

Title: FX Credit – Central Utility Model

Balancing the appropriate level of risk vs control in a dynamically evolving global FX OTC execution ecosystem

Statement: *The implementation of credit controls is important; however, they should not lead to discriminatory execution or remove access for a segment of the FX markets.*

Given appropriate tools for measurement, monitoring and enforcement of credit, FX intermediaries can effectively manage their exposures to clients and liquidity providers without wholesale disruption to existing global execution models or the credit processing and framework that underpins the FX markets.

Executive Summary: *The industry does not need to tear-up existing technology and tools, procedures and controls in order to achieve the desired balance for all FX participants; however, engagement and involvement in defining core API, data and interactions is a crucial first step.*

Over the last 20 years, the evolution in global FX execution platforms, products and the legal and regulatory framework has led to enormous growth in FX Markets but has created numerous challenges. Unlike other asset classes with centralized venues and exchanges, FX is a hugely fragmented marketplace with multiple venues and liquidity pools. The unbundling of execution and credit has fueled the rise of non-bank market makers and algorithmic or systematic trading across buy-side FX participants. Credit intermediaries have largely succeeded in managing the risks for G10 Spot, however we are now seeing greater electrification in other FX products- NDFs; FX Swaps; FX Options and EM currencies resulting in increased credit challenges.

Although market driven disruptions have been few relative to the scale and volume of FX execution, their cause and potential long-term impact has recently led to calls for widespread changes to the existing risk models, methods and controls.

In this paper we propose principles for a credit utility model which address some of the challenges faced by FX market participants. We will do this by not only looking back at some market disruption events but also looking forward to forthcoming challenges within the FX industry to assess both the strengths and weaknesses of the current process and framework.

Our utility credit model will bring to light some areas of focus to improve the current framework without destroying access to liquidity. Importantly, the desired evolution cannot be achieved in isolation, a partnership across FX markets participants, vendors and industry bodies would be beneficial for a viable end state.

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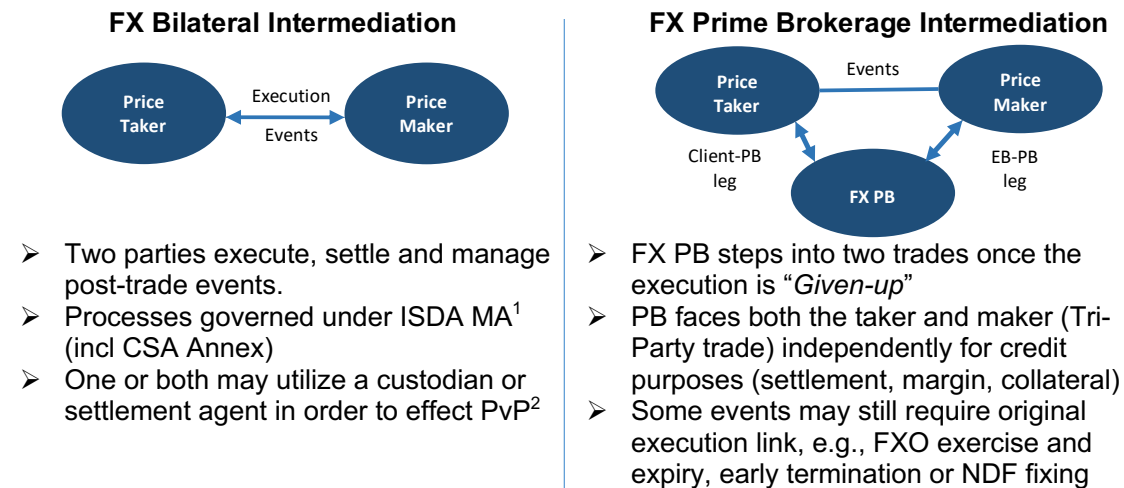
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1. What is FX Credit and why is it needed?

Credit is the fuel for execution liquidity and must be controlled pre-execution until full and final settlement. In the FX OTC execution model, all aspects of an agreed trade — legal, credit, market and operational (confirmation/settlement) — are typically dealt with and managed directly between the two transacting (executing) parties or via a credit intermediary, normally a Prime Broker or Prime of Prime. Whilst vendors and/or third parties may assist in supporting these post-trade processes, as depicted in Figure 1, the original trading relationship and intermediary is crucial.

