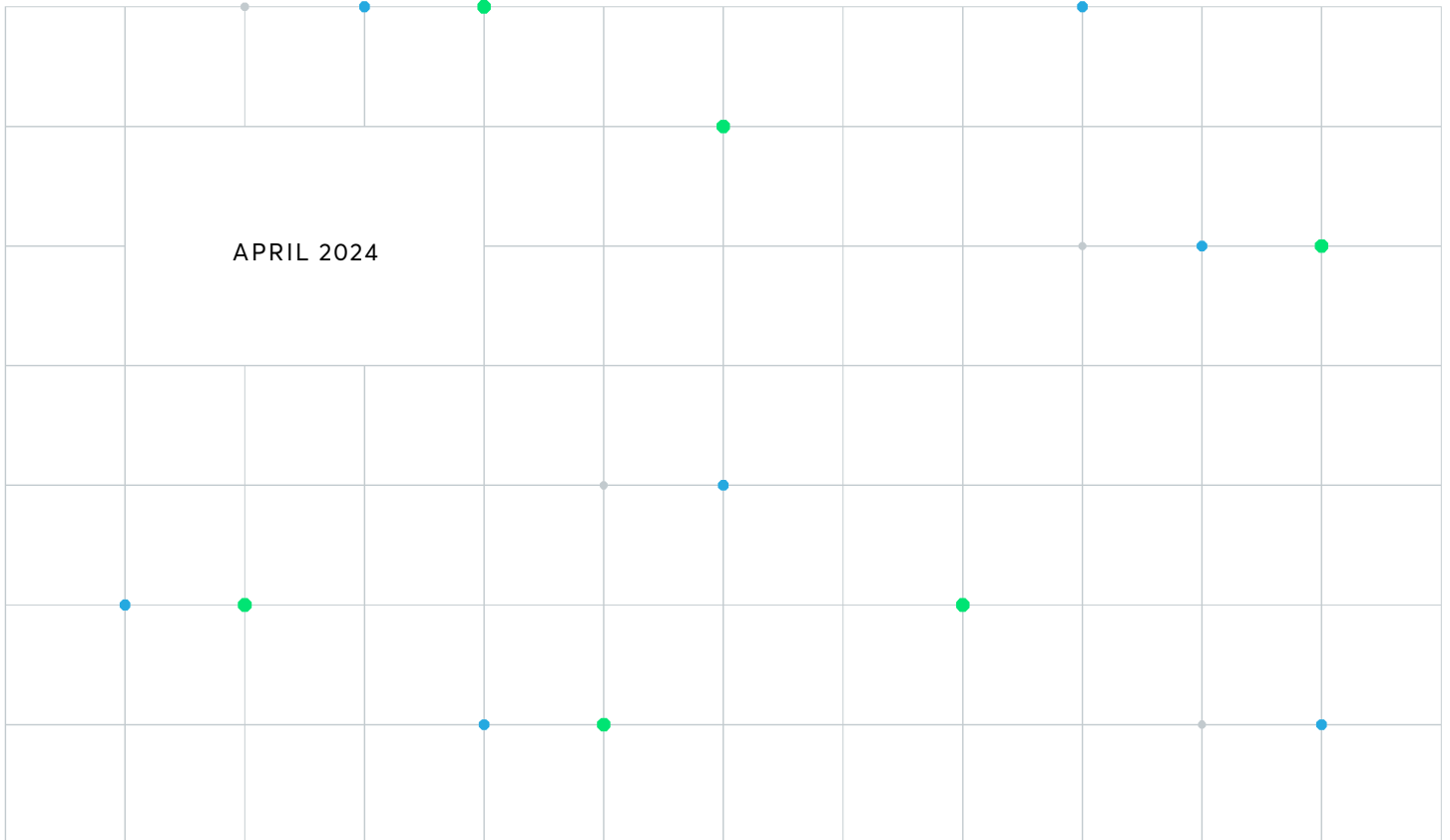


Treasury Cash Market Penetration (TCMP)

by Bobby Timberlake and Brendan Wilson



Treasury Cash Market Penetration (TCMP)

