



Online-Appendix zu

„Investigating Market Behavior Correlations between Classified Tokens using the International Token Classification Framework“

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Appendix A: Classification Guidelines for the ITC v1.0

#	Classification Guidelines
1	A Token shall always be classified by use of the complementary ITC Dimension Overview and Questionnaire Tables (v.1.0), in order to reduce subjectivity to a minimum and to create an audit trail.
2	A Token always needs to be classified to the lowest classification level possible.
3	Within any Environment a Token cannot provide governance functionality without also providing access functionality. Access to a service, good, or functionality is hence a prerequisite for the governance of the same. In consequence, Tokens that provide governance functionality will always be considered to provide access to a service, good, or functionality as well, with access to the governance functionality being the minimum access utility.
4	Within any Environment, a Token cannot provide ownership functionality without also providing governance functionality. Governance functionality (which can come in many forms and does not necessarily comprise legal voting rights) with regard to the tangible or intangible asset, which is represented by the Token, is hence a prerequisite for the ownership of the same. In consequence, Tokens that provide ownership will always be considered to provide governance functionality as well.
5	Due to the fact that “Cryptocurrency” is a collective term for all sorts of Tokens and lacks clear definition, the ITC foregoes to use it completely. Most of the Tokens labelled as “Cryptocurrency” will probably be classified as Payment Token or as Utility Token.
6	In current market language the majority of Investment Tokens (EEP23) is likely to be labelled as “Security Tokens”. However, in contradiction to current market practice, ITSA refrains from labelling such Tokens as Security Tokens in this dimension, since the term is not focusing on the Economic Purpose of a Token but on its regulatory status. Moreover, since many jurisdictions still have no clear ruling yet on what is to be considered a Security Token, and since the ITC is designed to be globally applicable and regardless of any specific jurisdiction on which a regulatory status is always dependent, the framework refrains from employing the term “Security Token” in the EEP Dimension and will incorporate information on the regulatory status of a Token in selected Dimensions of the Regulatory Dimension Group. This approach also allows for the classification of Tokens as Security or Non-Security Tokens independent of their classification according to their Economic Purpose, which is important since some regulators might not only consider Investment Tokens but also certain Utility Tokens or even Payment Tokens as securities.

Source: Own illustration based on (ITSA, 2020, p. 9)

Appendix B: Python Scripts

Description: The file `CorrelationData_FvW.py` merges the data we downloaded from CoinGecko on January 27, 2021, for all tokens. Afterward, it creates the average portfolio returns for the defined groups and saves the results into three different raw data excel files (`data_distributedSystems.xlsx`, `data_PaymentToken.xlsx`, `data_defi.xlsx`). Afterward, it calculates all the correlation coefficients and saves the data into a final excel file, which contains all the results for the correlation between the tokens and the portfolio returns (`FinalData.xlsx`). The second python file `Corr_Innerhalb.py`, reads the beforehand created raw data excel files, calculates the correlation within one group, and saves the results in three different result files (`pay_corr_innerhalb.xlsx`, `defi_corr_innerhalb.xlsx`, `pay_corr_innerhalb.xlsx`).

Appendix C: Classification_Full_Dataset.xlsx

Description: This appendix contains the detailed classification dataset for the top 200 tokens according to market capitalization. For each of the tokens, we provide the name, the ticker, and a short description. In case a token has more than one underlying technological setup, we created an additional entry while adding the underlying blockchain. For example, the token Tether is implemented on four different blockchains, so we entered four entries, Tether (Omni), Tether (Ethereum), Tether (EOS), and Tether (TRON). We follow with 12 additional columns, where we provide the label and the ITC code for each of the dimensions.

