Optional Buy-ins under CSDR

Delivering settlement discipline without inhibiting capital access for European corporates

July 2020

All data is correct as of July 2020.

Executive Summary

The Covid-19 crisis has had a profound effect on the end users of Europe's capital markets. Companies seeking to issue new debt found that access to primary markets was significantly restricted during the period from late-February to mid-March, until the large-scale intervention of public authorities to restore confidence and liquidity.

Issuance levels have subsequently increased, albeit at a significantly higher cost for companies. AFME[1] research estimates that since the onset of the crisis, less than one percent of new debt issues by French and German companies were by smaller firms[2], suggesting that all but the largest corporates remain reliant on bank or government lending.

There is a renewed urgency to reinvigorate Europe's economy and promote greater access to market-based financing for European corporates. We note that the recent report by the European Union's High-Level Forum on Capital Markets Union[3] calls in particular for heightened focus on developing deep and liquid capital markets for SME companies, the backbone of Europe's economy.

Further action by policymakers across Europe is essential to achieving these aspirations. It is against this background of market disruption that we recommend the recalibration of the CSDR Settlement Discipline Regime, prior to its proposed introduction in February 2021. AFME and its members support the principal policy objective of improving settlement efficiency in Europe, and strongly support the introduction of mandatory penalties for late settlement, plus a buy-in mechanism that is underpinned by EU law. However, we consider that adjusting the buy-in regime from a mandatory obligation to a discretionary right of the investor, that cannot be negated through contract, preserves the right of those who require a buy-in to do so, without forcing the entire market to incur the liquidity and cost implications of a mandatory buy-in regime.

The purposes of this note are to:

- **Establish why liquid capital markets are important to both companies and savers** and examine the correlation between liquidity in secondary markets and corporates' access to, and cost of, raising capital. Academic research has shown a link between the liquidity of a firm's existing corporate bonds, and the cost of new debt issuance for that company.

- **Observe how capital markets were impacted by the Covid-19 crisis,** and what lessons can be learned**.** This period of market turmoil was characterised by increased price volatility, a deterioration in market liquidity, and a sharp contraction in primary issuance market access in the early stages of the crisis. New AFME research suggests that in corporate bond markets, average bid-offer spreads remain approximately 40% higher than pre-crisis levels, indicating significantly reduced liquidity. A similar impact has been observed for European equities.

[1] AFME represents a broad array of European and global participants in the wholesale financial markets, our membership includes pan-European and global investment firms as well as key regional banks, brokers, law firms, custodian banks, investors and other financial market participants. AFME is listed on the EU Register of Interest Representatives, registration number 65110063986-76.

[2] We define "smaller firms" in this context as companies with balance sheet assets below EUR 5bn. For comparison, in Q2 2019, we estimate 22.4% of new issues were by smaller firms.

[3] https://ec.europa.eu/info/files/200610-cmu-high-level-forum-final-report_en

- ☐ **Illustrate why the CSDR mandatory buy-in regime will permanently remove liquidity from some segments of the secondary market** and increase costs for both companies keen to issue debt and savers looking to invest or reallocate capital. As much as 20% of secondary market volume could be impacted by mandatory buy-ins, due to further widening of bid-offer spreads. We note that, against the new backdrop of a deteriorated economic outlook and a heightened risk of future disruption, these negative consequences are likely to be even more pronounced. [4]

- ☐ **Recommend that the buy-in regime is changed to the optional right of the purchaser,** and establish why this, in combination with mandatory penalties for failed settlements plus other new measures[5], will continue to preserve the original policy objectives of CSDR and CMU, but substantially correct the negative impact on pricing and liquidity of less liquid instruments.

Why are capital markets important to companies and savers?

European companies seek to raise capital as efficiently and inexpensively as possible, from a large and diverse investor base. During times of crisis, such as the recent disruption caused by Covid-19 and associated 'lockdown' measures, many companies require quick and easy access to additional liquidity in order to fulfil cash demands (such as payment of outstanding invoices or employees' salaries.) Alongside traditional bank lending or direct government support, capital markets are a key alternative source of funding, particularly for Europe's largest employers.

At the same time, Europe's savers want to be able to invest efficiently across a broad range of asset classes and achieve a strong return on their investments. As with issuers, liquidity is extremely important in times of crisis, when investors may need to quickly sell their investments in order to raise cash.

> *"Well-functioning capital markets will improve the allocation of capital in the economy, facilitating entrepreneurial, risk-taking activities and investment in infrastructure and new technologies."*
> **European Commission, Green Paper on Capital Markets Union**

As observed during the Covid-19 crisis, a period of reduced secondary market liquidity coincided with stalling primary market issuance and an increased cost for companies to raise capital, both in absolute terms due to higher yields, and also relative to prevailing market levels, i.e. an increase in new issue premiums[6]. There is a growing body of academic research that further explores this relationship. Goldstein et al (2019)[7] have shown that the expected liquidity of a corporate bond at issuance – based on the liquidity of outstanding bonds - is priced into new debt issues. They estimate that "a 10% increase in expected liquidity implies a decrease in the yield spread at issuance of between 8% and 14%".

Conversely, a reduction in secondary market liquidity[8], for example as a result of wider bid-offer spreads under CSDR, will penalise issuers when trying to raise capital. Securities with a lower inherent liquidity, such as those issued by SMEs or lower-rated issuers and smaller size issuances, would be disproportionately impacted by this effect. Davis et al (2017)[9] go further and suggest that a lack of liquidity "might affect the ability of a firm to access

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[4] AFME has privately provided the European Commission with some additional data and scenario-modelling, based on members' proprietary data and intellectual property. We strongly recommend that further quantitative analysis is undertaken to estimate the impact of mandatory buy-ins in different market conditions.

