

PRIVATE INTERNATIONAL LAW ON RIGHTS IN REM IN THE EUROPEAN UNION
DERECHO INTERNACIONAL PRIVADO SOBRE DERECHOS REALES EN LA UNIÓN EUROPEA
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LEGAL IMPLICATIONS OF CRYPTO-BACKED MORTGAGES AND PLEDGES: A PRIVATE INTERNATIONAL LAW PERSPECTIVE

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SUMMARY: I. INTRODUCTION.— II. THE POSITION OF THE EUROPEAN UNION ON USING CRYPTOCURRENCIES AND CRYPTO-ASSETS.— III. THE INTERNATIONAL ELEMENT IN MILO’S CRYPTO-BACKED MORTGAGES.— IV. SOME PARTICULARITIES OF THE MORTGAGES IN THE U.S. COMPARED TO THE EU.— V. MORTGAGES ON BITCOIN: PRACTICAL APPROACH ON INTERNATIONAL JUDICIAL COMPETENCE.— VI. THE PLEDGE ON CRYPTOCURRENCIES: 1. The French intangible pledge; 2. Delaware’s intangible pledge.— VII. THE PURCHASE POSSIBILITY.— VIII. CONCLUSIONS.

I. INTRODUCTION

The global financial crisis of 2007, generated mainly by the default of *subprime* mortgages in the United States, had a negative impact on international banks and therefore on the global market. The crisis has forced governments, especially those of the Member States and the authorities of the European Union, to prioritize the importance of

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home ownership¹. This was exacerbated from 2020² onwards by the COVID-19 pandemic, making housing the main refuge and the center of life, work and leisure for individuals and families worldwide³.

In the European Union, although the COVID-19 pandemic wreaked havoc on the economy and maximized the difficulties in accessing housing, it is not possible to ignore the existence of a legal and non-economic constraint to its access, Directive 2014/17/EU⁴, which recognizes in its recital (3) the following:

The financial crisis has shown that irresponsible behavior by market participants can undermine the foundations of the financial system, leading to a lack of confidence among all parties, in particular consumers, and potentially severe social and economic consequences.

To counteract the consequences of the economic crisis, Directive 2014/17/EU established a common framework for Member States. It determined that consumer credit agreements secured by a mortgage guarantee on a residential property could be granted, provided that a creditworthiness assessment guaranteeing the repayment of the credit is carried out and approved in each case.

Although the Directive dates back to 2014, the deadline for its transposition was extended to 2019, with the result that, when the pandemic arrived, the Member States had transposed the measures established by the Directive and had tightened the requirements for intermediary credit institutions to grant mortgage loans.

Once the regulatory requirements of the directive have been implemented and some of its effects have been studied, it has been criticized

¹ P. KENNA, H. SIMÓN-MORENO, «Towards a common standard of protection of the right to housing in Europe through the charter of fundamental rights», *European Law Journal*, vol., 25, 2019, p. 621.

² The temporal leap on this paper from 2007 to 2020 is justified by the economic crises of the last two decades. This does not imply that other economic crises could not have occurred between these periods; rather, both are somehow linked to the housing sector. The first crisis stemmed from subprime mortgages, while the second was influenced by the significance of housing as a refuge and protection during the COVID-19 pandemic. It is also important to remark that the economic crisis of 2007 had not been completely overcome by 2020. Therefore, both dates cannot be studied in isolation, especially considering that the mortgage restrictions in place in 2020 and continuing to the present day were implemented as a preventive measure to avoid the recurrence of events similar to those that triggered the initial crisis, as will be explained later. See H.E., JACKSON, S.L. SCHWARCZ, «Protecting Financial Stability: Lessons from the COVID-19 Pandemic», *Harvard Business Law Review*, vol. 37, 2021, pp. 197-198.

³ S. NASARRE AZNAR, «Never rains but it pours: the problem of access to housing in a pandemic context», *Derecho Privado y Constitución*, vol. 37, 2020, p. 275.

⁴ Directive 2014/17/EU of the European Parliament and of the Council of 4 February 2014 on credit agreements for consumers relating to residential immovable property and amending Directives 2008/48/EC and 2013/36/EU and Regulation (EU) No 1093/2010, published on the Official Journal of the European Union num. 60, February 28, 2014.

for making mortgage loans more expensive and establishing impossible requirements to access mortgage financing, especially for families with fewer resources, leaving renting as the only feasible and affordable option for a large part of the population⁵.

