THE 2024 ALGORITHMIC TRADING SURVEY

HEDGE FUNDS

Survey results suggest light at the end of the tunnel for hedge funds utilising algorithmic trading strategies

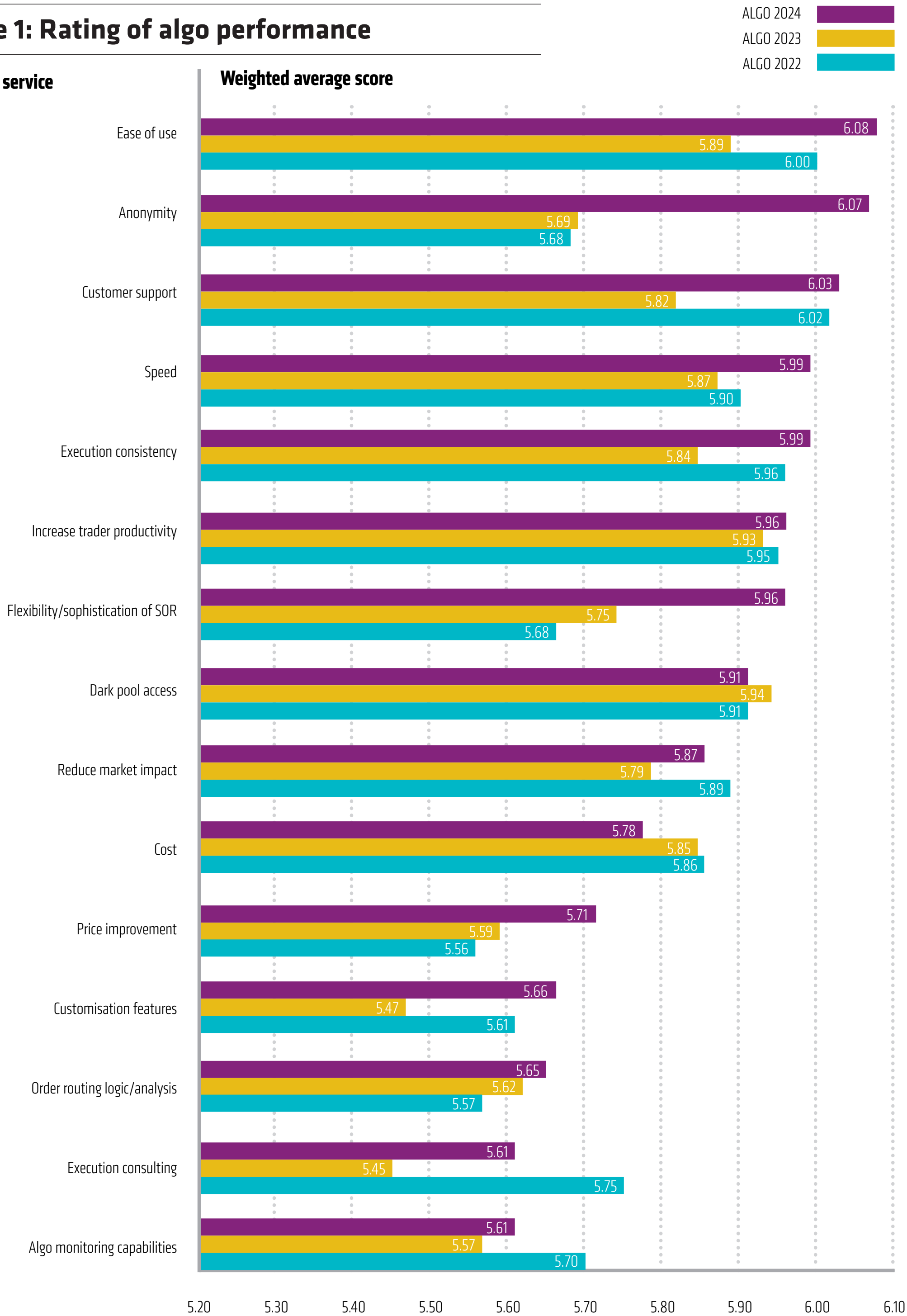
Bouncing back from declines in scores across the majority of categories last year, hedge fund results from The TRADE's Algorithmic Trading Survey 2024 show more promise, with an overall rating for algorithm performance achieving the highest average score on record.

While last year the Algorithmic Trading Survey reported a decline in overall scores from hedge fund managers, this year's results report improvements across almost all key service areas as the survey average for 2024 increases to 5.86. Initially used by hedge funds to gain a competitive edge through speed and efficiency, algorithmic trading has faced consistent evolution driven by advancements in technology, regulatory shifts and ever-changing market dynamics. With regulations such as Mifid II enforcing improved transparency, algorithmic trading has aligned towards optimising execution quality and better managing risks. Today, algorithms incorporate machine learning models and real-time analytics, enabling hedge funds to swiftly react to market conditions and develop consistent trading strategies.

Last year, The TRADE reported a decline in scores across most key categories when it came to the rating of algo performance, this year however it is a very different story, with category averages increasing across the vast majority of functional service areas.

Figure 1 shows the average category scores as rated by buy-side respondents using hedge fund strategies across all algo providers. Taking the top spot at 6.08 is ease of use, followed

Figure 1: Rating of algo performance



closely by anonymity at 6.07. It is worth noting that anonymity has seen the largest annual shift, increasing by 38 basis points compared with 2023. Last year, dark pool access took the top spot, however, this year it is clearly not the case, with this category, along with cost, being the only two functional service areas to record a decline in score year-over-year. The lowest rated categories for 2024, algo monitoring capabilities and execution consulting sit at the bottom of the chart at 5.61, representing a drop of 30 and 12 basis points respectively.

In fact, overall, 2024 has proved to be a good year for brokers, with the overall rating across algorithm performance sitting at 5.86. This is significantly higher than last year and is in fact the highest survey average from hedge fund respondents on record. Of course, while the rating of algorithm performance is useful, for many the real question is why traders are using algorithms (Figure 2).

When it comes to the reasons why hedge funds are using algorithms, once again elements impacting the desk, such as ease of use (12%) and increased trader productivity (10.17%) are high on the list, as are those that directly impact execution, for example reducing market impact (10.35%), consistency of execution performance (9.89%) and lower latency (8.36%). As in previous years, other features such as results consistently matching pre-trade estimates, as well as order routing logic or analysis are given less importance by the buy-side.

