The Consumer’s Right of Withdrawal in case of Payment with Bitcoins

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Abstract

Bitcoin is the most important and well known form of digital currency. It is not produced or backed by any single entity. Its production takes place in a decentralised manner and its value derives only from the fact that there is a growing community that attributes value to it and chooses to transact using this innovative means of payment. However, its importance is increasing, especially in the field of e-commerce.

The main aim of this article is to examine the consumer’s right of withdrawal, as it is regulated in the Consumer Rights Directive (Directive 2011/83/EU), in case of payments with bitcoins. More specifically, it is examined whether a consumer’s payment with bitcoins can be a hindrance to the consumer’s protection, with respect to the withdrawal right provided by the aforementioned Directive in cases of distance and off-premises contracts. Furthermore, the consequences of the exercise of the withdrawal right are examined, particularly with regards to reimbursement. The main concerns derive from the bitcoin’s disputed legal nature and its high value volatility.

Keywords: Bitcoin; Consumer Rights Directive; consumer’s right of withdrawal; e-commerce; digital currency.

1. Introduction

The European Central Bank (ECB) in its 2012 report on virtual currency schemes has defined virtual currency as ‘a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community’.1 Amongst the various types and kinds of virtual currencies, the most important and well known is, undoubtedly, the bitcoin.2 Its importance in e-commerce is steadily increasing, as more online merchants accept bitcoins as a means of

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1 European Central Bank, ‘Virtual Currency Schemes’ (Frankfurt, October 2012) <https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf> accessed 10 March 2016.
2 See European Central Bank (ibid). See also Adam Hayes, ‘The Decision to Produce Altcoins: Miners’ Arbitrage in Cryptocurrency Markets’ (2015) New School For Social Research (NSSR) Working Paper, No 4/2015, 1 <http://www.economicpolicyresearch.org/econ/2015/NSSR_WP_042015.pdf> accessed 15 March 2016, where it is suggested that ‘[b]itcoin (BTC) has become the “gold” standard of cryptocurrencies’ (1).
The value of the average worldwide daily transaction volume in bitcoins in the last year (April 2015-March 2016) was approximately 91.1 million US dollars. Although this volume is rather insignificant in comparison to the transaction volume in state currencies, several institutions, such as the European Central Bank (ECB), the European Banking Authority (EBA) and the Bank of France, have issued warnings concerning the use of bitcoins in relation, amongst other situations, to e-commerce, expressing fears regarding a lower level of consumer protection.

The legal issues arising from the emergence and use of bitcoin ‘currency’ are potentially vast and complex. This article focuses on the issue of consumer refund rights with respect to the provisions of the Directive 2011/83/EU (Consumer Rights Directive). More specifically, it will be examined whether a consumer's payment with bitcoins can be a hindrance to the consumer's protection, with respect to the withdrawal right provided by Articles 9-16 of the Consumer Rights Directive (CRD) in cases involving distance and off-premises contracts. Furthermore, the consequences of the exercise of the withdrawal right will be examined, particularly with regards to reimbursement. The main concerns derive from the bitcoin's disputed legal nature and its high value volatility.

The article is structured mainly in three parts. Initially (in section 2), a brief overview of the bitcoin's technical structure and function is laid out. Furthermore, the issue of whether or not bitcoin can be considered as money from an economic and legal point of view is explored. Next (section 3) addresses the consumer’s rights relating to information and withdrawal according to the CRD (to the extent necessary for the purposes of this article). The main issues raised in this article are then examined.

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3 Data on the bitcoin transaction volume is available at Quandl, ‘Bitcoin Estimated Transaction Volume USD’ <https://www.quandl.com/data/BCHAIN/ETRVU-Bitcoin-Estimated-Transaction-Volume-USD> accessed 13 March 2016.

4 Eg the non-cash payments in the EU alone in 2014 were €103.2 billion (approximately €282.74 million per day on average). See European Central Bank, ‘Press Release: Payment Statistics for 2014’ (15 October 2015) <https://www.ecb.europa.eu/press/pdf/2014/20141015.en.pdf> accessed 4 March 2016.

5 European Central Bank, ‘Virtual Currency Schemes’ (2012) (n 1). See also European Central Bank, ‘Virtual Currency Schemes: A Further Analysis’ (February 2015) <https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemesen.pdf> accessed 4 March 2016.

6 European Banking Authority (EBA), ‘Warning to Consumers on Virtual Currencies’ (12 December 2013) <http://www.eba.europa.eu/documents/10180/598344/EBA+Warning+on+Virtual+Currencies.pdf> accessed 4 March 2016. See also European Banking Authority, ‘EBA Opinion on “Virtual Currencies” (4 July 2014) <https://www.eba.europa.eu/documents/10180/657547/EBA-Op-2014-08+Opinion+on+Virtual+Currencies.pdf> accessed 4 March 2016.

7 Bank of France, The Dangers Linked to the Emergence of Virtual Currencies: The Example of Bitcoins (5 December 2013) <https://www.banque-france.fr/uploads/tex_pdf/2/danger.php> accessed 5 March 2016.

8 See also David Yermack, ‘Is Bitcoin a Real Currency? An Economic Appraisal’ (Cambridge, USA, December 2013) National Bureau of Economic Research Working Paper No 19747, 17 <http://www.nber.org/papers/w19747.pdf> accessed 10 March 2016.

9 Directive 2011/83/EU of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC and repealing Council Directive 85/577/EEC and Directive 97/7/EC [2011] OJ L304/64 (hereinafter also referred to as ‘CRD’).
(section 4): specifically, whether a payment in bitcoins can deprive consumers of their right to withdraw and, should it not, what the consumer's right to reimbursement should include.

2. **Bitcoin’s Functions**

2.1. **Bitcoin’s Technical Function**

First, it is necessary to provide a brief overview of the bitcoin’s structure and function. The main points of bitcoin’s structure and function were presented in a white paper, published in 2009 by Satoshi Nakamoto\(^\text{10}\) (very likely a pseudonym),\(^\text{11}\) shortly after the Bitcoin protocol was put into action. Bitcoin currency is not issued or monitored by any State, authority (eg a central bank) or individual. In fact, bitcoins are produced in a decentralised manner\(^\text{12}\) (although it has been argued that bitcoin is not perfectly decentralised)\(^\text{13}\) by means of a peer-to-peer protocol,\(^\text{14}\) the use of which is available to everyone. Theoretically, everyone is able to produce bitcoins by downloading and using the appropriate software.\(^\text{15}\) The procedure of its production is strongly connected with the transactions made in bitcoins.

More specifically, all bitcoin transactions are registered in a digital cryptographic publicly accessible ledger,\(^\text{16}\) the ‘blockchain’,\(^\text{17}\) which is not held or monitored by a single entity, but operates in a decentralised manner, by means of a peer-to-peer

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\(^\text{10}\) Satoshi Nakamoto, ‘Bitcoin: A Peer-to-Peer Electronic Cash System’ (*Bitcoin Project*, 24 May 2009) <https://bitcoin.org/bitcoin.pdf> accessed 9 February 2016.

\(^\text{11}\) See William Luther, ‘Cryptocurrencies, Network Effects and Switching Costs’ (2013) Mercatus Center Working Paper No 13-17, 16 <http://dx.doi.org/10.2139/ssrn.2295134> accessed 13 March 2016; Shawn Bayern, ‘Of Bitcoins, Independently Wealthy Software, and the Zero-Member LLC’ (2014) 108(4) *Northwestern University Law Review* 1485, 1487; Michal Polasik and others, ‘Price Fluctuations and the Use of Bitcoin: An Empirical Inquiry’ (2015) 20(1) *International Journal of Electronic Commerce* 9, 11.

\(^\text{12}\) Nakamoto (n 10) 2. See also Nicholas Plassaras, ‘Regulating Digital Currencies: Bringing Bitcoin within the Reach of the IMF’ (2013) 14(1) *Chicago Journal of International Law* 377, 383; Aleksandra Bal, ‘Should Virtual Currency be Subject to Income Tax?’ (*International Bureau for Fiscal Documentation (IBFD)*, 24 April 2014) <http://dx.doi.org/10.2139/ssrn.2438451> accessed 5 March 2016; Rhys Bollen, ‘The Legal Status of Online Currencies: Are Bitcoins the Future?’ (2013) 24(4) *Journal of Banking and Finance Law and Practice* 272, 273; Jerry Brito, Houman Shadab and Andrea Castillo, ‘Bitcoin Financial Regulation: Securities, Derivatives, Prediction Markets and Gambling’ (2014) 16 *Columbia Science and Technology Law Review*, Autumn issue, 144, 148.

\(^\text{13}\) Sarah Jeong, ‘The Bitcoin Protocol as Law, and the Politics of a Stateless Currency’ (17 July 2013) <http://dx.doi.org/10.2139/ssrn.2294124> accessed 6 March 2016.

\(^\text{14}\) Nakamoto (n 10) 3. See also Brito, Shadab and Castillo (n 12) 147.

\(^\text{15}\) See Bayern (n 11) 148B; Angela Rogojanu and Liiana Badea, ‘The Issue of “True” Money in Front of the Coin’s Offensive’ (2015) 22(2) *Theoretical and Applied Economics* 77, 86.

\(^\text{16}\) See Stuart Hoeagner, ‘What is Bitcoin?’ in Stuart Hoeagner (ed), *The Law of Bitcoin* (iUniverse 2015) 1-16, 5.

