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Keeping up with the Times: The Transformation of the Publicity Regime with New Movable Property Security Rights and Developments in Blockchain Technology

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Abstract: For a long time, the publicity regime over movable property has been associated with possession. Many modern legal systems still operate on Roman law principles concerning the validity of transactions: Whoever is in possession of a movable asset generates the legal presumption that he or she rightfully owns that asset. Immovable assets on the other hand are tied to a different concept due to the value and meaning ascribed to them. Whereas possession signals who has which rights to claim against whom, inscriptions made in a public registry (such as a land registry) determine the fate of immovable property. Over time, reforms in the law on secured transactions have resulted in a less strict approach adopted in executing transaction relating to movable property to enable the establishment of limited rights in rem and their implementation. Regardless, most civil law jurisdictions still deem the transfer of possession as compulsory for a valid right of pledge over movable property. This article elaborates on the most significant changes to the field of property law and why certain countries may reconsider their traditional approach, especially since yet another wave of change is coming

Note: This article is inspired by the author's ongoing Ph.D. project, which is based on a comparative analysis between common and civil law systems concerning the implementation of the floating charge and non-possessory pledges over movable property. The doctoral dissertation of the author elaborates, among many other aspects in relation to the creation of such security instruments, the third-party effectiveness/perfection of a limited right in rem, which is revealed by the application of one of the security devices mentioned earlier. As their most intriguing characteristic relies upon the fact that they do not seek transfer of possession for validity nor for third-party effectiveness, instead they merely obligate parties to carry out an inscription at the relevant registry. Conducting in-depth research in this field led the author to this investigation of the modification in the field of customary property law.

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in the form of Blockchain registries. Although certain countries' legal systems are bound to the old-fashioned principle dating back to Germanic and Roman laws, many others like the Belgian, French and Turkish systems have modernized their publicity regime applied on movable assets and have a special registry, whether regional or nationwide, for transactions related to movables. While providing a few examples from common law countries, this article is an in-depth, comparative analysis into the current condition of Swiss law on this matter and the modifications implemented under French and Turkish law. In the last section, the article reviews the imminent interaction between the publicity regime of immovables and blockchain technology.

Quo Vadis: The Publicity Regime and Impact of Non-Possessory Security Rights

The interaction between regulations and parties' actions in the field property law over movable property dates back to Roman law, which influenced private law in the European legal systems[1]. While today's practices have departed from Roman law, patterns and dogmatic categories the Romans remain in the fundamentals of today's legal discourse[2]. The civil codes and codes of obligations of France, Germany, and Turkey have already undergone certain modifications such as during the bicentenary of the Code of Napoleon of 1804, or the German Civil Code in the centenary[3].

According to the ancient principle of publicity established in Roman law, transactions based on the real rights attached to a movable asset fundamentally require transfer of possession to fulfill the necessary publicity. Lack of compliance nullifies any agreement against third-parties under several European legal systems such as German, Swiss, French, and Austrian[4]. The underlying rationale, especially in setting up limited rights *in rem*, is that third-parties could be misled, which could result in forfeitures on the side of the creditor or third-parties. Therefore, advocates of the dispossession of the pledger as a dogmatic approach[5] firmly

1 PICHONNAZ, Pascal "*Les fondements romains du droit privé*" (Schulthess, Genève-Zurich-Bâle, 2008) pp 10–11.
2 PICHONNAZ (2008) p 6.
3 PICHONNAZ, Pascal "*Le Centenaire du Code des Obligations—Un code toujours plus hors du code*" in : Revue de Droit Suisse Vol 130 No 2 (Helbing Lichtenhahn Verlag, Bâle, 2011) pp 121–122.
4 PICHONNAZ (2008) pp 265–267.
5 HAMWIJK, D.J.Y. "*The puzzling concepts of publicity and possession: to the heart of property law*" in: European Property Law Journal Vol 1 No 2 (De Gruyter, Berlin, 2012) pp 299–316.

oppose the introduction of a non-possessory pledge over movable property, which would enable parties to register their claims, either by handing over their contract to a registry clerk (**transaction-filing**) or by submitting a form (**notice-filing**) with the registry for its records.