[5] These include new requirements for trade allocation and confirmation processes, and enhanced CSD functionalities.

[6] The new issue premium is extra yield that a buyer receives, and a seller pays, for a new bond, when compared to seasoned bonds from the same issuer are trading in the secondary market. A new issue premium is a standard feature of the bond market, and an issuer bears this cost to attract new investment.

[7] https://www.mdpi.com/1911-8074/12/2/86/htm

[8] Liquidity is defined in this context as widening bid-offer spreads and reduction in number of transactions.

[9] http://people.stern.nyu.edu/jhasbrou/SternMicroMtg/SternMicroMtg2017/Papers/SecondaryMktTrading.pdf

debt financing at all"[10]. They conclude that "efforts to improve liquidity and price discovery in secondary markets are warranted, not only because they improve secondary market trading, but also because they provide firms better access to capital to fund growth opportunities."

In addition, the absence of market liquidity limits the scope of eligible assets in which a UCITS fund is permitted to invest under UCITS portfolio liquidity requirements[11]. From an issuer's perspective, this reduces the pool of potential investors from which it can raise capital, and for investors, portfolio diversification opportunities are restricted.

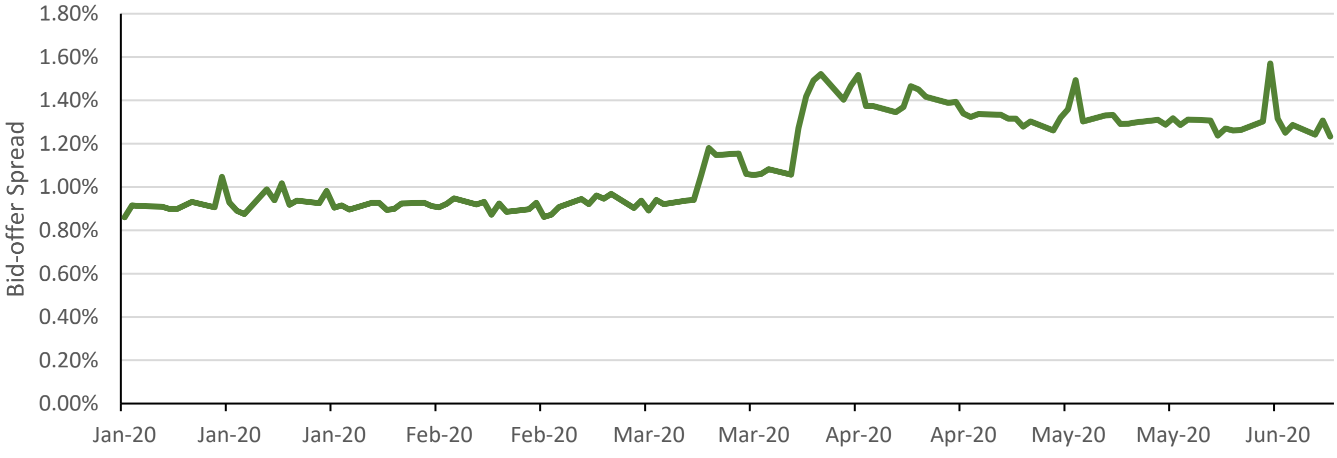
Secondary capital markets are important in much the same way as the secondhand car market is essential to both carmakers and car buyers. When purchasing a new car, a consumer will consider its demand and value on the resale market. Without a vibrant secondhand market, potential new owners would worry about cars losing value – and thus be willing to pay only a lower price for new cars or to refrain from the purchase altogether. In much the same way, liquid and stable secondary capital markets, with minimal bid-offer costs, are essential to supporting new issuance.

How has Covid-19 impacted European savers and companies?

For European investors and issuers, the Covid-19 outbreak created a wide variety of market shocks simultaneously. The crisis was characterised by a sharp decline in asset prices, a rapid increase in market volatility, and a deterioration of market liquidity. The Bank of England reports[12] a "dash for cash", in which investors' demand for cash or near-cash assets rose sharply and the pressure of sales of even safe longer-term assets was sufficiently large as to force prices down and raise the cost of trading. As investors reacted to declining net asset values, the European ETF market saw record outflows of €21.9bn in March.[13]

This increased cost for savers to enter and exit their investments is illustrated by the widening of bid-offer spreads, as shown in Figure 1. Whilst there are significant challenges with producing a non-biased and consistent bid-ask spread estimator, AFME has created a bespoke weighted index of 76 non-financial corporate bonds[14] for which reliable data is available, to estimate this impact. The data suggests that in corporate bond markets, average bid-offer spreads remain approximately 40% higher than pre-crisis levels.

Figure 1: European non-financial corporate bond bid-offer spreads (weighted average, HY and IG, %)



Source: Reuters

[10] This was observed by the almost complete cessation of issuance in European bond markets – and high-yield in particular – at the outset of the Covid-19 crisis.

