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El Salvador's Adoption of Bitcoin from the Perspective of One Year: The Influence on the State Budget and a Comparison to Poland's Legislature

Abstract

Objectives: With each passing year, cryptocurrencies are becoming more popular and play an increasingly important role in economic trading. This growing importance is related not only to the increased interest in this subject, but also to the growing theoretical and practical problems. The author's goal is to portray circumstances and implications of the adoption of cryptocurrency by the Republic of El Salvador – which recently included bitcoin as part of the state budget – as well as discuss possibility of similar precedent in Poland.

Research Design & Methods: Cryptocurrencies are still a relatively new invention and, simultaneously, a complicated one. Therefore, reliable sources and references are still scarce, and those which exist are mostly in the Internet space. In the following article, I have used dogmatic-theoretical method of research in subsequent steps; I analyse proper subject literature, journalistic reports, as well as legal regulations.

Findings: El Salvador has become the first country in history that had decided to equate the status of a cryptocurrency with its native currency. Recently, it was also followed by the Central African Republic. However, the Republic of El Salvador takes a step forward and includes bitcoin as part of the state budget, thus binding the country's economic condition with the market pricing of cryptocurrency. A one-year's investment has, so far, gone negatively for the country, as Bitcoin price has declined sharply throughout the year. When comparing the situation of El Salvador to the Polish reality, it should be stated that cryptocurrencies may, in the current legal state, be part of the state budget. However, this applies only to single instances; therefore, such a negligible share can be omitted in further discussion. Certainly, adoption on El Salvador's scale is not currently possible. Apart from obvious risks, it would require a thorough reform of not only the legal system, but, above all, the economic mentality of the society.

Implications/Recommendations: Given the fact that Bitcoin is a cryptocurrency with neither issuer nor central authority, such step is to be considered a significant precedent in the history of world's economy and for cryptocurrencies themselves. Due to the well-known price volatility of the market, the adoption seems to be highly risky, but, if successful, it may bring measurable benefits to country's economy. However, the true question is – is it justified to base the state's budget, which is economic foundation of society, on cryptocurrencies? Almost a year after the adoption, bitcoin price is significantly lower and, consequently, El Salvador's loss is higher. Yet, bitcoin proved to recover many times – even after slumping over 90%. To conclude, it is advisable to observe El Salvador's economic situation in order to be able to more precisely define the impact of such a decision in the future, both on the country and on the cryptocurrency market itself.

Contribution/Value Added: The adoption of cryptocurrencies by El Salvador was broadly discussed not only in the cryptocurrency community, but also in the financial and economical ones. Journalists from around the world as well as international institutions such as the International Monetary Fund and the World Bank all became

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interested in the situation of El Salvador. In this article, I organise information, assessments, and opinions of the international community regarding the Salvadoran precedent. I also indicate whether and at what level cryptocurrencies can be part of the Polish budget under current legal regulations. The Salvadorian case, due to being a precedent, has already become a valuable lesson for the future legal proposals, research, and discussion. Yet, the development of such a situation may be surprising, which is why further observation is advisable.

Keywords: Bitcoin, cryptocurrency, El Salvador, state budget, Poland, Administrative Law

Article classification: theoretical (conceptual) article

JEL classification: K23, E58, F53

Introduction

On 7th September, 2021, El Salvador adopted Bitcoin as the country's other legal tender, alongside the dollar. From that point on, it has been possible to make payments using the cryptocurrency directly. This also applies to settlements with public institutions. The decision itself has left international public opinion stunned, yet the Salvadorian authorities went a step further. Indeed, Bitcoin has been incorporated into the state budget and is regularly acquired using public funds[1]. Bitcoin was also adopted as an additional legal tender by the Central African Republic (Zygiel, 2021)

The novelty of the topic, apart from it being a pioneering step, is about El Salvador causing a real debate on the possibility of accepting cryptocurrency as legal tender and even a national currency. This article, together with an entire series of other publications that have appeared primarily online, stands testament to the latter (Bitcoin.pl, 2021). This step, which not long ago seemed to belong in the realm of fantasy, is now discussed across various fields of social sciences (Alvarez et al., 2022). Economists and financiers have begun to closely follow the fate of El Salvador. This indirectly translates into more thorough analyses of the industry itself, leading to its development. Observing the Salvadorian case is important to hypothetical future adoptions in other states, as it will allow to correct possible mistakes.

