

Net Order Imbalance Indicator Support Document

Net Order Imbalance Indicator (NOII) can have a positive impact on a trader’s ability to perform effectively in a highly competitive environment. This product increases market transparency by providing users with invaluable details about the opening and closing orders and the likely opening and closing prices of a security. NOII offers traders valuable insight into the true supply and demand in the marketplace - insight that can help reveal new trading opportunities.

One of the primary benefits of the NASDAQ OMX Opening and Closing CrossesSM is the detailed information disseminated about opening and closing orders and likely clearing prices. This information is intended to inform all market participants equally and to minimize surprises at the market open and the market close.

NASDAQ OMX disseminates imbalance information every five seconds:

- Opening Cross: 9:28 to 9:30 a.m., ET
- Closing Cross; 3:50 to 4:00 p.m., ET
- IPO and Halt Crosses: beginning with the quote-only period of the IPO of halt resumption

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I. NOII Components

| Time | Symbol | Paired Shares | Imbalance Shares | Imbalance Side | Current Reference Price | Near Indicative Clearing Price | Far Indicative Price | Price Variance Indicator | Cross Volume | NOCP |
|----------|--------|---------------|------------------|----------------|-------------------------|--------------------------------|----------------------|--------------------------|--------------|---------|
| 15:59:55 | AAPL | 665,706 | 0 | N | \$89.62 | \$89.62 | \$89.62 | 0-.99% | | \$0.00 |
| 15:59:56 | GE | 17,840 | 0 | N | \$16.09 | \$16.09 | \$16.09 | 0-.99% | | \$0.00 |
| 15:59:56 | MSFT | 5,230,265 | 0 | N | \$19.51 | \$19.51 | \$19.51 | 0-.99% | 5,230,265 | \$19.62 |
| 15:59:56 | NDAQ | 126,679 | 0 | N | \$19.65 | \$19.65 | \$19.65 | 0-.99% | | \$0.00 |
| 15:59:57 | SCHW | 571,194 | 0 | N | \$15.73 | \$15.73 | \$15.73 | 0-.99% | | \$0.00 |

1. My Portfolio – Use this tab to view Open/Close information for user created portfolios or specific symbols. This tab also gives access to the portfolio creation applet.
2. Market Open/Close – These sections will open automatically at the start of dissemination times (Open: 9:28am, Close: 3:50pm). Each section will open when selected, but data will only be disseminated during the set dissemination period.
3. Data Display – Displays the open/close information for the stock(s) or portfolios chosen. Please see NASDAQ OMX Net Order Imbalance Indicator (NOII) Display Description section of this document for a list of field definitions.
4. Export – Export your portfolio’s data into Excel.
5. History – View historical open and close information for the current day and previous 5 business days. Simply select the drop down and choose a date.
6. Portfolio/Symbol – Use this field to select a portfolio or enter an individual symbol. The Portfolio Management icon allows you to create multiple portfolios. To create a new portfolio:
 - a. Select the Portfolio Management icon. 
 - b. Enter a name for your Portfolio.
 - c. Select the Plus icon to create the portfolio. 
 - d. Select the newly created Portfolio from the list.
 - e. Enter Symbol(s) into the Symbol field of your portfolio and press the Plus icon. 
 - f. To import a list of symbols, select the . Note: you can only import .csv files.
 - i. Select Browse and choose the file you would like to upload.
 - ii. Select any options to your preference.
 - iii. Select the Upload button.

To edit a portfolio, select the Edit icon. 

To delete a portfolio, select the Delete icon. 
7. Top Lists – Select the Launch Top List button to view real-time Top List information.
8. Top 50 Highest by Imbalance - Reflects the Top 50 securities with the highest imbalance.
9. Top 50 Highest by Variance - Reflects the Top 50 securities with the highest variance between

the near indicative clearing price and the current inside price. For more information on these fields, see the field description section below.

10. IPO/Halt Imbalances – Displays new midday opening process for initial public offerings (IPOs) and securities being released from a trading halt.

II. NASDAQ OMX Net Order Imbalance Indicator (NOII) Display Description

NASDAQ OMX Opening and Closing Crosses

The NASDAQ OMX Opening and Closing Crosses are price discovery facilities that cross orders at a single price. The Crosses enable market participants to execute on-open and on-close interest and provide unparalleled transparency. Since the launch of the Closing Cross in April of 2004 and the Opening Cross later that year, market makers and other industry professionals have repeatedly demonstrated their willingness and ability to offset imbalances that are entered into the cross. The Crosses generate opening and closing prices that are widely used by industry professionals including Russell Indexes, Standard & Poor's and Dow Jones. For more information, please refer to the [NASDAQ OMX Opening Cross and NASDAQ OMX Closing Cross fact sheets](#).