Appendix D: Descriptive Statistics on the classified top 200 Token Dataset regarding the Economic Purpose Dimension (EEP)

Economic Purpose	ITC Code	Frequency	%
Unpegged Payment Token	EEP21UP	18	9,0%
USD-Pegged Payment Token	EEP21PP01USD	8	4,0%
EUR-Pegged Payment Token	EEP21PP01EUR	1	0,5%
Asset-Pegged Payment Token	EEP21PP02	1	0,5%
Settlement Token	EEP22TU01	34	17,0%
Settlement and Access Token	EEP22TU02	36	18,0%
Settlement and Governance Token	EEP22TU03	88	44,0%
Access Token	EEP22NT01	3	1,5%
Governance Token	EEP22NT02	9	4,5%
Entitlement Rights Token	EEP23ER	1	0,5%
Other Investment Token	EEP23ZZ	1	0,5%
Total		200	100%

Appendix E: Descriptive Statistics on the classified top 200 Token Dataset regarding the Issuer Industry Dimension (EIN)

Issuer Industry	ITC Code	Frequency	%
Utilities and Construction	EIN02	2	1,0%
Manufacturing, Trade and Logistics	EIN04	1	0,5%
Media and Social Media	EIN05MS	5	2,5%
Telecommunications and Communications	EIN05TC	1	0,5%
Artificial Intelligence (AI), Predictive Analytics, and Big Data	EIN05DA01	4	2,0%
Internet of Things (IoT), Smart Infrastructures, and Connectivity	EIN05DA02	7	3,5%
Cloud Computing, Distributed Systems, and Decentralized Applications	EIN05DA03	57	28,5%
Cyber Security, Data Privacy, and Digital Identity	EIN05DA04	9	4,5%
Other Software, Data Storage and Processing	EIN05DA05	6	3,0%
Other Information and IT	EIN05ZZ	3	1,5%
Payment Services and Infrastructure	EIN06PS	35	17,5%
Exchange, Trading and Settlement	EIN06EX	16	8,0%
Banking, Custody and Financing Services	EIN06BS	1	0,5%
Investment and Asset Management	EIN06AM	1	0,5%
Insurance Services	EIN06IS	1	0,5%
Decentralized Exchanges, Markets and Market Making	EIN06DF01	12	6,0%
Decentralized Lending, Saving and Asset Management	EIN06DF02	9	4,5%
Decentralized Derivatives, Synthetic Assets and Insurance	EIN06DF03	3	1,5%
Decentralized Data, Oracles and Infrastructure	EIN06DF04	6	3,0%
Other Decentralized Finance (DeFi)	EIN06DF05	7	3,5%
Other Finance and Insurance	EIN06ZZ	1	0,5%
Advertising, Marketing and Public Relations	EIN07PR	2	1,0%
Legal, Tax and Accounting Services	EIN07LT	1	0,5%
Scientific Research and Consulting Services	EIN07RC	1	0,5%
Other Professional, Scientific and Technical Services	EIN07ZZ	1	0,5%
Entertainment, Sports and Gaming	EIN08ES	5	2,5%
Recreation, Travel, Accomodation and Food Services	EIN08RT	1	0,5%
Public Administration, Education, Healthcare and Social Assistance	EIN09	1	0,5%
Other Industry	EIN99	1	0,5%
Total		200	100%

Source: Own illustration

Appendix F: Descriptive Statistics on the classified top 200 Token Dataset regarding the Technological Dimension (TTS)

Issuer Industry	ITC Code	Frequency	%
Blockchain - Native Token	TTS41BC	97	46,41%
DAG-Native Token	TTS31DG	3	1,44%
Other Ledger – Native Token	TTS41ZZ	1	0,48%
Ethereum ERC-20 Standard Token	TTS42ET01	89	42,58%
Other Ethereum Application Layer Token	TTS42ET99	2	0,96%
Binance BEP-2 Standard Token	TTS42BN01	7	3,35%
EOS Application Layer Token	TTS42EO	2	0,96%
NEO NEP-5 Standard Token	TTS42NE01	1	0,48%
TRON TRC-10 Standard Token	TTS42TR01	1	0,48%
TRON TRC-20 Standard Token	TTS42TR02	3	1,44%
Other Application Layer Token	TTS42ZZ	2	0,96%
Total		209	

Source: Own illustration.