

Fair Value

2020 Trigger survey results (North America)

Determining how a fund complex should apply fair value pricing, more generally known as triggering, remains one of the most discussed topics among Virtu's Fair Value (FV) client base. Virtu looks to assist clients in deciding on a triggering approach by performing backtesting in addition to providing context on how industry peers approach the topic.

Starting in 2009, in response to client demand for industry triggering data, we have conducted an annual trigger survey to quantify changes within the industry over time. Understanding how peer asset managers approach triggering can be a valuable input as firms look to balance factors such as valuation accuracy versus operational burden.

The survey was conducted between June and August 2020 with close to 50 asset managers of varying fund complex sizes submitting responses.

The results show familiar themes:

- The two most common trigger points remains 0 and 50bps with both showing increasing usage year over year
- The 0bps trigger point increased significantly this year, going from 44.4% last year to 51.1% in 2020
- The S&P 500 Index/S&P 500 futures were the most widely used trigger indexes
- The US open to US close is the most widely used time-period
- About 22% of our client base uses a multi-trigger approach

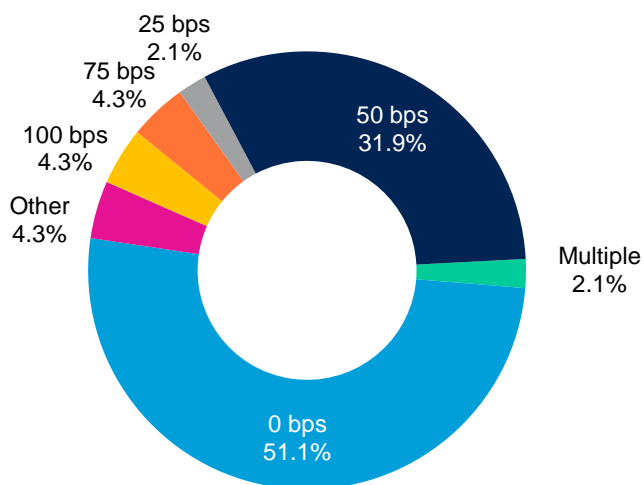
TRIGGER MAGNITUDES

Trigger magnitude is the threshold by which the benchmark must move within a given time to initiate fair value pricing by the fund. Some clients have their trigger threshold set to 0bps which means they fair value daily. The survey allows clients to compare their own trigger magnitude versus the industry in general.

But what trigger magnitude is the most common? Based on the 2020 survey results, daily fair valuation (0bps) and 50bps are the most common trigger points which mirrors the results of all our previous trigger surveys. Virtu can run backtests for clients that are looking to evaluate the impact of moving to a different trigger magnitude.



Trigger Magnitudes 2020



Note: Results total more than 100% due to rounding
Source: Virtu Financial, Fair Value Analytics

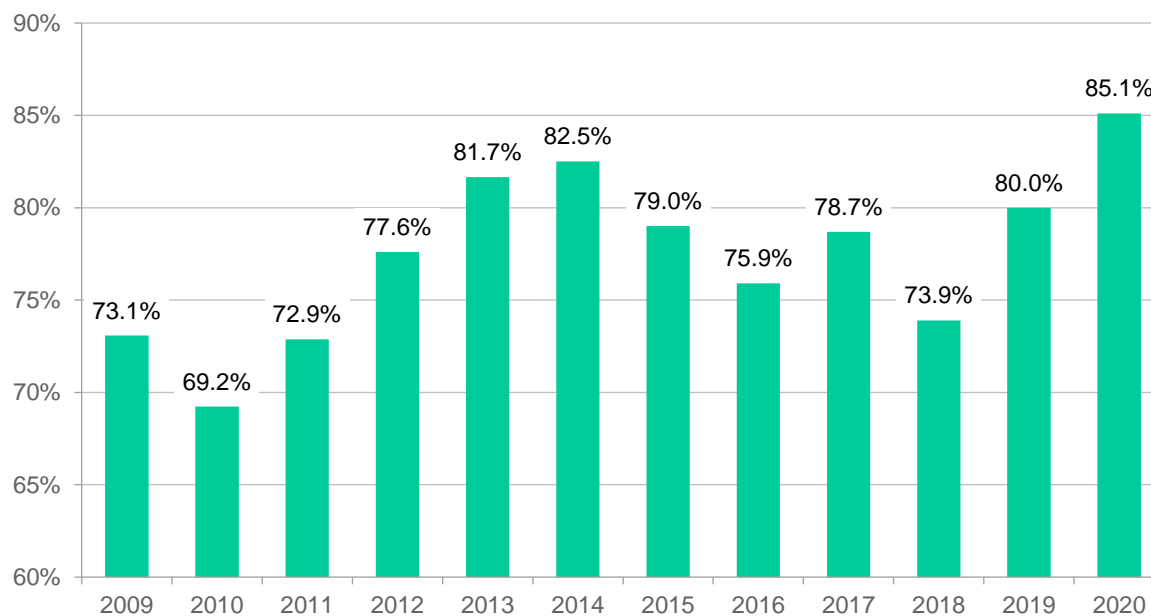
USING A THRESHOLD

Most survey participants use a threshold based on a benchmark's movement to determine when to implement FV pricing. The survey results suggest that 50bps is by far the most commonly used threshold (excluding daily / 0bps); 31.9% of respondents use it as their sole trigger. This total is only a 1.4% decrease from last year's 33.3%. Taken together with the increase at 0bps trigger which increased from 44.4% to 51.1% of participants this year, it appears clients continue to move towards a 0bps trigger

In aggregate, the share of clients using a trigger magnitude of 50bps or less (including daily fair valuations and multiple triggers with at least one trigger of less than or equal to 50bps) increased this year, now comprising over 85% of survey participants.



