



Guide to the Vetting of Digital Assets and Digital Asset Exchanges

in association with Digital Asset Research
v1.5



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Section 1

Introduction

1.0 Introduction

1.1 This document sets out the criteria for the vetting of digital assets and digital asset Exchanges used in the calculation of the FTSE DAR Digital Asset Prices and the FTSE DAR Reference Prices. Copies of the Guide to the Calculation of the FTSE DAR Digital Asset Prices and the FTSE DAR Reference Prices are available from www.ftserussell.com.

1.1.1 A digital asset is a cryptographically secured digital Instrument for which issuance, transfer and ownership is recorded on a data structure commonly referred to as a blockchain.

1.2 FTSE Russell

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Section 2

Management Responsibilities

2.0 Management Responsibilities

2.1 FTSE International Limited (FTSE)¹

- 2.1.1 FTSE is responsible for the calculation, production and operation of the FTSE DAR Reference Prices and is the administrator of the FTSE DAR Reference Prices – Benchmark assets. The calculation of the FTSE DAR Reference Prices is set out in the Guide to the Calculation of the FTSE DAR Digital Asset Prices and FTSE DAR Reference Prices available at www.ftserussell.com.
- 2.1.2 The inputs to the calculation of the FTSE DAR Digital Asset Prices and FTSE DAR Reference Prices are drawn from eligible digital asset exchanges based on the criteria set out in this document.

2.2 Digital Asset Research

- 2.2.1 Digital Asset Research (DAR) is the calculation agent for the FTSE DAR Digital Asset Prices. DAR assesses the quality of market pricing data, qualifies pricing sources and supplies FTSE Russell with price feeds.
- 2.2.2 DAR is an independent, privately-owned research firm and data provider which partners with FTSE Russell in research into, and providing data on, digital assets.
- 2.2.3 DAR is responsible for the ongoing vetting of digital assets and of the Broker-Dealer/exchanges of digital assets. DAR collects and validates the data it obtains as principal to ensure both digital assets and Broker-Dealer/exchanges of digital assets pass a strict set of rules.

2.3 Amendments to this Document

- 2.3.1 This document shall be subject to regular review by FTSE Russell to ensure that it continues to best reflect the aims of the FTSE DAR Digital Asset Prices and the FTSE DAR Reference Prices.

¹ The term administrator is used in this document in the same sense as it is defined in [Regulation \(EU\) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds](#) (the European Benchmark Regulation).



Section 3

Exchange Vetting and Eligibility

3.0 Exchange Eligibility Criteria and Digital Asset Pricing Sources

3.1 Exchange Eligibility Criteria

3.1.1 In the absence of specific regulations or laws to specifically identify digital assets, FTSE Russell will employ the following rules to reflect what FTSE Russell considers to be common practice in this emerging area of investment. For the purposes of this document digital asset exchanges and Broker-Dealers are referred to as 'Exchanges' (or 'Exchange'), even though many are not regulated.

3.1.2 Exchanges are eligible as a digital asset pricing source for the FTSE DAR Reference Price files if they qualify as either Watchlist or Participating, as defined below.

3.1.3 Watchlist Exchanges have met all the following criteria:

- a) Regulatory, Governance and Institutional and Technical Assessments
 - i. The domicile of the Exchange does not restrict capital trading to foreign or international investors;
 - ii. Exchanges must be managed by companies with easily available and verified biographical information on its leadership team;
 - iii. An Exchange must maintain a minimum daily reported volume of \$5,000,000USD each day over the six-month period leading up to each quarterly review (see 3.2.1);
 - iv. The Exchange must be a centralized spot exchange which is a centralized organization that facilitates spot delivery transactions of underlying digital assets;
 - v. Trading data is available and allows for continuous delivery of trade prices and trading volume data, including data fields which detail the asset pair, price, volume and accurate timestamp for each trade. (FTSE Russell relies upon DAR to source this data).
- b) Comprehensive Data Science Assessment

To ensure the Exchange is accurately reporting trading activity by real users and not reporting or engaging in, or allowing users to engage in, non-economic trading. During each of the previous two quarters, the Exchange must pass tests that look at each of the following:

 - i. Trading needs to follow natural buy and sell patterns;

- ii. Trading occurs at natural and expected lot levels.
- iii. Exchanges must further pass 2 out of the 3 tests during each of the previous two quarters that look at the following:
 1. Price follows natural patterns that track with the market;
 2. Volume follows natural patterns that track with the market;
 3. Order book data shows active and competitive behavior.