\(^\text{17}\) See Andrés Guadamuz and Christopher Marsden, ‘Bitcoin: The Wrong Implementation of the Right Idea at the Right Time’ (18 June 2014) 5 <http://dx.doi.org/10.2139/ssrn.2526736> accessed 5 March 2016; Jeanne L Schroeder, ‘Bitcoin and the Uniform Commercial Code’ (22 August 2015) Cardozo Legal Studies Research Paper 458 <http://dx.doi.org/10.2139/ssrn.2649441> accessed 6 March 2016; Aaron Wright and Primavera De Filippi, ‘Decentralized Blockchain Technology and the Rise of *Lex Cryptographia*’ (20 March 2015) <http://dx.doi.org/10.2139/ssrn.2580664> accessed 6 March 2016.
A bitcoin transaction is concluded only by means of its registration in the blockchain. The real identities of the payer or the payee are not revealed publicly in the blockchain, since the blockchain records only the public addresses (or public keys) of the transactors, i.e. ‘essentially a string of letters and numbers’, which are used to identify bitcoin ownership. This does not necessarily mean that the real identity of the payee is unknown to the payer, it means that the real identities of the people involved in a bitcoin transaction are not known to the people who view the publicly accessible blockchain. Each person can have more than one public address and a single transaction can be concluded by means of more than one public address, should the payer or the payee use several public addresses to proceed to the transaction. Therefore, bitcoin transactions can more accurately be described as being conducted pseudonymously.

An individual who wants to use his or her public address(es) in order to conclude a bitcoin transaction (i.e. to send bitcoins to another person) has to use a private key (similar to a password), which corresponds to the public address involved in the transaction (this public/private key relationship relies on cryptography.) With regards to the use of public and private addresses, parallels have been drawn to a letterbox or an e-mail address: anyone can post items to a letterbox but only the key-holder can retrieve its content. Therefore, the person who holds the private cryptographic key to a public address has in fact the ability to use the amount of bitcoins that are attached to this address. Put otherwise, ‘[o]wnership of bitcoin means the ability to transfer it to

18 See Nakamoto (n 10) 5.
19 Max Raskin, ‘Realm of the Coin: Bitcoin and Civil Procedure’ (2015) 20(4) Fordham Journal of Corporate & Financial Law 969, 975; Derek Dion, ‘I’ll Gladly Trade You Two Bits On Tuesday for A Byte Today: Bitcoin, Regulating Fraud in the E-conomy Of Hacker-Cash’ [Spring 2013] University of Illinois Journal of Law, Technology & Policy 165, 168.
20 See Nikolei Kaplanov, ‘Nerdy Money: Bitcoin, the Private Digital Currency, and the Case against its Regulation’ (2012) 25(1) Loyola Consumer Law Review 111, 117; Jonathan Turpin, ‘Bitcoin: The Economic Case for a Global, Virtual Currency Operating in an Unexplored Legal Framework’ (2014) 21(1) Indiana Journal of Global Legal Studies 335, 338.
21 See Anton Badev and Matthew Chen, ‘Bitcoin: Technical background and Data Analysis’ (7 October 2014) Finance and Economic Discussion Series 2014-104, 10 <http://dx.doi.org/10.2139/ssrn.2544331> accessed 9 March 2016.
22 Ferdinando Amertrano, ‘Hayek Money: The Cryptocurrency Price Stability Solution’ (19 August 2014) 12 <http://dx.doi.org/10.2139/ssrn.2425270> accessed 6 March 2016; Julie Andersen Hill, ‘Virtual Currencies & Federal Law’ (2014) 18(2) Journal of Consumer & Commercial Law 65, 66; Andy Yee, ‘Internet Architecture and the Layers Principle: A Conceptual Framework for Regulating Bitcoin’ (2014) 3(3) Internet Policy Review <http://dx.doi.org/10.14763/2014.3.289> accessed 9 March 2016; Schroeder, ‘Bitcoin and the Uniform Commercial Code’ (n 17) 7; Omri Marian, ‘A Conceptual Framework for the Regulation of Cryptocurrencies’(2015) 82 The University of Chicago Law Review Dialogue 53, 57.
23 Kaplanov (n 20) 117.
24 See Luther (n 11) 16; Benjamin Akins, Jennifer Chapman and Jason Gordon, ‘A Whole New World: Income Tax Considerations of the Bitcoin Economy’ (2014) 12(1) Pittsburgh Tax Review 25, 30.
25 Turpin (n 20) 338; Joshua Fairfield, ‘BitProperty’ (2015) 88(4) Southern California Law Review 805, 820.
26 Kaplanov (n 20) 117.
27 Raskin (n 19) 975.
If a person wants to send bitcoins to another person, he or she has to digitally ‘sign’ the transaction with the aforementioned private key (ie use the private key to authenticate the transaction) and broadcast a message to the decentralised Bitcoin peer-to-peer network that his or her public address is sending a certain amount of bitcoins to the public address of the payee (eg address X is sending 1 bitcoin to address Y).

The transaction is still not concluded, however. Before the transaction is recorded in the blockchain (and therefore before an amount of bitcoins is actually transferred), it must be verified whether the transferor actually owns the amount of bitcoins to be spent and ensured that he or she shall not spend, or has not spent, the same amount twice. The verification of a transaction is a highly sophisticated procedure that relies on cryptography. Individuals who participate in this procedure by using the appropriate software (the ‘users’) compete with each other using computers’ processing power to algorithmically solve a puzzle that is difficult to solve, while it is easy to check whether or not it is correctly solved, and is related with the continuity of the records in the blockchain and the validity of the transaction. Regarding the aforementioned puzzle, parallels have been drawn to a complicated Sudoku puzzle: although difficult to solve it is easy to verify whether or not the answer is correct. The solution of the puzzle and the procedure of its verification confirm that the transaction is valid and that the public ledger is neither forged nor falsified. Based on the consensus of the users (or more precisely the consensus of the total amount of CPUs of the users) who verify the correct solution of the puzzle and the validity of the transaction, as mentioned above, the user who first solves the puzzle can then record the transaction in the blockchain and is rewarded via the Bitcoin protocol with a certain amount of bitcoins. The consensus upon the solution of the puzzle and, therefore, the validity of the blockchain is reached

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28 Isaac Pflaum and Emmeline Hateley, ‘A Bit of a Problem: National and Extraterritorial Regulation of Virtual Currency in the Age of Financial Disintermediation’ (2014) 45(4) Georgetown Journal of International Law 1169, 1176.
29 See Badev and Chen (n 21) 14; Brito, Shadab and Castillo (n 12) 149; Joshua J Doguet, 'The Nature of the Form: Legal and Regulatory Issues Surrounding the Bitcoin Digital Currency System' (2013) 73(4) Louisiana Law Review 1119, 1126.
30 Badev and Chen (n 21) 12.
31 See Hoegner (n 16) 6.
32 See Badev and Chen (n 21) 3; Reiner Böhme and others, 'Bitcoin: Economics, Technology, and Governance' (2015) 29(2) Journal of Economic Perspectives 213, 216.
33 See Jerry Brito and Andrea Castillo, Bitcoin: A Primer for Policymakers (Mercatus Center at George Mason University 2013) 6.
34 See Nakamoto (n 10) 3. See also Bayern (n 11) 1490.
35 Christoph Sorge and Artus Krohn-Grimberghe, ‘Bitcoin – Das Zahlungsmittel der Zukunft?’ (2013) 93(10) Wirtschaftsdienst 720.
36 See Hoegner (n 16) 8.
37 Misha Tsukerman, 'The Block is Hot: A Survey of the State of Bitcoin Regulation and Suggestions for the Future' (2015) 30(4) Berkeley Technology Law Journal 1127, 1138.
38 See Christopher Fink and Thomas Johann, 'Bitcoin Markets' (17 September 2014) 4 <http://dx.doi.org/10.2139/ssrn.2408396> accessed 12 March 2016; Wright and De Filippi (n 17) 7.
39 See Wright and De Filippi (n 17) 7.
40 See Badev and Chen (n 21) 14.
41 See Kaplanov (n 20) 120; Bayern (n 11) 1490.
on the grounds of the majority of the processing power of the users (‘one CPU – one vote’). This procedure is known as ‘mining’. Mining is used not only for producing bitcoins but also for the conclusion of all transactions in bitcoins. More precisely, when the mining procedure is successfully accomplished, a transaction can be concluded by means of its registration in the blockchain – ie a public address (or, more precisely, the owner of the private key that pertains to this public address) is known to be entitled to the particular amount of bitcoins involved in the transaction. Furthermore, new bitcoins have been produced and are attached to the public addresses of the users who registered the transaction. The blockchain is updated on average every ten minutes. The payer and the payee do not have to participate in the mining procedure. The payee only has to inform the payer of his or her public address(es), while the payer has to sign the transaction with the private key and issue a message to the Bitcoin network in order for the transaction to be concluded by means of the mining procedure.

All in all, bitcoins are basically encrypted information, registered in a digital and publicly accessible ledger, organised in a decentralised manner, on the basis of a peer-to-peer protocol, by means of which all transactions in bitcoins are concluded (as described above). The records of this public ledger provide information about the transactions in bitcoins, in a pseudonymous manner – ie only the public addresses of the bitcoins’ owners are known, while access to a public address is provided only by means of an encrypted private key, the actual ownership of which is of value and indicates bitcoin ownership.