Percentage of Participants with Trigger Magnitudes of 50bps or Less



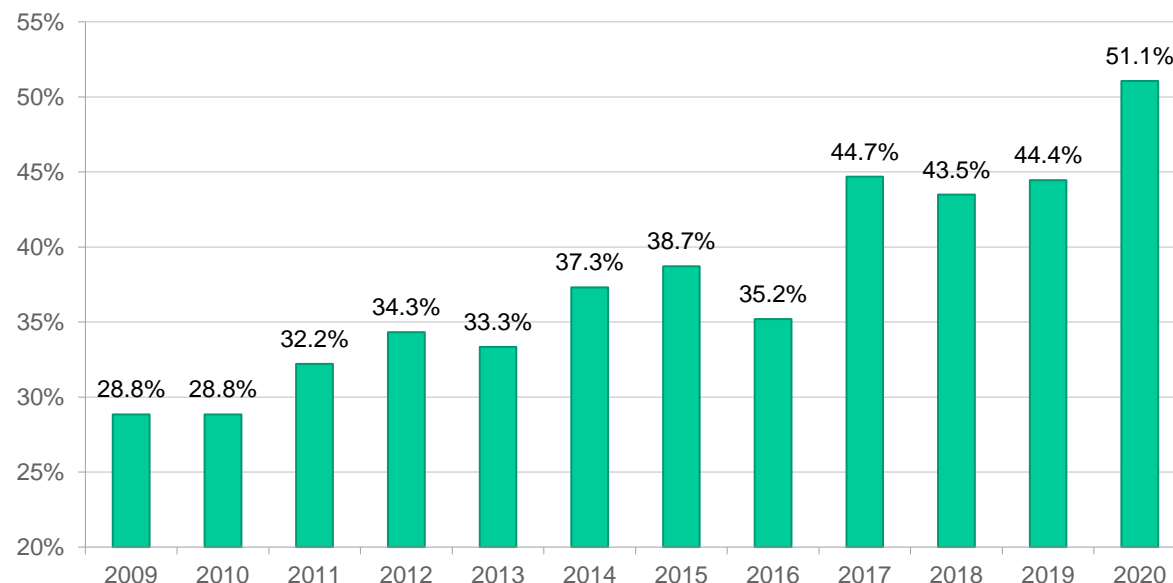
Source: Virtu Financial, Fair Value Analytics

FAIR VALUING DAILY

Many of our clients are fair valuing daily. By doing so, they address market timing concerns every day instead of only on a subset of days. Fair valuing daily tends to be easier operationally, and it means that these funds will always fair value on foreign holidays without having to add layers of complexity to the trigger decision. It will negatively affect backtesting, but the materiality of the poor performing days on the NAV tends to be small.



Percentage of Participants Using a 0bps Trigger



Source: Virtu Financial, Fair Value Analytics

Our survey shows that 51.1% of participants fair value daily, compared with 44.4% last year, a large jump. This is likely attributed to both clients moving to 0bps triggers and the mix of clients responding to the survey.

MULTIPLE TRIGGER MAGNITUDES

The survey shows lower usage of multiple triggers with only 4.4% of leveraging different magnitudes. For example, a user may have a Nikkei trigger of 50bps and an S&P trigger of 75bps.

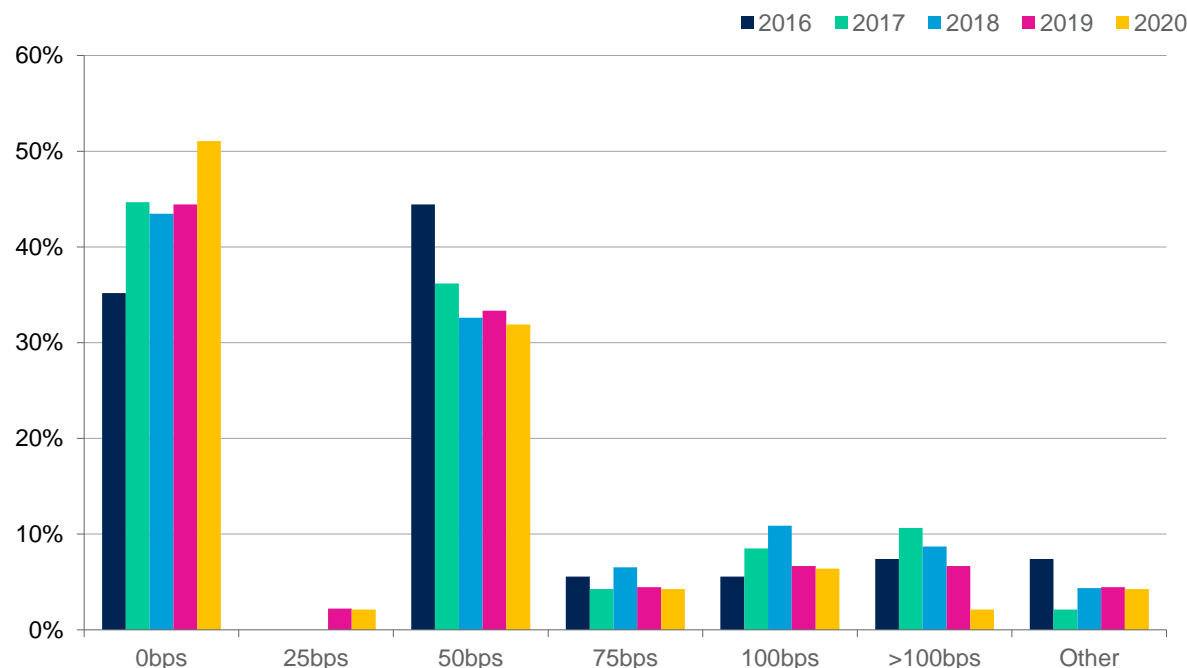
We have split the results into two categories: those who use 100bps combined with something else denoted “100bps plus other” and those with market-specific trigger magnitudes “market specific”.

TRENDS OVER TIME

This next graph compares trigger magnitudes reported from the last five surveys. The data should be interpreted as the percentage of clients who use each trigger level exclusively or as part of a multiple trigger magnitude approach (this means that the results will add up to greater than 100%).



