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Section	Field	Question	Response	Follow-Up Question
Analytical Capabilities	TCA - Internal or 3rd Party	Is your TCA product internally developed and	[]Yes,	If No, please describe
	(Multiple Choice)	maintained?	[]No,	who you use for TCA
	,		Not provided	technology
Analytical Capabilities	TCA Capabilities (Multiple	Select all that apply regarding your TCA	[]#1 They are real-time,	
	Choice)	capabilities.	[] #2 They include parent level and child level analysis,	
			[] #3 They include routing and venue analysis,	
			[] #4 We have a dedicated team focused on TCA that consult with clients,	
			[] #5 Our TCA is internally developed,	
			[] #6 Our performance data is not aggregated into peer data calculations that is shared with other clients,	
			[] #7 We can provide performance reports to clients vs. all the most used trading benchmarks,	
			[] #8 We can provide reversion metrics,	
			[]#9 We have a proprietary pre-trade cost model,	
			[] #10 Third-party pre-trade cost estimates can be included in our performance reports,	
			I 1#11 We support a portal to manage and view performance	
Analytical Capabilities	TCA Peer Data (Multiple	Select all that apply regarding client data	[]#1 We do not partner or use any third-party TCA providers,	
	Choice)	aggregation with third-party TCA providers.	[] #2 We may transmit client data to third parties only at the request of a client,	
			[] #3 We do not aggregate our data into any third party peer analysis tools	
Analytical Capabilities	TCA Post-Trade Analysis	Do you provide post-trade analysis detailing the	[]Yes,	If No, please describe
	(Multiple Choice)	venues you have traded with?	[] No,	why.
			Not provided	
Compliance	BrokerCheck (Multiple	Do any of your electronic trading or algo	[]Yes,	If Yes, please provide
	Choice)		[] No,	some additional details
			[] Not provided	
		BrokerCheck Report within the past year?		
Compliance	Compliance Checks	Select all that apply (+Other if applicable)	[]#1 All orders are received and confirmed via FIX,	
	(Multiple Choice)	regarding mandatory compliance checks and	[] #2 Executions are monitored in real-time by the trade and management,	
		surveillance practices that you use to manage our	[] #3 All orders are checked against client level limits and other internal risk checks,	
		trading activity.	[] #4 We use external surveillance tools to monitor order and trades on our platform,	
			[] #5 We do not disclose any processes and controls,	
			[] #6 Trading management monitors communications to prevent inappropriate information leakage,	
			[] #7 We have a robust compliance risk management built into our OMS,	
			[] #8 We have proprietary monitoring reports in addition to external tools,	
			[] #9 Our compliance department regularly reviews our supervisory and control processes,	
			[] #10 We utilize a third-party surveillance system such as LiquidMetrix, Quis Technologies, Cognizant, etc.,	
			[] #11 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Compliance	Desk Segregation		[]Yes,	If No, please describe
	(Multiple Choice)	servicing High Touch and Low Touch flows?	[] No,	how that benefits clients
			[] Not provided	1521
Compliance	Policy Deficiency Reports		[] Yes,	If No, please explain in
	(Multiple Choice)		[] No,	more detail
			[] Not provided	
	ļ. <u> </u>	compliance department's review?		
Dark Pool	Agency Preference		[] Yes,	If No, please provide
	(Multiple Choice)	house internal flows?	[] No,	some additional
			[] Not provided	explanation as to why
Dork Book	Proker Asses - (Maritim)	Do you allow other brokers to access your deals	LIVen	this is the case
Dark Pool	Broker Access (Multiple	Do you allow other brokers to access your dark	[] Yes,	If Yes, who else has
	Choice)	pool?		access?
Dork Book	Internal Dark Daal	Do you energte a dark no -1 ATCO	[] Not provided	+
Dark Pool	Internal Dark Pool	Do you operate a dark pool or ATS?	[] Yes,	
	(Multiple Choice)		[] No, [] Not provided	
Dark Pool	Minimum Crossing	Can your dark pool support "Minimum Crossing	[] Not provided	If No, please provide
Daik FUUI	Quantity (Multiple Choice)	Quantity"? (MEQ)	[] Yes,	some additional
	Quantity (wuttiple Choice)	Quantity : (IVIEQ)		
			[] Not provided	explanation as to why this isn't offered.
Dark Pool	Order Type Preference	Do you preference any types of flow in the dark	1 #1 Yes - Please describe your preferences in the Explanation section below,	uns isn i onered.
Daik FOOI	(Multiple Choice)	pool?	[]#1 Yes - Please describe your preferences in the Explanation section below, []#2 No,	
	(Multiple Choice)	poor	[]#2 No, []#3 We do not access dark pools	
Dark Pool	Outbound Orders (Multiple	Do you send orders outbound from your dark	#3 ver do not access arin pools 1 #1 Yes - Please describe in more details in the Explanation section below,	
Daik FUUI	Choice)	pool?	[]## res - Please describe in more details in the Explanation section below,	
	onoice)	poor:	[]#∠ Nu, 1 #3 We do not operate a dark pool	
L	ı	1	πο ττο do not operate a dain pool	1

Dark Pool	Prioritization/Matching -	Select all that apply (+Other if applicable)	[]#1 Buyside over Sellside,	1
Dark Pool	Dark Pools (Multiple	regarding how prioritization and the matching	[]# i buyside over Seliside,	
	Choice)	process work in your dark pool.	[]#Z FIRM Orders over Continuous, [] []#3 Strict price/time priority,	
	Choice)	process work in your dark pool.	[]#3 Sauc price/irice priority, [] #4 We use price/size priority,	
			[] #S Certain orders such as VWAP or MOC close orders a match pro-rata,	
			[]#6 We do not own/operate a dark pool,	
			[] #7 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Dark Pool	Toxicity Measured	Do you measure toxicity in your dark pool?	[] Yes,	If Yes, please explain
	(Multiple Choice)		[]No,	how you do the
			[] Not provided	measurement.
