

May 7, 2020

#### **VIA ELECTRONIC PORTAL**

Assistant Secretary of the Commission for FOIA Privacy and Sunshine Acts Compliance Commodity Futures Trading Commission Three Lafayette Centre 1155 21<sup>st</sup> Street, NW Washington, DC 20581

RE: SMFE 2020-005 – Freedom of Information Act ("FOIA") Confidential Treatment Request Pursuant to Commission Regulation 145.9

Dear Sir or Madam,

On this date, Small Exchange, Inc. ("Small Exchange") has submitted to Christopher J. Kirkpatrick, Secretary of the Commodity Futures Trading Commission (the "Commission"), a certification, pursuant to CFTC Regulation 40.2(a), of an initial listing of the Small Dollar Index Futures Contracts (the "Certification").

Pursuant to Commission Regulation 145.9, we hereby request confidential treatment of the attached Exhibits E, F, G and I of the Certification (the "Confidential Submission"). Confidential treatment is requested on the grounds that disclosure of such materials would reveal trade secrets and/or confidential commercial or financial information of Small Exchange. In addition to violating the exchanges' proprietary rights, the disclosure of the Confidential Submission would grant competitors an unfair competitive advantage and/or compromise the competitive advantages possessed by Small Exchange.

Small Exchange requests that, if the Commission receives a FOIA request, pursuant 5 U.S.C. 552, for the Confidential Submission, such information not be disclosed. In accordance with Commission Regulation 145.9(d)(5), Small Exchange also hereby requests that the Confidential Submission be afforded confidential treatment in perpetuity.

Small Exchange further understands that, if the Commission receives a FOIA request for the Confidential Submission, Small Exchange will be notified of such request in accordance with the Commission's regulations and be asked to submit, within ten business days, a detailed written justification for confidential treatment of the Confidential Submission. See Commission Regulation 149.5(e)(1); see also Executive Order 12600, 52 Fed. Reg. 23781 (June 23, 1987) (detailing pre-disclosure notification procedures under FOIA). In such event, we request that Commission staff telephone or e-mail the undersigned rather than rely upon United States mail for such notice.

If the Commission or its staff transmits any of the Confidential Submission to another federal agency, we request that you forward a copy of this letter to any such agency with the Confidential Submission and further request that you advise any such agency that we requested that this material be accorded confidential treatment.

The requests set forth in the preceding paragraphs also apply to any memoranda, notes, transcripts or other writings of any sort whatsoever that are made by, or at the request of, any employee of the



Commission (or any other federal agency) and which: (i) incorporate, include or relate to any aspect of the Confidential Submission; or (ii) refer to any conference, meeting, or telephone conversation between the Small Exchange, their current or former employees, representatives, agents, auditors or counsel on the one hand and employees of the Commission (or any other government agency) on the other, relating to the Confidential Submission. Further, the Small Exchange requests that the Commission notify the undersigned at the provided contact information below upon receiving any FOIA request for any of the Confidential Information provided.

Finally, the Small Exchange requests that the Commission notify it in the event the Commission intends to disclose the Confidential Information provided to a federal or state governmental agency or department.

If you have any questions or require any further information please contact the undersigned at (312) 761-1660.

Sincerely,

/s/ Peter D. Santori Chief Regulatory Officer

Appendix E: Small Dollar Index Methodology

Appendix F: Small Dollar Index Components and Weights

Appendix G: Settlement Day, Value, and Process

Appendix I: Historical Data

# Appendix E: Small Dollar Index Methodology

## Description

The Small Dollar Index ("Index") is a combination of Euro, Chinese Renminbi, Japanese Yen, British Pound, Canadian Dollar, Australian Dollar, and Mexican Peso. Weights are determined through the associated region's gross domestic product and dollar-denominated traded volume.

Rebalancing occurs annually to reflect changes in component's GDP and volumes traded.



A strengthening of the U.S. Dollar against the currency pairs, would equate to an increase in the value of the Index. While a weakening of the U.S. Dollar against the currency pairs, would equate to a decrease in the value of the Index.

Percentage weights of each currency pair are determined by its region or country's share of Gross Domestic Product (GDP) and Volume. This creates a more global Index of currency pairs weighted against the U.S. Dollar.

- 1. **GDP.** The Index examines the GDP of the region or country associated with each currency. Currencies with a greater GDP will receive a larger weight within the Index.
- 2. **Volume Traded.** This will be determined through the dollar denominated traded volume. A higher value will receive a greater percentage of the Index.

GDP accounts for 60% of the weighting and Volume accounts for 40%.

# **Current Components**

The current components and weights of each currency can be found in the Appendix F.

# Determining Weights and Calculating the Index

Calculating the Small Dollar Index requires Steps 1 and 4. Steps 2 and 3 are provided for transparency into how the weights are calculated. These weights are published annually and can be found in the "Dollar Index: Components and Weights" document.

1) **Currency Pairs**. Spot Prices for the seven currencies tend to be found quoted in terms of base/counter. The price EUR/USD = 1.14 means €1 euro is exchanged for \$1.14 dollars.

EUR/USD	Euro
CNH/USD	Chinese Renminbi
JPY/USD	Japanese Yen
GBP/USD	United Kingdom Pound
CAD/USD	Canadian Dollar
AUD/USD	Australian Dollar
MXN/USD	Mexican Peso

The Small Dollar Index is expressed in U.S. Dollars. By default, the inputs in Step 4 are entered in terms of Currency/USD.

2) Calculating Weights Using GDP and Volume Data. Locate the GDP for each region and the associated currency traded volume.

