
S&P Global

Market Intelligence

Securities Finance Research

Intraday: A Leading Indicator of End-of-Day Borrows – Evidence
from US Equities

Securities Finance Research &
Analytics

March 2024

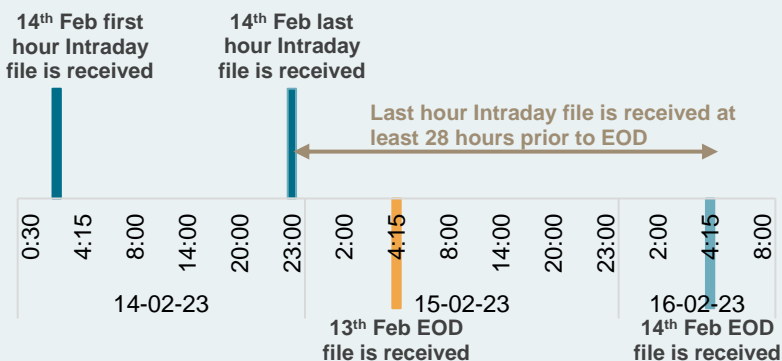
Intraday can be used as a strong leading indicator of End-of-Day borrows

In this research study, we compare the publish timelines of different Securities Finance datasets for US equities and find **that Intraday data offers a significant time advantage over End-of-Day (EOD) dataset and can anticipate substantial movements in EOD borrows.**

The last hour Intraday files are available at least 28 hours prior to the publish of EOD files for a particular dataset date.

- Last hour Intraday file for **the 14th Feb 2023** is available ~23:00 UTC on **the 14th Feb 2023**.
- EOD file for **the 14th Feb 2023** is available ~ 04:00 UTC on **the 16th Feb 2023**.

Comparison of Publish Timelines for the 14th Feb 2023 dataset

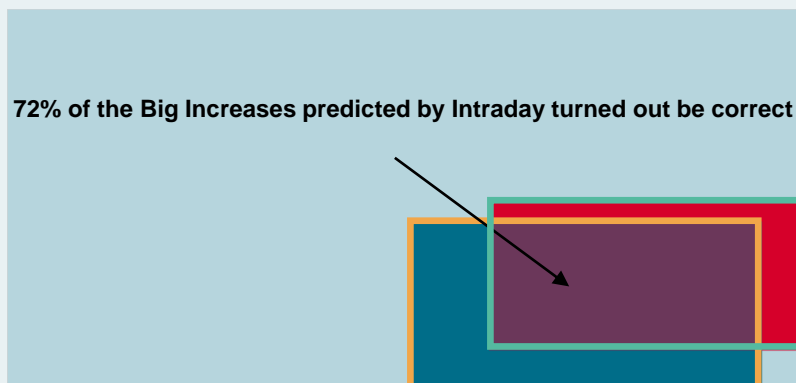


Source: S&P Global Market Intelligence Securities Finance.

As the Intraday files lead the EOD files, we prove that a big increase in Intraday borrow activity works as an early indicator of a big increase in EOD borrows.

Our analysis on US equities using daily data during the five-year period between 1st Jan 2019 – 31st Dec 2023 exhibit that **72% of the Big Increases predicted using Intraday eventually ended up as a Big Increase in EOD quantity on loan.** Hence, making Intraday a strong leading indicator of EOD borrowing activity.

*An increase of $\geq 10\%$ in Quantity on Loan was considered as a Big Increase.

