

10 VCC tokens' civil law – ownership, transfer and liability under Union and German law

Abstract: Whereas the potential of the VCM is seen as bright and it is forecast to reach a market value of tens of billions of USD, it is essential for the VCM that big market players like financial institutions join the market to further drive it. With the entry of institutional players, the market could live up to its potential and create a wide impact economically and environmentally. A crucial question for these and other market participants is whether and how they are able to report VCC tokens in their balance. If the balancing is sound and accepted by auditors, VCC tokens become even more interesting assets to invest in. Closely connected to and partly at the core of those questions is the civil law of VCC tokens. To answer such questions, it is important to grasp the legal nature of VCC tokens and to comprehend the transfer from one market player to another. Only if the transfer can be traced back and explained in a legally sound way can proprietary rights in VCC tokens be claimed by the relevant acquiring person. This analysis aims to assess certain aspects of VCC tokens' civil law to give potential answers to the questions raised and nurture a common understanding of civil law issues from a Union and German law point of view. Whereas a first glance into non-EU jurisdictions serves as the starting point of the analysis, the analysis is focused on ownership, transfer, and liability under Union and German law. Under each keyword, different categories will be discussed and the analysis will show that while certain questions can be answered more definitely, others remain subject to further discussion in academia and in practice.

Keywords: Civil law, legal nature, Market in Crypto-assets Regulation, UNIDROIT DAPL, proprietary rights

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1 Glance at the legal nature of VCCs and crypto-assets across different jurisdictions

The VCM presents itself as an international market. As carbon projects depend on certain environmental circumstances, the carbon project and the investor are not necessarily located in the same jurisdiction and cross-border matters are common.¹ This analysis is focused on the Union and German perspective, yet a short look into US and English law will contribute to a deeper understanding of the matter and indicate the trends on the international stage concerning legal issues regarding VCC tokens as well.

1.1 Growing discussion regarding the legal nature of VCCs in different jurisdictions

Currently, and as far as we can see, the legal nature of VCC tokens has not been explicitly regulated by lawmakers around the globe.² Yet there are sources dealing with the legal nature of (traditional and non-digital) VCCs that state that VCC tokens could be treated equally.³ Besides documents by market players⁴ or affiliated law firms,⁵ only studies by supra-national organisations have profoundly analysed the legal nature of traditional and non-digital VCCs in certain jurisdictions.⁶ A discussion in the German or English academic legal literature cannot be identified, again with the caveat that all legal literature from all jurisdictions can hardly have been reviewed. It is largely accepted that VCCs can be seen as commodities under US law.⁷ This is plausible due to the very broad definition of the term set out in Section 1a(9) of the Commodity Exchange Act.⁸ It is also stated that VCCs can be interpreted as intangible property under French law.⁹ Similarly, there are assessments considering VCCs as intangible property under English law.¹⁰ In both cases, parallels to the legal nature of EU emission allowances are drawn.

It is doubtful that the legal nature of VCC tokens can be decided upon by solely looking at the parallel discussion regarding traditional and non-digital VCCs. The digital manifestation of VCC tokens could be an important difference when assessing their legal nature. However, the findings that other jurisdictions are open to include VCCs in their judicial framework and consider them as some kind of property or subject to proprietary rights need to be kept in mind for the further analysis.

1.2 Legal nature of crypto-assets and questions of property across different jurisdictions

As already mentioned, when discussing the legal nature of VCC tokens, the legal nature of crypto-assets plays an important role. Due to their digital manifestation, VCC tokens could be seen as crypto-assets and hence categorised in the same way. At the EU level, the discussion is influenced by Union (regulatory) legislation such as the Markets in Crypto-Assets Regulation (MiCAR).¹¹ However, such regulatory legislation inherently does not (fully) determine the civil law of crypto-assets on a national level. Most importantly, Union law must be neutral towards the property law of its Member States (cf. Art. 345 TFEU).¹² Further, the Union legislation, in principle, looks at crypto-assets from a regulatory point of view and is only concerned with specific questions, for instance, those of consumer protection. The civil law of crypto-assets remains widely non-codified and is disputed in academia across different legislations. A prominent example of such a debate was the Law Commission consultation of England and Wales on digital assets.¹³ Its work led to a draft bill, which was recently introduced by the UK Government and provides that digital assets can be considered to be personal property under the laws of England and Wales.¹⁴ Already before the consultation, English courts ruled that crypto-assets can be considered property under English law.¹⁵ Under US law, while lacking a nationwide codification, the view that crypto-assets are property seems to be predominant across state borders.¹⁶ Further, there are European civil law legislations that treat some crypto-assets at least partly as property.¹⁷

To conclude, there is a strong tendency on a global level to consider crypto-assets as property or proprietary rights. The recent English approach is likely to further nourish this development. The analysis will continue to examine whether VCC tokens can be categorised as crypto-assets and which conclusions are to be drawn in this regard from a Union and German law perspective.

2 Legal nature of VCC tokens under Union and German law

After a brief glance at the legal nature of VCCs and crypto-assets under different jurisdictions, the focus will be shifted towards VCC tokens under Union and German law. It will be discussed how VCC tokens fit into various existing categories in law with a focus on proprietary matters and it will be asked what VCC tokens are or embody at their very core.

2.1 Categorisation of VCC tokens under the Markets in Crypto-Assets Regulation

To gain a comprehensive understanding of the legal nature of VCC tokens and to define the legal landscape of crypto-assets, it is advisable to look at existing definitions in this area. However, it needs to be kept in mind that definitions do not lead to legal consequences by themselves. This is especially the case in the context of civil law as definitions may originate from regulatory legal frameworks.

2.1.1 VCC tokens as financial instruments under MiFID II?

In 2023, the EU introduced MiCAR as a comprehensive regulatory framework for crypto markets, placed next to the MiFID II¹⁸ regime and therefore designed to establish an either-or-framework. This is why MiCAR does not apply to financial instruments (Art. 2(4)(a) MiCAR) or other instruments listed in Art. 2(4) MiCAR, which shall be largely governed by the co-regime, the MiFID II. According to Art. 3(1)(49) MiCAR, the term ‘financial instrument’ consequently means financial instruments as defined in Art. 4(1)(15) MiFID II. MiFID II does not define financial instruments in an abstract way but specifies those instruments in Section C of Annex I. Importantly, Art. 4(1)(15) MiFID II explicitly states since its latest amendment by the DLT Pilot Regime¹⁹ that instruments issued by means of distributed ledger technology are included.

The most debatable category which could apply to VCC tokens is ‘transferable securities’.²⁰ This category is further defined in Art. 4(1)(44) MiFID II and means

those classes of securities which are negotiable on the capital market, with the exception of instruments of payment, such as: (a) shares in companies and other securities equivalent to shares in companies, partnerships or other entities, and depositary receipts in respect of shares; (b) bonds or other forms of securitised debt, including depositary receipts in respect of such securities; (c) any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures.

