



How to manage margining risk in a highly volatile environment

Volatility induced liquidity stress



Commodity Trading has always been about making good returns on capital and assets deployed. For this business model to function, returns and risks should be clear, manageable and predictable. Over many decades, commodity markets and participants have become more sophisticated when it comes to generating returns by managing and understanding risks. The industry has become more resilient and events that may have once have adversely impacted a large number of participants are now relatively uncommon. Of course, commodity and energy trading firms boom and go bust and markets continue to have irrational tendencies with plenty of examples of companies inflicting harm and hardship on themselves and the wider market. However, unexpected situations that cause havoc across the

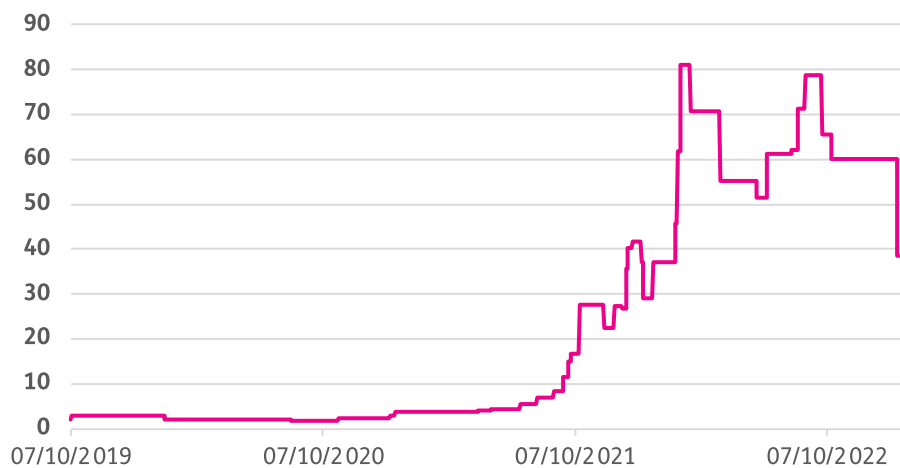
entire industry have become more of a rarity. Notwithstanding the above, since the onset of Covid-19, we have seen volatility starting to pose a problem for the wider trading community; only for this to be exacerbated by the war in Ukraine.

It was not so much price volatility in itself that traders were unprepared for. As we know, traders live for and by volatility and no market professional should be surprised by fat tails and the risk they carry. Instead, it was the rippling effect of this increased volatility through the trading ecosystem that caught many trading companies off-guard. This increased volatility made holding positions inherently more risky and as a result, exchanges had to review the initial margin rates they charged market participants.

We saw IM-rates increasing over 8x for certain products. With some clearing brokers uplifting exchange margins by 300% for certain product/client combinations, the end-result could be as high as a 2300% increase in IM-charges.

To be clear, we're not talking about trading losses here, or trades with the potential to go awry. We are talking about trades that, at the end of their lifecycle, would have generated a healthy profit for their firms. The issue was one of cash-flow: the combination of exchange-cleared hedges that needed IM-payments and VM-payments on an ongoing basis to sustain them and physical deals with payment due around or after delivery dates. In other words, the expense preceded the income. The mechanisms at hand were not new. Firms had easily been able to service margin calls from clearing brokers without much issue in the past. However, the combination of a high flat-price environment with extreme price volatility resulted in significant margining exposure and margin calls to match.