Trigger Magnitudes 2016-2020



Source: Virtu Financial, Fair Value Analytics

The trends presented here are unmistakable—0bps has seen a clear increase in usage while 50bps has seen a clear decrease in usage, which we, anecdotally, can mainly attribute to asset managers' desire for increasing operational ease. We also see decreases at higher trigger levels like 75bps and 100bps, though the number of clients using those magnitudes is likely too small to draw any definitive conclusions.

Trigger Magnitudes 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0bps*	32.2%	34.3%	33.3%	37.3%	38.7%	35.2%	44.7%	43.5%	44.4%	51.1%
25bps	1.7%	1.5%	3.3%	3.0%	4.8%	0.0%	0.0%	0.0%	2.2%	2.1%
50bps	39.0%	41.8%	45.0%	40.3%	38.7%	44.4%	36.2%	32.6%	33.3%	31.9%
75bps	5.1%	11.9%	8.3%	10.4%	8.1%	5.6%	4.3%	6.5%	4.4%	4.3%
100bps	8.5%	6.0%	5.0%	6.0%	6.5%	5.6%	8.5%	10.9%	6.7%	6.4%
> 100bps	8.5%	1.5%	1.7%	3.0%	3.2%	7.4%	10.6%	8.7%	6.7%	2.1%
Other	5.1%	3.0%	3.3%	4.5%	3.2%	7.4%	2.1%	4.3%	4.4%	4.3%

Note: Some years may total more than 100% because we are measuring the percentage of clients who incorporate each magnitude into at least one of their triggers (some clients may have multiple magnitudes). Rounding can cause some numbers to differ from the charts. Other consists of clients who use unspecified market specific triggers or use a magnitude not listed.

* In 2009 and 2010, 0bps was at 28.8%, lending further evidence of the upward trend for that trigger magnitude

Source: Virtu Financial, Fair Value Analytics

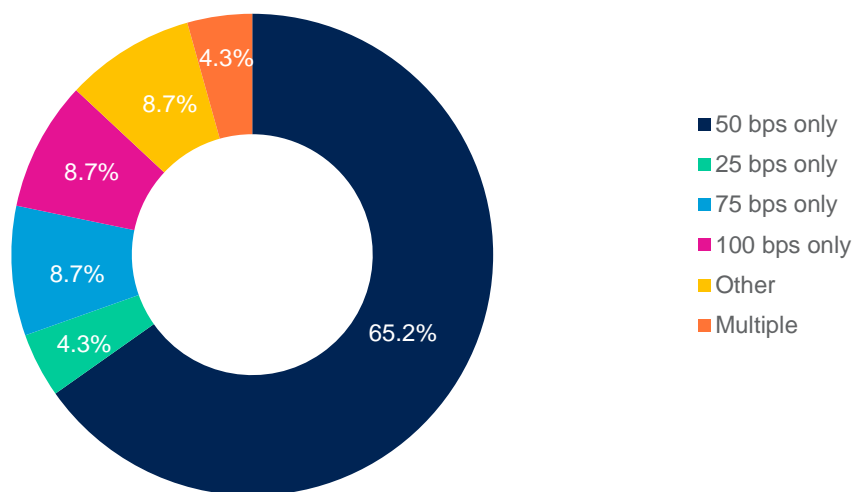


EXCLUDING 0BPS TRIGGERS

The next chart demonstrates the dominance of 50bps as a singular trigger when compared with other magnitudes, excluding those who choose to fair value daily.

The 50bps trigger alone makes up over 65% of non-0bps trigger magnitudes, while no other trigger is above 9%%.

Trigger Magnitudes (Excluding 0bps Triggers)



Source: Virtu Financial, Fair Value Analytics

TRIGGERS BY BENCHMARK

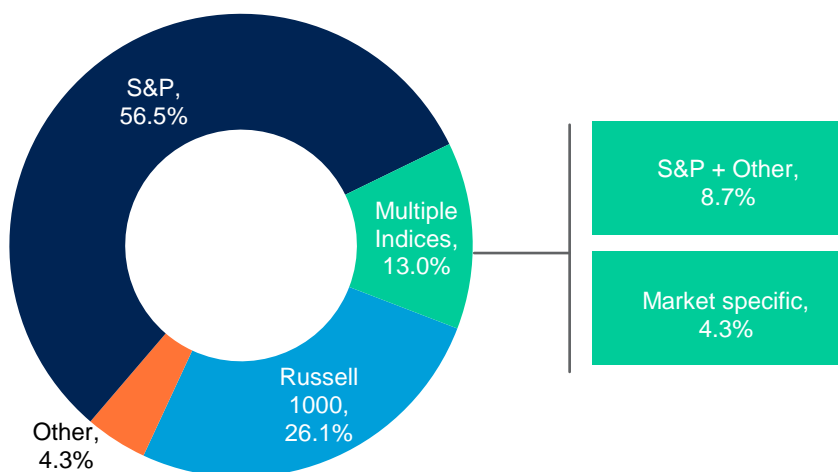
Most participants who use a non-0bps trigger tend to fair value based on the movement of US market indices. However, there is a clear split as to which benchmark is used. The data shows that, of those participants who use a non-0bps trigger, 57% use only the S&P 500 as a trigger, while 26% use only the Russell 1000. The spread between the two benchmarks increased significantly from last year (52%-36%).

About 13% of survey participants reported using a multiple index approach when fair valuing. Using multiple indices often indicates a market- or region-specific triggering approach.

The survey allows clients to compare their own trigger benchmark(s) versus the industry in general. Virtu can assist clients in evaluating trigger benchmarks through backtesting.