Whereas VCC tokens are indeed negotiable on a comparable (small) market, it is already questionable whether the market is part of the ‘capital market’ in the sense of Art. 4(1)(44) MiFID II. Further, the wording of the article itself could oppose such an understanding. VCC tokens, unlike shares or bonds, do not embody a certain claim (see Section 2.2 below for this question), yet this could be a common understanding of the term ‘security’ in general. However, both aspects can be left aside, since, most importantly, VCC tokens do not give ‘the right to acquire or sell any such transferable securities as shares or bonds or give rise to a cash settlement’ in the sense of Art. 4(1)(44) MiFID II. Consequently, the precise and rather narrow definitions of ‘transferable security’ and ‘financial instrument’ are not applicable. This finding can be supported

by the fact that EU emission allowances which have some common characteristics with VCC tokens are listed *separately* in Section C of Annex I and not mentioned in Art. 4(1)(44) MiFID II. To conclude, VCC tokens are not financial instruments in the meaning of MiFID II and hence could be crypto-assets under MiCAR.²¹

2.1.2 VCC tokens as crypto-assets according to Art. 3(1)(5) MiCAR

The key term of MiCAR is 'crypto-asset' as defined in Art. 3(1)(5) MiCAR. It means 'a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology'. As explicitly stated in Recital (16) MiCAR, the term 'should be defined as widely as possible'. Further, Recital (2) MiCAR states that the meaning of value can be subjective and based only on the interest of the purchaser of the crypto-asset. Whilst the value or right represented by a VCC token needs to be further discussed below, it can already be decided at this point whether a VCC token can be subsumed as a crypto-asset under MiCAR.

As VCC tokens are purchased and traded, they represent a value of some kind. A crucial question is whether VCC tokens are transferable as demanded by MiCAR. The transfer is further illustrated by Recital (17) MiCAR. It states that 'digital assets that are accepted only by the issuer or the offeror and that are technically impossible to transfer directly to other holders should be excluded from the scope of this Regulation'. As an example, loyalty schemes are mentioned. Interoperability between different platforms on the market for VCC tokens is not given (yet). Also, the technical transfer of the VCC token itself often demands an action of the trading platform or registry (see Section 3 for the question, whether and how claims, rights, or other things in the context of VCC tokens can be transferred). Yet, this is the case for many crypto-assets. Moreover, VCC tokens are usually held using a (third-party) wallet in the same way as other known crypto-assets like Bitcoin, Ether, or Tether and can be transferred into a wallet and from one blockchain address to another.²² Likewise, VCC tokens are not only accepted by the issuer or the offeror but by several market participants, for example, a buyer on the secondary market. Therefore, a transfer within the meaning of MiCAR takes place. VCC tokens are also electronically stored using distributed ledger technology. VCC tokens are therefore crypto-assets as defined in Art. 3(1)(5) MiCAR.

MiCAR defines different categories of crypto-assets. Most prominent is the distinction mentioned in Recital (18) MiCAR between electronic money tokens (Art. 3(1)(7) MiCAR), asset-referenced tokens (Art. 3(1)(6) MiCAR), and other crypto-assets (Title II MiCAR), including utility tokens (Art. 3(1)(9) MiCAR). Utility tokens are defined as crypto-assets that are 'only intended to provide access to a good or a service supplied by its issuer'. Whereas the (self-)categorisation as utility tokens was in vogue to bypass regulatory requirements before MiCAR,²³ today's clear definition limits the scope of the term. Although VCC tokens have been described as utility tokens in the past as well,²⁴ this categorisation could fail under the MiCAR definition. As will be shown

below, there are services connected to holding VCC tokens to be considered, like for instance the retirement of the VCC token. Yet, VCC tokens are not *only* intended to provide a service supplied by its issuer, like a voucher or coupon.²⁵ VCC tokens have a value by themselves and the holder may decide the fate of a VCC token. Hence, VCC tokens do not seem to be utility tokens as defined in Art. 3(1)(9) MiCAR.²⁶

2.2 Is a VCC token a claim against another person?

2.2.1 Claims in the context of traditional and non-digital VCCs

One crucial question when discussing the legal nature of VCC tokens is whether they are, embody or represent claims against involved parties. The studies regarding the legal nature of traditional and non-digital VCCs discussed a so-called bundle of rights approach.²⁷ More specifically, it was discussed whether a VCC represents a claim against the standard setter or registry to retire the carbon credit, that is, to take it out of circulation and consider its effect to be consumed. Yet, this approach was not further followed, as it was not able to fully characterise the legal nature of VCCs. Even further, it was stated that VCCs themselves are not claims against another person.²⁸

This view is convincing. A VCC serves a different function from an economic perspective. A holder of a VCC wishes to gain a 'green' or 'sustainable' image towards its customers or the market in general by compensating for its own emissions, for example. They might also have the desire to trade with VCCs as an investment vehicle. Yet, the holder does not desire to pursue a claim in the future or to claim a future right against another person.²⁹ A VCC does not work as a voucher or coupon and has its own inherent value. Further, it is unlikely that such a 'claim' could be used to make use of a right of retention or set-off. This, however, would (usually) be possible with a claim in a legal sense.

Leaving the technical aspects aside, these considerations are transferable to VCC tokens as well. VCC tokens serve, in general, the same economic function as VCCs. The wish to compensate for emissions is guiding for the holder rather than having a (future) claim against another person. Furthermore, when reviewing the use cases, it is even unclear whether the holder of a VCC token would have an enforceable claim against the standard setter or registry as discussed above. The parties involved try to make use of extensive disclaimers to not be liable whatsoever.³⁰ The comparison with VCCs therefore speaks against the view that VCC tokens are or represent claims.

2.2.2 Claims in the context of crypto-assets in general

When looking at VCC tokens primarily as crypto-assets, the picture does not change. Crypto-assets do not inherently represent a claim against another party.³¹ A crypto-

asset may be used to reflect the actual non-digital legal situation and ideally the content of the blockchain does not contradict with underlying contractual agreements. However, the crypto-asset itself (typically) does not embody a claim against another person. Exceptions to this general rule are possible. For example, it is possible to issue securities in an electronic form as the German Electronic Securities Act³² ('eWpG') shows. In this case, similar to bills of exchanges or cheques, the digital 'paper' embodies the claim itself. The claim is only transferred when transferring the digital 'paper'.³³

However, similar provisions or economic considerations are not reflected in the use cases for VCC tokens. For example, non-assignment clauses are not part of the terms of VCC tokens. The blockchain can be used to trace back the history of a VCC token and further information can be stored. But this information does not give rise to claims and is not by itself enforceable by law. Therefore, VCC tokens themselves—similar to most crypto-assets in general—are not and do not represent claims. The fact that a holder of a VCC token has contractual claims against involved parties due to the underlying contractual framework needs to be considered separately and will be discussed below. The VCC token itself is not a representation of such claims. This is consistent with the understanding that VCC tokens fall under the category of intrinsic tokens.³⁴

2.3 Ownership according to Art. 70(1) MiCAR and Principle 3(1) UNIDROIT DAPL?

2.3.1 Art. 70(1) MiCAR and ownership rights

The finding that a VCC token does not represent a claim does not mean that it is automatically to be considered a 'nothing' in the legal sense. Just as any other object, it could still be subject to proprietary rights or transferred with legal effect. Property law is in general determined by the national law of the Member States of the European Union (Art. 345 TFEU).³⁵ Yet, as VCC tokens are to be considered crypto-assets under MiCAR, it needs to be analysed if MiCAR comments on ownership rights or other property issues. According to Art. 70(1) MiCAR, 'crypto-asset service providers that hold crypto-assets belonging to clients or the means of access to such crypto-assets shall make adequate arrangements to safeguard the ownership rights of clients'.

