INVESTMENT INDUSTRY ASSOCIATION OF CANADA
ASSOCIATION CANADIENNE DU COMMERCE DES VALEURS MOBILIÈRES

MORE MEANINGFUL PRICES FOR ALL

IMPROVING END-OF-DAY VALUATONS FOR THINLY TRADED CANADIAN EQUITIES

SUMMARY

Not all publicly listed equity securities in Canada trade frequently. In fact, some may have not traded in hours or even days. For these *thinly* traded securities, the prices reported at the end of day may be 'stale' or not always reflect current value. Investors, and other market participants, may be adversely impacted as a result.

This paper identifies opportunities to provide more meaningful *closing prices* and end-of-day quotations for these securities. It details recent industry efforts to address the issues and what further work is required. This paper also calls on Canadian securities regulators to devote increased attention to these issues and to work with industry on implementing the market-led solutions developed.

The Investment Industry Association of Canada (IIAC) is collecting views from market participants on the issues outlined. Comments can be submitted by **November 30, 2021, to** capitalmarkets@iiac.ca

BACKGROUND

A longstanding issue in the Canadian marketplace related to *thinly* traded equity securities is that closing prices may not align with their prevailing market (i.e. their "*bid*" or "*ask*" price) at the end of any given day. This is because market convention is to use the price of the last board lot trade on the *listing exchange* when determining *closing price*. This can diverge from market makers' end-of-day bid/ask quotations and therefore prices at which the next trade would occur. Typically, if there is a trade near the close of business, the official closing price will be near the closing bid and ask quotes. However, if there is no investor activity, the closing price could be stale by hours, days, or sometimes weeks and, therefore, far removed from the end-of-day bid/ask.

Further compounding the situation is that market prices captured in industry books of record are usually based on the final quote published each day, at the end of "extended hours" (5:00 PM) rather than at the customary equity market close of 4:00 PM. Between 4:00 PM and 5:00 PM, quotations on listing exchanges frequently widen for a variety of reasons including the cancelation of orders. The resulting 5:00 PM quote may, therefore, not resemble the 4:00 PM values. This leaves users exposed to official security valuations that are significantly different (and typically worse) than where the same security could have been traded shortly before the 4:00 PM market close, when liquidity conditions tend to be better. This "quote fade" is unpredictable and causes investor confusion. Though it potentially impacts all listed securities, it can be more pronounced for those that are thinly traded.

The multi-marketplace environment that has evolved in Canada adds yet another complication.[1] Specifically, where the last board lot may have traded on a different venue than the primary listing exchange, trade information may not be reflected in the end-of-day closing values at all.[2] For frequently traded securities that routinely see activity across multiple venues, this is not a major issue. However, for thinly traded securities whose activity on a given day may largely reside outside the primary listing exchange, investors lose an element of transparency, since official closing prices may not have updated despite more recent trades on the non-listing marketplace.

The net effect of all the above is to reduce investor confidence in the market prices for thinly traded securities.

IMPLICATIONS TO THE MARKETPLACE

The anomalies above have a variety of implications for investors, dealers, and other market participants.

Most notably, end-of-day quotations on the listing exchange are generally used to value holdings in retail investment accounts and feed into investors' statements, performance reports and other account documents. This is because industry regulations prescribe those assets be valued at the closing bid (for long positions) or closing ask (for short positions).[3] For thinly traded securities the amounts reported to retail investors can sometimes diverge from current values as observed at 4:00 PM each day due to after-hours quote fade.

Investors may also be discouraged from investing in thinly traded securities because of concerns over potentially higher friction costs stemming from how these securities are valued at end-of-day. This further hinders market liquidity for thinly traded securities

Investors who mark positions to "closing price" will typically reflect only the price of the last traded board lot on the listing exchange, which could have occurred hours (or days) before the market closed. These investors run the risk of being exposed to a stale mark, or an abnormally wide mark, which are both problematic in their own way. For example, large institutional investors, whose fund valuation methodologies rely on the "official closing price" as the designated valuation, have no regard for the degree to which this official closing price may be stale. The result is that their funds' NAVs may reflect stale valuations.