By 2024, the housing crisis continues, mostly due to rising inflation, and people residing in Europe who do not have above-average incomes, prioritize the purchase of essential goods and services, leaving home ownership outside of their budgets⁶. As consequence of the foregoing, concerns about the shortage of new homeowners in the European Union have been raised in the European Parliament, which has indicated that:

In the last decade, home ownership among people under thirty has sharply declined. And whilst home ownership is not the Holy Grail for ensuring decent and affordable housing for all, we know that the alternative today is relying on an overheated private rental market, where rents have been steadily rising and tenants' rights and long-term rental contracts are under pressure⁷.

The European Union has faced these new difficulties, missing in part functions of the new economic agents that have invaded the market since the 2007 crisis. They have strengthened their position as alternative means of payment and value preservation as an alternative for the acquisition of housing, bearing in mind that a representative portion of the population have part of their patrimony in unconventional assets⁸. These new agents are cryptocurrencies, which are currently being used around the world to pay mortgage loans⁹.

⁵ R.M. GARCÍA-TERUEL, S. NASARRE AZNAR, «Fifteen years without a housing solution. Legal innovation and data science in housing policy», *Revista Crítica de Derecho Inmobiliario*, vol. 789, 2022, pp. 193-194. In addition, it also lacks a specific definition of what can be considered an unfair term in the context of mortgage loans, which places its qualification of unfairness at the jurisprudential level.; E. ARROYO AMAYUELAS, «La Directiva 2014/17/UE sobre los contratos de crédito con consumidores para bienes inmuebles de uso residencial», *InDret*, vol. 2, 2017, p. 14.

⁶ Housing Europe, «The State of the Housing in Europe 2023, Social housing between a fair energy transition and dealing with crisis», available at: <https://www.housingeurope.eu/resource-1811/the-state-of-the-housing-in-europe-2023>.

⁷ K. VAN SPARRENTAK (Member of the European Parliament), Verbatim report of proceedings, (13 December 2023), Strasbourg, available at: https://www.europarl.europa.eu/doceo/document/CRE-9-2023-12-13-INT-3-159-0000_EN.html.

⁸ Mathematically, investment in cryptocurrencies has increased since 2020: “In January 2021, the capitalization of the cryptocurrency market exceeded USD 1 trillion, and in April 2021, even USD 2 trillion. In the year 2020 alone, the total cryptocurrency market capitalization increased by 300%. In particular, this interest increase is associated with the economic crisis, accelerated by the global COVID-19 pandemic and increased interest from institutional investors. These investors attempt to diversify their investment portfolios to better protect their assets from the impacts of the economic crisis”: Z. SMUTNY, Z. SULC, J. LANSKY, «Motivations, Barriers and Risk-Taking When Investing in Cryptocurrencies», *Mathematics* vol. 9, 2021, p. 2.

⁹ All the information about Milo can be found in: <https://www.milo.io/mortgage/crypto-backed-mortgage/>, <https://cointelegraph.com/explained/what-are-crypto-backed-mortgages-and-how-do-they-work>, <https://blog.ledn.io/en/mortgages>. Due to the objectives set for this

Taking into account the intangibility of cryptocurrencies, and the possibility that anyone, regardless of their place of residence can access a mortgage-backed loan, this paper aims to show some of the legal implications in the European Union and in the United States of using cryptocurrencies to acquire housing, specifically pointing out the clear international elements and verify if it can be a lawful alternative the access of housing.

II. THE POSITION OF THE EUROPEAN UNION ON USING CRYPTOCURRENCIES AND CRYPTO-ASSETS

In modern economies, intangible assets constitute a dominant part of wealth and are used as the subject of legal relationships from which contractual rights are derived¹⁰. The European Union catching up with the new economic agents has included crypto-assets as part of its legislative agenda, and that is the reason that in 2023, the European Parliament and the Council issued the Regulation (EU) 2023/1114 on markets in crypto-assets¹¹. This Regulation was justified in the need for an overall Union framework for markets in crypto-assets that had been non-existent until now and without which it could be produce lack of user confidence in those assets leading to missed opportunities in terms of innovative digital services¹².

However, although crypto-assets seems to be a broad enough category to encompass cryptocurrencies¹³, they were not specified in the material scope of the Regulation. This only applies to «natural and legal persons and certain other undertakings that are engaged in the issuance, offer to the public and admission to trading of crypto-assets or that

brief analysis, which focuses on the relationship between cryptocurrencies and mortgages in PIL, no in-depth exploration was undertaken regarding the legal complexities of cryptocurrencies or the instability of their value due to events not directly related to the crypto market. It is indicated that this requires a specialized and multi-sectorial study that could influence its legal classification. For detailed information on this matter, see: L. C. CALDERON GOMEZ, «Stopping Runs in the Digital Era», *University of Pennsylvania Journal of Business Law* vol., 25, 2023, pp. 595-656. See also: <https://www.forbes.com/sites/seansteinsmith/2022/05/01/crypto-real-estate-is-here--what-investors-should-know/?sh=17161fde22c0>.

