

Josef Bergt

TOKEN AS VALUE RIGHTS & TOKEN OFFERINGS AND DECENTRALIZED TRADING VENUES

**An analysis of securities civil law and securities
supervision law from the perspective of Liechtenstein,
with particular reference to relevant Union acts**

“Imagination will often carry us to worlds that never were.

But without it we go nowhere.”¹

¹ *Carl Sagan* (1934 - 1996), astronomer, cosmologist, astrophysicist, astrobiologist, television presenter, non-fiction writer, writer.

Preface / Acknowledgement

"No guilt is more pressing than that of saying thanks"²

My first thanks therefore go to my supervisors, fellow students, colleagues and staff, who have repeatedly guided me into new scientifically paths with enriching ideas and contributions in discussions over the past years.

I would also like to take this opportunity to thank my diligent and patient proofreaders and all persons who were not explicitly mentioned here.

My parents, brothers and sisters and my colleagues occupy an outstanding position in every respect. My special thanks go to them.

Gams / Vaduz / Ranggen, in November 2019
Joseph Bergt

PS: I look at the present work with some pride and hope on the one hand that I never get tired of the scientific debate and furthermore I call upon or rather invite everyone to empirically falsify or verify the theses represented in this paper; only in this way a validation in the sense of the scientific method can be achieved and I look forward to any further scientific discourse.

² Although this quotation is partly attributed to the Roman orator and statesman *Marcus Tullius Cicero* (106 - 43 BC), it is likely to be of unknown origin due to the lack of comprehensible references.

Editorial notes

It is pointed out that in the present paper the generic masculine is used for reasons of legibility. However, the use of the masculine form of a word always includes the feminine form.

In addition, in the present treatise the use of the Eszett (after the Fraktur font - "sz"; "ß") is completely abandoned and is replaced by a "double s". However, quotations remain unaffected by this, since a falsification of any kind is to be avoided.

Insofar as implementation has already taken place in the respective jurisdictions, the European Case Law Identifier (ECLI) is used to cite court decisions. Similarly, secondary law under Union law is cited using the European Legislation Identifier (ELI).

Furthermore, it should be noted that with regard to citation, the abbreviation and citation rules (AZR), 8th edition, Vienna, 2019, by *Peter Dax* and *Gerhard Hopf*, are predominantly followed.

Furthermore, it should be noted that temporal data without further specification, as in the case of temporal adverbia (e.g. current/current/currently an amendment of a certain area of law is being sought), refer in case of doubt to the publication date of the scientific paper in question.

Finally, it should be pointed out that information from legal authorities without any additional country information refers in case of doubt to the Liechtenstein laws, unless an allocation is already clear, as is the case with the German

KWG or the Swiss OR. If the ABGB is quoted, the Liechtenstein ABGB is meant; the Austrian basis for the prescription is quoted as ÖABGB, unless the context indicates which law is meant.

In addition, it should be noted that this paper is divided into two titles. This is because the individual papers were submitted to the University of Liechtenstein as master theses within the framework of the LL.M. in Company, Foundation and Trust Law ("Token as Value Rights"), as well as in LL.M. Banking and Finance ("Token Offerings and Decentralized Trading Centers"). References (chapter information, marginal numbers, footnotes) are generally to be seen independently and refer to the respective work (the respective title), unless a general reference is noted. The present work is a reprint of the master theses submitted to the University of Liechtenstein.

Addendum to the 2nd edition - May 2020

In this slightly revised 2nd edition of my work, minor concretisations of the content have been made, as well as various orthographic errors have been corrected. The essence of the work remains unchanged and is still written from the point of view of November/December 2019. Formulations that refer to laws "de lege lata" refer to the status as of the end of 2019, but the changes brought about by the Liechtenstein Block Chain Law (TVTG), which has since entered into force, have been taken into account in this work anyway (with the note "de lege ferenda").