Figure 1: FX Credit Intermediation



How can intermediaries control client exposures without disrupting the price discovery process? FX is a hugely fragmented marketplace with multiple venues and liquidity pools, this is unlike IRS, CDS, ETD or Equity processing where central clearing is mandated, or execution occurs on an exchange under an open offer model³. Exposures and margin are typically reflected against a central counterparty (CCP) who manages the risk and ‘insures’ all parties against the default of a single entity. However, where execution occurs off-exchange or via-third party brokers, the OTC/ETD intermediaries, are facing similar challenges to FX OTC.

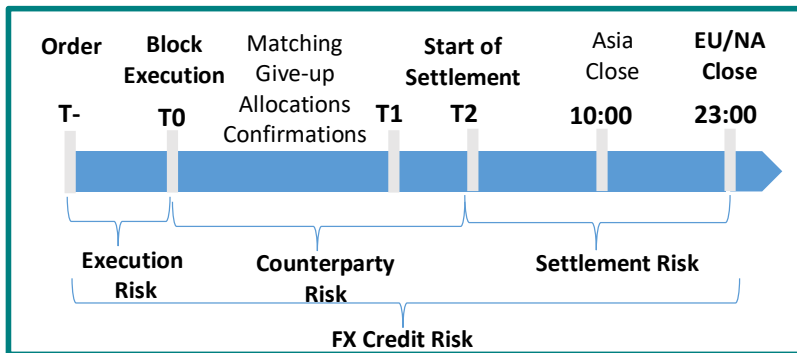
In FX, the bank and prime broker intermediaries play a crucial role for all participants in ensuring that FX execution can occur on multiple platforms but more importantly settlement finality is achieved by all executing parties. FX Credit is defined, agreed and controlled through legal agreements. Figure 2 shows the timeline view of FX Credit risk, in its raw form it can be broken down into execution risk, counterparty risk and settlement risk:

¹ ISDA MA: An ISDA Master Agreement is the standard document regularly used to govern over-the-counter derivatives transactions. Credit Support Annex regulates collateral under the. ISDA MA by defining the terms and conditions under which collateral is posted to mitigate counterparty risk

² PVP: A settlement mechanism that ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place.

³ Open Offer: A process through which a CCP extends an "open offer" to act as counterparty to market participants and thereby is interposed between participants at the time a trade is executed.

Figure 2: FX Credit Risk – timeline view



Firms utilize well established legal frameworks: Bilateral, Tri-Party⁴ or post-trade clearing agreement (since 2012), to underpin the FX ecosystem and help manage and control credit risks for all participants.

Execution, counterparty and settlement risks arise

from the point an FX order is submitted by the price taker. Credit intermediation allows the price maker to provide a price(s) and enable execution. Once the relevant matching process or RFQ⁵ completes and the order is filled, the taker and the maker face counterparty risk to each other. Where a third-party step's in for either party the post-trade give-up process transfers the relevant exposures based on legal agreements. If a buy-side client is involved, the parties may need to allocate trades into the respective end accounts to reflect exposures into relevant funds. On the value date of the contract, firms may face settlement risk as both of the pay and receive amounts may not be exchanged simultaneously and one party could fail in its final obligation.

Importantly, all participants in the ecosystem are involved in using, controlling or managing credit risks to enable a smooth functioning ecosystem:

1. **Execution liquidity pools – In-venue credit screening is crucial for liquidity and control for operators and participants alike** - Voice, IDB, EFX, ECNs, Direct API – all operate different matching models, RFQ, Streaming RFQ⁶, CLOBs⁷ (Disclosed/non-disclosed/Central PB) - but in order to facilitate execution they require credit from counterparties or intermediaries and in obtaining this must provide sufficient tools to enable management of execution risks by all participating firms, grantors and consumers of credit.
2. **Price makers – Executing Participants need to monitor their utilization against agreed relationship-based limits** - regardless of whether they are Bank or Non-Bank, they must have appropriate tools to monitor usage against their agreed upon credit limits. Not doing this could lead to rejection of give-up trades post execution which may lead to increased counterparty risk or trigger tear-up agreements.