3.1.4 Participating Exchanges have met all the Watchlist criteria, as well as the following additional criteria:

a) Regulatory Assessment

- i. Operates within the laws of its domiciled country and does not knowingly violate any local or international regulations applicable to it based on its location, or the location of its permitted users;
- ii. Differentiation of Users Based on Geolocation which restricts uses in specific jurisdictions;
- iii. Obtained the relevant licensing and registrations for the jurisdiction(s) in which the Exchange maintains an office, is headquartered, or is otherwise registered to do business;
- iv. Exchange has complied with regulatory authorities for requests for information.

b) Governance and Institutional Assessment

- i. “Know Your Customer” (KYC) and Anti-Money Laundering (AML) controls require, at a minimum, that a user verify their name, phone number and bank account prior to using the platform;
- ii. Provide upon request by FTSE and DAR information around unusual or suspicious market activity;
- iii. An Exchange may not be on any third-party sanctions lists;
- iv. An Exchange must have a publicly listed fee schedule which is uniformly practiced and demonstrates that the Exchange operates as a centralized, for-profit business;
- v. No founded accusations of fraud or criminal charges against the Exchange or leadership team;
- vi. Provide open support communication channels to its users.

c) Technical Assessment

- i. No meaningful security lapse or breach in the last 12 months which resulted in the loss of client or Exchange funds exceeding 1% of its total holdings;
- ii. Have no known deficiencies in operational security;
- iii. Have no significant downtime, defined as more than 24 cumulative hours in any one quarter.

3.2 Digital Asset Pricing Sources

3.2.1 Loss of Eligibility at Quarterly Review

DAR will evaluate the list of eligible Exchanges on a quarterly basis at each March, June, September and December month end. In circumstances where an eligible Exchange fails the relevant inclusion criteria during a quarterly review, the Exchange will be demoted to the Watchlist or the Enhanced Eligibility list (if a vetted Exchange), demoted to the Penalty List (if a Watchlist Exchange) or disqualified according to the criteria failed. Eligibility of the Exchange will be assessed at the next quarterly review, unless on the Enhanced Eligibility List. If an Exchange is on the Enhanced Eligibility list it will be assessed monthly.

3.2.2 Immediate Loss of Eligibility

In circumstances where pricing fidelity is in doubt (e.g. Rule 3.1.4 d), there is a significant security breach, or some other deleterious event that questions the validity of an Exchange, then the Exchange may lose eligibility.

The offending Exchange will be removed as a digital asset pricing source used in the calculation of the FTSE DAR Digital Asset Prices and the FTSE DAR Reference Prices with immediate effect.

3.2.3 Enhanced Exchange Eligibility Process

An exchange that has passed vetting may be assigned an Enhanced Eligibility status if subsequent diligence reveals conflicting or new information that is material to the vetting process.

Exchanges assigned an Enhanced Eligibility status are vetted on a monthly basis and are subject to evaluation by DAR and FTSE to determine whether they will remain on the Vetted Exchanges list.

3.2.4 Penalty List

An exchange that fails certain vetting criteria, including preliminary data science tests, is placed on the Penalty List.

An exchange can be removed from the Penalty List and added to the Vetted Exchanges list after the following criteria are met:

- i. One year must pass from the date on which the exchange was placed on the Penalty List;
- ii. The exchange must pass the Exchange Vetting Methodology criteria that is current at that time;
- iii. The exchange must provide satisfactory answers to the Due Diligence Questionnaire that is current at that time;
- iv. The exchange must be approved by the DAR Review Committee.

At the discretion of the Review Committee, an exchange removed from the Penalty List may be placed on Enhanced Eligibility status (see Rule 3.2.3).

3.2.5 Mergers and Acquisitions of Exchanges

Merger and acquisitions (M&A) activity may result in changes to exchange eligibility. Adjustments due to mergers and acquisition are applied to the FTSE DAR Digital Asset Price after the action is determined to be final, typically in line with the quarterly exchange vetting, with provision of appropriate notice.

Merger and acquisition (M&A) activity may result in changes to the eligibility status of Exchanges. Any changes to the eligibility of Exchanges resulting from M&A activity will be applied to the FTSE DAR

Digital Asset Price after the action is determined to be final, typically in conjunction with the quarterly Exchange vetting process and with the provision of an appropriate notification.