Investment dealers, whose inventory positions are required to be valued at the closing bid or ask, also face several business and regulatory implications including capital and margin

[1] There are currently eight marketplace members of IIROC collectively operating over a dozen exchanges and trading venues in Canada.

[2] The "Primary Listing Exchange" is typically the first exchange on which the security was listed. If a security is listed on multiple exchanges simultaneously, IIROC will designate the exchange with the greatest percentage of overall trading volume in the previous year as the Primary Listing Exchange for that security. See IIROC Guidance Note.

[3] See definition of "market value" contained in IIROC Dealer Member Rule 200: Minimum Records

determinations. When these closing values are inaccurate or artificially volatile, they risk bringing inefficiencies to the dealer and the industry.

Finally, large foreign investors may also be relying on "closing price" for their official uses. Remedying Canada's current practice for how thinly traded securities are priced could, therefore, contribute positively to global perception of Canadian capital markets.

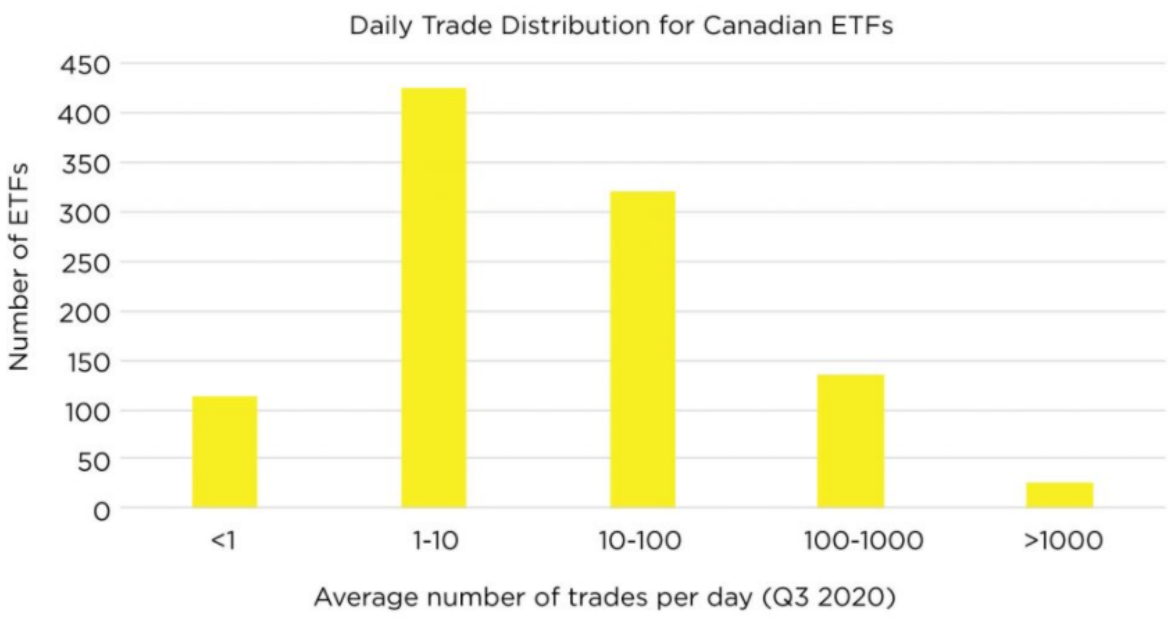
Consequently, widespread reliance on the listing exchange's last published board lot trade for determining an official "closing price" and the use of last published bid and ask price for prescribed valuations for thinly traded securities is a shortcoming of current Canadian practices and in need of redress.

EXCHANGE TRADED FUNDS (ETFs)

Exchange traded funds are not immune from the issues described above and warrant some additional considerations.

Most ETFs Trade Infrequently

While ETFs have become immensely popular, particularly among retail investors, many ETFs in fact do not trade very frequently.



Source: NEO Exchange

For these thinly traded ETFs, the quoted closing market price may not correlate to the daily change in the value of the ETF's underlying basket of securities, resulting in an inaccurate representation of the value of the ETF.