⁴ Tri-Party: Terms for documenting foreign exchange "give up" relationships, in which a party designated by a prime broker executes transactions with a dealer that are "given up" to the prime broker. Multiple legal arraignments represent these relationships including, PB Master Agreements, Master Give-up Agreements, 3-way, 4-way and Prime of Prime

⁵ RFQ: Request-for-Quote is an execution method where a quote(s) is provided by a participant in response to a request for a quote submitted by one or more other participants, the quote is a firm executable price exclusively available to the requesting participant

⁶ Streaming RFQ: The execution method permits an RFQ requester to request streaming prices for a given product from multiple participants, where those recipients are able to update their streaming prices according to regular intervals. The quote is normally indicative and may be subject to the platforms Last-Look policies

⁷ CLOB: Central Limit Order Book is an all-to-all market in which all liquidity in the order book is firm. In FX this will generally be available for inter-bank activity (with CLS settlement) or where a Central PB model is available as the post-trade facilitator

3. **Price takers – Price takers bring diversity in execution and nature of participation, which not only creates opportunities but also presents challenges from an FX credit risk perspective** - they must secure credit from counterparties or intermediaries prior to their participation within execution liquidity pools. In doing so they rely on CLS or the intermediary for settlement processing and must adhere to the intermediaries' margin (counterparty risk) and settlement risk processes and policies.
4. **Credit Grantors – Grantors are the liquidity provisioners; however, they need to balance their risk-bearing capacity with potential for execution erosion for the end clients** – they enable bilateral or tri-party execution and provide the glue between pre-trade risks and post-trade settlement through procedures and controls all underpinned by technology.

Any proposed changes to the existing FX credit risk framework will need to consider implications for the pre-trade to settlement finality risks but also the potential negative impact on market access - Without all participant's involvement in the end to end process, FX execution microstructure would not have evolved to become the largest and most efficient market. The current model of participation is inclusive, diverse and efficient.

Central banks have a vested interest in ensuring a safe and efficient FX marketplace both in support of their macro policy perspective but also for local currency stability - One unique dynamic of the FX markets is the important role it plays in enabling a well-functioning local economy and in supporting the local central bank's policy objectives. These government agencies regulate, monitor, influence but also actively participate in the FX market micro-structure. However due to the global nature of FX, the local policy needs may sometimes conflict with a well-functioning global marketplace.

2.Current Model

FX credit processing has evolved through innovation and investment in technology. Commercial opportunities and need for both in-venue controls and post-trade mitigation tools have allowed participants to actively engage in diverse liquidity pools. The unbundling of execution from credit processing has enabled diversity of both execution participation (non-bank, buy side systemic trading) and credit intermediation (FX Prime Brokers and Prime of Primes).

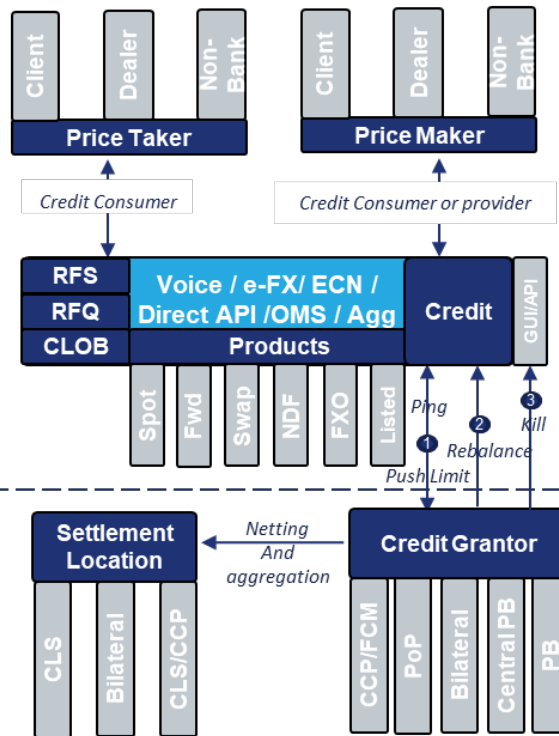
Products such as Spot are much more automated in end-to-end execution to settlement processing while others (e.g., FX Options) may be high touch - Figure 3 represents the typical process and in some cases the interactions may be more manual, depending on the execution method or platform. The trends to date have largely been in spot- but over time we would expect greater electronification in other FX products- NDFs; FX Swaps; FXO and therefore increased credit challenges.