[11] https://www.esma.europa.eu/document/cesrs-guidelines-concerning-eligible-assets-investment-ucits-0

[12] https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2020/may-2020.pdf

[13] https://www.morningstar.co.uk/uk/news/201347/record-outflows-from-etfs-in-market-panic.aspx

[14] See Annex 2 for full details of the dataset and limitations

Analysis by Tradeweb, a leading European bond trading platform, comparing activity on its platform on 20th February versus 20th March, supports this, showing increases in bid-offer spreads of between 70% and 300% across different asset classes. Further, the data shows a reduction of up to 25% in the number of instruments for which quotes were available, indicating a severe erosion in liquidity for these instruments. [15]

Similar impacts can be observed in European equity markets. Figure 2 shows a sharp reduction in market depth - measured through the available liquidity at the first limit of the order book - concurrent with a significant widening of bid-offer spreads, for the EURO STOXX 50 index of Europe's blue-chip corporates. Market depth remains significantly lower than pre-crisis levels. Figure 3 depicts these same impacts for indices of mid-cap and small-cap stocks, which started from substantially wider spreads and lower market depth. To avoid funding an increase in debt post-Covid-19, companies may convert debt to, or issue, equity. However, bid-offer spreads on key pan-European indices remain approximately 30% higher[16] compared to the beginning of the year.

Figure 2: EURO STOXX 50 Index market depth (average size, EUR) and bid-offer spread (bps)

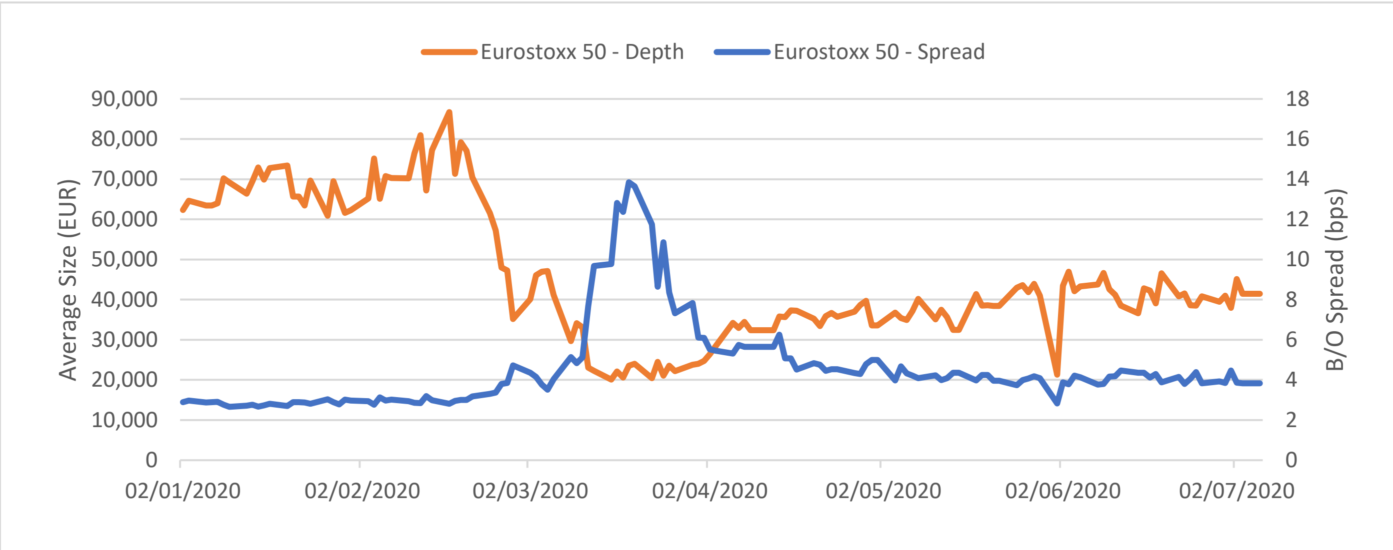
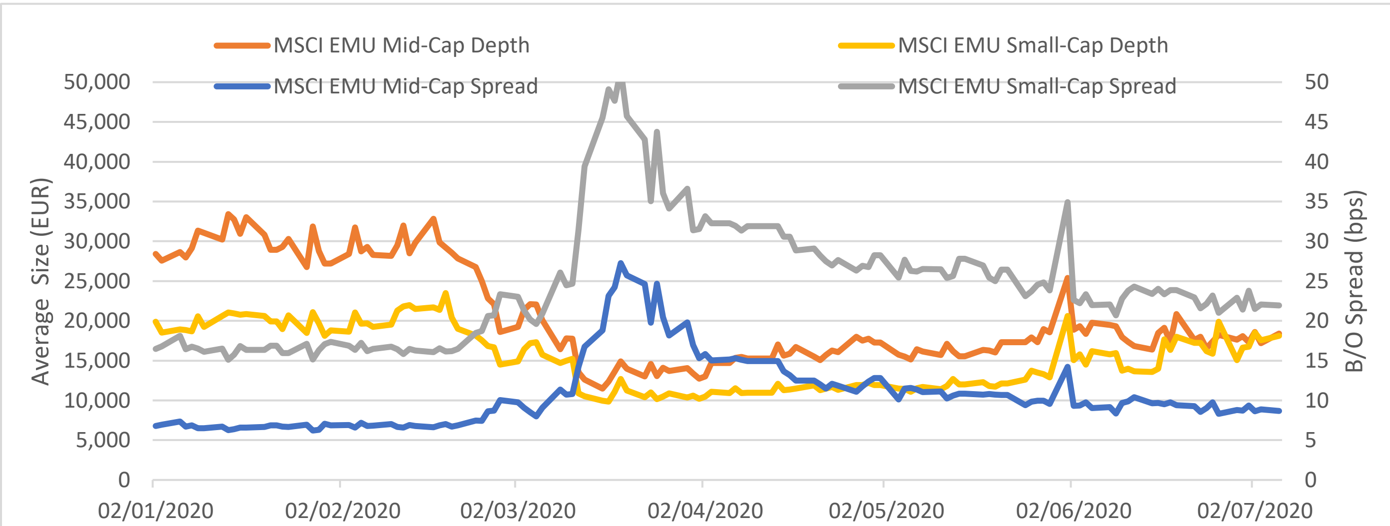