This provision indicates that MiCAR assumes that ownership rights regarding crypto-assets persist. However, it does not state that crypto-assets are to be considered property. This is consistent as the system of property ownership is, as already mentioned and shown in Art. 345 TFEU, subject to the national law of the Member States. Besides the fact that MiCAR acts on the assumption that ownership rights persist, no further consequences can be drawn from Art. 70(1) MiCAR in this regard.³⁶ Nevertheless, it is important to notice that the European legislator is at least open to this con-

cept and leaves it up to the Member States to regulate ownership (or similar rights) in the context of crypto-assets.

2.3.2 Principle 3(1) UNIDROIT DAPL and proprietary rights for digital assets

Principle 3(1) UNIDROIT DAPL³⁷ states that ‘a digital asset can be subject of proprietary rights.’ A digital asset is defined in Principle 2(2) UNIDROIT DAPL and means ‘an electronic record which is capable of being subject to control’. As a VCC token contains information stored on a blockchain and can be held and transferred using a wallet, it is a digital asset within the meaning of Principle 3(1) UNIDROIT DAPL. According to Commentary 3.4., ‘proprietary rights’ must be understood in a broad sense and is not necessarily congruent with the term ‘ownership’ across different jurisdictions. Commentary 3.2. states that ‘whether digital assets can be the subject of proprietary rights (a legal consequence) must be distinguished from the categorisation of digital assets’.

As the UNIDROIT DAPL represent soft-law, they are by definition not able to settle the current legal situation. Also, UNIDROIT, as a supra-national organisation is particularly sensitive about differentiating legal frameworks around the globe, including different concepts of proprietary rights. Yet, it is clearly shown and explicitly stated in Commentary 3.1. that UNIDROIT ‘advise[s] states to increase legal certainty on this issue and make explicit that digital assets can be the subject of proprietary rights’. This finding corresponds with the concept of ownership rights under MiCAR and indicates that different institutions are not only open to proprietary rights in the context of crypto-assets but even recommend a codification of this approach.

2.4 VCC tokens and their categorisation under German civil law

After examining Union law and the abstract question of whether a VCC token represents a claim against another person (*quod non*), a categorisation of VCC tokens under German civil law shall be undertaken. It was shown that Union law is not able to determine proprietary issues of its Member States and that national law must be examined in this regard. Looking at those and other issues, different categories with varying legal consequences come into play.

2.4.1 VCC tokens and corporeal objects

When discussing the legal nature of digital assets, a first path to consider is the comparability to corporeal objects. Whereas civil law jurisdictions such as Germany and Switzerland³⁸ have codified rules regarding corporeal objects, the common law sys-

tem distinguishes between two types of personal property, that is, choses in possession and choses in action.³⁹ The former only applies to corporeal objects. German property law is often concerned with the term 'thing' (German text: 'Sache') defined in Sec. 90 German Civil Code⁴⁰ ('BGB'). For example, Sec. 903 BGB, which describes the powers of the owner, mentions 'the owner of a thing'. Sec. 929 BGB describes 'the transfer of the ownership of a movable thing'. Therefore, it must be analysed whether VCC tokens are things as defined in Sec. 90 BGB.

Sec. 90 BGB states that 'only corporeal objects are things as defined by law'. The definition demands corporeality. Non-corporeal objects are not things within the meaning of Sec. 90 BGB. While corporeality is not further defined by law, there is a common understanding that a thing within the meaning of the section needs to be sensuously perceivable and spatially delimited.⁴¹ This is not the case for VCC tokens, which only exist in digital form. There is a prevailing understanding in German legal literature that crypto-assets are not corporeal objects.⁴² This leads to the prevailing view that Sec. 90 BGB cannot be applied (directly) to crypto-assets.

Yet, it is argued that corporeality within the meaning of Sec. 90 BGB needs to be understood in a functional way emphasising controllability and differentiability.⁴³ Such characteristics could be fulfilled by VCC tokens as well. This view might lead to a stronger legal position for the holder of a VCC token as German property law would apply. A functional understanding could simplify the treatment of crypto-assets under German law at first glance but might give rise to difficult interpretations of provisions on the law of things and property that were never designed for tokens. The question remains if such a strong functional approach would not only push the boundaries of the wording to its limit but rather exceed them. A decision by the German courts or the legislator on this matter remains desirable but is currently not in sight.

There are authors who advocate for treating crypto-assets like things applying Sec. 90 BGB *mutatis mutandis*.⁴⁴ However, whether the numerous counter-arguments can be overcome remains questionable. Firstly, the provisions of the BGB are based on the understanding that things are corporeal. A functional view would lead to friction with the manifold provisions concerning (corporeal) things. For example, provisions relating to the transfer of things or *bona fide* acquisitions could hardly be suitable for crypto-assets.⁴⁵ Secondly, the German legislator had the opportunity to update the traditional understanding of a thing within the meaning of Sec. 90 BGB over the last years in several instances.⁴⁶ Nevertheless, it decided to stick with such understanding and rather implement a provision like Sec. 2(3) eWpG. It states 'an electronic security is deemed to be a thing within the meaning of Sec. 90 BGB.' Instead of changing Sec. 90 BGB itself (or allowing an application *mutatis mutandis*), the German legislator decided to codify a legal fiction for (only) a specific instrument. To conclude, VCC tokens are not things according to Sec. 90 BGB and are not to be treated as such.

2.4.2 VCC tokens as intangible assets

The term intangible asset is not uniformly defined and may vary from jurisdiction to jurisdiction. Yet, in the context of VCCs and VCC tokens, it is a crucial term as it, generally speaking, suggests a value and a tradability of an object. The term intangible asset is not codified in German civil law. German sales law is once again centred around the term ‘things’ as the core provision of Sec. 433 BGB shows, which speaks of ‘the seller of a thing’. Still, the provisions regarding purchase agreements in Sec. 433ff BGB do not only apply to things. This is depicted in Sec. 453(1) sentence 1 BGB, which states that ‘the provisions governing the purchase of things apply accordingly to the purchase of rights and other objects’. VCC tokens themselves are not rights in the understanding of German sales law. With a similar reasoning to that above, a VCC token as pure digital information does not embody a claim or another right within the meaning of the provision. However, ‘object’ (German text: ‘Gegenstand’) is another key term in German civil law, which therefore needs to be further examined. If VCC tokens were objects under German law, *inter alia*, the provisions regarding purchase agreements would be applicable.

The term is not defined by law. It is important to notice that the term ‘object’ has a catch-all function in German civil law and German sales law in particular.⁴⁷ If VCC tokens were not considered as objects, they would be considered as a legal nullity under German sales law as codified in Sec. 433ff BGB. The fact that market participants acquire VCC tokens in exchange for a digital or non-digital payment would oppose such a consideration. Objects, *inter alia*, are intangible assets.⁴⁸ Intangible assets have the characteristics that they are tradable and have an economic value.⁴⁹ VCC tokens are traded on certain platforms and have a value as they are purchased with money or other currencies or can be exchanged. Consequently, VCC tokens are intangible assets and, hence, objects within the meaning of Sec. 453(1) sentence 1 BGB as well.⁵⁰ This finding is further supported by the newly integrated Sec. 453(1) sentence 2 BGB, which states that a digital content can be subject of a sales contract. A VCC token as digital information on the blockchain is comparable with a digital content from a technical point of view. In light of the aforementioned findings, it is possible to conclude legally effective sales contracts regarding VCC tokens as they are considered intangible assets under German civil law.