Some platforms operate execution matching exclusively for Bank-to-Bank liquidity as they are the recipients of bilateral credit. While other platforms are focused on Client-to-Bank activity due to their access to a Central PB or multiple PB credit lines - With the diversity and growth of execution venues, many of the process touch points and services are relationship and network dependent (connectivity and technology). Indeed 'credit' provided by the Bank or PB intermediaries is a differentiator for the execution venue, without this relationship the venues would not be able to offer execution services.

Figure 3: FX Credit Processing:

Pre-Trade: In-venue & ping (execution risk)

- Primary control triggered by venue or aggregator / OMS systems
- In-venue checks are common where low latency is crucial for matching (CLOB)
- Where RFQ or RFS is involved a ping check may occur
- Price makers will typically manage utilization vs limits prior to hitting an RFQ/RFS
- Low latency is crucial and co-location a must have for any pre-trade credit control otherwise results in arbitrage at best or at worst, systemic market dysfunction



Post-Trade (Counterparty & Settlement Risk)

- Credit Grantors will allocate initial Limits to liquidity pools
- Post-trade STP or Give-up process allows firms to update utilisation
- Rebalancing mechanism and kill switches are used to control exposures
- Netting or trade aggregation may limit post-trade settlement exposures

Along with defining the end-to-end process, Bank and PB intermediaries have developed a standardized frameworks of tools to enable robust risk management. Figure 4 highlights four key pillars associated with second line risk principles, Manage, Measure, Monitor and Control.

Figure 4: FX Credit framework and toolkit

Manage	Measure	Monitor	Control
Credit Documentation Bilateral – ISDA. Tri-party - DN, 3-way, 4-way, PoP	Credit Risk – Product specific NOP, DSL	Trade Notification Post-trade STP from venues Post trade Give-up from LP/Venue	Credit Distribution Push or re-distribute limits across Venue(s)
Netting and Settlement Close out Netting, Aggregation, CLS	Margin Methodology– VaR, % NOP, SPAN	Credit Utilization Near-Real Time Update of utilisation	Termination Stops client trading across venues (automatic or user initiated)
Margin / Collateral ISDA CSA	Settlement Funding gap, Cash ladder		

As with most frameworks, there are many challenges with aspects of the toolkit, before assessing potential improvements we will examine why FX credit risk has become a focus for all participants and the Central Banks in particular.

3. Why the Focus on FX Credit ?

Turkish Lira events will provide focus areas for what needs to change with the FX credit process or framework - Many studies and articles have been written about high-profile events which have ultimately led to structural changes in the FX markets microstructure. From the extreme events of failure of Herstatt bank in 1974 which led to the creation of CLS⁸ in 2002. The 2015 Swiss franc currency de-peg event leading to market volatility and bankruptcy (Alpari UK) or the more recent structural shift to Emerging Market (EM) currencies and growth of importance non-bank financial and corporates. Each of these events provided opportunities to reflect and improve upon existing FX market microstructure. We will not cover each of these events in detail but instead will focus on the recent events relating to Turkish Lira, as this encompasses most of the current major structural themes. Our ultimate assessment will examine where and how either the FX credit process or the framework failed to provide enough safeguards or controls for both the credit intermediaries and participants.

The long-term implications are crucial to understand for a viable process and framework - In addition to looking in the past, we will focus on some potential forthcoming regulatory challenges to assess how the current process and framework could be future proofed given the movement within the financial regulatory landscape.

Turkish Lira – An experiment in economic liberalization

Turkey’s desire to be included in the European Union led to open capital markets and development of financial market infrastructure to help support growth in trading of local equities and bonds (both government and corporate), which attracted not only asset managers but also speculators seeking greater opportunities - Over the last few years, the Turkish lira has sustained a period of uncertainty due to local economic conditions and government policy. Regardless of the root cause we have seen multiple currency crises starting from as far back as 2002, and the issues have been exacerbated over the last few years due to the dynamic changes in participation for Turkish Lira assets.