Closing prices are used by investors to determine the daily profit and loss of their ETF investment and used to calculate its volatility over a given period. This further emphasizes the need to ensure prices are reflective of current value each day.

ETFs Trade Across Multiple Markets

The ETF market in Canada is fragmented, with trading taking place across multiple venues. However, investor portfolios are updated based on trading activity solely from the *listing market*. In other words, the only way a new ETF end-of-day price gets reflected in a client portfolio is if that ETF trades on the exchange where it is listed. Substantial trading activity – and the important price discovery it provides investors – happening away from the listing exchange does not contribute to the determination of the ETF's reported closing price. Thus, some ETFs can often appear stale by days, even while trading continues on other marketplaces.

Market Price vs. NAV

ETFs are subject to the same Net Asset Value (NAV) requirements as traditional mutual funds. At the end of each day, the ETF's NAV is calculated reflecting the total value of the ETF's underlying holdings, minus liabilities - such as management fees and expenses - divided by ETF shares outstanding. The NAV is calculated independently, typically using end-of-day valuations for the fund's holdings. Therefore, in most cases, the NAV approximates the value of the fund at the end of each day.

In situations where the reported closing price of an ETF is stale for the reasons described in this paper, the ETF may appear to be trading at a substantial premium or discount to the published NAV for no reason other than that the prices being compared were taken at different times. For instance, today's NAV (representing end-of-day value) might be compared to a last reported trade price from the morning of the same day. The difference between those values would represent the market movement between the morning and the afternoon, rather than any transaction costs investors would bear, leading to investor confusion. While we do not believe it would be appropriate to expect end-of-day valuations that explicitly replicate fund NAVs, we believe that market participants would benefit from end-of-day valuations which reasonably reflect the value of securities, including funds, at the end of each trading day.

Moreover, Market Makers re-calculate an ETF's value throughout the day and quote a bid/ask spread that is intended to reflect what the ETF shares are worth. A premium or discount to the NAV occurs when the last reported trade price of an ETF deviates from its published NAV. The greater the time between the last trade and the close of the market, the greater the potential difference between the NAV and the last traded price, despite market makers pricing the ETF in line with the value of its underliers throughout the day. This situation may lead investors to incorrectly conclude that an ETF is trading at a premium or discount to its NAV and mistakenly use this reasoning as a basis for their investment decision.

RECENT INDUSTRY INITIATIVES TO ADDRESS THE PROBLEMS

CANADA

Canadian exchanges have taken some positive steps to address some of the issues identified above.

NEO Exchange

In 2018, NEO Exchange Inc. ("NEO Exchange" or "NEO") adopted amendments to its trading policies and refined its Closing Price calculation.[4] Specifically, for NEO-listed securities (other than ETFs) with a Closing Call, the Closing Price continues to be the price set in the Closing Call. However, if there is no trade in the Closing Call for such securities, or if the security does not have a Closing Call, the Closing Price is set to the consolidated last sale price across all marketplaces that trade NEO-listed securities nearest to 4:00 PM.

For NEO-listed ETFs, if there is no trade in the last 15 minutes of trading, the Closing Price has been set to the time-weighted National Best Bid or Offer ("NBBO") midpoint calculation over the last 15 minutes of trading (the "TWAP NBBO Midpoint"). Here, the last sale price is essentially assigned a 0% weighting and the midpoint is assigned a 100% weighting. Conversely, if the ETF has traded during that time, the Closing Price is set to the last sale price nearest to 4:00 PM (i.e., weighting the last sale price at 100% and the midpoint at 0%).

The NEO changes were helpful because they correctly recognized the need to place less reliance on trading activity solely occurring on the listing exchange and instead used quotation and trade information from other marketplaces, if any, to establish their Closing Price. Furthermore, their new approach for ETFs substituted a potentially stale closing price with an improved estimate of the market quotation at the end of each day.