How did a currency which has no issuer, and one that some – notably its fiercest critics – consider to be a financial pyramid, attain such a status? In this article, I provide an abridged history of cryptocurrencies and the circumstances in which El Salvador adopted cryptocurrency as legal tender. However, the main objective of this article is to analyse the influence that bitcoin adoption has exerted on El Salvador from the perspective of one year, as well as the possibility of the Republic of Poland following.

Material and methodology

I perform the analysis in a few subsequent steps, using dogmatic-theoretical method of research, combined with some minor calculations. First, I present the key terms referring to the article's subject alongside with a background of cryptocurrencies' historical development, which, in my opinion, is necessary to understand this novel topic. Secondly, I recall the key events portraying bitcoin adoption by El Salvador, combined with international overtones. Thirdly, I describe cryptocurrencies' legal background in Poland, highlighting key regulations.

I obtained data from various sources, depending on the subject of research. For the key terms, I used mostly scholars' literature which has increased vastly in recent years. Internet sources were inevitable to depict the adoption circumstances, alongside with institutional websites (for example the IMF site). Finally, when it comes to legal regulations in Poland, I based my findings on official legislative acts, followed by scholars commentaries, if available.

Combined with the time passed since the adoption, all this data allows me to address two main problems. First, what influence has El Salvador's decision exerted, not only on the country's

[1] When referring to the entire network, I use capitalised 'Bitcoin' and only in the singular, as in my opinion there is only one designation for the term 'Bitcoin', as is the case with the Internet network. When referring to the monetary units of the Bitcoin network, I use a lower case 'bitcoin', generally in the plural, as there are 21 million of the term. The technical details of the network will be discussed later in this paper.

state budget, but also on the international community? Second, is such a step possible in the Republic of Poland and could it be beneficial?

What is Bitcoin?

Bitcoin was launched on 3rd January, 2009, by the anonymous *Satoshi Nakamoto*[2]. It is a complete and organised software used as a payments system across the Internet. At first, it was known primarily within the IT community. It also attracted interest from liberal and even anarchist circles (Cohan, 2017). While the Creator's initial intention was to allow Internet users to make payments without the involvement of a trusted third party, it soon became apparent that the mechanism invented by *Nakamoto* had the potential for much more than just fast and secure online payments. In less than a decade, Bitcoin has gone from being a curiosity for geeks to being the focal point of interest for investors from around the world, funds, and state institutions (Duggan, 2022).

However, Bitcoin is not the only cryptocurrency that exists. In fact, there are thousands of them which aim to solve different problems and present various approaches[3]. The brightest example is Ethereum – the second cryptocurrency after Bitcoin. In contradiction to its predecessor, its main goal is to create a decentralised platform for developing applications, and not being a system of payments (Antonopoulos & Wood, 2019).

Cryptocurrencies began to emerge in large numbers in several past years and are increasingly seen as an alternative form of investment and a currency over which the state has no control. Spectacular price rallies and even more dramatic crashes have undoubtedly contributed to its rising popularity. The value of bitcoins has been known to increase by thousands of percent in a single year, only to fall by as much as 90 percent thereafter. Within a decade, the value of a bitcoin changed from a few cents to nearly 70,000 USD (Runkevicius, 2021). However, it was the technical aspects and potential deflationary features that attracted the original interest from those who saw the potential for the cryptocurrency's growth.

The term 'cryptocurrency' itself refers to a currency that is secured by cryptography and exists only in the virtual space (Kessler, 2022; Nakamoto, 2008). In fact, Bitcoin is simply a publicly accessible database (much like the Internet), although its main purpose it to serve as a system of payments, thus making it a widely accessible network inside the Internet. However, every participant of this network has equal privileges. In this system, there is no hierarchy as well as there are no administrators and no users. Anyone can contribute to sustaining the network (by multiplying and enhancing the database) and use it on equal terms. Just this brief description explains the interest from liberal circles, especially those with a socialist streak, alienated by the practices of state institutions (Iqbal et al., 2021)[4]. Since free and unlimited access to

[2] It is worth adding that the Creator remains anonymous to this day. We do not know who is hiding under the pseudonym Satoshi Nakamoto. Furthermore, there has been no communication with the Creator for nearly a decade. Effectively, this is tantamount to a definitive withdrawal from the project, which is now being developed by the community.

[3] The actual number of cryptocurrencies published on public websites varies depending on source, as it is sometimes difficult to consider particular project as a cryptocurrency or as still being used and developed. Based on *coingeko.com*, there are over 13,000 cryptocurrencies, whereas based on *coinmarketcap.com*, there are more than 20,000.

