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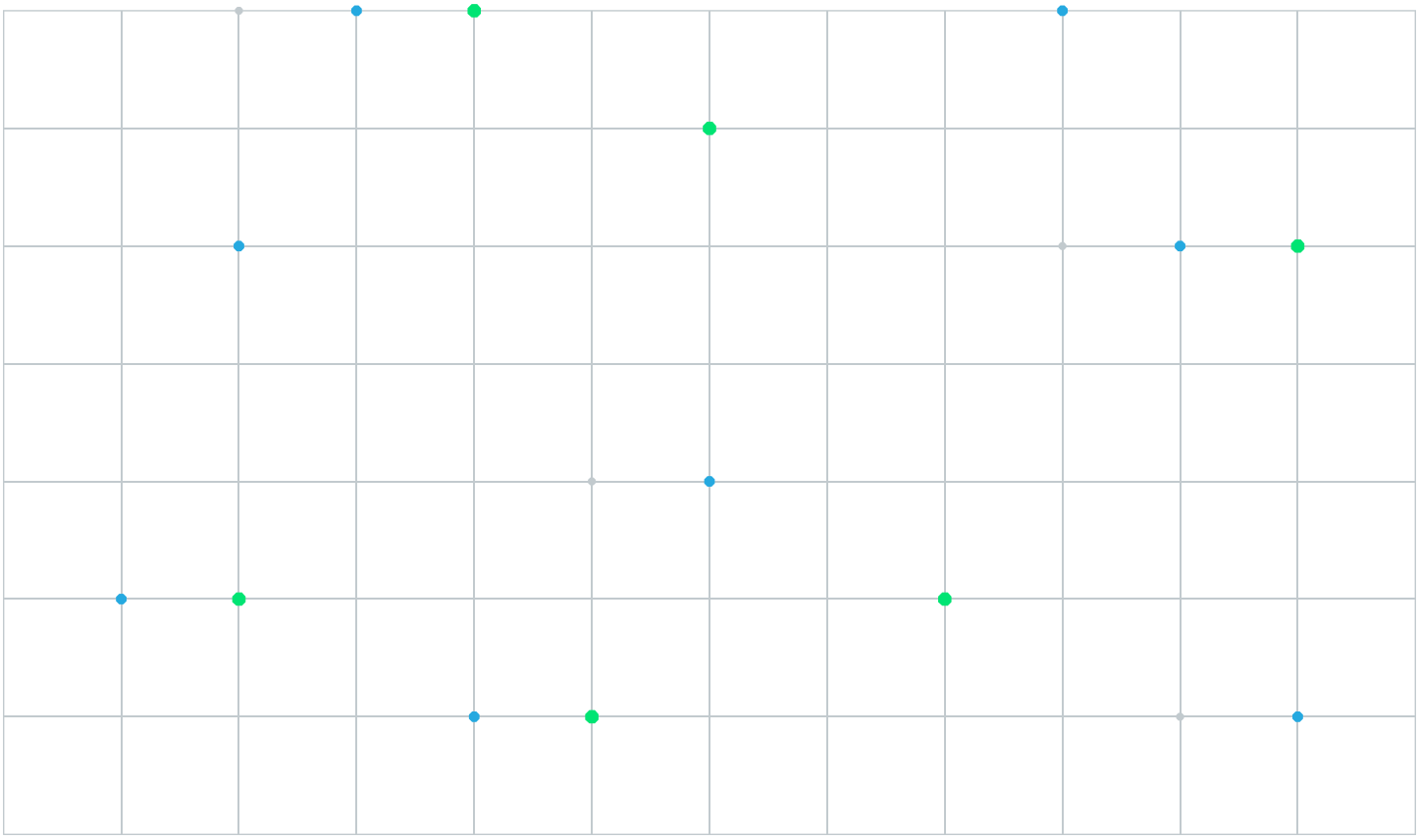
Understanding BSBY Futures



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Bloomberg Short-Term Bank Yield Index (BSBY)

Background

The primary successor rates that will form the backbone of financial markets following the transition away from existing benchmarks are risk-free rates (RFRs), such as the Secured Overnight Financing Rate (SOFR) for USD-denominated derivatives. These RFRs are preferred to the existing benchmarks, primarily because they are based on observable transactions. RFRs are structurally different from the existing benchmarks. Based on secured (by Treasury repo) overnight rates with virtually no credit sensitivity, they exhibit different liquidity and volatility characteristics that are not aligned with banks' borrowing and funding costs.

