ARTICLE

Best execution in a crisis

COVID-19 – Impacts on trade execution

May 2020

Markets started 2020 witnessing the detrimental impact of the COVID-19 pandemic on the global economy, and declined at rates reminiscent of the 1987 and 2008 financial crises. The path back to normalcy remains uncertain given the health crisis that continues to devastate communities worldwide. The systemic financial markets sell-off resulted in market and operational challenges when executing client transactions.

Poor trade execution can result in unexpected adverse economic outcomes for investors. Investors facing material unexpected losses may seek to analyse the quality of the service provided and determine whether their portfolio performance is solely driven by market forces or by poor service. Some financial institutions could therefore be challenged on the quality of their execution and face disputes.

Best execution

Banks and brokers are required to take all reasonable steps to obtain the best possible result when executing client orders. This generally applies to any investor and in any asset class.

Unfortunately, there is no single interpretation of what constitutes 'best execution' that applies to all investors. For small retail investors, best execution can simply mean to get the trade done as quickly as possible and at the best price possible. For large investors, who seek to trade positions that represent many days' trading volume, best execution can mean getting the trade done as soon as possible and avoiding adversely impacting the price.

Standards to achieve best execution are different across jurisdictions, variable in their application to different firms and inherently subjective. For example, under applicable best execution standards in the UK, firms usually have the obligation to execute orders related to any financial instrument on the terms most favourable to the client.

Context is critical, since the nature of what it takes to achieve best execution will vary considerably. Amongst the requirements to comply with the best execution standards in the UK, firms must consider execution factors such as:

- conflict of interest: whether clients are related persons or not (insiders);
- instructions received: time, size, type of order (e.g. market vs. limit order, good till cancelled), price and speed of execution;

— whether the transactions are voluntary or not;
— the characteristics of the financial instrument;
— market circumstances (e.g. stressed or illiquid);
— trading venue and costs: exchange (cleared) vs. over the counter markets (counterparty risk);
— manual vs. automated execution;
— direct or third-party execution; and
— likelihood of execution and settlement.

Beyond the financial consequences associated with regulatory investigations or disputes with clients, non-compliance could damage a firm's reputation and investors' trust.

As recently commented by legal and regulatory professionals in the context of COVID-19, regulated firms were expected to continue meeting their regulatory obligations on client order handling, and to account for market conditions, when determining the relative importance placed on the different execution factors.

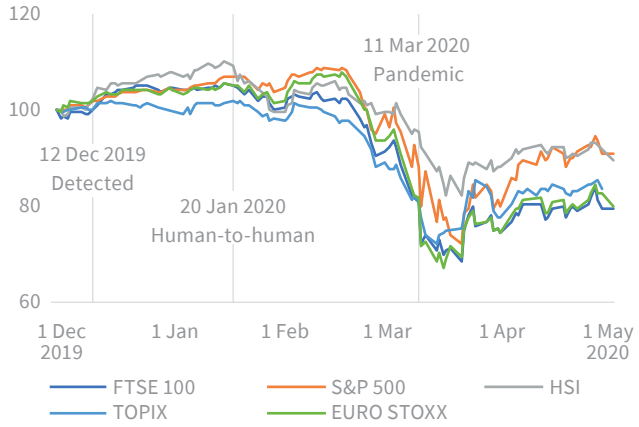
Market volatility has confused investors and has been a vector for significant and unexpected losses. The circumstances around COVID-19 are also likely to have impacted firms' abilities to (i) conduct desired trades as usual and (ii) determine whether they are achieving best execution in an objective and timely fashion. After providing a short market update, we discuss both challenges in the following paragraphs.

Market update

Financial markets declined abruptly and across asset classes. As a result, even well diversified portfolios have suffered substantial losses.

This systemic market disruption impacted equity markets globally and rapidly (Figure 1). The stock market declined more sharply in response to the pandemic than it did during the 2008 crisis (Table 1), experiencing the largest single day drops since 1987. Several factors explain the overflow of selling pressure exerted on global markets, but they all come down to the same rationale: the rapid reduction in risk appetite and need for cash. This is evidenced in dramatic increases in trading volumes and numbers of daily trades. As examples, the volume traded on the S&P 500 and numbers of daily trades on UK and U.S. exchanges spiked in mid-March at roughly three times their values at the beginning of December (Figure 2).