[4] One of the most known postulates of liberalism is '*laissez faire*', which refers to the lack of economic interventionism used by the state. Therefore, a currency without possibility of printing suits this saying perfectly.

the decentralised Bitcoin network, subject only to Internet access, is available to everyone, it began to develop into an alternative financial system (Livni & Lipton, 2021). There are even accounts on the Internet of people claiming to have completely stopped using cash, bank cards, or online transfers in favour of cryptocurrencies (Harrington, 2022). And that is not as ridiculous is it may sound. The number of entities – especially businesses offering goods and services – which accept bitcoins is increasing steadily (Ciesielski, 2021).

Twenty-one million is an important number when it comes to cryptocurrencies. This is the maximum number of bitcoins – the monetary units of the Bitcoin network, which, unfortunately, share common name, making it hard to differ between those terms[5]. Due to restrictions implemented in the source code, no more bitcoins can ever be created, and due to an automatic supply model, the last bitcoin is going to be created around year 2140 (Kim, 2019). The twenty-one million limit attracts supporters of a currency which is independent of government, as it not only lends a deflationary character to the project, but also makes printing additional bitcoins impossible. Therefore, similar hard-cap limits are introduced in alternative cryptocurrency projects[6].

This feature – alongside with the aforementioned decentralisation – is the main advantage of such currencies, according to adherents. The inability to print more money is one of the most important qualities of Bitcoin. However, its opponents counter that a certain amount of inflation is necessary – in line with the assumptions of some schools of economics (Skidelsky, 2011) – and, moreover, that control over money supply is required to handle various perturbations. And that is not possible with Bitcoin. At the same time, the lack of this control should be understood as the lack of discretionary influence over the functioning of the cryptocurrency, and not as chaos inherent in the functioning of the project. It is quite the opposite, i.e. everything is meticulously written down in the source code, therefore leaving little space for manipulation. A cryptocurrency has no issuer-guarantor, as it is with traditional currencies, where usually the state bank issues a country's currency, making it reliable based on its authority (Ofiarski, 2017). Instead, the issuer-guarantor's role – to a meagre extent – is essentially performed by computers. And it is these computers that implement the aforementioned network rules, as well as a number of other important features, and make sure that it constitutes a coherent whole (MonitorFX, 2022).

However, if there is no issuer-guarantor, and no entity is able to influence the currency, how can such a system be trustworthy? As I mentioned at the beginning, Bitcoin is actually a database that contains a range of information. This information is stored and processed according to the algorithms encoded by the Bitcoin's Creator in the IT source code. Computers, which perform a series of complex operations every second, make sure it is not possible to modify this code, or the information contained in the ledger (which could lead to Bitcoin's annihilation). On top of that, all the information in this ledger is public and publicly available, making it easier to identify any possible attempts to change it. The security of the entire network (database) improves as the number of computers 'defending' its integrity is on the increase. Modifying the information would – in theory – require computing power at least equal to that of the network itself. Considering that at the moment, the power of Bitcoin's network is greater than the world's 500 largest supercomputers combined, one would have to conclude that Bitcoin is the most secure database in existence (Santos, 2018); or at least in IT terms, as opponents continue to

[5] Cf. footnote 1.

[6] For example, Dash limit is 21 million coins, as it with Zcash. On the other hand, Ethereum does not have hard-cap limit, but its main function is not monetary, as was already mentioned.

make economic accusations against cryptocurrencies and also point out that there may be a yet unnoticed critical bug in the code (Meng, 2021). The technology for recording and storing data (known as blockchain) deserves a separate discussion in itself, as it is applicable to more than just a monetary system (Hassan et al., 2020).

Cryptocurrency, therefore, not only constitutes the first serious attempt to digitally represent value, but is also an attempt to eliminate the human factor from the currency operation process. This has only been made possible by the technological and scientific progress made in recent years. And it might take additional years or even decades to see whether these efforts were justified.