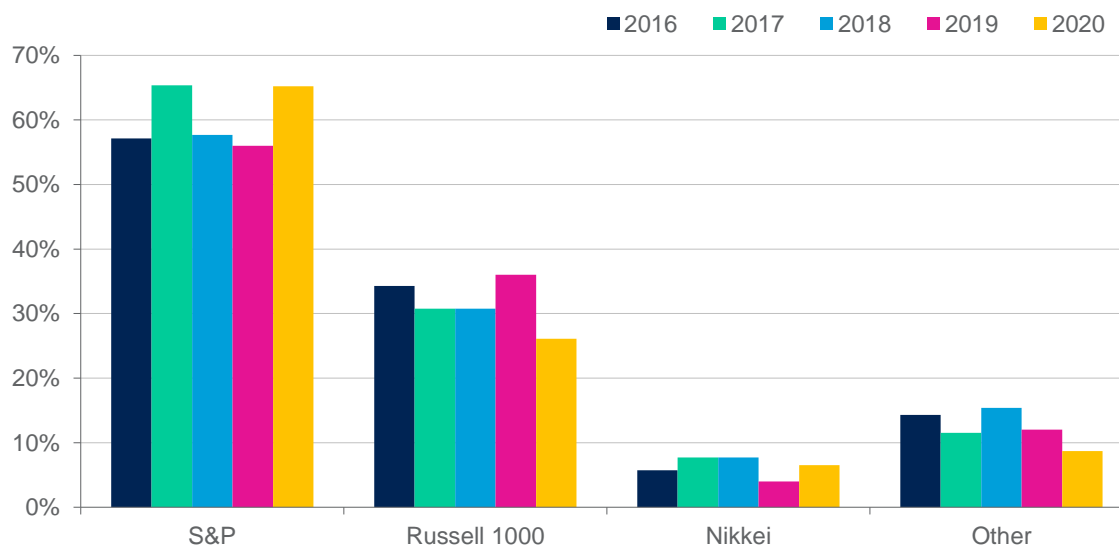
Trigger Indices 2020 (Excluding Those Who Use a 0bps Trigger)



Source: Virtu Financial, Fair Value Analytics

The following chart shows the percentage of clients who used each index, either as their only trigger or as part of a multiple trigger approach. In 2020, about 65% of participants use the S&P in some way when triggering, up from around 56% last year.

Trigger Indices by Year, 2016-2020



Source: Virtu Financial, Fair Value Analytics



Trigger Indices Over Time

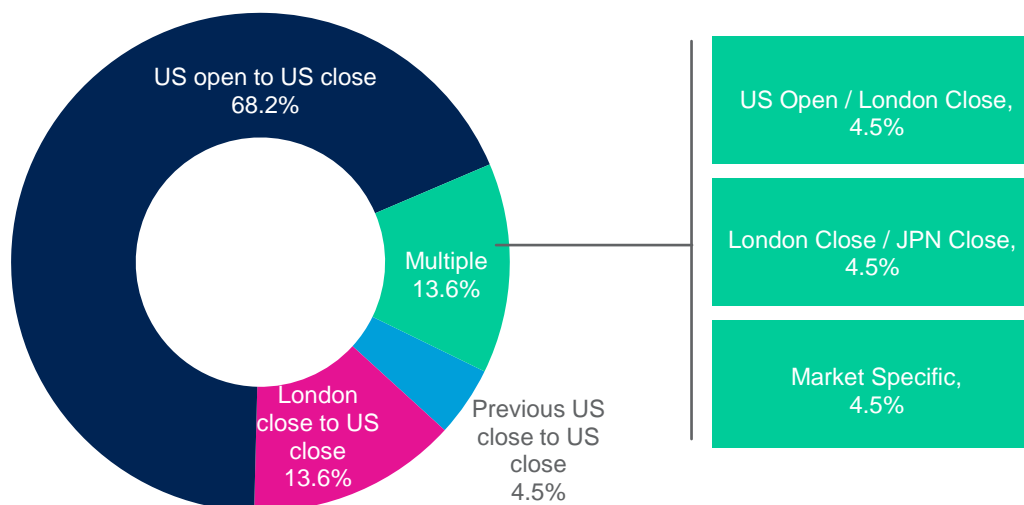
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
S&P	55.0%	59.1%	60.0%	65.1%	59.0%	57.1%	65.4%	57.7%	56.0%	65.2%
R1000	35.0%	29.5%	30.0%	30.2%	33.3%	34.3%	30.8%	30.8%	36.0%	26.1%
Nikkei	5.0%	6.8%	5.0%	14.0%	11.5%	5.7%	7.7%	7.7%	4.0%	6.5%
Other	5.0%	4.5%	5.0%	7.0%	15.4%	14.3%	11.5%	15.4%	12.0%	8.7%

Note: Some years may total more than 100% because we are measuring the percentage of clients who incorporate each index into at least one of their triggers (some clients use more than one index).
Source: Virtu Financial, Fair Value Analytics

TRIGGER TIME PERIODS

The following results break down the time periods used when computing trigger returns. For example, some clients use US open to US close; some use London close to US close; some use both. These results exclude those who use a non-0bps trigger, as a time period would be irrelevant to them. Virtu can help clients analyze the effectiveness of different time periods for triggering.