FIGURE 1: MAJOR STOCK INDICES 2019–2020[1]



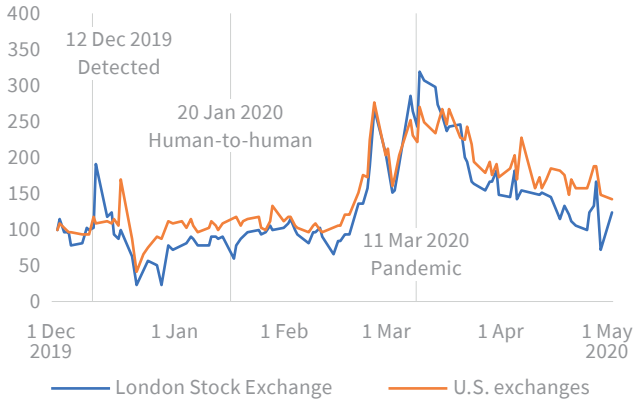
Note: Normalised with index values on 2 December 2019 = 100.
Sources: S&P Capital IQ; Bloomberg.

TABLE 1: FTSE 100 IN DIFFERENT CRISES

	Drop (days | %)		Recovery (days | %)	
	Days	%	Days	%
Black Monday, 1987	18	-34%	449	52%
Dot-com, 2000-2003[2]	835	-53%	1,133	106%
GFC, 2007-2008	432	-49%	1,096	95%
Sell-off, Aug 2015	62	-12%	188	14%
COVID-19	18	-35%	N.A.	N.A.

Source: Bloomberg.

FIGURE 2: RELATIVE NUMBER OF DAILY TRADES 2019–2020



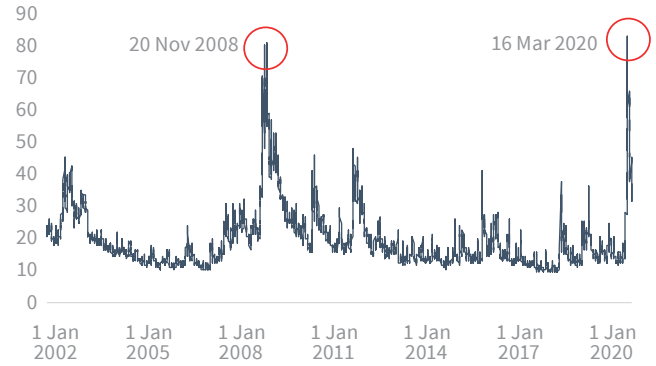
Notes: Normalised with number on 2 December 2019 = 100. U.S. exchanges include those operated by NYSE, NASDAQ, Cboe and IEX
Sources: London Stock Exchange, Daily Order Book Trading; Cboe, Historical Market Volume Data.

1 The COVID-19 cases in Wuhan originally reported to the WHO began on 12 December 2019; human to human transmission was confirmed on 20 January 2020; and the WHO declared the outbreak to be a pandemic on 11 March 2020. Ramelli & Wagner, Feverish Stock Price Reactions to COVID-19, 4 April 2020.

2 FTSE 100 did not return to December 1999 peak until 2015. We consider recovery to have been substantially achieved by July 2007.

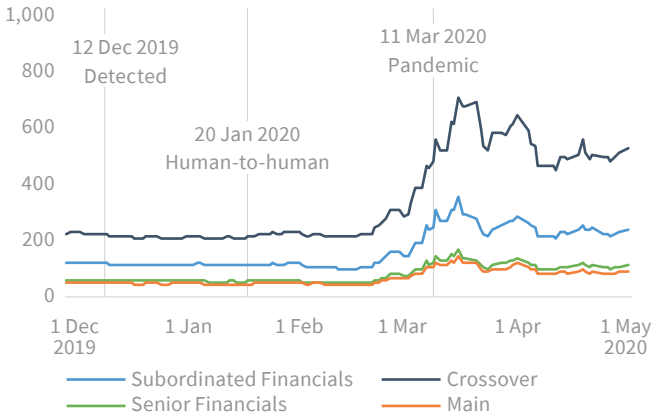
Derivatives markets were equally impacted by this sell-off, with premiums for volatility spiking. Cboe's Volatility Index (VIX) surged past its prior all-time peak from 2008 (Figure 3). Some strategies funded by the underwriting of options premiums (short volatility) pre-COVID-19 have experienced their limits as a result, and not many survived.