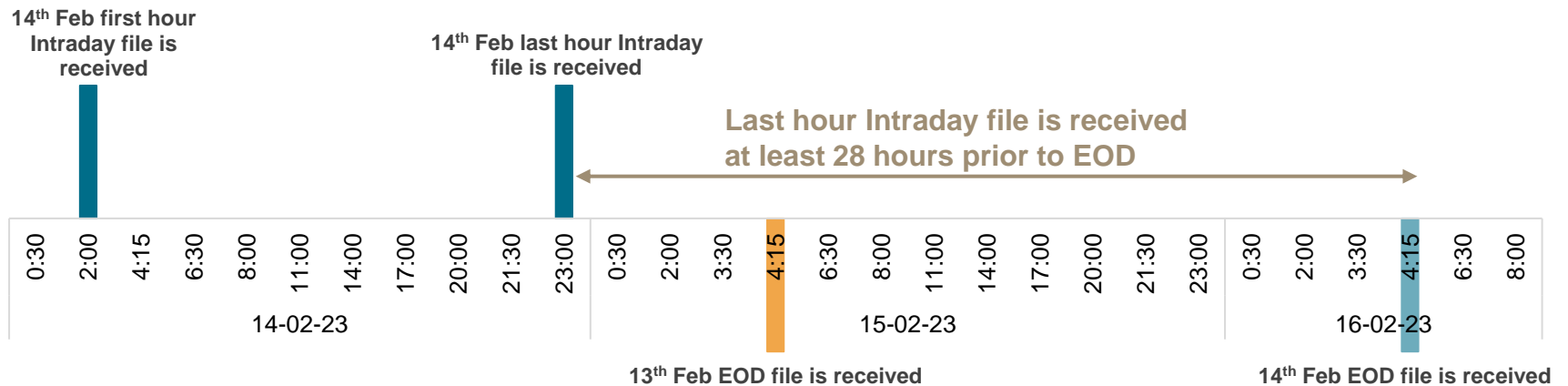


Source: S&P Global Market Intelligence Securities Finance.

Last hour Intraday files are received **at least 28 hours prior to End-of-Day files**

Intraday offers a significant time advantage over End-of-Day (EOD) files. The last hour Intraday files are available at least 28 hours prior to the publish of EOD files for a particular dataset date.

Publish timeline for the 14th Feb 2023 dataset as per Universal Time Coordinated (UTC)



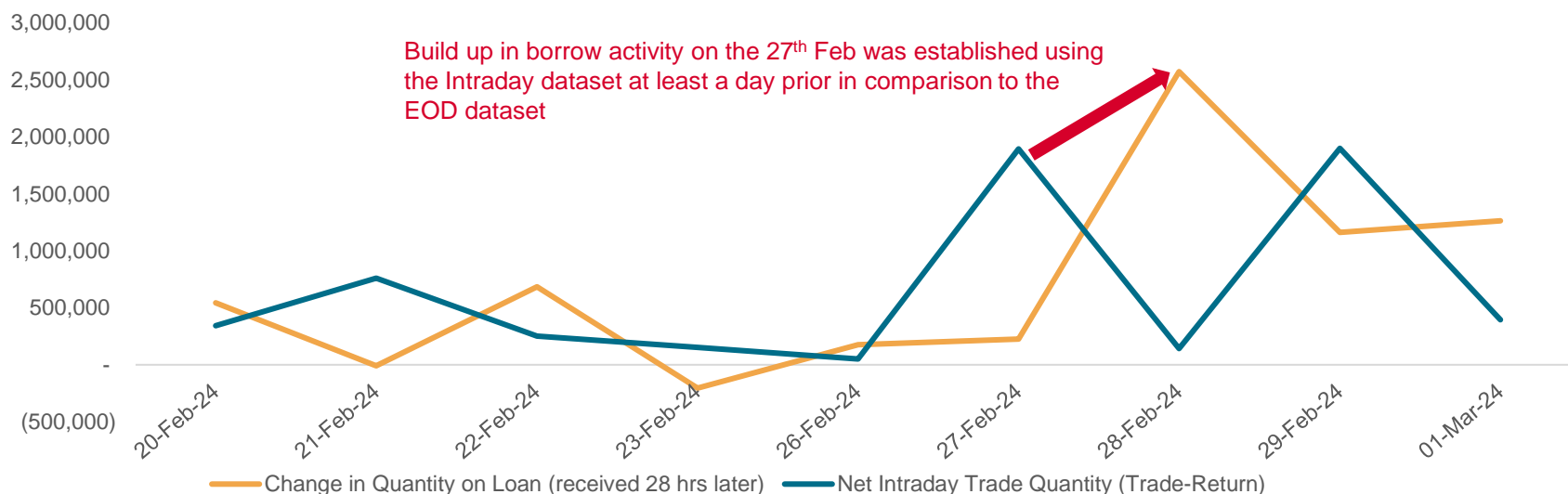
Source: S&P Global Market Intelligence Securities Finance.