Currency markets can provide an efficient mechanism for local and foreign participants to deal with local funding needs. However intraday funding gaps, government intervention and policy uncertainty can create risks and issues - Importantly, unlike many emerging markets, the Lira is a deliverable currency, but due to settlement occurring outside of CLS infrastructure, there is a reliance on local correspondent banks for physical settlement. This nuance means that foreign participants can and do utilize local entities to manage currency balances and visa-versa, typically on a foreign exchange

Industry Focus areas – Current Issues to address

1. Address **overallocation** and management of credit across multiple liquidity sources more efficiently
2. Address Insufficient credit **measurement** for non-linear products (**FX Options**)
3. Address Insufficient credit **measurement** and settlement tools for **volatile** currencies, not limited to those that settle outside CLS
4. Provide dynamic updates of limits, utilization and ability to trigger ‘kill switch’ across a more **diverse range of Liquidity pools**
5. Extend **electronic storage** of credit agreements across a wider set of relationship models
6. Strengthen the Linkage between available **collateral, Margin model(s) and Credit** measures
7. Enable **greater Non-Bank participation** in FX credit process and framework – across both EM currencies and G10

⁸ CLS: Continuous Linked Settlement service started operating in 2002 as an Edge Act Corporation, a limited purpose bank regulated by the Federal Reserve Bank of New York.

venue. This implies that all participants are therefore subject to settlement risk associated with these local participants and may in most cases require credit from intermediaries who in-turn will rely on the local banks for settlement.

The combination of economic uncertainty, policy changes and requirement for real-world physical settlement of currency created a squeeze on funding markets which led to large volatile moves in FX rates and subsequent triggers for OTC FX Options, a perfect storm for credit intermediaries - Additionally, due to greater access to technology and the hunt for alpha, Non-Bank firms gravitated towards Turkish Lira execution both for assets (bonds, equities) and for currency trading. Non-Bank participants can provide Liquidity both as makers and takers in Spot. They normally rely on intermediaries not only for credit to execute but also for settlement purposes. This in itself is not a bad situation and can be observed, efficiently across many other emerging markets currencies as long as firms have the ability to execute and settle FX in an efficient manner.

Consequences of failure in processes or risk framework – What happened?

It could be argued that these events and circumstances are unique to Turkey and are an anomaly; however, we have seen similarities with currency shocks in Russia, Indonesia and will continue to experience these going forward with Argentina, Poland, China, India and Brazil.

1. **Volatility and instability with settlement of Lira** – While no large losses can be directly attributed to the volatility in Lira, participants have faced challenging execution and settlement environment when the Turkish government has tried to control or stifle offshore markets by limiting local banks participation.

Traditional Net Open Position (NOP) and Daily Settlement Limits (DLS) measurements may not recognize risky or volatility settlement conditions in an appropriate manner. Better credit controls across a wider spectrum of venues and Intraday liquidity savings mechanisms or pre-settlement tools and funding may be beneficial or required where CLS processing is not available - The presence of foreign participants in a local market can be beneficial to growth of the local economy but In some cases it can cause short to medium term instability if the country does not have a strong banking environment to support both the supply of currency for execution and settlement. Most traditional Emerging Markets operate a closed and segregated on-shore market and a separate off-shore market. However, the Turkish government have partially implemented their liberalization program, allowing local participation in an offshore market and a government-controlled ecosystem with limited flow of capital both in and out. For credit intermediaries who facilitate both credit and settlement this creates problematic execution controls and settlement environment due to the dependency of available supply of currency from local banks.

2. **Large PB suffers losses from Client FX Options exposures** – In 2018 PB Reports of losses in the range of \$180m vs \$30m in margin against a single counterparty due to exotic FXO.

Firms offering FX Options should ensure relevant margin models that are linked to credit measurements. Additionally, management of inventories is crucial otherwise pin risk can cause mismatch in settlement exposures that cannot be met due to stickiness in local funding markets - FX Options are widely used by many client segments in the global economy to effectively manage funding needs or to speculate. Corporates will utilize FX options to lock in or trigger payoffs only if certain FX rates are prevalent but ultimately, they need the foreign currency payment (PvP). Speculators will use FX options as a cheaper way to implement a specific strategy. Importantly, margining and collateral controls are essential and should be linked into

credit for execution purposes but due to the nature of options exercise and post-trade settlement the risks in FX Options can be more extreme than cash products. In this specific scenario the PB would have had a matched book, i.e. Client->PB and PB->EB and potentially because of this model, the intermediary may not have had sufficient tools to manage the risks appropriately. It was evident that the PB margin requirement was well below the potential losses.