El Salvador's precedent

The following is a brief description of money without an issuer-guarantor, created by someone whose name and surname are unknown and secured by the computing power of machines. Money, which is impossible to print and, above all, whose price is incredibly volatile. Daily fluctuations of between ten and twenty percent and even more are no surprise to most market 'veterans'. At the same time, cryptocurrencies are often used in the process of committing various crimes, especially money laundering (Konieczny et al., 2018). This begs the obvious question of why a sovereign state, such as the Republic of El Salvador, decided to be the first in the world to recognise Bitcoin as legal tender and to base part of the state budget on bitcoin reserves. That decision may seem insane whilst being trivial and insignificant. This is primarily due to the rather limited significance of El Salvador on the international arena. However, this is a precedent that merely a few years ago seemed like the most exuberant fantasy of a cryptocurrency fanatic. The above becomes even more profound once the decision by the Central African Republic to integrate so staunchly with the cryptocurrency system is taken into account. While merely a few years ago such steps might have seemed like literary fiction, and even El Salvador itself might have been downplayed, today – in view of two separate states pursuing that path – this group is expected to expand in the near future.

However, there are two clearly separate issues here. First of all, in terms of cryptocurrency-friendly regulation, El Salvador is not a pioneer, and in most countries cryptocurrency trading is permitted and regulated to some extent; more on this below. What is a real precedent is the commitment of public funds to acquire bitcoins and to take active steps to encourage citizens to use the Bitcoin ecosystem. Since introducing the legal changes, El Salvador has been regularly acquiring further batches of the cryptocurrency. El Salvador's last bitcoin purchase was at the end of June and its total balance (as of November 2022) stands at almost than 2,400 BTC[7]. The country's President, Nayib Bukele, has very enthusiastically tweeted about subsequent bitcoin purchases[8]. And, incidentally, he was the main force behind the 'Bitcoin revolution' idea and was instrumental in convincing the parliament to pass the relevant laws. In adopting Bitcoin, Bukele sees an opportunity to attract foreign investors to the country and save on money transfer fees that poor people have to pay to intermediaries, as well as a chance for financial independence of the state and its citizens. Perhaps unsurprisingly, money transfers sent to families by Salvadoreans working abroad account for nearly a quarter of the country's GDP, so the potential savings could have a significant impact on the local economy (Kopańko, 2021). Furthermore, it should be noted that

[7] Data based on https://exchangerate.guru/btc/svc/9500/ (accessed: 12.02.2022)

[8] Cf. official twits on Twitter.com, https://twitter.com/nayibbukele/status/1542672286490271744

the vast majority of citizens have no realistic access to banking and, as such, financing through borrowing is not a viable option for them (*Investing.com*, 2021).

However, the new legal regulations coming into force have been met with considerable criticism from financial institutions as well as the indigenous population, where the President nevertheless enjoys considerable support (Jemioło, 2021). The World Bank has adamantly disassociated itself from El Salvador's actions and announced that it will not support the implementation of cryptocurrency payments (Campos, 2021). The Moody's credit rating agency has warned against the country's high risk of default, citing bitcoin investments among the reasons (Moodys, 2021). A communiqué from the International Monetary Fund states that 'The adoption of cryptocurrency as legal tender entails significant risks to financial and market integrity, financial stability and consumer protection' (IMF, 2022). At the same time, the IMF recommended to narrow the scope of the law on cryptocurrencies and increase supervision over the crypto-payment system. Indeed, as part of its cryptocurrency adoption programme, El Salvador has set up a special 150-billion-USD fund (Renteria, 2021). Businesses have been obliged to accept bitcoin payments and access has been provided for every citizen to the government's bitcoin wallet, where the equivalent of 30 USD will await each registered participant. These measures are aimed at encouraging the public to use this new legislative solution (Eyal, 2021). Despite international institutions issuing protests and recommendations, El Salvador's authorities remain adamant and refuse to comply with the IMF guidelines (IMF, 2022).

In spite of notable criticism, there were some who voiced their support for the path taken by El Salvador. Understandably, the cryptocurrency community itself was enthusiastic. Also, Ukraine began to consider taking similar steps (Parkin, 2021). Similar to Bukele, the incumbent President Volodymyr Zelenski is a well-known cryptocurrency fan. Preparatory steps for a wider adoption of cryptocurrencies were already taken in 2018, with 2023 as the target implementation year. Ukraine would become a dual-currency state, with the *hryvnia* and bitcoin in use alongside one another. Nevertheless, plans for such an integration are likely to be changed or at least delayed in the light of Russia's invasion. At the same time, Ukraine is not the only country seeking to replicate El Salvador's actions. Officials from Paraguay, Mexico, Brazil, and Argentina, to name but few, are also thinking along similar lines[9]. Such an approach by Latin American countries should not come as a surprise, as that is where actual cryptocurrency use has been on the rise for many years. In Venezuela, a government project for a centralised Petro 'cryptocurrency' was established as a solution to the country's continuing hyperinflation. However, the currency was criticised by a significant part of the community as well as Venezuelans (mainly due to centralisation), and, in retrospect, it can be said that the project was a failure (Adamiak, 2018).