Figure 3: MSCI EMU Mid-Cap and Small-Cap indices market depth (average size, EUR) and bid-offer spread (bps)



Source: Société Générale

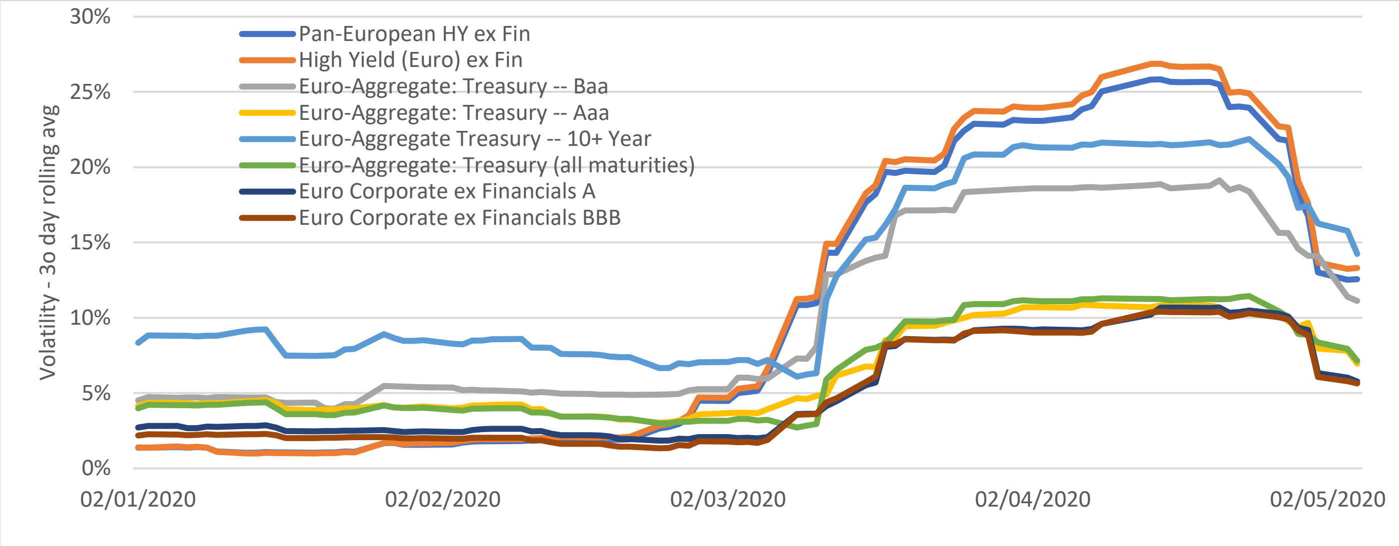
[15] The supporting data has been made available to the European Commission directly.

[16] Increase in bid-offer spread versus January 2020: EURO STOXX 50 +32%; MSCI EMU Mid-Cap Index +28%; MSCI EMU Small-Cap index: +33%

In addition to increasing spreads, the Covid-19 crisis has also led to the rapid increase in volatility observed across asset classes. Implied volatility for European equities rose to levels last seen during the 2008-2009 Global Financial Crisis, with the Euro Stoxx 50 Volatility Index reaching 85.6 on 16 March 2020 vs. a 5-year average of 19.7[17].

Fixed income markets were similarly impacted, as shown by the sharp increase in volatility of selected benchmark indices, see Figure 4.

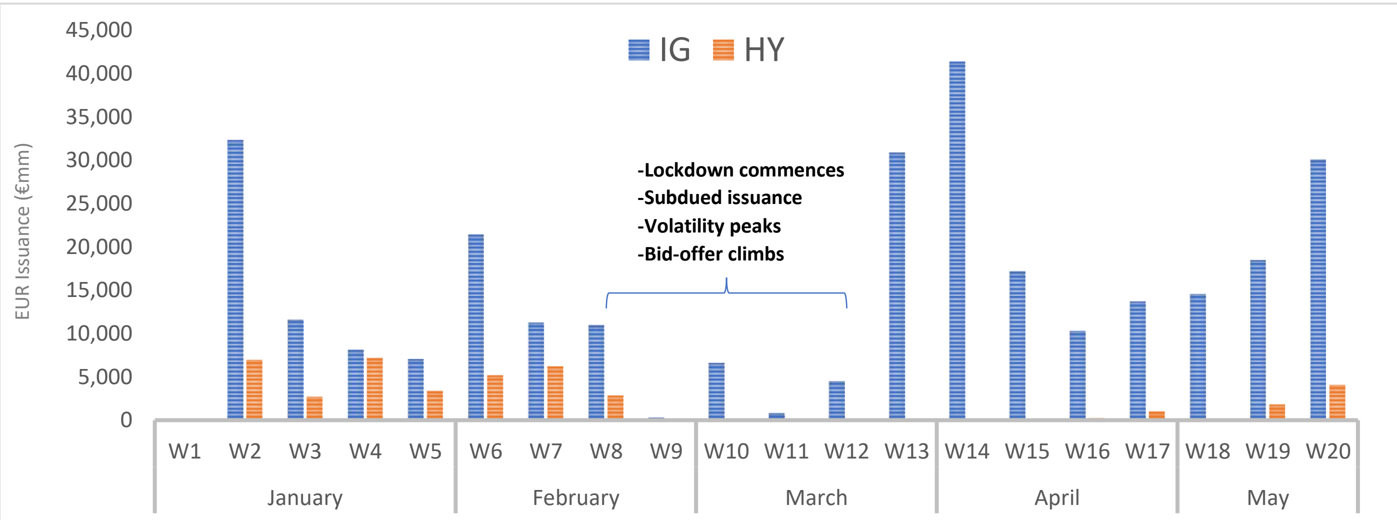
Figure 4: Market price volatility for selected fixed income asset classes



