Beyond Consensus – Regulatory Drivers for Expanded Price Affirmation

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01 | Introduction

Instrument Data Quality in the Independent Price Verification Process

Regulatory developments have been a primary driver for increased scrutiny of valuation methodologies for the range of instruments on banks' trading books. Chief amongst these regulatory drivers has been the Basel Committee on Banking Supervision's (BCBS) minimum capital requirements for market risk, also known as the Fundamental Review of the Trading Book (FRTB), the standard for which was published in 2016 and refined in 2019.

To avert a repeat of the nature and scale of losses experienced by financial institutions in 2008, the BCBS's "comprehensive review sought to address the inadequacies in the design and calibration of the market risk framework's internal models and standardised approaches."[1] The updated approach to the calculation of market risk capital requirements included revisions to both the Internal Model Approach (IMA) and Standardised Approach (SA) for valuation of bank trading books.

Generating a valuation, for an individual security or instrument and in turn the aggregate of a bank's trading books, necessarily requires both a calculation methodology and underlying market data. Irrespective of the model, any valuation's accuracy is bounded by the veracity of input data. For exchange-traded contracts such as equities or futures, the transparency of execution and posting of trade-related data makes valuation relatively straightforward. However, for Over the Counter (OTC) derivative contracts, or less liquid securities, the availability of verifiable, independent price data is a more complex matter.

This paper will concentrate on the input data component of the Independent Price Verification (IPV) process, and will seek to cover the following areas:

- A synopsis of the current methodologies by which banks source input data from independent third-party suppliers.

- A discussion of how regulatory imperatives have evolved to present banks with greater requirements for veracity in their valuation processes.

- The risks and rewards of data gathering and data management in the realm of market price consensus-formation.

- Opinion as to how emerging techniques in enhanced market price consensus-formation may drive greater interest from the bank community for consensus-driven analytics.

02 | Independent Price Verification

Why rely on a third party?

A fundamental part of financial controls within any organisation is the ability to have a true and fair view of the valuation of assets and liabilities. For organisations that accumulate contracts where fair value might not be instantaneously available, the IPV process can provide internal and external auditors, regulators and investors with a degree of comfort that the value of the several portfolios of risks are not being misrepresented.

The requirement for an independent valuation of risk positions across asset classes is not merely a tick-box exercise. At even a basic level there are pressures and incentives that may tempt trading desks leading to mis-mark books. Instances of mis-marking have led not only to the banks incurring significant losses when the true value of the book

has been ascertained but also to regulatory punishment and significant reputational damage.[2]

Tightening up internal controls around the marking of books is one area where banks have learned lessons from the missteps of others. But bolstering confidence in the veracity of front-office marking of books requires more than just a tightening of conduct education and supervision; it requires a robust approach to ascertaining the quality and independence of alternate data sources employed to generate valuations that can stand up to independent scrutiny.

The ease or difficulty of marking risk positions varies across asset class and instrument. Listed instruments such as cash equities or futures contracts are easier to value, and data beyond just the price transacted – such as volume and

timestamp of execution – enhance the perceived "quality" of the valuation. A recent price supported by at least an average level of volume across the exchange provides a greater degree of price validation than a price that is older on low volume.

But there's a wide array of securities and OTC contracts where valuation is not straightforward. Complexity of valuation can arise in the following ways:

- The instrument is illiquid – there may be few, if any observable transactions

- The instrument is complex – it might include price references to many underlying instruments and price generation involves measuring correlations as well as the individual reference instruments

- The instrument has embedded optionality or is an OTC option – the exact instrument may not be directly observable in its respective market, requiring interpolation from implied volatility markets.

In these cases, price discovery from a wider set of market participants provides a greater degree of comfort for financial control, audit and capital management purposes.

Gathering Consensus Amongst Competitors

The greater the number of market participants willing to offer a tradeable price indicates not just liquidity but also the basis for consensus. As mentioned above, this is easy to observe in exchange-traded markets, but more challenging for less liquid securities traded on a bilateral basis or OTC derivative contracts. There is a conflict here for banks: a desk's own discount curve or volatility surface is typically proprietary information that is not wantonly or willingly distributed to competitors. But for a bank's financial control and audit functions, the ability to see other banks' marks can provide a measure of comfort with respect to fair valuation requirements. To address this issue, consensus services were established and continue to play a vital role in banks' ability to comply with ever stringent capital adequacy standards.