- Last hour Intraday file for the 14th Feb 2023 is available ~23:00 UTC on the 14th Feb 2023.
- EOD file for the 14th Feb 2023 is available ~ 04:00 UTC on the 16th Feb 2023.

Illustrating Intraday's advanced insight over End-of-Day

Intraday reported the increase in borrowing activity for February 27th, 2024, on the same day, that would otherwise be available upon receiving the End-of-Day file 28 hours later.

Indie Semiconductor Inc (BP4W0C8)



Source: S&P Global Market Intelligence Securities Finance.

- We have plotted the chart as per the publish timelines of the Intraday and the End-of-Day files.
- Net Intraday Trade Quantity = Last hour Intraday Trade Quantity minus the Max (Intraday Return Quantity) during the day.
- Change in Quantity on Loan = Quantity on Loan on day t – Quantity on Loan on day t-1

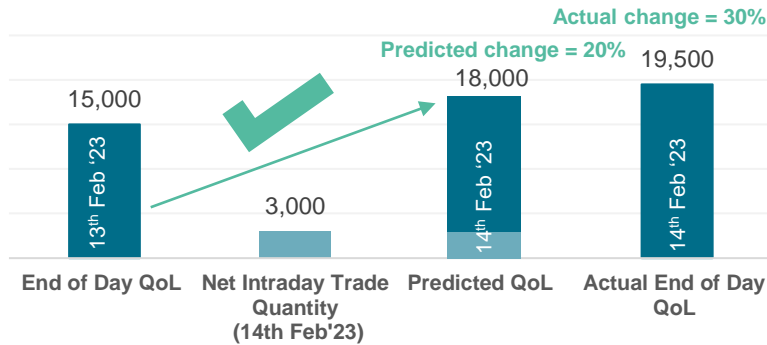
Universe, Research Criteria and Fields used in our Analysis

- **Universe:** In this research study we utilized the US equity stocks that are part of both the Securities Finance End-of-Day and last-hour Intraday files and have borrow data against them.
- **Time Period:** Daily files during the 5-year period between 1st Jan 2019 – 31st Dec 2023. Around 20 dates were removed from our analysis period due to data dropouts on these dates.
- In our study, we employed the **last available Intraday file** for our predictions as it contains the most complete information from the Securities Finance Intraday dataset for each business day.
- How do we predict End of Day Quantity on Loan (QOL) for day **'t'** :
 - > Predicted Change in EOD QOL using Intraday QOL for day **'t'**
$$\frac{[\text{Net Intraday QOL (Trade - Return) on } t]}{[\text{End of Day QOL on } (t-1)]}$$
 - > Actual Change in End of Day QOL for day **'t'**
$$\frac{[\text{End of Day QOL on } (t)]}{[\text{End of Day QOL on } (t-1)]} - 1$$
- The last file for Intraday QOL for day **'t'** is available ~23:00 UTC on day **'t'**.
- End of day QOL for day **'t-1'** is available ~04:00 UTC on day **'t+1'**. **Predicted Change in End of Day QOL for US Equities can be calculated ~04:00 UTC on day 't+1'**.
- End of day QOL for day **'t'** is available ~04:00 UTC on day **'t+2'**. **Actual Change in End of Day QOL will be available ~04:00 UTC on day 't+2'**.
- **Predictions for End of Day QOL for day 't' can be made at least 1 day prior by using the Intraday QOL for day 't'**.

Concept of predicting EOD borrows using Intraday

A correct prediction happens when the predicted change in Quantity on Loan as per the Intraday dataset $\geq 10\%$ and the corresponding change in actual Quantity on Loan $\geq 10\%$.