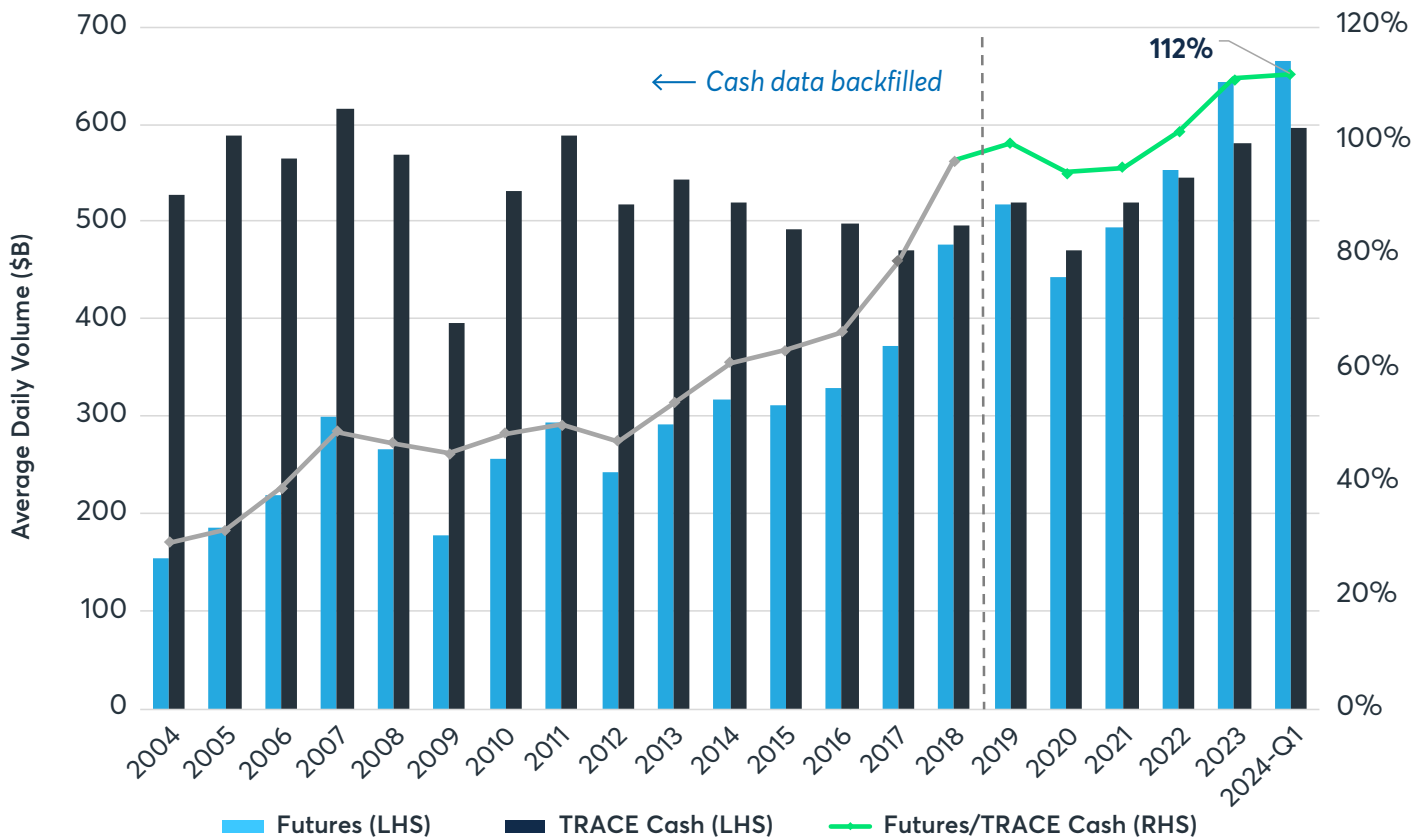
TCMP is measured using the ratio of notional value-weighted futures volume to cash volume. Cash and futures markets are viewed as complementary, so cash volume is shown as a relative performance metric to serve as a proxy for overall level of market activity.

To measure cash volume, FINRA's TRACE Treasury Aggregate Statistics are used. Weekly aggregates are available from 2019 to February 10, 2023. Daily aggregates are available from February 13, 2023. For earlier periods, Primary Dealer Statistics published by the Federal Reserve Bank of New York are used to proxy cash volume:

- Before 2019, we scale Primary Dealer Statistics upward by a 20% premium.
- For 2019 and beyond, we use actual TRACE data.

TCMP is calculated over an annual period to smoothen for structural differences between futures and cash activity over various periods during the year (e.g., the quarterly futures roll). TCMP is updated quarterly; if the current year is incomplete, a 52-week trailing average is used.

U.S. Treasury Futures vs. Cash Treasury Volumes



* Trailing 52-wk avg. Prior to 2019, TRACE Cash is backfilled as 120% of primary dealer volumes reported by the Federal Reserve Bank of NY.

