September 4, 2024

CS Submissions
Payments Policy Department
Reserve Bank of Australia

To the Council of Financial Regulators,

Thank you for the opportunity to submit comments regarding *Central Clearing of Bonds and Repos in Australia*. I am a researcher with the Faculty of Business and Economics at the University of Melbourne, specializing in issues of financial market structure and regulation. My comments pertain primarily to the issue of post-trade transparency in the markets for Australian government securities and repos. The submission asks two specific questions related to this: "would enhanced transparency in bond and repo markets improve the efficiency of these markets?" and "what actions could regulators or industry take to improve the efficiency and/or resilience of the bond and repo markets, including to reduce information asymmetry and improve price and liquidity discovery?"

In my view, the introduction of post-trade transparency for Australian government securities and repos will bring substantial benefits to market liquidity and stability. By post-trade transparency, I refer to timely dissemination of trade details (time, prices, amounts executed) to the public at low or zero cost. This type of market data is extremely important in the modern investment process. Asset prices reflect information (both public and private). In an opaque (non-transparent) market structure, the flow of information to investors via recent trade prices is unequal or asymmetric. This is the case in bond and repo markets, which are primarily OTC in nature with broker-dealers and other proprietary trading accounts occupying central positions in their trading networks. In the absence of a public trade reporting system, these traders have access to superior post-trade information by virtue of their positions in the network. This information asymmetry generates private benefits for a small number of large, active traders while costs are borne by the majority of the investment community. Market forces are unlikely to correct this information asymmetry. Those with access to data are unlikely to sell at an efficient price (they are monopolist suppliers of their own trade data), and

may also face legal or institutional barriers to divulging information about customer trades in the absence of a public trade reporting system. I also note that the issue of post-trade transparency in bond markets is particularly timely, given the recent initiation of TRACE reporting requirements in US treasuries (FINRA, 2016) and that public reporting of trades in this market only commenced this year FINRA (2024).

A substantial literature investigates the role of information asymmetry in market data using both theoretical and empirical lenses. My comment briefly reviews this literature with the aim of highlighting the economic channels by which transparency can improve outcomes and some of the key empirical evidence in this field. Taken together, it is my opinion that there is a convincing case that welfare gains can be achieved by implementing a public trade reporting system in these markets.

Economic channels

1. **Transparency encourages market participation, increases dealer competition for customer order flow, and helps investors avoid off-market quotes in OTC markets**.

   Duffie, Dworczak, and Zhu (2017) model an OTC market where customers with a desire to buy an asset engage in costly search among dealers for quotes. They compare outcomes when investors have some knowledge of dealers' cost of supplying the asset (the transparent case) vs. when they must infer this from the quote alone (the opaque case). Transparent markets have more trading and investors are more likely to find low-cost dealers and spend less on wasteful search. Transparency is shown to be socially optimal in markets with low participation.

2. **Transparency conveys information about asset quality and reduces dealer rents**.

   Back, Liu, and Teguia (2020) model a dealer who acquires and then sells inventory in a sequence of transactions in an OTC market. They compare a transparent case (when the second investor knows the terms of the first trade) with the opaque case when the second investor only sees the current dealer quote with no knowledge of the previous trade details. Under transparency, dealers choose to bid more in the first transaction in order to signal asset quality to the second investor. This

increases trade and gains from trade.

3. **Transparency reduces adverse selection costs for market makers and lowers trading costs for liquidity traders**.

   Pagano and Röell (1996) compare trading costs for liquidity traders (trading for non-informational reasons) across trading systems that differ in the amount of transparency (pre- and post-trade), from a fully opaque OTC-dealer market to a fully transparent auction system where all submitted orders are public knowledge. Most relevant here is the comparison of the dealer market to the continuous market with post-trade transparency (Section IV.A). Transparency helps market makers limit adverse selection costs and offer more competitive quotes to liquidity traders compared with the OTC case.

4. **Transparency increases liquidity provision by non-standard market makers**.

   Cespa and Vives (2023) model a dynamic dealer market when investors observe the past order flow of other investors on arrival (transparent case) and when they do not (opaque case). In the transparent case, investors can observe large order imbalances of past investors and supply liquidity to them (or equivalently, trade less aggressively themselves). This increases market stability and reduces the chance of a liquidity "crash".

5. **Information asymmetry regarding trade history raises cost of capital, market volatility, price inefficiency, and illiquidity.**

   Easley, O'Hara, and Yang (2016) model trading in a risky asset with liquidity traders and rational traders who can pay for trade data and/or invest in fundamental information production. When asymmetry in access to data exists, those without data scale back their participation which increases market illiquidity. Moreover, access to market data is complimentary to information production and lack of data leads to less fundamental information production and less efficient prices.