While trader productivity has seen an uptick, the largest annual shift was recorded in higher speed, lower latency which increased by 2.08%. This could be attributed to increased expectations of algorithmic complexity. In the realm of algorithmic trading, milliseconds can translate into significant financial gains, allowing hedge funds to capitalise on market opportunities before their competitors. Moreover, lower latency ensures that algorithms can respond to constantly shifting market conditions, allowing hedge funds to execute trades at optimal prices and reduce the risk of adverse price movements. Whilst in the other direction, a few categories have seen a downward trend – data on venue/order routing logic or analysis has fallen from 5.17% in 2023 to 3.89% in 2024 (-1.27%). This decline could be attributed to improved market data feeds which provide comprehensive and real-time information from multiple venues, reducing the need for hedge funds to analyse venue-specific data sets, given that they already receive a consolidated view of market

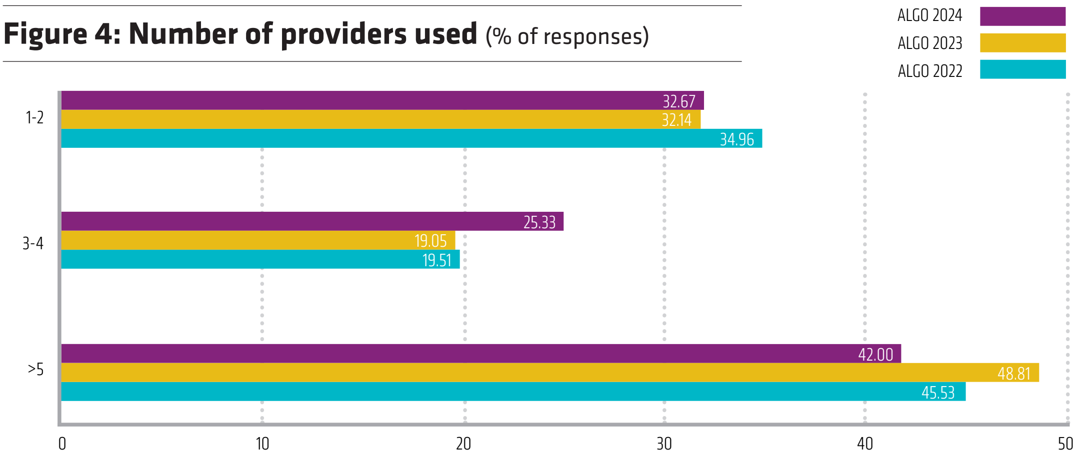
Figure 2: Reasons for using algorithms (% of responses)

Feature	2024	2023	2022
Ease of use	▼ 12.00	12.03	12.06
Reduce market impact	▼ 10.35	10.87	11.58
Increased trader productivity	▲ 10.17	8.83	10.42
Consistency of execution performance	▲ 9.89	9.33	10.24
Higher speed, lower latency	▲ 8.36	6.28	5.02
Customisation capabilities	▼ 7.78	8.44	6.99
Better prices (price improvement)	▲ 7.74	7.48	7.55
Lower commission rates	▼ 7.11	8.37	6.37
Greater anonymity	▼ 7.02	8.25	7.36
Flexibility and sophistication of SOR	▼ 6.95	7.67	8.17
Algo monitoring capabilities	▲ 6.23	6.05	7.50
Data on venue/order routing logic or analysis	▼ 3.89	5.17	4.46
Results match pre-trade estimates	▲ 2.50	1.23	2.28

Figure 3: Average number of providers used by AuM (USD billions)

Feature	2024	2023	2022
More than $50 billion	▼ 4.85	5.17	3.94
$10 - 50 billion	▼ 4.37	5.00	5.52
$1 - 10 billion	▼ 4.12	4.89	5.39
$0.5 - 1 billion	▼ 4.40	4.60	3.89
$.025- 0.5 billion	▲ 5.71	1.67	2.60
Up to $0.25 billion	▲ 3.00	2.25	3.33
Not answered	▲ 3.88	3.71	4.00

Figure 4: Number of providers used (% of responses)



activity. Lower commission rates (7.11%) and greater anonymity (7.02%) have also seen a decline in score since last year. A decline in lower commission rates as a reason to use algorithms could be linked to saturation, in which the market may already have a large portion of traders using algo strategies – a situation in which lowering commission rates may not necessarily incentivise new adoption. Meanwhile, the decline in anonymity could be linked to increased regulatory scrutiny, requiring more detailed reporting and tracking of trades.

When it comes to understanding the results, it is imperative to consider the number of algo providers used by hedge funds, as broken down by assets under management (Figure 3). Larger firms, managing assets of over $0.5 billion have on average, decreased the number of brokers used, as customisation features broaden and popularity for in-house development grows. The most significant drop recorded was by hedge fund managers in the $1 – 10 billion bracket (-0.78). In contrast, we see an uptick in the number of brokers used by smaller firms, most significantly by those with $0.25 - 0.5 billion in AUM, up by 4.05 compared with 2023, who now use on average over five algo providers.

Once the filter of AUM is removed, the data shows a different picture (Figure 4). Here 42% of hedge fund managers responding to the survey reported using five or more algo providers, which is down 6.81% year-over-year. At the other end of the spectrum, 24% of respondents reported using only one provider. As in recent years, again it would seem that when it comes to choosing which sell-side counterparties to use, there is quite the divide in opinion – with the majority of respondents (66%) opting to either use multiple brokers (5+) or remain loyal to only one.

When it comes to algorithm breakdown by value traded (Figure 5), there has been a significant shift in results since last year. Notably, now almost a third of respondents report to using algorithms for 80% of their trades by value, marking a significant increase compared with 2023. As in previous years, over half (58.67%) of hedge fund managers use algorithms to trade 50% of more of their portfolio by value. It is also worth noting that firms trading less than 40% via algorithms have seen a downturn of 19.33% year-over-year compared to last year.

In terms of which algorithms are used (Figure 6), this year it is VWAP which has taken the top spot, with three quarters of respondents reporting to use this strategy. This is followed by dark liquidity seeking, which has fallen in popularity since last year, to 74%. Least popular is once again implementation shortfall (basket), however, despite sitting at the bottom of our chart, it is worth noting that one in five buy-side traders using hedge fund strategies are still happy to use this algorithm.