Indication of Interest (IOI)	IOI Default Methodology	Select all that apply (+Other if applicable)	[] #1 Algorithmic and DMA flow sent to the electronic trading desk for execution do not generate IOIs,	
	(Multiple Choice)	regarding your IOI generation when the IOI is	[] #2 Orders sent to us through the high touch or program trading desks will be included in IOIs on an automated basis,	
		being generated in response to a client order.	[] #3 Clients can opt out of IOIs on a default basis or can opt out on a per order basis,	
			[] #4 We adhere to an industry standard code of conduct as it relates to the use of IOIs,	
			[] #5 We have a proprietary system that sends IOIs to various vendors,	
			1 #6 IOI distribution is based on a client-tiering system,	
			[] #7 IOIs are an important component to our best execution process,	
			1 #8 Only clients who are approved by the head of trading or similar leadership role can decide who receives IOIs,	
			[]#9 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Indication of Interest (IOI)	Principal IOI Guidelines	Select all that apply regarding the general	[]#1 All IOIs are client driven,	
indication of interest (101)	(Multiple Choice)	guidelines by which your firm manually generates	1 1 #2 We use the Bloomberg quidelines to identify IOI types by class and subclass,	
	(manapie diferes)	principal or proprietary IOIs.	1 1#3 We have a consistent approach when we communicate IOIs via third-party systems.	
		principal of proprietary lois.	1 1#4 Our high touch desk may manually send IOIs at their discretion (both proprietary and customer-related).	
			[] #5 When applicable, we will always use FIX tag 104 with the proper Class H depending upon whether it is a "position wanted" or an "unwind",	
			[] The Well algorithms we will always use TX lay 104 with the proper class it depending upon whether it is a position wanted or all unwind , [] 1#6 We do not send our electronic IOIs.	
			[] #7 ver du nic serio du l'eccurionic Jons, [1] #7 We do not use IOIs for proprietary trading activities in any way	
			[] #/ we do not use to is for proprietary trading activities in any way	
Indication of Interest (IOI)	Principal IOIs (Multiple		[]#1 We do not utilize a platform to automatically generate principal or proprietary IOIs,	
	Choice)	process for automatically generating principal or	[]#2 We do not generate principal or proprietary IOIs since we are agency-only,	
		proprietary IOIs.	[] #3 Our CRB sends actionable IOIs that are principal, risk unwind naturals and position wanted naturals,	
			[] #4 Principal IOIs are never tagged as natural IOIs,	
			1#5 All IOIs are manually entered	1
Indication of Interest (IOI)	SOR Order Info	Does any venue you access receive or transmit	[]Yes,	If Yes, please explain in
	Transmission (Multiple	order information to other destinations or	[] No,	more detail
	Choice)	participants via liquidity indications or IOIs?	[] Not provided	
Policies & Procedures	Best Execution Policy -	Select all that apply regarding your best execution	[] #1 Our best execution policy states that we will reasonably seek to get the most favorable terms under the circumstances for each customer	
	Summary (Multiple	policy.	transaction give the customer's instructions,	
	Choice)		[] #2 Our best execution policy considers client instructions, price, size of order, trading characteristics of the security, depth of liquidity, real-	
			time and historic fill rates, speed of execution, price improvement opportunity, and cost of execution,	
			[] #3 We have a best execution committee that meets at least quarterly,	
			[] #4 We have a best execution committee that meets at least monthly,	
			[] #5 We require third parties that may execute on our behalf to provide written affirmation that they will adhere to our best execution	
			expectations,	
			[] #6 We regularly review executions and our process to ensure we are achieving best execution,	
			[] #7 We do not have a formal best execution policy,	
			1 #8 We meet with clients to ensure our definition of best execution aligns with their expectations of best execution	
Policies & Procedures	Payment for Order Flow -	Select all that apply regarding your	[]#1 We do not accept payment for order flow,	
1	Policies (Multiple Choice)	policy/philosophy on payment for order flow.	[] #2 When all else is equal, we will consider the execution costs (including payments) when determining routing decisions,	
			[] #3 We do not route orders based on a venue's fee schedules,	
	1		[] #4 Generally, we do not route to venues/destinations that provide payment for order flow,	
1	1		[] #5 We have a financial interest in exchanges or venues that benefit from the payment of order flow,	
1			[] #6 We have publicly disclosed all potential conflicts of interest as it related to payment for order flow,	
			i 1#7 We do not get paid by market makers for our order flow	
Smart Order Routing	Desk Strategies (Multiple	Does your internal desk use the same routing	[]Yes,	If No, please describe
	Choice)	strategies as clients?	[]No,	the differences in strategies
			[] Not provided	

Smart Order Routing	Execution on a Venue (Multiple Choice)	Select all that apply (+Other if applicable) regarding your SOR and the factors it evaluates to determine the likelihood of execution on a venue.	[] #1 Market share of the venue, [] #2 Fill rate and hit rate of the venue, [] #3 FINRA ATS data, [] #4 Queue dynamics of the venue, [] #5 Stock and venue specific patterns, [] #6 Cost of the venue (fees/rebates), [] #7 Size of the order, [] #8 Consistency of latency, [] #9 Potential for price improvement, [] #9 We do not operate a SOR,	
Smart Order Routing	Fair Value Mechanics	Do you have fair value mechanics built into your	[] #11 We do not utilize a SOR for clients, [] #12 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply) [] Yes,	If No, please provide
Smart Order Routing	(Multiple Choice)	algo strategies / SOR / non-displayed liquidity sources?	[] No, [] Not provided	information as to why.