In 2021, NEO made another small, but important refinement. For all NEO-listed ETFs, NEO began to publish a print immediately following the time at which the Weighted Closing Price is available (approximately 4:30 PM EST each business day). The print is published as a zero-volume trade at the Closing Price. This was necessary for the various market providers and downstream data feeds to pick up NEO's derived Closing Price and to make the Weighted Closing Price more widely available for use by asset management fund operations teams.

TSX

In August of this year, the TSX obtained approval on a series of proposals aimed at improving the way its thinly traded securities are priced.[5]

For ETFs, TSX will begin using a time weighted average price ("TWAP") calculation over the last 10 minutes of trading to determine the TSX Last Ask, the TSX Last Bid, and, in the absence of a trade during those last 10 minutes of trading, the TSX Closing Price. For securities other than ETFs, the TSX Closing Price will continue to be (a) in respect of Market-on-Close (MOC) eligible securities,

---

[4] See NEO's summary of changes, *Trading Policy Amendments re. Closing Price*, here.

[5] See TSX's *Notice of Proposed Amendments and Request for Comments* here and notice of approval here.

the calculated MOC closing price, and (b) in respect of any other security, the last board lot sale price of the security on the TSX in the *regular session*.

The revised TSX framework has several improvements over the current TSX framework. Its use of prices during the regular trading session (as opposed to the extended session) should help counter the widening spreads witnessed today towards the end of the trading session and into the extended session, when orders in the TSX book are frequently canceled.

The revised TSX's framework is also largely aligned with changes adopted by the NEO Exchange for their ETF listings, which should assist with market acceptance and industry adoption. As compared to NEO, a notable difference is that the TSX framework proposes a 10-minute window (instead of 15 minutes, as implemented by NEO) for determining the time-weighted ETF prices. Further, the TSX continues to focus on its Best Bid and Offer prices, whereas NEO's framework incorporates prices, if any, from outside its own exchange.

THE UNITED STATES

NYSE

In respect of ETFs, the work at NEO and the TSX follows similar changes implemented south of the border. However, we view the Canadian approaches as simpler and easier for investors to understand.

In 2018, NYSE Arca introduced a process for setting an official closing price for its listed Exchange Traded Products (ETPs) that do not end trading with a closing auction. The new Arca Official Closing Price (AOCP) methodology uses both consolidated last sale and NBBO inputs. NYSE Arca tracks the time-weighted average midpoint price (TWAP) of the NBBO over the last five minutes of the trading day. The TWAP and the consolidated last sale are blended, following a pre-defined schedule based on the last sale time, to determine the AOCP. To assess the new logic's performance, NYSE compared the difference between the AOCP and NAV Price before the logic took effect and after the logic was implemented. As intended, the average difference between the AOCP and NAV tightened dramatically with the new logic.[6]

FURTHER INDUSTRY WORK IS NEEDED: IIAC RECOMMENDATIONS

Both NEO and TSX should be applauded for their efforts. Their changes will produce closing ETF prices and quotations that we believe better reflect the ETF's market value at the end of the day and provide an improved reference point for portfolio valuations.

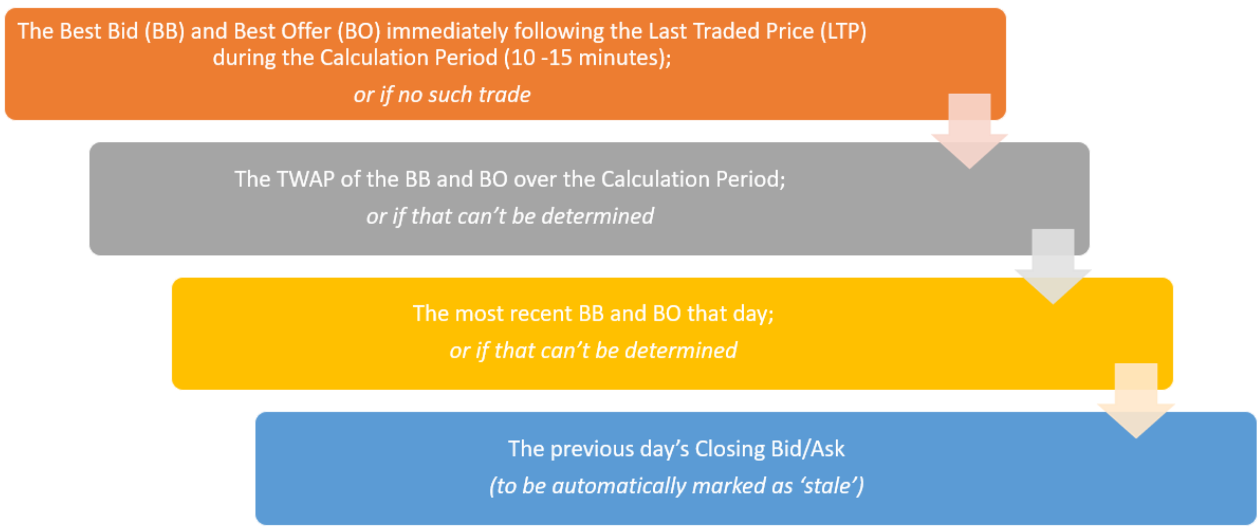
However, there are some gaps that remain unfilled:

1. For non-ETF securities, neither NEO nor TSX offers sufficient improvements to the way thinly traded securities are priced currently at the end of the day. While their move away from prices/quotations seen in the *extended* trading session in favour of those witnessed during the *regular* session is helpful, our recommendation is that the time-weighted

[6] See *NYSE Arca official closing price calculation* here.

methodologies that they have adopted, or plan to adopt, for calculating end-of-day price for ETFs are eventually also considered for other listed securities.

2. Similarly, we believe it helpful to extend the time-weighted methodologies beyond closing prices and apply them to the calculation of end-of-day quotations. Specifically, for thinly traded securities, the IIAC recommends a "waterfall" approach for deriving the closing bid/ask along the lines of the following:



These recommendations would bring several improvements. For example, for thinly traded companies where most shares may be tightly held by insiders, there is currently potential for these insiders to mark the close. The TWAP methodology proposed above could curtail such behaviour because the submitted bid must be in place longer, raising the risk that the insider purchases the stock rather than just establishing the MTM valuation. When combined with the market surveillance function of IIROC to detect high-closing activities, this results in improved market integrity for thinly traded stocks.

THE NEED FOR REGULATORY ACCEPTANCE AND SUPPORT

We are confident that the Canadian marketplaces, working with industry stakeholders, will build on recent initiatives and develop further solutions to fully address the issues related to end-of-day valuations for thinly traded securities for the benefit of investors. However, this will only be half the battle.

The alternative closing price valuations proposed will certainly help market participants better value their holdings . While market participants can utilize these valuations in various ways, in order for them to be used for "official" purposes, such as valuing securities on client statements or margin determinations, Canadian securities' regulators must also recognize the current challenges and the industry solutions presented. Without a willingness from regulators to acknowledge these market-led solutions in their regulatory frameworks, many of the current issues plaguing end-of-day prices for thinly traded securities will persist.

The Canadian Securities Administrators ("CSA")

Section 14.11.1 of National Instrument 31-103 *Registration Requirements, Exemptions, and Ongoing Registrant Obligations and Related Instruments (NI 31-103)*[7] sets out the basis upon which market value must be established for client reporting purposes. It prescribes that market value should be determined using the last bid price in the case of a long security and the last ask price in the case of a short security, as shown on a consolidated pricing list or exchange quotation sheet as of the close of business.

The Companion Policy to NI 31-103[8] further indicates that, in the case of a <u>liquid</u> security, for which a reliable traded price is quoted on a marketplace, it may be acceptable to use this current "last traded price" instead of the bid/ask. It also requires regulated firms to ensure that any quoted values used to determine market value "do not represent stale or old prices that are not reflective of current values". For the reasons outlined in this paper, the use of trade prices or quotations related to thinly traded securities may not always be reflective of current values. NI 31-103 Companion Policy provides firms flexibility to use "professional judgement" and other valuation inputs in determining market value.

Therefore, we believe it is reasonable for the CSA to consider the alternative valuations - such as those produced by NEO and the TSX - as suitable inputs for firms to rely on for reporting market value on thinly traded securities. Whether the consideration and acknowledgement of alternative valuations should be reflected in amendments to NI 31-103, its Companion Policy, or elsewhere is a question for the CSA .