#### **Gross Domestic Product (GDP)**

GDP is taken from the World Bank and is the sum of gross value added by all resident producers in the economy plus any product taxes, minus any subsidies not included in the value of the products. The data is updated quarterly in April, July, September, and December – the Index uses the yearly GDP number. The GDP numbers are in U.S. Dollars.

https://data.worldbank.org/indicator/NY.GDP.MKTP.CD

Note, World Bank GDP numbers are sometimes revised due to extenuating circumstances. The Index uses the current GDP available on the website as of April. If the World Bank has not published data for the previous year by the end of April, the Index uses the last available GDP numbers.

#### Volume

Volume is taken from the New York Federal Reserve and the Foreign Exchange Committee. This is released semi-annually and covers the spot transaction average daily volume figures for the major currency pairs. The Index uses the data values from the October report.

https://www.newyorkfed.org/fxc/volumesurvey/data.html

All volumes are reported in U.S. Dollars.

3) **Initial Calculation of Weights.** Determine the initial weights of each component within the Index prior to the rebalance.

GDP accounts for 60% of the total weight for the associated currency. To determine each component's GDP weight, take the proportion of the total sum of the GDP from region's within the Index and multiply that by 0.60. Volume comprises 40% of the total weight of the associated currency. To determine each component's volume weight, take the proportion of the total sum of volume from regions within the Index and multiply that by 0.40. A currencies' weight is therefore determined by the following formula:

$$Weight_{x} = 0.60 \left( \frac{\text{GDP}_{x}}{\sum \text{GDP}_{x}} \right) + 0.40 \left( \frac{\text{Volume}_{x}}{\sum \text{Volume}_{x}} \right)$$

This provides the weights of the associated region x, where  $x = \{Euro Zone, China, Japan, United Kingdom, Canada, Australia, Mexico\}.$ 

Furthermore, the sum of weights of all the currencies will sum to 1.

$$\sum$$
 Weight<sub>x</sub> = 1

The proportions of each currency within the Index are published annually during the Announcement Period discussed in the next section.

4) **Calculation of the Index.** The Index is calculated using the following formula:

Small Dollar Index = 
$$K \times \prod Currency^{-weight}$$

**K** = Normalization constant term for the Index. This value is provided in the "Dollar Index: Components and Weights" document. The constant term is calculated annually and changes with respect to (1) the last traded price on the day prior to the rebalance and (2) the change of the currency pair weights that were determined in Step 3.

 $\Pi$  = The Greek letter pi is the product sign.

**Currency** = In the above formula, the currency used is in terms of EUR/USD, CNH/USD, JPY/USD, GBP/USD, CAD/USD, AUD/USD, and MXN/USD. If the reciprocal is used, e.g., USD/JPY, the *weight* exponent would be positive. Currency pairs are from Step 1.

**Weight** = Weights for each currency pair are calculated in Step 2 through Step 3. This value is provided in the "Dollar Index: Components and Weights" document.

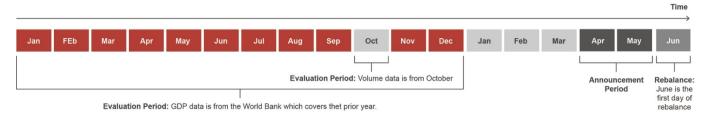
Note: The currency pairs and weights can be found in the "Dollar Index: Components and Weights"

document.

While the value of the Index does change, the percentage weights remain stable until the next rebalance date. At that time, the Index uses the new weights as determined in Step 2 and 3 and the new calculated constant value.

## **Rebalancing Timespans**

Timespans are broken into an evaluation period, an announcement period, and a rebalance period.



The **Evaluation Period for GDP** is updated quarterly in April, July, September, and December – the Index uses the yearly GDP number.

The **Evaluation Period for Volume** uses the October report.

The **Announcement Period** is roughly a 60-day period to allow participants to update any models and to prepare for the updated ratio weighting for each. This takes place in April and May.

The **Rebalance Period** is the last day of the announcement period for the rebalanced Index. The rebalanced Index will begin ticking on the first trading day of June.

# Appendix F: Small Dollar Index Components and Weights

The Small Dollar Index ("Index") is comprised of a volume and GDP-weighted combination of 7 major currencies: Euro, Chinese Renminbi, Japanese Yen, British Pound, Canadian Dollar, Australian Dollar, and Mexican Peso.

Percentage weights of the currencies remain constant until the next yearly rebalance period.



## Components

The Small Dollar Index is comprised of seven major currencies. The June 1, 2019 to May 31, 2020 percentage weights are:

- 34.3% Euro (**EUR**)
- 20.7% Chinese Renminbi (CNH)
- 18.2% Japanese Yen (JPY)
- 9.7% British Pound (GBP)
- 7.2% Canadian Dollar (CAD)
- 5.8% Australian Dollar (AUD)
- 4.1% Mexican Peso (MXN)

These values are derived using the methodology calculation and are kept constant until the next annual rebalance period. Past and present formulas to calculate the Small Dollar Index are as follows:

Dates	Past/Present Formulas to Calculate the Small Dollar Index
June 1, 2019 to May 31, 2020	$= 39.6002700 \times \text{EUR}^{-0.343} \times \text{CNH}^{-0.207} \times \text{JPY}^{-0.182} \times \text{GBP}^{-0.097} \times \text{CAD}^{-0.072} \times \text{AUD}^{-0.058} \times \text{MXN}^{-0.041}$
June 1, 2018 to May 31, 2019	$= 39.6128475 \times \text{EUR}^{-0.343} \times \text{CNH}^{-0.205} \times \text{JPY}^{-0.182} \times \text{GBP}^{-0.101} \times \text{CAD}^{-0.072} \times \text{AUD}^{-0.054} \times \text{MXN}^{-0.043}$
June 1, 2017 to May 31, 2018	$= 39.5748707 \times \text{EUR}^{-0.337} \times \text{CNH}^{-0.197} \times \text{JPY}^{-0.187} \times \text{GBP}^{-0.111} \times \text{CAD}^{-0.073} \times \text{AUD}^{-0.054} \times \text{MXN}^{-0.041}$
June 1, 2016 to May 31, 2017	$= 43.6591993 \times \text{EUR}^{-0.367} \times \text{CNH}^{-0.198} \times \text{JPY}^{-0.167} \times \text{GBP}^{-0.100} \times \text{CAD}^{-0.074} \times \text{AUD}^{-0.055} \times \text{MXN}^{-0.039}$

### **Economic Data**

Below are the fractional GDP and volume metrics used to calculate the yearly rebalance weights. See the methodology documentation for a complete description:

- Gross Domestic Product (GDP) data is obtained through the World Bank
- Volume numbers are obtained from the New York Fed's Foreign Exchange Committee.

		Chinese	Japanese	British	Canadian	Australian	Mexican	Sum of	
	Euro	Renminbi	Yen	Pound	Dollar	Dollar	Peso	Weights	
June 1, 2019 to May 31, 2020									
Fractional GDP (2017 Report)	34.6%	33.5%	13.4%	7.2%	4.5%	3.6%	3.2%	100%	
Fractional Volume (2018 Report)	33.7%	1.4%	25.6%	13.4%	11.3%	9.0%	5.5%	100%	
Calculated Weights	34.3%	20.7%	18.2%	9.7%	7.2%	5.8%	4.1%	100%	
			June 1, 2018 to	May 31, 2019					
Fractional GDP (2017 Report)	34.5%	33.6%	13.4%	7.2%	4.5%	3.6%	3.2%	100%	
Fractional Volume (2017 Report)	33.9%	1.0%	25.4%	14.4%	11.1%	8.1%	6.1%	100%	
Calculated Weights	34.3%	20.5%	18.2%	10.1%	7.2%	5.4%	4.3%	100%	
June 1, 2017 to May 31, 2018									
Fractional GDP (2016 Report)	34.5%	32.4%	14.3%	7.7%	4.4%	3.5%	3.1%	100%	
Fractional Volume (2016 Report)	32.4%	0.8%	25.3%	16.2%	11.7%	8.3%	5.4%	100%	
Calculated Weights	33.7%	19.7%	18.7%	11.1%	7.3%	5.4%	4.1%	100%	
June 1, 2016 to May 31, 2017									
Fractional GDP (2015 Report)	34.2%	32.5%	12.9%	8.5%	4.6%	4.0%	3.4%	100%	
Fractional Volume (2015 Report)	40.4%	0.8%	22.4%	12.3%	11.6%	7.9%	4.7%	100%	
Calculated Weights	36.7%	19.8%	16.7%	10.0%	7.4%	5.5%	3.9%	100%	

# Appendix G: Settlement Day, Value, and Process

#### Overview

The Exchange, in conjunction with the DCO, will determine the settlement value for Contracts. For each Contract, the Exchange shall publish a daily settlement value and a final settlement value on the Contract's day of expiration. The daily settlement of each Contract occurs after the Contract closes, unless otherwise stated by the Exchange. Any settlement value shall be determined by the Exchange in accordance with the DCO's rules. Notwithstanding the foregoing, the DCO may modify settlement values in its discretion in accordance with its rules. All Contracts are cash settled at expiration.

Expiration for each Contract is the third Friday of the month at 15:00:00 CT, unless such day falls on a day on which the Exchange is not open; in which case the day of expiration is the business day preceding the third Friday of the month. Final settlement will occur on the same day as the expiration of the Contract and payments, if any, will be based on the final settlement value determined by the Exchange.

If the DCO determines that the primary market(s) for one or more constituents of the Index did not open or remain open for trading at or before the time when the settlement value for such futures would ordinarily be determined, or that a price, variance, or other value used as, or to determine, the final settlement value is otherwise unreported, inaccurate, unreliable, unavailable, or inappropriate for such use, then the DCO, using its best efforts to consult with the Exchange, shall determine the final settlement value in conformity with the By-Laws and Rules of the DCO and shall promptly notify the Exchange of its actions.

### Definitions of front month and back month

The front month is the Contract nearest to expiration for a particular Exchange product. The front month is the anchor leg for settlements. When the front month expires, the nearest Contract to expiration becomes the new front month. All other monthly Contracts not the front month are the back month.

# Daily settlement of front month

If a Trade occurs in the last sixty (60) seconds of the Contract's trading hours, the daily settlement value for the front month will be calculated using the volume weighted average price ("VWAP") of such Trades, rounded to the nearest tradable tick, or \$0.01. If there are no Trades during this time, the Exchange will use the following methodology to determine the daily settlement value for such Contracts:

Cash Index Value + (Previous Day's Back-Front Spread / Days Between Front and Back Month Contracts) x Days to Expiration

## Daily settlement of back month

If a Trade occurs in the last sixty (60) seconds of the Contract's trading hours, the daily settlement value will be calculated using the VWAP of such trades rounded to the nearest tradable tick, or \$0.01. If there are no trades during this time, the settlement value of such back month Contract will be calculated using calendar spreads. In the absence of relevant calendar spread trades during the trading day, the settlement value for such back month Contract will be the front month settlement value for such product plus the previous day's front month minus back month spread value.