Trigger Time Periods 2020

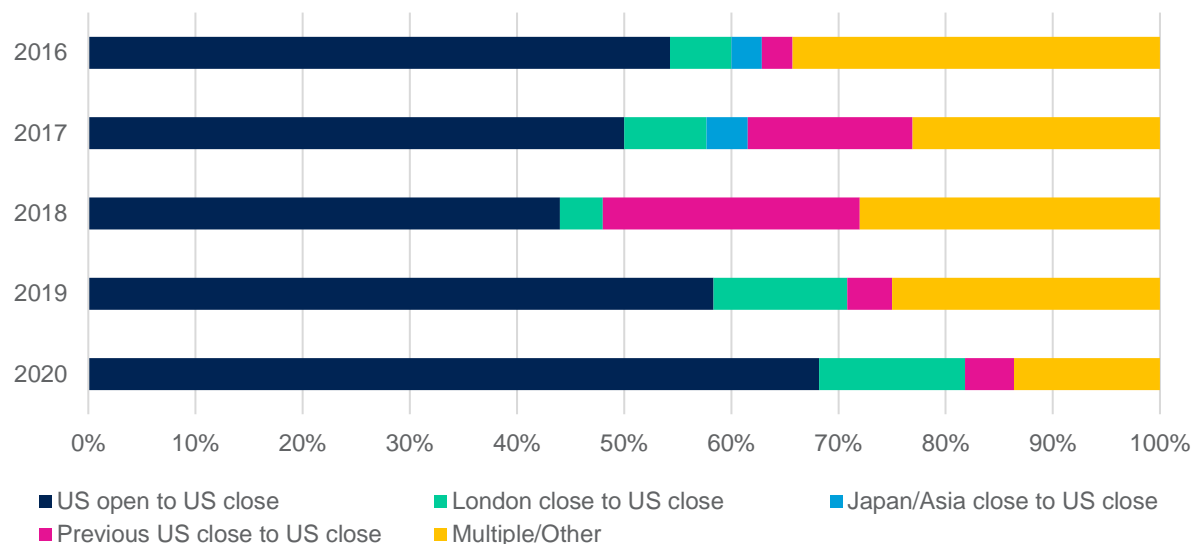


Source: Virtu Financial, Fair Value Analytics

- **US open/London close:** Clients who look at returns from the US open to US close and London close to US close
- **London close/JPN close:** Clients who look at returns from the London close to US close and Japan close to US close
- **Market specific:** Clients who look at returns from individual market closes to US close



Trigger Time Periods 2016-2020



Source: Virtu Financial, Fair Value Analytics

Comparing Trigger Time Periods 2014-2020

	2014	2015	2016	2017	2018	2019	2020
US Open to US Close	48.8%	46.2%	54.3%	50.0%	44.0%	58.3%	68.2%
London Close to US Close	4.7%	5.1%	5.7%	7.7%	4.0%	12.5%	13.6%
Japan / Asia Close to US Close	11.6%	12.8%	2.9%	3.8%	0.0%	0.0%	0.0%
Previous US Close to US Close	4.7%	7.7%	2.9%	15.4%	24.0%	4.2%	4.5%
Multiple: US Open / London Close	18.6%	12.8%	11.4%	3.8%	8.0%	8.3%	4.5%
Multiple: Market Specific	2.3%	5.1%	8.6%	3.8%	4.0%	8.3%	4.5%
Multiple: London Close / Japan Close	7.0%	7.7%	5.7%	11.5%	12.0%	8.3%	4.5%
Multiple: Other	2.3%	2.6%	8.6%	3.8%	4.0%	0.0%	0.0%

Source: Virtu Financial, Fair Value Analytics

HOLIDAY FAIR VALUATION

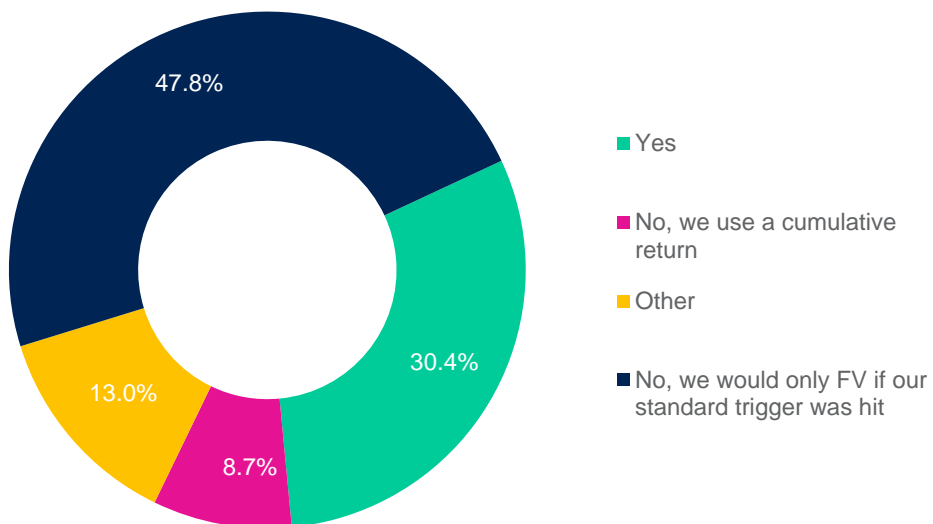
We asked clients whether they automatically fair value securities whose markets are on local holiday, regardless of whether their overall trigger is hit.

Of those who have a non-0bps trigger, 30.4% do. Almost 48% fair value these markets only if their overall trigger is hit, and about 22% have other mechanisms or policies for local holidays, such as a cumulative trigger based on the last time that market traded or fair valuing only on extended holidays.

Many clients remain unsure around what holiday trigger policy to implement and this peer-based analysis lends insight into general industry trends.



Do You Fair Value on Holidays, Regardless of Whether Your Trigger Is Hit?



Note that this graph excludes participants who use a 0bps trigger.
Source: Virtu Financial, Fair Value Analytics