¹⁰ M.J.R. CRAWFORD, «Contract as property: triangles and tragic choices», *Cambridge Law Journal*, vol., 82, 2023, p. 83.

¹¹ Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (Text with EEA relevance), published in the Official Journal of the European Union, num. 150, June 9, 2023.

¹² Recital five.

¹³ According to the Regulation (EU) 2023/1114, Article 3, crypto-asset means “a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology”.

provide services related to crypto-assets in the Union». In the case of cryptocurrencies such as *Bitcoin* or *Ethereum*, it is not possible to identify an issuer because of their decentralized nature, therefore it is not possible to apply the obligations established in the Regulation for issuers such as the white paper (Art. 9) that establishes specific information that the offeror must present to make transfers of crypto-assets¹⁴. The latter was confirmed by recital twenty-two of the Regulation (EU) 2023/1114 which established: «fully decentralized cryptocurrencies, that are transferred without any intermediary, are outside the scope of application of the Regulation».

However, we must carefully monitor the breadth of the terms and their definitions when the Regulation is implemented in December 2024, because the provisions of the regulation are not definitive, and specialized regulations that specifically define cryptocurrencies may be issued, but it should be noted that the exclusion made by Regulation (EU) 2023/1114 seems to separate the concepts of cryptocurrencies and crypto-assets¹⁵, leaving a legal vacuum that needs to be clarified¹⁶.

Taking the last as point of reference in this regard, it can be said that it is necessary to adopt a more legally active position in the transfer of cryptocurrencies, because the challenges and the businesses that are carried out with them are still there, even though there are no specific regulations to govern them¹⁷. This view has been shared by the European Union, specifically by the European Parliament's Committee on Economic and Monetary Affairs (ECON), which requested an expert study on the digital challenges that the European Union would face after the adoption of Regulation (EU) 2023/1114¹⁸. In this study, specifically in section 2.4.a) it is indicated that it could constitute the category of "The crypto industry", in which loans that are secured with crypto-assets are included.

¹⁴ R. LENER, «Cryptocurrencies and Crypto-Assets in the Italian and EU Perspective», *Vestnik of Saint Petersburg University Law*, vol., 1, 2022, p. 225.

¹⁵ F. C. VILLATA, L. VALKOVA, «Property Rights over Cryptocurrencies: A Conflict-of-Laws Perspective», *EU and Comparative Law Issues and Challenges Series*, vol. 7, 2023, p. 69.

¹⁶ It can also be mention the Regulation (EU) 2023/1113 of the European Parliament and of the Council of 31 May 2023 on information accompanying transfers of funds and certain crypto-assets and amending Directive (EU) 2015/849, published in the Official Journal of the European Union, num. 150, June 9, 2023, but although it regulates aspects of crypto-assets, such as preventing and dealing with money laundering, it establishes the same definition for them as the Regulation (EU) 2023/1114.

¹⁷ L.C. CALDERON GOMEZ, «Stopping Runs in the Digital Era», *University of Pennsylvania Journal of Business Law*, vol., 25, 2023, pp. 598-599.

¹⁸ D.A. ZETTSCHKE, R.P. BUCKLEY, D. W. ARNER, M. C. VAN EK, «Remaining regulatory challenges in digital finance and cryptoassets after MiCA», STUDY Requested by the ECON Committee, May of 2023, available at: [https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740083/IPOL_STU\(2023\)74_0083_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2023/740083/IPOL_STU(2023)74_0083_EN.pdf).

In this category, it is pointed out that companies with a business purpose in the United States granted loans for the same value of crypto-assets that had been left as collateral by the loan applicant. However, the business has evolved and with the same collateral conditions it is possible to request the loan in cryptocurrencies or in traditional money. This study mentions a company called Milo, who grants mortgage loans to acquire residential homes with cryptocurrencies. The study does not analyze in depth this type of mortgage loans, it only identifies them as a part of the crypto industry and does not undertake to identify risks or advantages of a loan of this nature in the European Union. The study is dated May 2023 and there is still no proposal or announcement in 2024 on whether, in the event that this type of mortgage loans can be made in the European Union, either because the residence of the debtor or creditor is within the Member States of the EU or if the property is located in the European Union. In that scenario, the rules of Directive 2014/17/EU could apply and there is an uncertainty in how to proceed in the event of a default of the loan in terms of international judicial competence and applicable law.