NASDAQ OMX Midday Opening Process

In the second quarter of 2006, NASDAQ introduced a new midday opening process for initial public offerings (IPOs) and securities being released from a trading halt. The new IPO and trading halt opening process is designed to promote greater transparency during the positioning window and to provide more uniform prices on which traders and investors can rely. For more information on the new midday opening process, please refer to the [IPO/Halt fact sheet](#).

To ensure an orderly market open process, NASDAQ OMX marketplace rules provide for a positioning window for IPO and halted securities. During the positioning window, market participant are only allowed to enter orders and quote updates for the associated NASDAQ-listed issue. To promote price discovery, NASDAQ OMX disseminates Net Order Imbalance Indicator (NOII) data during this positioning window at 5-second intervals. In its NOII calculation for IPO and halted securities, NASDAQ OMX includes non-displayable order types (such as market and reserve orders) as well as displayable market participant quotation data from the NASDAQ Market Center (NMC) system.

Fields Descriptions

| Field Name | Field Description |
|----------------------|---|
| Time | The time the Net Order Imbalance Indicator is disseminated to this web site. The time represents Eastern Time and is displayed in Military Format: HH:MM:SS |
| Symbol | The identifier of the security. |
| Paired Shares | The total number of shares that are eligible to be matched at the Current Reference Price. For the Opening Cross, this calculation will include early "Regular hours", Market On Open, Limit On Open, and Imbalance Only orders that are eligible to be matched at the Current Reference Price. For the IPO and trading halt opening process, this calculation would include regular hour orders and quotes that are eligible to be matched at the Current Reference Price. |

| | <p>For the Closing Cross, this calculation will include Market On Close, Limit On Close, and Imbalance Only Orders that are eligible to be matched at the Current Reference Price.</p> <p>The Number of Shares Paired may be zero-filled under the following two scenarios:</p> <ul style="list-style-type: none"> • There are no on-open/on-close orders in the NASDAQ book. In this case, the Imbalance Side field would be set to "O". • There are no shares in the eligible order types that match at the Current Reference Price. | | | | | | | | | | |
|--------------------------------|--|------|-------------|---|--------------------|---|---------------------|---|--|---|--|
| Imbalance Shares | <p>For the Opening Cross, this field indicates the absolute difference between the number of shares for early "Regular hours", Market On Open, Limit On Open, and Imbalance Only orders on the buy side and the number of shares for early "Regular hours", Market On Open, Limit On Open, and offsetting Imbalance Only orders on the sell side eligible to be matched at the Current Reference price.</p> <p>For the IPO and trading halt opening process, the only time that an imbalance will be disseminated will be when there is a Market Buy or Market Sell condition.</p> <p>For the Closing Cross, this field indicates the absolute difference between the number of shares for Market On Close, Limit On Close, and offsetting Imbalance Only orders on the buy side and the number of shares for Market On Close, Limit On Close, and offsetting Imbalance Only orders on the sell side eligible to be matched at the Current Reference Price.</p> <p>For the opening and closing crosses, the Number of Shares of Imbalance may be zero-filled under the following scenarios:</p> <ul style="list-style-type: none"> • There are no on-open/on-close orders in the NASDAQ book. In this case, the Imbalance Side field would be set to "O". • There is no imbalance; all shares in eligible orders can be paired at current reference price. In this case, the Imbalance Side would be set to "N". | | | | | | | | | | |
| Imbalance Side | <p>The Imbalance Side field indicates the market side for of the imbalance.</p> <p>This field will display the following values for a specific security:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>Buy-side imbalance</td> </tr> <tr> <td>S</td> <td>Sell-side imbalance</td> </tr> <tr> <td>N</td> <td>No imbalance (buy side equals sell side)</td> </tr> <tr> <td>O</td> <td>No marketable on-open (or on-close) orders in NASDAQ, thus no imbalance.</td> </tr> </tbody> </table> | Code | Description | B | Buy-side imbalance | S | Sell-side imbalance | N | No imbalance (buy side equals sell side) | O | No marketable on-open (or on-close) orders in NASDAQ, thus no imbalance. |
| Code | Description | | | | | | | | | | |
| B | Buy-side imbalance | | | | | | | | | | |
| S | Sell-side imbalance | | | | | | | | | | |
| N | No imbalance (buy side equals sell side) | | | | | | | | | | |
| O | No marketable on-open (or on-close) orders in NASDAQ, thus no imbalance. | | | | | | | | | | |
| Current Reference Price | <p>The Current Reference Price reflects the price for which the number of Paired Shares and the number of Imbalance Shares are calculated. Please note that the Current Reference Price is determined by the price within the NASDAQ Inside where the maximum number of shares are paired, the imbalance is minimized, and the distance from the bid-ask midpoint is minimized, in that</p> | | | | | | | | | | |