FIGURE 3: VIX HISTORICAL LEVEL 1992–2020



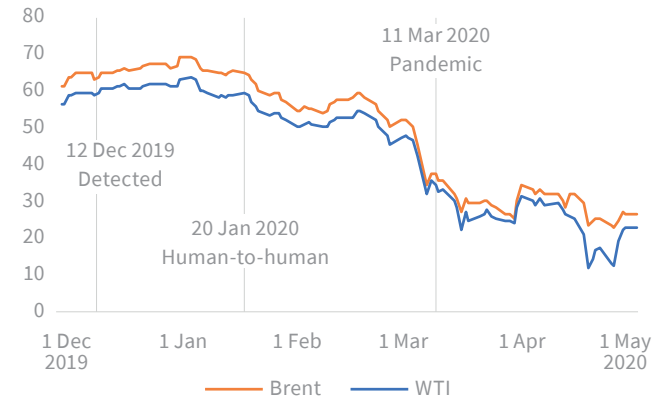
Source: S&P Capital IQ.

FIGURE 4: 5-YEAR EUROPE CREDIT SPREADS (BPS)



Source: Bloomberg, Markit iTraxx Europe CDS indices: ITRX XOVER, ITRX EUR, ITRX SUBFIN and ITRX SNRFIN.

FIGURE 5: CRUDE OIL PRICES 2019 –2020 (USD/BBL)



Source: S&P Capital IQ.

The shock was not limited to equities; investors experienced widenings in credit risk premiums across credit and fixed income markets (Figure 4), plummeting prices for oil (Figure 5), natural gas and commodities, and a flight to quality with the appreciation of USD against other currencies.

Investors employing leverage (i.e. borrowing to invest) and whose strategy was concentrated on an industry, geography or type of financial instrument, have seen their unrealised losses magnify whilst experiencing price pressure on their collateral value (particularly where such collateral was not liquid).

The rapid need for eligible collateral in order to respond to increased frequency of margin calls in such distressed markets, combined with the lack of liquidity, would have added selling pressure. This likely engendered, or threatened, portfolios to enter into death spirals, resulting in lenders exercising their right to close out all positions outstanding, therefore crystalising unrealised losses.

In such situation, the quality of trade execution is likely to be challenged by investors and could possibly result in disputes over damages.

Challenges for best execution

The abnormal market conditions observed during economic crisis present execution challenges and uncertainty for financial firms and their clients.

Unusual operational and market constraints, such as those in place during the COVID-19 virus outbreak, could limit financial services firms' ability to (i) conduct desired trades as usual and (ii) determine whether they are achieving best execution in an objective and timely fashion. Where losses are significant, investors might decide to retrospectively scrutinise their portfolios and assess whether financial institutions achieved best execution or not.

In the following paragraphs we discuss the challenges that will be faced by financial institutions and investors when investigating best execution.

Assessing best execution ex-ante

Best execution can be assessed ex-ante. Although an ex-ante assessment does not provide certainty on the outcome of the execution, it may identify factors likely to jeopardise it, of which clients can be notified to assist them in making informed decisions. Performing an ex-ante assessment

before starting the execution, and reassessing factors such as liquidity in real time during the execution, is one way of ensuring that best execution is achieved. The following paragraphs specifically discuss relevant operational considerations in the context of the COVID-19 sell-off.