III. THE INTERNATIONAL ELEMENT IN MILO'S CRYPTO-BACKED MORTGAGES

Milo is a U.S. company headquartered in Miami, which currently provides mortgage loans in both traditional currency and cryptocurrencies. In the case of cryptocurrencies, Milo's website indicates that¹⁹:

A crypto-backed mortgage lets you leverage your BTC, ETH or USDC to invest in real estate. Instead of selling your crypto, you can use it as collateral to qualify and secure a mortgage to purchase a home.

The foregoing indicates that the payment continues to be in traditional currency, but the mortgage collateral is an intangible asset²⁰, specifically cryptocurrencies such as Bitcoin, Ethereum or USD Coin. In the terms and conditions of the company Milo does not specify which value is used as a reference to calculate the value of the cryptocurrency²¹, however, it is indicated that the maximum loan amount will depend on the number of cryptocurrencies available as collateral,

¹⁹ See: <https://www.milo.io/mortgage/crypto-backed-mortgage/>.

²⁰ The qualification of cryptocurrencies as an intangible asset is not a trivial matter, national civil laws have difficulties to incorporate them in traditional categories, but they can generally be conceived as incorporeal, since they do not have a representation in the physical world and therefore intangibility is a characteristic usually associated with cryptocurrencies; P. ÇAĞLAYAN AKSOY, «The applicability of property law rules for crypto assets: considerations from civil law and common law perspectives», *Law, Innovation and Technology*, vol., 15, 2023, p. 196.

²¹ The value of cryptocurrencies may vary according to the exchange or depend on the specific coin market where it is exchanged.

taking into account that the minimum loan amount for a crypto mortgage is 200.000 dollars.

The website specifies that such mortgage loans may be requested and granted to applicants of any nationality, without any type of discrimination²², and that U.S. residency or citizenship is not required to access the mortgage loan. The application process for the home equity loan is conducted online, so, viewed in this way, we are faced with a legal situation with an international element if one of the parties does not reside in the United States, which is where Milo is headquartered.

Milo offers mortgages loans on single-family homes (attached or detached), 2-4-unit family homes, condominiums, and townhouses, but it is necessary to clarify that in this moment, Milo is only offering housing located in the United States territory. While it is true that anyone can apply, the international element comes only from the residence of the loan applicant and not from the location of the property.

IV. SOME PARTICULARITIES OF THE MORTGAGES IN THE U.S. COMPARED TO THE EU

In the Member States of the European Union, the regulation of mortgages is mostly governed by domestic laws, which may have points of convergence, mainly due to the harmonization of EU regulations, but we cannot forget that the development of property law has had a different evolution in each territory²³. In contrast, In the United States, mortgage legislation is scattered, and the law regulates certain important aspects of mortgage Law²⁴, but there is a large portion of mortgage loans that derives from the party autonomy. Such a statement can be seen reflected for example in matters of choice of law. The United States law considers that there is no connection point which can undermine the choice of the parties, also the mortgages are in the

²² See: <https://www.milo.io/mortgage/mortgage-for-foreign-nationals/>.

²³ K. PADRAIC, «Mortgage Law Developments in the European Union», *Journal of Law, Property, and Society*, vol., 4, 2018-2019, pp. 55-56. The differences on internal law governing mortgages among European Union member states not only lie in their constitution but also in their execution. Some EU Member States stipulate that the execution of real estate collateral should only be carried out through judicial means, while others allow for extrajudicial executions. This is evident in countries such as Luxembourg, Spain, or Belgium; A. PATRÃO, *Autonomia conflictual na hipoteca e reforço da cooperação internacional: Removendo obstáculos ao mercado europeu de garantias imobiliárias*, 1 ed., Lisbon, Livros Horizonte, 2017, pp. 207-208.

²⁴ As the main legislation we can quote: the Truth in Lending Act, the Real Estate Settlement Procedures Act, The Fair Housing Act, The Equal Credit Opportunity Act, The Home Mortgage Disclosure Act, among others; S. NASARRE AZNAR, *La Garantía de los valores hipotecarios*, 1 ed., Madrid, Marcial Pons, 2003, pp. 65-866. Also see: <https://www.fdic.gov/resources/bankers/consumer-compliance/mortgage-lending/>.

category of personal rights, and a breach of a mortgage does not affect the title of real property, so, the dispute can be solved paying the damages or giving to the mortgagor by the mortgagee an equitable relief²⁵.

When referring to mortgages, in the Member States (each legislation differing from one another)²⁶ and in the United States, we can appreciate two totally different terms. Traditionally, in Spain, for example, a mortgage is a security interest in real estate that secures a loan²⁷, although it is also possible to constitute a mortgage on movable assets, but these must have a very particular nature, which means that not all movable assets can be subject to mortgage loan²⁸. At the European Union level, the concept of mortgages is not explicitly defined by Directive 2014/17/EU, so it is reiterated that there is mandatory referral to national rules.