2.4.3 VCC tokens as absolute rights

Another essential part of civil law is tort law. Generally speaking, tort law (amongst other things) secures in particular the integrity of absolute rights. German tort law, *inter alia*, is covered by Sec. 823ff BGB. A core provision is Sec. 823(1) BGB, which states: ‘A person who, intentionally or negligently, unlawfully injures the life, limb, health, freedom, property, or some other right of another person is liable to provide

compensation to the other party for the damage arising therefrom.' A VCC token could be considered as an 'other right' within the meaning of Sec. 823(1) BGB. The term is not further defined by law. It must be defined from a tort law perspective and is not necessarily congruent with the usage of 'right' in Sec. 453(1) sentence 1 BGB. An 'other right' must be an absolute right, that is, a legal position which is also protected or recognised by provisions outside of tort law.⁵¹ Such absolute rights are characterised as follows: The right must be allocated to a specific person, the owner of the right must be able to use the right independently of the will of others and the owner must be able to exclude others from the right.⁵²

A VCC token is held by a specific person as the holder. This is usually done by storing the VCC token on the blockchain address of the holder and further indicated by an entry in a register. That does not change when the client engages a crypto custodian, as a crypto-asset service provider shall make adequate arrangements to safeguard the ownership rights of its clients according to Art. 70(1) MiCAR.⁵³ When the VCC token is allocated to the blockchain address of the holder or crypto custodian, only the person who has the private key may transfer the VCC token. Only the holder/client is able to freely use the right, for example, to request the retirement of the VCC token. Further, only the holder/client can exclude others from the right as no other person is able to transfer or impact the VCC token.

That digital information—as VCC tokens constitute such digital information—is also protected and recognised by provisions outside of tort law is shown by Sec. 303a German Criminal Code⁵⁴ ('StGB'), which penalises the deletion, suppression, rendering, or altering of data,⁵⁵ and Sec. 327ff BGB, which deal with digital products.⁵⁶ Therefore, a VCC token could be considered an absolute right and an 'other right' in the meaning of Sec. 823(1) BGB.⁵⁷ The integrity of a VCC token is, in general, protected under German tort law (see Section 4.3 for compensation for damages, etc.).

3 Transfer of VCC tokens

After the legal nature of VCC tokens has been examined, the transfer of VCC tokens shall be analysed from a legal perspective. Transfer is closely connected with property or proprietary rights and therefore the examination of national law is required. Yet, as shown below, the UNIDROIT DAPL and MiCAR also comment on some kind of transfer, namely the change of control. Whereas the further analysis is centred around the German point of view, the underlying concepts of transfer could be transferred to other jurisdictions as well and the broad lines of thought are universally applicable.

3.1 Change of control as one form of transfer

The discussion regarding the transfer of VCC tokens is usually centred around the transfer of ownership or proprietary rights. However, due to the factual and legal characteristics of VCC tokens and digital assets, it must be kept in mind that already the change of control over a VCC token can be followed by legal consequences. Whether proprietary rights are transferred is a separate question to be answered. The UNIDROIT DAPL do not comment on the transfer of proprietary rights in a digital asset and leave it to the ‘law of a State’, that is, national legislation (Commentary 2.26. and 6.5). Nevertheless, the change of control plays an important part when dealing with digital assets. For example, the change of control is one condition of a *bona fide* acquisition according to Principle 8(1)(a) UNIDROIT DAPL. In order to qualify as an innocent acquirer, a transferee must, *inter alia*, obtain control of the digital asset. ‘Control’ is defined in Principle 6(1) UNIDROIT DAPL and according to Commentary 6.1 and 6.2., is a purely factual matter rather than a legal concept. Hence, a change of control is also of a factual nature and not (necessarily) a legal act. Similarly, MiCAR speaks of ‘control’ and ‘controlling’ of crypto-assets (e.g., Art. 3(1)(17), Art. 75(3)), especially with regard to crypto-asset service providers. As the EU legislator is neutral towards the systems of property ownership of its Member States, the use of different concepts is needed (see Section 2.3.1 for more details).

This change of control does not necessarily go hand in hand with the transfer of ownership. However, certain legal consequences may be linked to the transfer of control. For dealing with VCC tokens, this leads to the conclusion that particular attention needs to be paid to the control aspects of VCC tokens. While today’s market for VCC tokens is not as elaborate and crypto-asset service providers do not shape the image of the market, the situation might change in the future. Likewise, it is possible that national or other lawmakers may gravitate to a more practical change of control approach when regulating civil law aspects of crypto-assets like VCC tokens in the future.

3.2 Transfer solely within the law of obligations?

When analysing the transfer of VCC tokens, the discussion regarding the transfer of crypto-assets in general needs to be considered. There are authors who advocate for the view that crypto-assets are and can only be transferred within the law of obligations.⁵⁸ This is insofar plausible as crypto-assets are not considered corporeal objects and cannot be physically delivered. For example, VCC tokens are currently not considered things within the meaning of Sec. 90 BGB (see Section 2.4.1) and Sec. 929 BGB for the transfer of movable things is not (at least not directly) applicable.

However, a view that solely looks at the law of obligations and demands only a contractual agreement does not reflect the factual process of how a VCC token is transferred. Besides a transfer agreement, at least some kind of factual or legal act

regarding access to the VCC token must be considered. The transfer via the blockchain or the factual access to the VCC token cannot be completely ignored. From a German perspective, such a view also contradicts the German abstract system of title transfer (German: *Abstraktionsprinzip*), which separates the obligation (*causa*) to transfer an object and the conveyance of the legal title to such object. Those processes need to be treated separately (or abstractly) and one does not affect the other. Therefore, a transfer solely within the law of obligations is hardly convincing under German civil law.⁵⁹ Besides this matter of German civil law, it is questionable whether a sole obligational agreement that omits the issues of control over the VCC token is suitable to describe the transfer of VCC tokens comprehensively.

3.3 Transfer by agreement and delivery comparable to movable things?

While VCC tokens cannot be physically delivered, one could still argue that VCC tokens should be transferred comparable to the transfer of movable things. The delivery could be seen in using the private key to a wallet to start the technical process of transferring a VCC token from one blockchain address to another. In German law, a *mutatis mutandis* application of Sec. 929 sentence 1 BGB could be considered.⁶⁰ Sec. 929 sentence 1 BGB states that ‘the transfer of the ownership of a movable thing requires the owner to deliver the thing to the acquirer and both to agree that ownership is to pass’.

However, said acts by the holder of the VCC token are not able to effect a ‘delivery’ sufficiently similar to the corporeal delivery of a movable thing. The usage of the private key only initiates a process in which several parties are involved and on which the technical transfer depends. Besides a possible action required by the registry, the verification in the network of the blockchain (e.g., a proof of work or a proof of stake) and the consensus of its members are required to transfer the VCC token. Only when this verification and consensus take place is the transaction logged into the blockchain. Consequently, in the context of VCC tokens, there is no sufficient equivalent to the delivery by the owner (or holder) as stipulated by Sec. 929 sentence 1 BGB. A transfer comparable to the transfer of movable things, for example, applying Sec. 929 BGB *mutatis mutandis* under German law, is hence not suitable for VCC tokens.

3.4 Transfer by way of assignment comparable to the assignment of rights

As a third way, besides a sole obligational agreement and a transfer comparable to the transfer of movable things, the transfer by way of assignment could be considered.⁶¹ In German law, the assignment of rights is dealt with in Sec. 413, 398 BGB.

