market indices perform going forward, especially in relation to products issued at the top of the cycle.

In addition to the risk of financial loss, the risk of misunderstanding the product could also arise because the product documentation is sometimes unclear to unsophisticated investors. It is for this reason that the AMF published policy (position DOC-2010-05 on the marketing of complex financial instruments) aimed at limiting,

165 Decree No. 2019-1172 of 14 November 2019 promoting investment in the economy through the dissemination of private equity.
166 Only those retail investors who invest more than €100,000 or who have the necessary knowledge and experience can subscribe to these products, and they cannot invest more than 50% of the policy’s assets under management. For European long-term investment funds (FEILTs or ELTIFs), the threshold is lowered to €10,000.
168 55% of products maturing between 2003 and November 2018 had a nominal gross annualised return of 5% or more.
169 It should be noted, however, that the finding is different when considering the volumes sold. Despite an increase since 2012, volumes sold have remained far from the peak achieved in 2007.
170 The products that can be “called” before maturity (autocalls) have developed during the last years. According to the AMF study, autocalls represented between January 2018 and November 2018 almost 92% of structured products sold in France. For a broader description of those products and associated risks, see Chapter 2 p.41.
171 AMF (2018), « Placements à formule » lisibilité et appropriation de la documentation par les épargnants. AMF Risques et tendances, only in French.
based on predefined criteria, the complexity of products with a risk of capital loss greater than 10%. The AMF study shows that this AMF policy has reduced the complexity of the formulae (the number of mechanisms involved), but that its effects have been attenuated by an increase in the number of scenarios in the formula (now usually 4). Added to this is the complexity resulting from the use of complex indices, in particular proprietary indices that subtract, on a pro rata basis over time, a given amount, or a “decrement”, from the level of an index such as the Euro STOXX 50 Total Return. This has multiple effects:

- Product yield is sensitive to how the decrement is calibrated.
- Even a small decrement, accumulated over a long maturity, can greatly reduce the expected yield.
- Other index complexity factors — e.g. equal weighting (which favours small caps) or the inclusion of environmental, social and governance (ESG) criteria — may also have to be taken into account.
- Proprietary indices are often less transparent about their calculations and methodologies (L. Grillet-Aubert (2020)).
- The use of these indices tends to increase management fees, therefore favouring profiles where higher coupons (and risks) make the level of fees less obvious.

However, where the barrier level was not breached, structured products were able to play their role in reducing volatility by limiting losses when compared with direct investment in equity markets. This is why, provided that product functionality and the associated risks are well understood, these products can be interesting alternatives, as part of a diversification policy, for example.

- Investing in crypto-assets remains vulnerable to operational risks or poor understanding

The fall in the stock markets could favour the development of alternative and non-traditional investments, a group that includes crypto-assets. A report by the Association for the Development of Digital Assets (ADAN) highlights the growing interest of investors (both individuals and companies) seeking to diversify into this asset class. However, the risks associated with these investments should not be overlooked. The first risk associated with crypto-assets is that of a fall in their value. All the more so since its correlation with the CAC 40 strengthened during the Covid-19 crisis. It had been 65% since 2015 but increased to 96% between 17 February and 18 March 2020.

Figure 109: Bitcoin price (in euros)

Figure 110: Change in CAC 40 and Bitcoin in euros (base 100 on 1 January 2020)

Source: Refinitiv Datastream

172 In its field of expertise, the ACPR published an equivalent policy in the form of a recommendation.
175 During the Covid-19 crisis, the price of Bitcoin fell by 48% between 13 February and 17 March 2020 before recovering.
In addition to the risk of loss of value, crypto-assets are also prone to operational risks. The US cybersecurity company Cipher Trace estimates that theft, hacking and scams related to crypto-assets amounted to $4.5 billion worldwide in 2019.

![Figure 111: Theft, hacking and scams related to crypto-assets (in EUR million)](image)

Source: Cipher Trace Cryptocurrency Intelligence

Since the introduction of the PACTE Law, supplemented by Decree No. 2019-1213 of 21 November 2019, some service providers involved in crypto-assets must now be approved by or registered with the AMF. The mandatory registration issued by the AMF on receipt of the ACPR’s consent applies to firms in France providing digital asset custody services on behalf of third parties and/or providing the services of buying or selling digital assets in a currency that is legal tender. Registration requires compliance with requirements focused on the integrity of key managers and shareholders and on the framework for managing money laundering risks and freezing assets.

The optional authorisation issued by the AMF applies to service providers established in France that provide one or more of the services listed in Article L. 54-10-2 of the Monetary and Financial Code (digital asset custody on behalf of third parties, purchasing or selling digital assets in a currency that is legal tender, trading digital assets for other digital assets, operating a trading platform for digital assets, receiving and transmitting orders for digital assets on behalf of third parties, managing digital asset portfolios on behalf of third parties, providing advice to investors in digital assets, underwriting of digital assets, guaranteed investment of digital assets, and unsecured investment of digital assets).

Authorisation requires compliance with various requirements in terms of organisation, business conduct and financial resources, as set out in the regulations. Authorisation may only be sought and granted to companies or branches established in France. Digital asset service providers (DASPs) are therefore required to satisfy various criteria including providing clear, accurate and non-misleading information, an adequate security and internal control system and a resilient IT system. This new authorisation will therefore provide a means of identifying serious service providers and steering investors towards platforms that meet a certain number of minimum requirements.

Similarly, as a result of the PACTE Law, an optional approval may be issued by the AMF for Initial Coin Offerings (ICOs) issuing utility tokens. To obtain an approval from the AMF four criteria must be fulfilled: be incorporated in the form of a legal entity established or registered in France, produce an information document (commonly called a “white paper”) on the ICO and the attached rights, the funded project, the issuing company and the associated
However, investing in crypto-assets remains vulnerable to operational risks. Among the risks identified, the storage of crypto-assets is a fairly widespread cause of losses. Several solutions are available to investors for storing their crypto-assets, the first being keeping their assets on the various trading platforms. However, these, as well as users’ accounts, are susceptible to being hacked. In its latest report on platform security, the analysis agency ICORating examined the level of security of 135 crypto-asset trading platforms whose daily trades exceed $100,000. According to ICORating, at the end of 2018, only 22% of the platforms tested met the four criteria used to gauge the level of security of user accounts. In addition to the hacking of user accounts, the platform itself can also be attacked. ICORating identified 10 errors and attacks that the platforms were exposed to and estimates that, on average, the analysed platforms are protected against six of these errors and attacks (the minimum being four and the maximum nine). Many platforms therefore appear vulnerable and most of them do not guarantee investors’ deposits, so losses can be significant if a platform is indeed hacked.