While RFRs may address the majority of legacy benchmark use cases, many lenders and borrowers see the need for credit sensitive rate alternatives—CSRs. Bloomberg has worked with market participants to develop and produce a set of transparent and robust USD CSRs based on executed and executable transaction data to address the needs of the lending market and to support the acceleration of overall benchmark transition.

Why BSBY

Bloomberg developed BSBY in response to requests from a number of lending market participants. These firms were seeking a series of credit sensitive reference rates that measure the average yields at which investors are willing to invest USD funds on a senior, unsecured basis in systemically important banks. BSBY has been developed to complement and support SOFR by providing the lending market with an index that can help participants with asset/liability management (ALM) to better ensure availability of funds during times of market stress.

BSBY is designed and produced in alignment with the IOSCO Principles for Financial Benchmarks (IOSCO Principles). The set of rates are based on consolidated, anonymized transaction data and firm executable quotes of commercial paper (CP), certificates of deposit (CD), and bank deposits from Bloomberg's electronic trading solutions and the trades of senior unsecured bank corporate bonds as reported in FINRA's Trade Reporting and Compliance Engine (TRACE). BSBY will also soon include data sourced from the Depository Trust & Clearing Corporation (DTCC).

BSBY aggregates the above input data over a three-day rolling window, filters this data by a list of eligible systemically important banks, and uses a specialized curve-fitting methodology to calculate overnight, 1-month, 3-month, 6-month, and 12-month yields. The mix of input data is based on banks' reliance on these products to meet wholesale funding needs and allows them to determine their lending rates based on their funding costs. By lending at rates tied to funding costs, banks can manage their net interest income and asset liability exposure while borrowers enjoy the transparency of a market rate.[1]

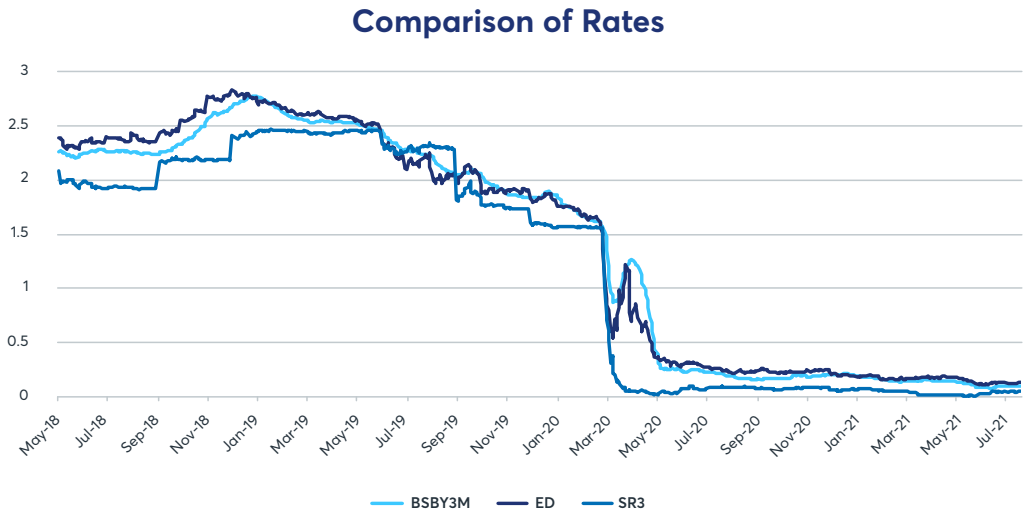
1 *For more about BSBY, see BSBY report: Additional analysis and key facts, 1 July 2021, which is available at https://assets.bbhub.io/professional/sites/10/Bloomberg_BSBY_Report_070121.pdf.*

The ability of the 3-month BSBY Index to meet market participants' demand for a new alternative rate is demonstrated in the methodology below.