DAILY NOTIONAL (\$B)					
YEAR	FUTURES	CASH (PD)	FUTURES/CASH (PD)	CASH (TRACE)	FUTURES/CASH (TRACE)
2004	\$155	\$440	35%	\$528	29%
2005	\$185	\$491	38%	\$589	31%
2006	\$219	\$470	47%	\$565	39%
2007	\$301	\$513	59%	\$616	49%
2008	\$266	\$473	56%	\$568	47%
2009	\$178	\$330	54%	\$396	45%
2010	\$257	\$442	58%	\$531	48%
2011	\$294	\$490	60%	\$588	50%
2012	\$244	\$431	57%	\$517	47%
2013	\$292	\$452	65%	\$543	54%
2014	\$317	\$434	73%	\$521	61%
2015	\$311	\$411	76%	\$493	63%
2016	\$330	\$415	80%	\$498	66%
2017	\$372	\$393	95%	\$471	79%
2018	\$477	\$413	116%	\$495	96%
2019	\$517	\$441	117%	\$520	100%
2020	\$444	\$414	107%	\$470	94%
2021	\$495	\$448	111%	\$520	95%
2022	\$553	\$439	126%	\$545	102%
2023	\$643	\$437	147%	\$579	111%
2024-Q1	\$665	\$444	150%	\$596	112%

Background on cash Treasury volume data

The Primary Dealer Statistics are calculated using a survey of Primary Dealers performed once a week by the Federal Reserve Bank of New York.¹ As of Q4 2023, there are 24 primary dealers, listed in the table below.²

Updated Thursday afternoons, the Primary Dealer Statistics contain the prior week's activity, running from Thursday through the following Wednesday on a one-week lag. For example, on Thursday, April 16, 2020, data was posted for Wednesday the 2nd through Thursday the 8th (the Ending dates in the table below).

Data is provided in remaining term to maturity buckets reasonably similar to the Treasury futures tenors, allowing a rough comparison at different parts of the curve, however the CME Group cash market penetration ratio is based on totals across all tenors. The weekly ratio fluctuates substantially, due to the cyclical trading volumes of Treasury futures tied to the quarterly delivery cycle and roll.

¹ Primary dealer statistics: <https://www.newyorkfed.org/markets/glds/search#data-PDTRGSC>

² Primary dealer list: <https://www.newyorkfed.org/markets/primarydealers>

NY Fed Primary Dealer List

ASL Capital Markets Inc.

Bank of Montreal, Chicago Branch

Bank of Nova Scotia, New York Agency

BNP Paribas Securities Corp. Barclays Capital Inc.

BofA Securities, Inc. Cantor Fitzgerald & Co.

Citigroup Global Markets Inc. Daiwa Capital Markets America Inc.

Deutsche Bank Securities Inc.

Goldman Sachs & Co. LLC

HSBC Securities (USA) Inc.

Jefferies LLC

J.P. Morgan Securities LLC Mizuho Securities USA LLC Morgan Stanley & Co. LLC NatWest Markets Securities Inc.

Nomura Securities International, Inc. RBC Capital Markets, LLC

Santander US Capital Markets LLC

Societe Generale, New York Branch TD Securities (USA) LLC

UBS Securities LLC.

Wells Fargo Securities, LLC

As an example of this, below are an excerpt of Primary Dealer cash totals, futures totals, and the corresponding TCMP ratios following the March 2020 price volatility spike. The significant weekly swings can be seen in the rightmost column:

TH-W ENDING:	PRIMARY DEALER (PD) CASH ADV (\$B)	FUTURES ADV (\$B)	FUTURES % OF CASH
3/4/20	\$876	\$1,206	138%
3/11/20	\$738	\$902	122%
3/18/20	\$638	\$632	99%
3/25/20	\$716	\$465	65%
4/1/20	\$700	\$394	56%
4/8/20	\$548	\$319	58%
4/15/20	\$386	\$285	74%
4/22/20	\$349	\$274	78%
4/29/20	\$435	\$257	59%
5/6/20	\$400	\$294	73%
5/13/20	\$406	\$339	83%
5/20/20	\$364	\$382	105%
5/27/20	\$406	\$1290	318%

Because of this, the TCMP ratio is tracked on a rolling 13-, 26-, and 52-week basis, and is reported as an annual percentage going back to 2004. Recent growth in the futures saw the ratio cross 100% near the beginning of 2018 and above 120% in early 2020.

FINRA TRACE data

In July 2017, FINRA began collecting daily Treasury transaction data from its registered broker-dealers, a broader population of market participants than Primary Dealers. As of March 2021, the broker-dealers number approximately 3500.³ Transactions are tracked using FINRA's Trade Reporting and Compliance Engine (TRACE) data which has been used for Corporate Bonds for many years. The initial period of Treasury TRACE data collection was visible only to regulators.