Since VCC tokens are intangible assets (see Section 2.4.3.), they are ‘other rights’ within the meaning of Sec. 413 BGB.⁶² According to Sec. 398 BGB, the transfer to another person takes place ‘by contract with that person (assignment)’. The transfer is completed ‘when the contract is concluded.’ Hence, the assignment itself effects the transfer of the right. However, such transfer by sole assignment cannot be construed for VCC tokens. The assignment is not able to fully effect the transfer of the VCC token as already stated above. Besides the assignment, the verification in the network is needed to log the transaction into the blockchain. The sole assignment, under German law according to Sec. 413, 398 BGB, is therefore not sufficient to effect the transfer of the VCC token.⁶³

However, this problem could be solved by a peculiarity of the assignment agreement. Such peculiarity according to a mutual agreement is covered by the freedom of contract and does, at least under German law, not contradict the law of assignments. Moreover, Sec. 398 and 399 BGB provide for the option of a different agreement between the parties. Sec. 399 second alternative BGB states that ‘a claim [or an other right] may not be assigned [. . .] if the assignment is excluded by agreement with the obligor [or the other party]’. This provision applies accordingly to the transfer of other rights according to Sec. 413 BGB, as well. Whereas the parties are not interested in excluding the assignment, it is accepted under German civil law that agreements other than the full exclusion of assignment are possible.⁶⁴ As a consequence, under German law an assignment is permitted where parties agree to transfer rights exclusively via a specific blockchain. This view reflects the technical process of transferring a VCC token on a blockchain and suits the commercial practice of transferring VCC tokens in an appropriate way. Therefore, a VCC token is transferred by way of assignment with the peculiarity that the parties agree to transfer the VCC token exclusively on the blockchain used. Under German law, this transfer can be construed by applying Sec. 413, 398, 399 second alternative BGB accordingly.⁶⁵

4 Statutory obligations in the context of VCC tokens

After examining the legal nature of a VCC token and analysing its transfer from a legal perspective, aspects of liability in the context of VCC tokens shall be discussed. The market for VCC tokens is based on several contractual agreements between the participating parties. Issues of liability are manifold and to be considered within each contractual relationship. As this analysis is focused on VCC tokens rather than traditional and non-digital VCCs, questions regarding the risks of carbon projects or the validity of (external) auditing statements shall not be discussed. In this regard, VCC tokens do not necessarily pose a new challenge to legal practitioners. Instead, the consequences of the findings regarding the legal nature of VCC tokens shall be further analysed, namely the statutory obligations in the context of VCC tokens.

4.1 Claims arising from the loss of physical possession?

Statutory obligations are closely connected to the findings above regarding the legal nature of VCC tokens. Under German law, VCC tokens are (currently) not considered things within the meaning of Sec. 90 BGB (see Section 2.4.1). Therefore, several statutory obligations regarding things in German civil law do not apply. This is the case for statutory obligations or claims in connection with the 'possession' of a thing. Claims on account of deprivation of or interference with possession according to Sec. 861 and 862 BGB cannot be pursued, as they require the possession of a thing within the meaning of Sec. 90 BGB.⁶⁶ This also applies to the claim of the former possessor according to Sec. 1007(1) or (2) BGB since it also requires the possession of a movable thing, as stated by the norm itself.

Similarly, the claim to surrender according to Sec. 985 BGB is not applicable as it requires the ownership of a thing within the meaning of Sec. 90 BGB.⁶⁷ Consequently, claims regarding emoluments or damages according to Sec. 987ff BGB do not exist either, as they require the ownership of a thing, too. An application of these provisions *mutatis mutandis* is not indicated as the legal position of the holder of a VCC token is protected by law through other means, as shown below. Furthermore, the above considerations could be transferable to other jurisdictions as well. As VCC tokens are not corporeal objects, physical possession could be denied in other jurisdictions in the same manner.

4.2 Claim for removal of an interference with an absolute right

Whereas a person has no physical possession in a VCC token, other ways are defined by law to defend against interferences for the holder. Sec. 1004(1) BGB states: 'If the ownership is interfered with by means other than removal or retention of possession, the owner may demand that the disturber remove the interference. If there is the concern that further interferences will ensue, the owner may seek a prohibitory injunction.' As already stated, VCC tokens are other rights within the meaning of Sec. 823(1) BGB. It is accepted by German courts and legal literature that such other rights as absolute rights are protected by the application of Sec. 1004(1) BGB *mutatis mutandis*.⁶⁸

Applying this to VCC tokens, it is conceivable that the control over a VCC token is interfered with. This could be the case if the functionality of or the disposing over a VCC token is restricted, especially by technical means. It is imaginable that access to a holder's wallet is restricted or hindered or that the blockchain itself or the function to log in further information is affected. In this case, the removal of the interference can be demanded *mutatis mutandis* Sec. 1004(1) sentence 1 BGB.⁶⁹ Prohibitory injunctions according to Sec. 1004(1) sentence 2 BGB are conceivable in the context of VCC tokens, as well, if an interference is to be expected.

4.3 Claim for compensation for damages according to tort law

Other important statutory claims to consider are such arising from tort law. Sec. 823 (1) BGB states, *inter alia*, that who unlawfully injures an other right of another person is liable to provide compensation to the other party for the damage arising therefrom. As shown above, a VCC token qualifies as an other right within the meaning of the norm and hence Sec. 823(1) BGB can, in principle, be applied to VCC tokens. A VCC token can be ‘injured’ if the digital ‘substance’ of the VCC token is damaged. This could be the case if the VCC token’s content was deleted or the network of the block-chain is attacked to the point of non-functionality. In these cases, compensation for damages could be claimed.

Likewise, Sec. 823(2) BGB could be applied. It states that ‘the same duty is incumbent on a person who commits a breach of a statute that is intended to protect another person’. Instead of an injury of an absolute right, the breach of a protective statute is required. Here, Sec. 303a(1) StGB constitutes such a statute which states that ‘whoever unlawfully deletes, suppresses, renders unusable or alters data (Sec. 202a(2) StGB) incurs a penalty of imprisonment for a term not exceeding two years or a fine’. The statute intends to protect the holder of any kind of data.⁷⁰ The holder of a VCC token is therefore protected under this law as well. If one of the listed actions occurred in the context of a VCC token, for example, a VCC token was manipulated to the extent of non-functionality, the holder would be entitled to compensation for their damages.

4.4 Claim to surrender on the basis of unjust enrichment

Lastly, a claim to surrender on the basis of unjust enrichment could be considered in the context of VCC tokens as well. This claim is defined in Sec. 812(1) BGB which reads:

A person who obtains something as a result of the performance of another person or otherwise at that person’s expense without legal grounds for doing so is under a duty to surrender to that person what has been obtained. This duty also exists if the legal grounds later cease to exist or if the result intended to be achieved by an act of performance in accordance with the substance of the legal transaction does not materialise.

‘Something’ within the meaning of Sec. 812(1) BGB can be any benefit that has some asset value.

Holding or having control over a VCC token constitutes such a benefit as a VCC token has an economic value. It is traded for a certain price and usually acquired in exchange for a payment. The obtaining of such a position (i.e., holding or having control over the VCC token) could occur by accidentally transferring the VCC token or fraudulently obtaining control over it, for example, by gaining access to the rightful owner’s wallet. Each alternative of Sec. 812(1) BGB can be applicable depending on the

relationship between the parties. For example, while an accidental transfer could be the result of the performance of another person, fraudulently obtaining control could be seen as otherwise obtaining at the other person's expense. The legal consequence of Sec. 812(1) BGB is the claim to surrender what has been obtained, in this case, the control over a VCC token, for instance.