## Monthly final settlement

On the day of expiration, the final settlement value of the Contract is determined using the modified average cash value of the respective cash index, starting at 14:58:30 CT to 14:59:59 CT, inclusive. The value of the cash index will be recorded for each second of this time frame. In the event the cash index value does not change during the one-second aggregation period, the value for the prior second is carried forward to ensure this is always comprised of 90 values; further, in the event the cash index value changes multiple times during such one-second aggregation period, the last value is used. The average of these 90 values is the final settlement value for the product. The calculation of the final settlement value of each Contract is performed by the Exchange's Index Calculation Agent, and validated by the Exchange.

An example of the calculation of the final settlement value can be seen below in Figure 1. In this hypothetical example, which was of the Small Dollar Index ("Index"), the price of the cash Index can be seen changing in value due to changes in the individual components. Highlighted, however, are seconds where the Index value does not change due to an absence of change in the Index's underlying components. Prices such as these are carried forward to populate such seconds to ensure that the final settlement value is always comprised of 90 seconds, and therefore 90 values.

2     5/17/19 14:58:31     49.066592     32     5/17/19 14:59:01     49.065766     62     5/17/19 14:59:31     49.065       3     5/17/19 14:58:32     49.066324     33     5/17/19 14:59:02     49.066481     63     5/17/19 14:59:32     49.065       5     5/17/19 14:58:33     49.068465     35     5/17/19 14:59:04     49.066213     66     5/17/19 14:59:33     49.06732       6     5/17/19 14:58:35     49.069000     36     5/17/19 14:59:06     49.066693     66     5/17/19 14:59:35     49.065       8     5/17/19 14:58:33     49.069000     38     5/17/19 14:59:06     49.066693     66     5/17/19 14:59:34     49.065       9     5/17/19 14:58:39     49.069000     39     5/17/19 14:59:09     49.066693     66     5/17/19 14:59:34     49.061       10     5/17/19 14:58:39     49.069000     40     5/17/19 14:59:09     49.068031     71     5/17/19 14:59:34     49.061       11     5/17/19 14:58:41     49.069000     41     5/17/19 14:59:11     49.068833     72     5/17/19 14:59:34 <t< th=""><th></th><th>Time</th><th>Index</th><th></th><th></th><th></th><th>_</th><th></th><th></th></t<>		Time	Index				_		
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6     5/17/19 14:58:35     49.069000     36     5/17/19 14:59:05     49.066033     66     5/17/19 14:59:35     49.065       7     5/17/19 14:58:36     49.068732     37     5/17/19 14:59:06     49.066693     67     5/17/19 14:59:36     49.061       8     5/17/19 14:58:37     49.069000     38     5/17/19 14:59:07     49.066693     68     5/17/19 14:59:37     49.061       9     5/17/19 14:58:38     49.069000     40     5/17/19 14:59:09     49.068031     70     5/17/19 14:59:38     49.061       10     5/17/19 14:58:40     49.069000     41     5/17/19 14:59:10     49.068031     70     5/17/19 14:59:38     49.061       12     5/17/19 14:58:41     49.069000     41     5/17/19 14:59:11     49.068833     71     5/17/19 14:59:40     49.061       12     5/17/19 14:58:44     49.068465     42     5/17/19 14:59:11     49.068833     71     5/17/19 14:59:44     49.061       13     5/17/19 14:58:43     49.067750     45     5/17/19 14:59:13     49.069101     74     5/17/19 14:59:44 <t< td=""><td>4</td><td>5/17/19 14:58:33</td><td>49.065877</td><td>34</td><td>5/17/19 14:59:0</td><td>3 49.066748</td><td>64</td><td>5/17/19 14:59:33</td><td>49.065387</td></t<>	4	5/17/19 14:58:33	49.065877	34	5/17/19 14:59:0	3 49.066748	64	5/17/19 14:59:33	49.065387
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8     5/17/19 14:58:37     49.069000     38     5/17/19 14:59:07     49.066693     68     5/17/19 14:59:37     49.061       9     5/17/19 14:58:38     49.069000     40     5/17/19 14:59:08     49.066693     69     5/17/19 14:59:38     49.061       10     5/17/19 14:58:40     49.069000     41     5/17/19 14:59:10     49.068833     71     5/17/19 14:59:40     49.061       12     5/17/19 14:58:41     49.068465     42     5/17/19 14:59:11     49.068833     72     5/17/19 14:59:40     49.061       13     5/17/19 14:58:42     49.068465     43     5/17/19 14:59:11     49.068833     72     5/17/19 14:59:40     49.061       14     5/17/19 14:58:43     49.067750     44     5/17/19 14:59:13     49.069101     73     5/17/19 14:59:44     49.061       15     5/17/19 14:58:44     49.067539     45     5/17/19 14:59:13     49.066938     75     5/17/19 14:59:44     49.061       16     5/17/19 14:58:44     49.067639     47     5/17/19 14:59:13     49.066693     76     5/17/19 14:59:44	6	5/17/19 14:58:35	49.069000	36	5/17/19 14:59:0	5 49.066033	66	5/17/19 14:59:35	49.065387
9 5/17/19 14:58:38	7	5/17/19 14:58:36	49.068732	37	5/17/19 14:59:0	6 49.066693	67	5/17/19 14:59:36	49.061461