Regulatory Challenges – What challenges will FX markets face in the future

G10 policy goal is to incentivize central counterparty clearing and reduce the overall systemic risk in OTC markets by imposing Margin and balance sheet (Leverage and Liquidity) constraints, while the FX Global Code is a set of standards that FX participants have voluntarily adhered to -

Since the financial market crisis of 2008 and subsequent Pittsburg 2010 agreement, global regulatory authorities have focused on strengthening the financial markets and curbing excessive risk with-in the OTC markets. The impact to

FX markets has largely been muted to date due to the cash nature of the product but also, it's importance in financial markets as a tool for global commerce and macro-economic stability. Over the coming years four areas of the regulations may impact FX business models and it's participants.

Industry Focus Areas – Long-term Considerations

1. Group-level focus on Bank FX Credit utilization due to balance sheet constraints (G-SIB/Leverage and Liquidity)
2. Greater focus on management of inventory of NDF, FX Options using clearing and compression – credit model to cater for a duality and post trade update of utilization
3. Potential for execution venues to provide both G10 deliverable and NDF products which will need to be incorporated into FX credit controls
4. Increased focus on Settlement risk due to need to manage intraday funding gaps
5. Potential for Non-Banks Clearing for NDFs and FX Options or growth in other balance sheet management tools
6. Potential Reduction of Intermediary Bank and their balance sheet usage implying need for greater control of credit allocation across more diverse set of participants including Prime of Prime's and Non-Bank Liquidity providers
7. Potential for further regulatory guidance, oversight and influence should the industry not address current situation

Margin: The Bilateral Margin Rules imposes two-way Initial Margin (IM) and Variation Margin (VM) requirements on non-cleared OTC. For FX, the implementation is product specific and the impact is dependent on region and size of institution

- Spot – No IM or VM for any region or relationship
- FX Fwd / FX Swap – VM only but only for certain regions and firms' size
- NDF/FXO – IM two ways and VM daily (given thresholds)

Unlike IRS and CDS there is no mandatory clearing obligation for FX products therefore executing parties and intermediaries have a choice. This implies that FX credit models may need to incorporate multifaceted execution to settlement paradigms, including PB to Clearing, Bilateral to Clearing or indeed a cleared product from point of execution - Due to the nature of the FX cash business a large portion of the FX market will not be directly impacted by the margin rules. However, derivatives products, mainly NDFs and FX Options will fall in scope and while the full implementation timeline will only come in to effect by Sept 2022, the implications could require changes across most firms' operating models. Costs pressures for credit intermediaries, both for the Dealer Banks and Prime Brokers imply that most if not all NDFs would likely be cleared in some form. As of March 2021, the majority of the dealer-to-dealer NDF flow is being cleared in order to reduce margin impact; however, very little client activity is being cleared. PBs in some instances are clearing the EB->PB leg as this leg is

captured under the bilateral rules for both IM and VM however the Client->PB leg remains OTC since most clients are not impacted until Sept 2021 or Sept 2022. Over the next few years most firms will assess operating models and look to reduce the direct burden of margin for both FX Options and NDFs.

Execution venues and optimization providers will look to enhance margin management tools, credit process and framework to support both deliverable and non-deliverable G10 products - Product innovation is also very likely. Due to margin requirements on FX Options but not on FX Spot and Forwards hedges, some firms may look to execute Non-deliverable G10 hedge trades in order to manage their bilateral margin requirements.

Leverage: *The implications are that margining will become more relevant and important in managing balance sheet exposures, even for deliverable products which do not require posting of IM or VM. In addition, larger firms may be incentivized to reduce their overall exposures facilitating growth in different forms of credit intermediation (Prime of Prime) and Non-Bank Liquidity Providers.* The Supplemental Leverage ratio (SLR) is intended to reduce the excessive Bank balance sheet usage that was observed prior to 2008. Globally Systemic Important Banks (G-SIB) have an additional add-on to SLR, which is intended to curb firms from becoming too large or significant in any given sector or asset class. Although detailed analysis is out of scope for this paper, the key driving factor for FX participants will be the transition from the Current Exposure Method (CEM) to the Standardized approach to counterparty credit risk (SA-CCR) methodology. In general, the SA-CCR method is a more risk-based approach as it recognizes margin vs exposures and offers greater netting opportunities. Firms may find it more efficient to trade FX Swaps (smaller net exposure) vs outright Spot or FX Fwds as the netting impact could be significant in its balance sheet usage.