Another solution for the storage of crypto-assets is the use of computer software (a software wallet), a physical device (a hardware wallet) or non-digital media (a cold wallet). These solutions all carry varying degrees of risk: risk of hacking, risk of loss or theft of the computer or mobile phone on which the application or device is installed, or risk of losing private keys (impossible to reissue) and the seed phrase (used for recovery purposes).

Aside from crypto-assets, a new area of the blockchain ecosystem has been booming recently: decentralised finance (DeFi). DeFi involves offering traditional financial services in a decentralised manner by relying on blockchain technology and in particular on Ethereum’s blockchain and smart contracts. Decentralised finance activities have been on the increase over the last two years, although the amounts involved remain modest. The total value of assets locked and involved in DeFi activities has increased from just over $45 million at the end of 2017 to $1.08 billion on 17 June 2020, having peaked in mid-February at $1.24 billion according to DeFi Pulse estimates.

![Figure 112: Value locked and involved in the various applications of decentralised finance](source: DeFi Pulse)

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176 This document should also include a warning on the limited scope of the AMF approval and a broader warning on the risks associated with any investment in ICO.

177 On 15 June 2020, two ICOs obtained the approval from the AMF.


179 The four criteria are: the application does not malfunction as a result of a programming error, a high level of password security, no account can be created without verification by email, and the existence of a two-factor authentication system.

180 Most DeFi applications require a capital deposit as collateral or liquidity. The amount of locked-up capital is therefore commonly used to measure the growth of DeFi.
According to DeFi Pulse, almost 75% of the amounts locked as at 17 June 2020 are related to lending activities. At first glance, this activity may seem highly attractive to lenders, with some platforms offering variable interest rates of around 10%. In the current low interest rate environment, which is expected to continue, this type of investment could attract retail investors searching for yield, especially since some loans based on stable coins may give the impression of security, which is quite obviously not the case.

These investments are first and foremost exposed to the operational risks inherent in the use of smart contracts. In addition, the loans denominated in stable coins are secured by a crypto-asset whose value can be highly volatile. However, if the value of the crypto-asset falls, maintaining the stability of the stable coin can be difficult, which can lead to a discrepancy between its value and that of its reference currency or even to liquidity crises.

Project governance is also a risk because, while governance is centralised around the project’s founding team at the outset, it is subsequently gradually distributed in the form of crypto-assets with “voting rights” that can be traded on a secondary market. This opening up of governance may lead to a loss of the crypto-assets or to a yield that differs from that announced at the start of the project.

Lastly, as the DeFi ecosystem is tightly-knit and varied, it is not uncommon for users to be active on several DeFi initiatives at the same time. This creates a risk for applications that have not always been developed for this accumulation of interactions. It also creates the potential for crypto-asset price manipulation, in particular through instant “flash loans” with no collateral.

☐ Are new shareholders really committed to a long-term investment approach?

According to a study conducted by Luc Arrondel and André Masson based on the PATER database which measures preferences and wealth in relation to time and risk, there are three factors that explain the trends of retail shareholders:

- The “resources” available to individuals: wealth, income, level of education, financial knowledge, etc.;
- Expectations and beliefs about the future: economic expectations, expectations about oneself and long-term social expectations;
- Risk preferences: degree of risk aversion and preference for the present.

The 2008 financial crisis had resulted in a progressive decrease in shareholding by retail investors as a result of a gloomier outlook for the future. The authors therefore found no significant change in the resources or preferences of retail investors. However, the current crisis differs from the subprime crisis, because it did not stem from a financial crisis and because it resulted in a double shock to supply and demand, forcing individuals to save because they could not spend.

Using MiFID 2 transaction reporting, the AMF studied the behaviour of French institutions’ retail clients who invested directly in SBF 120 securities during the health crisis. While there was a trend towards divestment in 2019 (-€5.9 billion despite the success of the FDJ IPO), retail investors invested almost €3.5 billion in SBF 120 securities between 2 March and 3 April 2020. This represents a fourfold increase in retail investor purchases compared with the 2019 average. At the same time, French equity funds experienced limited outflows during the crisis. Cumulative net subscriptions (from retail and institutional investors) between 18 February and 25 May 2020 amounted to almost €3 billion (of which approximately €2 billion for March 2020), i.e. 0.8% of net assets at the beginning of the period. At first glance, the attractiveness of equities to retail investors in times of crisis seems to

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181 Source: https://loanscan.io/
182 It should be noted that the interest rate displayed then varies according to supply and demand, so the interest rate displayed initially is not guaranteed for the entire term of the loan.
183 A stable coin is a crypto-asset whose value is stable and generally backed by a currency such as the dollar or the euro.
185 The rate of directly held shares stood at 6.9% in March 2020 compared with 13.8% in December 2008 according to figures issued in the annual survey of investment holdings carried out by Kantar TNS.
186 Markets Directorate (2020), Retail investor behaviour during the COVID-19 crisis, AMF.
be good news since it corresponds to a counter-cyclical strategy, a type of behaviour that retail investors find hard to adopt. It seems unlikely that the Covid-19 crisis has changed retail investors’ preferences, in contrast to the previous crisis. However, the fact that there was no financial cause for the crisis may have prompted some retail investors to invest in equities.

However, the investor profile is interesting because, of the 580,000 retail clients who bought shares between 24 February and 3 April 2020, almost 150,000 of them carried out no transactions in 2018 and 2019. These new investors are much younger than regular clients, on average between 10 and 15 years younger. It is therefore legitimate to ask whether these new investors are committed to a long-term investment and diversification approach, if they are willing to take some risk and whether they have the necessary knowledge to undertake these investments, because, in the case of an order receipt and transmission service, suitability tests are not carried out prior to the investment being made.

4.3. DO RETAIL INVESTORS WISHING TO INVEST LONG-TERM IN EQUITIES MAKE THE RIGHT CHOICE BETWEEN UNIT-LINKED PRODUCTS AND SECURITIES ACCOUNTS?

A retail investor wishing to invest in the financial markets can choose between several tax wrappers: unit-linked life insurance, an ordinary securities account, an equity savings plan (PEA) or a retirement savings plan (PER). These last two wrappers carry heavy restrictions in terms of the investment universe and release of funds respectively. Conversely, unit-linked life insurance and the ordinary securities account both offer greater flexibility, but both wrappers have their own specific characteristics. Up to now, life insurance has largely been offered by bank advisers, unlike securities accounts: according to the results of the AMF’s latest mystery shopping campaigns, life insurance was offered in 93% of cases with a risk-loving profile and in 88% of cases with a risk-averse profile. For ordinary securities accounts, these figures are 17% and 13% respectively. Besides, communication regarding the benefits and drawbacks of the unit-linked life insurance is not always well balanced: the advantages have been described to the risk-loving investor in 86% of cases (respectively 74% for the risk-averse profile) whereas the disadvantages have been described in only 32% of cases (respectively 31% for the risk-averse investor).