Cryptocurrencies in Poland

Cryptocurrencies, and in particular Bitcoin, can be legally traded in the Republic of Poland. This conclusion is based not only on the lack of a provision prescribing a clear prohibition, but also on the letter of the Minister of Finance to the Speaker of the Sejm of 28 June, 2013, which stated that 'the operation and trading of virtual currencies in the Republic of Poland does not violate Polish or EU law'[10]. At the same time, the document states that Bitcoin does not meet the definition

[9] Cf. footnote 29.

[10] (BPS/043-30-1238/13), *Lex.pl*

of electronic currency in the light of the Act on Payment Services[11]. With the growing popularity of cryptocurrencies, trying to define Bitcoin in legal terms is the subject of an increasingly lively debate (Bala et al., 2016; Michna, 2018; Szewczyk, 2018; Zacharzewski, 2017; Behan, 2022). Without entering into a detailed discussion here, it should be noted that in the light of the current regulations, Bitcoin is not legal tender, as this is taken by, according to Article 32 of the Act on the National Bank of Poland, media of exchange issued by the National Bank of Poland. In fact, that institution has an exclusive monopoly in this sphere. Also, the definition of virtual currency, as it appeared in the Act on Counteracting Money Laundering and Terrorist Financing, states that a virtual currency is a digital representation of value which is not legal tender issued by the NBP or other central banks. *As per* the earlier discussion, when it comes to Bitcoin, it is difficult to talk of an issuer.

However, this is not the only component and, in fact, the definition itself is quite complicated, being a result of implementing EU law and the AML Directive[12]. The virtual currency is, therefore – from the positive side – a digital reproduction of value, which is convertible in economic transactions into legal means and accepted as a means of exchange, and can also be electronically stored or transferred, or may be the subject of electronic trade. On the other hand, from the negative side, the virtual currency will not be the above digital reproduction of value, as these belongs to: a) a legal payment means emitted by the NBP, foreign central banks, or other public administration bodies; b) an international settlement unit established by an international organisation and accepted by individual countries belonging to this organisation or cooperating with it; c) electronic money as understood by the Act of 19 August, 2011, on payment services; d) a financial as understood by the Act of 29 July, 2005, on trading in financial instruments; and e) a promissory note or check.

Such a multitude of requirements contained in the definition seems to darken the essence of cryptocurrency, and yet, taking into account the definition of virtual currency, one must also consider the equally extensive definitions of financial instruments or electronic money, to which the above definition referred to. Nevertheless, this is the legal framework. It should also be noted that the Polish law does not differentiate the legal situation of individual cryptocurrencies, which, if they meet the conditions of definition, will be considered a virtual currency. Some legislatures regulate this issue separately. In particular, it should be noted that El Salvador adopted Bitcoin only.

Cryptocurrencies have already been the subject of numerous rulings by common and administrative courts, as well as the Supreme Court[13] and the Supreme Administrative Court[14]. Unsurprisingly, the vast majority of cases were on tax law grounds. Finally, after numerous perturbations, aided by the position of the Court of Justice of the European Union, trading in cryptocurrencies becomes exempt from value added tax, similar to trading in traditional currencies[15]. Further, as a result of protests and administrative difficulties, cryptocurrencies have been exempted from tax on civil law transactions (Tabka, 2018),[16] while income from cryptocurrencies was classified similar to income on financial capital and taxed at a flat rate

[11] Journal of Laws 2011 No. 199 item 1175, as amended.

[12] Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015, Official Journal of the European Union L141/73.

[13] See, *inter alia*, Judgment of the Supreme Court of 3 June 2018; ref. no. II FSK 488/16; Judgment of the Supreme Court of 3 December 2009; ref. no. II CSK 550/09.

[14] Cf., *inter alia*, Judgment of the Supreme Administrative Court of 6 March 2018; ref. no. II FSK 488/16; Judgment of the Supreme Administrative Court of 19 August 2021 ref. no. I FSK 590/18.

[15] Judgment of the Court of Justice of the European Union of 22 October 2015; ref. C-264/14

[16]Article. 9 section 1a) of the Act on Tax on Civil Law Transactions (Journal of Laws of 2022, item 111, 655).

of 19% (compared to the previous rate of up to 32%)[17]. Finally, as of this year, exchanging or brokering in the exchange of cryptocurrencies is a regulated activity. This entails an entry in the register of providers of such activities and is subject to a number of requirements, including having no criminal record as well as relevant knowledge[18].