Liquidity: *Due to focus on correspondent banking risk associated with intraday liquidity exposures, over the next 5-10 years the industry may see growth in Central Bank Digital currency (CBDC) implying greater direct access to central banks settlement, liquidity savings mechanisms and potential for product innovation including execution and PVP of shorter dated FX digital products.* Given is systemically important for funding markets, a lot of attention has been put on short-term liquidity, both with the Liquidity Coverage Ratio but also through the implementation of Intraday Liquidity management, measurement and reporting. Although no direct reserve is held against intraday exposures at this time, it is anticipated that regulatory authorities will focus more on firm's ability to be able to manage intraday funding gaps arising from settlement of FX and other trading activity. Of interest will be the correspondent banking risk that most firms take when settling foreign exchange transactions outside of CLS. Due to limitations and opening time differentials with local Real-Time Gross settlement systems (RTGS), settlement firms do extend large amounts of currency intraday to enable a smooth functioning wholesale global bilateral settlement system. We are however observing slow evolution in this area of the financial markets, Swift are in the process of implementing better visibility and management of end-beneficiary risks however the core processing still relies on extension of credit. The possibility for instantaneous digital settlement across a closed ledger is being explored by technology disruptors and various Bank consortiums –

FX Global Code of Conduct (FXGCC) - Initially published in 2017 with a number of revisions since, the FXGCC has been developed to provide a set of common guidelines to help promote effective functioning and integrity within the wholesale foreign exchange market (the FX Market).

Over 1000 participants have signed a “letter of intent”, the FXGCC is explicit on what principles need to be incorporated for firms who participate in wholesale FX markets; however, it does not define how and what needs to be implemented. If the FX markets do not take the lead, future iterations may include explicit regulations. The core principles

cover Ethics, Governance, Execution, Information Sharing, Risk Management, Compliance and Confirmation and Settlement Process. The principles which are of most interest for FX credit processing and framework involve Last Look, Best Execution, greater automation for FX STP and importantly focus on credit provisioning controls for FX intermediation activities.

4. Opportunities

While our assessment is in no way all encompassing, we have been able to provide visibility across some areas of the process and framework which require improvement but also viewed some potential challenges that will need to be incorporated into any credit utility. Crucially, the FX Markets and its participants can control how and what changes are made to improve the current situation.

SEF and MTF Regulation could be perceived as onerous for participants and venues; however, they have allowed for a Central Credit Utility model to evolve around a functional process and framework. Although not covered in this paper, the Cleared OTC markets have experienced the consequences of what a regulated rules-based credit process and framework could imply to execution operating models. The CFTC SEF regulations (1.73/1.74)⁹ and ESMA's MTF Articles (RTS 26)¹⁰, have imposed a very rigid order screening and credit framework for cleared OTC derivatives (IRS/CDS/FX) across regulated venues.

Technology is a key enabler to resolving some of the improvements we have highlighted but in many ways defining industry standard business process and data standardization will be essential to achieve a viable end state.

In the below we consider a strawman utility model that fits the needs of the FX market participants. We focus on **core principles** that would allow us to address the issues and needs of the market participants, including Central Banks.

⁹ CFTC SEF regulations: below link is a guidance and high-level overview
<https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/stpguidance.pdf>

¹⁰ ESMA RTS 26: Link to guidance and high-level overview
https://ec.europa.eu/finance/securities/docs/isd/mifid/rts/160629-rts-26_en.pdf

A Central Credit Utility Model

Credit utility should allow and enable independent evolution and growth of execution liquidity pools while providing all participants with visibility, control and most efficient use of credit - An industry utility model to link in execution to full and final settlement processing across a more diverse set of FX liquidity pools. Enabling and extending the current Credit process and framework while adhering to the following core principles –

Initial engagement would need to involve a partnership with an FX industry body. All primary participants would contribute to the definition of a set of core data models and APIs that would allow participants to interact more efficiently but also establish some core de minimis requirements for each participant in their interactions with the FX Credit microstructure.

Designing a Process model in partnership with industry body and representation from all categories of participants, is a crucial first step.

Although not mandatory, a central utility service could be the centerpiece of the ecosystem and could implement and enable the interactions. The merits and benefits of a utility model are well understood with-in the financial markets and provide value for both participants and regulators. We have observed this with varied level of success within the FX markets with the introduction of CLS in 2002. FX Clearing infrastructure has evolved organically since early 2010's with some market penetration for the NDF product but little traction across other cash products. Importantly, the challenges with an FX credit utility are much broader in scale and participation, unlike CLS and CCP an initial bank only focus may not address the core issues. The importance and inclusion of all participating firms: vendors, platforms, price takers and makers are crucial to the successful transition into a viable FX credit microstructure. As a minimum, a holistic design approach should be taken in order to meet the needs of all participants in the ecosystem.