10   5/17/19 14:58:39   49.069000   40   5/17/19 14:59:09   49.068031   70   5/17/19 14:59:39   49.061     11   5/17/19 14:58:40   49.069000   41   5/17/19 14:59:10   49.068833   71   5/17/19 14:59:40   49.061     12   5/17/19 14:58:41   49.068465   42   5/17/19 14:59:11   49.068833   72   5/17/19 14:59:41   49.061     13   5/17/19 14:58:42   49.068465   43   5/17/19 14:59:12   49.069101   73   5/17/19 14:59:42   49.061     14   5/17/19 14:58:43   49.067750   44   5/17/19 14:59:14   49.069368   75   5/17/19 14:59:44   49.061     16   5/17/19 14:58:45   49.067750   46   5/17/19 14:59:15   49.066693   76   5/17/19 14:59:44   49.061     17   5/17/19 14:58:46   49.067639   47   5/17/19 14:59:15   49.066693   77   5/17/19 14:59:44   49.061     18   5/17/19 14:58:48   49.067639   48   5/17/19 14:59:17   49.066693   77   5/17/19 14:59:44   49.061     20   5/17/19 14:58:49   49.068621   50	8	5/17/19 14:58:37	49.069000	38	5/17/19 14:59:0	7 49.066693	68	5/17/19 14:59:37	49.061461
11   5/17/19 14:58:40   49.069000   41   5/17/19 14:59:10   49.068833   71   5/17/19 14:59:40   49.061     12   5/17/19 14:58:41   49.068465   42   5/17/19 14:59:11   49.068833   72   5/17/19 14:59:41   49.061     13   5/17/19 14:58:42   49.068465   43   5/17/19 14:59:12   49.069101   73   5/17/19 14:59:42   49.061     14   5/17/19 14:58:43   49.067750   44   5/17/19 14:59:13   49.0699101   74   5/17/19 14:59:43   49.061     15   5/17/19 14:58:44   49.067750   45   5/17/19 14:59:14   49.069368   75   5/17/19 14:59:44   49.061     16   5/17/19 14:58:45   49.067639   46   5/17/19 14:59:16   49.066693   76   5/17/19 14:59:46   49.061     18   5/17/19 14:58:47   49.067639   48   5/17/19 14:59:17   49.066693   78   5/17/19 14:59:44   49.061     19   5/17/19 14:58:48   49.068354   49   5/17/19 14:59:18   49.066526   79   5/17/19 14:59:44   49.062     20   5/17/19 14:58:49   49.065231   51	9	5/17/19 14:58:38	49.069000	39	5/17/19 14:59:0	49.066693	69	5/17/19 14:59:38	49.061461
12   5/17/19 14:58:41   49.068465   42   5/17/19 14:59:11   49.068833   72   5/17/19 14:59:41   49.061     13   5/17/19 14:58:42   49.068465   43   5/17/19 14:59:12   49.069101   73   5/17/19 14:59:42   49.061     14   5/17/19 14:58:43   49.067750   44   5/17/19 14:59:13   49.069101   74   5/17/19 14:59:43   49.061     15   5/17/19 14:58:44   49.067750   45   5/17/19 14:59:14   49.069368   75   5/17/19 14:59:44   49.061     16   5/17/19 14:58:45   49.067639   46   5/17/19 14:59:15   49.066693   76   5/17/19 14:59:45   49.061     17   5/17/19 14:58:47   49.067639   48   5/17/19 14:59:17   49.066693   77   5/17/19 14:59:46   49.061     18   5/17/19 14:58:48   49.068354   49   5/17/19 14:59:17   49.066693   78   5/17/19 14:59:47   49.060     20   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:19   49.066526   80   5/17/19 14:59:50   49.061     23   5/17/19 14:58:53   49.065231   52	10	5/17/19 14:58:39	49.069000	40	5/17/19 14:59:0	9 49.068031	70	5/17/19 14:59:39	49.061461
13   5/17/19 14:58:42   49.068465   43   5/17/19 14:59:12   49.069101   73   5/17/19 14:59:42   49.061     14   5/17/19 14:58:43   49.067750   44   5/17/19 14:59:13   49.069101   74   5/17/19 14:59:43   49.061     15   5/17/19 14:58:44   49.067750   45   5/17/19 14:59:14   49.069368   75   5/17/19 14:59:44   49.061     16   5/17/19 14:58:45   49.067639   46   5/17/19 14:59:15   49.066693   76   5/17/19 14:59:45   49.061     18   5/17/19 14:58:47   49.067639   48   5/17/19 14:59:17   49.066693   78   5/17/19 14:59:44   49.061     19   5/17/19 14:58:49   49.067639   49   5/17/19 14:59:17   49.066693   78   5/17/19 14:59:44   49.061     20   5/17/19 14:58:49   49.068354   49   5/17/19 14:59:18   49.066526   79   5/17/19 14:59:48   49.062     21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066526   80   5/17/19 14:59:50   49.061     22   5/17/19 14:58:53   49.065231   53	11	5/17/19 14:58:40	49.069000	41	5/17/19 14:59:1	0 49.068833	71	5/17/19 14:59:40	49.061729
14   5/17/19 14:58:43   49.067750   44   5/17/19 14:59:13   49.069101   74   5/17/19 14:59:43   49.061     15   5/17/19 14:58:44   49.067750   45   5/17/19 14:59:14   49.069368   75   5/17/19 14:59:44   49.061     16   5/17/19 14:58:45   49.067750   46   5/17/19 14:59:15   49.066693   76   5/17/19 14:59:44   49.061     17   5/17/19 14:58:46   49.067639   47   5/17/19 14:59:16   49.066693   77   5/17/19 14:59:45   49.061     18   5/17/19 14:58:47   49.067639   48   5/17/19 14:59:17   49.066693   78   5/17/19 14:59:47   49.061     19   5/17/19 14:58:48   49.068354   49   5/17/19 14:59:18   49.066526   79   5/17/19 14:59:48   49.060     20   5/17/19 14:58:49   49.068621   50   5/17/19 14:59:19   49.066526   80   5/17/19 14:59:49   49.062     21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066526   80   5/17/19 14:59:50   49.061     22   5/17/19 14:58:53   49.065231   53	12	5/17/19 14:58:41	49.068465	42	5/17/19 14:59:1	1 49.068833	72	5/17/19 14:59:41	49.061729
15   5/17/19 14:58:44   49.067750   45   5/17/19 14:59:14   49.069368   75   5/17/19 14:59:44   49.061     16   5/17/19 14:58:45   49.067639   46   5/17/19 14:59:16   49.066693   76   5/17/19 14:59:45   49.061     17   5/17/19 14:58:46   49.067639   47   5/17/19 14:59:16   49.066693   77   5/17/19 14:59:45   49.061     19   5/17/19 14:58:48   49.068354   49   5/17/19 14:59:18   49.066526   79   5/17/19 14:59:49   49.060     20   5/17/19 14:58:49   49.06821   50   5/17/19 14:59:19   49.066526   80   5/17/19 14:59:49   49.062     21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066259   81   5/17/19 14:59:50   49.061     22   5/17/19 14:58:51   49.065231   52   5/17/19 14:59:21   49.066794   82   5/17/19 14:59:50   49.061     24   5/17/19 14:58:54   49.065231   54   5/17/19 14:59:22   49.066526   84   5/17/19 14:59:53   49.061     25   5/17/19 14:58:54   49.065498   55	13	5/17/19 14:58:42	49.068465	43	5/17/19 14:59:1	2 49.069101	73	5/17/19 14:59:42	49.061729