Taxation is the first major difference between unit-linked life insurance and ordinary securities accounts. The ordinary securities account is by default subject to the flat tax rate of 30% regardless of the length of time the account is held, but the investor can choose to be taxed at the personal income tax rate (in which case, possible deductions may be applied). Conversely, taxation of unit-linked life insurance depends on the length of time the policy is held and the amount invested and includes an annual allowance (Table 12 In this case too, it is possible to opt to be taxed at the personal income tax rate. In addition to the tax rate, the frequency of taxation differs between the two wrappers: for the ordinary securities account, taxation occurs at the time of each arbitrage transaction or dividend or coupon payment, and for the insurance wrapper, at policy surrender or on the death of the policyholder.

187 AMF (2019), Results of the two “risk-averse” and “risk-loving” mystery shopping campaigns conducted under MiFID 2.
Life insurance has interesting features in terms of estate planning. In the event of the account holder’s death, the assets of the ordinary securities account are fully included in the estate, whereas for life insurance there is an allowance on the amounts bequeathed, which varies depending on the age of the policyholder at time of death and subject to a maximum of €152,000. This specific allowance adds to the broad allowance on inheritance tax (subject to a maximum of €100,000) and is therefore attractive for savers with a high patrimony or for estates which benefit little from the broad allowance.

Furthermore, the two wrappers have significantly different fee structures. Securities accounts charge brokerage and custody fees, the rates of which decrease the higher the value of the order and the amount of capital invested. If the investor also wishes to invest in fund units, the fund-specific fees are additional to the wrapper fees. Unit-linked life insurance, on the other hand, charges annual management fees proportional to the assets held, to which any payment fees and arbitrage fees may be added. The assets invested in unit-linked life insurance are essentially invested in investment funds, since holding securities directly is, in general, not possible. The fund-specific costs must therefore be added. Holding a securities account may therefore be less costly in total in terms of fees than unit-linked life insurance, especially if the amounts invested are substantial.

Lastly, there is a fundamental difference between life insurance and ordinary securities accounts in terms of portfolio management, which can be easier with an ordinary securities account, because this is more reactive and more transparent, especially when the portfolio is composed of direct investments in shares. The various types of orders available with an ordinary securities account offer greater flexibility and some, such as the limit order, provide control over the buy or sell price of the directly held securities. The possibility offered in life insurance to establish automatic arbitrage strategies as the stop loss provides some control on the change of underlying’s valuation, but arbitrage transactions on a unit-linked life insurance policy can take several days (even if the underlying funds publish a daily net asset value) and the price of executing these transactions is unknown. This situation may have been exacerbated during the crisis when volatility was high.

The two wrappers therefore have different characteristics with their respective advantages and disadvantages. The wrapper chosen by a particular retail investor must therefore be based on their personal situation, expectations and preferences. Life insurance will be more suitable for some retail investors, while for others, the ordinary securities account may be preferable. A retail investor wishing to invest in the financial markets must

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Table 12: Taxation applicable to income from capital
(by duration held = d)

<table>
<thead>
<tr>
<th>Final rate</th>
<th>Taxe rate</th>
<th>Social security charge rate</th>
<th>Final rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>d &lt; 8 years</td>
<td>30,0%</td>
<td>12,8%</td>
<td>17,2%</td>
</tr>
<tr>
<td>d &gt; 8 years</td>
<td>&lt; €150 k:</td>
<td>7,5%</td>
<td>17,2%</td>
</tr>
<tr>
<td></td>
<td>&gt; €150 k:</td>
<td>12,8%</td>
<td>17,2%</td>
</tr>
<tr>
<td></td>
<td>Annual allowance of €4600 (€9200 for a couple) after 8 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

in green: possibility of choosing “Social security charge (SSC) + individual income tax” taxation instead of the fixed rate

Source: Service-Public.fr, AMF calculations

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This analysis does not take into account any opening or closing fees.

For more details, see: AMF (2020), Financial investment fees. The AMF Household Savings Observatory Newsletter No. 37.

Life insurance policies governed by Luxembourg law, which are offered in France to wealthy clients and which allow investment in directly held securities, are not considered here.
carefully examine the various characteristics of the different wrappers in order to choose the one that best suits their particular circumstances and, if necessary, seek help from a professional.

4.4. WHAT CONSEQUENCES COULD THE HEALTH CRISIS HAVE ON HOUSEHOLDS EXPOSED TO REAL ESTATE?

In addition to bank deposits and life insurance, a significant proportion of French people’s savings is invested in real estate. According to the AMF’s savings barometer,\(^1\) nearly half of the individuals surveyed consider that real estate is a suitable long-term investment (15 or 20 years). Not surprisingly, therefore, housing and land accounted for 65.6% of French people’s net wealth in 2018 (Figure 119). French households are also indirectly exposed to residential and commercial real estate through real estate funds. The net assets of real estate collective investment undertakings open to retail investors rose once again in 2019 to €21.8 billion (up 23.2% in one year). The increase in assets under management in real estate funds was broad-based in 2019 (see Figure 113). Households’ exposure to real estate is therefore twofold: they invest directly to buy their homes or for rental investment projects, and they are indirectly exposed to residential and commercial real estate through their investments in real estate funds.

\[\text{Figure 113: Change in French real estate funds} \]
\[\text{(capitalisation and net assets, in EUR billion)}\]

However, French residential real estate was the subject of a warning from the European Systemic Risk Board (ESRB) in September 2019. France is one of the 11 countries\(^2\) that received a warning or a recommendation following the detection of certain vulnerabilities related to the residential real estate sector. The ESRB’s analysis for France expressed concern about: high and rising household debt; a deterioration in the quality of loans approved; and a significant rise in residential real estate prices in some cities, with rents and rental income sometimes comparatively high.\(^3\) The following month, the High Council for Financial Stability (HCSF), in its analysis of the risks in the residential real estate sector,\(^4\) noted that there were no clear signs of overpricing and that households had little exposure to a fall in prices. It did however highlight the rise in household debt (household debt in relation

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1. AMF (2019), AMF Savings and investment barometer: annual study on investor attitudes towards and opinions of financial products.
2. The Czech Republic, Germany, Iceland and Norway received an alert, and Belgium, Denmark, Luxembourg, the Netherlands, Finland and Sweden received recommendations.
to GDP has been rising steadily in France since the early 2000s, reaching 98.1% at the end of 2019) and the easing of conditions for approving loans (longer maturities and higher debt service ratios).