Further discussion and updating will certainly be necessary in the future. Since the present work is to be understood as part of a (future) series on Liechtenstein banking and financial market law, other authors are also cordially invited to contact me and, if necessary, to write (guest) contributions on the topic in question, to contribute their thoughts in some other way, or to assist with translations into other languages in order to actually realize this bold undertaking in the long term and to make the work accessible to a broad public at the same time.

I would like to take this opportunity to thank my colleague Wolfgang Fürnschuss and the law firm Advocatur Seeger, Frick & Partner AG, Schaan, who successfully defended the illegitimate intellectual property claims of my opponents on this work before the Liechtenstein courts (legally binding proceedings on 04 CG.2019.409 of May 12, 2020), which contributed significantly to the fact that my work can be published again.

"The censorship is the younger of two shameful sisters, the older one is called Inquisition. "³

"A censor is a pencil or pencil-man; a line made flesh over the products of the spirit, a crocodile that lies on the banks of the stream of ideas and bites the heads off the poets swimming in it."⁴

Knowledge is free! The pencil made flesh and the man made pencil or the crocodiles lurking at the stream of ideas were slain by the sword of Justice!

Gams, May 2020
Josef Bergt

PS: This work has also been published in other languages. Translations from the original, which was written in German, were done using deep learning or machine learning methods based on artificial neural networks (artificial intelligence). While the translations are not perfect, they convey the relevant ideas and messages. Without artificial intelligence a translation would not have been possible on such short notice.

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³ *Johann Nepomuk Nestroy*, Freedom in Crow's Nest I, 14th century.

⁴ *Nestroy*, freedom in crow's nest, pieces 26/I, 26 f.

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List of abbreviations

aA	dissenting view
ibid.	at the place stated/specified
OJ C	Official Journal of the European Union (notices and announcements)
OJ L	Official Journal of the European Union (legislation)
TFEU	Treaty on the Functioning of the European Union
aF	old version
AIFMD	Alternative Investment Fund Manager Directive 2011/61/EU
Note	Note
API	Application Programming Interface
ATS	alternative trading system
BankG	Banking Act (Liechtenstein)
BTC	Bitcoin
BuA	Report and request of the Government to the Parliament of the Principality of Liechtenstein
BWG	Banking Act (Austria)
CCP	Central Counterparty (clearing house)

CFD	contract for difference
CRD	Capital Requirements Directive (CRD IV, 2013/36/EU; CRD III, 2006/48/EC)
CRR	Capital Requirements Regulation EU/575/2013
CSDR	Central Securities Depositories Regulation EU/909/2014
DAO	Decentralised autonomous organisation
Del Regulation	Delegated Regulation
DEX	decentralized exchange
DGSD	Deposit Guarantee Schemes Directive 2014/49/EU
DLT	Distributed Ledger Technology
DVO	Implementing Regulation
DvP	delivery versus payment
EAG	Deposit Guarantee and Investor Compensation Act (Liechtenstein)
EBA	European Banking Authority
eg	gratuitous example
EGG	E-Money Act (Liechtenstein)

ELI	European Legislation Identifier
EMD / E-Money Directive	E-Money Directive / E-Money Directive (E-Money Directive II, 2009/110/EC; E-Money Directive I, 2000/46/EC)
EMIR	European Market Infrastructure Regulation EU/648/2012
ESMA	European Securities and Markets Authority
etc pp	et cetera perge, perge
ETH	Ether
ECB	European Central Bank
FAGG	Distance and Foreign Trade Act (Liechtenstein)
FCA	Financial Conduct Authority (UK)
FernFinG	Remote Financial Services Act (Liechtenstein)
ff / et seqq	Continuing / et sequentes
FINMA	Swiss Financial Market Supervisory Authority (CH)
BaFin	Federal Institute for Financial services supervision
FMA	Financial Market Authority (Liechtenstein or