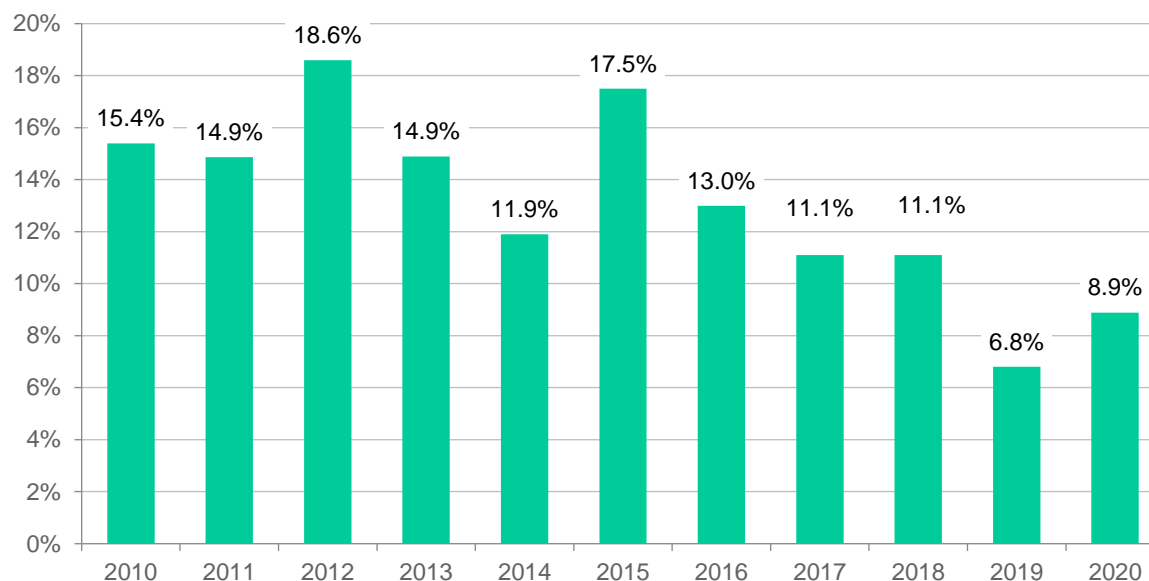
SIGNIFICANCE MEASURE

The significance measure (SM) is a security-level metric that allows clients to filter out certain securities when fair valuing. Essentially, it is a probability that the fair valued price will be closer than the closing price to the next day's open. As part of the survey, Virtu asked clients whether they use the SM in their fair value process and, if so, what threshold they use.

The results showed that 8.9% of participants used the metric, a slight increase from last year's all-time low. Those who use it, almost all use a threshold of 50 for the SM. Virtu can run backtests for clients to show them the impact of using the SM.



Percentage of Participants Using the Significance Measure



Source: Virtu Financial, Fair Value Analytics

FREQUENCY OF FAIR VALUATION

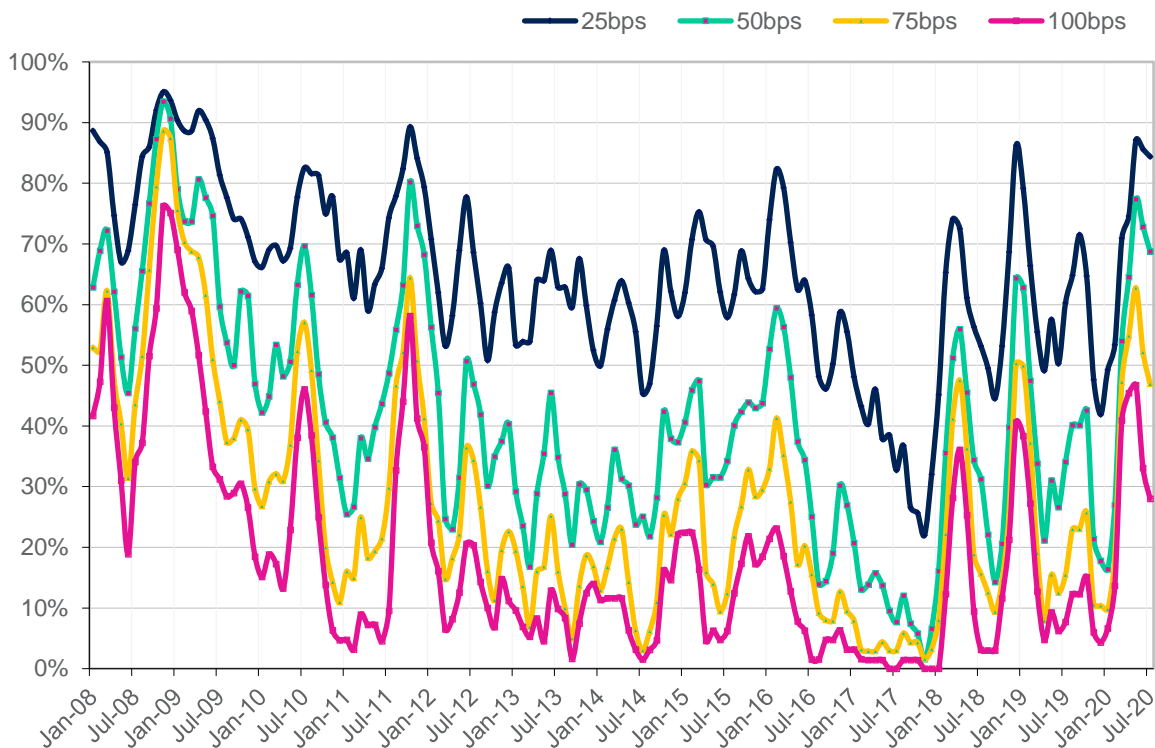
An important point in considering which trigger level to use is how often a trigger would be hit. The graphs that follow illustrate four trigger levels (using S&P 500 futures and the Russell 1000 index), monthly since 2008 that show the percentage of times major trigger levels were hit. A three-month rolling average is used to smooth out volatility and illustrate trends. Returns for each instrument are taken from the US open to the US close.

The rise in volatility due to the financial crisis can be observed in spring 2008 and fall/winter 2008-09 as certain economic events caused major swings in the markets. Market activity then began to level off throughout 2009 and into the spring of 2010. However, the frequency of triggers being hit increased sharply during the summer of 2010, and then again in summer 2011, as the European debt crisis affected markets. On each occasion, return magnitudes fell precipitously afterward.