BSBY methodology – 3-month tenor

- 3-month BSBY is based on consolidated, anonymized transaction data and firm executable quotes of commercial paper (CP), certificates of deposit (CD), and bank deposits from Bloomberg electronic trading solutions. BSBY will also include CP and CD data sourced from the DTCC.
- BSBY is calculated using transaction-related data from 34 issuing and deposit taking banks, including global systemically important banks (G-SIBs), and may include certain other systemically relevant banks (as determined by Bloomberg Index Services Limited (BISL)), but excludes any state-owned banks.
- BSBY is constructed based on a rolling window of trading data that is based on the three prior business days and uses a localized, trimmed curve-fitting methodology for the calculation of each tenor's rate.
- If the minimum volume threshold for a tenor is not met, the BSBY construction algorithm uses a fallback process with a four- or, if necessary, five-day lookback window.
- Across each tenor, where executable quotes are used, the available volume is scaled down by a factor of 0.125 to recognize actual transactions as the primary determinant of the BSBY rate.
- Any single bank's issuance-related data to be included in the calculated rate for a single tenor is capped at 20%, and individual transactions and executable quotes are capped at $500 million.
- Trades are bucketed within maturity ranges per tenor (e.g., the 3M tenor takes trades and executable quotes in a 46-to-125 calendar-day maturity range) and a regression process fits them to the single tenor maturity point (e.g., the 3M tenor has a 90-calendar-day evaluation point).
- All yields above the 75th volume percentile and below the 25th volume percentile are eliminated from the final calculation.
- The resulting BSBY rate is published, to five decimal places, for all tenors on each US government securities business day, in accordance with the SIFMA US calendar, at 8:00 a.m. ET on the day of publication[2].

Exhibit 1: 3-Month BSBY and Rates Implied by 3-Month Eurodollar and 3-Month SOFR Futures, May 2018-Jul 2021



Sources: CME Group, Bloomberg

2 *For more about BSBY methodology, see Bloomberg Short-Term Bank Yield Index, 13 July 2021, which is available at https://assets.bbhub.io/professional/sites/27/BSBY-Fact-Sheet.pdf.*

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Exhibit 2: Descriptive Statistics for 3-Month BSBY and Rates Implied by 3-Month Eurodollars (ED) and 3-Month SOFR (SR3) Futures, May 2018-Jul 2021

	MIN	QUARTILE 1	MEDIAN	QUARTILE 3	MAX
3M BSBY	0.08	0.19	1.85	2.28	2.77
ED	0.11	0.23	1.83	2.39	2.83
SR3	0.01	0.07	1.59	2.19	2.47

Sources: CME Group, Bloomberg

As can be seen in the chart above, 3M BSBY and ED closely mimic each other, while SR3 tends to be slightly lower. For instance, the median of 3M BSBY is 1.85 while the median of ED is very similar at 1.83. Both these figures are higher than the 1.59 median of SR3, which is expected as it is based on lower risk Treasury repo rates. All three distributions skew left, and the low minimum and first quartile values can be attributed to the pandemic.