Consensus services poll subscribing banks at least once a month, requesting their valuations of the relevant rate curves and implied volatility surfaces. A mid-value is determined and sent back to participating banks, also notifying them of any significant disparities between their own submitted value and the market mid-rate, or consensus. Each polled bank can challenge the initial consensus if it is able to provide proof of a qualifying transaction that would demonstrate the validity of its outlying submission. Once finalised, the bank's own Financial Control area uses the consensus curves and surfaces to finalise a month-end valuation of portfolios and add/subtract market-risk reserves against each book as appropriate. As the market data used for these portfolio valuation calculations are derived from a consensus, they also serve as the basis for regulatory capital calculations, via either the SA or IMA.

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Determining consensus via anonymised polling of market participants provides individual banks with a degree of comfort around the accuracy of valuation of traded instrument risks. It also demonstrates to regulators that individual banks are independently aware of the market views of price levels across instruments and can then focus on the more nuanced issues around pricing models.

Gaps & Inefficiencies

The current process is not without its flaws, as inferred from conversations we have had with bank valuation groups and their interactions with regulators.

Some banks with significant market share in particular instruments have found that the consensus can be distorted by submissions from competitors who are less active in that space. This can trigger the challenge process with the consensus provider, adding to the quantum of time taken to finalise a consensus number. It also ends up taking more resource internally to procure and examine evidence around own trades to evidence proper price.

Bank Valuation Groups are also aware that the PRA are keen to see the IPV process become more frequent than monthly, and to have a documented protocol that embeds consensus challenge rather than leaving it as a discretionary process.

Current Consensus Data Vendors

S&P Global's service, Totem, is far and away the most established provider in the sector – as evidenced by our conversations with banks -and is the only consensus service referenced by the PRA in correspondence with bank valuation groups. Another group of suppliers, include Bloomberg, ClearConsensus, Refinitiv, RVS, and SkyLight,[3] are vying for contention in the pure data provision arena. Each has their own USP with respect to the consensus formation process, cohort, asset specialisation and pricing.

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04 Regulatory Influences

Various reporting requirements and regulations are directly or indirectly connected with consensus data. International Financial Reporting Standards (IFRS) 13 and US GAAP Article 820 both set standards for Fair Value accounting, including the Fair Value Hierarchy and the need for a market-based valuation from a market participant that is not a related party.[4]

Beyond benchmark financial reporting, the Capital Requirements Regulation (CRR) formalised the prudent valuation of trading books, implementing the Basel standards in the EU (and in the UK, pre-Brexit). CRR article 105 specifies that independent price verification should be performed at least monthly and further stipulates that banks should take into account exit costs and apply Additional Valuation Adjustments (AVA) in recognition of bid/offer spreads.

Market risk requirements under FRTB have also increased the focus on external valuation data but seek to go beyond consensus data and employ evidence of market transactions. MAR31[5] sets out the Risk Factor Eligibility Test (RFET) that determines whether risk factors can be classed as modellable under the Internal Models approach (IMA). The RFET focuses on trades that the bank has executed on an arms-length basis, or where it has been advised by a third party of the execution or the tradeable quote in market size. It also requires frequency of observability: a minimum of 24 observations per year (with no fewer than four observations in any 90-day period) or 100 observations within a twelve-month period.

The incentive for the bank to be able to class as many risk factors as modellable is a lower regulatory capital requirement compared to that of a non-modellable risk factor (NMRF). NMRFs not only have capital charges calculated based on longer scenario horizons that those covered by IMA, but also have more conservative risk scenarios applied.

The PRA has been more direct with its recognition of the part which consensus data plays within the valuation ecosystem. SS2/21 implements the European Banking Authority (EBA) "Guidelines on outsourcing arrangements" (EBA Outsourcing GL) in the UK. The EBA document seems to exclude the subscription to market data as "outsourcing", but the PRA propose a category of "non-outsourcing third party arrangements":

As some non-outsourcing third party arrangements may also impact the PRA's objectives, the PRA expects firms to assess the materiality and risks of all third party arrangements irrespective of whether they fall within the definition of outsourcing.[6]

This approach suggests that the subscription to third-party market or consensus data services required to comply with regulatory IPV requirements itself should be subject to guidelines around outsourcing and the associated provisions, including the identification of back-up data providers and management of supplier concentration risk.