Investment Industry Regulatory Organization of Canada ("IIROC") and Mutual Fund Dealers Association of Canada ("MFDA")

IIROC and MFDA (the "SROs") have also adopted in their member rules definitions for "market value". Similar to NI 31-103, both MFDA Rule 5.3 *Client Reporting* and IIROC Rule 200 *Minimum Records* require listed securities to be reported to clients using the last bid price (in the case of a long security) or last ask price (in the case of a short security). These definitions are also carried through on both *IIROC Form 1* and *MFDA Form 1* governing the financial reporting of member firms to their respective SRO. The valuations reported on Form 1 will ultimately determine the financial position of each dealer, including their capital status.

The SRO rules, like NI 31-103, permit participants to use inputs other than published prices when such prices are not reliable. A notable difference between the CSA and SRO rules, however, is that the CSA has made it clear that the use of "last traded price" is permissible in determining market value in certain cases, whereas the SRO rules are silent in that regard. Further, it is unclear whether

---

[7] NI 31-103 is available here.
[8] NI 31-103 Companion Policy is available here.

dealers are afforded the necessary discretion by their SRO to ignore an observed market price if they believe this price does not accurately reflect the value of the security.

Again, we think it is reasonable for the SROs to consider alternative end-of-day valuations produced and published by regulated marketplaces as suitable inputs for dealers to rely on for valuing thinly traded securities, whether it be for client reporting purposes or for determining their own financial positions.

Universal Market Integrity Rules ("UMIR")

IIROC, through application of UMIR, also oversees trading activity in Canada. "Closing price" is a term that is referenced and relied on throughout UMIR, yet it is not specifically defined. There may be benefit for IIROC to consider formally defining "closing price" and to acknowledge the alternate closing price valuations produced by regulated marketplaces as falling within that definition. This will provide clarity to market participants while improving the fit of thinly traded securities within the UMIR framework.

The preceding are just some examples of securities' regulations that should be reviewed in the context of the work being undertaken by industry players to compute more relevant end-of-day prices for thinly traded securities. The CSA and SROs, in consultation with industry members and marketplaces, should undertake a harmonized, comprehensive review of rules, national instruments, policies, and guidance to determine where else changes are sensible.

Improving the way thinly traded securities are priced at the end-of-day could also bring benefits more broadly. Some beneficiaries include the accounting profession, particularly the fund accountants of the many open-ended mutual funds that may hold thinly traded securities, tax authorities, estate administrators, and benchmark providers, among others.

CLOSING

This paper has identified various shortcomings with the current way in which thinly traded listed securities are valued at the end-of-day and the implications for market participants, most notably investors. It also identifies some recent initiatives aimed at addressing the problems and what further actions are required. Particularly, we ask Canadian securities' regulators to consider the issues raised and work with industry and marketplaces on implementing the market-led solutions developed. For the CSA and SROs, we believe this should entail a review of their respective regulatory frameworks to see where changes may be necessary. We are hopeful that, by introducing new reforms and innovations, Canadian capital markets will better address the unique valuation needs of thinly traded securities for the benefit of investors.

YOUR FEEDBACK IS IMPORTANT

The IIAC is seeking comments on the views outlined in this paper. Your feedback will assist the IIAC in deciding further advocacy initiatives related to end-of-day valuations for thinly traded securities. Along with any general comments you may have, responses to any or all the following questions would be helpful. Please feel free to expand your answers as needed:

- Do you agree with all or some of the issues raised in this paper?

- How material are these issues to your organization?
- What are some of the negative experiences you have encountered related to end-of-day valuations for thinly traded securities?
- What other solutions may be available to tackle the current issues?
- Are there organizations, other than regulated marketplaces, well suited to derive end-of-day prices?
- What specific regulations would need to be amended to allow your firm broader use of computed end-of-day prices and quotations?

Comments can be submitted electronically to capitalmarkets@iiac.ca by November 30, 2021.