2.2. Bitcoin’s Economic Status

Bitcoin, as a digital currency, has no intrinsic value. This means that its value is derived neither from the fact that it is redeemable to a specific state currency or a valuable commodity (such as gold), nor from being backed and compulsorily imposed by a

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42 Nakamoto (n 10) 3.
43 See eg Böhme et al (n 32) 217; Doguet (n 29) 1128.
44 See Badev and Chen (n 21) 31.
45 See Christian Engelhardt and Sascha Klein, ‘Bitcoins — Geschäfte mit Geld, das keines ist: Technische Grundlagen und zivilrechtliche Betrachtung’ (2014) 17(6) Multimedia und Recht 355.
46 Transactions in bitcoins are accessible at <https://blockchain.info> accessed 12 March 2016.
47 Merih Erdem Kütkük and Christoph Sorge, ‘Bitcoin im deutschen Vollstreckungsrecht: Von der "Tulpenmanie" zur “Bitcoinmanie”‘ (2014) 17(10) Multimedia und Recht 643, 644.
48 See Ryan Straus and Matthew Cleary, ‘The United States’ in Stuart Hoegner (ed), The Law of Bitcoin (iUniverse 2015) 178-216, 186.
49 Kaplanov (n 20) 115; Badev and Chen (n 21) 5; Primavera De Filippi, ‘Bitcoin: A Regulatory Nightmare to a Libertarian Dream’ (2014) 3(2) Internet Policy Review <DOI:10.14763/2014.2.286> accessed 12 March 2016; Benton Gup, ‘What is Money? From Commodities to Virtual Currencies/Bitcoin’ (2014) 3(3) Alternative Investment Analyst Review 52, 54. However, see also Plassaras (n 12) 389.
50 William J Luther and Lawrence H White, ‘Can Bitcoin become a Major Currency?’ (5 June 2014) GMU (George Mason University Department of Economics) Working Paper in Economics No 14-17, 3 <http://dx.doi.org/10.2139/ssrn.2446004> accessed 12 March 2016. See also Reuben Grinberg, ‘Bitcoin: An Innovative Alternative Digital Currency’ (2012) 4(1) Hastings Science and Technology Law Journal 159, 162; De Filippi (n 49).
government as a means of payment. Value is derived only from the fact that there are people who attribute value to it and choose to transact using this innovative means of payment. Bitcoin was intended by its creator(s) to function as an alternative, decentralised payment system, depending not on fiat currency or intermediaries such as banks. However, there is a great deal of discussion on the matter of whether or not bitcoin can be considered money, in a more or less broad sense of the term. The majority of scholars are reluctant to acknowledge bitcoin as money, pointing out its poor monetary functions. The same cautiousness is exhibited by institutions such as the European Central Bank (ECB), the Bank of Canada and the Bank of France. Nevertheless, some scholars argue that Bitcoin is, from an economic perspective, a form of money.
Money, from a purely economic perspective, is commonly defined by its economic functions and, more specifically, money serves as a medium of exchange, a unit of account and a store of value. Bitcoin’s use as a medium of exchange can be described as limited. Although the number of traders who accept bitcoins as a means of payment is increasing, it is still a small proportion when compared to the total amount of trade worldwide. Furthermore, bitcoin serves only in a weak manner, if at all, as a unit of account, ie as a ‘common denominator that allows individuals to relate and compare the values of different goods and services’. Its poor performance as a unit of account can be attributed to its highly volatile value and to the fact that a bitcoin is divided into 100,000,000 sub-units. Even in cases where traders accept bitcoins, prices are usually denominated in a traditional currency and the amount of bitcoins to be paid is calculated according to the exchange rate of a specific online exchange service. With regards to its function as a store of value, bitcoin is at the moment highly volatile, in terms of its value when compared to other traditional currencies. Consequently, people who
acquire and maintain bitcoins typically have speculative motives.71 Such motives are pointed out by many scholars who consequently conclude that bitcoin serves in fact primarily as a 'speculative investment',72 while the primary function of a currency, on the other hand, is not speculation (even though there can be speculation in state currencies also, of course).73 In view of the constant fluctuations of bitcoin price and the severe risks presented by hacking,74 it serves as a rather poor store of value.75

In conclusion, bitcoin does serve as a medium of exchange, albeit on a limited scale.76 Furthermore, bitcoins can be converted into a state currency by means of a bitcoin exchange service,77 which functions in a similar manner to an ordinary currency-to-currency exchange service. Therefore, bitcoins can serve as a medium to convey value78 or, in other words, purchasing power.79 On the one hand, in view of the fact that bitcoin is meant to be used as money80 and serves as a medium of exchange within a growing community,81 the monetary status of bitcoin should not be entirely denied. On the other hand, bitcoin performs poorly when it comes to the function of a store of value and probably does not perform at all in terms of the function of a unit of account. While it is not entirely unusual for a currency to be a poor store of value,82 bitcoin’s non-performance as a unit of account could prevent one from recognising the monetary status of bitcoins.83 Combining the aforementioned conclusions, it would be more

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71 See Doguet (n 29) 1140.
72 Yermack (n 8) 16. See also Weber (n 53) 30; Beer and Weber (n 66) 61; Yunyoung Hur, Seongmin Jeon and Byungjoon Yoo, ‘Investigation into the Market Viability of Bitcoin: Measuring the Digital Currency’s Speculative Nature’ (28 April 2015) <http://dx.doi.org/10.2139/ssrn.2599953> accessed 12 March 2016; Baur, Lee and Hong (n 60); Maria Letizia Perugini and Cesare Maioli, ‘Bitcoin: Between Digital Currency and Financial Commodity’ (17 November 2014) 7 <http://dx.doi.org/10.2139/ssrn.2526472> accessed 12 March 2016.
73 See Mittal (n 56) 11.
74 Mittal (n 56) 16; Yermack (n 8) 15; Bal (n 12) 7.
75 Mittal (n 56) 16; Yermack (n 8) 15; Campbell R Harvey, ‘Bitcoin Myths and Facts’ (18 August 2014) 7 <http://ssrn.com/abstract=2479670> accessed 12 March 2016. On the contrary, see Beck (n 60) 584.
76 See Brito and Shadab and Castillo (n 12) 157; Polasik et al (n 11) 37; Catherine Martin Christopher, ‘Why on Earth do People Use Bitcoin?’ (2014) 2(1) Business & Bankruptcy Law Journal 1, 7.
77 See Fink and Johann (n 38) 8.
78 See Beck (n 60) 585.
79 Purchasing power is defined by Keynes (n 54) 54 as ‘the power of money to buy the goods and services on the purchase of which for purposes of consumption a given community of individuals expend their money income.’ See also Proctor (n 61) para 1.60, where it is argued that ‘money represents both purchasing power and a store of wealth or value’.
80 See Judgment of the Court of Justice of the European Union (CJEU), Case C-264/14 Skatteverket v David Hedqvist [2015] para 52 (report forthcoming).
81 See Brito and Castillo (n 33) 18.
82 See Sorge and Grimberghs (n 60) 484; Beck (n 60) 584.
83 Compare Keynes (n 54) 3, where it is argued that ‘money of account ... is the primary concept of a Theory of Money’.
accurate to ascertain that, from an economic perspective, bitcoin is a *quasi-money* financial asset.\(^{84}\)

### 2.3. Bitcoin’s Legal Status

With regards to the legal nature of bitcoin, it should first be noted that bitcoin is barely regulated in the majority of jurisdictions.\(^{86}\) Most certainly, it does not enjoy, in any jurisdiction, the status of ‘legal tender’,\(^{87}\) ie a form of money that is statutorily imposed as an obligatory means of debts’ discharge.\(^{88}\) Nobody in any State is obliged to use or accept bitcoins as a means of payment against his or her will.\(^{89}\) However, provided that the use of bitcoins is not prohibited, the parties to a contract are free to determine whether a particular debt will be discharged by means of bitcoins.\(^{90}\)

According to the European Central Bank (ECB)\(^{91}\) and the Court of Justice of the European Union (CJEU),\(^{92}\) bitcoin is not ‘electronic money’ (e-money) as defined and regulated in the Directive 2009/110/EC on electronic money.\(^{93}\) This opinion is shared by the Bank of France and by many scholars.\(^{94}\) Furthermore, with respect to the recently repealed\(^{95}\) Payment Services Directive (Directive 2007/64/EC) (henceforth referred to

\(^{84}\) Peter Šurda, ‘The Origin, Classification and Utility of Bitcoin’ (14 May 2014) 10 <http://dx.doi.org/10.2139/ssrn.2436823> accessed 12 March 2016.
\(^{85}\) On the issue of whether bitcoins can be regarded as an ‘asset’ see Bal, ‘Taxing Virtual Currency’ (n 67) 383; Christian Thurow, ‘Bitcoin in der IFRS-Bilanzierung’ (2014) 9(5) *Zeitschrift für Internationale Rechnungslegung* 197, 198.
\(^{86}\) See The Law Library of Congress, Global Legal Research Center, ‘Regulation of Bitcoin in Selected Jurisdictions’ (January 2014) <http://www.loc.gov/law/help/bitcoin-survey/regulation-of-bitcoin.pdf> accessed 12 March 2016.
\(^{87}\) See Plassaras (n 12) 382; Christopher (n 76) 7; Gup (n 49) 54; Allen (n 51) 11. See also European Central Bank (n 1) 5.
\(^{88}\) See Proctor (n 61) para 2.25. See also Guadamuz and Marsden (n 17) 13.
\(^{89}\) See Christopher (n 76) 7; Franziska Boehm and Paulina Pesch, ‘Bitcoin: A First Legal Analysis with Reference to German and US-American Law’ in Rainer Böhme and others (eds), *Financial Cryptography and Data Security: FC 2014 Workshops, BITCOIN and WAHC 2014, Christ church, Barbados, March 7, 2014. Revised Selected Papers* (Springer 2014) 43-54, 50.
\(^{90}\) See Kaplanov (n 20) 130; Allen (n 51) 11; Boehm and Pesch (n 89) 50.
\(^{91}\) European Central Bank (n 1) 17; European Central Bank (n 5) 24.
\(^{92}\) *Skatteverket v David Hedqvist* (n 80) para 12.
\(^{93}\) Directive 2009/110/EC of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC [2009] OJ L 267/7.
\(^{94}\) Bank of France (n 7) 1; Niels Vandevande, Mobile Wallets and Virtual Alternative Currencies under the EU Legal Framework on Electronic Payments’ (12 September 2013) ICRI Research Paper 16, 21 <http://dx.doi.org/10.2139/ssrn.2325410> accessed 12 March 2016; Sunduzwayo Madise, ‘Mobile Money and Airtime: Emerging Forms of Money’ (23 February 2015) <http://dx.doi.org/10.2139/ssrn.2589058> accessed 12 March 2016; Bal, ‘Should Virtual Currency be Subject to Income Tax?’ (n 12) 9; Perugini and Maioli (n 72) 7. In the German-speaking literature see Sorge and Grimberghe (n 60) 463; Kütkük and Sorge (n 47) 644. See also von Unruh (n 60) 88.
\(^{95}\) The Directive 2007/64/EC on Payment Services was recently repealed by a new Directive on Payment Services, ie the Directive (EU) 2015/2366 of 25 November 2015 on payment services in the internal market and amending Directives 2002/65/EC, 2013/36/EU and 2009/110/EC and repealing Directive 2007/64/EC [2015] OJ L337/35 (hereinafter referred to as ‘PSD 2’).
as PSD),\textsuperscript{96} the ECB\textsuperscript{97} and certain scholars\textsuperscript{98} have argued that bitcoins do not fall within its scope. Indeed, the PSD is aimed mainly at providing a regulatory framework for payment services providers\textsuperscript{99} and transactions in bitcoins are meant to be conducted without intermediaries,\textsuperscript{100} in a decentralised manner.\textsuperscript{101} The same conclusions can be adopted with regards to the scope of the 2015 Payment Services Directive (PSD 2).