Source: Reuters

During the initial outbreak of Covid-19 in Europe, from late February to mid-March, markets were effectively closed to capital raising for many companies, in particular for smaller and non-investment grade firms, as shown in Figure 5 below.

Figure 5: Euro-area IG and HY non-financial corporate bond issuance (EURmm)



Source: JP Morgan

Due to the monetary policy interventions of central banks, such as the ECB Pandemic Emergency Purchase Programme, markets partially reopened in subsequent weeks, and indeed issuance levels for investment grade

[17] Source: Bloomberg. 5-year average calculation covers the period 1 July 2015 to 1 July 2020.

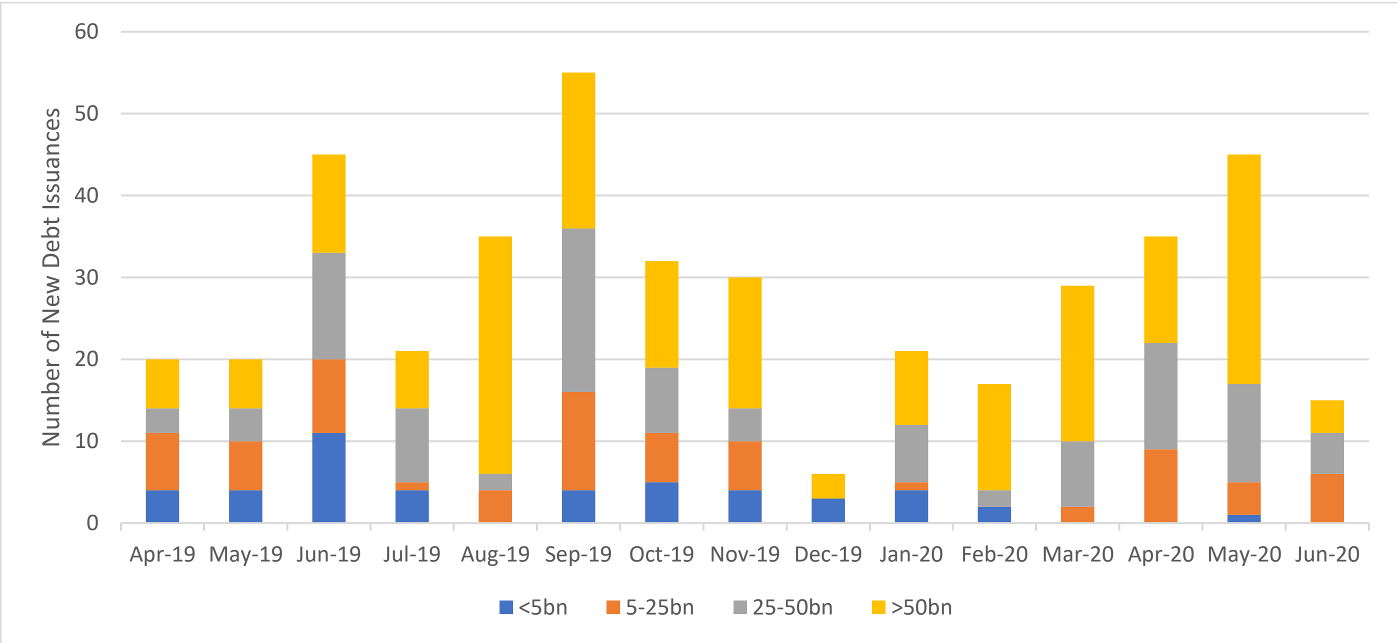
securities have surpassed those of previous years. However, there has been a significant increase in new issue premiums across the credit spectrum, making it much more expensive for companies to raise new capital.

Figure 6: New Issue Premium, European investment grade corporate bonds (bps)

Source: JP Morgan

AFME analysis of new debt issuance by French and German corporates shows that, since February 2020, there has been a significant concentration of new issuance in the largest corporates. Less than one percent of new debt issues were by companies with balance sheet assets below EUR 5bn. It is likely that the increased new issue premium has made it prohibitively costly for these companies to issue bonds in the market.

Figure 7: Number of New Debt Issuances by Size of Issuer (France and Germany)



The long-term consequences of Covid-19 are yet to be fully realised, but point to increased costs for issuers, in the form of higher issuance premia. A research note from Funcas[18] describes the likely "uneven sectoral and local effects" that lead to an uncertain future for many corporates. This may ultimately manifest in significant numbers of ratings downgrades, likely to frustrate SME companies' capital access most sharply, which are typically already subject to lower ratings.

How will CSDR Buy-ins impact European savers and companies?

As described above, liquid financial markets are essential to the provision of market-based finance. In order to maintain liquidity across a wide spectrum of asset classes and execution sizes, the financial markets ecosystem relies on a wide range of execution mechanisms including multilateral venues, bilateral risk provision via Systematic Internalisers or OTC (where permitted) and RFQ platforms.