CME Three-Month BSBY futures

Exhibit 3: CME Three-Month BSBY Futures Contract Specifications

TRADING UNIT	Interest based on the US dollar, three-month tenor, Bloomberg Short-Term Bank Yield Index such that each basis point per annum of interest = $25 USD per contract.
PRICE BASIS	Contract-grade IMM Index: 100 minus R where: R = Three-month US dollar BSBY Index value for the second New York business day immediately preceding the third Wednesday of the contract's named month of delivery. Example: Contract price of 97.2800 IMM Index points signifies R = 2.7200 percent per annum.
CONTRACT SIZE	$2500 x contract-grade IMM Index
MINIMUM PRICE INCREMENT	Nearest expiring contract month: 0.0025 IMM Index points (0.25 basis point per annum) equal to $6.25 per contract All other expiring contract months: 0.005 IMM Index points (0.5 basis point per annum) equal to $12.50 per contract
LISTING SCHEDULE	20 consecutive IMM months
TERMINATION OF TRADING	Termination of trading: 8:00 a.m. Eastern Time (ET) on the second New York business day immediately preceding the third Wednesday of the contract's named month of delivery.
DELIVERY	By cash settlement in USD, by reference to the final settlement price, on last day of trading. **Final settlement price:** Contract-grade IMM Index 100 minus R where: R = Three-month US dollar BSBY Index value for the second New York business day immediately preceding the third Wednesday of the contract's named month of delivery.
TRADING AND CLEARING HOURS	**CME Globex:** Sunday - Friday 5:00 p.m. - 4:00 p.m. Central Time (CT) with a 60-minute break each day beginning at 4:00 p.m. CT **CME Globex Pre-Open:** Sunday: 4:00 p.m. - 5:00 p.m. CT Monday-Thursday: 4:45 p.m. - 5:00 p.m. CT **CME ClearPort:** Sunday 5:00 p.m. - Friday 5:45 p.m. CT with a 15-minute break each day beginning at 5:45 p.m. CT
POSITION REPORTING AND ACCOUNTABILITY	Reporting Level: 850 contracts Accountability Threshold: 10,000 contracts
BLOCK TRADE MINIMUM	100 contracts reporting window: 5 minutes RTH / 15 minutes ATH and ETH
CME GLOBEX MATCHING ALGORITHM	A-Allocation
COMMODITY CODE	BSB

Three-Month BSBY futures shall trade on and according to the rules of Chicago Mercantile Exchange ("CME"), pending certification of contract terms with the CFTC and completion of all regulatory review periods.

The specifications of the Three-Month BSBY (BSB) futures closely mirror the specifications of the Three-Month Eurodollar (ED) futures.