Following this brief discussion, one may conclude that the legal environment for cryptocurrencies has evolved positively. Not only have rules emerged creating a more secure footing for businesses and consumers, but also a certain body of case law has appeared in this area, providing a kind of behavioural guide for interested parties. Cryptocurrencies seem to have taken hold in both the economic and legal consciousness. Both the body of rulings and the literature on cryptocurrencies can be expected to grow for the simple reason that there is a clear trend towards increasing the use of cryptocurrency in business.

Looking at the general legal environment of cryptocurrencies in Poland in the backdrop of the situation in Latin America, one has to wonder whether Poland is ready for a similar step. The issue may be considered at two levels: legal and economic.

In legal terms, the permissibility of private trading in cryptocurrencies is not in doubt, although some public-law restrictions arise. The Treasury's general ability to acquire property, including stocks and shares, is assumed (Gniewek, 2017). Traditionally, a state's participation in economy is divided between two roles: the *dominium* sphere and the *imperium* sphere. The former one is plural and equal with other market participants, whereas the latter one is unequal and rather discretional. Since civil law transactions are permissible, the acquisition of virtual currencies by the State Treasury should also be considered permissible, at least within the *dominium* sphere, as a participant in economic trading on equal terms with other entities[19]. Limits in this respect are based on specific provisions, and there are no such specific provisions within the scope of cryptocurrencies at the moment. Article 9 of the Act on the Principles of Managing State Property, which prescribes the purpose for which the State Treasury may acquire shares, is an example of restrictions on the acquisition of shares[20].

The permissibility of acquiring cryptocurrencies is supported not only by the lack of restrictions, but also by their tax reclassification into the financial capital category. Stocks and shares are in the same category. Differentiating their status – in this respect – in view of such a notable legislative evolution and the creation of a relatively liberal trading environment would be inadvisable and without a convincing justification. It should also be mentioned that, since it would be possible to acquire shares in a company that actively invests in cryptocurrencies and is, therefore, strongly linked to their valuation, it would be reasonable to allow the acquisition of the cryptocurrency itself. Analogously, it should be considered that the same restrictions would apply to the acquisition of cryptocurrencies as for shares and stocks. Thus, the acquisition of a cryptocurrency should be considered primarily for the purpose of implementing a social or economic policy of the state. However, there is no denying that this objective is relatively broad with ample capacity for arguing a justification. Appropriate regulation in this area can be expected in the future, provided that

[17] Article 12 paragraph 12 item 11) and Article 1a of the Personal Income Tax Act (Journal of Laws of 2021, item 1128, as amended).

[18] Article 129 m et seq. of the Act on Counteracting Money Laundering and Terrorist Financing (Journal of Laws of 2018, item 723, as amended).

[19] *Ibidem.*

[20] Journal of Laws of 2016, item 1240, as amended.

cryptocurrencies continue to grow in popularity and importance across the business world. At present, the economic viability of such an acquisition is a separate issue.

The situation is somewhat more complicated for the *imperium* sphere, i.e. sovereign public-law relations, where other entities must obey the state[21]. Referring to the problem stated in the title, it should be pointed out that the budgetary procedure is a complex process that requires special care. The state budget is the economic foundation thereof, and no public body could function in the long term without financing. Therefore, including cryptocurrencies in the budget seems to be an overly risky exercise in terms of economics, considering their volatility and the lack of a guarantor. Nonetheless, it should be stated that to some small extent it is possible under the current state of the law and is mainly a consequence of the *dominium* sphere.

The primary legal act in this respect is the Public Finance Act of 27 August, 2009[22]. Pursuant to Article 3 thereof, public finance includes, *inter alia*, the collection of public revenues and incomes and the management of public funds. Further, Article 5 provides an extensive list of definitions explaining what public funds are. Pursuant to Article 5 paragraph 1 item 4b, these are, *inter alia*, state budget revenues from the privatisation of State Treasury assets. Article 5 paragraph 1 item 8) which, in case of doubt, will also apply here, is somewhat complementary to this provision. Accepting the permissibility of the Treasury acquiring virtual currencies may lead to a situation where the assets that they were part of are going to be privatised. A similar conclusion follows from Article 5 paragraph 2 item 1), which lists certain public revenues. Among these is a profit contribution by national companies and State Treasury-owned companies. One also has to mention the institution of forfeiture, which can be applied to cryptocurrencies struggling with a 'criminal label'. While it may be debatable whether Article 44 or 45 of the Criminal Code[23] will apply due to dematerialisation, the admissibility of the institution itself should not be in doubt. Funds from forfeiture are taken over by the State Treasury; it is worth emphasising that cases of cryptocurrencies being confiscated are not literary fiction, as they have happened in the past (Hern, 2020; Business Insider Polska, 2017)[24]. Finally, the possibility of donating, bequeathing, or bequesting to units in the public finance sector, which by virtue of Article 5 paragraph 2 item 5) are public revenues, should also be mentioned. The same will apply to statutory succession in the absence of a will and statutory heirs (Article 935 of the Civil Code).