5 Conclusions

Several different areas of civil law were the subject of this analysis. Similar to traditional and non-digital VCCs, the legal discussion concerning the civil law of VCC tokens is still at an early stage. When analysing VCC tokens, some considerations regarding traditional or non-digital VCCs can be drawn upon. This is, in particular, the case when discussing whether a VCC token itself is a claim against another person. It could be shown that VCC tokens as VCCs alike are not and do not represent a claim against another person. When diving deeper into questions of civil law, the similarities to traditional and non-digital VCCs decrease and crypto-assets in general move into focus. While other jurisdictions such as the United Kingdom are close to codifying some civil law aspects of the legal nature of crypto-assets, this is not necessarily the case for Union or German law. Union law and the UNIDROIT DAPL refrain from interfering with the property law of its Member States, respectively of national jurisdictions. Yet, both are open to ownership or proprietary rights regarding crypto-assets and the UNIDROIT DAPL even advise national legislators to increase legal certainty on this issue and make explicit that digital assets can be the subject of proprietary rights.

While VCC tokens are not corporeal objects and hence not 'things' within the meaning of German civil law, they are to be considered intangible assets and absolute rights under German law. Regarding the legal transfer of VCC tokens, those findings and the technical aspects of VCC tokens lead to the conclusion that they are transferred by way of assignment comparable to the assignment of rights with the peculiarity that the parties agree to exclusively transfer the VCC token on the blockchain used. An appealing concept is the change of control approach in the UNIDROIT DAPL (and MiCAR as well), which says that not only the change of proprietary right could lead to (severe) consequences but the change of control, too. The legal nature of VCC tokens further leads to various statutory obligations under German civil law. VCC tokens are protected by law and claims under tort law or on the basis of unjust enrichment are possible.

To summarise, already today VCC tokens can be integrated into German civil law and do not constitute a legal nullity. On the contrary, VCC tokens are intangible assets and absolute rights and protection by law are guaranteed. Nevertheless, it seems advisable to further codify issues concerning VCC tokens and crypto-assets in general to create more legal certainty for legal practitioners in the future. It remains to be seen

whether the future of civil law on VCC tokens will be developed in accordance with the civil law of crypto-assets, or if a comprehensive framework for VCCs, which also includes VCC tokens, will eventually see the light of day.

Notes

1 See for the question of the applicable law Chapter 7, Dominik Skauradszun and Sebastian Böhning, ‘Applicable Law in the Supply Chains of VCC Tokens’.

2 On 26.12.2024, Regulation (EU) 2024/3012 of the European Parliament and of the Council of 27.11.2024 establishing a Union certification framework for permanent carbon removals, carbon farming, and carbon storage in products (CRCR) [2024] OJ L3012/1 entered into force. However, the Regulation does not stipulate a regulatory legal framework. Instead, a voluntary certification framework was created at Union level (see Hans-Peter Schwintowski, ‘Die Zertifizierung von CO₂-Entnahmen nach der CRCF-VO am Beispiel Wald’ [2024] EWeRK Energie- und Wettbewerbsrecht in der Kommunalen Wirtschaft 87).

3 UNIDROIT Working Group on the Legal Nature of Verified Carbon Credits, ‘Summary Report of the First Session, Study LXXXVI – W.G.1 – Doc. 3’ (2024) 14 <https://www.unidroit.org/wp-content/uploads/2024/01/Study-LXXXVI-W.G.1-Doc.-3-Report.pdf> accessed 21 July 2025.

4 Toucan, ‘Public Consultation: Verra’s Approach to Third-Party Crypto Instruments and Tokens – Response document by Toucan Protocol’ (2022) https://blog.toucan.earth/content/files/2023/01/Toucan_Verra_response.pdf accessed 21 July 2025.

5 Sim Ting, Adrian Ang and Tay Yong Seng, ‘The Legal Character of Voluntary Carbon Credits: A Way Forward’ (2024) <https://genzero.co/wp-content/uploads/2024/03/The-Legal-Character-of-Voluntary-Carbon-Credits-report.pdf> accessed 21 July 2025.

6 UNIDROIT Study LXXXVI, Legal Nature of Verified Carbon Credits, current status and documents under www.unidroit.org/work-in-progress/verified-carbon-credits/ accessed 21 July 2025; ISDA, ‘The Legal Nature of Voluntary Carbon Credits: France, Japan and Singapore’ (2022) <https://www.isda.org/a/PlcGE/Legal-Nature-of-Voluntary-Carbon-CreditsFrance-Japan-and-Singapore.pdf> accessed 21 July 2025; ISDA, ‘Legal Implications of Voluntary Carbon Credits’ (2021) <https://www.isda.org/a/38ngE/Legal-Implications-of-Voluntary-Carbon-Credits.pdf> accessed 21 July 2025.

7 Congressional Research Service, ‘Voluntary Carbon Markets and the Commodity Futures Trading Commission’ (2024) 2 <https://crsreports.congress.gov/product/pdf/R/R48095> accessed 21 July 2025; ISDA, ‘Legal Implications of Voluntary Carbon Credits’ (n 6); Ben McQuhae & Co, ‘The Legal Nature of Carbon Credits’ (2023) <https://bmcquhae.com/en/2023/03/15/the-legal-nature-of-carbon-credits/> accessed 21 July 2025.

8 Sec. 1a(9) of the Commodity Exchange Act (CEA): ‘The term commodity means wheat, cotton, rice, corn, oats, barley, rye, flaxseed, grain sorghums, mill feeds, butter, eggs, *Solanum tuberosum* (Irish potatoes), wool, wool tops, fats and oils (including lard, tallow, cottonseed oil, peanut oil, soybean oil, and all other fats and oils), cottonseed meal, cottonseed, peanuts, soybeans, soybean meal, livestock, livestock products, and frozen concentrated orange juice, and all other goods and articles, except onions (as provided by section 13–1 of this title) and motion picture box office receipts (or any index, measure, value, or data related to such receipts), and all services, rights, and interests (except motion picture box office receipts, or any index, measure, value or data related to such receipts) in which contracts for future delivery are presently or in the future dealt in’.

9 ISDA, ‘The Legal Nature of Voluntary Carbon Credits: France, Japan and Singapore’ (n 6) 7.

10 ISDA, ‘Legal Implications of Voluntary Carbon Credits’ (n 6) 13; Ben McQuhae & Co (n 7).

11 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 [2023] OJ L150/40.

12 Dominik Skauradszun and Thi Minh Ngoc Nguyen, 'MiCAR, UNIDROIT Principles on Digital Assets and Private Law, and their Insolvency Principles' (2024) 123 ZVglRWiss Zeitschrift für Vergleichende Rechtswissenschaft 261, 267. Art. 345 TFEU reads 'The Treaties shall in no way prejudice the rules in Member States governing the system of property ownership.'

13 Law Commission of England and Wales, Project on Digital Assets, status and documents under <https://lawcom.gov.uk/project/digital-assets/> accessed 21 July 2025.

14 Property (Digital Assets, etc.) Bill [HL].

15 E.g., AA v Persons Unknown [2019] EWHC 2556 (Comm); cf Sebastian Omlor, 'Digitales Eigentum an Blockchain Token – rechtvergleichende Entwicklungslinien' (2020) 119 ZVglRWiss Zeitschrift für Vergleichende Rechtswissenschaft 41, 47; Sophia Schwemmer, 'Das Tokensachstatut – Zur kollisionsrechtlichen Behandlung der Übertragung von Bitcoin, Kryptowertpapieren und anderen Kryptotoken' [2022] IPRax Praxis des Internationalen Privat- und Verfahrensrechts 331, 334.