| | |
|--|--|
| | <p>order.</p> <p>If this field is null or blank, it is because there is no Current Reference Price for the specific security.</p> |
| <p>Near Indicative Clearing Price</p> | <p>For the opening and closing crosses, this field indicates the price level at which the on-open/on-close and offsetting imbalance-only orders match against themselves and the NASDAQ continuous book.</p> <p>If this field is null or blank, this indicates one of two circumstances:</p> <ul style="list-style-type: none"> • There are no on-open (or on-close) orders entered for the security; or • There is no substantial on-open (or on-close) or continuous book interest on the opposite side of the market to execute all of the MOO (or MOC) orders on the other side. When this occurs, the No Indicative Price field displays either a Market Buy or Market Sell indicating that offsetting imbalance-only or continuous market orders should be entered on the other side of the market. <p>For the midday opening process, the Current Reference Price, the Near Indicative Clearing Price, and the Far Indicative Clearing Price will be equal.</p> |
| <p>Far Indicative Clearing Price</p> | <p>For the opening and closing crosses, this field indicates the price level at which buy orders and sell orders match in the closing book.</p> <p>If this field is null or blank, this indicates one of two circumstances:</p> <ul style="list-style-type: none"> • There are no on-open (or on-close) orders entered for the security; or • There is no substantial on-open (or on-close) interest on the opposite side of the market to execute all of the MOO (or MOC) orders on the other side. When this occurs, the No Indicative Price field displays either a Market Buy or Market Sell indicating that offsetting imbalance only orders should be entered on the other side of the market. <p>For the midday opening process, the Current Reference Price, the Near Indicative Clearing Price, and the Far Indicative Clearing Price will be equal.</p> |
| <p>Price Variance Indicator</p> | <p>This field indicates the absolute value of the percentage of deviation of the Near Indicative Clearing Price to the nearest Current Reference Price.</p> <p>Price Variance Indicator = (Near Indicative Clearing Price – Current Inside Price)</p> <p>This field indicates the % difference between the indicative Opening (or Closing) Cross price (Near Clearing Price) and the price where the market is currently trading. A high value indicates there will be a large price difference between the Opening (or Closing) Cross price and the continuous market if sufficient offsetting interest is not entered.</p> <p>This field will display a percent difference or percent range as listed below:</p> <ul style="list-style-type: none"> • 0-0.99% • 1-1.99% • 2-2.99% • 3-3.99% • 4-4.99% |

| | |
|--|--|
| | <ul style="list-style-type: none"> • 5-5.99% • 6-6.99% • 7-7.99% • 8-8.99% • 9-9.99% • 10-19.99% • 20-20.99% • +30% |
| Cross Volume | Following the cross process, NASDAQ OMX will populate this field will contain the number of shares executed at the Cross price. This field will be zero filled for issues without a Cross and for halted securities. |
| NASDAQ OMX Official Opening/Closing Price (NOOP/NOCP) | Following the cross process, this field will contain the price at which the Cross was executed. Please note that this field will not be populated for halted securities. |

III. Dissemination Times

For the Opening Cross, the NOII messages are disseminated at 5 second intervals from 9:28:00 a.m. to 9:29:59 a.m., ET.

For the IPO and halt opening process, the NOII messages are disseminated at 5 second intervals during the quote positioning window. For IPO securities, the standard quote positioning window is 15 minutes in length. For halted securities, the standard quote positioning window is 5 minutes in length. If the positioning window is extended, NASDAQ OMX will continue to calculate and disseminate 5-second intervals until the issue is released.

For the Closing Cross, this information is currently disseminated 5 second intervals from 3:50:00 p.m. to 3:59:59 p.m., ET.

IV. NOII Frequently Asked Questions (FAQs)

What is Net Order Imbalance Indicator (NOII)?

NOII allows you to view NASDAQ crossing data to participate in the NASDAQ OMX Opening Cross, Closing Cross, IPO Cross and Halt Cross. Use this information to find liquidity and predict cross prices before they occur. NOII positively impacts a traders' ability to perform effectively in a highly competitive environment.

How often is data disseminated?