Looking at firms manging upwards of $50 billion, the picture remains similar in terms of VWAP and dark liquidity seeking algorithms, however, usage of strategies such as POV and implementation shortfall increased, whilst usage of TWAP dropped to around 40%.

The TRADE received a record number of responses to this year's Algorithmic Trading Survey. The data from hedge fund managers and those firms using hedge fund strategies has on the whole been very positive, suggesting that the evolution of algorithmic trading is on the right path, ensuring that hedge funds remain agile and competitive in an ever-changing financial landscape. In terms of geographic distribution, hedge fund respondents were based mainly in the UK (41%), Europe (31%) and North America (21%) with a handful of traders located in APAC (6%) and ROW (1%). When it comes to asset classes 94% trade equities, whereas other instruments traded electronically included ETFs (52%), listed derivatives (49%), FX (40%), fixed income (33%) and finally crypto (5%). The top 15 algo providers, in terms of response numbers received from hedge fund managers, have been profiled in this report.

Figure 5: Algorithm usage by value traded (% of responses)

Feature	2024		2023	2022
Not answered	▲	6.67	2.67	1.63
0 - 5%	▼	5.33	14.67	6.50
5 - 10 %	▼	4.67	5.33	3.25
10 - 20%	▼	6.67	14.67	5.69
20 - 30%	▼	6.67	6.67	4.07
30 - 40%	▼	4.00	5.33	4.07
40 - 50%	▲	7.33	5.33	8.94
50 - 60%	▼	12.67	13.33	15.45
60 - 70%	▼	6.67	9.33	22.76
70 - 80%	▲	10.67	9.33	7.32
>80%	▲	28.67	13.33	20.33

Figure 6: Types of algorithms used (% of responses)

Feature	2024		2023	2022
VWAP	▲	74.67	70.24	79.67
Dark liquidity seeking	▼	74.00	84.52	79.67
% Volume (participation)	▼	62.00	69.05	69.11
Target Close/Auction Algos	▲	54.67	45.24	60.16
TWAP	▲	45.33	27.38	37.40
Implementation shortfall (single stock)	▼	44.00	45.24	45.53
Implementation shortfall (basket)	▲	20.67	15.48	17.89
Other	▼	5.33	7.14	4.88

Methodology

Buy-side survey respondents were asked to give a rating for each algorithm provider on a numerical scale from 1.0 (very weak) through to 7.0 (excellent), covering 15 functional criteria. In general, 5.0 (good) is the 'default' score of respondents. In total, a record number of 2,222 ratings were received across 35 algo providers, yielding thousands of data points for analysis. Only the evaluations from clients who indicated that they were engaged in managing hedge funds or using hedge fund strategies have been used to compile the provider profiles and overall market review information. Each evaluation was weighted according to three characteristics of each respondent: the value of assets under management; the proportion of business done using algorithms; and the number of different providers being used. In this way the evaluations of the largest and broadest users of algorithms were weighted at up to three times the weight of the smallest and least experienced respondent. Finally, it should be noted that some responses provided by affiliated entities were ignored. A few other responses where the respondent could not be properly verified were also excluded. We hope that readers find this approach both informative and useful as they assess different capabilities in the future.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Barclays

UK-headquartered bank Barclays achieved an overall score of 5.63 this year, underperforming the survey average by 23 basis points, yet firmly sitting in the upper "good" range. Customer support takes the top spot, sitting at 6.04 (very good), and is the only service area this year to outperform the category average. Conversely for Barclays, all other categories under review fall short of the benchmarks, most notably access to dark pools (-0.81), price improvement (-0.50) and reduced market impact (-0.29).

However, it isn't all bad news for the bank, as there are plenty of categories which have seen upticks in scores since 2023, including key aspects of service such as anonymity, up 31 basis points to 5.93 and ease of use, which has increased by 18 basis points up to 6.01. At the other end of the spectrum, breath of dark pools has seen a significant downward turn – falling -0.60 points to 5.10. Cost and execution consulting and pre-trade cost estimation have also recorded a decline, both dropping by 21 basis points.

Of course, the data can't tell us everything and delving deeper into comments this year, respondents to the survey praise the bank for its low costs and high value for money. In terms of requests for additional features, there are a number of calls for more customisation. In yet more positive news for Barclays, only 6% of traders responding to the survey state that they expect to make use of additional algorithmic trading providers within the next 12 months.

This year Barclays received 33 responses from hedge fund managers and firms using hedge fund strategies - up from 14 in 2023 - with the majority of respondent firms managing AUM of $1-10 billion (24%) and more than $50 billion (21%). In terms of regional breakdown, traders were based in mainly in the UK (39.5%), Europe (39.5%) and US (18%).

BARCLAYS RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.94 ▲	5.57 ▼	5.85 ▲	5.68 ▼	5.82	5.93 ▲	5.21 ▼	5.43 ▼	6.01 ▲

Order routing logic/analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.41 ▲	6.04 ▼	5.35 ▼	5.10 ▼	5.70 ▲	5.37 ▼	5.63 ▼

KEY STATS **Category Outperformer:** ★ X1

6.04
Highest score
(Customer support)

5.10
Lowest score
(Dark pool access)

0.40
Most improved
(Anonymity)

-0.60
Least improved
(Dark pool access)

Berenberg

When it comes to Berenberg, there is plenty to write home about, and it has been a fantastic 12 months for the bank. In particular, with Berenberg continuing to invest in their algorithmic trading platform (BEAT), it will come as little surprise to find them sitting comfortably at the "very good" end of the spectrum. With an average score of 6.23, Berenberg also achieves overall outperformer status, beating the overall average by 37 basis points.

In fact, Berenberg sits in the top three spots across 10 of the 15 categories under review, with only one key area (cost) scoring below the category benchmarks. Customer support takes the top spot, sitting comfortably at 6.75, followed by ease of use and breadth of dark pools. All bar two categories saw "very good" results, with year-over-year increases recorded across 11 service areas, most notably anonymity (+0.33) and customisation features (+0.28).