In the United States, the typology of mortgages may derive from the internal rules of each federal state and their creation, assignment and execution depends on the rules of the state in which the mortgage is conducted²⁹. However, as a general premise, we can quote the *Uniform Commercial Code* 30, in which “Mortgage” means:

a consensual interest in real property, including fixtures, which secures payment or performance of an obligation.

In this definition of mortgages, it is noteworthy that this guarantee is solely taken into consideration for real estate, and there is no definition or legal relationship in this regulation that ties movable property to mortgages, unless they are attached to the land like trees, buildings, and machinery³¹, best known as fixtures³². However, it is necessary to examine the domestic regulations of the State governed by the applicable

²⁵ D.B. YOUNG, «Mortgages and Party Autonomy in Choice of Law», *Arkansas Law Review*, vol. 45, 1992, pp. 347-348.

²⁶ S. NASARRE AZNAR, «The Integration of the Mortgage Markets in Europe: (Part I)», *Silesian Journal of Legal Studies*, vol., 3, 2011, pp. 40-41.

²⁷ Decret of February 8 of 1946 «por el que se aprueba la nueva redacción oficial de la Ley Hipotecaria», (which approves the new official wording of the Mortgage Law), published in: *BOE* 58, February 27 of 1946.

²⁸ Law of December 16 of 1954, «sobre hipoteca mobiliaria y prenda sin desplazamiento de posesión» (on movable mortgages and nonpossessory pledges), published in: *BOE* 352, of December 18 of 1954.

²⁹ S. NASARRE AZNAR, *Los años de la crisis de la vivienda: de las hipotecas subprime a la vivienda colaborativa*, 1 ed., Valencia, Tirant lo blanch, 2020, pp. 100-101.

³⁰ The Uniform Commercial Code (UCC) is a comprehensive set of laws governing all commercial transactions in the United States. It is not a federal law, but a uniformly adopted state law: <https://www.uniformlaws.org/acts/ucc>.

³¹ S. RAHIM, «Mortgages under Banking Law», *International Journal of Law Management & Humanities* vol., 3, 2020, p. 1939.

³² According to the Uniform Commercial Code fixtures «means goods that have become so related to particular real property that an interest in them arises under real property law».

law agreed upon by the parties. This is essential to determine whether there exists a law that defines the characteristics of assets eligible for mortgage, specifically addressing the mortgages extended by the US-based company, Milo.

V. MORTGAGES ON BITCOIN: PRACTICAL APPROACH ON INTERNATIONAL JUDICIAL COMPETENCE

The terms of service of Milo on crypto-backed mortgages, indicate that any claims, disputes, or causes of action that arise in connection with it, will be settled by binding arbitration, and the governing law will be the laws of the State of Delaware without regard to its conflict of law provisions.

These terms of service apply regardless of the residence of the applicant for the mortgage loan. In the case of a resident of the Member States of the European Union is granted a mortgage loan with cryptocurrencies, and a dispute arises, the parties would face some difficulties. If the claim is to be filed in U.S. territory, the parties are bound by the arbitration clause; therefore, they must submit their claim to the arbitrators designated by the contract. If the claim is to be presented in the territory of the European Union and, therefore, within a Member State, the rules of international judicial competence apply, and we will have to apply the EU regulations, led by the Brussels I bis Regulation (RBIbis)³³. This regulation contains rules for establishing international judicial competence in the event of conflicts in civil and commercial matters with an international element. To apply it, we must start with the classification of the legal relationship subject to the dispute.

We understand that at first glance, Milo's business is based on a mortgage on real estate, so it would be only logical to apply the *exclusive forum* according to Art. 24 of Regulation 1215/2012 (RBIbis). This type of forum only allows lawsuits to be filed before the courts of the Member States where the property is located (*Forum rei sitae*). As previously mentioned, crypto-backed mortgages are exclusively granted for properties situated in the United States. Consequently, a conflict arising from a mortgage on real estate located outside the European Union cannot be brought before or adjudicated by the courts of the Member States of the Union by that type of forum³⁴.

³³ Regulation (EU) No 1215/2012 of the European Parliament and of the Council of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters (recast) (RBIbis), published in the Official Journal of the European Union, num. 351, December 12, 2012.