Concentration risk, and the associated operational risks featured heavily in firm-specific communications from the PRA in 2022, and specifically mentioned the market's dependence upon Totem and confirmed its status as a non-outsourced third-party arrangement. But in addition, the PRA indicated that it wanted firms to be in a position whereby they could perform IPV more frequently than the minimum monthly cycle stipulated in CRR 105.8, to enable banks' risk, product control and trading management to better understand portfolio performance and risk dynamics.

05 | **Replatforming & Technology Considerations**

With the PRA wanting to see IPV performed on a more frequent basis, consensus data providers are gearing up to run the whole process daily. This requires daily polling of bank clients for their curves and surfaces and but running the challenge process in a manner that is sufficiently timely to remain useful and valid.

Converting a month-end process into a daily valuation run requires a significant investment in automation. In a future state mapping of process flows, the current submission process would use APIs to collect bank data and return consensus results alongside highlighted out-of-consensus (OOC) instruments. That the challenge process is viewed ideally as a programmatic response to material OOC instances also lends itself to another degree of automation. Where challenge usually involves the front-office trader submitting trade evidence, manual review of digitised screenshots becomes too cumbersome and labour intensive to either be timely or commercially practical. Use of machine learning/artificial intelligence (ML/AI) methods to trace, verify and reconcile challenges will ensure that vendors can meet the tight SLA turnaround times that will be required to deliver more frequent IPV runs.

In general, this mirrors the need for bank product control functions to embrace next generation. By embracing design principles around big data, analytics, ML and AI, product control teams can bring more timely and relevant insight to the business, and drive efficiency in their control processes. Through the use of cloud environments, they will be able to create scenario-based environments for hypothesis testing, leveraging more complete parallel datasets which enrich their historic or production portfolios. The PRA has observed that banks which have automated their processes spent more time analysing IPV results rather than mere collating then, leading to desired outcomes ranging from reduced operational risks through to senior management being better informed of the risk performance of their trading books.

It is clear that banks face a number of hurdles in achieving these aims. The availability of high quality data, which can be ingested into processes with ease, is a key issue. External data providers have an opportunity to become key to the insight process.

Leveraging Consensus Data

What are the key features banks will require from Consensus Data

In our conversations with several banks on the specific topic of consensus data, there is very much a sense of "if it ain't broke, don't fix it". For standard IPV purposes, there is little incentive to change providers thus leaving Totem well entrenched. There are varying interpretations of how to apply the relevant passages within the PRA's "Outsourcing and third party risk management" (SS2/21) with respect to whether this means diversifying suppliers or not.

Beyond the operational aspects of consensus data inputs, there are two points to address: where is there scope to innovate within the consensus data space, and is there a commercial incentive to do so?

These questions are necessarily interlinked: innovation for its own sake is rarely a successful strategy when facing corporate buyers whose budgets and incentives encourage them to choose what is sufficient rather than what is excellent. Marginal returns on IPV data investment may be slim, especially when compared to the potential for operational disruption of a new service. However, the significant vendors in the space are innovating to bolster their respective propositions. This is extending to the amalgamation of traded prices with consensus curves and surfaces, drawing data from public exchange and regulatory data venues (i.e. DTCC) and private OTC venue data. Aligning consensus data with verified trades and using back-testing methodology to provide validation of curve, surface and cube values adds confidence in the veracity of IPV outputs.

Yet enhancing the accuracy of IPV alone does not have a direct positive commercial value. Financial institutions tend to make purchasing decisions based on two primary criteria:

a. Will the extra expense avoid me getting in trouble with a regulator?

b. Can I generate expense savings or even extra revenues from employing a service?

The baseline regulatory requirement for IPV is to generate a fair value for trading book portfolios. Enhanced data, whilst having value with respect to trade surveillance and avoidance of book mis-marking, is perceived as a cost item and therefore may be considered as a "nice to have" rather than a "must-have".

Where enhanced data becomes a "must-have" is in the arena of Prudent valuation, and this is where there are opportunities for banks and enhanced consensus data providers to collaborate. As mentioned above, banks can generate real regulatory capital savings from both the ability to prove the value of assets and the likely exit costs in terms of spread from mid.