Taking the bottom spot is cost (5.69), which has also seen the largest yearly downward shift since 2023 (down 0.42). Data on venue/order routing logic or analysis (-0.19) and price improvement (-0.12) have also seen downward shifts this year – however, despite this, both categories remained at "very good".

Client comments are very positive; "Berenberg sales traders are very transparent. Great job on building TIA" and "coverage team provides the best service". There were a few requests for additional features, with one UK based trader suggesting more clarity on which parts of the order are traded in dark versus lit. However, with the recent launch of BEATLab, BEAT Data Science team's independent research looking to improve trade performance - including dark allocations - these concerns may soon be answered.

When it comes to respondent breakdown, traders were based in the UK (50%), US (27%) and Europe (23%) with almost half managing upwards of $10 billion in assets. Only four of the 26 traders responding to Berenberg in the survey state that expect to make use of additional algorithmic trading providers within the next 12 months.

BERENBERG RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.25 ▲	6.19 ▲	6.32 ▲	5.69 ▼	6.30 ▲	6.25 ▲	6.00 ▼	6.13 ▲	6.46 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.98 ▼	6.75 ▲	5.14 ▲	6.43 ▲	6.23 ▲	6.36 ▼	6.23 ▲

KEY STATS **Overall Outperformer:** **Category Outperformer:** ★ **X14**

6.75
Highest score
(Customer support)

5.69
Lowest score
(Cost)

0.33
Most improved
(Anonymity)

-0.42
Least improved
(Cost)

BNP Paribas

BNP Paribas has had an excellent 12 months, and is an overall outperformer this year, with an average score of 6.19. Eight of the 15 categories under review scored in the top three, with thirteen categories scoring “very good” (6.00 – 6.99). Anonymity takes the top spot (6.43), only just beating speed (6.43) by 0.01 points. At the other end of the chart is breadth of dark pools, however, sitting at 5.95 this catagory only just misses out on hitting “very good”. Execution consulting and pre-trade cost estimation (5.96) sits 0.01 points higher and represents the only other category in the “good” range (5.00-5.99).

While most categories sit at “very good”, there has been some downward shifts since 2023 – with seven of the categories experiencing declines since last year. Increase trader productivity saw the most notable downward shift, falling 0.41, followed by execution consistency (-0.25) and breadth of dark pools (-0.23). In contrast, eight out of 15 categories recorded a year-over-year increase, with significant upticks in key areas such as price improvement (+0.40) and anonymity (+0.38).

Client comments are very positive, with praise for “excellent coverage” and compliments for some particular members of the team being mentioned by name. Of course, there is always room for improvement, with suggestions for more custom algos as a noted area for growth.

BNP Paribas received 45 responses from hedge fund managers and firms using hedge fund strategies this year - up from 13 in 2023 – with responding traders largely based in the Europe (53.5%), as well as the UK (24.5%), the US (11%) and APAC (11%). Over 17% manage assets of $50 billion and above, whilst less than 9% of traders responding to the survey note that they expect to make use of additional algorithmic trading providers within the next 12 months.

BNP PARIBAS RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.09 ▼	6.03 ▼	6.21 ▼	6.26 ▲	6.42 ▼	6.43 ▲	6.06 ▲	6.26 ▲	6.38 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
6.02 ▲	6.28 ▼	5.96 ▼	5.95 ▼	6.38 ▲	6.18 ▲	6.19 ▲

KEY STATS **Overall Outperformer:** **Category Outperformer:** ★ **X15**

6.43
Highest score
(Anonymity)

5.95
Lowest score
(Dark pool access)

0.40
Most improved
(Price improvement)

-0.41
Least improved
(Increase trader productivity)

BofA Securities

Bank of America Securities received 44 responses from hedge fund respondents in this year's survey, with around 16% managing upward of $50 billion in AUM. Sitting just below the survey average, at 5.74, it has been an active 12 months for BofA Securities despite failing to become an overall outperformer. Around half of clients responding to BofA were based in the UK, with the remainder split fairly evenly across North America and Europe.

Anonymity is the highest scoring category at 6.06, however, even with this score sitting at "very good" it was not enough to beat the category average. In fact, only one aspect of service achieved category outperformer status this year. Customisation features achieved a rating of 5.74, this key area outperforms the survey benchmark by nine basis points.

At the other end of the spectrum is execution consulting and pre-trade cost estimation, which takes the bottom spot, sitting at 5.44. Despite having the lowest score, it is increase trader productivity (-0.25), speed (-0.21) and ease of use (-0.22) which are particularly interesting to note. Each of these categories have scored in the lowest three spots compared to the other 14 providers profiled in this survey.

Interestingly a number of categories have seen significant annual shifts. Anonymity has seen an uptick of 0.72, although despite this, this category continues to sit at "good". Customisation features, customer support and price improvement also record impressive year-over-year increases, up by 0.64, 0.51 and 0.49 basis points respectively.

Meanwhile, increase trader productivity and cost have seen a downward trend – both declining 0.18, although again these categories also sit comfortably within the "good" range.

There have been calls for improvement to some areas from our respondents to this year's survey, with requests for greater data from BofA, as well as greater clarity on trades. Yet despite these suggestions, buy-side traders are for the most part happy, with 91% of respondents stating that they will not be looking to make use of additional brokers over the next year.

BOFA SECURITIES RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.70 ▼	5.78 ▲	5.91 ▲	5.62 ▼	5.78 ▲	6.06 ▲	5.63 ▲	5,74 ▲	5.86 ▲

Order routing logic/analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.56 ▲	5.84 ▲	5.44 ▼	5.84 ▲	5.75 ▲	5.57 ▲	5.74 ▲

KEY STATS Category Outperformer: ★ X1

6.06
Highest score
(Anonymity)

5.44
Lowest score
(Execution consulting)

0.72
Most improved
(Anonymity)

-0.18
Least improved
(Increase trader productivity)

Citi

Although not quite beating the survey average in 2024, there is plenty of good news for Citi when it comes to the category breakdowns. We see a strong showing from the bank as year-over-year increases are recorded across all 15 categories under review. Taking the top spot is customer support (6.12), beating the category average by nine basis points and moving up a level from "good" to "very good" this year. In fact, customer support is not the only category to score within the "very good" range this year, with speed scoring 6.04. This will come as little surprise, with one UK based trader commenting on "great coverage from [the] low touch desk".