Apart from the aforementioned Directives, there is a great deal of discussion about whether or not bitcoins can legally be classified as money (in a similar way to a foreign currency even),\textsuperscript{102} as security or commodity.\textsuperscript{103} However, an \textit{a priori} overall judgment of bitcoin’s legal nature and classification, based on its conceptualistic understanding, should be avoided.\textsuperscript{104} Its legal characterisation and treatment should be made on a case-by-case basis, depending on the legal rule that needs to be applied.\textsuperscript{105} For example, according to a recent judgment of the CJEU with respect to the VAT Directive (Council Directive 2006/112/EC),\textsuperscript{106} bitcoin cannot be classified as security\textsuperscript{107} and although it is

\textsuperscript{96} Directive 2007/64/EC of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC [2007] OJ L319/1.

\textsuperscript{97} European Central Bank (n 1) 43; European Central Bank (n 5) 24.

\textsuperscript{98} Paul Anning and others, ‘The United Kingdom’ in Stuart Hoegner (ed), \textit{The Law of Bitcoin} ([Universe 2015] 140-177, 154; Moritz Schroeder, ‘Bitcoin: Virtuelle Währung — reelle Problembestellungen’ (2014) 104/2014 \textit{Internet — Zeitschrift für Rechtsinformatik und Informationsrecht} para 124 <DOI: 10.7328/jurpcb2014296103> accessed 12 March 2016.

\textsuperscript{99} See eg Recital 4. See also Vandezande (n 94) 13.

\textsuperscript{100} However, there are cases where an intermediary is involved in a bitcoin transaction. These are instances where the payer does not directly convey the amount of bitcoins to the payee but pays a particular amount of bitcoins to a bitcoin exchanger and the bitcoin exchanger then instantly pays the payee the equivalent in a specific state currency. Therefore, in said cases, a bitcoin exchanger provides payment services, according to Art 4(3) and the Annex I(3) of the PSD 2, since the exchanger executes payment transactions, as defined in the PSD 2. See Bank of France (n 7) 6; Andrew Shroeder, Ryan Hodge and Edward A Morse, ‘Electronic Payments: Winnowing the Network and Avoiding the Shadows’ (9 January 2015) 27 <http://ssrn.com/abstract=2567806> accessed 15 March 2016. See also European Central Bank (n 5) 24.

\textsuperscript{101} See Kaplanov (n 20) 155.

\textsuperscript{102} See Kaplanov (n 20) 161; Nika Antonikova, ‘Real Taxes on Virtual Currencies: What Does the IRS Say?’ (2015) 34(3) \textit{Virginia Tax Review} 433, 436; Nicole Mirjanich, ‘Digital Money: Bitcoin’s Financial and Tax Future Despite Regulatory Uncertainty’ (2014) 64(1) \textit{DePaul Law Review} 213; Patrick McLeod, ‘Taxing and Regulating Bitcoin: The Government’s Game of Catch Up’ (2014) 22(2) \textit{CommLaw Conspectus: Journal of Communications Law and Technology Policy}, 379, 391; Thurow (n 85) 197.

\textsuperscript{103} See eg Kaplanov (n 20); Houman B Shadab, ‘Regulating Bitcoin and Block Chain Derivatives’ (9 October 2014) NYLS Legal Studies Research Paper <http://dx.doi.org/10.2139/ssrn.2508707> accessed 12 March 2016; Schroeder, ‘Bitcoin and the Uniform Commercial Code’ (n 17); Howden (n 52); Swartz (n 56); Cara R Baros, ‘Barter, Bearer, and Bitcoin: The Likely Future of Stateless Virtual Money’ (2014) 23(1) \textit{University of Miami Business Law Review} 201, 214.

\textsuperscript{104} See also Shawn Bayern, ‘Dynamic Common Law and Technological Change: The Classification of Bitcoin’ (2014) 71(2) \textit{Washington and Lee Law Review Online} 22 <http://scholarlycommons.law.wlu.edu/cgi/viewcontent.cgi?article=1001&context=wulr-online> accessed 12 March 2016, who argues for a functional rather than a conceptualistic treatment of bitcoin.

\textsuperscript{105} See eg Farmer Jr (n 56) 104: ‘it is not inconceivable for Bitcoins to operate both as a currency and as a security’. Compare Jeremy Papp, ‘A Medium of Exchange for an Internet Age: How to Regulate Bitcoin for the Growth of E-Commerce’ (2014) 15 \textit{University of Pittsburgh Journal of Technology Law and Policy}, Autumn issue, 33, 55.

\textsuperscript{106} Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax [2006] OJ L347/1.
not legal tender,\textsuperscript{108} it can be regarded as a ‘direct means of payment between operators who accept it’.\textsuperscript{109} Furthermore, the CJEU has recognised, albeit rather indirectly, that bitcoins are money, even for the purposes of the VAT Directive.\textsuperscript{110} However, bitcoins should not be treated as money in cases where it is concluded that only a legal tender can fall within the scope of a certain legal rule (e.g. a statute that provides a claim for damages due to a tort and declares that damages are to be paid in money).\textsuperscript{111}

3. The Consumer’s Right of Information and Withdrawal according to the CRD

This section briefly describes the provisions of the CRD concerning the consumer’s right of information and withdrawal in distance contracts, to the extent necessary for the purposes of further examining the existence and content of the consumer’s right of withdrawal when the consumer has paid the agreed price in bitcoins. One of the main fields of application of the CRD, and in particular its provisions on distance contracts (as they are defined in Article 2 paragraph 7), is e-commerce. Online sales or service contracts between traders and consumers clearly fall within the CRD definition of a ‘distance contract’.\textsuperscript{112}

The CRD sets new information requirements in cases of distance and off-premises contracts,\textsuperscript{113} in order to provide better protection to the consumer, who is the party with less access to the crucial information regarding the contract to be concluded.\textsuperscript{114} Article 6 provides the regulatory framework concerning the information that must be provided to the consumer before the conclusion of a distance contract. The trader should provide the consumer with information relating to, inter alia, ‘the total price of the goods or services inclusive of taxes’\textsuperscript{115} and ‘the arrangements for payment’.\textsuperscript{116} The CRD also provides the consumer with a right to withdraw (Articles 9-16), within a certain time limit (Articles 9-10), from a distance or an off-premises contract, without having to give a reason and without having to pay a withdrawal penalty.\textsuperscript{117} This is a

\begin{itemize}
  \item \textsuperscript{107} Skatteverket v David Hedqvist (n 80) para 55.
  \item \textsuperscript{108} ibid, para 49.
  \item \textsuperscript{109} ibid, para 42.
  \item \textsuperscript{110} ibid, para 41.
  \item \textsuperscript{111} See von Unruh (n 60) 115.
  \item \textsuperscript{112} CRD (n 9) Art 2(7). See also Joasia Luzak, ‘Online Consumer Contracts: Applicable Legislation, Information Requirements, Contract Conclusion, Unfair Contract Terms and Right of Withdrawal’ (2014) 15(3) Journal of the Academy of European Law 381, 382.
  \item \textsuperscript{113} CRD Arts 6-7
  \item \textsuperscript{114} See Luca Di Donna, ‘Remedies for the Breach of the Duty to Inform Consumers’ (2012) 23(2) European Business Law Review 253, 255.
  \item \textsuperscript{115} CRD Art 6 (1)(e), subpara 1.
  \item \textsuperscript{116} CRD Art 6 (1)(g).
  \item \textsuperscript{117} CRD Art 9-16; Article 9 para 1 states that ‘[s]ave where the exceptions provided for in Article 16 apply, the consumer shall have a period of 14 days to withdraw from a distance or off-premises contract, without giving any reason, and without incurring any costs other than those provided for in Article 13(2) and Article 14’. For a further analysis see also Luzak (n 112) 387.
\end{itemize}
provision that deviates from basic principles of contract law, such as *pacta sunt servanda.* The right of withdrawal in the aforementioned cases aims to provide the consumer, as the weaker party to the contract, with the opportunity to evaluate the contract calmly, after receiving the products he or she has purchased and to avoid the obligations arising from a hasty or an unwanted contract. To ensure the effectiveness of this right, the CRD imposes an information duty on traders. More specifically, the trader should provide the consumer with information regarding the existence of this right to withdraw, the conditions, the time limit, the procedures for exercising it, and the potential costs that the consumer would have to bear in case of withdrawal.

The main legal consequence of a valid exercise of the right of withdrawal is the termination of the obligations that derive from the contract. The trader must reimburse all payments received from the consumer, using the same means of payment that the consumer initially used to pay the price of the contract. On the other hand, the consumer must return the goods to the trader (as indicated above). The CRD introduces certain exceptions from the right of withdrawal, based mainly on the nature of the goods or services subject to the contract. One of the exceptions relates to the risks that may derive from price fluctuations. More specifically, according to Article 16(b) a right of withdrawal should not be provided in distance or off-premises contracts concerning ‘the supply of goods or services for which the price is dependent on fluctuations in the financial market which cannot be controlled by the trader and which may occur within the withdrawal period’.