16   5/17/19 14:58:45   49.067750   46   5/17/19 14:59:15   49.066693   76   5/17/19 14:59:45   49.061     17   5/17/19 14:58:46   49.067639   47   5/17/19 14:59:16   49.066693   77   5/17/19 14:59:46   49.061     18   5/17/19 14:58:47   49.067639   48   5/17/19 14:59:17   49.066693   78   5/17/19 14:59:47   49.060     19   5/17/19 14:58:48   49.068354   49   5/17/19 14:59:18   49.066526   79   5/17/19 14:59:48   49.060     20   5/17/19 14:58:49   49.068621   50   5/17/19 14:59:19   49.066526   80   5/17/19 14:59:49   49.062     21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066259   81   5/17/19 14:59:50   49.061     23   5/17/19 14:58:51   49.065231   52   5/17/19 14:59:22   49.066526   83   5/17/19 14:59:51   49.061     24   5/17/19 14:58:53   49.065231   54   5/17/19 14:59:22   49.066526   84   5/17/19 14:59:53   49.061     25   5/17/19 14:58:54   49.065498   55	14	5/17/19 14:58:43	49.067750	44	5/17/19 14:59:1	49.069101	74	5/17/19 14:59:43	49.061461
17   5/17/19 14:58:46   49.067639   47   5/17/19 14:59:16   49.066693   77   5/17/19 14:59:46   49.061     18   5/17/19 14:58:47   49.067639   48   5/17/19 14:59:17   49.066693   78   5/17/19 14:59:47   49.060     19   5/17/19 14:58:48   49.068354   49   5/17/19 14:59:18   49.066526   79   5/17/19 14:59:48   49.060     20   5/17/19 14:58:49   49.06821   50   5/17/19 14:59:19   49.066526   80   5/17/19 14:59:49   49.062     21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066259   81   5/17/19 14:59:50   49.061     22   5/17/19 14:58:51   49.065231   52   5/17/19 14:59:21   49.066794   82   5/17/19 14:59:51   49.061     23   5/17/19 14:58:53   49.065231   53   5/17/19 14:59:22   49.066526   83   5/17/19 14:59:52   49.061     25   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:23   49.066526   85   5/17/19 14:59:55   49.061     26   5/17/19 14:58:55   49.065498   56	15	5/17/19 14:58:44	49.067750	45	5/17/19 14:59:1	4 49.069368	75	5/17/19 14:59:44	49.061461
18   5/17/19   14:58:47   49.067639   48   5/17/19   14:59:17   49.066693   78   5/17/19   14:59:47   49.060     19   5/17/19   14:58:48   49.068354   49   5/17/19   14:59:18   49.066526   79   5/17/19   14:59:48   49.060     20   5/17/19   14:58:49   49.068621   50   5/17/19   14:59:19   49.066526   80   5/17/19   14:59:49   49.062     21   5/17/19   14:58:50   49.065231   51   5/17/19   14:59:20   49.066259   81   5/17/19   14:59:50   49.061     22   5/17/19   14:58:51   49.065231   52   5/17/19   14:59:22   49.066794   82   5/17/19   14:59:51   49.061     23   5/17/19   14:58:53   49.065231   53   5/17/19   14:59:22   49.066526   83   5/17/19   14:59:52   49.061     25   5/17/19   14:58:53   49.065498   55   5/17/19   14:59:24   49.066526   85   5/17/19   14:59:55   49.061     26	16	5/17/19 14:58:45	49.067750	46	5/17/19 14:59:1	49.066693	76	5/17/19 14:59:45	49.061194
19   5/17/19 14:58:48   49.068354   49   5/17/19 14:59:18   49.066526   79   5/17/19 14:59:48   49.060     20   5/17/19 14:58:49   49.068621   50   5/17/19 14:59:19   49.066526   80   5/17/19 14:59:49   49.062     21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066259   81   5/17/19 14:59:50   49.061     22   5/17/19 14:58:51   49.065231   52   5/17/19 14:59:21   49.066794   82   5/17/19 14:59:51   49.061     23   5/17/19 14:58:53   49.065231   53   5/17/19 14:59:22   49.066526   83   5/17/19 14:59:52   49.061     24   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:24   49.066526   84   5/17/19 14:59:53   49.061     26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     28   5/17/19 14:58:57   49.066033   58   5/17/19 14:59:27   49.066637   87   5/17/19 14:59:57   49.060     29   5/17/19 14:58:58   49.066033   59	17	5/17/19 14:58:46	49.067639	47	5/17/19 14:59:1	49.066693	77	5/17/19 14:59:46	49.061364
20   5/17/19 14:58:49   49.068621   50   5/17/19 14:59:19   49.066526   80   5/17/19 14:59:49   49.062     21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066259   81   5/17/19 14:59:50   49.061     22   5/17/19 14:58:51   49.065231   52   5/17/19 14:59:21   49.066794   82   5/17/19 14:59:51   49.061     23   5/17/19 14:58:52   49.065231   53   5/17/19 14:59:22   49.066526   83   5/17/19 14:59:52   49.061     24   5/17/19 14:58:53   49.065231   54   5/17/19 14:59:23   49.066526   84   5/17/19 14:59:53   49.061     25   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:24   49.066526   85   5/17/19 14:59:54   49.061     26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     27   5/17/19 14:58:57   49.066033   58   5/17/19 14:59:27   49.066637   87   5/17/19 14:59:57   49.060     29   5/17/19 14:58:58   49.066033   59	18	5/17/19 14:58:47	49.067639	48	5/17/19 14:59:1	7 49.066693	78	5/17/19 14:59:47	49.060916