*Illustrated using a hypothetical example



A correct prediction

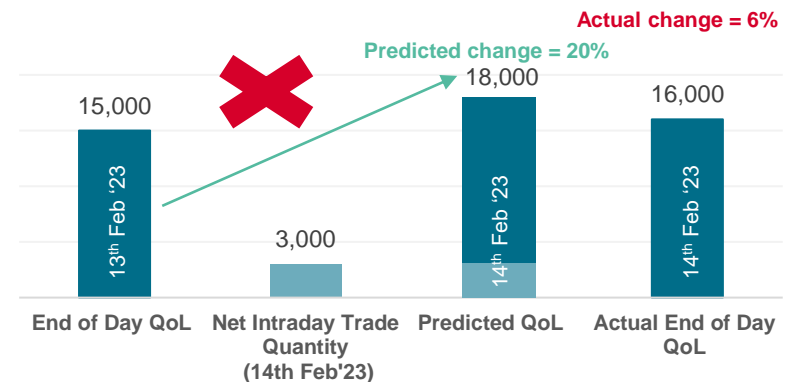
Predicted QoL for 14th Feb shows a 20% increase from 13th Feb QoL – **A big increase of $\geq 10\%$**

Actual QoL for 14th Feb is a 30% increase from 13th Feb QoL – **A big increase of $\geq 10\%$**

An incorrect prediction

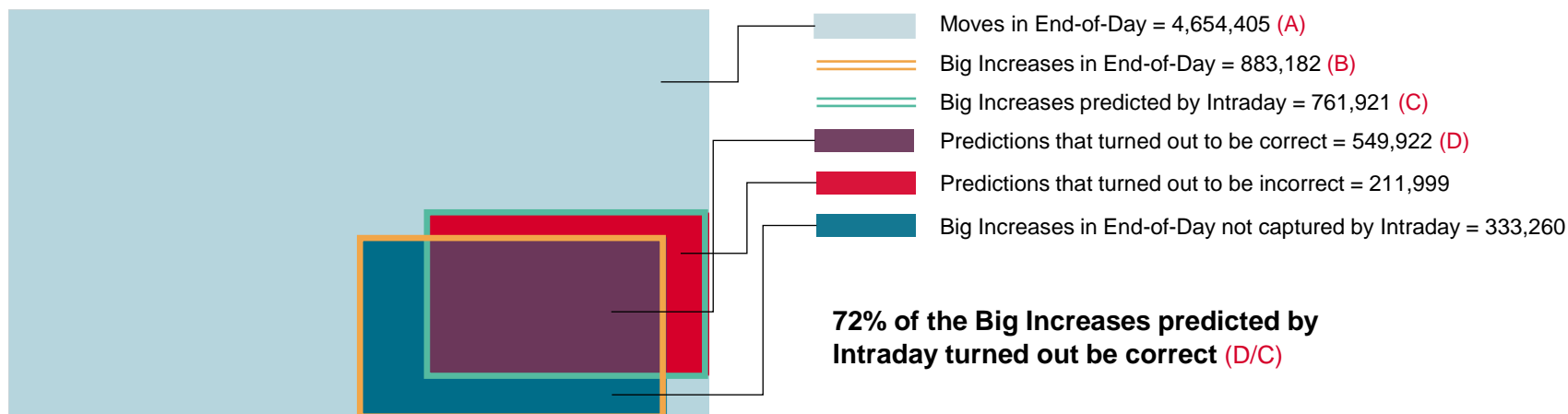
Predicted QoL for 14th Feb shows a 20% increase from 13th Feb QoL – **A big increase of $\geq 10\%$**

Actual QoL for 14th Feb is 6% increase from 13th Feb QoL – **Not a big increase of $\geq 10\%$**



Intraday predicts End-of-Day Borrows with **72% Accuracy**

Our analysis on US equities using daily data during the five-year period between 1st Jan 2019 – 31st Dec 2023 exhibit that **72% of the Big Increases predicted using Intraday eventually ended up as a Big Increase in EOD quantity on loan**. Hence, making Intraday a reliable source in estimating a Big Increase in EOD borrows at least a day in advance.



Source: S&P Global Market Intelligence Securities Finance.