Other areas where Citi outperformed the category benchmarks include customisation features (+0.11), speed (+0.05) and cost (+0.05). At the other end of the spectrum is breadth of dark pools, which sits at 5.45. Whilst the score sits in the "good" range (5.00 – 5.99), Citi is one of the lowest scoring providers for this category. This is joined by anonymity (5.86) and increase trader productivity (5.84), which both scored in the bottom three among the 15 main providers featured in this report.

That being said, every category across the board has seen a significant increase in score since last year. The largest increases were recorded in key functional service areas such as execution consistency (+0.83), execution consulting (+0.77), and speed and customer support which were both up by 0.76 points.

Citi received 40 responses from clients using hedge fund strategies this year, up from 19 in 2023. Respondents rating Citi were mostly from the UK (57.5) and Europe (25%), with a handful of respondents also coming from the US, APAC and ROW. Lastly, 25% of respondents were from firms manging upward of $50 billion in assets under management.

CITI RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.84 ▲	5.75 ▲	5.97 ▲	5.83 ▲	6.04 ▲	5.86 ▲	5.59 ▲	5.76 ▲	5.98 ▲

Order routing logic/analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.52 ▲	6.12 ▲	5.60 ▲	5.45 ▲	5.96 ▲	5.65 ▲	5.79 ▲

KEY STATS Category Outperformer: ★ X6

6.12
Highest score
(Customer support)

5.45
Lowest score
(Dark pool access)

0.83
Most improved
(Execution consistency)

0.24
Least improved
(Dark pool access)

Goldman Sachs

It's been an interesting year for Goldman Sachs. Although it has not beaten the overall average (5.86), four out of the 15 categories sit at "very good". Ease of use (6.15) takes the top spot, followed by speed (6.08), reduced market impact (6.04) and flexibility and sophistication of SOR (6.02). Note that when it comes to reduced market impact, Goldman Sachs achieved the third highest score.

At the other end of the spectrum is algo monitoring (5.38) followed by price improvement (5.54). When it comes to annual shifts, since 2023, anonymity saw the most significant change, increasing by 0.56 points. This is followed by reduced market impact, increasing by 0.53 points. When it comes to downward shifts, there are only three categories which have seen a decline in scores in the last 12 months. Cost declined by 0.10, algo monitoring by 0.08 and routing logic analysis by 0.05 points.

Interestingly, however, Goldman Sachs' team receives the most praise from our responders, with several called out by name. There are still some areas for improvement, with requests for better pairing of algos with FX incorporated. However, in light of Goldman Sachs' recent investment in market microstructure tools aimed at "trying to piece together the fragmented FX market", this request may have been addressed by the time next year's survey results are published.

There has also been calls for more customisation and better liquidity solutions from their clients. Yet despite these suggestions, only 15% of clients said they were looking for additional providers alongside Goldman Sachs, suggesting that overall buy-side traders are happy with their current positions.

The geographical breakdown sees the majority of respondents reporting from the UK (46%), Europe (28%) and the US (19%), with only a handful from APAC and ROW. The bank received a fantastic 57 submissions, up from 29 in 2023. Over 15% hold an AUM of over $50 billion.

GOLDMAN SACHS RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.90 ▲	6.04 ▲	5.96 ▲	5.77 ▼	6.08 ▲	5.87 ▲	5.54 ▲	5.58 ▲	6.15 ▲

Order routing logic/analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.64 ▼	5.99 ▲	5.58 ▲	5.97 ▲	6.02 ▲	5.38 ▼	5.83 ▲

KEY STATS Category Outperformer: ★ X5

6.15
Highest score
(Ease of use)

5.38
Lowest score
(Algo monitoring)

0.56
Most improved
(Anonymity)

-0.10
Least improved
(Cost)

Jefferies

It has been a fantastic year for Jefferies, which has resulted in this provider being awarded an overall outperformer and a category outperformer in all 15 service areas. In fact, every single category is currently sitting at "very good" (6.00 – 6.99), and for nine out of the 15 categories, Jefferies is the top scorer. It will come as little surprise then that for our respondents, the bank is considered "excellent across [the] board", "top five" and "fantastic".

Taking the top spot is the category of customer support (6.62), followed by anonymity (6.54) and reduced market impact (6.54). Meanwhile at the other end of the spectrum is cost (6.08), price improvement (6.10) and execution consulting and pre-trade cost estimation (6.11). Although given that these are the "low" scores, it has been a great year for Jefferies.

In yet more good news, there isn't a single category which has seen a downward shift since last year, as year-over-year increases are recorded across all areas under review. The category of cost has seen the least growth (+0.16), while flexibility/sophistication of SOR has seen the most significant growth, increasing by an impressive 0.71 points. The bank achieved an overall score of 6.37, up 43 basis points from 5.94 in 2023.

Jefferies received 30 responses from hedge fund managers and firms using hedge fund strategies this year - up from 21 respondents in 2023.

Jefferies largely received responses from the UK (47%), as well as Europe (23%), US (20%) and APAC (10%). In terms of AUM, over 43% of client firms manage $10 billion or more in assets. Given the strength of Jefferies scores, it will come as little surprise that only 10% of respondents expect to make use of additional algorithmic trading providers over the next 12 months.

JEFFERIES RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.50 ▲	6.54 ▲	6.39 ▲	6.08 ▲	6.42 ▲	6.54 ▲	6.10 ▲	6.26 ▲	6.37 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
6.27 ▲	6.62 ▲	6.11 ▲	6.49 ▲	6.48 ▲	6.33 ▲	6.37 ▲

KEY STATS Overall Outperformer: Category Outperformer: X15

6.62
Highest score
(Customer support)

6.08
Lowest score
(Cost)

0.71
Most improved
(Flexibility/ sophistication of SOR)

0.16
Least improved
(Cost)

JP Morgan

JP Morgan received 59 responses from clients using hedge fund strategies in this year's survey, up from 34 in 2023. In terms of regional distribution, 46% were based in the UK, 27% in Europe and 19% were located in the US. When it comes to assets under management, 30.5% of respondents report an AUM of $1-10 billion, with 42% reporting an AUM of over $10 billion.