Advocates of the traditional approach on the European continent are usually Swiss, German and Austrian scholars. Austrian[6,7], German[8], and Swiss laws are tied to the principle of *Faustpfand*[9]. In other words, they require parties to transfer possession of the tangible movable asset to a third-party to create a security interest. Though they are in favor of conceptualizing movable property with possession as a regime of publicity, they all offer ways to bypass mandatory dispossession through other security devices. German law, for instance, provides a wide range of alternatives to ease the rule of possession where property law and commercial law intersect. The *Sicherungsübereignung*, the *Eigentumsvorbehalt*, and the *Sicherungszession* permit parties to tackle any difficulties arising from the application of *Faustpfandprinzip*[10]. Article 854 of the *Burgerliches Gesetzbuch* (**hereinafter the "BGB"**) governs possession[11], and yet there are different types of possession like the *possession suo nomine*, *possession alieno nominee*, direct possession, and indirect possession under the German legal system. The final two can be sub-categorized as short-

6 Under Austrian law, in addition to the pledges deeming symbolic delivery sufficient to fulfil the publicity over certain types of tangible movable assets, the most common type of secured transaction over movable property is the possessory pledge under which pledger must transfer the physical possession of encumbered asset to pledgee. Thompson Reuters Practical Law website. See available at: https://uk.practicallaw.thomsonreuters.com/3-517-2985?transitionType=Default&contextData=(sc.Default)&firstPage=true.

7 GLAS, Volker/AICHINGER, Christian "*Bank Finance and Regulation, Multi-Jurisdictional Survey: Austria—Enforcement of Security Interests in Banking Transactions*".

8 Under German law, possessory pledge is an option to create a security interest over tangible movable assets. However, its efficiency is relatively lower than the security transfer due to the fact that it mandates the physical delivery of the encumbered assets and adversely affects the capability of pledger in carrying its business. Thompson Reuters Practical Law website. See available at: https://uk.practicallaw.thomsonreuters.com/3-517-2985?transitionType=Default&contextData=(sc.Default)&firstPage=true.

9 WIEGAND, Wolfgang "*Kommentar zum Bürgelischen Gesetzbuch mit Einführungsgesetz und Nebengesetzen Buch 3 Sachenrecht*" (ed.) Carsten Herresthal (De Gruyter, Berlin, 2019) (Vorbemerkungen zu 1204) Nos 6–9.

10 RAHMATIAN, Andreas "*A Comparison of German Moveable Property Law and English Personal Property Law*" (June 23, 2010), Journal of Comparative Law Vol 3 No 1 pp 197–248, see available at SSRN: https://ssrn.com/abstract=1629268 pp 3–4.

11 HOEREN, Thomas "*NomosKommentar BGB Sachenrecht Band 3: Sektion 854-1296*" 4. Auflage (Nomos, Baden-Baden, 2016) Nos 1,2, and 3 (Sektion 854).

handed delivery (Article 929 of the BGB-*Übergabekurzer Hand*)[12], and the *constitutum possessorium* (Article 930 of the BGB-*Besitzkonstitut*)[13]. The publicity regime imposed on the creation of a limited right *in rem* over tangible movable property, for instance a pledge, is the physical possession[14], which demonstrates the applicability of the traditional approach in German law (Article 1204 of the BGB)[15].

Nonetheless, as stressed earlier, the *Sicherungsübereignung*, for instance, alleviates parties' burden caused by the strict adhesion to the traditional approach[16]. The tricky part is that although both *Sicherungsübereignung* and *Eigentumsvorbehalt* are business-friendly models of secured transactions designed to offer financing to merchants, it remains that their application harms the principle of publicity; they conceal who has which right under German law, because there is no registry for such limited real rights to be registered with. This side-effect of rigid regulations is explored below with regard to the Swiss legal system.