TTF Margin Rate

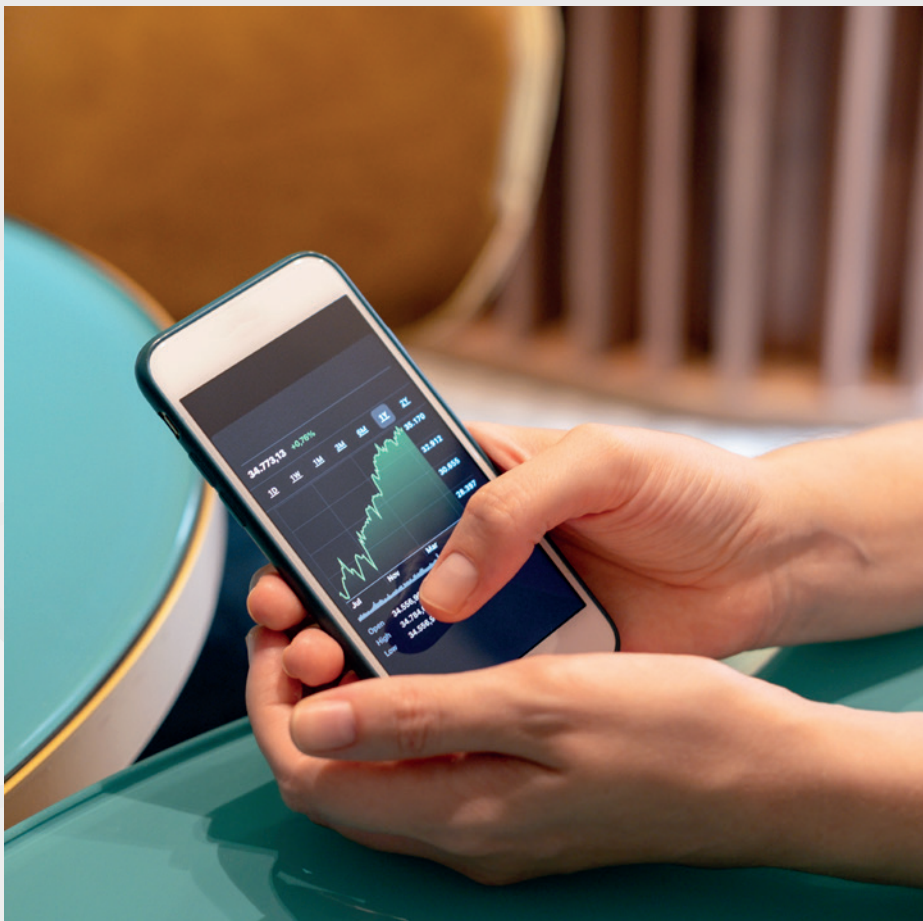


Source: OpenGamma

The sheer magnitude of these margin calls forced many firms into an emergency response mode, usually involving a combination of the following actions:

- ▶ Raise money and increase borrowing
- ▶ Reduce portfolio size and scope
- ▶ Stop or reduce hedging activity
- ▶ Stop or reduce new trades (proprietary or not)
- ▶ Switch to non-cleared bilateral deals, instead of exchange cleared derivative contracts (dust off those old ISDAs again...)

Because the emergency response was usually based on quick-and-dirty calculations and rules of thumb it was not uncommon for the actions taken to be either too heavy handed or not effective enough (too little, too late). For firms caught in that situation there was little they could do except wait for the situation to settle down and for cashflows to start to balance out again. Many times at great expense and even greater opportunity cost.



From firefighting to the “new normal” – why firms need to reorganise themselves to deal with volatility



The dust has not settled yet, but as we are moving beyond the initial phase of panic and emergency response, it would be wise to have a look at how firms can organise themselves in such a way that they are better placed to deal with similar situations. Markets are, as we know, unpredictable, but there seems to be little doubt that volatility is here to stay. Businesses need to find a way to accept a high margin environment as the “new normal” and position themselves in a way that allows them to thrive in this new climate.

While the emergency actions that many firms took made sense at the

time, we should not promote any of these as policy or best practice. Scaling down profitable business is always a measure of last resort and while non-hedging can be a valid hedging decision, it should never be standard policy. Moving away from exchange cleared trading (and thus exchange trading) would hamper market efficiency and price discovery, increase credit risk, complicate the administrative burden and strongly disadvantage lean operations compared to cash-heavy outfits. Of course, engaging in non-cleared bilateral trades has a time and place in our modern trading environment, but the choice to do so should

be made on a solid basis and not driven by an ultimate desire to avoid margining exposure.