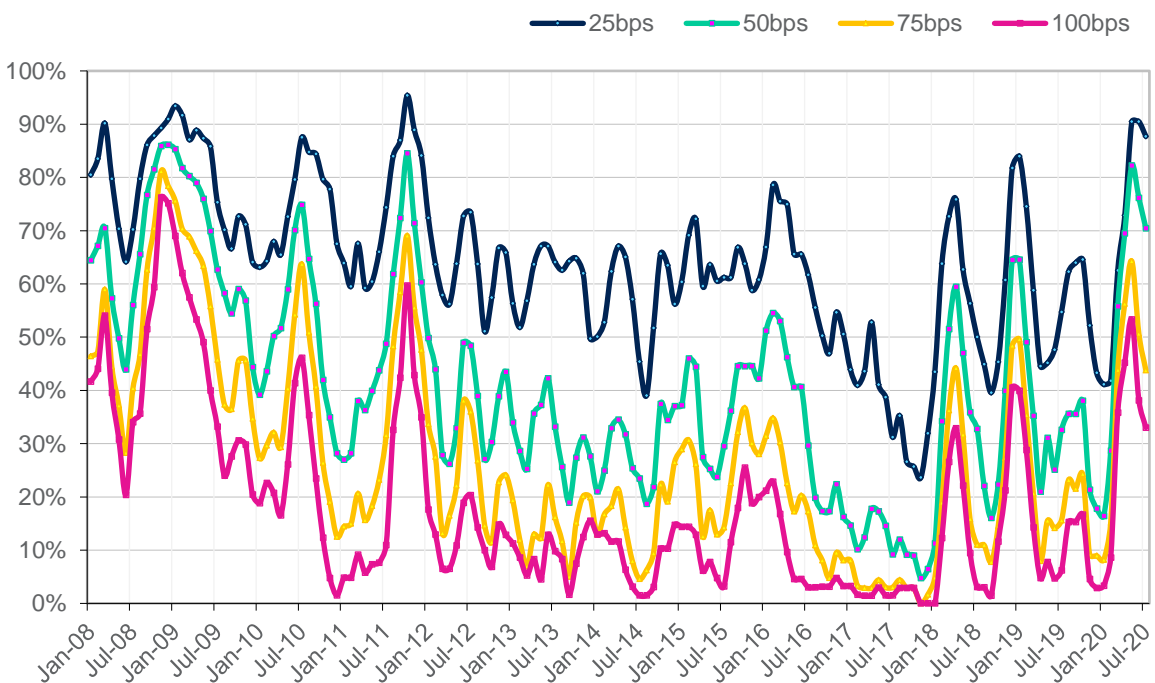
For several years between 2012 and 2016, market volatility consistently ebbed and flowed without the extreme moves observed in turbulent times such as 2008. We did see a spike with the market turmoil at the beginning of 2016. From there, volatility fell to extremely low levels by Q4 2017 before spiking in February 2018 and again around December 2018, when market turmoil reappeared. Markets moderated in 2019 after the December volatility. However, significant volatility re-emerged with the onset of coronavirus-driven quarantines in March 2020.



Market Triggers by Month—S&P 500 Futures, 3-Month Rolling Average



Market Triggers by Month—Russell 1000, 3-Month Rolling Average



Source: Virtu Financial, Fair Value Analytics



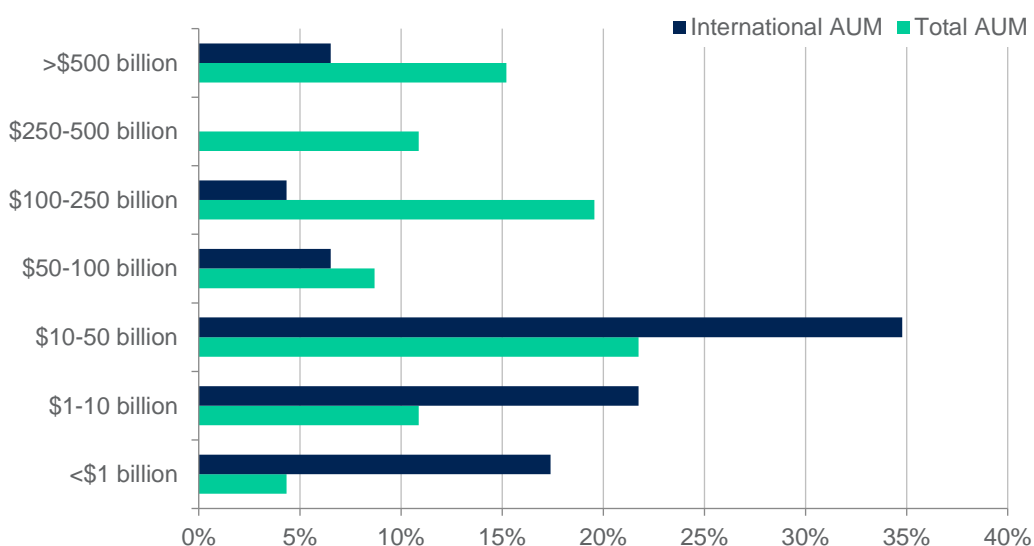
DEMOGRAPHICS OF SURVEY PARTICIPANTS

The following graphs display some statistics about those who participated in the survey. Virtu clients have requested such data to be provided alongside the trigger survey results.

The first graph shows the percentage of clients at various levels of assets under management. Data is reported in two categories: total AUM and international equity AUM, which covers just the AUM of the fund company's international equity holdings.

For example, 8.7% of participants had a total AUM of between \$50 million and \$100 billion, while 6.5% of participants had an international equity AUM in that range. Each measurement, international and total, is independent of the other. This means that it is perfectly reasonable for the blue line to be greater than the green line at a given range. For example, for \$1 billion to \$10 billion, it is just indicating that 21.7% of participants said their international AUM fell in that range while 10.9% of clients said their total AUM was in that range.