³⁴ Due to this discard, it is not needed to review Regulation 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I). Published in the Official Journal of the European Union, num. 177, July 7, 2008. This

The above reasoning presents a fundamental problem, which may not be apparent to the consumer applying for a crypto-backed mortgage, and that is the legal qualification of what can be considered a mortgage. This type of legal guarantee is usually primarily tied only to immovable property (real estate). The complication is, and here we return to what we said at the beginning, that the definition of cryptocurrencies is not integrated in the regulations of the EU, not even in the ones on crypto-assets³⁵, and we must start from domestic laws to find both the definition of cryptocurrencies and mortgages. Additionally, Directive 2014/17/EU only applies to mortgages on residential property, and cryptocurrencies definitely do not match this category.

If we look for a meeting point among so many applicable legislations, the only thing we can establish is that cryptocurrencies are not real estate or movable property that can be taken as attached to it. However, this does not mean that security interests cannot be created over movable assets even if they are intangible, because for this purpose there is a right *in rem* called *pledge*, but before analyzing that type of security on cryptocurrencies, we can safely indicate that the term “crypto-backed mortgages” used by Milo, is not supported by U.S. law. If we review the applicable law of the terms of service, that of the State of Delaware, the title 25 of the *Delaware Code*³⁶ indicates the requirements to constitute a mortgage for the purpose of creating a lien on real property. The real state property refers to an immovable dwelling, and there is no reference to movable property. Thus, it is possible that the company Milo uses the expression *Mortgages* for commercial purposes, which may clearly turn against the rights of consumers, because the mortgage protection regime does not directly apply. This point was not analyzed in the requested study of the Committee on Economic and Monetary Affairs of the European Parliament (ECON), explained above, and could be contradictory to analyze the opportunities in the cryptocurrency industry, but not to mention that a mortgage in the European Union cannot be granted with cryptocurrencies and neither in the United States even if the company promotes it as such.

Regulation would favor the agreement between the parties in accordance with its Art. 3, even if it is the law of another country (Art. 2). Usually, when rights over real property are involved, the *Lex rei sitae* principle applies and ties the object of the mortgage, the real estate, to the law of the State where it is located when there is no agreement; WIDLO, J., “Mortgage in International Private Law”, *Review of European and Comparative Law*, vol. 38, 2019, pp. 158-159.

³⁵ About this topic is important to remember that: «Blockchain based smart contracts can conflate property and contract functions, making distinctions among private law categories property, contract, entity law-potentially obsolete. State legislative initiatives to accommodate this technology typically treat it as a new platform for established deal types. Current approaches do not adequately articulate or account for the ways that this technology enables departure from established deal classifications, by conflating and disrupting the functions of contract, property, and entity laws»: H. HUGHES, «Blockchain and the Future of Secured Transactions Law», *Stanford Journal of Blockchain Law & Policy*, vol. 3, 2020, p. 26.

³⁶ See: <https://delcode.delaware.gov/title25/c021/index.html>.

However, the other type of right *in rem* that can cover the legal implications of this type of loans, but not without its challenges: the aforementioned pledge, that in the Private International Law of the European Union specifically the Regulation Brussels I bis does is not attached to the *Forum rei sitae principle*, basically because is about movable and immaterial property preventing us to apply the Art. 24 RIBis. So, in matters of international judicial competence, the courts of a Member State of the European Union could judge a dispute if the plaintiff (as the debtor) fulfills the requirements to be a consumer according with the arts. 17-19 RIBis, taking into account that the consumption contract prevails over the agreement of the parties, even if there is an arbitration clause.

VI. THE PLEDGE ON CRYPTOCURRENCIES

Identify that the bussiness of Milo is a crypto-backed *pledge* instead of a crypto-backed mortgage, need a different legal approach. The pledge, unlike mortgages, is not as comprehensively regulated in the European Union or in the United States. Most of this security is left to the party autonomy, especially when dealing with delocalized assets where the principles such as *forum rei sitae* and *lex rei sitae* cannot be applied, because they cannot be linked to a specific territory³⁷. There is currently no regulation at the European Union level that focuses on this type of security interest involving cryptocurrencies and the proposal of the *Groupe Européen De Droit International Privé* (GEDIP), which may be the regulation that will govern this type of security in the near future, does not contemplate any specification for intangible movable assets³⁸.

³⁷ M. McDERMOTT, «The Crypto Quandary: Is Bankruptcy Ready?», *Northwestern University Law Review*, vol., 115, 2021, pp. 1948-1949.