Smart Order Routing	Internal Preference (Multiple Choice)	Do you preference your own dark pool as part of SOR decisions?] #1 Yes, and we have described why this practice is beneficial to our clients in the Explanation are below,] #2 No,] #3 We (or our affiliates) do not have a dark pool	
Smart Order Routing	Number of SORs (Multiple Choice)	Does your firm operate multiple SORs to execute our orders (e.g. algorithm and cash desk orders)?	[x] Yes, [] No, [] Not provided	If Yes, please describe the benefits to clients
Smart Order Routing	Proprietary SOR (Multiple Choice)	Is your SOR developed in-house?	[]#1 Yes, []#2 No, and we have noted who we use for SOR technology in the Explanation area below, []#3 We do not use a SOR	
Smart Order Routing	Routing Decisions - 3rd Party (Multiple Choice)	Do you delegate any routing decisions to third parties?	[] Yes, [] No, [] Not provided	If Yes, please provide some additional information as to why.
Smart Order Routing	SOR Best Execution (Multiple Choice)	Select all that apply (+Other if applicable) regarding how your SOR achieves and monitors best execution in both lit and dark venues.	[] #1 Best execution reports are generated on a daily basis to compare the targeted quotes to the orders routed, [] #2 We have integrated FINRA ATS data into our dark routing methodologies, [] #3 Factors that impact where an order is routed include fees and rebates charges by the venue, [] #4 We have a best execution committee that meets at least quarterly, [] #5 Our SOR can utilize a minimum execution quantity (MEQ) measure, [] #6 We allow clients to provide a specific list of venues that may be accessed prior to sending orders to public markets, [] #7 Our SOR can dynamically adjust venue allocations during the life of an order based on changing liquidity patterns, [] #8 We review each execution venue as part of a monthly best execution analysis and review, [] #9 Our SOR accesses internal sources of liquidity, such as our ATS, [] #10 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Smart Order Routing	SOR Configuration (Multiple Choice)	Are there any configuration rules for our firm's orders that cause a difference in functionality from the default client rule set, AND are there any venues to which the SOR has access but to which our orders are not routed?	[] Yes, [] No, [] Not provided	If Yes to either part, please describe in more detail.
Smart Order Routing	Timing Control (Multiple Choice)	Select all that apply (+Other if applicable) regarding how your SOR controls the timing of child orders when sending orders to multiple venues to minimize the difference in the arrival time at each venue and how this is monitored.	[]#1 We route orders to venues in parallel based on the venue's latency, []#2 We actively monitor latency in order to modify route timing, []#3 We can randomize order timing, sizing, limits, and venue selection in order to reduce gaming, []#4 We taking liquidity or crossing the spread, we route sequentially, []#5 We monitor round-trip latency in real-time, []#6 We will only preference a route that is advantageous to the client, []#7 We can delay routing to venues which are close to our SOR, and these delays are reviewed regularly, []#8 We may route to find non-displayed liquidity prior to routing to public markets, []#9 We do not use a SOR, []#10 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
FIX Tags	Additional FIX Tags (Multiple Choice)	Are there additional FIX tags your firm may populate to a client that indicates any information regarding the status of another client's order?	[] Yes, [] No, [] Not provided	If Yes, please specify the tag number and the type of information.
FIX Tags	Customized Algo Tags (Multiple Choice)	Select all that apply regarding FIX tags.	[] #1 We can populate Tag 851 (maker/taker), [] #2 We can populate Tag 9730 (liquidity indicator), [] #3 FIX tags are configurable upon request, [] #4 We can provide industry standard tags: 29, 30, and 851 for each child execution	
Trading Capabilities	Capital Commitments (Multiple Choice)	Select all that apply (+Other if applicable) regarding how you trade out of positions on committed capital for customer facilitation.] #1 We don't engage in proprietary trading,] #2 We trade out at the full discretion of the trading and risk teams,] #3 We trade out of positions with approved "trade along" per client agreement,] #4 The approach when trading out of positions will vary depending upon the desk and firm risk at that time,] #5 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	

Trading Capabilities	Proprietary Trading Order	Do you have system controls and limits to prevent	[1]Yes.	If No, please provide
3 - 1	Access Controls (Multiple	proprietary traders from seeing or accessing	į į No,	information as to why.
	Choice)	customer orders and other information?	[] Not provided	
Trading Capabilities	Trading Desk Conflict	Select all that apply to how your firm manages	[] #1 We do not run a proprietary trading desk,	
	Management (Multiple	conflicts of interest between customer facilitation	[] #2 We have physical and systemic barriers between our high touch trading desk and proprietary trading,	
	Choice)	and proprietary trading desks.	[]#3 We have distinct trading systems between our proprietary trading and customer business,	
			[]#4 Our firm's code of conduct addresses conflicts of interest,	
Trading Capabilities	Trading Information	Select all that apply (+Other if applicable) to the	1 #5 Our firm has policies and procedures reasonably designed to handle conflicts of interest 1 #1 No information is shared between our customer facilitation desk and our proprietary desks,	
Trading Capabilities	Barriers (Multiple Choice)	information barriers between your firm's customer	[]# / We have physical and systemic barriers between our high-touch and low touch trading desks,	
	Darriers (Multiple Crioice)	facilitation and proprietary trading desks.	1 #8 The reporting lines are different between the high-touch and low-touch trading desks,	
		g	#4 We do not have a proprietary trading desk,	
			[] #5 Our firms has policies regarding the handling of confidential information and procedures to ensure information barriers are established that	
			abide by our regulatory and contractual obligations,	
			[]#6 By default, client order flow is not shared or exposed outside the trading group where the order was sent,	
			[] #7 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Best Execution and Venue Selection			[] Yes,	If No, please provide
	(Multiple Choice)	specific types of flow that participate within any of vour execution venues?	[] No,	more details.