Table 13 : Change in the characteristics of mortgages between December 2014 and December 2019

<table>
<thead>
<tr>
<th></th>
<th>Dec-14</th>
<th>Dec-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average loan to value</td>
<td>84.4%</td>
<td>88.8%</td>
</tr>
<tr>
<td>Down-payment rate &lt; 5%</td>
<td>20.1%</td>
<td>26.9%</td>
</tr>
<tr>
<td>Average initial duration</td>
<td>17.8 years</td>
<td>20.4 years</td>
</tr>
<tr>
<td>Ratio of monthly payments to income &gt; 35%</td>
<td>24.42%</td>
<td>25.16%</td>
</tr>
</tbody>
</table>

Source: Statistics on monthly housing loan approvals, ACPR

In response, the HCSF recommended in December 2019 that banks limit the debt service ratio to 33% and maturity to 25 years. However, an exemption is possible (up to 15% of the quarterly loan amount approved) for some of the mortgages granted, in particular mortgages to first-time buyers and those buying their main residence, provided that the debt-to-income ratio for these borrowers does not exceed seven years.

Given the significance of real estate in French households’ assets and the concerns raised at European and national levels, it is interesting to consider (i) the impact that the health crisis could have on real estate prices and (ii) whether households are likely to be affected as a result.

4.4.1. What impact could the crisis have on real estate prices?

☐ On commercial real estate

The health crisis is putting businesses under pressure, which have undergone a slowdown or even a halt in activity and a decrease in demand. In order to help very small enterprises (VSEs) the emergency Law No. 2020-290 adopted on 23 March 2020 to face the Covid-19 epidemic and the ordinance No. 2020-306 of 25 March 2020 regarding the payment of rent, water, gas and electricity bills for professional premises leased by companies whose activity is affected by the spread of the Covid-19 epidemic have forbidden, for companies eligible to the Solidarity Fund, the application of “financial penalties, late-payment interest, damages, fines, termination or penalty clauses or clauses providing for the forfeiture or activation of any security deposits or guarantees because of non-payment of the rent or tenancy charges”. It is feared, however, that many businesses, not just VSEs, will find it hard to pay their rent and more generally, to cope with the crisis.

Commercial real estate prices could also be affected by the crisis. The crisis could indeed push some companies into bankruptcy and, given the extremely uncertain outlook, discourage the creation of businesses, thus exerting downward pressure on prices. Furthermore, the increase in working from home as a result of the lockdown measures could encourage businesses to promote this way of working and reduce their demand for office premises.

☐ On residential real estate

The Covid-19 crisis and the lockdown measures introduced to contain the spread of the virus among the population initially led to a paralysis of the real estate market, making viewings impossible. In the longer term, the Covid-19 crisis could decrease the supply of new housing (difficulties for real estate developers), increase the supply of used housing, but above all dampen demand (increased uncertainty, decreasing incomes, and reduced ability of banks

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195 Recommendation R-HCSF-2019-1 on changes in the residential real estate market in France with regard to approving credit, HCSF, December 2019, in French only

196 The eligibility requirements relate to annual revenue, annual profit and the impact of the crisis on the business/revenue.
to lend). From the supply side, an increase in unemployment or a drop in income caused by a slowdown in the economy could push borrowers to their repayment capacity limit or even lead to an increase in mortgage defaults. Affected households could then find themselves forced to sell their real estate assets, further fuelling housing supply. This risk seems however limited by the large proportion loans with fixed interest rates\textsuperscript{197} and the French social welfare system.

At the same time, the Covid-19 crisis could reduce the demand from households for housing. The global health crisis and the reduction in economic activity that it has generated may, on the one hand, lead to an increase in unemployment and a decrease in the purchasing power of French people.

Over the period 2000-2015, Jacques Friggit\textsuperscript{198} estimates that an increase of 1\% in the unemployment rate correlates with lower growth in house prices of around 3\%.\textsuperscript{199} A change in retail investors’ priorities may, on the other hand, occur. If the Ricardo-Barro effect were to play out in France, the economic support plans put in place by the government should lead to an increase in precautionary savings. There is also a risk that this unprecedented crisis will affect the confidence of French households, causing them to forego all investment, in particular any plans they had to buy real estate, thereby reducing demand for housing. Lastly, the fall in stock prices could have an ambivalent effect by reducing the savings invested in equities that some households were earmarking for a real estate purchase and by fuelling uncertainty while making real estate appear to be a safe haven.

\textsuperscript{197} According to the ACPR’s annual housing finance survey, 98.5\% of new mortgages issued in 2018 and 94.6\% of outstanding mortgages at the end of 2018 were fixed-rate mortgages.

\textsuperscript{198} Jacques Friggit is a specialist in the trends in the French real estate market within the General Council for the Environment and Sustainable Development (CGEDD).

Changes in mortgage interest rates, which have supported real estate prices in recent years, will be a determining factor, as will the ability of the social welfare system to play its role as a crisis shock absorber.

Ultimately, the consequences of the crisis seem to have sometimes contradictory effects on the supply and demand for residential real estate, and their respective magnitudes will therefore be a determining factor. The impact could also differ depending on location, favouring the suburbs or provincial areas to the detriment of large cities.
Table 14: Potential impacts of the health crisis on residential real estate supply and demand

<table>
<thead>
<tr>
<th>Impacts of COVID-19 crisis</th>
<th>Impact on supply</th>
<th>Impact on demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors creating a downward pressure on residential real estate prices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase in unemployment</td>
<td>↘</td>
<td>↘</td>
</tr>
<tr>
<td>Decrease in income</td>
<td>↘</td>
<td>↘</td>
</tr>
<tr>
<td>Factors creating an upward pressure on residential real estate prices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction site stoppages</td>
<td>↘</td>
<td>↘</td>
</tr>
<tr>
<td>Real estate considered a safe haven</td>
<td>↘</td>
<td>↗</td>
</tr>
<tr>
<td>Factors with unclear consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased uncertainty</td>
<td>↘</td>
<td>↘</td>
</tr>
<tr>
<td>Ongoing low interest rate environment</td>
<td>↗</td>
<td>↗</td>
</tr>
</tbody>
</table>

4.4.2. What effects could the crisis have on households exposed to real estate?

- Real estate funds could suffer as a result of the Covid-19 crisis

According to data from the French institute for real estate and land investments (Institut de l’Épargne Immobilière et Foncière, IEIF), commercial real estate accounts for 93% of real estate investment companies (SCPIs) market capitalisation at the end of 2019. Similarly, as at 31 December 2018, 98% of the real estate assets of real estate collective investment undertakings (OPCIs) for the general public consisted of commercial real estate. Real estate funds should not therefore be significantly impacted by changes in residential real estate prices, but they do depend significantly on the commercial real estate situation.

In response to the measures introduced by the government to support businesses, associations and federations representing landlords have called on their members to defer, stagger or even cancel rents for certain VSEs and SMEs. This could reduce the rents paid to real estate funds and thus negatively affect their performance. It could also weaken their financing model if they are in debt and repaying this debt relies on rents being received. Furthermore, a fall in real estate prices would lead to a fall in real estate fund unit prices, thereby further penalising the yields of these funds.