³⁸ GEDIP-subgroup 'Rights *in rem*' Document approved at the Milan meeting 2023 17.9.2023 Special rules for cultural objects; <https://gedip-egpil.eu/en/documents/>. We can also quoted the *UNIDROIT Principles on Digital Assets and Private Law* that have been issued in 2023, which are a reference for future regulations in the European Union and worldwide, and indicate that in case of dispute the law applicable to the contract should be the one of the State where the cryptocurrencies were issued, which is determined according to its central server or the place where the company issuing them is established. The recommendation for the parties is to agree on the applicable law in order to not be tied to the law of the State where they are issued. However, at this juncture, challenges arise, particularly concerning decentralized currencies like Bitcoin, which lacks a central server. See: <https://www.unidroit.org/work-in-progress/digital-assets-and-private-law/>.

1. The French intangible pledge

The same issue as with mortgages is faced, the referral to national rights where there is regulation, as long as the law is applicable. In France, for example, French Civil Code establishes the *pledge* on intangible movable property (*nantissement*- article 2355), as it follows:

Pledging is the assignment, as collateral for an obligation, of an intangible movable asset or a set of present or future intangible movable assets. It can be either conventional or judicial. Judicial pledging is governed by the provisions applicable to civil enforcement procedures. Conventional pledging related to claims is regulated, in the absence of specific provisions, by this present chapter. That which pertains to other intangible movable assets is subject, in the absence of specific provisions, to the rules provided for the pledge of tangible movable assets³⁹.

The equivalence of tangible and intangible assets in the pledge of the French Civil Code should be approached with caution. The *Cour de Cassation* interpreted article 2355 of the French Civil Code, indicating that the right of retention in the pledge requires a strict interpretation applying only to tangible assets when they are the subject of this real guarantee. In practical terms, it is not suitable to impose it on intangible assets, even though the norm expressly establishes the equivalence of legal effects of the pledge on all types of assets⁴⁰.

We can also mention Decree 2018-1226, dated December 24, 2018, which mandated the creation of a shared electronic registration system for the representation and transmission of financial securities (*Dispositif d'enregistrement électronique partagé* - DEEP)⁴¹. It was designed to ensure the registration and integrity of entries and to allow the identification of the owner of the instruments, their nature, and rights *in rem*. Regarding pledges on cryptocurrencies, it allows the creation of rights *in rem* on movable property and requires, for their opposability, that the pledge declaration be registered in the DEEP. An implicit

³⁹ Original text: «Article 2355: «*Le nantissement est l'affectation, en garantie d'une obligation, d'un bien meuble incorporel ou d'un ensemble de biens meubles incorporels, présents ou futurs. Il est conventionnel ou judiciaire. Le nantissement judiciaire est régi par les dispositions applicables aux procédures civiles d'exécution. Le nantissement conventionnel qui porte sur les créances est régi, à défaut de dispositions spéciales, par le présent chapitre. Celui qui porte sur d'autres meubles incorporels est soumis, à défaut de dispositions spéciales, aux règles prévues pour le gage de meubles corporels*».

⁴⁰ C. ALBIGES, «Security and Immaterial Property in French Law: Current Prospects», *Cahiers de Droit*, vol., 59, 2018, pp. 345-346, *Cour de Cassation* - Com. November 26, 2013, no. 12-27390, obs. Dumont-Lefrand.

⁴¹ Décret n. 2018-1226 du 24 décembre 2018 «relatif à l'utilisation d'un dispositif d'enregistrement électronique partagé pour la représentation et la transmission de titres financiers et pour l'émission et la cession de minibons», published on: *JORF* n°0298, December 26, 2018.

condition of the DEEP is that the person establishing the pledge is the owner of the crypto-asset, but this can be remedied through the good faith of the creditor.

2. Delaware's intangible pledge

In contrast, in the State of Delaware, which would be the law agreed by the parties in the case of Milo's terms of service, there is no specific rule that regulates this type of pledge, and we must refer again to the *Uniform Commercial Code*, which although it contemplates the *pledge* on intangible property as «collateral» and establishes rules for its constitution, it does not specify anything about cryptocurrencies. It is important to mention that Title 9-202 (Title to collateral immaterial) indicates that the provisions of the pledge on intangibles apply whether the collateral is in the secured party or the debtor. In the case of Milo, they specify that the cryptocurrencies have to custode by a trusted third party like *BitGo* or *Coinbase*⁴², in order to grant the «crypto-backed mortgages», therefore, it would be a pledge with tenure.

VII. THE PURCHASE POSSIBILITY

Taking the Milo business as collateral, either as a pledge or mortgage, gives rise to certain legal ambiguities that cannot be directly resolved by Private International Law in this particular time. Furthermore, domestic laws are conflicted when dealing with this type of collateral, not only due to its association with a fundamental right such as housing, but also because the positioning of cryptocurrencies as the central object in a legal relationship is more intricate than their original purpose of serving as an alternative mean of payment. This function of cryptocurrencies was recognized by the European Court of Justice in the *Hedqvist* case (C-264/14)⁴³, where the following was indicated:

Transactions involving non-traditional currencies, that is to say, currencies other than those that are legal tender in one or more countries, in so far as those currencies have been accepted by the parties to a transaction as an alternative to legal tender and have no purpose other than to be a means of payment, are financial transactions.