In a nutshell, the advantages of the implementation of a registry-based system, whether transaction or notice-filing, in relation to movable property matters for a multitude of reasons. As the methods and customs of business have evolved over the years, gaining in speed, urgency and intensity with the advent of especially in communications, information and industrial technologies, the traditional possessory pledge, by comparison, has remained quite mediocre and inefficient. More simplified and functional access to credit is needed, now more than ever. The traditional approach, in the absence of ways to circumvent it, as can be observed under Austrian, German, and Swiss law, falls short of responding to the substantial need that has emerged in the markets. Some positive reasons to have a registration-based public-notice system are the following ones:

- Such a publicity regime allows the pledger to keep holding the possession of encumbered assets
- In doing so, the pledger retains the ability to conduct business using the encumbered assets

12 MELLER-HANNICH, Caroline "*NomosKommentar BGB Sachenrecht Band 3: Sektion 854-1296*" 4. Auflage (Nomos, Baden-Baden, 2016) Nos 1 and 2 (Sektion 929); BGB Article 929 sets forth the necessity of transfer of possession of a movable asset to carry out a valid transfer of ownership and underpins the overarching role of possession as a pillar to rely on concerning the transactions over the movable assets. RAHMATIAN pp 26–27.

13 RAHMATIAN pp 11–12, 14–15.

14 RAHMATIAN pp 41, 42.

15 BÜLOW, Peter "*NomosKommentar BGB Sachenrecht Band 3: Sektion 854-1296*" 4. Auflage (Nomos, Baden-Baden, 2016) No 4 Vorbemerkung zu 1204 ff (Sektion 1204); RAHMATIAN pp 45–46.

16 BAUR, Fritz/BAUR, Jürgen F./STÜRNER Rolf "*Sachenrecht*" (Beck Verlag, Großes Lehrbuch, 2009) Sektion 57 No 8; WESTERMANN, Harm Peter/GURSKY, Karl-Heinz/EICKMANN, Dieter "*Sachenrecht*" (C.F. Muller, 2011) Sektion 44 I; RAHMATIAN p 51.

- Consequently, the pledger is in a better position to reimburse the loan.
- Further, the pledger can expand the value of the security package by including any future assets (it is practically impossible to transfer the possession of future assets to the lender at the time of the creation of the security interest)
- The traditional possessory pledge cannot be used for intangible assets given their characteristic is inherently incompatible with physical transfer of possession.

International as well as regional authorities have been promoting the transformation to these two approaches (transaction-filing and notice-filing) for a while. The European Bank for Reconstruction and Development (**hereinafter "EBRD"**), the United Nations Commission on International Trade Law (**hereinafter "UNCITRAL"**), and the International Institute for the Unification of Private Law (**hereinafter "UNIDROIT"**) cheer the novel approach.

To exemplify, the EBRD Model Law on Secured Transactions 1994 Article 8[17] (transaction-filing), the UNCITRAL Legislative Guide for Secured Transactions 2010 Recommendation 32[18], the UNCITRAL Guide on the Implementation of a Security Right Registry 2014 Recommendation 1[19], and the UNCITRAL Model Law on Secured Transactions 2016 Article 18[20] suggest a registration-based public-notice system to increase certainty, efficiency, and predictability in context of secured transactions over movable property. Notwithstanding, the Cape Town Convention on International Interests in Mobile Equipment[21], created by the UNIDROIT, at its Article 16 crosses national borders and regulates a registry system on an international scale. It also aims to replace the fragmented registries with a more centralized one that can embrace a greater variety of movable assets at once.

The linchpin feature that needs to be highlighted in relation to these legal texts is that they all concern the creation and implementation of security interests over movable property (a limited right *in rem*) and by implication, clarify the potential impact of reforming the publicity regime over movable assets.

The rest of the article is divided into 3 main headings: **I**, **II** and **III**.

17 EBRD Model Law on Secured Transactions 1994, Article 8 et seq.

18 UNCITRAL Legislative Guide for Secured Transactions 2010, Recommendation 32.

19 UNCITRAL Legislative Guide on the Implementation of a Security Right Registry 2014, Recommendation 1.

20 UNCITRAL Model Law on Secured Transactions 2016, Article 18.

21 Cape Town Convention on International Interests in Mobile Equipment, Article 16.

I. Traditional property law and its strict approach to the application of Article 717 of the Swiss Civil Code

In traditional property law, the principle of publicity is directly linked to the enforceability of real rights in terms of possession and registration. Currently, in the Swiss system, possessory pledge is allowed but non-possessory is not due to Article 717 of the Swiss Civil Code (**hereinafter "SCC"**). This poses quite a challenge for parties in terms of the creation of non-possessory pledges over movable properties. This could be resolved if Swiss legislators opt to institute a registry for movables[22] that would function no differently than a regular land registry. Nevertheless, this article firstly provides an overview over traditional property law in connection with the principle of publicity by offering textbook information on movable property (**1**). Afterwards, the article ascertains Article 717 of the SCC, in short (**2**). First section ends with a discussion of a prospective centralized registry and the actual problems related to public-notice concerning movable property (**3**).