	Austria)
FMAG	Financial Market Supervision Act (Liechtenstein; as amended BuA 2019/93 and LGBl 2019.303)
FN	Footnote
GewG	Trade Act (Liechtenstein; as amended by BuA 2019/93 and LGBl 2019.305)
GRC	Charter of Fundamental Rights
GW-RL	Money Laundering Directive (5th Money Laundering Directive, 2018/843; 4th Money Laundering Directive, 2015/849)
Ibid / ibid	Ibidem / ibidem
IDD	Insurance Distribution Directive EU/2016/97
Idem / ders	the same
idF	in the version
idS	in that sense
ie	id est
iSd	for the purposes of
ITS	Implementing Technical Standards
IUG	Investment undertaking law (Liechtenstein)
iVm	in conjunction with

JCD (EEA)	Joint Committee Decision (Decision of the EEA Joint Committee)
Clause Directive	Clause Directive 93/13/EEC
KMG	Capital Market Act (Austria)
KSchG	Consumer Protection Act (Liechtenstein)
KWG	Banking Act (Germany)
leg cit	legis citatae
LES	Liechtenstein Collection of Decisions
LGBl	National Law Gazette (Liechtenstein)
LJZ	Liechtenstein Lawyers' Newspaper
MAD	Market Abuse Directive 2014/57/EU
MAR / MMVO	Market Abuse Regulation EU/596/2014
MiFID	Markets in Financial Instruments Directive (MiFID II, 2014/65/EU; MiFID I, 2004/39/EG)
MiFIR	Markets in Financial Instruments Regulation EU/600/2014
MTF	Multilateral Trading Facility
mwN	with additional evidence
NCA / NSA	National Competent Authority / National

	Supervisory Authority
nF	revised version
NFC	Non-financial counterparty
OR	Code of Obligations (CH)
OSI	Open Systems Interconnection Model
OTC	Over the counter (off-exchange)
OTF	Organised Trading Facility
PERG	The Perimeter Guidance manual
PGR	Law on persons and companies (Liechtenstein; (as amended by BuA 2019/93 and LGBl 2019.304)
PoS/PoW	proof-of-work / proof-of-stake
Prospectus regulation	Prospectus Regulation EU/2017/1129
PSD	Payment Service Directive (PSD II, EU/2015/2366; PSD I, 2007/64/EC)
RTS	Regulatory Technical Standards
Rz	Margin number/edge number
s	see
sa	see also

SI	Systematic internaliser
sl	sine loco (without place)
Solvency II	Solvency II Directive 2009/138/EC
SPG	Due Diligence Act (Liechtenstein; (as amended BuA 2019/93 and LGBl 2019.302)
SPV / SSPV	Special Purpose Vehicle Securitization Special Purpose Vehicle
SR	Property law (Liechtenstein)
SSI	Self-Sovereign Identity
SSM REGULATION	Single Supervisory Mechanism Regulation EU/1024/2013
SteG	Tax law (Liechtenstein)
StGH	State Court of Justice (Liechtenstein)
STSR	Simple, Transparent and Standardized Regulation or Securitization Regulation or Securitization Regulation or Securitization Regulation EEU/2017/2402
TVTGD	Law on Tokens and Trusted Technology Service Providers (Liechtenstein; as amended by BuA 2019/93 and LGBl 2019.301, unless otherwise noted)
and the like	and the like
UCITSD	Undertakings for Collective Investments in

	Transferable Securities Directive 2014/91/EU
USDT	US dollar tether
UVS	Independent Administrative Senate (Austria)
VersAG	Insurance Supervision Act (Liechtenstein)
VersVertG	Insurance Distribution Act (Liechtenstein)
VnB	Consultation report (Liechtenstein)
VRRL	Consumer Rights Directive 2011/83/EU
WAG	Securities Supervision Act (Austria)
ZDG	Payment Services Act (Liechtenstein)