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118 Jan Smits, ‘Rethinking the Usefulness of Mandatory Rights of Withdrawal in Consumer Contract Law: The Right to Change Your Mind?’ (2011) 29(3) *Penn State International Law Review* 671, 673; Karl Riesenhuber, ‘A “Competitive Contract Law”?’ in Kai Purnhagen and Peter Rott (eds), *Varieties of European Economic Law and Regulation, Studies in European Economic Law and Regulation: Liber Amicorum for Hans Micklitz*, vol 3 (Springer 2014) 105-121, 111; JA Luzak, ‘To Withdraw or not to Withdraw? Evaluation of the Mandatory Right of Withdrawal in Consumer Distance Selling Contracts Taking Into Account Its Behavioural Effects on Consumers’ (2014) 37(1) *Journal of Consumer Policy* 91. See, however, also Marco BM Loos, ‘The Case for a Uniform and Efficient Right of Withdrawal from Consumer Contracts in European Contract Law’ (2007) 15(1) *Zeitschrift für Europäisches Privatrecht* 5, 6.

119 See Pamaria Rekaiti and Roger van den Bergh, ‘Cooling-Off Periods in the Consumer Laws of the EC Member States. A Comparative Law and Economics Approach’ (2000) 23(4) *Journal of Consumer Policy* 371, 372.

120 It is indicated that the reasoning of the right of withdrawal with respect to the distance services contracts is rather unclear. See further on this matter Josep Maria Bech Serrat, *Selling Tourism Services at a Distance: An Analysis of the EU Consumer Acquis* (Springer 2012) 103.

121 See Loos (n 118) 8; Luzak (n 118) 105. For further analysis see Rekaiti and and Den Bergh (n 119) 373-384.

122 See Loos (n 118) 6.

123 CRD Art 6(1)(h)-(k).

124 ibid Art 12.

125 ibid Art 13, para 1.

126 ibid Art 16.

127 ibid 16(b).
4. The Consumer’s Right of Withdrawal in case of Payment with Bitcoins

4.1. Possible Hindrances to the Establishment of the Right of Withdrawal

Bitcoin is used as a means of payment by consumers mostly in e-commerce, since the ‘brick and mortar’ stores who accept bitcoins are far fewer in number than the online traders who accept bitcoins. Therefore, since sales or service contracts that are concluded over the internet can be regarded as distance contracts, one should examine whether, and how, the provisions of the CRD are to be applied to sales or services contracts where the price is paid by bitcoin, as this is a matter that is not regulated. Since the CRD is a maximum harmonisation Directive, its rules should be transposed, interpreted and implemented in the most uniform manner possible. More specifically, one should examine whether a consumer maintains the withdrawal right provided by the CRD even if the payment was effected in bitcoins, or whether a payment with bitcoins can be an obstacle to the aforementioned right (where all other prerequisites to this right are met). It should be noted that there is a certain degree of scepticism in the literature on the issue of the possible application of the CRD in cases where bitcoins are used. It is argued that ‘the application of the CRD and the E-Commerce Directive in case of use of bitcoins is rather to be ruled out’, albeit without any further explanation.

First, it should be clear that the concept of the consumer, as ‘a natural person who, in contracts covered by the CRD, is acting for purposes which are outside his trade, business, craft or profession’ is not affected by the fact that the aforementioned natural person pays the price of the goods or services in bitcoins. However, it is interesting to examine whether a sales or services contract, the price of which is paid in bitcoins, falls within the definition of the sales/services contract in Article 2(5) and (6), according to which the valuable consideration that the consumer undertakes to

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128 See Boehm and Pesch, ‘Bitcoins: Rechtliche Herausforderungen einer virtuellen Währung — Eine erste juristische Einordnung’ (2014) 17(2) Multimedia und Recht 75, 77.
129 There were 7,630 venues (such as shops and ATMs) all over the world accepting bitcoins (on 15 March 2016). See Coinmap <https://coinmap.org/#/world/50.09996918/14.46910948/7> accessed 15 March 2016. However, the total number of merchants who accept bitcoins apparently exceeds 100,000: see Anthony Cuthbertson, ‘Bitcoin now Accepted by 100,000 Merchants Worldwide’ (International Business Times, 4 February 2015) <http://www.ibtimes.co.uk/bitcoin-now-accepted-by-100000-merchants-worldwide-1486613> accessed 13 March 2016.
130 CRD Art 4: ‘Member States shall not maintain or introduce, in their national law, provisions diverging from those laid down in this Directive, including more or less stringent provisions to ensure a different level of consumer protection, unless otherwise provided for in this Directive’.
131 See Schroeder (n 98) para 125 (‘Auch eine Anwendung der Verbraucherrechtirechtlinie und der E-Commerce-Richtlinie scheitert bei der Verwendung von BTC eher aus’).
132 See CRD Art 2(6), where it is stated: ‘sales contract means any contract under which the trader transfers or undertakes to transfer the ownership of goods to the consumer and the consumer pays or undertakes to pay the price thereof, including any contract having as its object both goods and services’. See also CRD Art 2(5), where it is stated: ‘service contract means any contract other than a sales contract under which the trader supplies or undertakes to supply a service to the consumer and the consumer pays or undertakes to pay the price thereof’. 
provide in order to obtain the goods or services subject to the contract is the payment of the price. It is suggested in the legal literature that an obligation to transfer bitcoins is not a monetary obligation; thus, a contract of purchase of goods in return of bitcoins should be considered not as a sales contract, but as a barter (or exchange) contract.\textsuperscript{134} However, it has been also suggested that the aforementioned contract is actually a sales contract.\textsuperscript{135} Therefore, it should be examined more closely if the conveyance of bitcoins can be regarded as ‘payment’ and, consequently, if the obligation to transfer bitcoins can be a part of a ‘sales’ or ‘services’ contract, for the purposes of the CRD.

The CRD lacks a definition of the term ‘payment’. The revised Payment Services Directive (PSD 2)\textsuperscript{136} defines a payment transaction as ‘an act, initiated by the payer or by the payee, of placing, transferring or withdrawing funds, irrespective of any underlying obligations between the payer and the payee’, while ‘funds’ are to be considered ‘banknotes and coins, scriptural money and electronic money’.\textsuperscript{137} Bitcoin is neither of these forms of money. Thus, if the ‘payment’ definition of the PSD 2 is to be adopted in the context of the CRD also, a payment with bitcoins could possibly mean that there exists no ‘sales’ or ‘services’ contract, potentially raising doubts pertaining to the matter of the consumer’s protection. However, the PSD 2 and its definitions of ‘payment’ and ‘funds’ serve other purposes than consumer protection and the advancement of cross-border selling, which are, inter alia, the main goals of the CRD.\textsuperscript{138} Therefore, the definition of a ‘payment transaction’ should not be adopted for the needs of the CRD without further consideration.

With regards to the CRD, a broader definition of ‘payment’ should be adopted, in order to cover also non-traditional means of transferring purchasing power from the consumer to the trader which are used in modern commerce. This is also indicated in the Recitals of the Directive, where it is acknowledged that the use of vouchers should be regarded as payment.\textsuperscript{139} Furthermore, according to the European Commission’s (DG Justice) Guidance on the CRD, a payment can include ‘vouchers, gift cards or loyalty points with a specified monetary value’.\textsuperscript{140} Of course, this Guidance does not refer to

\textsuperscript{134}Boehm and Pesch (n 89) 50; Perugini and Maioli (n 72) 6; Engelhardt and Klein (n 45) 359; Schroeder (n 98) para 60; von Unruh (n 60) 120.

\textsuperscript{135}Sebastian AE Martens, ‘Grundfälle zu Geld und Geldschulden’ (2014) 54(2) Juristische Schulung 105, 106.

\textsuperscript{136}Art 4(5).

\textsuperscript{137}ibid para 25.

\textsuperscript{138}‘The continued development of an integrated internal market for safe electronic payments is crucial in order to support the growth of the Union economy and to ensure that consumers, merchants and companies enjoy choice and transparency of payment services to benefit fully from the internal market’: CRD Recital 5.

\textsuperscript{139}‘The reimbursement should not be made by voucher unless the consumer has used vouchers for the initial transaction or has expressly accepted them’: Recital 46.

\textsuperscript{140}European Commission, DG Justice, ‘DG Justice Guidance Document concerning Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council’ (June 2014) 8 <http://ec.europa.eu/justice/consumer-marketing/files/crd_guidance_en.pdf> accessed 12 March 2016.
bitcoins; nonetheless, it does not seem to rule out the use of assets other than cash, scriptural or electronic money for the conclusion of a payment.

Consequently, for the purposes of the CRD, a ‘payment’ should be considered as any act of transferring monetary value from the consumer to the trader, as in transferring a certain amount of purchasing power by means of a financial asset that serves as a medium of exchange, even within a limited community.141 As mentioned above, bitcoin is a financial asset that resembles money and, from an economic point of view, should be considered as quasi-money. Furthermore, bitcoin is in fact used as a medium of exchange, even on a limited scale, and, as the CJEU has ruled, it does in fact serve as a ‘direct payment system’.142 This is also indicated in the Explanatory Notes of the UK Consumer Rights Bill (the Consumer Rights Act 2015 came into force on 1 October 2015), where it is acknowledged that bitcoins are ‘much more akin to real money’.143 Moreover, in cases where traders accept, and consumers pay with, bitcoins, this particular digital currency is used as a means of exchange by the contract partners and is considered a means for the conveyance of purchasing power.144 In the majority of cases of payment with bitcoins, prices are actually denominated in a traditional currency and bitcoins are used for the purpose of conveyance of the purchasing power that corresponds to the price.