Beyond the amalgamation of trade and consensus information, enhanced consensus data would ideally create an instrument value topography. Rather than a two-dimensional map of price at time of trading, it would incorporate depth of market and spreads leading up to trading. Essentially, a consensus data provider can add commercial value by replicating the insight into market structure that is observable in exchange-traded markets in

OTC markets. This insight can increase the likelihood of IMA risk factors passing the RFET, thereby securing less stringent capital charges, and increasing the amount of information that could contribute to lower AVA's.

Data Squared – Value and Analytics beyond the Raw Data

Data points in and of themselves have a modicum of value, but generally the data gains more value when presented in forms that can generate analytics. There are two distinct but intertwined challenges that are worth investigating – what analytic opportunities arise from the gathering and enrichment of consensus data, and to whom should the benefits/revenue accrue?

Data Democratisation

Various regulatory initiatives such as Consolidated Tape and MiFID trade reporting are aimed at providing transparency for market activity in OTC instruments that is already available for exchange traded instruments. Beyond the obvious benefits to investors of price transparency, the availability of trade data allows for greater analysis of market behaviour both for sell-side and buy-side institutions. In the realm of regulatory capital calculation, the ability to run stress tests is naturally dependent upon sufficiently granular data with a high-grade provenance.

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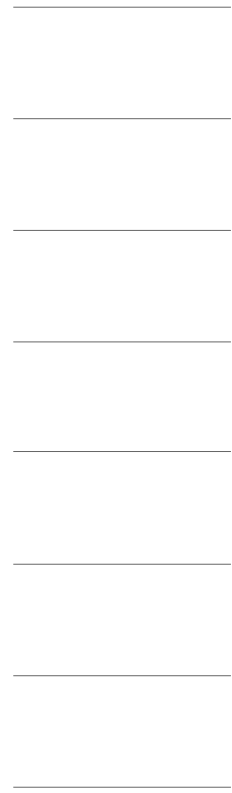
Investing institutions - particularly in the leveraged community with algorithmic or statistical-arbitrage mandates – are massive consumers of historical market data. The increase in distributed computing power across cloud-based systems running ML tool can take data not just about price-at-time, but also depth of market and spread to investigate and attempt to model both price and liquidity volatility and velocities. These will lead to conclusions about price and liquidity correlations on both an intra-market (price volatility very liquidity in a single asset) as well as correlation across assets (which has use cases for both funds and bank capital calculations). Consensus data drawn from several sources provide a foundation for the original map, whereas trade evidence and liquidity indicators (spread and depth of committed quotes) provide the third dimension to the modelling.

Data Ownership

A market-maker's swap curve or FX volatility surface is a proprietary dataset and therefore has a commercial value. But, like a newspaper, these datasets have a time-decay function where their value shifts from immediacy of current information to utility as an historical reference point. Banks and brokers realise the value of their individual price datasets, but few have considered how this could be leveraged in a consensus space.

Consensus-builders have a privileged vantage point in being able to see the data, collate it and return is with some statistical analytics attached. One of the analytics that can have additional utility and value is quality ranking. News services such as Bloomberg and Refinitiv gather

economist forecasts for significant economic events, and by tracking forecast versus actual are able to provide accuracy rankings. In the same vein, it is possible to measure and track the "accuracy" of prices for each entity submitting to the consensus.

This poses a somewhat philosophical question – which party is most valuable to the consensus panel, and which party derives the most benefit? Do those who are more often outliers gain more benefit from bringing their valuations into line with consensus? There may be ways that institutions who are consistently "on-market" can capitalise on their contributions to increasing market transparency.

07 Consensus Evolution

There is tacit support from regulators and explicit encouragement from auditors to look beyond pure consensus data and enhance it with corroborative data from executed trades. At a bare minimum, auditors are looking for evidence that consensus data has been run through back-tests to demonstrate accuracy. Some banks with whom we spoke run sophisticated modelling not just to test consensus against publicly available transaction data, but also draw upon their own execution data in markets where they are confident that they have a significant sample size. But this self-generated data is only available to banks with the largest market share in particular asset segments, and thus may leave gaps where trading might be infrequent, but exposure remains non-trivial.