Best Execution and Venue Selection	Min Fill Aggregation	Select all that apply regarding the aggregation of	Two provined:	
Dest Exception and Vende Sciention	(Multiple Choice)	orders to fulfill minimum quantities.	1 #2 Clients can choose to opt out of venues that aggregate to fulfil minimum fill requirements,	
	,	'] #3 We only route to venues that do not aggregate contra orders to meet minimum quantity,	
			[] #4 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Best Execution and Venue Selection	Min Fill Opt-out (Multiple	Do clients have the option to opt-out of the	[] Yes,	If No, please provide
	Choice)		[] No,	some additional
		minimum quantity?	[] Not provided	explanation as to why
Best Execution and Venue Selection	Routing Practices -	Do you have any ownership stakes or interests in	[1 Yes.	this is the case If Yes, please list the
Best Execution and venue Selection	Ownership in Venues	trading venues?	LITES. ITNO.	trading venues where
	(Multiple Choice)		[] Not provided	you have ownership
	,			stakes, and how you
				mitigate conflicts of
	5 " 5 "			interest
Best Execution and Venue Selection	Routing Practices - Restrictions/Caps (Multiple		[] Yes,	If Yes, please describe
	Choice)	a particular venue?	[] No. T] Not provided	why this non-standard practice is beneficial to
	Choice)	a particular veriue :	Unot provided	vour clients
Best Execution and Venue Selection		Select all that apply (+Other if applicable)	[] #1 All orders are immediately acknowledged in our system,	
	(Multiple Choice)	regarding how do you ensure prompt processing	[]#2 Visual and audio alerts traders or monitoring staff of all un-acknowledged orders/messages,	
		of incoming electronically transmitted orders	[] #3 Incoming electronic orders are automatically checked against client specific checks,	
		received by your desks.	[]#4 Once electronic orders are received and automatically accepted and checked against limits, they are routing accordingly with no delay, []#5 We have a technology support team that monitors our system continuously for processing delays,	
			[] #5 we have a technology support team that monitors our system continuously for processing delays, [] #6 If an order is not routing as expected, there are alerts to escalate the issue to investigate immediately,	
			1 #7 via nariodus is not routing as expected, tiere are alrea to declared in a lease of missage immediately,	
			1 #8 Our routing infrastructure has a fully redundant instance if latency is detected,	
			[]#9 We conduct latency and capacity testing at least once per year,	
			[] #10 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Best Execution and Venue Selection	SOR Latency - Monitoring Connectivity (Multiple	Select all that apply (+Other if applicable) regarding how you monitor the latency of order	[]#1 We have identified all potential latency in our systems and optimized accordingly, []#2 We have an execution quality team/group than reviews all latency related data on a regular basis (at least quarterly),	
	Choice)	routing and market data connectivity to	[]#2 we have an execution quality teamingtoup trial neviews an latericy related data on a regular basis (at least quarterly), [] #3 We have real-time monitoring for abnormal latericy,	
	1	exchanges.	1 1#4 We have monitoring applications that validate market data for latency,	
		Ĭ	[] #5 We monitor potential trade-through events in protected markets,	
]]#6 We have turned a venue off due to latency issues,	
	1		[] #7 We only rely on latency data from the exchanges/venues ,	
			[] #8 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	

Best Execution and Venue Selection	SOR Minimum Fill Size (Multiple Choice)	Select all that apply (+Other if applicable) regarding your minimum fill size protocol.	[] #1 Minimum fill size settings are dynamic per venue and customizable per client request, [] #2 By default we use 100 share minimum execution quantity, [] #3 Minimum fill sizes can be applied overall, on the venue level, and a strategy level, [] #4 We don't have a default minimum size fill , [] #5 We review various statistics by venue (such as mark-outs) to determine minimum size fills per venue , [] #6 Minimum fill sizes can be dynamically adjusted based on algo strategy aggression, [] #7 We have a proprietary method to determine minimum size constraints, [] #8 Our minimum sill sizes can adjust based on market conditions, [] #9 We can adjust minimum fill size based on performance vs. various benchmarks on a dynamic basis, [] #10 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Best Execution and Venue Selection	SOR Venue Selection Procedure (Multiple Choice)	Select all that apply (+Other if applicable) regarding the process for switching off a venue or adding a venue.	[] #1 Venues can be turned off at our discretion and determined as needed, [] #2 We will always communicate the removal or addition of venues to our clients, [] #3 We will generally communicate any changes to venues beforehand to clients, [] #4 Venues can be turned off on a real-time basis, [] #5 Each venue must submit to a questionnaire that details their functionality, information security practices, and details related to the stability of their firm, [] #6 The main determinants of adding a venue are: market share, uniqueness of liquidity, and operating rules, [] #7 We typically proactively remove a venue if there are technical issues, low fill rates, regulatory actions, reputational concerns, or execution quality issues, [] #8 We have a best execution committee that is involved in all venue removals and additions, [] #9 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Best Execution and Venue Selection	Venue - Cease Trading (Multiple Choice)	Have you ceased trading on a venue for a period of greater than 1 month in the last 5 years?	[] Yes, [] No, [] Not provided	If No, please explain the criteria for a venue to have ceased or paused trading with you firm
Best Execution and Venue Selection	Venue Evaluation (Multiple Choice)	Is internal and external venue evaluation consistent in all evaluation time periods?	[] Yes, [] No, T) Not provided	If No, please provide more details.
Best Execution and Venue Selection	Venue Preference (Multiple Choice)	Do you in any way preference one venue over another?	[] Yes, [] No. [] Not provided	If Yes, please provide specific details as to how this benefits your clients and also how it benefits you as the broker.
Best Execution and Venue Selection	Venue Selection - No Posting/Taking (Multiple Choice)	Are there venues you do not connect to but where your firm does not post or take liquidity?	[] Yes, [] No, [] Not provided	if Yes, please provide more detail and reasons for not connecting or posting to each venue.
Best Execution and Venue Selection	Volume Tiers (Multiple Choice)	Do you change routing preferences in any way to meet volume tiers?	[] Yes, [] No, [] Not provided	If Yes, please provide some additional explanation as to the benefits to clients and to you as the broker.