Taking the top spot this year is ease of use at 6.16, followed by breadth of dark pools (6.04) and reduced market impact (5.95). At the other end of the spectrum is algo monitoring (5.28), where JP Morgan has recorded the second lowest score for this category out of the 15 main providers captured in this report. This category is followed by routing logic (5.46) and execution consulting (5.48). Despite all three sitting at the lower end of the chart, they all still remain firmly in the "good" range.

Of course, when it comes to annual shifts, it is cost which has seen the most significant decline, falling 36 basis points year-over-year. This decline has landed JP Morgan with the third lowest score in this category out of all 15 providers profiled this year.

However, it isn't all bad news for the bank, as improvements are observed across seven key categories, with anonymity experiencing an upward shift by 0.31 points and ease of use gaining a 0.23 point increase. In terms of the survey benchmarks, JP Morgan outperforms the category averages in the areas of dark pool access (+0.12), ease of use (+0.08) and reduced market impact (+0.08).

Over the past year, JP Morgan expanded its rates algo franchise to support the wider electronification of rates trading, as first revealed by The TRADE in May 2023. The development made JP Morgan's rates algo offering equal to its long-standing FX offering.

JP MORGAN RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.87 ▼	5.95 ▲	5.87 ▼	5.57 ▼	5.89 ▲	5.87 ▲	5.68 ▼	5.52 ▼	6.16 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.46 ▼	5.93 ▼	5.48 ▲	6.04 ▲	5.83 ▲	5.28 ▼	5.76 ▼

KEY STATS Category Outperformer: ★ X3

6.16
Highest score
(Ease of use)

5.28
Lowest score
(Algo monitoring)

0.31
Most improved
(Anonymity)

-0.36
Least improved
(Cost)

Kepler Cheuvreux

It has been a great year for Kepler Cheuvreux, with this provider beating the survey average and achieving category outperformer status across 13 categories. In yet more good news, six key categories are sitting at "very good".

Kepler Cheuvreux garnered 21 responses from hedge fund managers in this year's survey, up from 18 in 2023, but slightly fewer than the other main providers featured in this report. Despite this, the pool of respondents is strong, coming from Europe mainly, with a handful based in the UK and US.

Taking the top spot is customer support (6.37), which may come as little surprise due to one of their core principles being listed as "build solutions which clients love". Following customer support is ease of use (6.17) and anonymity (6.16). Customisation scores well, at 6.11, coinciding with Kepler's focus on "delivering customised solutions and an enhanced customer experience", suggesting this focus on customer service may be paying off.

At the other end of the spectrum is execution consulting (5.68) followed by algo monitoring (5.74) and increase trader productivity (5.81) - Kepler has the second lowest score in this area, which has decreased by 0.18 points compared with 2023.

When it comes to annual shifts in ratings, only two categories have seen a downward turn. Speed has seen the largest shift, declining by 44 basis points. The remaining categories record year-over-year improvements, most notably customer support and services (+0.46) and anonymity (+0.44).

This year, Kepler Cheuvreux Execution Services (KCx) has seen a few key developments, including joining Bloomberg Tradebook's PAIR solution as a selected broker, alongside partnering with Adaptive to create an event-driven trading system.

Clients seem full of praise with some respondents to the survey stating that Kepler "has one of the best customer support and services of all our brokers. Very fast response time and good knowledge" as well as "very [user] friendly and very helpful, provide a linear strategy across equity markets." Given that only 9.5% are looking to make use of additional brokers over the coming year, it would seem this is a testament to client satisfaction.

KEPLER CHEUVREUX RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.81 ▼	5.88 ▲	5.97 ▲	5.82 ▼	6.16 ▲	6.16 ▲	5.86 ▲	6.11 ▲	6.17 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.88 ▲	6.37 ▲	5.68 ▲	5.94 ▲	6.03 ▲	5.74 ▲	5.97 ▲

KEY STATS **Overall Outperformer:** **Category Outperformer:** **X13**

6.37
Highest score
(Customer support)

5.68
Lowest score
(Execution consulting)

0.46
Most improved
(Customer support)

-0.44
Least improved
(Cost)

Liquidnet

Having launched their algorithmic platform 10 years ago, Liquidnet aims to "solve […] clients' objectives in a pure agency, unconflicted capacity". It has been an interesting year for Liquidnet, and although not managing to achieve overall outperformer status, Liquidnet did manage to gain category outperformer status for four key categories.

Responses came mainly from the UK, with an even split based in the US and Europe. Around 30% manage assets of over $10 billion.

Taking the top spot this year is breadth of dark pools (6.37). One in five respondents commented on their satisfaction in this area, with one trader stating that Liquidnet offers a "best in class dark pool". In their provider submission to the survey, the agency broker quotes that in 2023, Liquidnet Dark narrowly missed the arrival mid-point by -1.9bps and beat the estimated market impact by 19.7bps.

Alongside dark pools is anonymity (6.22) which scored "very good". At the other end of the spectrum is algo monitoring (4.74), customisation features (4.77) and cost (4.97). You will note that all three of these categories are sitting in the "satisfactory" range (4.00 – 4.99).

Disappointingly for Liquidnet it ranked lowest in eight categories, across the 15 providers listed in this report. However, despite this, when asked for additional comments, a section usually reserved for suggestions on improvements, one client states "Liquidnet has been nothing short of incredible... They are by far the most reliable in their field we have had experience with, not only dealing with our orders perfectly, but giving very helpful colour as to why a stock is behaving a certain way."

Year-over-year we see increases across eight categories, including execution consistency (+0.35) and increase trader productivity (+0.28). When it comes to downward shifts, the most notable decreases were algo monitoring (-0.76) and cost (-0.35).

LIQUIDNET RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.91 ▲	5.98 ▼	5.79 ▲	4.97 ▼	5.79 ▲	6.22 ▲	5.77 ▲	4.77 ▼	5.70 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.36 ▼	5.51 ▼	5.16 ▲	6.37 ▲	5.56 ▼	4.74 ▼	5.57 ▼

KEY STATS Category Outperformer: ★ X4

6.37
Highest score
(Breadth dark Pools)

4.74
Lowest score
(Algo monitoring)

0.35
Most improved
(Execution consistency)

-0.76
Least improved
(Algo monitoring)

Morgan Stanley

With an overall average score of 5.66, Morgan Stanley loses its overall outperformer status this year. However, since last year's results, there has been some key improvements made.