1. Overview of traditional property law and relevant principles in Swiss Law

The law applicable here is property law, which falls under private law. Thus, the SCC[23] and Swiss Code of Obligations (**hereinafter "SCO"**)[24] are the essential legislative documents governing the rules and limitations in regard to property[25]. Here, it may help to approach "movable property" under Swiss law from a broad perspective and then to consider the establishment of a limited right *in rem* over movable property, due to the various models of publicity for different types of real rights.

1.1. Default settings: movables and immovables

Depending on the nature of the asset, Swiss law imposes publicity requirements for the transfer of possession (movables) or land registry inscription (immovables). The publicity regime on immovable and movable property is regulated by Article 942 of the SCC and Article 714 of the SCC, respectively. Article 942 of the

22 SCHMID, Jörg/HÜRLIMANN-KAUP, Bettina "*Sachenrecht*" 5th Edition (Schulthess Verlag, Zurich, 2017) No 1984a.

23 The Federal Civil Code—RS 210 enacted in 1907.

24 The Federal Code of Obligations—RS 220 enacted in 1911.

25 HANSELER, Peter/HOCHSTRASSER, Daniel "*Real-Estate in Switzerland*" (ed.) Nedim Peter Vogt in: Swiss Commercial Law Series Vol 5 (Helbing & Lichtenhahn Verlag AG, Basel, 1996) p 11.

SCC regulates the property rights attached to immovables and highlights the institution of land registry, while Article 714 paragraph 1 of the SCC explicitly sets possession as the publicity regime over movable property. The land registry is the authority that maintains the ownership records for each piece of land in the country. Articles 971–973 of the SCC set the principle of publicity over immovables under Swiss law by relying on the concept of legal presumption: the records entered in the land registry are always considered as reflecting the lawful owner of the immovable asset[26].

However, for movable assets, the Swiss publicity regime(s) does not allow parties (except for those governed by the law, i.e. movable hypothecs) to apply the principle of publicity for the validity of any legal transactions. Chattel ownership is governed by Article 713 of the SCC onwards, and Article 714 paragraph 1 of the SCC sets forth that ownership is tied to being in possession of the movable assets. The second paragraph lays out the legal presumption in regard to the "possession" and, Article 717 of the SCC bridges the validity of legal transactions concerning movables with transfer of possession.

To put it very briefly, the Swiss legislator is strictly opposed to modify the essentials of the publicity regime imposed on the movable property[27] and has remained utterly loyal to the principle of positive pledge[28].

Illustration of the impact of the secured transactions over the rules on publicity regime requires that the rules related to third-party effectiveness, i.e. a limited right *in rem* that is enforceable against third-parties, and why that third-party effectiveness is significant for the secured transaction are bridged. The right of pledge is a type of a limited right *in rem* under Swiss law, inherently involving the principle of accessory[29]. Precisely, the principle of accessory means that right of pledge can exist only if it attaches to a preliminary indebtedness. In other words, it can come into existence to secure the performance of another obligation arising from a legal relationship.

More importantly, the right of pledge allows its holder to foreclose on the pledged assets in the event of a default[30]. Yet, this requires the encumbered asset

26 HANSELER/HOCHSTRASSER p 18.

27 STEINAUER, Paul-Henri "*Les droits réels (Tome III) – Servitudes personnelles, Charges foncières, Droits de gage immobiliers, Droits de gage mobiliers*" Quatrième Édition (Stämpfli Verlag AG, Bern, 2012) pp 499–503.

28 EIGENMANN, Antoine "*L'effectivité des sûretés mobilières – Etude critique en droit suisse au regard du droit américain et propositions législatives*" (AISUF, Fribourg, 2001) p 9.