I. Token as value rights

Since the present theses deal in particular with Liechtenstein law, this work should be introduced with the following quotation about the "Crypto Country" Liechtenstein: *"In the past, transaction banking, and especially the field of fintech, has grown more important for the Liechtenstein market."*⁵

1. Introduction, research question & basic questions on tokens

In this Part I - "Tokens as book-entry securities" - in contrast to Part II - "Token Offerings and Decentralized Trading Centers" - the focus will be on the civil law classification and transfer regulations of crypto currencies and tokens under Liechtenstein law. The goal of Part I is to examine whether tokens can be treated analogously to securities or generally as dematerialized securities - i.e., book-entry securities - or at least can be designed as such. In this respect, the possibility of representing rights - in assets and in the person⁶ - is to be investigated.

The aim is to investigate the representation of rights in tokens both *de lege lata*, at the time of publication of this work and thus ⁷before the TVTG enters into force, and *de lege ferenda*, after the implementation and entry into force of the TVTG with 01.01.2020. In the absence of an element of the physicality⁸ of tokens, it seems inappropriate to speak of the securitization of rights, as is the case with securities.⁹ Rather, the concept of property rights or value rights seems

to be more appropriate. It will be examined how the PGR,¹⁰ prior to the amendment of the civil securities law provisions in the final section of the PGR, treats such dematerialised or dematerialised securities in the context of the implementation of the TVTG and how it deals with circumstances which provide for such dematerialised securities in the business model; nevertheless, the positive provisions de lege ferenda which the TVTG itself, and in particular the amendment of the final section of the PGR, entail in this respect will also be examined.

Consequently, it is also necessary to distinguish the civil law concept of securities from the concept of transferable securities or financial instruments that are transferable under supervisory law. In this respect, it is necessary to examine not only whether tokens can represent book-entry securities, but also whether tokens can represent ¹¹financial instruments held in the giro account, i.e. financial instruments held in the books. In this context, the representation of book-entry securities by means of tokens, the representation of financial instruments by means of a token and collective investments in connection with tokens will be examined in more detail in Part II of this thesis.

In line with the above, the differences between individual and collective asset investments in connection with the tokenisation of financial instruments and portfolios are to be worked out in a differentiated manner. Subsequently, the company law aspects of funds in connection with an investment company as¹² opposed to a stock corporation in the form of a segmented association¹³ issuing segment shares¹⁴, again as opposed to so-called securitisation special purpose vehicles¹⁵, are to be dealt with.

The concrete research question of the present study is thus: *Can tokens represent dematerialised securities - i.e. book-*

entry securities - under Liechtenstein law and what differences arise in the assessment before and after the entry into force of the TVTG? The research question is: Can tokens represent not only civil law book-entry securities from the perspective of supervisory law, but also financial instruments held in the securities giro, and how do new technical possibilities relate to classically regulated institutions such as fund structures?

While the work under Title I. focuses on Liechtenstein law, especially for the sub-research question, European legal acts in connection with fund regulation must be consulted in addition to national provisions.

Before an in-depth examination of the content of the above-mentioned topics, the following is an overview of block chain technology, smart contracts, tokens and coins. It should be noted that technical aspects are presented in a simplified form in order to provide a rough overview of the technologies mentioned and to make the legal argumentation comprehensible when dealing with legal issues that arise in connection with technical aspects of these technologies. Furthermore, it should be noted that the term "block chain" or "block chain technology" is used in this paper as pars pro toto for the so-called distributed ledger technologies and related technologies whose most prominent application is the block chain technology.