Algorithmic Trading	Access Description (Multiple Choice)	Select all that apply (+Other if applicable) regarding access as to who can see our firm's orders while trading and subsequently post-trading.	[] #1 Access is available to non-coverage traders for back-up purposes only, [] #2 There are internal processes and procedures that protect client information and those who have access to it, [] #3 Only specifically designated traders, operations, and compliance personnel have access to order information, [] #4 Only the algorithmic trading team has access to your firm's orders, [] #5 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	10 10 10 10 10 10 10 10 10 10 10 10 10 1
Algorithmic Trading	Algo Controls (Multiple Choice)	Select all that apply (+Other if applicable) to explain any control exercised by your algos (as opposed to the decision made by the SOR) as to venue type (e.g. exchange, ATS) and venue when routing orders and any ability for the client to control how the algos select venues.	[] #1 Algos can select which dark venues to route based on an internal model that's part of the algo itself, [] #2 Each of our algos are highly customizable where clients can select routing preferences within NMS obligations, [] #3 We can set up venues to be selected sequentially, simultaneously, or weighted utilizing typical/historical optimal sizing, [] #4 We preference venues based upon proprietary analysis of toxicity, [] #5 Algorithms may modify the venues that are used by the SOR in various circumstances in order to achieve trading objectives, [] #6 Child orders are sized and destinations prioritized based on our internal ranking using real-time and historical measures, [] #7 Other (also select all others above that apply and do not put web links/URLs here)	
Algorithmic Trading	Algo Order Types (Multiple Choice)	Please select all that apply regarding the user of algorithms in closing auctions.	[] #1 Closing auction orders are only routed to the listing exchange for the given security, [] #2 There are no risk limits based on the imbalance size, [] #3 Clients can opt out of participation on the closing auction, [] #4 By default most of our algorithms will participate in the closing auction, [] #5 Each algorithm that participates on the close determines the size based on historical closing auction volume, [] #6 The auction quantity calculation does take into account the imbalance communicated by the exchange, [] #7 Our algorithms only access closing auctions using direct routes to exchanges and order types specifically designed for the close, [] #8 We have a maximum size threshold set as a percentage of closing volume, [] #9 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	

Algorithmic Trading	Algo Ownership (Multiple Choice)	Are your algorithmic trading strategies for clients proprietarily developed in-house?	[] Yes, [] No, [] Not provided	If No, please describe in more detail any third- party development relationships, and how often the algorithms are re-evaluated
Algorithmic Trading	Automatic Speed Logic (Multiple Choice)	Do different clients have access to different (e.g., lower latency, higher throughput) market data feeds or order entry gateways/links depending on the client type, commission paid or volume traded?	[] Yes, [] No, [] Not provided	If Yes, please provide some additional explanation around how this works
Algorithmic Trading	CRB Profiling (Multiple Choice)	Do you use profiling metrics/tools in your CRB?	[] #1 Yes, and more detail is added in the below Explanation section below, [] #2 No, [] #8 Ve do not operate a CRB	
Algorithmic Trading	Central Risk Book (Multiple Choice)	Select all that apply regarding algos electronically accessing your CRB.	[] #1 We do not operate a CRB, [] #2 Clients can opt out of their orders accessing our CRB, [] #3 Clients must opt in for order to orders accessing our CRB (no access by default)	
Algorithmic Trading	Conditional Orders (Multiple Choice)	Select all that apply (+Other if applicable) regarding your use of conditional orders	[] #1 By default we will use conditional orders across a number of external venues, [] #2 We have quantitative ranking to determine which venues to use conditional orders and in what order, [] #3 Initially, orders send to multiple venues on a conditional basis are staggered (sequential), [] #4 Our clients have the ability to customize their routing preferences as it relates to conditional orders, [] #5 We score each conditional venue by fall-down and firm-up rates, [] #6 We use minimum order sizes with all conditional orders by default, typically, several thousand shares, [] #7 We firm up all conditional orders based on the order the invitation was received, [] #8 We access all major conditional venues, [] #9 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Algorithmic Trading	Definition of Dark (US) (Multiple Choice)	For US names using your liquidity aggregation algorithms, what proportion of dark trading (in a US ATSs) did the algo(s) capture in the previous six months?	[] #1 0-25%, [] #2 26%-50%, [] #3 51%-75%, [] #4 More than 75%, [] #5 do not execute with dark pools/ATSs	
Algorithmic Trading	Electronic Security Measures (Multiple Choice)	Please select all that apply regarding your physical and electronic security measures that are in place to minimize the risks of attacks against the algorithmic trading platform and prevent unauthorized access.	[] #1 We have a risk framework to ensure all employees understand their individual and collective roles and responsibilities when it comes to securing our assets, [] #2 We have a risk committee that establishes policies for all employees and contractors, [] #3 Generally, access to systems and information is on an "as needed basis" which minimizes access to those that don't require it to complete their core function, [] #4 Access to network computers, data centers, and sensitive applications are controlled by the CTO or similarly high ranking individual, [] #5 We perform a vulnerability analysis to proactively review our infrastructure and applications for potential weaknesses on a regular basis, [] #6 We have a formal process to remove/add access to all systems with systematic alerts if something is changed without proper approvals, [] #7 We have entitlement review performed by management at least semi-annually, [] #8 We have a formal cyber security program in place which constantly reviews and assess potential weaknesses and threats to our system and data security, [] #8 We have completed a third-party penetration test within the past 1 year, and there are no additional disclosures necessary based off the results	
Algorithmic Trading	Parent Level Crossing (Multiple Choice)	Can algorithmic orders cross/match at the parent order level or on a scheduled basis?	[] Yes, [] No, [] Not provided	If Yes, does this happen at the desk-level, or is it within a Centralized Risk Book or similar facility? If applicable, please provide details on when/how this would trigger.