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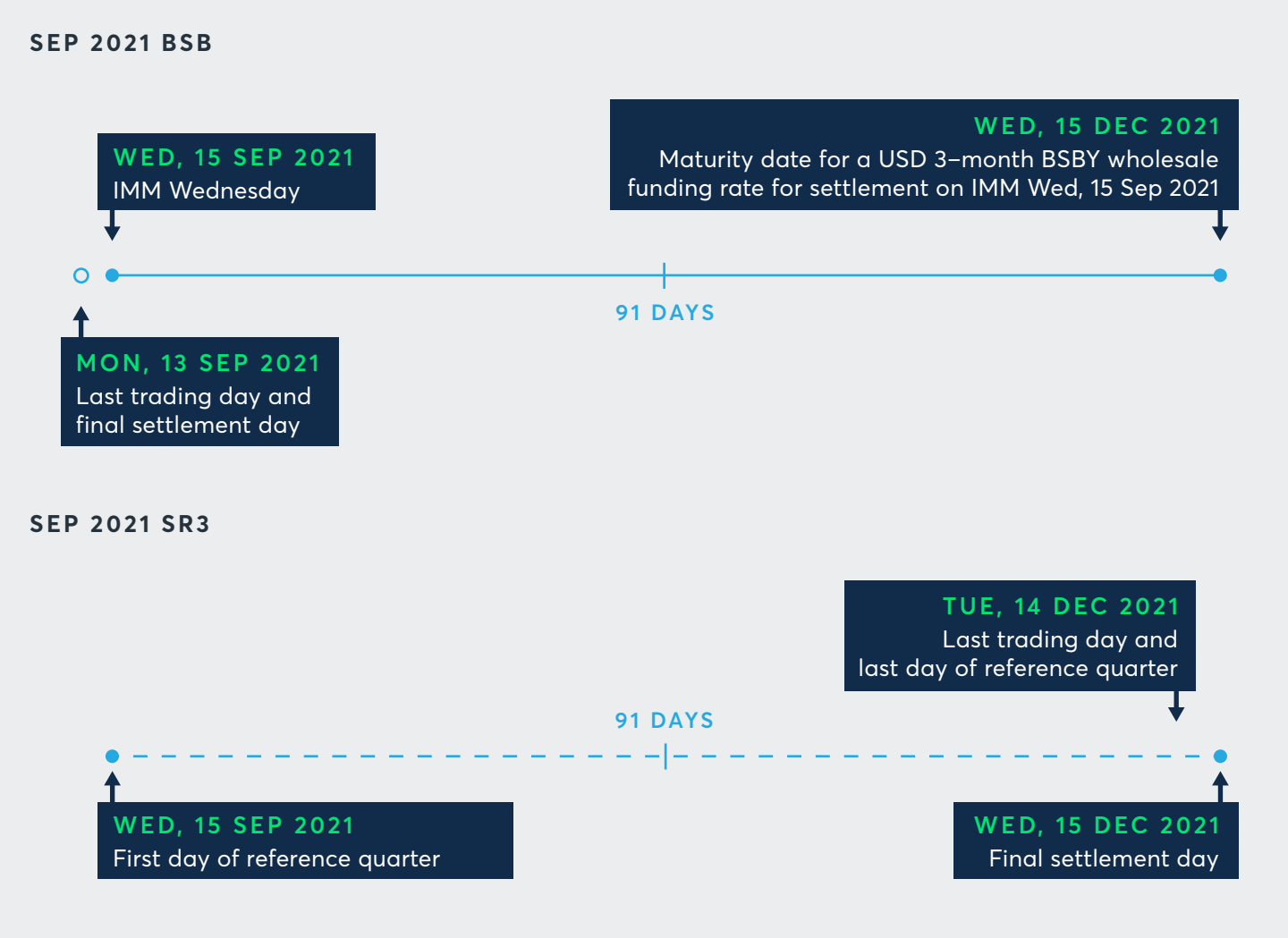
Contract critical dates

The "contract month" convention for naming BSBY futures is identical to the well-established convention for ED futures. Consider the following two contracts:

- One is a September 2021 3-Month BSBY (BSBU1) future that comes to final settlement on the second NY Business day preceding the third Wednesday of September 2021. The final settlement price is based on the three-month US dollar BSBY wholesale funding rate for the second New York business day immediately preceding the third Wednesday of the delivery month.
- The other is a September 2021 Three-Month SOFR (SR3U1) future that comes to final settlement on the third Tuesday of December 2021. The interval of interest rate exposure that informs the contract final settlement price – the contract reference quarter – starts on the third Wednesday of September 2021 and ends on the third Tuesday of December 2021.

Both are referenced as "September" contracts, and the interval of interest rate exposure is essentially the same.



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Last trading day

The last trading day is the second New York business day immediately preceding the third Wednesday of the contract delivery month.

Example: For the September 2021 BSBY contract, the scheduled last day of trading is Monday, 13 September, as depicted above.

Final settlement price

The final settlement price is 100 contract price points minus the three-month US dollar BSBY wholesale funding rate for the second New York business day immediately preceding the third Wednesday, rounded to the nearest 0.00001 percentage points per annum. The exchange computes an expiring contract's settlement price on the second New York business day immediately preceding the third Wednesday of the contract's named month of delivery. The rate is determined, as first published, by BISL. The rate is published each US government securities business day at 8:00 a.m. ET.

Price = 100 minus rate

Not just at final settlement but at all times, the BSBY contract price takes the familiar IMM Index form, derived by subtracting the value (expected or actual) of the contract's three-month BSBY rate from 100.