MSET received submission from 49 hedge fund clients this year, up from 37 in 2023, which ranks the bank in third place in terms of responses. A third of respondents manage assets of over $10 billion in AUM and are based primarily in the UK (41%), Europe (35%) and North America (18%).

In terms of year-over-year performance, customer support has seen the largest upward shift, increasing 0.32 points, pushing this category up to 5.84 - although this still fails to beat the category average - followed by anonymity (+0.25), increased trader productivity (+0.13) and execution consistency (+0.06).

Despite these upticks the bank's overall average fell by 18 basis points this year, with declines recorded across 11 service areas, with category scores ranking within the bottom three in nine functional service areas. Key areas such as customisation, smart order routing and cost underperformed by 43, 35 and 31 basis points respectively, yet all scores remain firmly in the good range (5.00 – 5.99).

Overall, the area of increase trader productivity takes the top spot this year, outperforming the category average by 10 basis points and is the only aspect of service categorised as "very good" (6.06). Ease of use is Morgan Stanley's second highest score at 5.94. Client comments were few, yet positive, consisting only of "very good" and "good pairs and FX with passport". Lastly only 8% of responding clients said that they expect to make use of additional algorithmic trading providers in the next 12 months.

MORGAN STANLEY RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.06 ▲	5.69 ▼	5.93 ▲	5.47 ▼	5.81 ▼	5.86 ▲	5.58 ▼	5.22 ▼	5.94 ▼

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.35 ▼	5.84 ▲	5.38 ▼	5.77 ▼	5.61 ▼	5.46 ▼	5.66 ▼

KEY STATS Category Outperformer: ★ X1

6.06
Highest score
(Increase trader Productivity)

5.22
Lowest score
(Customisation features)

0.32
Most improved
(Customer support)

-0.50
Least improved
(Order routing logic or analysis)

RBC Capital Markets

It has been a strong 12 months for RBC Capital Markets, achieving overall outperformer status across the survey as well as a category outperformer in 13 out of the 15 categories under review. The bank's overall score of 6.06, outperforms the survey average by 20 basis points. On a category level, the bank saw some impressive ratings in key service areas such as data on venue (+0.55) and algo monitoring (+0.39), not to mention customer support and services (+0.33). In fact, RBC's score for data on venue ranks second place among the main providers profiled in this report.

RBC falls short of the category benchmarks in only two areas, albeit marginally, with customisation and smart order routing missing the mark by 0.04 and 0.03 points, respectively.

When it comes to the 2024 overview, it is customer support (6.36) which takes the top spot, followed by ease of use (6.28) and routing logic analysis (6.20). While these three categories take the top spots, it is worth highlighting that an impressive ten out of the 15 categories under review are sitting at "very good" this year – a stark difference from 2023.

Meanwhile, on the other end of the scale, the lowest scores achieved by RBC were in the areas of customisation features (5.61) and execution consulting and pre-trade cost estimates (5.83), yet both are comfortably within the upper end at "good" range (5.00 – 5.99).

Client comments were few, yet extremely positive including "best speed and aggression" and "top five algo for me, execution is excellent, and great customer support".

RBC received 25 responses from hedge fund managers and clients using hedge fund strategies in this year's survey. The regional breakdown was split evenly between North America and UK, both at 44%, plus a handful of traders were based in continental Europe. In terms of AUM, 52% of firms manage upwards of $10 billion in assets.

RBC CAPITAL MARKETS RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.11 ▲	6.03 ▲	6.19 ▲	5.91 ▼	6.19 ▲	6.20 ▲	5.97 ▲	5.61 ▲	6.28 ▲

Order routing logic/analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
6.20 ▲	6.36 ▲	5.83 ▲	6.11 ▲	5.93 ▲	6.00 ▲	6.06 ▲

KEY STATS **Overall Outperformer:** **Category Outperformer:** ★ **X13**

6.36
Highest score
(Customer support)

5.61
Lowest score
(Customisation features)

2.20
Most improved
(Customisation features)

-0.60
Least improved
(Cost)

Redburn Atlantic

It has been a productive year for Redburn Atlantic. The broker merged with Atlantic Equities under Redburn's parent company Rothschild & Co to create a London-headquartered transatlantic broker in Q3 of last year. It has since been expanding its sales trading and execution teams following the merger.

Achieving overall outperformer status with an average score of 6.13 (+0.27) and gaining category outperformer status in 14 out of the 15 categories under review, it has been a strong 12 months for Redburn Atlantic. Therefore, it comes as little surprise that only 9% of responding clients said that they expect to make use of additional algorithmic trading providers within the next 12 months.

Taking the top spot is customer support which lands 0.42 points above the category average, as well as algo monitoring and customisation, which outperform the benchmarks by 0.55 and 0.48 points respectively. Even then, there is more good news, with 11 out of the 15 categories rated as "very good" (6.00 – 6.99). In fact, seven key service areas score within the top three compared to the other main brokers featured in this report.

Reduce market impact sits at the other end of the chart, at 5.74. This is the only service area which fails to beat the category average, landing in the bottom three scorers for this specific category.

In terms of year-over year comparisons, customisation features (5.72) has seen the greatest improvement since 2023 – increasing 0.41, along with cost (+0.34) and anonymity (+0.31), with all three of these categories being ranked "very good" by respondents. Overall, Redburn record increases across eight key service areas.

In contrast, reduce market impact (-0.33) and increase trader productivity (-0.22) record the greatest decline in ratings. This year Redburn received 22 submissions from clients using hedge fund strategies, up from 19 in 2023. Responding clients were based in Europe (41%), the UK (36%) and North America (23%). Almost half of responding clients represent firms managing $10 billion or more in AUM.

REDBURN ATLANTIC RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.00 ▼	5.74 ▼	6.33 ▲	6.10 ▲	6.17 ▲	6.40 ▲	6.06 ▲	6.13 ▲	6.29 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.81 ▼	6.45 ▼	5.97 ▼	6.28 ▲	5.98 ▼	6.16 ▲	6.13 ▲

KEY STATS **Overall Outperformer:** 🏆 **Category Outperformer:** ★ X14

6.45
Highest score
(Customer support)

5.74
Lowest score
(Reduce market impact)

0.41
Most improved
(Customisation features)

-0.33
Least improved
(Reduce market impact)

UBS

UBS received 43 submissions from clients using hedge fund strategies in this year's survey, up from 28 in 2023. With an overall score of 5.69, the bank falls short of the survey average by 17 basis points. More positively however, UBS achieved category outperformer status for the area of customisation features (+0.24) and has seen a notable improvement on last year's scores.