In many cases, and particularly across less liquid instruments, markets rely heavily on the liquidity provided by market-makers and Authorised Participants, who, in the absence of continuous, two-way, order based prices, will provide bid-offer quotes to support the provision of immediate liquidity. [19]

In order to provide continuous bid-offer quotes and market liquidity to buyers and sellers, it is necessary that dealers make markets in securities that they do not hold in their inventory, by running a temporary short position to meet investor needs. Wang and Zhong (2019)[20] note that in recent years there has been a "large reduction in dealers' inventory in the corporate bond market" and further explores possible causes.[21]

As such, making offers without having the inventory at the point of trading represent a significant percentage, often above 20%, of orders executed on fixed income credit trading desks. Research from the U.K.[22] and China[23] has shown that such trades contribute to higher liquidity and pricing efficiency. The market-maker's role is the provision of liquidity for less liquid markets, and the ability to make offers without having the inventory is an important facilitator for that.

The introduction of a mandatory penalty and buy-in regime under CSDR fundamentally alters this dynamic, as it removes the flexibility for market makers to offer prices without having the inventory. It is therefore an important consideration for a trader when determining whether to make a market in a particular security and at what price. For securities not held in inventory, or which cannot be readily sourced, the trader may understandably choose to increase the offer price to offset the potential cost of a buy-in, or in extreme cases not to offer a price at all. The impact of this could be the removal of liquidity from the market. The impact is similar to that of Covid-19, where it is likely to disproportionately impact those sectors which already suffer from lower liquidity and higher costs of trading.

Whilst measuring the exact pricing impact in advance of the implementation of the mandatory CSDR buy-in regime is challenging, it is clear that there will be a negative effect. There are a number of factors that should be considered, and each of these factors are subject to significant variance depending on prevailing market conditions, leading to a variety of outcomes.

Possible considerations might include the below, which are described in more detail in Annex 1. In addition, AFME has discussed how the European Commission might be able to calculate the overall cost based these

[18] http://www.funcas.es/funcaseurope/Averting-a-prolonged-economic-crisis-stemming-from-Covid-19

[19] See https://www.pwc.com/gx/en/financial-services/publications/assets/global-financial-market-liquidity-study.pdf for a detailed study on market liquidity and the importance of market-makers

[20] https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=CICF2019&paper_id=778

[21] This includes post-GFC reforms such as Basel III/IV to reduce balance sheet exposure and market risk

[22] http://wrap.warwick.ac.uk/55474/1/WRAP_Raman_1173295-wbs-100713-nss_jfe_2011_784_resubmission_20121224_revised_manuscript.pdf

[23] http://www.fmaconferences.org/Vegas/Papers/shortsellingchinalin.pdf

varying factors. We strongly recommend that further independent quantitative analysis is undertaken to calculate the impact of mandatory buy-ins in different market conditions.

We focus primarily on fixed income markets, where, due to the comparatively larger average notional, the effect is likely to be more pronounced, however these same principles apply to all asset classes.

1. Probability of the trade failing to settle [for 4/7 business days[24]]
2. Availability of inventory and ability to source it
3. The introduction of new settlement penalties
4. The introduction of the new buy-in and the price differential between the original and bought-in transactions)

Market-makers will need to incorporate these additional factors into the pricing of every quote. In many instances, the net effect of these incremental costs is that the final offer price quoted will simply not be economical for the purchaser, and the trade will not be executed. Since some of the additional costs are related to the starting bid-offer spread, the impact of these elements will be pro-cyclical i.e. when liquidity reduces, the price increase due to CSDR will be greater, further reducing trading activity and thus liquidity. This increased bid-offer spread may be caused by many different events, including market-wide shocks, such as Covid-19. Less liquid instruments, such as high-yield debt, tend to have wider bid-offer spreads at all times, and the relative impact of a buy in will be higher. Thus, a mandatory buy-in regime has a potentially compounded negative effect, including on primary markets as demonstrated above.

The combined effect of Covid-19 and CSDR mandatory buy-ins

In order to improve the settlement rate for a relatively small but important percentage of trades[25], the imposition of a mandatory penalty and buy-in regime will lead to higher transactional costs and reduced liquidity across capital markets. These effects will be particularly pronounced for less liquid instruments. It is important to note that this will be the case even in normal markets. However, against the backdrop of Covid-19, there are two important additional considerations:

1. ***If the CSDR buy-in regime exists at the same time as a period of extreme market disruption, there is likely to be a compounding and self-reinforcing negative effect for companies and investors.***

The appetite of investors to invest in new issues from companies seeking to raise capital is dependent on the ability to sell them in the secondary market when needed. This is highly relevant in times of high market volatility, where professional investors may need to sell assets to raise liquidity or to return funds to individual investors.

If the impact of mandatory buy-ins is, as expected, a permanent increase in the "new issue premium", combining this with another period of market disruption would likely make it more expensive - or even impossible - for some companies (especially SMEs and those on the weaker credit spectrum) to raise capital at reasonable rates.

2. ***The introduction of these measures will not be beneficial to the recovery of Europe's economy from the Covid-19 crisis, nor align with the ambitions of the Capital Markets Union.***

The introduction of the mandatory buy-in regime creates an additional cost and risk for European-settled securities that disadvantages European companies against their global peers. Wider spreads and less liquidity will reduce the investment returns of pension funds, asset managers and, ultimately, end investors, which risks driving issuance, trading and investment activity outside of the EU.