Algorithmic Trading	Primary Or Consolidated Data (Multiple Choice)	Select all that apply (+Other if applicable) and are related to using market data in your algorithmic strategies.	[] #1 Our algorithms access the consolidated market volume and price data, [] #2 We use direct exchange feeds with depth of book across the major exchanges, [] #3 Upon client request we can use volume feeds from the primary market, [] #4 We exclude block trades from POV trade value calculations, [] #5 We include odd lot volume in our POV trade value calculations, [] #6 We include volume from multiple countries in all calculations in the case of interlisted securities, [] #7 We exclude these condition codes in the US when tracking volumes: 4, B, C, N, R, V, 7, [] #8 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	

Algorithmic Trading	SOR Performance (Multiple Choice)	Select all that apply regarding the maintenance and improvement of an algorithmic strategy or the SOR's performance.] #1 We have a monthly committee or working group that reviews performance,] #2 We communicate all material changes and improvements to clients on at least a quarterly basis,] #3 We have a committee that evaluates and determines the addition or deletion of venues on our platform,] #4 We test all improvements to our strategies with non-client orders,] #5 We do A/B testing to improve the configuration of our strategies and venue choices,] #6 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Algorithmic Trading	SOR and Algo Separation (Multiple Choice)		[] Yes, [] No, [] Not provided	If No, please provide more details.
Non-Displayed Liquidity Sources (U.S.)	ATS Restrictions (Multiple Choice)	Can you apply restrictions to the trading of a participant in your ATS due to execution quality concerns?	[] Yes, [] No, [] Not provided	If Yes, which metrics are you monitoring and how often are you calculating/reviewing them. At what point would you communicate these concerns to clients?
Non-Displayed Liquidity Sources (U.S.)	Client Collocation (Multiple Choice)	Can your clients collocate close to your non- displayed liquidity sources?	[] Yes, [] No, [] Not provided	If Yes, please provide more details on the benefits of this setup.
Non-Displayed Liquidity Sources (U.S.)	Execution Pricing (Multiple Choice)	Select all that apply regarding your ATS and pricing feeds.	[] #1 We do not own or operate an ATS, [] #2 We only use direct feeds, [] #3 We use the SIP, [] #4 We use direct feeds, and will utilize the SIP as a backup, [] #5 We use a combination of direct feeds and SIP	
Non-Displayed Liquidity Sources (U.S.)	Locked Markets (Multiple Choice)	Does the ATS execute in locked markets?	[]#1 Yes, and we have explained in more detail in the Explanation area below, []#2 No, []#3 We do not own or operate an ATS	
Client Confidentiality	Affiliate Controls (Multiple Choice)	Do you execute orders with any affiliates?	[] Yes, [] No, [] Not provided	If Yes, please list the affiliates.
Client Confidentiality	Client Confidentiality (Multiple Choice)	Select all that apply to controls, processes, and procedures that are in place to ensure client anonymity.	[] #1 Client order information is limited to account coverage and supervisors, [] #2 Compliance, legal, risk management, and other senior leaders have additional access and oversight, [] #3 We have policies and procedures designed to safeguard confidential information of clients, including all trading activities, [] #4 We have information barriers in place to ensure confidential information is not shared inappropriately, [] #5 All client data is managed on a "need to know" basis, [] #6 All clients are coded with non-identifiable identifiers to additional anonymity, [] #7 Operations personnel have access to our trade information for settlement and clearing purposes only, [] #8 Any breaches in confidentiality outside of internal policies and procedures are communicated swiftly to clients, [] #8 Clients are not coded, but can be upon request	
Risk Controls	Algorithm Safeguards (Multiple Choice)	Select all that apply (+Other if applicable) regarding any safeguards or protections around algorithm execution for limit prices away from market, extreme security price moves, etc.	## We have a committee that approves all controls, such as those that are related to ADV, notional value, order quantity, and intra-day price movements, [] ## We have a committee that approves all controls, such as those that are related to ADV, notional value, order quantity, and intra-day price movements, [] ## We have a kill switch for our algorithms, [] ## All algorithmic orders are sent with price limits, [] ## Clients have the capability to automatically pause orders (child or parent level) that move a percentage away from the arrival price or other types of benchmarks, [] ## Clients have the ability to set up customized circuit breakers across their orders, [] ## We utilize volatility collars to manage orders, [] ## We can systematically avoid sending orders that would violate the current clearly erroneous guidelines, [] ## Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Risk Controls	Anti-Gaming Logic (Multiple Choice)	Select all that apply to your anti-gaming logic	[] #1 It overlays the entire algo suite, [] #2 It is algorithm specific, [] #3 It uses a fair value model, [] #4 It utilizes dynamically adjusted child limit prices, [] #5 It monitors adverse price movement, [] #6 It monitors suspicious fill patterns, [] #7 It uses minimum fill sizes, [] #8 It can be configured by the client, [] #9 It uses randomization around displaying and posting of orders, [] #10 It uses randomization around the timing of orders, [] #11 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	

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Risk Controls	Business Continuity Arrangements (Multiple Choice)	Select all that apply to your business continuity arrangements.	[] #1 We have a dedicated business continuity team responsible to the trading function, [] #2 In a business continuity situation, we can operate fully as normal, [] #3 We have another physical location available in the case where our main location is not accessible, [] #4 All our traders and essential personnel can work from home if needed, [] #5 Our trading systems are on a hot-hot setup, [] #6 Clients are immediately notified if we move any of our operations due to an event that requires a business continuity action, [] #7 Business continuity for our algorithmic platform is seamless as we already distributed over multiple sites, [] #8 We utilize multiple data centers for our trading platforms, [] #9 Our last BCP was performed within the past year, and we found no areas of improvement, [] #10 Our last BCP was performed within the past year, and we found no areas of improvement	