16 Cf IRS, Digital assets <https://www.irs.gov/businesses/small-businesses-self-employed/digital-assets> accessed 21 July 2025; Jason G Allen, Michel Rauchs, Apolline Blandin and Keith Bear, 'Legal and Regulatory Considerations for Digital Assets' (2020) 22 <https://www.jbs.cam.ac.uk/wp-content/uploads/2020/10/2020-ccaf-legal-regulatory-considerations-report.pdf> accessed 21 July 2025; Schwemmer (n 15) 334; Frederick Rieländer, 'Eigentum an digitalen Vermögenswerten – Auf dem Weg zu einem sachenrechtlichen Zuordnungsregime für Krypto-Assets' [2024] ZEuP Zeitschrift für das Europäische Privatrecht 769, 777; Jason G Allen, Henry Wells and Marco Mauer, 'Cryptoassets in Private Law: Emerging Trends and Open Questions from the First 10 Years' (2022) SMU Centre for AI & Data Governance Research Paper No. 06/2022 11f; Joseph Jasperse, '50-State Review of Cryptocurrency and Blockchain Regulations' (2022) Stevens Center for Innovation in Finance https://stevenscenter.wharton.upenn.edu/publications-50-state-review/#_ftnref1 accessed 21 July 2025.

17 France has acknowledged ownership rights for security tokens, Sophia Schwemmer (n 15) 334; Lichtenstein has at least implicitly acknowledged ownership rights for crypto tokens, Omlor, 'Digitales Eigentum an Blockchain Token – rechtvergleichende Entwicklungslinien' (n 15) 54–57; Sophia Schwemmer (n 15) 334–335; Germany introduced the Electronic Securities Act in 2021 which treats crypto securities similar to traditional securities and states in Sec. 2(3) that an electronic security is deemed to be an object according to Sec. 90 German Civil code (see for details 2.4.1), cf Dominik Skauradszun and Selina Schweizer, 'Corporate Financing through Crypto Securities and Financial Restructuring in the Case of Company Distress' [2024] NIBLeJ Nottingham Insolvency and Business Law eJournal 1, 3ff.

18 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU [2014] OJ L173/349.

19 Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology, and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU [2022] OJ L151/1.

20 Dimitrios Linardatos, 'Finanzinstrumente im Digitalzeitalter – Teil II -' [2024] WM Zeitschrift für Wirtschafts- und Bankrecht 1685, 1689 mentions other derivative contracts according to point (10) of Section C of Annex I as a category worth discussing as well.

21 ISDA, 'The Legal Nature of Voluntary Carbon Credits: France, Japan and Singapore' (n 6) 5, 7; cf Linardatos (n 20) 1689; see for the regulatory and compliance matters regarding VCC tokens in detail Chapter 8, Leon Krug and Walter Blocher, 'VCC tokenisation: Navigating legal frameworks and designing for regulatory compliance'.

- 22 See as examples Toucan Terms of Service 3 <https://toucan.earth/terms-of-service/> accessed 21 July 2025; Regen Network Whitepaper 2021, 33 <https://regen-network.gitlab.io/whitepaper/WhitePaper.pdf> accessed 21 July 2025.
- 23 Cf Anika Patz, 'Überblick über die Regulierung von Kryptowerten und Kryptowertedienstleistern' [2021] BKR Zeitschrift für Bank und Kapitalmarktrecht 725, 727.
- 24 Cf Toucan, 'Public Consultation: Verra's Approach to Third-Party Crypto Instruments and Tokens. Response document by Toucan Protocol' (n 4) 4; PWC, 'Carbon offset token' (2022) <https://www.pwc.in/assets/pdfs/emerging-tech/carbon-offset-tokens.pdf> accessed 21 July 2025.
- 25 There are other crypto-assets on the VCM related to VCC tokens that could constitute utility tokens. This is especially the case for 'carbon forward tokens' offered by Senken. By acquiring a carbon forward token, the right to purchase a future carbon credit for a discounted price is acquired. This allows pre-funding of carbon projects similar to futures. See for more details <https://www.senken.io/blog/senken-has-launched-the-worlds-first-public-sale-of-carbon-forward-tokens> accessed 21 July 2025.
- 26 See for the regulatory and compliance matters regarding VCC tokens in detail Blocher and Krug (n 21).
- 27 UNIDROIT Working Group on the Legal Nature of Verified Carbon Credits, 'Summary Report of the First Session, Study LXXXVI – W.G.1 – Doc. 3' (n 3) 11.
- 28 Principle 2(1) DRAFT UNIDROIT Principles on the Legal Nature of Verified Carbon Credits; UNIDROIT Working Group on the Legal Nature of Verified Carbon Credits, 'Summary Report of the Second Session, Study LXXXVI – W.G.2 – Doc. 3 rev.' (2024) 23 <https://www.unidroit.org/wp-content/uploads/2024/07/Study-LXXXVI-W.G.2-Doc.-3-rev.-Summary-Report.pdf> accessed 21 July 2025.
- 29 This is the case notwithstanding the manifold claims that could arise due to the underlying contractual relationship and obligations, see Section 4 for this matter.
- 30 E.g., Regen Network Terms of Service 4 <https://www.regen.network/terms-service> accessed 21 July 2025; Toucan Terms of Service (n 22) 23.6.
- 31 Dominik Skauradszun in Heinz Beck, Carl-Theodor Samm, Axel Kokemoor (eds), *Kreditwesengesetz mit CRR* (239th edn, C.F.Müller 2024) Kryptowerte im Bürgerlichen Recht, Internationalen Privatrecht und Bilanzrecht, III para 10; Dominik Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (2021) 221 AcP Archiv für die civilistische Praxis 353, 365; Ursula Kleinert and Volker Mayer, 'Elektronische Wertpapiere und Krypto-Token' [2019] EuZW Europäische Zeitschrift für Wirtschaftsrecht 857, 859.
- 32 Gesetz über elektronische Wertpapiere (eWpG) 2021.
- 33 Christoph Gleske and Nikolaus Bunting in Klaus J Hopt and Christoph H Seibt (eds), *Schuldverschreibungsrecht* (2nd edn, Otto Schmidt 2023) Sec. 2 eWpG para 8–10.
- 34 Dominik Skauradszun and Sebastian Böhning, 'Voluntary Carbon Credits Token in der Insolvenz' [2025] KTS Zeitschrift für Insolvenzrecht 139, 150.
- 35 Skauradszun and Nguyen (n 12) 267.
- 36 Cf Paula Moffatt and Dominik Skauradszun, 'Conference in European Restructuring and Insolvency Law (CERIL) Statement 2023-3 on Crypto-assets in Restructuring and Insolvency' (2023) <https://www.ceril.eu/news/ceril-statement-2023-3-on-crypto-assets-in-restructuring-and-insolvency> accessed 21 July 2025; Skauradszun and Nguyen (n 12) 267.
- 37 UNIDROIT Principles on Digital Assets and Private Law <https://www.unidroit.org/wp-content/uploads/2024/01/Principles-on-Digital-Assets-and-Private-Law-linked-1.pdf> accessed 21 July 2025.
- 38 See, e.g., Art. 713 Swiss Civil Code.
- 39 E.g., Benedikt Bartylla, 'Der Vorschlag zur (Neu-)Regelung des Token-Eigentums im englischen Recht' [2024] RdI Recht Digital 201, 202.
- 40 Bürgerliches Gesetzbuch (BGB) 1900.
- 41 E.g., Malte Stieper in *Staudinger BGB* (Otto Schmidt De Gruyter 2021) Sec. 90 para. 9; Jörg Fritzsche in *BeckOK BGB* (72nd edn, C.H.BECK 01.11.2024) Sec. 90 para. 5.