Market disruption

Restrictions to trading could lead to the inability to execute desired trades, which itself could lead to ineffective hedges or liquidity problems. Numerous types of events could disrupt trading, such as bans on short-selling, trading suspensions or restrictions, or market closures such as those triggered by circuit breakers or unexpected holidays. Such events are likely to be more frequent at times of market stress such as COVID-19.

Frequent disruptions reduce liquidity and therefore limit firms' abilities to process client orders as they would usually do. For example, changes to public holidays, perhaps intended to calm markets or keep people at home due to the health crisis, introduce further challenges into transaction management, potential close-outs, delivery and settlement. In another vein, short-selling bans are intended to prevent further decline in markets and depletion of investor confidence, but critics express concerns over their potential to limit accurate pricing, dampen volumes, lower liquidity, increase costs, and compel investors to sell risky, long-positions when they can no longer be hedged. The attitude towards, and imposition of, trading restrictions has varied between geographies, as highlighted in the following examples.

APAC:

China: on 27 January, the Chinese government issued an emergency three-day extension to the Lunar New Year holiday to help contain virus outbreak. This resulted in one lost day of trading on Friday 31 January, with markets reopening the following Monday.

Philippines: on 17 March 2020, the Philippines stock exchanges halted all stock, bond and currency trading. This decision follows the Manila exchange hitting circuit breakers the week before, state pension funds being ordered to at least double their daily volume of share purchases, and shorter trading hours being announced. They reopened later in the week once the government exempted trading platforms from strict quarantine measures.

Sri Lanka: the Colombo Stock Exchange halted trading for 30-minute periods on 10, 12 and 13 March due to triggered circuit breakers. It then declared market holiday closures beginning on 16 April, opened for the morning of 20 April during which circuit breakers were again triggered, and ultimately made the decision to stay closed until the government curfew is lifted.

South Korea: for three months from 11 March, short-selling was to be suspended for 10 days – rather than the usual one day – on stocks that experienced sudden, abnormal increases in short sale transactions. All short-selling of shares listed on the KOSPI and KOSDAQ was banned for six months from 16 March.

Others: several other countries saw either shortened trading hours, temporary closures, revised circuit breaker rules or temporary short-selling restrictions, amongst them Thailand and India, Malaysia and Indonesia.

NORTH AMERICA:

U.S.: the market-wide circuit breaker procedures in the U.S. are designed to halt trading in the event of severe declines in prices. These were tripped four times in March – on the 9th, 12th, 16th and 19th – causing short but disruptive 15 minute halts in trading, just after markets opened.

Short-selling restrictions have not been imposed in the U.S. The chairman of the U.S. Securities and Exchange Commission does not favour a ban and instead believes the ability to short sell is needed to facilitate ordinary market trading.

Canada: circuit breakers were triggered on the same four dates in March as in the U.S., causing 15-minute trading halts on the Toronto Stock Exchange, TSX Venture Exchange and TSX Alpha Exchange.

Short-selling restrictions have not been imposed in Canada. The Canadian Securities Administrators and Investment Industry Regulatory Organization of Canada acknowledge that bans on short-selling could negatively impact investment and risk management strategies that rely on the ability to take both long and short positions. However, they do not rule out the possibility of imposing such bans on specific securities if market manipulation is suspected.

EUROPE:

EU: temporary bans on net short positions have been put in place by 6 EU countries. Specifically:

— Italy, from 18 March to 18 June;

— Spain, Austria, Brussels and France, originally set for a month from 17 or 18 March and subsequently extended to 18 May; and

— Greece, which was originally set until 24 April and also extended to 18 May.

UK: the restrictions in the UK have been limited to those imposed by EU regulators, with the FCA highlighting that it will set a high bar for such a ban.

Order processing disruption

MARKET LEVEL:

Most exchanges are already electronic, thereby allowing trading to continue amid COVID-19 and social distancing measures. NYSE, Cboe and CME Group who operate hybrid models have closed their in-person trading floors. NYSE has held discussions on an eventual phased reopening but not set any dates at the time of writing this article.

Given that their electronic systems are already well established, trading could move to an all-electronic model without major interruption. Such closures also reduced the risk of virus spread to the public and contemporaneous illness amongst traders or other employees, which of course would have detrimental impacts both on order processing and wider health and economic outcomes.