29 STEINAUER (Tome III) p 367.

30 ATF 123/1997 III 367/370 = JdT 1999 II 82/85 = SJ 1998 103/106; 107/1981 III 40/44 = JdT 1983 II 6/9; 106/1980 II 183/187 = JdT 1981 I 211/215.

to be 'seizable'. Otherwise, the debtor can carry out a fictitious transaction and impede the creditor from foreclosing on the encumbered asset(s). Therefore, the publicity regime requires the pledger to hand over the encumbered asset to a secured creditor. Here third-party effectiveness comes into play as pivotal for the protection of the secured creditor against third-party acquisitions of the encumbered asset in a secured transaction. The enforceability of the secured creditor's rights depends on a successfully perfected limited right *in rem*. The enforceability of a right against third-parties can be defined as the holder of a right over an asset being entitled to assert such a right against third-parties[31]. In other words, it is about the enforceability of a right against everyone (*erga omnes*)[32] by implying the recognition of an absolute right, e.g. rights *in rem*, by third-parties. This is the default setting of property law in Switzerland.

1.2. A common legacy: Switzerland and the -European Continent: numerus clausus, clarity and definiteness, and publicity

Swiss property law and most European countries come from a common legal heritage—Roman and Germanic law[33], which established the cornerstone principles. Of these principles, the principle of *numerus clausus* and the principle of clarity and definiteness (referred to as "the principle of specialty" by STEINAUER)[34] have played key roles in the long-standing rules and practices.

1.2.1. Historical background

Switzerland is a civil law country that was first influenced by Roman law in the 15th century as were many other European legal systems[35], resulting in laws enacted in written form (codified)[36]. In the late 19th century, most of the 22 cantons enacted their own civil code until federal unification took place in the beginning

31 EIGENMANN p 31.

32 EIGENMANN p 39.

33 PICHONNAZ, Pascal "*Commentaire Romand Code Civil II*" (eds.) Pascal Pichonnaz/Bénédict Foëx/Denis Piotet (HelbingLichtenhahn Verlag, Basel, 2016) Art 919 CC No 3; PICHONNAZ (2008) pp 200–201.

34 STEINAUER, Paul-Henri "*Les droit réels: Tome I Introduction à l'étude des droits réels/Possession et registre foncier/Disposition générales sur la propriété/Propriété par étages*" 6ième Edition (Stampfli Verlag AG, Bern, 2019) p 86.

35 GMUER & PATRY, Pestalozzi "*Business Law Guide to Switzerland*" 2nd Edition (CCH Editions Limited, Oxford, 1997) p 8; PICHONNAZ (2008) pp 79–80.

36 GMUER & PATRY pp 8–9.

of the 20th century[37]. Until then, the French Civil Code and Austrian Civil Code were influential[38].

Specifically, in Swiss property law; possession results in the creation of limited right *in rem*. Originally, there were two elements of possession: *corpus* and *animus*, which come from the Roman legal system. Whereas *corpus* corresponds to the effective power over the asset, *animus* incorporates into that power as the intention in possessing the asset[39]. PICHONNAZ refers to "*animus*" as the *sine qua non* condition for possession[40].

Despite the current opposition to the application of the non-possessory pledge, until 1881 when the Swiss Code of Obligations was enacted, a general movable hypothec was applicable, and the requirement for publicity was an inscription in the registry[41]. Later, this rather libertarian security regime was restricted for three types of assets: aircrafts, vessels, and livestock.

1.2.2. Principle of *numerus clausus*

Concerning the right *in rem* attached to movable property, there is no explicit statement imposing the principle of *numerus clausus* in the SCC, nor in the SCO. Yet, Article 793 paragraph 2 of the SCC could be invoked, per analogy[42]. It articulates that no other types of mortgage are permitted under Swiss law. Article 793 paragraph 1 of the SCC puts forth the applicable forms of mortgage—establishment of a limited right *in rem* over immovable property. Per analogy, there exist a group of security devices that can be created over movable properties, but, apart from these models designed by the lawmakers, no other type is allowed for parties to arrange among themselves (tailor-made security devices)[43].

The method called "analogy" between provisions on immovable property and movable property is a common feature in the civil law jurisdictions. For instance, Article 18 of the Turkish Code of Pledges on Movables in Commercial Transactions

37 PICHONNAZ (2011) 120

38 GMUER & PATRY p 9.

39 STEINAUER (Tome I) p 103.

40 PICHONNAZ CR CC-II Art 919 No 3; PICHONNAZ (2008) pp 200–201.

41 EIGENMANN p 115.

42 BÄR, Rolf/OFTINGER, Karl "*Zürcher Kommentar-Das Fahrnispfand*" (Schulthess Verlag, Zurich, 1981) No 31; SCHMID/HURLIMANN-KAUP No 1868; STEINAUER, Paul-Henri "*Les Droits Réels: Tome III Servitudes personnelles, Charges foncières, Droits de gage immobiliers, Droits de gage mobiliers*" 4ième Édition (Stämpfli Verlag AG, Bern, 2012) p 417.