Results

The study of the Salvadorian case shows that the very first problem that a particular country needs to address is international criticism, especially from important financial institutions such as the International Monetary Fund or rating agencies, which can further lead to economic isolation. Although this issue would probably become less vital in the future if more countries were to follow suit, the criticism has put El Salvador in a difficult situation. As the country's economy has been recently worsening, it seeks help, and the World Bank refuses[25]. In order to grant development aid, the IMF requires conducting certain reforms, one of which is reversing Bitcoin adoption – a step which President Bukele persistently rejects (Reuters, 2022). Lowering the country's rating

[21] Cf. footnote 49.
[22] Journal of Laws 2009 No. 157 item 1240, as amended.
[23] Journal of Laws 2022, item 1138, 1726, 1855.
[24] Among the most famous was the American FBI confiscating more than 170,000 bitcoins from Silk.
[25] Cf. footnote 31.

makes the situation even worse, causing borrowing money to be more expensive, as worse rating involves higher risk for lender, thus generating the need to compensate it with a higher interest rate.

Once a particular country manages to deal with criticism (or perhaps its economic situation is better), another threat is risk involved with cryptocurrency market pricing. A one-year's perspective clearly shows its significance. As I highlighted in the beginning of the article, cryptocurrencies are well-known for being volatile and the current year, alongside with the previous one, confirms it neatly. After reaching a price of nearly 70,000 USD per bitcoin in early November 2021, it then dropped to below 20,000 USD in the middle of June 2022. The price of bitcoin fell by more than 80% in just seven months, making El Salvador's loss significant. In fact, dollar cost average price for El Salvador is 45,000 USD, with bitcoin price itself being 20,000 USD, contributing to a nearly-60% loss since the beginning of the adoption. Taking into account these circumstances, the fact that El Salvador's case is held to be inspirational through some countries is only a small consolation for the Pioneer itself – at least until more followers are to be found.

From another perspective, one may claim that had El Salvador bought bitcoins earlier, it would have still had a decent profit. The same conclusion could be proposed if bitcoin was to gain in price again in the future, which is possible considering, once again, strong volatility and historical price action. Conceding this statement to be truthful (e.g., bitcoin price in October 2021 was 10,000 USD), it is at least questionable whether a country's economic condition should be based on not only one of the most risky assets in the world, but also a very young one and, thus, highly unpredictable.

Despite the fact that El Salvador's unrealised loss is nearly 60% of the investment, President Bukele remains unshaken (Sigalos & Kharpal, 2022). He continues to systematically acquire further batches, leading to the price averaging out (Bellusci, 2022). Thus, any subsequent price increases would mean a sizeable profit for the Republic of El Salvador, in practice impossible to generate on any other market in such a short term. However, this is only an assumption, as future prices cannot be predicted with any certainty, and such a gamble with public funds seems extremely risky and could end tragically for the general public. The relatively significant dissatisfaction of the local population – particularly business-owners, who have been forced to revolutionise the way they do business in a fairly short space of time – is also noteworthy. Public protests continue to take place, so it seems that another several months are necessary to have a fuller picture of the situation (Renteria, 2021).

When it comes to an analysis of the Polish case, cryptocurrencies have been granted a firm position in recent years. Not only were they legally defined, but also first regulations on running cryptocurrency business started to appear, alongside with some tax concessions. It seems that the participation of cryptocurrencies in the state budget is possible, although it is somewhat forced, passive, and incidental. In fact, those cases are so exceptional that they seem to be negligible. While the phrase 'management of public funds' in Article 3 item 5) of the Public Finance Act of 27 August, 2009[26], is quite broad, it does not seem to include the possibility of converting some public funds into cryptocurrencies, thus making it impossible to obtain any considerable amounts under state's *imperium* sphere. In contradiction, it seems to be much easier for The State to obtain cryptocurrencies in the *dominium* sphere, where regulations are not as strict. Yet, this seems to be justified, as this part of state participates in the economy on the equal, free-market rules, as other participants do. Still, there is no evidence for acquiring any significant cryptocurrency, even in this sphere, which, in my opinion, indicates reasonable governing.