Section 4

Digital Asset Vetting and Eligibility

4.0 Digital Asset Eligibility

4.1 FTSE DAR Digital Asset Prices

4.1.1 In order for a FTSE DAR Digital Asset Price to be calculated, a digital asset must meet the following eligibility requirements:

- i. Price determined by market (trading) activity and the assets are traded on Watchlist and or Participating Exchanges;
- ii. A digital asset must trade on a minimum of three Exchanges which can be Watchlist Exchanges, Participating Exchanges, or a combination of Watchlist and Participating Exchanges. If a FTSE DAR Reference Price is already calculated, the asset must trade on a minimum of two Exchanges which can be Watchlist Exchanges or Participating Exchanges or a combination of Watchlist and Participating Exchanges in order to continue to be included in the FTSE DAR Reference Price File. Details of Exchange vetting are provided in Section 3;
- iii. A digital asset utilizing standardized cryptographic tools to guarantee legitimacy and security, for which the issuance, transfer and ownership is recorded on a blockchain data structure;
- iv. Digital assets must be convertible to one of the following fiat or crypto currencies: USD, JPY, EUR, GBP, BTC, ETH or USDT.

4.1.2 Non-Benchmark Assets may be priced as Tier 1 or Tier 2.

- a) Tier 2 assets are priced from a minimum of 3 Participating or Watchlist Exchanges, with a minimum of 1 Watchlist Exchange included as a pricing source.
- b) In order for an asset to be a Tier 1, the asset must have been priced as Tier 2 for the immediate prior quarter. Tier 1 assets are priced only from Participating Exchanges. To be priced as Tier 1, an asset must meet the following Preliminary Trading Assessment:
 - i. Trade on a minimum of three Participating Exchanges for initial inclusion and a minimum of two Participating Exchanges for previously classified assets;

- ii. Over the previous two quarters the asset must pass any one of the following criteria:
 - 1) The proportion of trades for a digital asset on Participating Exchanges must be greater than 10% of the numbers of trades made on both Participating and Watchlist Exchanges for the said digital asset; or
 - 2) The proportion of the traded volume for a digital asset on a Participating Exchange must be greater than 10% of all traded volume on both Participating and Watchlist Exchanges for the said digital asset; or
 - 3) An average price correlation between all Exchanges of 0.5 or greater.

4.1.3 Benchmark Assets have met all the criteria in Section 4.1.1 and 4.1.2, as well as the following additional criteria:

- a) Must be priced as a Tier 1 asset.
- b) Custody Assessment
 - i. Robust custody, such that assets can be custodied either by: an approved institutional quality digital asset custodian; an institutional quality Hardware Security Modules (HSMs); and/or software wallets which allow for air-gapped cold storage, offline wallet generation, and offline transaction signing.

b) Codebase Qualitative Assessment

Each digital asset's Target Repository is determined and that codebase must pass the requirements:

- i. Open Source Requirement: source code must be made publicly available;
- ii. Compatible Open Source License: must use a standardized open source license;
- iii. Distributed Version-Control System: must be able to track, authenticate and validate all codebase changes;
- iv. Full Attribution and Plagiarism Identification: must properly attribute software to its creators;
- v. Secure Software Release: lead maintainers of its Target Repository must sign its releases;
- vi. Base Layer Stability: underlying data structure must be blockchain;
- vii. Client Accessibility: must be able to install on two of the following GNU/Linux, MacOS or Windows;
- viii. Formalized Vulnerability Reporting Workflows: users must be able to address bugs on a platform such as GitHub.

c) Codebase Quantitative Assessment

Designed to identify digital asset project developer activity and effectiveness in the Target Repository.

- i. Over the previous two quarters, a digital asset must pass any four of the following criteria:
 - 1) Commit-to-Contributor Threshold Requirement which is a minimum of 5 Contributors implement a minimum of 5 total Commits; or
 - 2) Open-to-Close-Issue Ratio Requirement which is a ratio lower than 0.5; or