It has been an eventful year for UBS, following the firm's agreement to the landmark takeover of Credit Suisse after intervention from Swiss authorities. In May 2024, it was confirmed that the merger had officially completed.

Taking the top spot in this year's survey results is ease of use at 6.03 - the only category that was rated as "very good". This category is followed by execution consistency (5.90) and customisation features (5.90). This was the sole functional service area to outperform the category benchmark this year.

At the other end of the scale sits algo monitoring (5.30), followed by routing logic or analysis (5.32). It is worth noting that, for six of the 15 categories - including these two - UBS ranks within the bottom three, when compared to the other main brokers profiled in this report.

When it comes to significant annual shifts, customer support and services has seen the largest uptick in results – increasing by 0.55. This is followed by customisation features (+0.53) and execution consistency (+0.31). Overall, UBS received year-over-year increases in 12 out of 15 aspects of service.

In contrast, key service areas such as cost, speed and access to dark pools recorded declines.

When it comes to respondent breakdown, UBS received submissions from clients across all regions with around three quarters based across Europe and the UK. In terms of AUM, clients managing upwards of $10 billion represent over 40% of the respondent base. It would seem that our respondents are happy with their service from UBS, with less than 7% reporting to be looking elsewhere for additional providers. Lastly, client comments were limited, but include positive feedback around named individual members of the team.

UBS RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.85 ▲	5.75 ▲	5.90 ▲	5.65 ▼	5.65 ▼	5.81 ▲	5.61 ▲	5.90 ▲	6.03 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.32 ▲	5.75 ▲	5.43 ▲	5.61 ▼	5.84 ▲	5.30 ▲	5.69 ▲

KEY STATS Category Outperformer: ★ X1

6.03
Highest score
(Ease of use)

5.30
Lowest score
(Algo monitoring)

0.55
Most improved
(Customer support)

-0.28
Least improved
(Cost)

Virtu Financial

It has been a great year for Virtu Financial, not only achieving overall outperformer status, but also being noted as a category outperformer across nine categories and achieving a score of "very good" (6.00 – 6.99) in six key service areas. Virtu was also ranked fifth in Bloomberg's 2023 European Institutional Equity Trading study.

Taking the top spots are breadth of dark pools (6.42) and increase trader productivity (6.18), outperforming the category average by 0.51 and 0.23 points, respectively. It is worth highlighting that Virtu is one of the top three scorers for each of these categories.

Meanwhile, at the other end of the chart, is customisation features (5.24) and algo monitoring (5.50), which fall short of the category benchmarks by 0.41 and 0.11 points. Customisation features, along with customer support, rank in the bottom three across all 15 providers profiled in this report. This ranking was accompanied by comments from hedge-fund managers highlighting customisation as an area which they feel needs improvement.

However, this may soon change, with Virtu launching their "Algo of Algos" which they state will "enhance existing wheels with algorithm selection". This combined with their intention to increase AL and ML integration throughout 2024, Virtu are confident that traders will gain the greater control they are seeking.

When it comes to the largest annual shift, routing logic or analysis has seen a significant uptick – increasing 0.68 points. This is followed by anonymity (+0.62) then access to dark pools (+0.34).

Just five categories have seen a downward shift this year, most notably customer support (-0.50) and reduce market impact (-0.43), which slipped from "very good" in 2023, down to "good" in 2024.

Geographically, Virtu's client base covers all regions: UK (38%), Europe (28%), North America (24%) and APAC (10%). Well over half of the hedge fund managers responding to Virtu hold an AUM of over $10 billion.

VIRTU FINANCIAL RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.18 ▲	5.80 ▼	6.01 ▲	5.99 ▲	6.17 ▲	6.14 ▲	5.76 ▼	5.24 ▲	5.96 ▼

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.88 ▲	5.66 ▼	5.52 ▼	6.42 ▲	6.02 ▲	5.50 ▲	5.88 ▲

KEY STATS | **Overall Outperformer:** | **Category Outperformer:** ★ X9

6.42
Highest score
(Breadth dark pools)

5.24
Lowest score
(Customisation features)

0.68
Most improved
(Routing logic or analysis)

-0.50
Least improved
(Customer support)

Others

Falling a little short of the respondent thresholds this year were Instinet and Bernstein, which received 17 and 14 submissions from hedge fund clients respectively.

Despite receiving lower response numbers than the main 15 providers featured in this report, year-over-year scores remain sufficiently reliable for comparison.

INSTINET RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
6.01 ▼	5.93 ▲	5.93 ▲	5.98 ▲	5.77 ▼	6.31 ▲	5.43 ▼	5.65 ▼	5.93 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.44 ▲	5.98 ▼	5.79 ▲	6.16 ▼	6.20 ▼	5.55 ▲	5.87 ▲

KEY STATS

6.31
Highest score
(Anonymity)

5.43
Lowest score
(Price improvement)

0.51
Most improved
(Execution consulting)

-0.29
Least improved
(Speed)

BERNSTEIN RATINGS FOR ALGORITHMIC PERFORMANCE

Increase trader productivity	Reduce market impact	Execution consistency	Cost	Speed	Anonymity	Price improvement	Customisation	Ease of use
5.58 ▼	5.39 ▼	5.77 ▼	5.93 ▼	5.71 ▼	6.23 ▲	5.61 ▲	4.99 ▼	5.90 ▲

Order routing logic/ analysis	Customer support	Execution consulting	Dark pool access	Flexibility/sophistication of SOR	Algo monitoring	Average score
5.58 ▼	5.76 ▲	5.49 ▲	5.91 ▼	5.74 ▼	5.48 ▼	5.68 ▼

KEY STATS

6.23
Highest score
(Anonymity)

4.99
Lowest score
(Customisation features)

0.45
Most improved
(Anonymity)

-0.66
Least improved
(Customisation features)