Uncertainty about the prices of underlying assets could force fund managers to suspend some of their funds, as has been the case in Great Britain, Ireland and Canada, for example. However, no French real estate funds have been suspended so far.

A decrease in the yields or unit prices of real estate funds could also increase redemption requests from investors, which could force the funds either to suspend redemptions or dispose of assets probably at a lower price, further penalising their performance. However, this risk appears to be limited insofar as SCPIs are closed-end funds with no obligation to honour redemption requests without a corresponding subscription, and OPCIs reserved for professional investors have mechanisms to limit redemptions. The risk referred to would therefore only concern OPCIs open to retail investors that are open-ended funds. It should however be noted that when these funds are held through unit-linked life insurance, the insurer may decide to retain the fund units following the client’s redemption request, which limits the pressure that could be exerted on real estate funds. To measure the extent of this risk, in 2016 and under the aegis of the HCSF, the AMF conducted stress tests on French OPCIs open to retail investors. Several shocks were simulated, with the most severe forecasting a 60% decline in office prices in the Île de France region and a 50% outflow of initial liabilities from real estate funds spread over two months on a

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200 Press release from the associations and federations of lessors on the measure that enables microbusinesses and SMEs to suspend their rental payments, March 2020.
201 Press release from the associations and federations of lessors on the automatic cancellation of commercial rents for microbusinesses and deferred payment arrangements for other businesses, April 2020.
202 HCSF (2017), French commercial real estate market: Updated analysis and stress test results.
linear basis. The results of the stress tests demonstrated OPCIs resilience to redemption requests, except for a few funds that temporarily would not be able to meet liquidity or diversification requirements.

At this stage, French real estate funds do not appear to be facing any major difficulties. Between the beginning of January and the end of May 2020, their net assets even increased by 2%, and the funds experienced a cumulative positive flow effect (+€1.6 billion) that exceeded the valuation effect (-€225 million).

- A fall in residential real estate prices would primarily penalise households relying on their real estate assets to finance their ageing-related expenditure

Most indebted owner households not wishing to sell would be protected by fixed interest rates and the French social welfare system. However, households having to sell their real estate could be affected in different ways depending on their situation. In the case where larger surface areas would be hit harder by the price decrease, households wishing to sell their real estate to buy something with a smaller surface area would be more impacted since the price decrease would be greater for the real estate sold than for that bought. This could affect retired people or individuals close to retirement who no longer have dependent children. Furthermore, a decrease in real estate prices would also penalise individuals selling in life annuity. As a result, a decrease in real estate prices could impact individuals relying on their real estate assets to supplement their pensions, thus further complicating the financing of their retirement.
In 2019, the savings ratio stood at 14.7%, the highest level since and including 2013. The financial savings ratio rebounded slightly to 4.3%.

A new record was set again this year. French households invested €73.3 billion in bank savings products in 2019 (currency and deposits).

Among bank investments, transferable deposits and sight deposits (Livret A passbooks, etc.) were particularly buoyant.

Figure 118: Breakdown of household wealth*

Figure 119: Structure of gross household assets at end-2018

Figure 120: Households’ main net financial assets*

*Households excluding self-employed individuals and non-profit institutions serving households (NPISH).

Source: INSEE, Household balance sheet accounts (13/11/2019)

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

(*) Ménages hors entreprises individuelles et institutions sans but lucratif au service
Figure 121: Breakdown of investment flows into “cash and deposits” (annual flows, in EUR billion)

Figure 122: Investment flows into “cash and deposits” and loans (annual flows, in EUR billion)

Source: Banque de France, National financial accounts, 2010 base, calculations by AMF
Scope: Households excluding self-employed individuals and non-profit institutions serving households (NPISH).
FOCUS - MARKET DATA: A NEW REGULATORY AGENDA

The production and use of financial and non-financial data are increasingly influencing the operation and performance of economic agents, in particular operators and stakeholders in financial markets. Indeed, they reflect the interests of a market in its own right, whose organisation remains to be specified and harmonised. This trend has motivated various initiatives by the competent authorities, who are identifying strategic issues and planning to legislate on numerous aspects.

On 19 February 2020, the European Commission published a European strategy aiming to specify the architecture of the European Union data market and initiated/launched two public consultations, one on this strategy and the other on artificial intelligence (AI). The proposed strategy underlines the economic implications of and the need to manage and facilitate the access to, and use of, data. The EU data economy represents a global production of 33 zettabytes of data (in 2018), worth €301 billion (2.4% of GDP), employs 5.7 million data specialists, and is growing very strongly. For example, the quantity of non-structured data produced is increasing by an estimated 80% per year. Based on this, the Commission identifies:

- **General objectives** of a good flow of data within the EU across sectors, and good regulation especially with regard to: i) protection of personal data and consumers; ii) competition concerning the provision of data; iii) fairness, effective functionality and clarity of access to data and of user rights. The importance of clarity and reliability of data governance, notably on the global level, is stressed here;

- **Specific problems**, concerning competition between suppliers, data interoperability and quality, data governance, the infrastructures and technologies employed, and the exercise of personal protection rights. In particular, questions are raised regarding data as a public good, and regarding cross-access to data, notably between the public sector (G) and/or private sector (B) (G2B, B2B, B2G, G2G).

Based on this, the Commission wants to promote investment and create a European legislative framework to avoid the adoption of national legislations that might induce a lack of consistency:

- **Intersectoral governance** of the access to and use of data, e.g. to:
  - Define standards for identification, authentication and access control;
  - Identify use cases in which the re-use of intersectoral data can be supported by normalisation or standardisation;
  - Produce guidelines concerning lawful processing techniques, the protection of sensitive commercial information, and the application of competition law.

- **A framework conducive to the supply of data**, based notably on:
  - **Reinforcement of European hosting infrastructures** (cloud computing), capacity for the processing and use of data, and data **interoperability**;
  - **Self-regulation** concerning data processing rules, notably regarding cloud services, automatic prevention and data protection systems being considered;

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203 Unit representing 10^21 bytes.
204 The Commission expects that in 2025, the data economy will represent a production of 175 zettabytes of data worth €829 billion (5.8% of GDP), and will employ 10.9 million professionals.
205 Unstructured data is represented or stored without a predefined format. They are typically made up of text documents, multimedia supports but can also contain dates or numbers.
206 “the Commission will examine attentively the potential effects on competition of large-scale accumulation of data via acquisitions, and the usefulness of data access and data sharing solutions”.