What we need is a set-up – a combination of policies and structure – that makes sure that margining costs become an integral part of risk management and financial forecasting. Turn margining costs into margining planning as it were; from the perspective that margining and financial liquidity risks can be considered when making commercial and trading decisions.



Setting yourself up for success – 4 considerations to thrive in the next normal



01:
Establishing
transparency



02:
Building a robust
liquidity risk
framework



03:
Building an
operating model
that is fit for
purpose in a volatile
environment



04:
Assessing the
technology you
need to succeed



01: Establishing transparency

The first step is to establish transparency when it comes to the projected margining cashflows of the business. An understanding should be created around both the initial margin and variation margin payments, detailing their constituents and contributors down to a business line, portfolio, desk and trade strategy level. The attribution of margin-offsets is a complicated topic and its handling requires careful consideration giving the potential cascading effect that a set of trades could have at both a portfolio and desk level. Close monitoring of the margin exposure against the portfolio positions will help firms to identify key margin drivers and allow the firm to check if their clearing brokers are charging their margining correctly. In cases of non-uniform margin uplifts, this

can prove to be a particularly valuable exercise.

Once transparency has been established, we can start to treat margining exposure as just another risk/operation metric that needs to be controlled and optimised. Desks and traders can start using it as another tool to most effectively allocate their trading capital and limits, potentially avoiding margin heavy trades or margin intensive parts of the curve to optimise their PnL and returns. It also allows firms (both on a desk and on a portfolio level) to allocate the actual trades in the most favourable way. This prevents unnecessary margining exposure by grouping high-offset trades on the same exchange and clearing broker. So the firm and its traders can make informed choices, they

should also develop pre-trade tools and margin impact simulation capabilities. Analogue to the stress-testing of market risk models, we should prepare ourselves to stress-test our margin exposure by varying flat price, volatility, and margining parameters.

Another challenge will be to accurately model, calculate and forecast margining costs. Variation margin is by default driven by a change in market prices and therefore relatively straightforward. Initial margin however requires a replication of exchange SPAN-models and the IM-multipliers charged by clearing brokers. Depending on the markets, and the change for commodity markets are imminent, the system also needs to be able to recreate VaR-based margining systems.



02: Building a robust liquidity risk framework

Transparency is great, and its existence alone will lead to better visibility and better trading and business decisions. A firm could opt for an approach where IM and VM limits are applied to specific trading desks and even individual trading strategies. Much of this will depend on the nature, goals and organisation of the trading firm itself. At a higher level, it would make sense for most, if not all firms, to set IM and VM limits at a portfolio level, aligned with their appetite for liquidity risk and the firm's ability to raise or free up capital in an acceptable time frame and against acceptable costs.

However, to fully benefit from the information unlocked, we require a liquidity risk framework. This framework should include an updated governance model that allows for a clear mandate to monitor, manage and steer liquidity risk in the context of the existing risk frameworks, thereby creating the 'Devil's Triangle' of market risk, credit risk and liquidity risk. The obvious challenge will be sharing risk capital with liquidity risk, when this is typically only allocated to market risk and credit risk. The Devil's Triangle got its name because it is impossible to optimise all three constituents at the same time – deciding not to hedge will reduce credit and

liquidity risk to zero but comes at a cost of greatly increased market risk. Favouring uncleared bilateral deals will reduce liquidity risk but the trade-off comes in the form of increased credit risk. There is no right or wrong answer here – at least not from a universal perspective. However, it's certainly possible to optimise the unique situation any specific trading firm finds itself in. This requires a risk framework that clearly recognises and values the relative trade-offs between market, credit and liquidity risk, coupled with an operating model that is sophisticated and fluent enough to adjust to changing market and company circumstances.