- 42 E.g., Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 363; Lisa M Guntermann, 'Non Fungible Token als Herausforderung für das Sachenrecht' [2022] RDi Recht Digital 200, 203; Gerald Spindler and Markus Meyer, 'Digitale Assets im Deliktsrecht' [2023] MMR Zeitschrift für IT-Recht und Recht der Digitalisierung 907, 908; Sebastian Omlor, 'Blockchain-Token im Zivilrecht' [2023] JURA Juristische Ausbildung 661, 667; Johannes Meier and Hendrik K W Vormwald, 'Kryptowerte im System der Drittwiderspruchsklage' (2024) 224 AcP Archiv für civilistische Praxis 98, 119; Aurelia P Birne, *Das Allgemeine Privatrecht der Blockchain-Token* (Mohr Siebeck 2023) 63; different von Anjuli Hülst, *Absoluter Schutz von Blockchain-Token* (Mohr Siebeck 2024) 219.
- 43 Von Hülst (n 42) 99ff, 219–220.
- 44 E.g., Philipp Koch, 'Die „Tokenisierung“ von Rechtspositionen als digitale Verbriefung' [2018] ZBB 359, 362–363.; Andreas Walter, 'Bitcoin, Libra und sonstige Kryptowährungen aus zivilrechtlicher Sicht' [2019] NJW Neue Juristische Wochenschau 3609, 3613; Birne (n 42) 100.
- 45 E.g., Birne (n 42) 100 advocates for an application of Sec. 90 BGB mutatis mutandis but does not want to apply the provisions concerning the transfer of things.
- 46 Skauradszun in *Kreditwesengesetz mit CRR* (n 31) para 6; Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 363.
- 47 Florian Faust in *BeckOK BGB* (71th edn, C.H.BECK 01.08.2024) Sec. 453 para 24; Ivo Bach in *Staudinger BGB* (Otto Schmidt De Gruyter 2024) Sec. 453 para 85.
- 48 E.g., Roland M Beckmann in *Staudinger BGB* (Otto Schmidt De Gruyter 2013) Sec. 453 para. 37.
- 49 Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 363; cf Felix Maultzsch in *MüKoBGB* (9th edn, C.H.BECK 2024) Sec. 453 para 9.
- 50 For crypto-assets, e.g., Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 356; Guntermann (n 42) 207; Spindler and Meyer (n 42) 910; Omlor, 'Blockchain-Token im Zivilrecht' (n 42) 669; Birne (n 42) 55; Skauradszun in *Kreditwesengesetz mit CRR* (n 31) para 14.
- 51 Cf Gerhard Wagner in *MüKoBGB* (9th edn, C.H.BECK 2024) Sec. 823 para 344.
- 52 Wagner (n 51) para 346; Johannes Hager in *Staudinger BGB* (Otto Schmidt De Gruyter 2017) Sec. 823 para B 124; Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 368.
- 53 Skauradszun and Nguyen (n 12) 266.
- 54 Strafgesetzbuch (StGB) 1872.
- 55 Stefan Möllenkamp in Thomas Hoeren, Ulrich Sieber and Bernd Holznagel (eds), *Handbuch Multimedia-Recht* (60th edn, C.H.BECK 2023) 13.6 para. 46; Birne (n 42) 152.
- 56 Spindler and Meyer (n 42) 907; cf Patrick Ehinger and Julia Hugendubel, 'NFT-Produkte – Verwertungsrechte und neue Nutzungsarten' [2023] GRUR Gewerblicher Rechtsschutz und Urheberrecht 1065, 1074.
- 57 For crypto-assets, e.g., Katja Langenbucher, 'Digitales Finanzwesen' (2018) 218 AcP Archiv für die civilistische Praxis 385, 408–409; Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 369; Spindler and Meyer (n 42) 911; Skauradszun in *Kreditwesengesetz mit CRR* (n 31) para 16; different view, e.g., Omlor, 'Blockchain-Token im Zivilrecht' (n 42) 668; Meier and Vormwald (n 42) 105; Birne (n 42) 150.
- 58 For crypto-assets, e.g., David Paulus and Robin Matzke, 'Smart Contracts und das BGB – Viel Lärm um nichts?' [2018] ZfPW Zeitschrift für die gesamte Privatrechtswissenschaft 431, 451; Leonid Shmatenko and Stefan Möllenkamp, 'Digitale Zahlungsmittel in einer analog geprägten Rechtsordnung' [2018] MMR Zeitschrift für IT-Recht und Recht der Digitalisierung 495, 499.
- 59 For crypto-assets, e.g., Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 372.
- 60 For crypto-assets Koch (n 44) 362; Gerald Spindler and Martin Bille, 'Rechtsprobleme von Bitcoins als virtuelle Währung' [2014] WM Zeitschrift für Wirtschafts- und Bankrecht 1357, 1363.
- 61 For crypto-assets, e.g., Peter Zickgraf, 'Initial Coin Offerings – Ein Fall für das Kapitalmarktrecht?' [2018] AG Die Aktiengesellschaft 293, 299.
- 62 Cf Wolfgang Rosch in *jurisPK-BGB* (10th edn, juris 01.02.2023) Sec. 413 para 4.

63 For crypto-assets Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 374; Spindler and Bille (n 60) 1360; Walter (n 44) 3611.

64 Jan Busche in *Staudinger BGB* (Otto Schmidt De Gruyter 2022) Sec. 399 para. 53; cf Mathias Rohe in *BeckOK BGB* (71st edn, C.H.BECK 01.08.2024) Sec. 399 para 18.

65 For crypto-assets, e.g., Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 379; similar Omlor, 'Blockchain-Token im Zivilrecht' (n 42) 666; different, e.g., Guntermann (n 42) 207.

66 For crypto-assets, e.g., Martin Gutzeit in *Staudinger BGB* (Otto Schmidt De Gruyter 2018) Sec. 861 para 5.

67 For crypto-assets Skauradszun, 'Kryptowerte im Bürgerlichen Recht' (n 31) 363.

68 Frank Ebbing in Harm P Westermann, Babara Grunewald and Gerog Maier-Reimer (eds), *Erman BGB* (17th edn, Otto Schmidt 2023) Sec. 1004 para. 10; Hans Schulte-Nölke in *Schulze BGB* (12th edn, Nomos 2024) Sec. 1004 para 1; Christian Berger in Rolf Stürner (ed), *Jauernig BGB* (19th edn, C.H.BECK 2023) Sec. 1004 para 2; Silke Bayer in *jurisPK-BGB* (9th edn, juris 2020) Sec. 1004 para 55.

69 For crypto-assets Skauradszun in *Kreditwesengesetz mit CRR* (n 31) para 16.

70 Walter Kargl in Urs Kindhäuser, Ulfrid Neumann, Hans-Ulrich Paeffgen, Frank Saliger (eds), *StGB* (6th edn, Nomos 2023) Sec. 303a para 3; Brunhild Wieck-Noodt in *MüKoStGB* (4th edn, C.H.BECK 2022) Sec. 303a para 2.