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The establishment of a European list of high-value data, by virtue of the "Open Data" directive\textsuperscript{208}, an improvement in the quality of public-sector data and the adoption of machine-readable formats, via standardised Application Program Interfaces (APIs), aiming at use by SMEs;

Investments in European Common Data Spaces in strategic sectors of public interest. The purpose, in the fields concerned, is to make available vast pools of common data and useful technical tools and infrastructures. An investment of €2 billion by 2022, adding to those of Member States and the industry, would enable to reach a total investment of €6 billion in the infrastructures concerned. In June 2020, a Franco-German initiative provided support to this European Commission program\textsuperscript{209}. In the financial sector, this data sharing aims to encourage innovation, market transparency, sustainable financing, corporate financing and market integration.

- A framework conducive to the use of data, facilitating the exercise of the rights protecting private data, skills development and use by SMEs;
- An international framework that is more harmonised, open and proactive.

Among these objectives, the Commission is considering numerous legislative initiatives Table 15, and notably the proposal of a Data Act in 2021.

**Table 15 : Timeline of the European data strategy**

<table>
<thead>
<tr>
<th>Establishment of an intersectoral governance framework for data access and use</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Propose a legislative framework for governance of the European Common Data Spaces (Q4 2020).</td>
</tr>
<tr>
<td>- Adopt an implementing act concerning high-value data sets (Q1 2021).</td>
</tr>
<tr>
<td>- Propose, if possible, a Data Act (2021).</td>
</tr>
<tr>
<td>- Analyse the importance of the data and re-examine the framework of action in the context of the Digital Services Package (Q4 2020).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catalysts: investments in data and reinforcement of European capacity and infrastructure for the hosting, processing and use of data, and interoperability.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- (Co-)Invest in European data spaces. First phase planned for 2022.</td>
</tr>
<tr>
<td>- In strategic sectors, encourage the development of European Common Data Spaces.</td>
</tr>
<tr>
<td>- Sign protocol agreements with Member States on the &quot;cloud federation&quot; (interconnection of clouds) (Q3 2020).</td>
</tr>
<tr>
<td>- Initiate a European market for cloud services, including the entire cloud service offering (Q4 2022).</td>
</tr>
<tr>
<td>- Create a collection of EU regulations for (self-)regulation of cloud computing (Q2 2022).</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Skills: give everyone the means to act; invest in skills and in SMEs.</th>
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<tr>
<td>- Study the possibility of enhancing the right to portability of natural persons (cf. Art. 20 of the GDPR), by permitting better control of who accesses and uses machine-generated data (e.g. within the framework of the Data Act).</td>
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</table>

Source: AMF based on the European Commission (2020)

The market for data, which is embryonic and growing rapidly, characterises a transformation of businesses (of their internal organisation and business models) and of their competitive interplay. The framework for assessing associated economic issues and specifying the role of public intervention in this respect, is still in development (Box5). On the one hand, in the financial sector, there are two main types of issues: issues of access to and of processing of the data of financial institutions’ clients. This point is discussed below. On the other hand, a number of issues are more market-specific. These are described in particular by a public consultation by the UK FCA\textsuperscript{210} in

\textsuperscript{208} Directive (EU) 2019/1024 du 20/06/19 on open data and the re-use of public sector information.

\textsuperscript{209} See press release dated 4 June 2020 of M. Le Maire, French minister for l’Economy and Finances and M. Altmaier, German federal minister for Economy and Energy, announcing the realisation of the GAIA-X project, a data sharing initiative regrouping 22 German and French firms making up a first step towards a European data infrastructure.

\textsuperscript{210} Call for input on accessing and using wholesale data, FCA, March 2020.
order to "better understand the provision of access to - and the use of - data and advanced analytic tools, the value added offered to market participants, and whether the data are sold and valued competitively". Three main types of data providers are considered in this regard: transactional data providers (market execution platforms) regulated under the MiFID Directive; unregulated participants who are providers of financial data and information (data vendors); and benchmark administrators.

The first type of participant is covered by a wealth of new regulatory developments on either side of the Atlantic, in jurisdictions where the obligations of best execution of stock exchange transactions are central to the organisation of exchanges established in 2007 by the National Market System regulation (Reg NMS) in the United States and the Markets in Financial Instruments Directive (MiFID) in Europe.

- Regulated data provision: specification of the role of consolidated tapes

In the United States, the best execution obligations of Reg NMS are based on the Securities Information Processor (SIP), a centrally controlled system for collection, consolidation and dissemination of NMS data on pre-trade interest (prices and quantities at the best limits of the consolidated order book) and executed trades. The SIP constantly displays the best buying and selling interests on the consolidated equity market (National Best Bid and Offer, or NBBO). Its data serve, for example, as a reference for market risk management mechanisms such as trading interruptions or restrictions on short selling. The functioning of the SIP has been criticised by market intermediaries as being obsolescent (notably because of the time it takes for dissemination) and because of the lack of competition that it leads to in the market for market data. In this respect, certain market intermediaries consider the cost of SIP data excessive, especially they consider that its shortcomings create a dependence on alternative offers of stock market data (direct data feeds), which are likewise deemed to be overpriced. Following consultation, the SEC initiated a vast plan for modernisation of the NMS. In October 2019, it submitted for public consultation rules requiring that price revisions by the SIP be submitted prior to their application, notably to prevent them from being excessively discriminatory. In February 2020, it proposed modernising the SIP infrastructure, in particular to add market depth indicators to the SIP data, to include information on the opening and closing auction, and to open up the provision of data to competition by allowing intermediaries to contribute. On 6 May 2020, finally, it formally asked the market operators concerned to propose a plan for reforming the system's governance.

In Europe, the market fragmentation brought about by MiFID did not give rise to the creation of a centralised system of information consolidation for the purpose of best execution, even though it provided for this possibility. The market is therefore based largely on the consolidation of information by market intermediaries and by unregulated data providers, whose consolidation offering remains incomplete. Here ESMA emphasises that:

- Firstly, the publication of market information suffers from numerous limitations, and it notes:
  - A lack of data standardisation and reporting of non-addressable liquidity and trades not contributing to price formation;

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211 See discussion par L. Grillet-Aubert (2020); Opportunities and risks in the financial index markets; AMF Risks & Trends; June.
212 The SIP is administered by the Consolidated Tape Association (CTA) which regroups NMS exchanges (the trading platforms of Cboe, IEX, Long-Term Stock Exchange, MEMX, Nasdaq, NYSE, and FINRA. The instruments concerned by the Consolidated Quote System (CQS) and the Consolidated Tape System (CTS) are listed equities and standardised options.
213 The price scale is posted by the Consolidated Tape Association. Jones C. (2018), Understanding the Market for U.S. Equity Market Data, describes in detail the revenues that stock exchanges derive from the sale of the SIP data.
214 Cf. e.g. The Trade; SEC looks to expand SIP with 'depth of book’ data in major overhaul plans; 18/02/20
215 In Europe, 67 regulated markets are identified (of which 6 in the UK), 111 multilateral trading facilities (30 in the UK), 73 organised trading facilities (48 in the UK) and 17 Approved Publication Arrangements or APAs (of which 5 in the UK).
216 MiFID II/MiFIR review report n°1 on the development in prices for pre- and post-trade data and on the consolidated tape for equity instruments; 5/12/19 (ESMA70-156-1606) studying the supply of data for a representative sample of ten regulated markets: BME, CBOE, Deutsche Börse, Euronext, ICE, LSE, Nasdaq Europe, Warsaw SE, Tradeweb, and Wiener Börse.
217 Namely, that does not give rise to the public display of trading orders in multilateral trading systems.
The lack of a reference source (‘golden source’) for classification of instruments used to implement reporting requirements, and the need to improve the quality of ESMA’s information systems (FIRDS, FITRS).  