43 SCHMID/HURLIMANN-KAUP No 1868.

(**hereinafter "PMCT"**)[44] also makes a reference to the applicability of the provisions governing the immovables under the Turkish Civil Code (**hereinafter "TCC"**)[45] numbered 4721. Of course, this method can be recoursed to only in the absence of a specific rule governing movables. The underlying methodology can be explained in terms of the applicable publicity regime over such transactions. Since the law requires an inscription by the parties in the relevant registry, should there be a gap in the law related to movable property, the provisions on immovable property can apply since the publicity regime for them is almost the same.

The principle of *numerus clausus* presents an obstacle to any prospective efforts to modify the publicity regime. In simple terms, the *numerus clausus* principle prevents the concept of a non-possessory limited right *in rem* that can be established over movable property. Precisely, Article 884 paragraphs 1 and 3 of the SCC strictly dictate the transfer of possession, unless otherwise allowed by the law as in the case of the movable hypothecs. However, pledges on livestock are governed by Article 885 of the SCC, and in order for a limited right *in rem* to be validly established over livestock under Swiss law parties must register their security right at the relevant registry[46]. Indeed, Article 884 of the SCC should be scrutinized in cross-reference with Article 717 of the SCC. Article 717 of the SCC has a straightforward impact on the transactions that challenge the applicability of principle of *numerus clausus*, as its first paragraph renders transactions in which parties depart from the law and design their own bespoke rights *in rem*, ineffective against third-parties.

1.2.3. Principle of specialty

The principle of clarity and definiteness also plays a role in the effectiveness of the publicity regime. To ensure this, the nature of rights *in rem* contains certain elements such as everyone being able to recognize the existence of the holder of such right. This requires certain conditions to be fulfilled in terms of identifiability.

With regard to the creation of a limited right *in rem* such as *nantissement*, the principle of specialty has two effects on the transaction at stake. The secured claim and encumbered assets represent the major issue. STEINAUER elaborates

44 Turkish Code of Pledges on Movables in Commercial Transactions Law No 6750, Published in the Official Gazette No 29871; Dated 28 October 2016, see available at: https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6750.pdf.

45 Turkish Civil Code Law No 4721, Published in the Official Gazette No 24607; Dated 8 December 2001, see available at: https://www.mevzuat.gov.tr/MevzuatMetin/1.5.4721.pdf.

46 FOËX "*Commentaire Romand Code Civil II*" (eds.) Pascal Pichonnaz/Bénédict Foëx/Denis Piotet (Helbing Lichtenhahn Verlag, Basel, 2016) Intro Arts. 641–645 CC No 47; STEINAUER (Tome I) p 82.

this principle under the scope of rights *in rem* by indicating that rights *in rem* can attach only to assets that are individually determined[47]. Multiple legally distinct assets cannot be invoked for security purposes in relation to a single right *in rem*[48]. As highlighted above, the principle of specialty plays an important role in the creation of a right of pledge. It halts the establishment of a right of pledge over the entire business of a pledger. In other words, a merchant cannot avail himself of the value of the entire undertaking by creating a single right of pledge, which would encompass every single asset[49]. The publicity regime comes into play once again. Transparency and clarity serve to regulate thresholds for the identifiability of the parties' obligations and their contents against third-parties.

1.3. Rights in rem and limited rights in rem

There are two types of real rights: proprietary rights (*das Eigentum*/*le droit de propriété*) or limited rights *in rem* (*die beschränkte dingliche Rechte*/*les droits reels limités*). The publicity regime concerns both rights *in rem*, but admittedly, possession seems to reflect common sense in terms of movables. Limited rights *in rem,* it should be remembered, is a threefold institution: servitudes (*die Dienstbarkeiten*/*les servitudes*), right of pledge (*die Pfandrechte*/*les droits de gage*), and land charges (*die Grundlasten*/*les charges foncières*) under Swiss law[50]. Making a crucial point, PICHONNAZ mentions ULPIAN in his book and argues the distinction between possession and property[51].