1.1 Blockchain & Smart Contracts

A block chain is a technical design of distributed ledger technology and is characterized as a public and decentralized register or data storage system that permanently records transaction data. The public means that¹⁶ every transaction on a block chain that has been stored can be publicly viewed.¹⁷ The permanence results

from the cryptographic scattering value or hash functions (a scattering value function which is collision resistant, which means that it is not possible to find different input values which result in the same hash value), on which the technology is based, which guarantee that the transaction history cannot be corrupted or compromised with today's conventional technology and is this stability or technical redundancy closely related to decentralisation. Decentrality means that there is no central instance responsible for the database. Instead, a large number of "nodes" (network participants) in a peer-to-peer network (decentralized network; decentralized autonomous organization) constantly synchronize¹⁸ transaction data. If a network node is lost, this does not endanger the stability or functionality of the network itself.¹⁹

Torrent networks are also decentralised. These differ from the block chain in that states are not transferred once (prevention of double spending on the block chain), but content can be multiplied - for example in connection with file sharing protocols.

A transaction on a block chain shows in its most basic form the source, the destination(s) and a specific value²⁰ to be transferred. The source and destination are also known as addresses in a block chain²¹, whereby everyone is free to create new addresses. If such an address or public key is created, an additional unique alphanumeric character string is automatically generated and assigned to the public key (the "private key"²²). As a rule, only one private key is assigned to each public key, although there are also so-called "multi-sig procedures" ("multi-signature") in which several private keys are assigned to one public key and several private keys are also required to carry out a transaction.²³

Apart from the permanent storage of transaction data, a block chain ensures that each transaction request is verified and confirmed with the content of an instruction to transfer a value from one address to another. Confirmed transaction requests are then stored on the block chain, thereby generating the name-giving and symbolic data chain of a block chain. Each block in a block chain has a hash or scatter value function (algorithm or mathematical function), which is generated from the preceding, already verified data record and thus creates a data hierarchy. This process, known as "mining" or "minting",²⁴ continuously extends the transaction history.²⁵

The confirmation of transactions does not take place on a case-by-case basis, but several transactions are confirmed en bloc at the same time and stored in a new block on the block chain. On average, a block is created on the Ethereum block chain approximately every 13 seconds at the time of writing this paper.²⁶ In addition to the basic functions listed above, block chains such as Ethereum also enable the execution of decentralized programs or applications (decentralized apps; dapps; Smart Contracts). Smart Contracts execute certain tasks according to their programming code and are usually based on if-then-else statements (if condition A occurs, action B is executed, otherwise C is executed).²⁷ The term "smart contract" was coined by Szabo in 1994: *"A smart contract is a computerized transaction protocol that executes the terms of a contract. The general objectives of smart contract design are to satisfy common contractual conditions (such as payment terms, liens, confidentiality, and even enforcement), minimize exceptions both malicious and accidental, and minimize the need for trusted intermediaries. Related economic goals include lowering fraud loss, arbitration and enforcement costs, and other*

*transaction costs. Some technologies that exist today can be considered as crude smart contracts, for example POS terminals and cards, EDI, and agoric allocation of public network bandwidth.*²⁸

In his manifesto on Smart Contracts, *Szabo* indicates that the considerations in this regard go back even further, namely to so-called agoric computing²⁹, which has its origins in the 1970s and 1980s.³⁰

1.2 Token, coins and standardization despite depositum regulare

The TVTG as amended by BuA 2019/54 defines a token as an information on a decentralized database (VT system, which guarantees the secure disposal of tokens), which can represent rights and to which VT identifiers or identifiers are assigned.³¹ According to this legal diction, it could be concluded that tokens are information on a decentralized database that represent rights, while a coin is a subtype of a token that does not represent rights and is necessary for the proper functioning of a block chain (protocol token or protocol coin) and whose value is measured by supply and demand on the market, which is why it does not represent an object without intrinsic value even if accepted as a medium of exchange and therefore is not to be treated as fiat money³² but as virtual currency. From a technical point of view, it is in any case the other way round and a coin represents the native unit of a block chain, while tokens use the same technical standard as the native coin.³³

But even the wording of the law merely indicates that there are tokens that represent rights as well as tokens that do not represent rights (arg *"an information that can represent rights."*³⁴) Technically speaking, a token is software³⁵ and as such part of a two-factor authentication security measure used to authorize the use of software-based services.³⁶ It