Likelihood of A Big Increase in End of Day = 19% (B/A)

% of Big Increases in End of Day that are captured in Intraday = 62% (D/B)

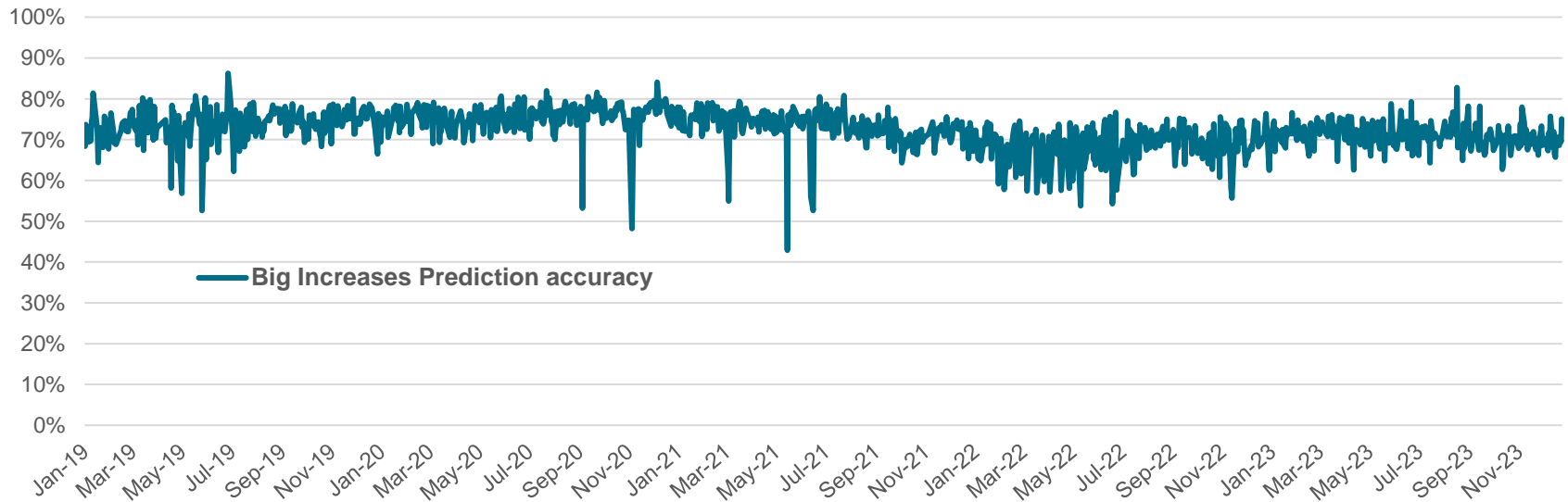
Prediction Accuracy = 72% (D/C)

- Universe: US equity stocks that are part of both the Securities Finance End-of-Day and last-hour Intraday files and have borrow data against them.
- Time Period: Daily data during the 5-year period between 1st Jan 2019 – 31st Dec 2023.
- Big Increases in Intraday – When the Predicted Change as per the Intraday dataset $\geq 10\%$.
- Big Increases in EOD – When the Actual Change in End-of-Day Quantity On Loan $\geq 10\%$.

Consistent prediction accuracy during the five-year period

% of the Big Increases accurately predicted by Intraday has been consistent on a daily basis during the period of our study.

Prediction accuracy using the Intraday dataset – US Equities – Jan 2019 to Dec 2023