However, certain advantages of in-person trading via these venues were paused. These include greater ease in sourcing liquidity, the application of judgment to stock prices and timing of trade execution to smooth volatility or avoid trading adversely by adding undue pressure during a sell-off.

INSTITUTIONAL LEVEL:

Trading disruptions can also be rooted within financial institutions before reaching the market. Facilitated by relaxation of regulations, traders have been able to work from home, including for example employees of Citigroup, Goldman Sachs, JPMorgan Chase and Bank of America.

In this unprecedented situation, the extent of market inefficiencies caused by such arrangements is difficult to distinguish from other factors. However, delays were naturally to be expected due to loss of productivity, fewer available traders, less sophisticated technology, slower connectivity, time for transitioning from a trading floor to a home-office set-up, and the aggregate impact of other individual inconveniences such as illness.

Such operational changes can present challenges to optimally executing desired trades, particularly given the cruciality of timing in a market downturn and potential lack of responsiveness and oversight where such order requires human intervention.

Where execution is automated, large and unusual traffic may cause system outages. For example, due to overwhelming volume, JPMorgan systems catering to wealth management clients and to algorithmic trading for hedge funds experienced outages on 12 March. Though attributed to a technological bug rather than volume, Morgan Stanley also experienced a four-hour outage on a wealth management platform on 25 March.

Assessing best execution ex-post

Best execution can also be assessed ex-post in consideration of the information available before and during the execution. Again, a non-exhaustive list of information that may be relevant is listed in the introduction to this paper. Here we focus on the cases of forced liquidations, automated trade execution and analysing data available ex-post, which are three relevant considerations in the context of the COVID-19 sell-off.

> *"Traders and others involved in the close-out process need to be aware that, in the event of a dispute, every element of the process and the surrounding circumstances (including the trader's own book, other orders, market data and all internal and external communications relating to the close-out) will be available to the court and the counterparty and scrutinized in detail."*[3]

FORCED LIQUIDATIONS:

In a crisis, the risk of default on transactions, for example where leverage is used to invest (e.g. derivatives, stock lending), is higher than under normal conditions. Both an investor's open positions and collateral may rapidly change in value. Urgent and increasingly frequent margin calls may not be met due either to an inability to cover the amount (e.g. no eligible collateral available) or inability to react sufficiently quickly (e.g. non-eligible collateral not sufficiently liquid to be readily converted into eligible collateral).

This situation allows the non-defaulting party to liquidate the available collateral and close the transaction, locking

3 Clifford Chance, March 2020, Coronavirus: Close-outs – Where are we now?

in losses for investors who may have preferred not to exit the market. Such closure of positions could also add pressure on market prices, and the execution would need to be handled carefully as a result. This is particularly relevant where less traditional collateral is pledged (for example where the institution itself does not have sufficient expertise, such as holdings in illiquid shares or legacy positions in unusual geographies) and liquidation has to be delegated to a third party.

Reliance on automated tools for margin management could cause such decisions to be made more rapidly and without flexibility for extenuating circumstances. Such reliance could also contribute to valuation or close-out disputes if technological failure or mistake becomes apparent (e.g. a faulty system or algorithm).

As firms decide whether to terminate trades in light of increasing margin calls, there are risks that defaulting parties will challenge the decision, the liquidation process and the outcome. Private investors are already disputing margin calls and preparing possible legal action against wealth managers and banks in attempt to recover losses. For example, the information made available to clients before triggering margin calls, and transparency of the process and inputs for margin calculations, may be scrutinised and considered in the assessment of best execution.

AUTOMATED AND ALGORITHMIC TRADING:

Automated tools and strategies are ubiquitous in financial markets, spanning from automated trading decisions put in place by individual investors to quantitative funds that trade based on algorithms with limited human intervention. It is important to consider the extent to which they could exacerbate the challenges for achieving or assessing best execution and the market crisis itself.