Example: A rate of 2.14155 percent per annum would be subtracted from 100.00000 to determine a contract final settlement price of 97.85845.

One basis point = $25

Gains or losses on a contract position are calculated simply by determining the number of interest rate basis points ("bps") by which the contract price has moved, then multiplying by the value of one bp per contract. As with ED futures, each basis point of contract interest is worth $25. Thus, BSBY contract size is $2,500 x the contract IMM Index.

Minimum price increment = Either ¼ Bp or ½ Bp

The price of a BSBY contract trades in increments of ¼ bp or ½ bp, depending on the proximity of the contract final settlement date. Generally, the minimum price fluctuation is ½ (equal to $12.50 per contract). The contract's minimum price fluctuation reduces to ¼ bp (equal to $6.25 per contract) in the nearest expiring contract month.

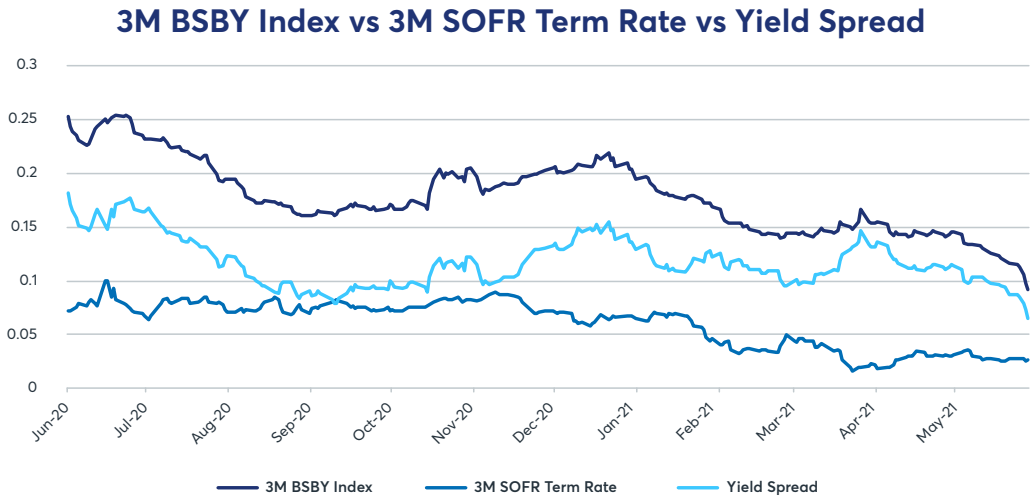
Contract listings = Whites through golds

BSBY listings comprise four March Quarterly (March, June, September, and December) contracts in the nearby "white" year and in each of the deferred "red", "green", "blue", and "gold" years. Thus, a newly listed BSBY contract will be tradable for approximately five years before it comes to final settlement.

Complementarity between BSBY and SOFR indices

In order to evaluate the reliability of the Three-Month BSBY futures contract, the CME Three-Month Term SOFR Reference Rate can be used to compare calculations. CME Term SOFR Reference Rates provide an indicative, forward-looking measurement of SOFR rates, based on market expectations implied from leading derivatives markets. Both the Three-Month BSBY and Three-Month Term SOFR are forward looking, though the Three-Month Term SOFR will typically be lower because it is based on Treasury repo rates, a less risky asset. This brief history demonstrates the complementary nature of them. The yield spread is the difference between the two rates and demonstrates the relationship between the changes in the Three-Month BSBY and the Three-Month Term SOFR. During the period of June 2020 through May 2021 depicted in the chart below, the yield spread had a median of 11.4 basis points (bps), a maximum of 18.1 bps, and a minimum of 6.6 bps.

Exhibit 4: 3-Month Term SOFR Index, 3-Month BSBY Index Yields, and Yield Spread, June 2020-May 2021



Sources: CME Group, Bloomberg

Product Codes

- Bloomberg: BSB
- CME Globex: BSB

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