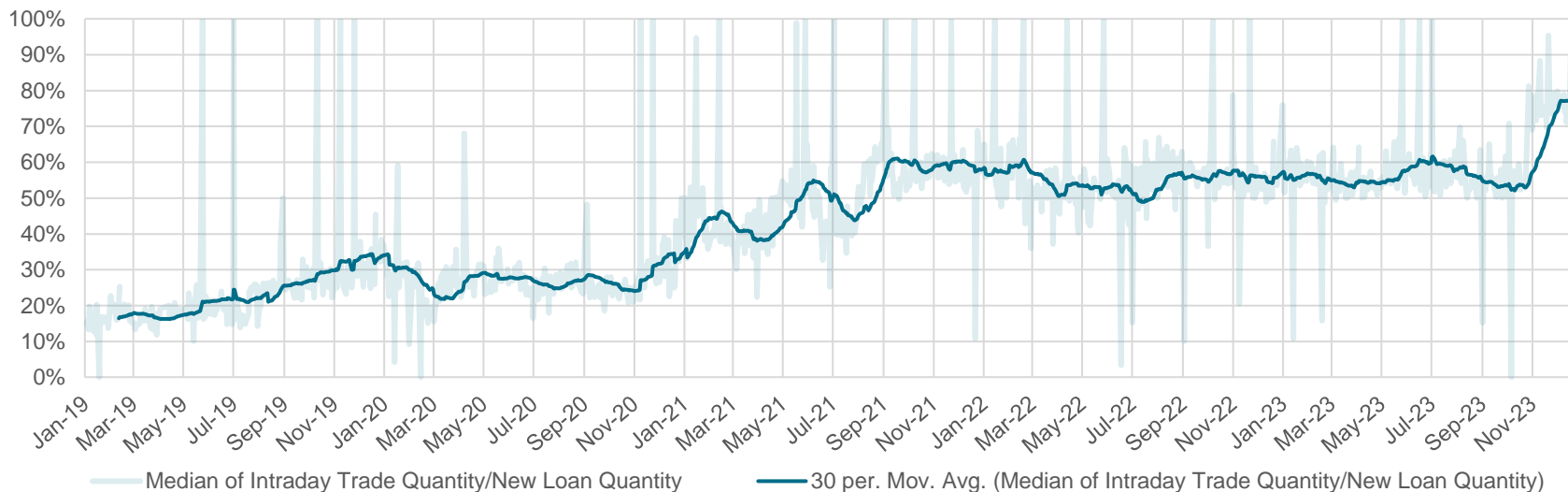
Source: S&P Global Market Intelligence Securities Finance.

- Universe: US equity stocks that are part of both the Securities Finance End-of-Day and last-hour Intraday files and have borrow data against them.
- Time Period: Daily data during the 5-year period between 1st Jan 2019 – 31st Dec 2023.
- Big Increases in Intraday – When the Predicted Change as per the Intraday dataset $\geq 10\%$.
- Big Increases in EOD – When the Actual Change in End-of-Day Quantity On Loan $\geq 10\%$.

Growing relevance of the Intraday dataset

On a daily basis, for every US equity contained in the Intraday files, we calculate the Intraday Trade Quantity (from the last hour file) relative to the New Loan Quantity. Then we calculate the median value across US equities on a daily basis (light blue line in the chart). As this number can vary for the daily dataset, **we also report a 30-day moving average to showcase that a higher % of New Loans are being captured in the Intraday files today in comparison to earlier years as new contributors were onboarded in the growing dataset.**

Intraday Trade Quantity as % of New Loan Quantity – US Equities – Jan 2019 to Dec 2023



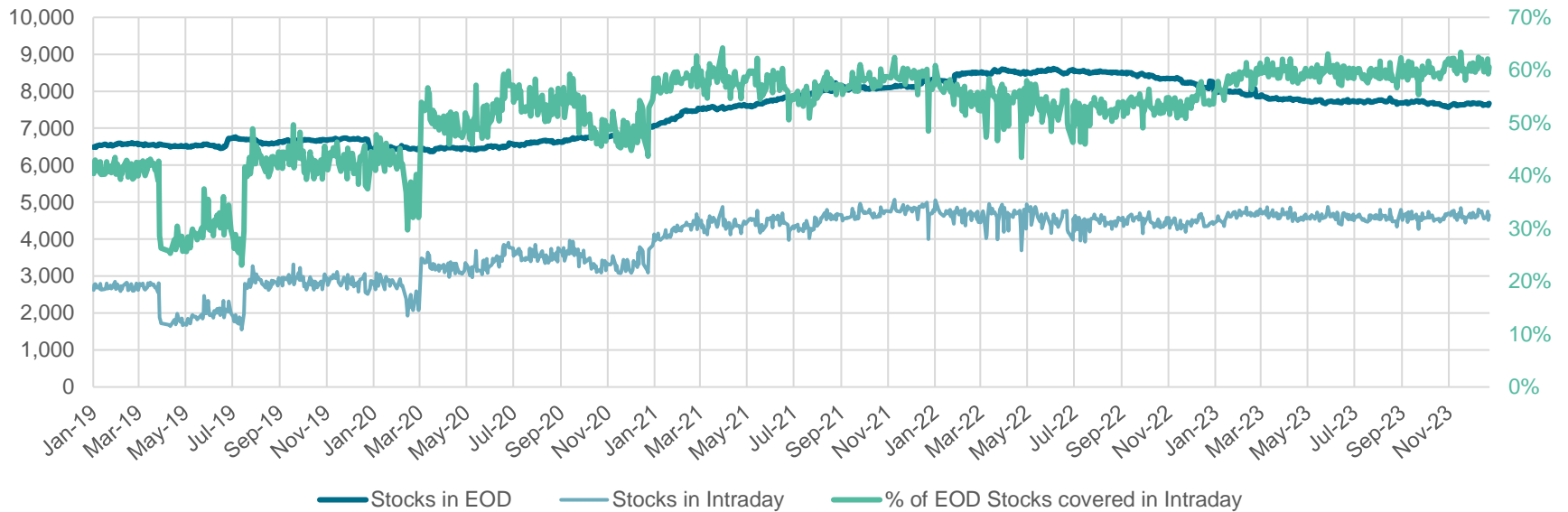
Source: S&P Global Market Intelligence Securities Finance.