It is unknown if the utility would need to register as a Credit financial market infrastructure (FMI) – for debate – however, an appropriate governance structure, rulebook and legal framework would ensure appropriate access for FX participants. Additionally, future iterations could enable extension into other asset classes such as Exchange Traded Derivatives, Repo and OTC Equity Derivatives where similar credit intermediation issues exist.

Whilst providing access and implementing core processing would be paramount to the service, the Credit Utility would need to ensure some core improvements to the current toolkit which would allow intermediates to meet their goals in order to Manage, Monitor, Measure and Control FX Credit risks. Increasing participation, improving tools and links, increasing distribution and addressing the overallocation issues would be the primary goals of the service.

Credit Processing
<p>Goal: Processing model designed in partnership with industry body and representation from all category of participants</p>
<ul style="list-style-type: none"> ➤ Standardization of Credit Data Model and APIs ➤ Pre and Post-trade Order screening ➤ De minimis core requirements for execution venues ➤ De minimis core requirements for Bank participants: ➤ De minimis core requirements for Non-Bank participants: ➤ De minimis core requirements for Direct API, Aggregators and OMS participants

Manage	Monitor
<p style="text-align: center; margin: 0;">Goal: Increase Participation</p> <ul style="list-style-type: none"> ➤ Storage of Bilateral, Tri-Party, Prime of Prime and clearing documentation linked to Credit framework: 	<p style="text-align: center; margin: 0;">Goal: Increase distribution</p> <ul style="list-style-type: none"> ➤ Credit Distribution to wider set of participants and agreements ➤ Credit Updates for post-trade Inventory events
Measure	Control
<p style="text-align: center; margin: 0;">Goal: Improve tools and Key links</p> <ul style="list-style-type: none"> ➤ Enhancements to FX Credit Measurements for FXO / EM ➤ VaR based Margin Models with links to credit measures ➤ Support calculation for the full list of FX products ➤ Intra-day Liquidity mgmt. tools with links to credit measure ➤ Recognize Duality of Products and Post-trade Credit models 	<p style="text-align: center; margin: 0;">Goal: Address overallocation issues</p> <ul style="list-style-type: none"> ➤ Efficient credit allocation model and control ➤ Extend ability to terminate clients across more diverse liquidity pools

The above provides a high-level view of what functionality would need to be encompassed into the utility service. Although much of the detailed picture will already be known to participants and providers alike, many new facets could be introduced with engagement across a wider spectrum of FX market participants.

5. Conclusion

In this whitepaper we have tried to map out the story board for FX credit, by looking at what exists today against some of the past and future challenges. We hope the reader has been given an overall picture of the dynamics at play within the FX credit microstructure.

We explored some of our thoughts regarding a strawman for a credit utility model, highlighting the need for an initial industry driven structured approach to standardization, both in data and the need for a well-defined interaction model for participants. Importantly we are not an advocate for or against a single provider of the utility service, however some formal governance structure could be a useful characteristic for a utility service. Along with providing the core processing, we have identified some areas of improvement that the utility could provide to enhance the existing framework and toolkit around managing, measuring, monitoring and controlling FX Credit risks.

Structured formal engagement is a first step and one of the core initial debates would center around the need for and merits of a central utility. Indeed, the intention of the paper was not to provide all the answers and disclose a definitive service proposal. Instead this is the start of a journey. We welcome and encourage broader engagement and debate on the merits of extending the current process and framework to a Central Utility model in order to enable an efficient well-functioning FX Credit ecosystem.

About the Author

Basu Choudhury works at Traiana, which is part of CME Group. He focuses on strategic service capabilities for both the buy- and sell- side firms. Basu brings a wealth of experience as the former head of product for LCH ForexClear service, where he led the design of the service for FX NDF clearing and was at the forefront of the definition of a model for CCPs to interact with CLS to enable the clearing of other FX products (FX Options/Spot/Forwards). Prior to this, he spent over 15 years in roles involving business and process reengineering - building, designing and supporting banking and hedge fund business initiatives across Rates, FX, Equity Derivative and Credit products.

Basu received his Masters in Economics, specializing in econometrics and options theory, from the University of Toronto in 1997.

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