A need to examine reporting responsibilities for OTC transactions and a lack of reliable, comprehensive and shared information on the status of systematic internaliser (SI) for equities;  

The need to ensure effective implementation of the reporting requirements.

Secondly, the conditions of the supply of data vary significantly and raise questions:

- Markets do not always fulfil the regulatory obligations of online publication of information in their market data policy and do not facilitate their reading (scattered, complex and long documents, of heterogeneous structure, not specifying certain important concepts, etc.), especially since there are multiple sources of charges;

- The Approved Publication Arrangements (APAs) do not comply with the obligation to provide information free of charge 15 minutes after publication (Art. 13 of MiFIR, and 64 and 65 of MiFID II);

- Generally speaking, the price of market data increased between 2015 and 2018, which misses the authorities’ goal of reducing this cost;

- Pricing is not based on the costs of data production and distribution. It discriminates between clients, whereby cost increases typically affect the data in most demand (useful for algorithms). It therefore does not enable the user to determine whether the price of market data, APAs and SIs, is established on a reasonable basis.

In this situation, ESMA calls for the establishment of a European consolidated tape (CTP). The European Commission has in fact listed this subject among its priority issues, in its public consultation of 27 February 2020 on the revision of the MiFID II directive. As a reminder, the MiFID text currently provides for a CTP only for post-trade information and concerns the equity universe (shares, ETFs and certificates, other equivalent instruments) but also the non-equity universe (bonds, structured financial products, derivatives instruments and emission quotas). Based on this, the consultation aims first to identify what has previously curbed the spontaneous emergence of a CTP (a major obstacle seems to have been the cost of connection to the numerous platforms and the lack of standardisation of the data), and to specify the purpose, scope and operating conditions of a possible CTP. Regarding its purpose, the consultation aims to hierarchically rank the numerous functions that such a consolidated system could perform: documentation of the best execution policy, compliance with the best execution obligation, analysis of transaction costs, control of order management and execution, regulatory reporting, market supervision, liquidity risk management, etc. Regarding its scope, it raises questions concerning the type of instruments to be covered (equity and/or non-equity?), the degree of coverage of the instruments, funding and governance, the means to ensure data quality, and the nature of the information to be disseminated.

A high price limits access to trading data, and restricts demand for it. It is liable to adversely affect the efficiency of asset price formation, reduce liquidity and increase market volatility. To the extent that it is transferred to the end investors, it entails a social cost. An important point will therefore concern the extent of the authorities’ requirements regarding the pricing of market data by the markets, and means to ensure that these data are provided on a reasonable commercial basis.

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218 Financial Instruments Reference Database System (FIRDS) is the data repository published by ESMA, listing meta-information on all financial instruments included in the scope of MiFID II. Financial Instruments Transparency System (FITRS) is the database administered by ESMA concerning the transparency calculations required by MiFID II for financial instruments.

219 The charges concern, for example, access, hosting, distribution, posting, data provided with a deadline, data useful for algorithms, the creation and storage of data, and derived functionalities.

220 Knowing that: “The cost of producing and disseminating market data may include an appropriate share of joint costs for other services provided by market operators or investment firms operating a trading venue or by systematic internalisers” (Article 7 of Commission Delegated Regulation 2017/567 of 18 May 2016).
Unregulated data provision:

The FCA also examines the effects of unregulated data provision on the competition of regulated markets under MiFID, in order to assess the need for adjusting their competitive conditions. Their business consists in providing information services aggregating transactional data from various markets, research, financial analyses, statistics and news. This content comes from third parties (re-broadcasting) or is produced or developed in-house. The flows, broadcast on proprietary screens, include various data processing and valuation functions. The concentration of this sector entails numerous risks, including that of raising barriers to entry to the data market. Pricing based on market power reduces the quality of the data and curbs innovation. Dependence on certain systems could also create operational risks. For the FCA, in this situation, this means assessing in particular:

- Bundling practices;
- Vertical integration of the value chain of data production (e.g. trading venues and provision of instrument identification codes), data aggregation, supply of indices and technological solutions;
- The effects of concentration in terms of market power upstream of the value chain (with regard to data producers) and downstream (with regard to data users).

The provision of financial indices is also a vehicle for the collection, transformation and dissemination of data. Its growing importance is attested in particular by the growth of passive management, the use of index derivatives, the development of indices based on market data for assets that are not really transparent and/or not very liquid (unlisted securities, FICC, etc.) and on non-financial data. The new types of data processed for the purpose of innovation constitute a significant profitability issue for administrators. It is therefore important to examine the competitive functioning of this industry, which shows oligopolistic characteristics. In particular, pricing in this market, which is not very transparent, appears discriminatory, and there is frequently a bundling of the supply of indices and related data.

Artificial intelligence and ability to process new types of data

A new field for collection of so-called "alternative" data is opened up by new technologies (C-A. Lehalle (2019)). These data, often entailing confidentiality issues, come notably from the clients of financial or non-financial companies, in particular regarding their accounts and their transactional activities, locating systems and social media. In this context, one notes a growing role of non-structured data sources (text documents, images, videos, etc.) and non-financial information.

The value of these new types of data is consubstantial with the technical capability to process them. However numerous artificial intelligence techniques, notably including tools for statistical learning (machine learning) and automatic processing of language, together with increasing storage and electronic data processing capacities, are improving the capability for using them. This field remains to be exploited, but with regard to market finance, four main types of use stand out: i) customisation of the offer to the customer – namely of the content of the offer (which tends, therefore, to become fragmented) and of the marketing which targets a specific customer profile (e.g. roboadvice); ii) decision support, which here also includes trading algorithms; iii) the valuation and allocation of assets, and iv) risk management, in a context of "platformisation" of the finance industry (see Box 1).