Given this evolution of consensus data being validated by executed trades, it is no surprise that most top-line consensus data providers are seeking to provide this type of enhancement by drawing data on trade executions from exchanges or other trading venues. Given the regulatory and audit -inspired guidance to seek an enhancement over consensus, it seems inevitable that consensus alone will be deemed as insufficient to offer evaluation assurance, and that corroboration via execution evidence will likely become the benchmark. Given the history of scandals (and resulting enforcement action) around benchmarks such as LIBOR, it would also make sense to bring controls into this process that would help lessen the risks from conflicts of interest in agreeing a price.
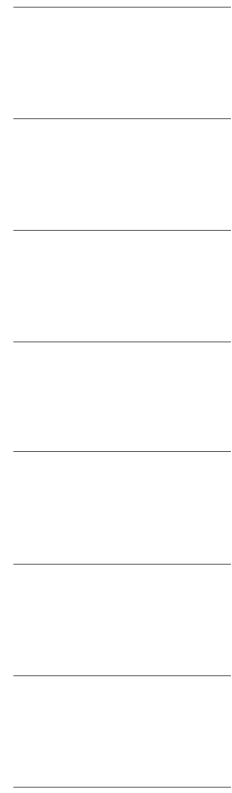
08 Conclusions

IPV is a foundational tool through which bank senior executive and risk management teams can be confident that they are faithfully reporting balance sheet valuations in an accurate manner. For OTC transactions in particular, the formation of consensus data is a key component of outputs.

It is unsurprising that regulators are conscious of the role played by consensus data providers and the risks attached to the concentration around a single supplier. Whilst we sense that there is a greater range of interpretations around the calls for greater operational resiliency, the recognition of importance is clear:

consensus data for IPV is of sufficient importance that banks are required de *minimis* to have contingency plans in place to offset dependency upon a single provider. In addition, regulators and auditors alike are encouraging the improvement of the quality of consensus data via linkage to transactions, and banks and data vendors are acting on this. We expect that these enhancements to quality, for not just trade price but also liquidity and spread data, will help generate instrument value topographies. This will benefit not just the IPV process but will also have extended applications for regulatory capital requirement calculations.
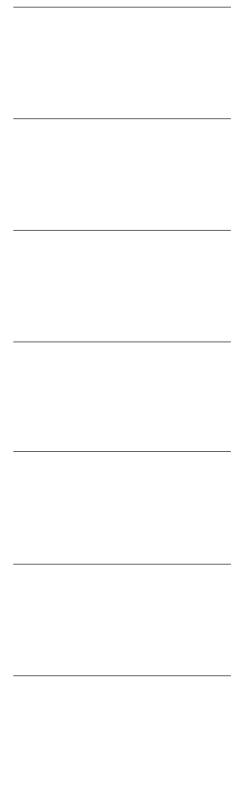
09 | Reference

1. [The market risk framework – in brief](#), BCBS, Jan 2019

2. Merrill Lynch in London realised losses in excess of $456mio in 2009 after mis-marking of books by a trader on their Short Term Interest Rate Trading desk. Merrill Lynch was fined €2.75mio by the Irish Financial Regulator in 2009, and the UK's FSA (now FCA) banned the trader in question. More recently in 2019, Morgan Stanley suffered losses reported by Bloomberg between $100mio and $170mio in emerging market currency derivatives. Morgan Stanley reported to the US Financial Industry Regulatory Authority (FINRA) a reason for dismissal of one trader was ***"allegations about the representative's conduct in providing guidance for marking non-securities positions…"***

3. We are aware of other vendors in the IPV arena however, our discussions with large international banks indicated that those that were mentioned in the body of this paper had a dedicated consensus data offering.

4. [Fair Value Measurement Handbook,](#) KPMG, Dec 2022

5. [MAR31-Internal models approach: model requirements,](#) Basle Committee on Banking Supervision, 1 Jan 2023

6. [SS2/21 Outsourcing and third party risk management,](#) Sec. 2.5, Prudential Regulation Authority, Mar 2021
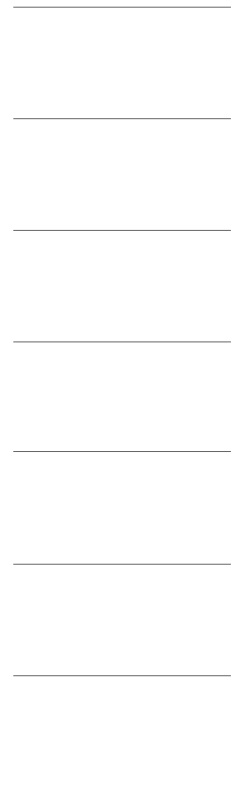
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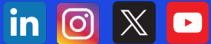Manager
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