Therefore, the conveyance of bitcoins from the consumer to the trader should be considered as a ‘payment’, in view of the definition of Article 2(5) and (6) of the CRD, according to which, the valuable consideration that the consumer undertakes to provide in order to obtain the goods or services subject to the contract is the payment of the price (as stated earlier). This solution also serves the purpose of the consumer’s protection, ensuring that consumers shall not be deprived of the rights provided to them, in cases of payments with more innovative means, such as bitcoins.

Another issue to be examined is the potential exception from the right of withdrawal, according to Article 16(b) of the CRD.146 As mentioned above, a right of withdrawal shall not be provided in cases where the price of the goods or services is dependent on fluctuations in the financial market which cannot be controlled by the trader and which may occur within the withdrawal period. As discussed in section 2, bitcoin’s price in the online currency exchange markets is rather unstable and fluctuates in a manner that the trader cannot control. However, the exception introduced by Article 16(b) is to be applied only in cases where the fluctuations refer to the price of goods or services to be

141 However see also Straus and Cleary (n 48) 183-185. On a definition of ‘payment’ as ‘any act offered and accepted in performance of a monetary obligation without changing the essential nature of the original obligation’, see Proctor (n 61) para 7.04.
142 Skatteverket v David Hedqvist (n 80) para 42.
143 Consumer Rights Bill (HL Bill 29 of 2014-15), Explanatory Notes (17 June 2014) para 211.
144 See Bollen (n 12) 275; Beck (n 60) 580.
145 CRD Art 2(5)(6).
146 ibid Art 16(b) states: ‘[m]ember States shall not provide for the right of withdrawal set out in Articles 9 to 15 in respect of distance and off-premises contracts as regards … the supply of goods or services for which the price is dependent on fluctuations in the financial market which cannot be controlled by the trader and which may occur within the withdrawal period.’
supplied to the consumer and not in cases where the fluctuations refer to the value of the means of payment to be provided by the consumer. On the other hand, traders can (and in fact most of them do) protect themselves from the fluctuation risks connected with the speculative nature of bitcoins. Even though they cannot control the fluctuations in the bitcoin exchange markets, they can cooperate with a bitcoin exchange service in order to receive payments only in a state currency, even in cases where the consumer has paid with bitcoins. Otherwise put, the consumer pays the price in bitcoins to a bitcoin exchange service indicated by the trader and the exchange service instantly pays the trader the equivalent in a state currency. This practice can be regarded as a potential means to control (to an extent) the stability of the price’s value, since the payment that the trader has received and is to be reimbursed (in cases of withdrawal) is that of the value of the state currency. Consequently, the aforementioned exception should not be applied in cases where the price of the obtainment of goods or services is paid in bitcoins, unless, of course, the goods or services are of a speculative nature, as described in Article 16(b).\footnote{See Mohammad Mahmoud Ibrahim Tayel, \textit{Can Bitcoin be Self-regulatory Legal Tender? A Comparative Analysis of United States, European Union and Islamic Legal Systems}, LLM Short Thesis (Central European University, Budapest 2015) 72 \url{<http://www.etd.ceu.hu/2015/ibrahim_mohammad.pdf>} accessed 14 June 2016.} In conclusion, the fact that the consumer pays with bitcoins cannot constitute an obstacle to the right of withdrawal.

\section*{4.2. The Consumer's Right to Reimbursement of Payment}

\subsection*{4.2.1. Payment with a state currency}

The most complicated issues relate to the issue of the consumer’s restitution claim, in cases where the consumer pays with bitcoins and later validly exercises the right of withdrawal provided by the CRD. As mentioned above, according to Article 13(1) the trader should reimburse all payments received from the consumer using the same means of payment that the consumer used for the initial payment transaction. The first question to be addressed concerns the type of currency the payment must be reimbursed in (bitcoins or state currency). The second question relates to the value of the payment to be reimbursed, given that bitcoin’s value is volatile.

It would be useful to first examine the content of the right of withdrawal, should the consumer have effected the payment by means of a state currency. Of course, solutions pertaining to the issue of the value and means of the reimbursement in cases of payments with a state currency in general (ie in cases other than those covered by the CRD) may vary from jurisdiction to jurisdiction. However, there is a need for a uniform interpretation and implementation of the CRD (as mentioned above). Therefore, the rules of the CRD are examined with respect to this issue.

The simplest case is when there is only one currency involved in the payment. The trader has to reimburse the exact amount of money received, notwithstanding any possible increase or decrease in the currency’s internal or external value. This is due to
the nominalistic principle, which governs in principle the monetary obligations\textsuperscript{148} in most jurisdictions,\textsuperscript{149} according to which:

... a unit of currency is always equal to itself ... and neither external changes in the value of currency, namely the rate of exchange in relation to other currencies, nor internal changes of value of money are taken into account.\textsuperscript{150}

The nominalistic principle is statutorily imposed in many EU member states (such as France,\textsuperscript{151} Italy,\textsuperscript{152} and Greece\textsuperscript{153}) and is a part of the common law tradition as well.\textsuperscript{154}

Another potential issue relates to cases where the payment is effected by means of scriptural money (remittance, debit or credit card) and where the consumer’s and trader’s bank accounts are in different currencies. According to the aforementioned Guidance of the European Commission, ‘the trader should refund the full amount paid by the consumer in the currency of the payment’\textsuperscript{155} and ‘[i]f the consumer’s bank account is in one currency but the payment and refund are made in a different currency, the trader should not be responsible for any loss arising from the currency exchange performed by the consumer’s bank on the refund’.\textsuperscript{156} The meaning of the phrase ‘the full amount paid by the consumer in the currency of the payment’ in this context is to be clarified, since two currencies (the currency of the consumer’s bank account and that of the trader’s bank account) are involved in the payment in a case such as the aforementioned one and the currency of the payment is not necessarily that of the consumer’s bank account, as is implied in the Guidance of the European Commission (to reiterate: ‘...[i]f the consumer’s bank account is in one currency but the payment and refund are made in a different currency...’).\textsuperscript{157} The measure of the trader’s monetary obligation of reimbursement is provided by the ‘money of account’,\textsuperscript{158} i.e. the amount of a specific currency in which the price was denominated in the contract as the measure of the consumer’s monetary

\textsuperscript{148} Petri Mäntysaari, *The Law of Corporate Finance: General Principles and EU Law: Contracts in General*, vol 2 (Springer 2010) 255. For further analysis see Proctor (n 61) paras 9.01-9.70.

\textsuperscript{149} Philip R Wood, *Conflict of Laws and International Finance* (Sweet & Maxwell 2007) para 3-011.

\textsuperscript{150} Eliyahu Hirschberg, *The Nominalistic Principle* (Da-Cheh Printing Press 1971) 37.

\textsuperscript{151} Civil Code of France, Art 1895 para 1: ‘The obligation which results from a loan of money is always for the numerical sum stated in the contract’ (translation from ‘Catalogue des Traductions’ [Legifrance, 21 December 2015] <https://www.legifrance.gouv.fr/Traductions/Catalogue-des-traductions> accessed 14 June 2016.)

\textsuperscript{152} Civil Code of Italy, Art 1277 para 1: ‘The monetary debts are discharged by means of money that is legal tender in the State at the time of payment and for its nominal value.’

\textsuperscript{153} Statute 2842/2000, Art 1 para 2: ‘Euro as a means of debts’ discharge is always perceived in its nominal value’ (translation author’s own).

\textsuperscript{154} See Proctor (n 61) paras 9.25-9.26; Keith S Rosenn, *Law and Inflation* (University of Pennsylvania Press 1982) 39; David Fox, ‘The Case of Mixt Monies: Confirming Nominalism in the Common Law of Monetary Obligations’ (6 October 2010) University of Cambridge Faculty of Law Research Paper No 11/2011 <http://dx.doi.org/10.2139/ssrn.1763741> accessed 12 March 2016.

\textsuperscript{155} European Commission (n 140) 45.

\textsuperscript{156} ibid 46.

\textsuperscript{157} ibid.

\textsuperscript{158} A distinction is made in this regard between the money of account and the money of payment. ‘Money of account provides the measure of a financial obligation’ while ‘money of payment is the currency which must be used as a means of performing the obligation which has been so defined and measured’: Proctor (n 61) paras 7.65-7.66.
obligation of payment, regardless of the means of payment. Thus, the ‘currency of the payment’ in the aforementioned context is the currency in which the parties of the contract agreed to denominate the price. Furthermore, for the purposes of reimbursement, the trader should use the same means used by the consumer for the payment. Therefore, the trader should remit to the consumer’s bank account the exact amount of the money of account initially received.

This conclusion can be supported by examining cases where the trader provides the consumer with the option to choose between two currencies; this choice relates to the currency in which the price of the product is to be denominated. For instance, let us take an example of a consumer located in the UK who wants to purchase a product from a trader located in Germany where the price of the product in question is initially 250 euros and the consumer is provided with the ability to choose to effect the payment either in euros or in the local currency, according to a specified exchange rate at the moment of payment (eg £200 GBP). In both cases, there are two currencies involved in the payment, since both the consumer’s and the trader’s bank account are in a different currency. However, the denomination of the price in a specific currency has an effect on the amount of the reimbursement. This amount depends on the agreed currency of the price, i.e., the currency used as the ‘money of account’. If the consumer chooses to denominate the price in pounds, then £200 GBP shall have to be reimbursed, regardless of the exchange rate at the moment of reimbursement. Likewise, should the consumer choose to denominate the price in euros then the amount of reimbursement is 250 euros, which means that the consumer shall receive the equivalent of 250 euros in pounds, according to the exchange rate at the moment of the reimbursement. Consequently, in the latter case (payment in euros), the consumer could either make a profit or suffer a loss, according to potential fluctuations in the exchange rate.