[26] Journal of Laws 2009 No. 157 item 1240, as amended.

Concluding Remarks

If Bitcoin or other cryptocurrencies were recognised as legal tender in Poland, a certain proportion of public revenue and income would necessarily be collected in the form of cryptocurrencies. The introduction of such a possibility into the legal system would, in practice, require an actual investment of public funds in cryptocurrencies. Otherwise, it would be irrational to allow such an option and immediately re-exchange crypto-income as soon as it flows into the Treasury. Storing some part of public funds in crypto-assets would, in turn, probably raise discussion on whether to increase that share or not. From this point it takes just one step to allow the Salvadorian option, although a thorough reform of many domestic law branches would be required. One may, therefore, assume that such a regulation will not appear any time soon, if it is at all possible in the legal and economic culture of Europe.

When addressing this issue at an economic level, it is necessary to answer the question of whether the share of cryptocurrencies in a state budget is beneficial and, thus, whether it would make sense to conduct relevant legislative changes. Studies on bitcoin price action and Salvadorian case show that it may be beneficial, but the reality has verified the – perhaps too optimistic – predictions, leaving El Salvador with a considerable loss. All sorts of risks associated with such a novel construct as cryptocurrencies are surfacing. Firstly, the lack of an issuer-guarantor means that the entire risk of an undertaking is borne by the investor. Secondly, very significant price fluctuations are a factor that amplifies risk and uncertainty. However, it should be noted at this point that, despite spectacular crashes, the price of bitcoin has been rising steadily in a wider time frame, though it may not always be the case. Thirdly, one has to bear in mind the ever-present possibility of project failure caused either by a critical error in the code or by a final economic unsuitability that may not manifest itself until some time later.

Compared to gold, which has been the basis of national reserves for millennia, the age of cryptocurrencies, counted in a dozen years, speaks for itself. The risk is, therefore, considerable and, as such, any possible economic commitment should be proportional to it. State institutions engaging in such operations would be bordering on gambling. However, one can already find international funds that cautiously include cryptocurrencies in their investment portfolio, but they do so for a very negligible percentage of money (Semenova, 2021). This seems like a reasonable strategy, one that minimises losses while, in the event of success, leading to a sizeable profit to compensate the efforts.

Finally, it has to be said that, while a passive observation of the actions taken by other countries rules out the possibility of a pioneering cryptocurrency adoption, it also avoids any possible perturbations associated with the new situation, and as such seems most appropriate. The fact that countries in a fairly poor economic situation are deciding or considering such a step in the first place also seems quite critical. When it comes to El Salvador, the CAR or Venezuela, such an 'experiment' is perhaps a last-ditch attempt before bankruptcy. Regardless of the position taken on this matter, it has to be said that Poland is not a country that would require such drastic measures, even though its debt is approaching a critical level[27]. In my opinion, for the time being, the best strategy is to observe the situation. Any possible pro-cryptocurrency actions should be taken

[27] Based on Eurostat data, Poland's public debt constituted 56.6% of its GDP in the third quarter of 2021. Meanwhile, pursuant to Article 86 of the Public Finance Act (Journal of Laws of 2019, item 869, as amended), the Council of Ministers is obliged to take remedial measures once the debt exceeds 55% of the country's GDP, with 60% of GDP being taken as a critical point.

once harmonisation at the European level becomes possible. Public funds, which by definition are 'public', are too valuable an asset to take such a huge risk alone.

The study of the Salvadorian case leads me to a conclusion that making cryptocurrencies a part of the state budget is inappropriate and even irresponsible, as public funds are the society's economic foundation. It is also not recommended to make Bitcoin or other cryptocurrencies legal tender too soon. Despite the fact that it may be beneficial to allow wider payment liberty for citizens and enterprises, such a step requires multilevel changes in the structure of law system and, therefore, should be proceeded with great caution. As for now, it seems that the best option, one which balances risks and opportunities, is to make regulations encouraging the private sector to develop this industry. Once it grows enough and becomes more stable, re-discussion is advisable. Also, further observation of El Salvador's path is strongly recommended, especially its return on investment, since this country seems to be far from reversing its course.

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