[24] Seven business days is the extension period for fixed income securities, as per Article 36 of Commission Delegated Regulation (EU) 2018/1229. Four business days is applicable for equities.
[25] T2S 2019 Annual Report shows that on average 3.07% of daily transactions by volume were unsettled

How can the CSDR Settlement Discipline Regime be adjusted to reduce its impact to corporates and investors?

AFME members support the introduction of penalties for late settlement at an appropriate time, and an optional buy-in mechanism for non-centrally cleared transactions that is underpinned by EU law. We believe that adjusting the buy-in regime from a mandatory obligation to a discretionary right of the investor for non-centrally cleared transactions would achieve the same policy objective whilst reducing the potentially damaging impact on market liquidity.[26]

It is important to note that an optional buy-in regime creates optionality only on the part of the purchasing party. Trading parties might even be required by law to include the buy-in provisions in relevant contracts, ensuring that the purchaser always retains the right to do initiate a buy-in should they wish to. Any seller that fails to deliver the contracted securities on the intended settlement date is mandated to:

a) Pay the daily penalty charges that will be imposed as part of the CSDR Settlement Discipline Regime
b) Pay any costs arising from a buy-in that is initiated at the discretion of the purchaser.

This creates a significant additional incentive to deliver on intended settlement date that does not exist today. A key element of this is the introduction of mandatory penalties for late settlement, at an appropriate time, which is especially important in a low interest rate environment, where market forces alone do not create sufficient incentive to ensure timely settlement. Empirical evidence suggests that the imposition of a similar 'fails charge' for US Treasury Bonds resulted in "markedly lower level of fails since implementation"[27]. This 'dynamic' fails charge is linked to the cost of funding, as opposed to a fixed rate. Based on its success, this same approach was adopted by the Bank of Japan[28]. AFME recommends that, subsequent to the implementation of settlement penalties under CSDR, at an appropriate time, European authorities actively monitor settlement efficiency by asset class, and if necessary, adjust the penalty rate where appropriate. A flexible and dynamic approach would incentivise market participants to deliver securities on time.

The second key pillar of the settlement discipline regime is the buy-in rules. Existing buy-in provisions for non-centrally cleared transactions, such as ICMA rules or bilateral agreements, allow the purchaser to initiate a buy-in when it is economically rational to do so. AFME supports any proposal to ensure that these provisions are present in all contractual arrangements relating to the trading (and the ultimate settlement) of in-scope securities. This is an important step to ensuring a level-playing field and increasing protections for investors. However, the CSDR mandatory buy-in regime removes optionality for the purchasing party and could force it to act against its own economic interests. For example, CSDR mandates that if the securities cannot be sourced by the buy-in agent, the original transaction is replaced by a cash compensation, and the purchaser never receives the contractually agreed securities. The purchaser may wish to allow the seller additional time to make delivery, rather than receive cash compensation which does not allow it to achieve its investment objectives. In the case of settlement chains, this would also allow coordinated actions amongst participants to prevent multiple buy-ins occurring.

CSDR also contains additional measures designed to improve settlement efficiency, which are welcomed by AFME members. New rules to improve allocation and confirmation procedures, as well as enhanced settlement protocols for CSDs – such as real-time settlement, minimum batches, and the facilitation of bilateral cancellations and partial settlements – are widely expected to have a positive outcome.

On balance, the introduction of a harmonised discretionary buy-in regime, in addition to settlement penalties, will create greater incentives to deliver securities on time. One could reasonably expect an increase in the number of buy-ins that take place, and thus there will be increased costs for market-makers. However, under a

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[26] We believe cash equity trades which are cleared should continue to be subject to the existing buy in procedures to protect the CCP.

[27] https://libertystreeteconomics.newyorkfed.org/2014/09/measuring-settlement-fails.html

[28] https://www.boj.or.jp/en/research/wps_rev/rev_2011/data/rev11e03.pdf

mandatory buy-in regime for non-centrally cleared transactions, the frequency of buy-ins will be significantly higher, and this necessarily leads to a significantly greater impact on offer prices.

Conclusion

CSDR mandatory buy-ins for non-centrally cleared transactions will lead to higher issuance costs and reduced access of issuers to primary markets, and to increased costs, reduced liquidity and reduced investment returns for investors. These effects are driven by the first-order effects of CSDR mandatory buy-ins that reduce market-makers' flexibility to offer securities not held in inventory. The necessary result is an increase in offer prices, the extent of which will depend on several factors. The Covid-19 crisis shows the potential for significant variations in the relevant data points, and that periods of high volatility and low liquidity will further increase costs for both issuers and investors. The impacts observed during Covid-19 would have been further exacerbated by the existence of a mandatory buy-in regime.

During this period of uncertainty, the European authorities continue to play a critical role in promoting stability and depth in Europe's capital markets. The introduction of mandatory buy-ins for non-centrally cleared transactions at this time presents a significant risk to Europe's recovery from the Covid-19 crisis and will likely disproportionately impact SMEs.

Consequently, the buy-in regime for non-centrally cleared transactions should be recalibrated prior to its introduction. The implementation of penalties would already provide a substantial incentive for market parties to improve settlement efficiency, without the need for a mandatory buy-in.

Adjusting the buy-in regime to an optional right, as opposed to a mandatory obligation, would allow greater flexibility for the end investor whilst preserving the original policy objective and enshrining the rights of the investor into regulation. Allowing the purchasing party discretion to initiate a buy-in only when it is commercially and economically rational to do so would reduce the frequency of buy-ins and therefore reduce the impact on pricing and liquidity. By extension, its impact on companies and savers would be reduced.