In fall 2018, regulators provided some analysis publicly in partnership with the Fed's blog, Liberty Street Economics.⁴ This sample covered a 12-month period from August 2017 to July 2018. For Treasury notes and bonds (also called Coupons), the ADV for this period was \$472 billion as reported by TRACE. The Primary Dealer weekly average for this same period was \$393 billion. This suggested TRACE totals exceed PD numbers by 20% and served as our initial baseline.

In March 2020, FINRA began making weekly reports available to the public,⁵ including data bucketed by tenor and execution type. This data is typically posted on Tuesdays, for the previous calendar week of Monday through Friday. For example, on Tuesday, April 21, 2020, data would be posted for Monday the 13th through Friday the 17th. The two-day difference in measurement periods relative to the Primary Dealer data (which has periods of Thursday to Wednesday) mean that the two datasets cannot be precisely compared with one another, although a visual inspection suggests they are closely correlated over longer time periods.

In February 2023, FINRA began reporting this data at a daily frequency, providing a more frequent measure of cash market activity from which to evaluate cash market penetration.

NEW TRACE DATA		LEGACY PRIMARY DEALER DATA	
M-F ENDING	TRACE ADV (\$B)	TH-W ENDING	PD ADV (\$B)
3/6/2020	\$995	3/4/2020	\$876
3/13/2020	\$845	3/11/2020	\$738
3/20/2020	\$722	3/18/2020	\$638
3/27/2020	\$750	3/25/2020	\$716
4/3/2020	\$649	4/1/2020	\$700
4/10/2020	\$413	4/8/2020	\$548
4/17/2020	\$433	4/15/2020	\$386
4/24/2020	\$364	4/22/2020	\$349
5/1/2020	\$512	4/29/2020	\$435
5/8/2020	\$395	5/6/2020	\$400
5/15/2020	\$445	5/13/2020	\$406
5/22/2020	\$400	5/20/2020	\$364
5/29/2020	\$475	5/27/2020	\$406

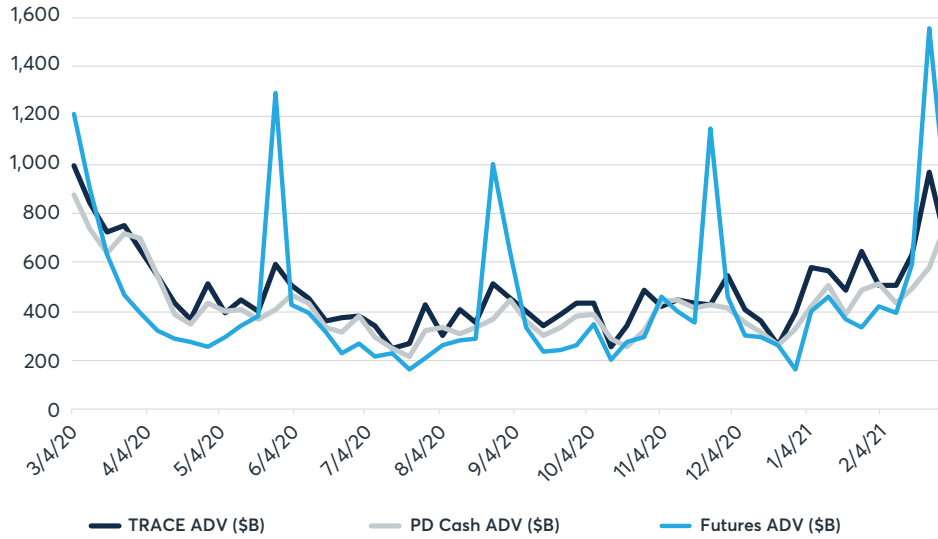
³ FINRA Regulated Broker-Dealers: <https://www.finra.org/about/firms-we-regulate/broker-dealer-firms-we-regulate>

⁴ Liberty Street: <https://libertystreeteconomics.newyorkfed.org/2018/09/unlocking-the-treasury-market-through-trace.html>

⁵ TRACE Treasury Aggregates: <https://www.finra.org/filing-reporting/trace/data/trace-treasury-aggregates>

Results from March 2020 to Feb 2021 shows a **10%** premium for TRACE over Primary Dealer data. There is substantial week-to-week noise due to the misaligned dates, volume trends and particularly around the roll periods in the 10 days preceding delivery month where futures volumes are outsized, shown in the chart below.

Primary Dealer Cash, TRACE Cash, and Futures ADV



Source: CME Group, TRACE Treasury Weekly Aggregate Statistics from [FINRA](#), and [Primary dealer statistics from the Federal Reserve Bank of NY](#).



cmegroup.com

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