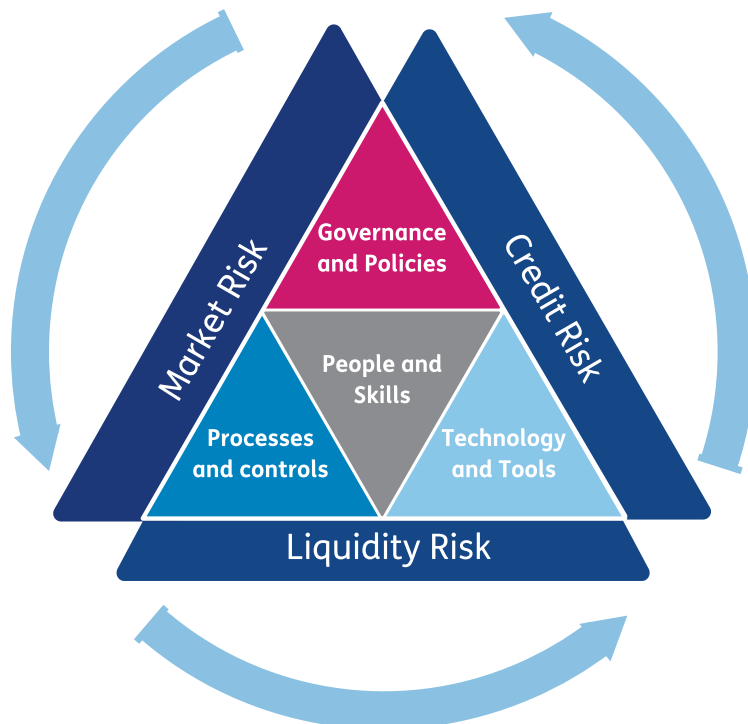
03: Building an operating model that is fit for purpose in a volatile environment

For any organisation to benefit from a liquidity risk framework, it's vital that its risk management operating model is fit for purpose. Ownership and responsibility for liquidity risk management need to be assigned to a function with sufficient knowledge and expertise, but it also requires a close proximity to the business functions and a keen commercial mindset. Furthermore, the segregation of duty between a liquidity risk management function vs. a liquidity planning function, such as Treasury needs to be ensured. Treasury needs to fulfil its role of monitoring the overall company liquidity and

optimizing the available funding sources, whereas a liquidity risk management function should be responsible for managing potential upcoming margin funding needs within the liquidity risk appetite and to signal extraordinary funding demands, arising from market events. These responsibilities should be reflected in the governance model and be anchored in the organisation's policies and procedures. We also need to ensure that this function carries enough weight to effectively influence and steer the business. There are multiple ways of formulating the target operating model, all dependent on the

business model, system landscape and available skill and expertise across risk domains. When defining the target operating model, it is recommended to take an inside and outside look at the organisation. On the inside, organisations should have a clear view of the skill set within the functions. Most of the time, the required liquidity skill set lies within the market and credit functions. The outside view is dominated by how peer organisations or comparable organisations, such as financial services firms have set themselves up to manage liquidity risk.

A risk operating model that considers the interplay between the three risk types





04: Assessing the technology you need to succeed

When considering the technology used by commodity trading firms, there are significant gaps in existing systems that have been exposed by new approaches to liquidity risk management. Energy trade and risk management systems don't provide the ability to model or manage derivatives margin effectively. Apart from the organisational and intellectual challenges in defining a setup that is fit-for-purpose, there is also a significant technical component to the equation and developing this functionality is complex and time consuming.

The core of any solution starts with the ability to replicate margining models, both exchange models, as the additional complication provided by clearers applying margin modifiers and uplifts.

Next you need to be able to create and maintain a clean data set across all entities and all hedge and speculative positions, covering account structures, clearing agreements, broker statements and market data. In stressed markets, firms have to be able to depend on their systems to manage liquidity, and whilst clean data is a prerequisite, there are many reasons why this can be difficult to achieve.