Risk Controls	Flash Crash Protections (Multiple Choice)	Select all that apply (+Other if applicable) regarding protections you have to guard against "flash-crash" style moves.	[] #1 We have ADV checks, [] #2 We have notional value checks, [] #3 We have order quantity checks, [] #4 We have intra-day price checks, [] #5 We have duplicative order checks, [] #5 We have order count checks, [] #6 We have order count checks, [] #7 We have net notional value checks, [] #8 We have overfill checks, [] #9 We use trading price bands, [] #10 We use some machine learning models, [] #11 We utilize imbalance and depth data, [] #12 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Risk Controls	Kill Functionality (Multiple Choice)	Select all that apply (+Other if applicable) regarding the "kill functionality" within your algorithmic trading platform.	[] #1 Kill functionality can be initiated if there is unusual market conditions, [] #2 Kill functionality can be initiated if there are apparent issues with market data, [] #3 If users alert us of an abnormality, we can instantly cancel all outstanding orders and routes, [] #4 We can initiate kill functionality is we identify unexpected system behavior, [] #5 The kill switch functionality is tested at least annually, [] #6 Our kill functionality must be approved by the head of the trading desk or senior management in order to be activated, [] #7 Any front-office member can activate a kill switch, [] #8 Operations staff in charge of monitoring the trading system health and/or market activity can activate a kill switch, [] #9 We notify clients immediately if a kill switch is initiated with a follow up regarding the issue and impact as soon as practically possible, [] #10 We have a written procedure on how and when a kill switch would be implemented, [] #11 We have invoked the kill switch functionality during live trading within the past year, [] #12 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Risk Controls	Post-Trade Controls (Multiple Choice)	Select all that apply regarding your post-trade controls to ensure the algorithmic trading platform and strategy has performed as intended.	[] #1 We do a regular review (at least weekly) of all the important KPIs across our algorithmic strategies, [] #2 We utilize proprietary TCA tools to monitor performance in real-time, [] #3 We regularly monitor the trading capacity of our platform to ensure our infrastructure is scaling properly, [] #4 We continuously monitor TCA and order handling reports and quickly identify and analyze outlier trade reports, [] #5 We have controls in place to identify and resolve any exceptions throughout the allocation, pre-matching and fail management stages on a post-trade basis, [] #6 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Risk Controls	Real-Time Monitoring (Multiple Choice)	Select all that apply (+Other if applicable) regarding how real-time monitoring of the algorithmic trading platform and strategy execution is performed.	[] #1 Our trade execution and support teams monitor all trading, [] #2 Our monitoring system is highly customizable and can monitor client specific limits and trade surveillance specific to clients or overall, [] #3 We have a secalation policies in place depending upon the specific issue alerted, [] #4 We have a team that monitors and analyzes the algorithmic platform's performance during market hours, [] #5 Access to your client information is on a "need to know" basis, [] #6 We monitor for potential market data irregularities, [] #7 We monitor for potential market data irregularities, [] #7 We monitor for unusual patterns of trade participation, message rate and orderbook participation, [] #8 Our SOR and algorithmic engine can exclude or include market data from any venue based on perceived quality, [] #10 Our SOR and algorithmic engine can exclude suspect block trades, [] #11 We review algorithmic trading performance on a regular basis, and no less than quarterly, [] #12 Our management receives weekly reports on the performance of our algorithms on a weekly basis, [] #13 We have a dedicated group that focuses on monitoring algorithmic order flow, [] #14 Other (also select all others above that apply and do not put web links/URLs here)	
Risk Controls	Soft Hold Checks (Multiple Choice)		[] #1 Maximum notional per order (determined in collaboration with the client), [] #2 Maximum notational for algorithms and DMA combined (determined in collaboration with the client), [] #3 Maximum share quantity (determined in collaboration with the client), [] #4 Maximum ADV percentage by order (determined in collaboration with the client), [] #5 Order limit price deviation (determined in collaboration with the client), [] #6 Market orders that move a certain percentage out of favor (determined in collaboration with the client), [] #7 Potential duplicate order risks , [] #8 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	

Regulatory Issues	Regulatory Deficiencies	During the past year, have any examinations	[]Yes,	If Yes, please explain in
regulatory losaes	(Multiple Choice)	resulted in a material finding of deficiency or	[1] No.	more detail
	l` '	breach of regulatory requirements related to your	[] Not provided	
		trading operation?		
Conflicts and Leakage	Affiliate Capabilities	Does your or your affiliates' SOR preference	[]Yes,	If Yes, please describe
	(Multiple Choice)	your/affiliates' ATS?	[]No,	the benefits to clients
Conflicts and Lockson	Affiliata Campanantian	Davis and a felling and a single discardance of the single and a singl	[] Not provided	from this practice.
Conflicts and Leakage	Affiliate Compensation - For Order Flow (Multiple	Do you or any affiliate receive direct or indirect	[] Yes,	If Yes, please provide
	Choice)	compensation from another affiliate for order flow/transmission of customer order information?	[] No,	more information.
Conflicts and Leakage	Order Sharing - Pre-	Does the dark pool allow any internal trading desk		If Yes, please explain in
Connicts and Leakage	determined Allocation	of the firm, affiliates of the firm, or a 3rd party	[] Tos,	more detail
	(Multiple Choice)	participant an opportunity to execute against a pre-		more detail
	()	determined percentage, quantity, or notional value		
		remaining in an order (I.e., POV, VWAP, etc.)?		