21   5/17/19 14:58:50   49.065231   51   5/17/19 14:59:20   49.066259   81   5/17/19 14:59:50   49.061     22   5/17/19 14:58:51   49.065231   52   5/17/19 14:59:21   49.066794   82   5/17/19 14:59:51   49.061     23   5/17/19 14:58:52   49.065231   53   5/17/19 14:59:22   49.066526   83   5/17/19 14:59:52   49.061     24   5/17/19 14:58:53   49.065231   54   5/17/19 14:59:23   49.066526   84   5/17/19 14:59:53   49.061     25   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:24   49.066526   85   5/17/19 14:59:54   49.061     26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     27   5/17/19 14:58:56   49.066033   57   5/17/19 14:59:26   49.066637   87   5/17/19 14:59:57   49.060     28   5/17/19 14:58:58   49.066033   59   5/17/19 14:59:28   49.066102   89   5/17/19 14:59:58   49.060	19	5/17/19 14:58:48	49.068354	49	5/17/19 14:59:1	8 49.066526	79	5/17/19 14:59:48	49.060649
22   5/17/19 14:58:51   49.065231   52   5/17/19 14:59:21   49.066794   82   5/17/19 14:59:51   49.061     23   5/17/19 14:58:52   49.065231   53   5/17/19 14:59:22   49.066526   83   5/17/19 14:59:52   49.061     24   5/17/19 14:58:53   49.065231   54   5/17/19 14:59:23   49.066526   84   5/17/19 14:59:53   49.061     25   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:24   49.066526   85   5/17/19 14:59:54   49.061     26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     27   5/17/19 14:58:56   49.065498   57   5/17/19 14:59:26   49.066637   87   5/17/19 14:59:57   49.060     28   5/17/19 14:58:57   49.066033   58   5/17/19 14:59:28   49.066102   89   5/17/19 14:59:58   49.060     29   5/17/19 14:58:58   49.066033   59   5/17/19 14:59:28   49.066102   89   5/17/19 14:59:58   49.060	20	5/17/19 14:58:49	49.068621	50	5/17/19 14:59:1	9 49.066526	80	5/17/19 14:59:49	49.062434
23   5/17/19 14:58:52   49.065231   53   5/17/19 14:59:22   49.066526   83   5/17/19 14:59:52   49.061     24   5/17/19 14:58:53   49.065231   54   5/17/19 14:59:23   49.066526   84   5/17/19 14:59:53   49.061     25   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:24   49.066526   85   5/17/19 14:59:54   49.061     26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     27   5/17/19 14:58:56   49.065498   57   5/17/19 14:59:26   49.066637   87   5/17/19 14:59:56   49.060     28   5/17/19 14:58:57   49.066033   58   5/17/19 14:59:27   49.066637   88   5/17/19 14:59:57   49.060     29   5/17/19 14:58:58   49.066033   59   5/17/19 14:59:28   49.066102   89   5/17/19 14:59:58   49.060	21	5/17/19 14:58:50	49.065231	51	5/17/19 14:59:2	0 49.066259	81	5/17/19 14:59:50	49.061184
24   5/17/19 14:58:53   49.065231   54   5/17/19 14:59:23   49.066526   84   5/17/19 14:59:53   49.061     25   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:24   49.066526   85   5/17/19 14:59:54   49.061     26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     27   5/17/19 14:58:56   49.065498   57   5/17/19 14:59:26   49.066637   87   5/17/19 14:59:56   49.060     28   5/17/19 14:58:57   49.066033   58   5/17/19 14:59:27   49.066637   88   5/17/19 14:59:57   49.060     29   5/17/19 14:58:58   49.066033   59   5/17/19 14:59:28   49.066102   89   5/17/19 14:59:58   49.060	22	5/17/19 14:58:51	49.065231	52	5/17/19 14:59:2	1 49.066794	82	5/17/19 14:59:51	49.061184
25   5/17/19 14:58:54   49.065498   55   5/17/19 14:59:24   49.066526   85   5/17/19 14:59:54   49.061     26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     27   5/17/19 14:58:56   49.065498   57   5/17/19 14:59:26   49.066637   87   5/17/19 14:59:56   49.060     28   5/17/19 14:58:57   49.066033   58   5/17/19 14:59:27   49.066637   88   5/17/19 14:59:57   49.060     29   5/17/19 14:58:58   49.066033   59   5/17/19 14:59:28   49.066102   89   5/17/19 14:59:58   49.060	23	5/17/19 14:58:52	49.065231	53	5/17/19 14:59:2	2 49.066526	83	5/17/19 14:59:52	49.061184
26   5/17/19 14:58:55   49.065498   56   5/17/19 14:59:25   49.066526   86   5/17/19 14:59:55   49.061     27   5/17/19 14:58:56   49.065498   57   5/17/19 14:59:26   49.066637   87   5/17/19 14:59:56   49.060     28   5/17/19 14:58:57   49.066033   58   5/17/19 14:59:27   49.066637   88   5/17/19 14:59:57   49.060     29   5/17/19 14:58:58   49.066033   59   5/17/19 14:59:28   49.066102   89   5/17/19 14:59:58   49.060	24	5/17/19 14:58:53	49.065231	54	5/17/19 14:59:2	49.066526	84	5/17/19 14:59:53	49.061184
27 5/17/19 14:58:56 49.065498 57 5/17/19 14:59:26 49.066637 87 5/17/19 14:59:56 49.060   28 5/17/19 14:58:57 49.066033 58 5/17/19 14:59:27 49.066637 88 5/17/19 14:59:57 49.060   29 5/17/19 14:58:58 49.066033 59 5/17/19 14:59:28 49.066102 89 5/17/19 14:59:58 49.060	25	5/17/19 14:58:54	49.065498	55	5/17/19 14:59:2	4 49.066526	85	5/17/19 14:59:54	49.061184
28 5/17/19 14:58:57	26	5/17/19 14:58:55	49.065498	56	5/17/19 14:59:2	49.066526	86	5/17/19 14:59:55	49.061184
29 5/17/19 14:58:58 49.066033 59 5/17/19 14:59:28 49.066102 89 5/17/19 14:59:58 49.060	27	5/17/19 14:58:56	49.065498	57	5/17/19 14:59:2	6 49.066637	87	5/17/19 14:59:56	49.060649
	28	5/17/19 14:58:57	49.066033	58	5/17/19 14:59:2	7 49.066637	88	5/17/19 14:59:57	49.060649
	29	5/17/19 14:58:58	49.066033	59	5/17/19 14:59:2	8 49.066102	89	5/17/19 14:59:58	49.060916
30 5/17/19 14:58:59 49.065498 60 5/17/19 14:59:29 49.066102 90 5/17/19 14:59:59 49.059	30	5/17/19 14:58:59	49.065498	60	5/17/19 14:59:2	9 49.066102	90	5/17/19 14:59:59	49.059043