4.2.2 Agreement between the parties on the issue of refunds in case of payment with bitcoins

With respect to the issue of a payment with bitcoins, the first matter to be examined is whether an agreement between the trader and the consumer on the subject of refunds in case of a consumer’s withdrawal has been concluded in a manner that does not violate the imperative nature (Article 25) of the provisions of the CRD concerning the content of the consumer’s right to receive reimbursement in case of withdrawal. More specifically, Article 25 paragraph 2 provides that ‘any contractual terms which directly or indirectly waive or restrict the rights resulting from this Directive shall not be binding on the consumer’.

159 Usually, the money of account and the money of payment do not differ. However, if they do differ, the decisive currency to demonstrate the measure of a monetary obligation is that of the money of account, i.e., the currency in which the amount of the monetary obligation was denominated in the contract, regardless of the means of payment: see Proctor (n 61) para 7.67. See also Woodhouse AC Israel Cocoa Ltd v Nigerian Produce Marketing Co Ltd [1972] AC 741.
In fact, a lot of traders who accept payment with bitcoins, include a specific refund policy in the sales contracts, according to which the trader is to reimburse the nominal value of the price denominated in a specific state currency at the moment of payment, should the consumer exercise a right of withdrawal, provided by virtue of a statute or the contract. For instance, according to the aforementioned refund policy, if a consumer purchases a product, the price of which was €600 at the moment of payment, the trader should reimburse the amount of €600. Some traders reimburse the price in the state currency in which the price was denominated (ie €600), while others reimburse the amount of bitcoins equivalent at the moment of the reimbursement to the price denominated in a state currency at the moment of the payment, according to the exchange rate of a particular bitcoin exchange service. For instance, assuming that the bitcoin to euro exchange rate at the moment of the payment is 200:1, a consumer who purchases a product that costs €600 could pay 3 bitcoins instead of €600. According to the aforementioned term, if the exchange rate at the moment of the reimbursement is 300:1, the consumer should receive 2 bitcoins, which is equivalent to €600 at the moment of the reimbursement.

These terms do not violate the mandatory nature of the right of withdrawal or the provisions of the CRD relating to the consequences of the right of withdrawal. The consumer receives the amount of purchasing power that he or she originally spent. Therefore, the implementation of the aforementioned term does, in fact, restore the consumer's initial monetary situation, from the point of view of the purchasing power disposed. Therefore, this term should be considered as valid, since it is not disadvantageous and does not entail a burden for the consumer.

4.2.3 Denomination of the price in state currency

The issue remains open in cases where such an agreement between the trader and the consumer about the object or the value of reimbursement does not exist. According to Article 13(1) (as mentioned above) the trader must reimburse all payments received. At first glance, this particular provision could apparently lead to the conclusion that the

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160 See eg Dell’s bitcoin terms and conditions at: Dell, ‘Bitcoin Terms and Conditions’ (USA, 2016) <http://www.dell.com/learn/us/en/uscop1/campaigns/bitcoin-terms-and-conditions> accessed 13 March 2016, where it is stated: ‘[f]or a qualifying return of product paid for in Bitcoin, any refund due will be remitted to the purchaser via check in US Dollars for the full amount of the purchase price paid at the time of the original transaction ...’.

161 See eg the return policies of Overstock at Overstock.com online shopping, ‘Bitcoin: Returns and Credits’ (USA, 2016) <https://help.overstock.com/app/answers/detail/a_id/5794/c/4> accessed 13 March 2016, where it is stated: ‘[t]he refund will be issued for the full USD value of the order and processed at the Bitcoin exchange rate when the refund is completed’; of Expedia: Expedia Inc, ‘Bitcoin Terms and Conditions: Refunds’ (USA, 2016) <http://www.expedia.com/Checkout/BitcoinTermsAndConditions> accessed 13 March 2016, where it is stated: ‘your refund will be converted from USD to Bitcoin based on an exchange rate set by Coinbase at the time you initiate the refund through our Website’; and of Rakuten at Rakuten.com, ‘How do I use Bitcoin at Rakuten.com?: Refunds’ (USA, 3 September 2016) <http://www.rakuten.com/help/content/217483168> accessed 13 March 2016 (‘[y]our refund will be issued in Bitcoin for the USD value of your purchase, less any applicable fees. Your refund will be converted from USD to Bitcoin based on the current Bitcoin exchange rate at 08:00 UTC on the following business day’).
trader should reimburse the amount of bitcoins received. Such a solution is suggested in
the legal literature[162] and is possibly implied by legislative organs as well. More
specifically, it is suggested in the Explanatory Notes of the UK Consumer Rights Bill that:

... digital currencies (or cryptocurrencies) that can be used in a variety of
transactions with a number of traders, and exchanged for real money, are much
more akin to real money (eg bitcoins). Where the consumer uses these types of
digital currency to pay for digital content, the trader can (and must, unless the
consumer agrees) repay the consumer in the digital currency.163

Although the aforementioned Note refers only to the means of reimbursement, it may
indicate that the payment to be reimbursed is that of the bitcoins received. However,
this should not be considered a solution applicable to all cases of payments by means of
bitcoins. As mentioned above, when the consumer’s and the trader’s respective bank
accounts are in a different currency, the decisive currency is the currency in which the
price was denominated in the contract.164 The denomination of the price in a currency is
strongly connected with the function of this currency as a unit of account.165 In the
majority of cases, the price is denominated only in a state currency, even when the
consumer has the opportunity to pay with bitcoins;166 the trader provides information
concerning the price in a state currency alone and the contract is concluded in relation
to this particular currency. This is due to the fact that bitcoin does not properly serve as
a unit of account, as discussed in section 2. Bitcoin is perceived
not as the currency of account, but as a medium to convey the purchasing power that
corresponds to the price denominated in a state currency. For this reason, a trader who
accepts payments in bitcoins usually does not present bitcoin as a different currency
option (ie where the consumer may choose between two state currencies), but rather as
different means of payment, such as (for example) payment by credit card or
remittance. Put otherwise, the state currency in which the price is denominated is the
‘money of account’, which is decisive in terms of measuring the consumer’s obligation of
payment and the trader’s obligation of reimbursement, while bitcoin is ‘the money of
payment’.

Should the consumer choose to effect the payment using bitcoins, the trader usually
refers the consumer to a specific bitcoin exchange service. In fact, the majority of traders
do not actually receive bitcoins, even when the consumer pays with bitcoins.167 More
precisely, the consumer pays a bitcoin exchange service (in bitcoins), which in turn

162 Von Unruh (n 60) 124.
163 Explanatory Notes of the UK Consumer Rights Bill (n 143) para 211 (emphasis in the original).
164 Compare Arthur Nussbaum, Das Geld in Theorie und Praxis des deutschen und ausländischen Rechts
(Verlag JCB Mohr 1925) 229, where it is argued that the denomination of the price in a specific currency is
a matter of agreement.
165 Compare Nussbaum (ibid).
166 See Weber (n 56).
167 See Evans (n 56) 9. See also Jacob Davidson, ‘No, Big Companies Aren’t Really Accepting Bitcoin’ (TIME,
9 January 2015) <http://time.com/money/3658361/dell-microsoft-expedia-bitcoin> accessed 12 March
2016.
cooperates with the trader to receive the bitcoins and then instantly pay the trader the bitcoins' equivalent in the agreed currency (at the moment of payment). The majority of traders who accept payments with bitcoins have adopted this payment practice in order to avoid incurring any risk related to bitcoin's volatility. The amount of bitcoins to be paid is calculated according to the exchange rate that the exchanger provides at the moment the consumer chooses to effect the payment in bitcoins.

Consequently, in the aforementioned cases, the trader should reimburse the amount in the state currency in which that price was denominated. However, the CRD demands that the reimbursement be conducted by the same means of payment that the consumer initially used, unless the consumer agrees to another means of reimbursement. In the aforementioned cases, where the trader has received the payment in a state currency from a bitcoin exchange service, payments should be reimbursed according to the value of the price, as initially denominated in the state currency (as suggested above) and by the means the consumer used to pay. Accordingly, the consumer should receive bitcoins and, more specifically, the bitcoin exchange service should convey to the consumer the amount of bitcoins equivalent to the amount of the state currency to be reimbursed at the moment of the reimbursement (as in fact happens in the majority of cases, by virtue of an agreement between the parties to the contract). For instance, to revisit the earlier example, if the consumer paid 3 bitcoins, instead of €600, and at the time of reimbursement the euro to bitcoin exchange rate decreased from 200:1 to 150:1, the consumer should then receive 4 bitcoins (the current equivalent value in bitcoins of €600). Of course, there is always the possibility that the consumer will agree to more traditional means of reimbursement, such as remittance to a bank account, directly from the trader, as the CRD allows in Article 13(1), provided that the consumer does not incur any additional fees as a result of such reimbursement.

Even in cases, where the payment is effected without an intermediary and bitcoins are conveyed directly from the consumer to the trader, it is of utmost importance to examine whether the price was denominated in bitcoins or in a state currency. As stated above, bitcoin does not properly serve as a unit of account. Therefore, if the information about the price is provided only in relation to a specific state currency, this particular unit of account serves as the unit of account in which the price is denominated. Even if the consumer is given the option to effect the payment using bitcoins, bitcoins are not perceived as a unit of account, in which the price denominated in a state currency. Consequently, even in cases of a direct conveyance of bitcoins, if the trader sets the price in a state currency then the reimbursement should be conducted according to the nominal value of the price denominated in this particular currency. The means of

168 See Akins, Chapman and Gordon (n 24) 36; Brito, Shadab and Castillo (n 12) 157; Schroeder (n 17) 24; Luther and White (n 50) 5.
169 See Luther and White (n 50) 6; Evans (n 56) 8.
170 See eg the refund policies of Expedia, Overstock and Rakuten (n 161), according to which the refund in bitcoins is to be conducted by a specific bitcoin exchanger.
reimbursement should be the same as the means of payment used by the consumer. Therefore, the trader should reimburse the amount of bitcoins that is equivalent to the nominal value of the price at the moment of the reimbursement, with respect to the average bitcoin price in relation to the currency in which the price was denominated.171

4.2.4 Denomination of the price in bitcoins

There are still cases, albeit rare,172 where prices are indeed denominated in bitcoins. These are cases where the trader provides information about the price of the product in bitcoins alone and therefore bitcoins are actually used as a unit of account. Thus, in these said cases, bitcoin is indeed perceived as the currency of payment and not merely as a method of payment. If a valid agreement concerning the manner of a potential refund does not exist, the trader should reimburse the exact amount of bitcoins received, regardless of any future fluctuations concerning the bitcoin's value, as is suggested in the legal literature.173 For instance, if a consumer has paid 3 bitcoins to purchase a product then in this case 3 bitcoins are to be reimbursed.