The reporting that firms receive from their brokers or direct from CCPs and exchanges are all in different formats. These need to be transformed into a common format before any processing can take place. This format needs to support all the data required for validation, positions, collateral inventory, fees, prices, margin requirements, etc. In order to achieve this, mapping data must be provided, principally

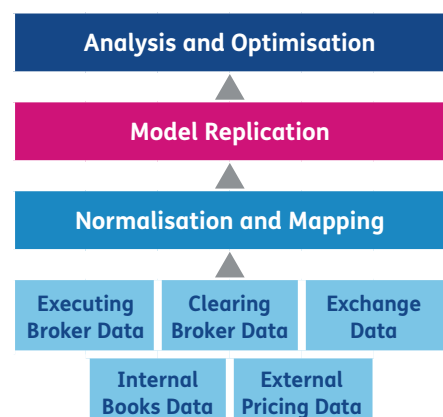
for converting the various standards for identifying instruments, for example Bloomberg and exchange codes. Rules and logic are also required to convert contract dates to a common standard that will allow positions to be matched and margin calculation to be recreated internally in order to validate exchange and clearer statements. In addition, schedules of the various fee and commission rates that are expected to be charged are needed to complete a full reconciliation of requested cash flows.

Treasury needs the tools to predict cash outflows in advance of the margin calls to create more time to manage the day-to-day cash requirements. The most accurate predictor of next day margin call is the intraday margin requirement. To calculate this, a tool is required that can make use of intraday positions, taking into account overnight positions, new trades and any other position changes, for example option expiry and futures delivery. This core functionality on its own requires strong modelling and data transformation capabilities, and the complexity is only to increase when delivering on more advanced functionality like pre-trade analysis and margin optimisation. It's possible to lower overall margin by comparing brokers and identifying the best place to allocate trades, taking existing positions and any broker specific algorithms into account. A solution is required that can review equivalent products at alternative trading venues and reduce margin requirements, taking into account differences in algorithms and offsets with current portfolios at the relevant CCP. Relying on

a combination of spreadsheets and CCP tools to perform simulations is not going to be enough, especially as many firms are increasingly becoming aware of the cost of margin, as well as looking to trade new markets in order to optimise their returns. A single tool is required that can support all the necessary algorithms, as well as understanding the opportunities for expressing the same risk using alternative derivatives and venues.

The task becomes even more challenging when incorporating margin prediction and stress testing / scenario analysis requirements, as the system must cope with multiple sets of uncertainties. This requires historical data, both prices and margin parameters. It also needs to be able to backdate positions so that they match historical data, for example selecting the closest contract based on days to expiry and additionally moneyness for options. Strategies need to be implemented to manage new contracts that are not included in the historical data, for example by using a proxy.

The optimum data flow set up





The time to act is now

Even if a firm has somewhat successfully weathered the liquidity and margining storm, there is no room for complacency. It's clear that in an environment of increased capital restraints, higher interest rates and greater market volatility there is a strong case for margin and liquidity (risk) management. While this takeaway is straightforward, making this a reality in trading organisations is not. Designing and implementing a robust liquidity management structure requires a deep understanding of the business, its operating model, current and future limits and ambitions coupled

with a strong understanding of risk metrics in general and specifically, the interplay between market risk, credit risk and liquidity risk. By following a bottom-up analysis, organisations can design a robust set of requirements to be implemented and safeguarded through the right policies and structure. Practical implementation requires access to advanced software technology that is robust and fool proof, but at the same time offers enough flexibility to match the firm's specific requirements as well providing enough room for future growth. While this exercise is not an easy

undertaking, it's very much worth pursuing. The advantages of saving on margining costs, improved cashflow forecasts and preventing unexpected and unwieldy margin calls, significantly outweigh the time and cost investment required to future proof your organisation.

Baringa has significant experience in designing and implementing liquidity and margining risk management solutions and policies for a wide variety of commodity market players. Reach out to our experts to understand how we can support your firm.

If you are interested in hearing more, please get in touch with our experts.



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