- Universe: US equity stocks that are part of both the Securities Finance End-of-Day and last-hour Intraday files and have borrow data against them.
- Time Period: Daily data during the 5-year period between 1st Jan 2019 – 31st Dec 2023.

52% of the Equities in End-of-Day are covered in Intraday

Approximately 52% of US equities in the End-of-Day files are covered in the Intraday files

Intraday Coverage based on % of stocks – US Equities – Jan 2019 to Dec 2023



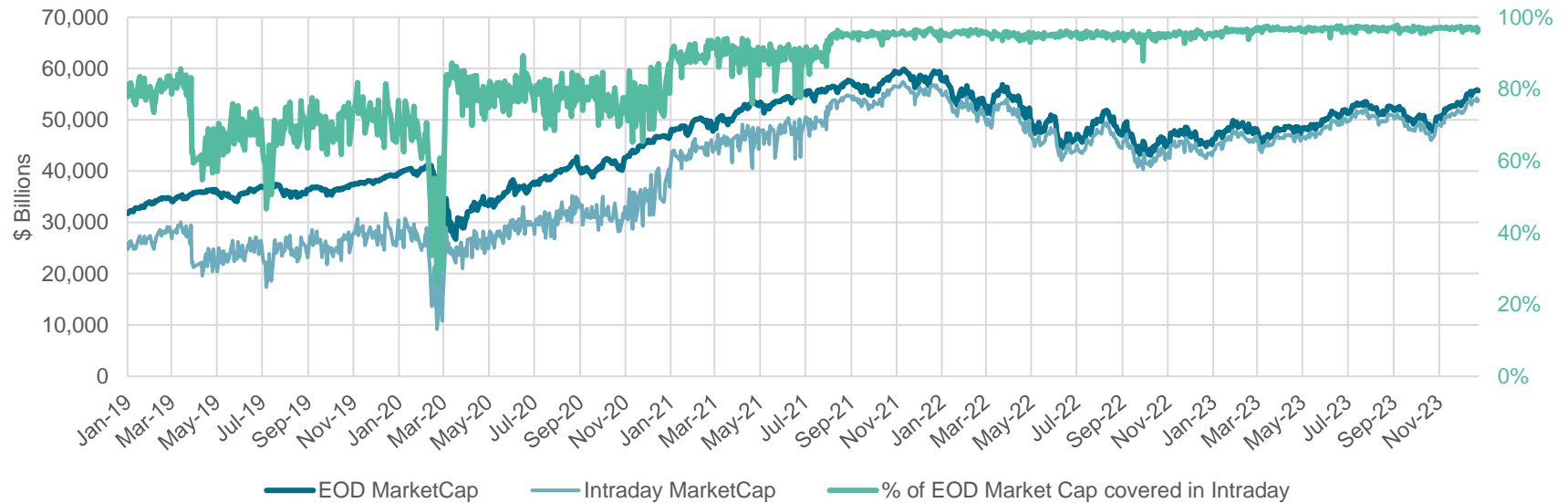
Source: S&P Global Market Intelligence Securities Finance.