Value

**Final Settlement** 

49.07

Figure 1 Final Monthly Settlement Example

In the scenario of multiple price changes during the one-second aggregation period, the last price is used for that second (i.e., the price nearest 59 milliseconds).

The final settlement value is published shortly after 15:00:00 CT.

# Six-Month Settlement Performance Testing

This section outlines the robustness of the methodology by exploring the depth of the market and richness of the prints that make up the price of the Index around expiration.

### Small Dollar Index

During the 90 seconds before final settlement, the robustness of the market can be seen by the number of prints in the Australian Dollar (AUD/USD), Canadian Dollar (CAD/USD), Chinese Renminbi (CNH/USD), Euro (EUR/USD), British Pound (GBP/USD), Japanese Yen (JPY/USD), and the Mexican Peso (MXN/USD). These prints are defined as the midpoint between the reported bid and offers. This can be seen in Figure 2.

	Jan. 18, 2019	Feb. 15, 2019	Mar. 15, 2019	Apr. 18, 2019	May 17, 2019	Jun. 21, 2019
AUD/USD	172	191	210	114	68	132
CAD/USD	52	71	59	78	78	53
CNH/USD	33	16	25	20	26	14
EUR/USD	307	158	216	72	121	188
GBP/USD	552	185	254	336	227	234
JPY/USD	13	12	12	14	15	12
MXN/USD	41	30	19	19	36	50

Figure 2 Counts of unique prints of the Small Dollar Index components during the 90 seconds of settlement

The largest number of prints come from the Euro and British Pound. Combined, these two make up roughly 42% of the Small Dollar Index.

Displayed in Figure 3 are the number of unique prints during the 90-second period used to calculate the final settlement value. The final settlement value is a modified average of the 90 Index prints between 14:58:30 CT to 14:59:59 CT, inclusive. The depth of the market makes it difficult for a market Participant to manipulate the Small Dollar Index's settlement value.

			Mar. 15,			
	2019	2019	2019	2019	2019	2019
AUD/USD	60	62	68	56	43	56
CAD/USD	37	53	46	54	54	46
CNH/USD	27	12	21	18	22	13
EUR/USD	71	64	69	42	53	66
GBP/USD	85	69	71	74	61	68
JPY/USD	12	11	10	13	13	11
MXN/USD	31	24	17	17	33	40

Figure 3 Number of unique seconds used in the Small Dollar Index settlement methodology