The mutual acceptance of the parties involved in the contract is crucial for validating legal transactions where the price is agreed upon using cryptocurrencies. In this context, cryptocurrencies function

⁴² See: <https://www.milo.io/mortgage/crypto-backed-mortgage/>.

⁴³ Case *Hedqvist* (C-264/14), European Court of Justice, October 22, 2015, Skatteverket vs David Hedqvist, ECLI:EU:C:2015:718, at 49.

equivalently to traditional money as a means of payment⁴⁴, that in the context of the judgment, it was referring to legal tender⁴⁵.

The stance of the European Court of Justice must be comprehensively analyzed as a favorable disposition towards cryptocurrencies. However, due consideration should be given to the relevance of the applicable law in the specific case. In instances where Bitcoin is employed as a medium of payment rather than the object of the contract, as exemplified before in the domain of rights *in rem*, the agreement between the involved parties regarding the price becomes pivotal for the contract's validity coupled with the fulfilment of the civil Law formalities in each Member State. Consequently, as an alternative financing approach, acquiring real estate wholly or partially through cryptocurrencies has emerged. This practice has been observed in Spain, notably since 2018, exemplified by the inaugural real estate transaction in Tarragona where a property was purchased for the Bitcoin equivalent of 550.000 euros⁴⁶.

Acquiring real estate through cryptocurrencies like Bitcoin is not exclusive to the European Union. It is imperative to recognize that certain States, such as El Salvador and the Central African Republic, have either legalized or recognized Bitcoin as legal tender. Consequently, Bitcoin assumes the role of a conventional currency in these jurisdictions, thereby minimizing legal uncertainties.

VIII. CONCLUSIONS

— Presently, crypto-assets and cryptocurrencies in European Union regulations are distinct terms. While the former is governed by Regulations set to be applicable in December 2024, the latter is dismissed as a regulatory priority, leading to gaps occasionally filled by the contractual intent of the parties involved.

— The location of the real estate object of the «mortgage» is fundamental in Private International Law, according to the principles of *Forum rei sitae* and *Lex rei sitae*, the difficulty is that the loans that are constituted using cryptocurrencies as security granted by companies such as Milo, are not mortgages, according to the EU Regulations and U.S. norms, especially the *Uniform Commercial Code* and the *Delaware Code*. The rationale behind this lies in the fact that cryptocurrencies

⁴⁴ R. RUIZ RODRIGUEZ, «Cryptocurrencies as a Means of Payment and Private International Law», *Cuadernos Derecho Transnacional*, vol., 12, 2020, p. 751.

⁴⁵ S. SANTANA, «Regulating Virtual Currency: Case C-264/14 Skatteverket v. David Hedqvist [2015] ECLI:EU:C:2015:718», *Northern Ireland Legal Quarterly*, vol., 67, 2016, p. 111.

⁴⁶ See: <https://www.lavanguardia.com/economia/20180110/434202329003/bitcoin-tarragona-piso-compra.html>.

involve delocalized intangible rights, and under no circumstances can it be asserted that cryptocurrencies fall within the category of real estate or fixtures.

— The loans granted by Milo can facilitate access to housing, as they do not require the same qualifications as a traditional mortgage, given that they are not based on this right *in rem*. In the European Union and the United States, a loan granted by Milo may fit into the category of possessory pledge. Nevertheless, it should be noted that in the Member States, a pledge under these conditions is barely acknowledged by the European Parliament's Committee on Economic and Monetary Affairs, and there is no regulatory proposal in existence.

— Determining whether a loan backed by cryptocurrencies constitutes a pledge or a mortgage is merely the initial step in addressing issues related to international judicial competence and applicable law. However, once one of these categories is identified in its appropriate classification, it is imperative to monitor disparities in domestic rights, particularly if the parties had chosen the applicable law.

— While loans secured by cryptocurrencies as a pledge raises more concerns than it resolves, —considering it was conceived as an alternative solution for acquiring housing when unconventional and digital assets are involved—, real estate transactions with cryptocurrencies can become a less complex and more accessible alternative, even when there is an international element, when the parties agreed in a choice of law or decide to use direct real estate transactions instead of the pledge. The last, taking into account that any transactions involving cryptocurrencies not used as a means of payment will create uncertainty even in the most specialized legal frameworks.