In a crisis, automated execution rules created in normal economic circumstances may behave differently than intended. For example, investors may make stop-loss orders intended to limit losses in the event of falling prices. In a rapidly declining market, orders could rapidly be triggered and executed at even lower prices given the speed of the decline, locking in sudden losses for the investor without much time to reconsider the order.

Given the speed advantages of algorithmic trading, there is a potential for it to exacerbate a market sell-off, should negative indicators trigger fire selling. Though not the sole cause, the 1987 crash is believed to have been precipitated by algorithmic trading. Flash crashes that have not coincided with market-wide crises have also been linked to algorithmic trading, such as when U.S. equities suddenly dropped and rebounded in May 2010, or fell and triggered circuit breakers over a thousand times in August 2015.

Observing high trading volumes in reaction to the COVID-19 pandemic, many of which were believed to be single share transactions by algorithmic trading platforms, the Australian Securities and Investment Commission imposed new rules aimed at limiting high frequency trading and system overload.

The impacts on market performance and execution quality of algorithmic trading are complex and must be carefully analysed in consideration of the specific trade strategy and underlying drivers of the crisis. In the context of allegations of failure to achieve best execution, it may be necessary to investigate the governing principles and rules embedded into such trading algorithms.

ANALYSING TRADING DATA RETROSPECTIVELY:

Where available, and where possible, reconstructing the market depth (for example via the order book in liquid markets, or the collection of quotations in over the counter markets) may be necessary to assess the quality of the execution. Often this information is necessary intraday. However, it is not always possible to obtain full information from stock exchanges, or trade repositories, in enough levels of granularity to allow reconstructing the full market depths at specific times. For example, markets executing trades to the microsecond may not provide the full order stack at a microsecond frequency and may only provide best bids/offers and associated volumes.

Once the information available is obtained, it is possible to determine the limitations of the ex-post assessment. In situations where reasonable assumptions can be made to address the data limitations, then it is possible to define a methodology to assess the quality of execution. Where possible, quantitative techniques such as moving volume weighted average prices, or more sophisticated statistical analysis such as of the influence of a trade on the market price (causality), can prove very reliable and accurate.

Benchmarking and assessing execution quality become more difficult in a crisis due to threats to the availability and reliability of data. Typically, listed equity markets are liquid, transparent and rich in data on execution processes and prevailing market conditions, which supports best execution analysis. During market outages, however, certain trading data would cease to be available, and in other cases where traders have been constrained from executing desired trades, prices may not reflect all market information.

For over the counter or less liquid markets where data could be insufficient to produce meaningful and reliable quantitative analysis, knowledge of market practice, valuation models, pricing data and anecdotal information privy to market participants is necessary to formulate an opinion on the quality of execution.

Concluding remarks

Because of the unavoidable losses to which certain investors will be subject as a result of market dislocation, the challenges associated with defining and meeting applicable best execution standards will increase the risk of disputes.

In this case, an external expert might perform a retrospective analysis of best execution. The role of expert evidence in such disputes varies according to the specific case and transactions involved, though often involves opining on quantum and damages calculations, the market context and market practice applying to the specific situation, and causality in the patterns of execution.

Although certain claims alleging failure to achieve best execution may remain solely focused on the quality of the execution, it is also possible that, as seen after the 2008 global financial crisis, less sophisticated investors retrospectively attempt to associate their damages allegations with mis-representations, mis-selling or suitability of certain financial instruments.

How FTI Capital Market Services can help

We cumulate decades of experience in trading, investment management, valuation, risk management and regulation covering a wide range of complex financial instruments and derivatives across asset classes. Our team is composed of industry experts who have worked for leading global financial institutions, and bring quantitative expertise in developing models and risk analytics in complex trading environments.

Having been involved in precedent market turmoil, FTI has a long track-record of providing independent opinions in special situations such as restructurings and transactions advisory, and testimonies in the context of disputes, litigations and arbitrations.

We have over the years developed a methodology and tools to analyse trade execution, and stand ready to support clients. Where challenged, the execution of transactions need to be assessed on a case by case basis, considering the legal, operational and economic arguments that will be advanced in such unprecedented market circumstances. FTI will continue to monitor market developments in order to best assist its clients when the need arises.

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