Survey Participants by Assets Under Management



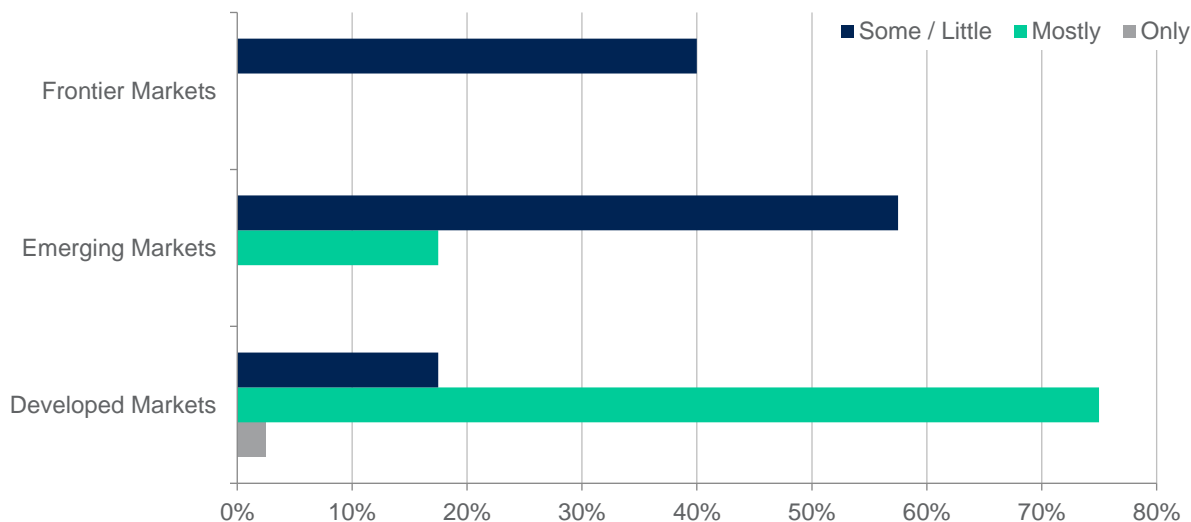
Source: Virtu Financial, Fair Value Analytics

The next graph reports on the types of international markets in which survey participants invest. Note that a participant could check off multiple market types and indicate the general amount of their holdings in each market type.

To be clear on how the chart should be read, look at emerging markets. For this market type, 57.5% of participants invest in “some or little” emerging markets, 17.5% invest mostly in emerging markets and 0% invest only in emerging markets. No clients answered “mostly” or “only” for frontier markets.



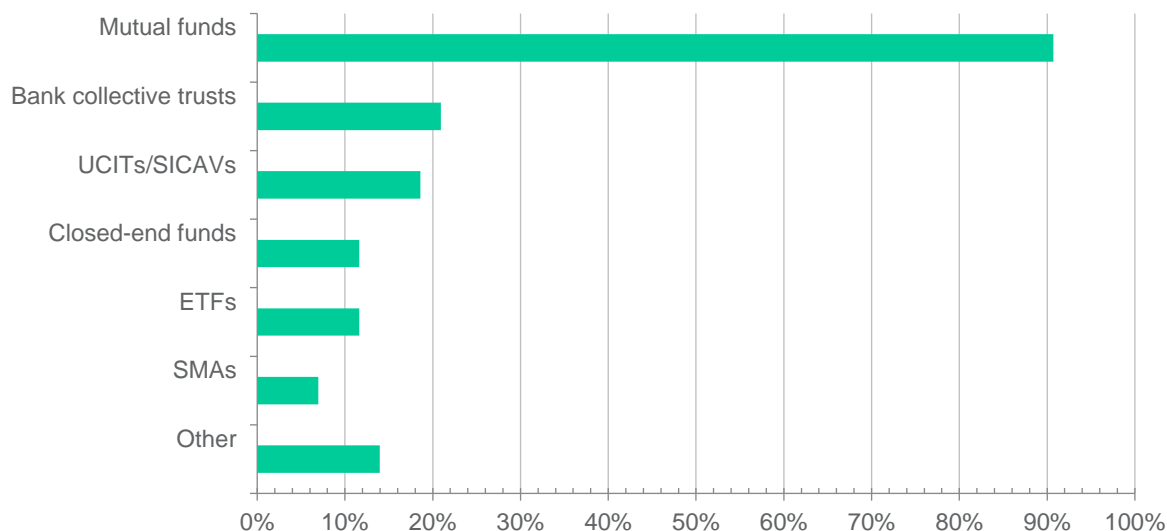
What Type of Markets Do You Invest In?



Source: Virtu Financial, Fair Value Analytics

Finally, we look at what types of investment vehicles for which survey participants indicated they used fair value pricing. Almost 91% of participants use fair value for mutual funds. Over 20% of participants fair value collective trusts while just under 20% fair value UCITS and SICAVs. Almost 12% said they fair valued ETFs.

What Type of Investment Vehicles Do You Fair Value?



Source: Virtu Financial, Fair Value Analytics



ETFs

Many clients issue ETF products and fair valuation of ETFs is a hot topic given there is no regulatory requirement to fair value ETFs. In all, **38%** of survey participants indicated they issue ETFs. However, **only 33%** of those clients fair value their ETFs. We asked why clients do or do not fair value their ETFs:

For those who **do** fair value their ETFs:

- **All respondents** said they fair valued their ETFs to maintain consistency in pricing across their investment vehicles.
- **Two respondents** use fair value to assist in the creation/redemption process.

For those who **do not** fair value their ETFs:

- **60%** said they don't fair value because it is not required from a regulatory perspective.
- **One respondent** each said they don't fair value their ETFs due to the following:
 - It is not market practice
 - Designated broker objects
 - Fair valuing increases tracking error

HOW CAN VIRTU ASSIST WITH TRIGGERING DECISIONS?

- Virtu has a global client service and product management team that can help Fair Value clients evaluate Fair Value triggers.
- Backtesting to analyze the tradeoffs between triggering options can be done on client portfolios using various magnitudes, indexes, and time periods.
- We can also backtest portfolios by region or market to assess whether a multi-trigger approach would improve performance.
- We are happy to do phone calls or in-person meetings to discuss triggering decisions. We regularly speak about triggers in due diligence meetings and board meetings.
- We can share insights we hear from clients regarding the motivations of choosing a specific trigger.

To learn more, contact your Virtu sales representative or call our analytics team in
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