- Universe: US equity stocks with loan value that are contained in the individual Securities Finance files
- Time Period: Daily data during the 5-year period between 1st Jan 2019 – 31st Dec 2023.

90% of the Market Cap in End-of-Day is covered in Intraday

Around 90% of the Market Cap value in EOD is covered in Intraday.

Intraday Coverage based on Market Capitalization – US Equities – Jan 2019 to Dec 2023



Source: S&P Global Market Intelligence Securities Finance.

- Universe: US equity stocks with loan value that are contained in the individual Securities Finance files
- Time Period: Daily data during the 5-year period between 1st Jan 2019 – 31st Dec 2023.

Net Intraday Trade Quantity Calculation

Intraday Trade Return metrics did not represent an accumulative aggregate (unlike the way Intraday Loans do) until the 27th August 2022. However, from September 2022 onwards, we applied a fix and now Intraday Return Quantity/Value represents an accumulative aggregate. **Since our study covered both the pre-fix and post-fix period, the total return quantity for a stock was estimated using the maximum trade returns on any given day for the ease and consistency in our calculations.**

File Date	File Hour	Instrument Name	Trade Quantity	Return Quantity
10-Feb-22	1	Lucid Group Inc	-	409
10-Feb-22	2	Lucid Group Inc	-	409
10-Feb-22	3	Lucid Group Inc	-	409
10-Feb-22	4	Lucid Group Inc	-	409
10-Feb-22	5	Lucid Group Inc	-	409
10-Feb-22	6	Lucid Group Inc	-	409
10-Feb-22	7	Lucid Group Inc	-	409
10-Feb-22	8	Lucid Group Inc	-	409
10-Feb-22	9	Lucid Group Inc	-	409
10-Feb-22	10	Lucid Group Inc	-	409
10-Feb-22	11	Lucid Group Inc	-	409
10-Feb-22	12	Lucid Group Inc	-	409
10-Feb-22	13	Lucid Group Inc	-	6,598
10-Feb-22	14	Lucid Group Inc	254,800	6,598
10-Feb-22	15	Lucid Group Inc	254,800	4,389
10-Feb-22	16	Lucid Group Inc	256,800	12,000
10-Feb-22	17	Lucid Group Inc	2,433,200	12,000
10-Feb-22	18	Lucid Group Inc	2,452,300	12,900
10-Feb-22	19	Lucid Group Inc	2,452,300	22,000
10-Feb-22	20	Lucid Group Inc	2,452,300	30,100
10-Feb-22	21	Lucid Group Inc	2,456,608	138,600
10-Feb-22	22	Lucid Group Inc	2,478,794	138,600
10-Feb-22	23	Lucid Group Inc	2,478,794	136,600

We took the Max (Trade Returns) on a particular day to estimate the total return quantity for a stock.

Source: S&P Global Market Intelligence Securities Finance.

Net Intraday Trade Quantity = 2,478,794 (last hour trade quantity) – 138,600 (maximum return quantity during the day)

Intraday Loan Returns for US equities

- Prior to August 2022, the Intraday data feed was designed in a way that Intraday Return Quantity/Value showed the securities lending loan returns that were booked “today”.
- If the returns were pending settlement, and in due course settle later during that same day, the Return Quantity/Value would drop off from the feed.
- Intraday Return metrics did not represent an accumulative aggregate (as the Intraday Loans do).
- In the US, although the stock locate happens at T, the stock doesn't need to be borrowed until settlement (T+2). Elsewhere globally, the sec lending transaction must be booked 2 days in advance, to allow T+2 settlement. This is also the case for Returns.
- As such, in the US, any returns booked early in the day, will feasibly drop off at a later hour as the loan settles. It is therefore not uncommon to see lower returns in the final file of the day for US securities.
- **However, from September 2022 onwards, we applied a fix and now Intraday Return Quantity/Value represents an accumulative aggregate like the Intraday Trade Quantity/Value.**

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