O. L. D. die Ote to de	Burtislanding Buts. Otalis	O. L. A. II H. A I. I		
Order Routing Strategies	Participation Rate - Static	Select all that apply regarding static or dynamic	[] #1 Depending on the strategy, we can offer static or dynamic participation rate,	
	or Dynamic (Multiple		[] #2 Various factors can impact whether it is dynamic or static, such as client preference, trade urgency, price, market conditions, volatility,	
	Choice)	strategies where volume participation if central to the strategy	specific algo parameters, i 1#3 We rarely use a static participation rate	
Order Routing Strategies	Routing Methodology	Select all that apply regarding order routing	[]#1 Routed orders usually access internal liquidity first,	
5.251 (todaing Strategies	(Multiple Choice)	strategies	[] # Note or orders assumy access internal injunity inits, [] # When orders are routed externally, they are typically accessed in parallel,	
	(.viditiple Gridles)	3	[] #3 Our clients can configure either a sequential, parallel or staggered routing methodology for order routing,	
			1 1#4 Our router may provide higher weight to those liquidity venues that provide higher rebates or lower fees,	
			1 #5 When crossing the spread, we typically route sequentially to venues,	
			[] #6 We route orders in parallel on a latency adjusted basis,	
			f 1#7 Some strategies use both parallel and sequential routing	
Order Routing Strategies	Volume Profiles -	Select all that apply (+Other if applicable)	[] #1 We primarily utilize direct data feeds,	
	Creation/Modification	regarding creating and modifying volume profiles	[] #2 We filter market volume based on condition codes and sales flags to exclude abnormal volume,	
	(Multiple Choice)	over time.	[]#3 We have an open and close volume prediction model,	
			[] #4 We use a real-time model to forecast volume over the forthcoming time intervals,	
			[] #5 Intraday volume profiles are modeled using historical distributions for stocks with similar trading characteristics,	
			[] #6 Volumes curves are generally not updated or modified intraday,	
			[] #7 When developing predictive volume curves, we weight more recent observations more heavily, [] #8 On abnormal days (FOMC, half days, index rebalances, quarter end expiries, etc.), we can override volume profiles,	
			[] #6 Ori abilionnal days (rowc, nan days, meak rebalances, quarter end expines, etc.), we can overnue volume promes, [] #8 We use historical 20, 21 or 22 day data to create regular day volume curves.	
			[]#3 vve use instancia zo, z ro z z usej usata to tradeta legulari usay volume curves, []#10 Our algorithmic desk can override or adjust parameters in real-time as needed,	
			[] #10 We use a machine learning techniques as part of our volume curve prediction model,	
			1 #12 We have stock specific models for auction volumes.	
			[]#13 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
Audit	Audit Date (Multiple	Was your trading function externally audited in the	Live	If No, please provide
Addit	Choice)	past 12 months?	[] Tes.	the date of the next
	Choice)	past 12 months:	LINO,	external audit
Audit	Independent Auditor	Does your firm have any independent auditor	[TiVes.	If No, please explain
	(Multiple Choice)	statements or reports regarding the segregation of	I I No.	why
	,	information between different areas?	Not provided	1
Surveillance	Automated Surveillance	Select all that apply (+Other if applicable) that	[] #1 We use a third party tool (such as SMARTS) to detect manipulative and deceptive activity in the markets,	
	(Multiple Choice)	describe the functionality of your automated	[] #2 We use a combination of proprietary and third part systems to detect suspicious trading activity,	
		surveillance system for detecting market	[] #3 Alerts for a monitoring system are sent automatically to supervision or compliance staff at our firm,	
		manipulation.	[] #4 Our algorithms are designed at tested to avoid misleading or manipulative behavior,	
			[] #5 Unusual behavior will automatically will cause an cancellation of the order back to the trader,	
			[] #6 Our surveillance team has both automated and manual procedures for detecting market abuse, [] #7 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
			[] ## Outer (Fut Continents in the Explanation Section below. DO NOT put web links/ORLs there. Select all other options above that apply)	
Surveillance	Dark Pool Surveillance	Select all that apply (+Other if applicable)	[]#1 We do not own/operate a dark pool,	
	(Multiple Choice)	regarding surveillance in your dark pool.	[] #2 We have a group/committee that monitors subscriber activity, and if a subscriber's behavior deviates from expected, it is addressed	
			accordingly,	
			[] #3 Our compliance department monitors for all activity to ensure each participant and their usage of our system does not harm other users,	
			[] #4 We are very selective with regards to whom we allow to interact with our ATS,	
			[] #5 We monitor our system to ensure users are utilizing our system for trading and not to gather information on other users' trading interests,	
			[]#6 We monitor fill rates for external liquidity providers to help identify activity that may harm other participants,	
			[] #7 We ensure that external liquidity providers have established policies and procedures in place that meet our expectations,	
			[] #8 We use third-party surveillance tools in our dark pool, such as LiquidMetrix, Aquis Technologies, Cognizant, etc.,	
			[] #9 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
	ı	1		

External Market Makers	Market Maker Review (Multiple Choice)	Select all that apply (+Other if applicable) regarding your review of market maker performance and potential toxicity.	[]#1 We regularly evaluate venues and destinations across a variety of metrics, including speed of execution, quality of execution, liquidity, mark outs, route efficiency, fill rates, quote stability, and hit rates, []#2 We have a best execution committee that meets at least quarterly to review and monitor execution quality across market makers and other venues, []#3 SOR allocations to market makers are on an opt-in basis only, []#4 We have not removed a market maker from our SOR in the past 1 year, []#5 We do not route to market makers, []#6 We do not operate a SOR, []#7 Other (Put comments in the Explanation section below. DO NOT put web links/URLs there. Select all other options above that apply)	
External Market Makers	Unique Liquidity (Multiple Choice)	Select all that apply (+Other if applicable) regarding your evaluation of a market maker or ELP's unique liquidity.	[]#1 We evaluate the number of quote updates, quoted size, response time, and time of quotation to measure the uniqueness of liquidity, []#2 We do not review ELP liquidity by market cap, []#3 We have a governance or best execution committee that reviews market makers and ELPs to determine quality and quantity of unique liquidity. []#4 We thoroughly evaluate market maker and ELP business models prior to adding them as a liquidity source, []#5 We have a surveillance process in place to evaluate all external liquidity sources we connect, []#6 We do not route to an market makers or ELPs, []#7 Routing directly to market makers is done on an opt-in basis only, []#8 Other (also select all others above that apply and do not put web links/URLs here)	

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