NASDAQ OMX disseminates imbalance information every five seconds:

- Opening Cross: 9:28 to 9:30 a.m., ET
- Closing Cross; 3:50 to 4:00 p.m., ET
- IPO and Halt Crosses: beginning with the quote-only period of the IPO of halt resumption

How many symbols can a Portfolio hold?

Portfolios hold up to 50 symbols each.

Can I view prior days NOII data?

Yes. NOII allows you to view the last 6 days of open/close imbalance information.

How can I view the Open/Close Imbalance data?

At the time the data is disseminated, the application automatically opens the Open or Close section and displays the imbalance information. To view the unopened section, simply click on that header.

Which order types are eligible for the Opening Cross?

Four categories of orders are eligible for the Opening Cross:

Regular Hours Orders

- Executed from 9:30 a.m. to 4:00 p.m., ET, and during the cross.
- Includes good-for-the-day (DAY), good-til-canceled (GTC), immediate-or-cancel (IOC) and market orders.
- Limit Orders placed after 9:28 a.m., are treated as Imbalance-Only (IO) orders for the Opening Cross. If not fully executed in the cross, the orders are then returned to the order entering party.
- Market Orders placed after 9:28 a.m., will not be accepted.
- Firms may re-enter Limit and Market Orders after the Opening Cross is complete.

Quotes & Extended Hours Orders

- Eligible for the cross, except for extended immediate-or-cancel (IOX) orders.
- Quotes, extended day (X) and IOX order can be executed during normal and extended hours.
- No market orders are accepted during extended hours (before 9:30 a.m., ET).

On-Open (OO) Orders

- Executed only during the Opening Cross.
- Market-on-open (MOO) and Limit-on open (LOO) orders must be received prior to 9:28 a.m., ET.

Imbalance-Only (IOs) Orders

- Executed only during the Opening Cross.
- Liquidity-providing orders that stabilize the crossing price.
- IO orders to buy (or sell) priced more aggressively than the 9:30 a.m., ET, NASDAQ bid (or ask) are adjusted to the NASDAQ bid (or ask) prior to the execution of the cross.

Which order types are eligible for the Opening Cross?

There are two order types:

On-Close Orders (OC)

- Allow investors to specifically request an execution at the closing price.
- Can be both limit-on-close (LOC) and market-on-close (MOC).
- Accepted beginning at 7:00 a.m., ET.

Imbalance-Only Orders (IO)

- Provide liquidity to offset on-close order imbalances during the Closing Cross.
- Must be priced (limit); no market imbalance-only orders.
- Execute only at or above/below the 4:00 p.m., ET, NASDAQ offer/bid.
- Buy/sell orders priced more aggressively than the 4:00 p.m., ET, NASDAQ best bid/ask are re-priced to the NASDAQ best bid/ask prior to the execution of the Closing Cross. Accepted beginning at 7:00 a.m., ET.

Why am I experiencing problems with the NOII?

There are some common reasons why individuals might have problems running NOII. Please refer to the NOII Troubleshooting section.

Where can I find additional NASDAQ OMX Cross information?

For additional information regarding Crosses, please go to our [NASDAQ OMX Crossing page](#).

V. NOII Troubleshooting

Below are common reasons why you might be experiencing problems running NOII:

You are not connected to the Internet.

Please use a broadband connection, otherwise the NOII applet will not be able to connect back to its server.

System requirements for NOII:

Ensure you have the following:

1. Operating System: Microsoft XP (note that VISTA is not supported)
2. Internet Explorer 6+ or Safari. (Note that Mozilla Fire Fox is not supported).
3. Latest version of flash player.
4. A Broadband connection (NOII does not work with dial-up). WHY DID YOU MENTION MODEM ABOVE IF WE ARE SAYING IT DOESN'T WORK ON DIAL UP?
5. Firewalls are off.
6. Launch NOII by:
 - a. Logging in with username and password at <https://data.nasdaqomx.com/>,
 - b. Click on My Account
 - c. Select the Launch button under NOII.
 - d. Note: Always launch from My Account; Always close the browser and run each application individually, after launching.

Note: It can take up to 20-30 seconds to load the Top 50 buttons as the application must calculate the data.

You went through all the checks, and NOII still doesn't work.

Make sure cookies are accepted from a third party:

1. Open Internet Explorer.
2. Click Tools menu and select Options
3. Select Privacy tab
4. Click Advanced button

Clear your web cache (instructions at <http://www.java.com/en/download/help/webcache.xml>) and restart computer.

Please send your questions with a complete description of the problem, including your operating

system, browser name and version to datastore@nasdaqomx.com