The access to the data of financial institutions’ clients, especially those of banks, and the use of this data, would appear decisive in a context of opening up of the provision of financial services. The big banks are creating interfaces enabling outside developers to access their platforms. Here, the data aggregators and fintechs constitute an ecosystem similar to that of mobile phone application developers, the contractual relationships (e.g. delegation) with the banks concerned being more or less close. Organising this opening of access, the authorities specify the legal liabilities involved, in particular with regard to the integrity of private and transactional information,

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221 Cf. L. Grillet Aubert (2020).
operational risk and improper or fraudulent use. In so doing they also specify the framework for competition between banks and service providers, in a context of emergence of the technology services industry (the GAFAM). According to the US Federal Reserve (L. Brainard (2017)), the Payment Services Directive (PSD2), which came into force in Europe in 2018, was a pioneer/set a precedent at an international level by organising the opening up of access to bank data. The European data strategy is now an extension of this policy.

### Box5: The data economy, which is key to the analysis of regulatory issues, is still being developed

Economic analysis of the market for market data provides useful information for the regulatory debate, because:

- Data are specific goods, characterised by i) non-rivalry (their consumption by one agent does not affect the quantity available for the other), but also by variable degrees, depending on the case, ii) excludability (Ability to restrict access to it) and iii) confidentiality (enabling them to be regarded as private goods). These properties related to their legal status are important for determining whether and when they should be considered as private or public goods. In this respect, it would be particularly important to specify whether the right to use data is a right of ownership or a right of access.¹

- Various externalities should be taken into account. In particular:
  - The risk of breach of privacy, a negative externality of the use of data;
  - The fact that the contributor information on a platform reveals relevant information concerning others, which distorts valuation and leads to overproduction of data;²
  - The non-rivalry of data and the possibility, notably, of combining data for statistical use, plead in favour of opening up access to the sources, especially public sources;³
  - The stock market is perceived as a gauge of the economy’s functioning,⁴ and its performance and its transparency are important factors for investor confidence. The growth of private financing markets (by unlisted equities, Chapter 3) stresses the importance of issues surrounding the publicity of market information.

- The oligopolistic functioning and opaqueness of the market raise questions regarding pricing (data price setting is often based on weak criteria) and the optimality of competitive interplay. They raise questions first concerning the cost of production but also the usage value of the data (which also depends on their quality, standardisation, temporal/geographic conditions of access, etc.). Next, they raise questions concerning restriction of the supply of data by a highly concentrated industry, which is global, often vertically integrated, and often bundle the supply of data with other (financial) services. These conditions are a source of multiple risks (e.g. operational, market integrity, etc.) and conflicts of interest.

- The externalities involved and the need to take into consideration the social value of the data⁵ justify public intervention, underlining the importance of upcoming impact studies of the European Commission’s legislative programme with regard to the market for data.

The deployment of data policies should therefore aim at numerous and sometimes contradictory objectives.⁶ Typically, it will have to balance the objective of encouraging sharing and the opening up of access to data, and the objective of protecting privacy. It will therefore have to specify the sources of collective welfare derived from use of the data, in particular their utility as a public good, and the social value of the resulting innovation, whether it be observed or expected. Based on this, it will have to identify fields where competition is useful and then examine the optimal conditions of exercise.

On this basis, economic analysis makes it possible to organise thinking and formally define certain issues. On the one hand, the consideration of externalities underlines the need to start by an overall approach and requires allowing for a broad scope of analysis – as attested by the European Commission’s field of consultation. However, analysis of the market equilibria of market data is still largely to be developed (moreover, it itself constitutes a strategic objective of public policies), given the large number and complexity of the factors involved, and the rapid evolution of the subject under study. It is therefore important to ensure that the best use is made of available analytical tools, so as to avoid conventional, hypothetical or abstract conclusions. More specifically, the aim will be to contextualise the conclusions on market functioning through specific considerations regarding the type of data, industries and markets, and the nature of the economic issues (types of externalities and risks) under review. D. Coyle (2020) stresses, for example, that: “the same data can have very different value to different users. The economic value – both commercial and in terms of wider economic welfare – of any specific data set is context specific”.  

¹ The Economist: The information economy; Rethinking how we value data, 27/02/20.
³ D. Coyle (2020): It’s now or never for national data strategies; Project syndicate, 26/02/20.
⁴ Here it is worth considering the representativeness of the blue chip indices (sector biases, etc.). However, the market apparently tends to prefer information that is not specific to the traded securities (cf. L. Grillet-Aubert (2020)).
⁵ Cf. e.g. C. Jones, C. Tonetti (2019): Non-rivalry and the economics of data; NBER Working Paper 26260.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>ABS</td>
<td>Asset-backed security</td>
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<tr>
<td>ACPR</td>
<td>Autorité de contrôle prudentiel et de résolution</td>
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<tr>
<td>ADL</td>
<td>Anti-dilution levies</td>
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<td>ADAN</td>
<td>Association for the Development of Digital Assets</td>
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<td>AI</td>
<td>Artificial Intelligence</td>
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<td>Alternative Investment Funds</td>
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<td>ESMA</td>
<td>European Securities and Markets Authority</td>
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<td>AFEP</td>
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<td>French Asset Management Association</td>
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<td>Association for Financial Markets in Europe</td>
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<td>Bolsas y Mercados Españoles</td>
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<td>Bank of International Settlements</td>
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<td>Chicago Board Options Exchange</td>
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<td>CDO</td>
<td>Collateralized debt obligation</td>
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<td>Credit default swap</td>
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<td>CECL</td>
<td>Current Expected Credit Loss</td>
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<td>CGEDD</td>
<td>General Council for the Environment and Sustainable Development</td>
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<td>Collateraterized Loan Obligations</td>
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<td>CSPP</td>
<td>Corporate Sector Purchase Program</td>
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<td>Central Securities Depositories Regulation</td>
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<td>CTA</td>
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<td>Consolidated tape provider</td>
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<td>ESG</td>
<td>Environmental, social and governance</td>
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<td>GAFAM</td>
<td>Google, Apple, Facebook, Amazon &amp; Microsoft</td>
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<td>International Organization of Securities Commissions</td>
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<td>Full Form</td>
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<td>OTC</td>
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<td>Action Plan for Business Growth and Transformation</td>
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<td>SEC</td>
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<td>Systematic Internalisers</td>
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<td>SICAV</td>
<td>Société d’investissement à capital variable</td>
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<td>SIP</td>
<td>Securities Information Processor</td>
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<td>SMCCF</td>
<td>Secondary Market Corporate Credit Facility</td>
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<td>Small and Medium-Sized Enterprise</td>
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<td>SPV</td>
<td>Special Purpose Vehicles</td>
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<td>Single Supervisory Mechanism</td>
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<td>STRESI</td>
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<td>STS</td>
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<td>Task Force on Climate-related Financial Disclosures</td>
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<td>Unit-linked</td>
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<td>VNAV</td>
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