6. **Information asymmetry raises capital costs.**

   To the extent that post-trade transparency can lead to lower trading costs (as discussed above), and trading costs act as a tax on investment returns, lower trading costs can lead to higher asset prices and lower cost of capital in equilibrium (see e.g. Amihud and Mendelson, 1986a,

Amihud and Mendelson, 1986b and Amihud, Mendelson, and Pedersen, 2006, Favero et al. (2010) amongst others). Transparency matters also in the issuance process for new securities, which often takes the form of an auction or auction-like process. Investors with less information may rationally choose to bid conservatively to limit the possibility of suffering the "winner's curse" (Rock, 1986; Carter and Manaster, 1990). Post-trade transparency can eliminate this source of information asymmetry and increase the willingness to pay for new securities in equilibrium.

Empirical evidence

1. **Post-trade transparency in the US corporate bond market lowered trading costs.**

   The TRACE program introduced post-trade transparency in the US corporate bond market beginning in 2002. It is a particularly instructive example of a change to transparency in a large OTC market and the effects have been studied in detail. Bessembinder, Maxwell, and Venkataraman (2006) find that trade execution costs fall by approximately 50% once a bond's trades are reported in TRACE. Edwards, Harris, and Piwowar (2007) and Goldstein, Hotchkiss, and Sirri (2007) also provide evidence that TRACE had a neutral or positive effect on liquidity.

2. **Post-trade transparency in the US corporate bond market lowered corporate cost of debt capital.**

   Brugler, Comerton-Forde, and Martin (2022) study the effect of the TRACE program on the cost of new issuance in the US corporate bond market. Using a difference-in-differences approach that compares issuing costs for bonds that are TRACE-eligible at issuance with those that are not, while controlling for other bond characteristics and economy-wide factors, they show that TRACE-eligible bonds are cheaper to issue (have lower yield spreads) than otherwise equivalent non-TRACE bonds. The reason is that TRACE reduces information asymmetry in the issuing process rather than reducing transaction costs.

3. **Access to market data affects price efficiency.**

   Asymmetric access to market data (past history of trades and state of

the limit order book) has been shown to affect market quality in listed venues at the trading venue level and market-wide. Hendershott and Jones (2005) study the removal of market data for three ETFs trading on Island ECN, a US trading venue. They document a sizeable drop in volume traded for these ETFs on Island ECN after the venue ceases to display order book data to any traders for these securities. Liquidity traders are less likely to route their orders to Island ECN after market data is removed. Brogaard, Brugler, and Rösch (2023) conduct difference-in-differences analysis comparing trading activity on venues that introduce fees for market data products that were previously distributed for free. Fee introduction induces a new source of information asymmetry in market data access (prior to fees, all traders could access market data free of charge). Fees decrease market share and liquidity at the venue level, but are also detrimental to market-wide liquidity for large orders and overall price efficiency.

4. **Liquidity and trading costs affect asset prices.**

   Identifying the effect of liquidity on asset prices is challenging due to the many channels by which liquidity and asset prices may be correlated without necessarily implying a causal link from the former to the latter. For example, common unobservable factors such as risk premia and the availability of capital to financial intermediaries (so-called "funding liquidity") can affect both market liquidity and asset prices (Brunnermeier and Pedersen, 2009). Shocks to asset prices, especially risk-free assets, can also affect market liquidity (ibid). Amihud (2002) conducts Fama-MacBeth regressions on US stock returns including a measure of expected illiquidity as a stock characteristic. Expected illiquidity is a positive and significant explanatory variable for returns while controlling for other stock characteristics like risk (beta), size, dividends, etc. Liu (2006) forms portfolios of liquid and illiquid stocks and shows that illiquid stocks earn higher returns while controlling for characteristics like size, value, and turnover. Specific to fixed-income securities, Favero, Pagano, and von Thadden (2010) examine Euro-area sovereign bonds and show that bonds with higher bid-ask spreads have higher yields though this effect is stronger in times of low aggregate risk. The authors present an extension of the intertemporal CAPM to explain this finding. There is also ample evidence that newly issued "on-the-run" government bonds trade with lower yields than otherwise identical

previously issued "off-the-run" bonds (see e.g. Amihud and Mendelson, 1991, Boudoukh and Whitelaw, 1991, Boudoukh and Whitelaw, 1993 and Krishnamurthy, 2002, among others).[1]

Yours sincerely,

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[1]Krishnamurthy (2002) notes linkages between off-the-run premia and trading costs in reverse-repo markets.

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