- 3) Minimum Proposed Pull Request Requirement which is a minimum of 5 Pull Requests proposed to its Target Repository; or
 - 4) Minimum Merged Pull Request Requirement which is a minimum of 2 Pull Requests merged to its Target Repository.
- d) Network Security Assessment
- Designed to measure the security of the underlying network that supports the digital asset.
- i. Byzantine Fault-Tolerant Consensus, Proof-of-Work or Proof-of-Stake or Hybrid and sustain consensus when 33% of participants are Byzantine actors;
 - ii. Open and Permissionless Access, no NDAs, access fees or any form of legal agreement to join network;
 - iii. Diverse Validation Quorum, must have 5 publicly identifiable validators.
- e) Protocol Security Assessment
- Designed to measure the security of the cryptographic tools used by a digital asset.
- i. Compatible with Hierarchical Deterministic Wallets, must use a protocol that is standardized and replicates the functions described in BIP32 or BIP44;
 - ii. Compatible with Mnemonic Phrase Backups, must be based in BIP39;
 - iii. Standardized Signature Algorithm, signature algorithm must be approved by the National Institute of Standards and Technology (NIST).
- f) Liquidity Assessment
- Designed to measure the relationship between the price a digital asset can be sold for and its speed of sale.
- i. Free float (also referred to as circulating supply, represents the number of tokens issued through a digital asset protocol that are currently available for trading as determined by DAR) must be 10% or more of the total supply;
 - ii. Market capitalization must be above USD 50,000,000 (calculated by outstanding assets by its price as of cut-off date).
- g) Regulatory Assessment
- i. Digital assets must not be subject to extraordinary surveillance or legal action by any regulatory body. A digital asset which is a member of the eligible universe and becomes subject to surveillance or legal action by any regulatory body may have its eligibility revoked at the next rebalance.

4.2 FTSE DAR Reference Prices – Non-Benchmark Assets

- 4.2.1 If the calculation of a FTSE DAR Reference Price for a digital asset passes all of the criteria outlined in 4.1.1, the digital asset is deemed a Non-Benchmark Asset. The FTSE DAR Reference Prices – Non-Benchmark Assets are calculated for information, research and analysis purposes only. The FTSE DAR Reference Prices – Non-Benchmark Assets are not, and are not intended to be, used by supervised entities in the European Union or United Kingdom (as “use” is set out in article 3(1)(7) of the EU Benchmark Regulation and the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds in the European Union) (the “EU BMR”) and accordingly, the EU BMR and the UK Benchmark Regulation (The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019 (which amends the European benchmark regulation in the United Kingdom) does not apply to the FTSE DAR Reference Prices – Non-Benchmark Assets. Consequently, supervised entities (as “supervised

entities” is set out in article 3(1)(17) of the EU BMR) within the European Union and the United Kingdom are not permitted to use the FTSE DAR Reference Prices – Non-Benchmark Assets as benchmarks as set out in article 3(1)(7) of the EU BMR.

4.3 FTSE DAR Reference Price – Benchmark Assets

4.3.1 If the calculation of a FTSE DAR Reference Prices for a digital asset sources prices entirely from Participating Exchanges and passes all of the criteria outlined in Rules 4.1.1 and 4.1.2, the digital asset is deemed a Benchmark Asset. The FTSE DAR Reference Prices - Benchmark Assets can be used in the European Union (as “use” is set out in article 3(1)(7) of the EU Benchmark Regulation and the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds in the European Union) (the “EU BMR”).

4.4 Promotion or Loss of Eligibility

4.4.1 Normal Loss of Eligibility or Promotion

- a) A FTSE DAR Reference Price will cease to be calculated during the quarterly rebalance process if the digital asset is found to be in violation, without rectification, of any of the listed eligibility requirements in Rule 4.1.
- b) A FTSE DAR Reference Price will promoted to a new market status, or a new asset can be added to the FTSE DAR Reference Price, if the digital asset is meets the necessary criteria for promotion during the quarterly rebalance process.

4.4.2 Immediate Loss of Eligibility or Promotion

- a) Under extraordinary circumstances, including security breaches (e.g. Rule 4.1.3 d and e), regulatory action (e.g. Rule 3.1.4 c and 4.1.3 g), or identified fraud (e.g. Rule 3.1.4. d), which severely impairs the value of an eligible digital asset, an asset may lose eligibility.
- b) An asset that meets all requisite criteria may have its market status promoted intra-quarter if new information regarding eligibility is made available.
- c) A minimum two days’ notice will be provided before the termination of the calculation or promotion in market status of the FTSE DAR Reference Price.

4.5 Quarterly Review of Digital Asset Eligibility

4.5.1 The eligibility of the digital assets is reviewed on a quarterly basis by DAR at each February, May, August and November month end using data at the close of business seven business days prior to the last business day of the review month (following the US market holiday calendar). Any changes to the eligibility of digital assets will be effective after the close of business on the third Friday of March, June, September and December.



Further Information

Further information on the FTSE DAR Digital Asset Prices and the FTSE DAR Reference Prices is available from FTSE Russell.

A Glossary of Terms used in FTSE Russell's Digital Asset documents can be found using the following link: [Glossary - Digital Assets.pdf \(ftserussell.com\)](#)

For contact details please visit the FTSE Russell website or contact FTSE Russell client services at info@ftserussell.com.

Website: www.ftserussell.com

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