Annex 1 – Factors that will determine the pricing impact of CSDR Settlement Discipline

1. Probability of trade failing for 7 business days

ECB analysis[29] estimates that the number of settlement fails for at least one business day is approximately 2-3% of overall settlement volumes. As observed by the Commission, during this recent period of market turmoil, the ECB estimates that settlement volumes in T2S have doubled in the last three months, whilst the fail rate has remained broadly consistent. The number of fails will have therefore increased proportionately.

This is an aggregate number across markets and mostly based on relatively liquid instruments such as index-listed equities, which make up the majority of T2S settlement by volume. This may understate the true volume of fails for less liquid instruments such as corporate bonds, and SME market instruments. These instruments, which often settle outside of T2S, generally have a lower settlement rate even in BAU circumstances, and the need for market-makers to provide liquidity is greater.

Whilst there is no publicly available data on settlement rates by instrument type, AFME believes this is an important exercise to be conducted based on information provided to regulators by CSDs and ICSDs in advance of the introduction of a buy in regime. It will also be important to assess the structure of settlement to determine if participants are at fault or there is a deficiency within a Financial Market Infrastructure.

Because it is not known at the point of execution which trades will ultimately lead to a settlement fail, there will be a pricing impact to all trades. Whilst there are many possible reasons for a settlement fail[30], it is expected that most of the operational and technical issues will have been resolved during the extension period, leaving the majority of fails due to lack of inventory.

Thus, a market-maker will likely assign a higher probability that a "temporary short"[31] will fail and account for this in the pricing.

2. Availability of inventory, and cost of sourcing it

Market-makers generally keep a limited inventory, comprising of the most popular securities. Regulatory restrictions and the costs of keeping inventory have also reduced inventory levels over recent years.

Whilst market-makers and brokers can utilise repo and securities lending markets to cover temporary shorts, it should be noted that the impact of the mandatory buy-in regime on repo and securities lending is a significant unknown and has not been analysed as part of the market impact assessment.

Securities lending operations with a term date of less than 30 days are exempt from mandatory buy-in provisions. However, a holder of securities who currently lends may be concerned that if they want to sell those bonds, they may not be returned in time and thus the outright sale will be subject to buy-in risk. In order to avoid this, they may reduce the amount of lending they engage in, further reducing the supply of securities in the market.

Again, there is no publicly available data on this topic. SFTR regulatory reporting may provide authorities with new insights into the securities lending and repo markets, and the impact of future market disruptions.

3. Cost of settlement penalties

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[29] https://www.ecb.europa.eu/paym/intro/publications/html/ecb.targetsecar202005.en.html#toc11

[30] The determinants of settlement fails are further explored in Section 5 of this paper: https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2019/securities-settlement-fails-network-and-buy-in-strategies.pd

[31] A "temporary short" is defined in this context as a trade in which the market-maker or broker does not have the inventory or has not been able to source the securities at the point of trade.

For a fixed income security, the buy-in will be executed on ISD+8 and settled on ISD+10, assuming a standard T+2 cycle.

Therefore, one can estimate that the failing seller will pay settlement penalties for a total of 10 business days. For fixed income securities, the regulatory technical standards (RTS) mandate daily penalty rates ranging from 0.1 to 0.2 basis points. Thus, the overall cost of penalties on a bought-in transaction will be between 1 to 2 basis points.

As set out in the RTS, liquid equities are subject to a shorter extension period and higher penalty rate, leading to expected overall costs of 7 basis points.

The cost of penalties will need to be considered by market-makers in the overall cost of the settlement discipline regime and is cumulative to the cost of the buy-in. Because it is not known at the point of execution which trades will ultimately lead to a settlement fail, the pricing impact may be applied to all trades.

4. Cost of the buy-in

In the case of a successful buy-in, the seller must pay to the buyer the difference between the original transaction price and the buy-in price. From a trader's perspective, this can be divided into two components:

1. an estimate of how likely the buy-in price is to have moved away from the original trade price and by how much, plus
2. an additional "premium" – i.e. the amount above the prevailing market price that would incentivise a previously reluctant seller to now sell the securities via the buy in agent.

Both factors are related to the volatility of the underlying instrument and can be estimated using proprietary data on both price volatility and bid-offer spread volatility.

As illustrated by our data analysis, volatility tends to increase markedly in periods of stress, and the impact is more pronounced on less liquid securities, creating a pro-cyclical effect. In addition, the ability of market-makers to 'lean against the wind' in terms of absorbing immense shocks between supply and demand has been largely reduced, requiring intervention from Central Banks to provide emergency support facilities.

As the market experiences periods of much higher volatility across a broad range of asset classes, such as during Covid-19, this necessarily becomes an increasingly significant factor to be 'priced-in' by market-makers.

Annex 2 – AFME analysis of the impact of Covid-19 on bid-offer spreads in the corporate bond market

There are significant challenges with producing a non-biased and consistent bid-ask spread estimator, including but not limited to:

(1) many bonds are highly illiquid with even non-existent bid-offer prices

(2) many bonds are traded OTC

(3) some venues may be structurally more liquid than others.

In order to estimate the impact of Covid-19 on bid-offer spreads for corporate bonds, AFME created an index of 76 EU27 non-financial corporate bonds for which reliable data was available and weighted each component according to outstanding volume.

A breakdown of the securities used in this analysis is available upon request.