However, due to bitcoin's high volatility, this mode of reimbursement entails risks for both parties to the contract. If the bitcoin's value increases, consumers may exercise the withdrawal right more often than otherwise expected, in order to benefit from the increase in value.174 However, this does not constitute a valid reason to justify an exception to the right of withdrawal,175 since the trader should bear the risk of denominated the price in bitcoins. In this case, the consumer can benefit from the withdrawal, since he or she can receive a financial asset of greater value at the moment of reimbursement than at the moment of payment. Besides, even in cases where the consumer pays in foreign currency, he or she might still make a profit if the value of the currency of payment decreases in comparison to the value of the currency in the consumer's bank account used for the payment (as mentioned above).

Bitcoin's value, however, could not only increase but also decrease. In this case, the consumer could suffer the consequences of bitcoin's value fluctuation, as he or she would receive a financial asset, the value of which is then less than it was at the moment of the payment. The consumer's losses can be covered by means of a claim to damages only in cases of a breach of contract from the trader's side. Otherwise, the exercise of the consumer's right to withdraw does not justify a claim to damages against the trader.176

171 Information on the average daily bitcoin price in several currencies can be found online at Bitcoin Average, 'Bitcoin Price Index': <https://bitcoinaverage.com> accessed 14 March 2016.
172 See Weber, ‘Can Bitcoin Compete with Money?’ (n 56).
173 Von Unruh (n 60) 124.
174 Compare Omri Ben-Shahar and Eric A Posner, ‘The Right to Withdraw in Contract Law’ (2011) 40(1) The Journal of Legal Studies 115, 128; Oren Bar-Gill and Omri Ben-Shahar, ‘Regulatory Techniques in Consumer Protection: A Critique of European Consumer Contract Law’ (2013) 50(1/2) Common Market Law Review 109, 120.
175 See also Hans-W Micklitz, ‘The Future of Consumer Law: Plea for a Movable System’ (2013) 2(1) Journal of European Consumer and Market Law 5, 9, who claim that ‘[t]he right of withdrawal serves the clever consumer, who can still withdraw from the contract after having made a price comparison’.
176 Von Unruh (n 60) 124.
With respect to this potential loss incurred by the consumer, there are two issues to be examined: whether there is a duty to inform the consumer about the risks that derive from bitcoin’s volatility in case of the exercise of the right of withdrawal, and whether the potential losses incurred by the consumer are compatible to the reasoning of this particular right.

The rationale that underlies the information duty is ‘the one-sided drafting of the contract, the information asymmetries and ignorance of the average consumer about the legal technicalities, to which one can add the ignorance of the content and usefulness of products and services may lead to suboptimal contracts’.\(^{177}\) One of the legal technicalities that the consumer might ignore is the existence and the main legal consequences of the right of withdrawal (such as the obligation of the trader to reimburse the payment in the agreed currency of the price) where such a right exists. Consequently, the trader bears a respective duty of information, according to Article 6(1)(h)-(k) of the CRD. The trader complies with this duty provided he or she informs the consumer that the latter has a right of withdrawal, and in case of a valid exercise of this right, the trader shall reimburse the agreed price. However, the fact that the value or the exchange rate of the currency of payment may fluctuate in the future or the consumer’s domestic currency may lose its internal value due to inflation constitutes neither a legal technicality, on the grounds of which the trader has an informational advantage concerning the contract to be concluded, nor does it constitute information directly connected with the obligations derived from the contract. For this reason, the CRD provides no specific duty of information about the potential losses the consumer could incur due to fluctuations in exchange rates, in cases where the payment is agreed in a foreign currency.

A parallel can be drawn with respect to sales/services contracts, where the agreed price is denominated in bitcoins. The fact that bitcoin’s value may fluctuate in the future is essentially no different from the fact that a state currency’s value may fluctuate in the future, since both refer to cases where there is no information asymmetry concerning the contract to be concluded. Therefore, the trader bears no duty to inform the consumer that bitcoin’s value may decrease in the future. With respect to the issue of the compatibility of the consumer’s potential loss due to the possible decrease of bitcoin’s value with the ratio of the right of withdrawal, there could be a possible objection, relating to the teleological interpretation of Article 13. More specifically, the consumer’s financial position might deteriorate and this can then hinder the actual exercise of the right of withdrawal, something that potentially opposes the rationale for the aforementioned rules, which inter alia is to ensure the effectiveness of the withdrawal right.

\(^{177}\) Di Donna (n 114) 255. See also Christian Twigg-Flesner and Reiner Schulze, ‘Protecting Rational Choice: Information and the Right of Withdrawal’ in Geraint Howells and others (eds), Handbook of Research on International Consumer Law (Edward Elgar 2010) 130-157, 132; Luzak (n 118) 97.
However, the teleological interpretation of Article 13 should take into consideration not only the goal of the effectiveness of the right of withdrawal but also the teleological system of the CRD more generally, i.e. as a coherent system of goals expressed by its provisions. There are cases, such as those regulated in Article 14(2)\textsuperscript{178} and Article 13(2),\textsuperscript{179} where the consumer's financial situation might deteriorate. These rules refer to situations where the consumer has attempted to gain a profit from the use of the goods or selected a more expensive means of transportation. Both rules are based on the principle of the \textit{bona fides} dealing. Furthermore, as mentioned above, according to the DG Justice Guidance, the consumer might suffer losses due to fees charged by the consumer’s bank in case of reimbursement of a foreign currency\textsuperscript{180} or due to fluctuations in relation to the value of the currency, yet the trader shall not be responsible for any such losses. The trader’s duty is only to reimburse the nominal value of the agreed price in the agreed currency of payment. Consequently, a perfect restoration of the consumer’s previous financial position in any case of withdrawal is not an ultimate goal of the CRD.

Parallels can be drawn with respect to the potential losses that the consumer might suffer should the bitcoin’s value decrease. Bitcoins are an asset of a rather speculative nature and could also be profitable for the consumer who uses them, since the consumer may withdraw within the legal time limit in case the bitcoin’s price has increased. In this case, the consumer would reap the profit of the bitcoin’s value increase. Since an exception to the right of withdrawal in case of a payment with bitcoins cannot be justified, the consumers can use bitcoins as a means of payment even for speculative reasons, in cases where prices are denominated only in bitcoins. However, speculation also entails risks. Since the consumer could potentially profit from the use of bitcoins, he or she should also bear any potential losses. Expecting only to gain the potential benefits but not to bear any potential losses of a personal choice should not be regarded as a legitimate expectation, especially if one takes into account the need for an honest and fair (\textit{bona fides}) dealing. Furthermore, it could be difficult to determine the exact loss to the consumer, if the price is only denominated in bitcoins. Bitcoin’s value is defined in relation to its exchange rate against state currencies, as it is not legal tender or domestic currency in any state.\textsuperscript{181} Since no state currency is mentioned in the contract or used as a standard of comparison, the exact decrease of bitcoin’s value cannot be precisely defined. For instance, bitcoin’s value may decrease 5\% with respect to its exchange rate against

\textsuperscript{178}CRD Art 14 para 2, states: ‘[t]he consumer shall only be liable for any diminished value of the goods resulting from the handling of the goods other than what is necessary to establish the nature, characteristics and functioning of the goods. The consumer shall in any event not be liable for diminished value of the goods where the trader has failed to provide notice of the right of withdrawal in accordance with point (h) of Article 6(1)’.

\textsuperscript{179}CRD Art 13 para 2, states: ‘[n]otwithstanding paragraph 1, the trader shall not be required to reimburse the supplementary costs, if the consumer has expressly opted for a type of delivery other than the least expensive type of standard delivery offered by the trader.’

\textsuperscript{180}European Commission (n 140) 46.

\textsuperscript{181}The value of a traditional currency is defined either from an internal (purchasing power within the state limits where it is acknowledged as a currency) or from an external (exchange rate against other currencies) perspective. See Nussbaum (n 164) 59.
the domestic currency of the trader (eg GBP) and 7% with respect to its exchange rate against the domestic currency of the consumer (eg euro).

Moreover, from a purely technical perspective, the consumer is restored to the same position that they were in at the moment of the payment inasmuch as they receive the same financial asset that they spent. However, the consumer does not necessarily receive the same purchasing power that they originally disposed, so they are not necessarily restored to the same monetary position. At the same time, the value of the financial asset that they receive could also increase in the near future, given the constant fluctuation in bitcoin’s value.

5. Concluding Remarks

The fact that the consumer and the trader choose to conduct a payment by means of a digital currency that serves as a medium of exchange should not be regarded as a potential reason to exclude this particular contract from the provisions of the CRD, particularly those aimed at providing consumers with a right of withdrawal. The specific manner and the amount of the reimbursement can be a part of the contract, provided that this contractual term shall not be disadvantageous for the consumer. However, if an agreement is not concluded, the manner and the amount of the reimbursement depend primarily on the currency in which the price was denominated. In the majority of cases of payments with bitcoins, the nominal value to be reimbursed is that of the price denominated in a state currency at the moment of payment. This is due to the fact that bitcoin is not actually perceived as a currency, but as an alternative means of payment. In the quite rare cases when prices are denominated in bitcoins, the trader should reimburse the exact amount of bitcoins received.