Assessment of the relation or interaction between possession and ownership is important for a sound analysis of the role of secured transactions and for deciding the most suitable modifications to be made to the publicity regime. In a non-possessory pledge over movable property, where the pledger remains in possession (*possession directe*) of the asset, the pledger has to be viewed as the rightful owner of the asset, despite the limited right *in rem* granted in favor of the secured creditor. This limited right means that the ownership (a *droit reel* which allows its holder to control the asset)[52] of the pledger on the encumbered asset is at risk, given that the debtor may default.

47 STEINAUER (Tome I) p 86.
48 ATF 112 II 406/410 = JdT 1987 I 347/348; ATF 111 II 134/139 = JdT 1986 I 267; FOËX CR CC-II Intro Arts 641–645 CC No 52; SCHMID/HÜRLIMANN-KAUP No 70; STEINAUER (Tome I) p 86.
49 STEINAUER (Tome I) p 86.
50 STEINAUER (Tome I) p 59.
51 PICHONNAZ (2008) p 198.
52 PICHONNAZ (2008) pp 175–176, la définition d'un droit réel en droit moderne p 177; STEINAUER (Tome I) p 54.

Therefore, it is pivotal to inform third-parties of the establishment of such a limited right *in rem*. The secured creditor, nevertheless, also runs the risk of losing encumbered assets from the debtor's disposition. Therefore, third-party effectiveness plays a crucial role. For the same reason, imposing a system of publicly-accessible registration in implementing a non-possessory pledge can restrict *bona fide* purchasers and prevent malicious actions between the pledger and third-parties acting in bad faith.

1.4. Possession and ownership

Possession constitutes an essential notion in the concept of rights *in rem*, though it is not a type of rights *in rem,* in and of itself, as mentioned by PICHONNAZ[53]. He follows this with a focus on the debated demarcation between possession and property. What matters first for a movable is to be under control. In that regard, the definition of possession given in Article 919 of the SCC leads us to the conclusion that possession is *de facto* a way to control a movable, whereas ownership and limited rights *in rem* are *de iure* standings for such concept of control. According to PICHONNAZ, these two terms overlap and are commonly confused[54]. He offers a clear example to differentiate the two; i.e., *de facto* and *de iure* control. Maximus is sitting on a chair; he is in possession of such chair and can control the chair and access to it. Commodus, as owner of the of the chair, can claim an abstention from any third-party to sit on such chair by relying upon his legal legitimation[55].

According to ULPIAN (3rd century AD [*anno domini*]), it is possible to be the possessor without being the holder of property rights and vice-versa[56], whereas PICHONNAZ sees the terms as complementary. Being in possession of a movable asset confers to the possessor the right to control the asset; there is therefore limited interest for the owner to have ownership if he cannot use the movable asset. Therefore, ownership is fundamentally a mean to get possession back by invoking a legal power on such asset[57]. In other words, these two concepts complete each other, especially when concerning a movable asset in real life. The author agrees with his conclusion by one reservation. It is true that the owner is generally the possessor of the asset in light of the theory explained above. Yet, through the

53 PICHONNAZ (2008) p 195.
54 PICHONNAZ (2008) p 196.
55 PICHONNAZ (2008) p 198.
56 ULPIAN "D. 43,17.1.2" in: Digesta Iustiniani Augusti (ed. Bonfante/Fadda et al.), Milano 1955, p 1231.
57 PICHONNAZ (2008) pp 198–199.

progressive need for a more effective access to credit that has emerged in the global market, countries had to re-adjust and modernize their law on secured transactions as well as the long-standing principles governing them and broadly property law.

1.5. Deceptive appearance of possession in non-possessory pledges

Having said that, recent changes in the publicity regime over movables have rendered the conclusion as to the co-relation between possession and ownership less reliable, based on the availability of state-of-art security instruments. In fact, there now exist new tools such as *gage sur stocks* (French law), pledge on movables in commercial transactions (Turkish law), floating charges (English law) to create a limited right *in rem* by carrying out a registration process in an exclusive registry. Even in Swiss law, security arrangements such as leasing, retention-of-title (Article 715 of the SCC) and movable hypothecs result in such a non-possessory manner that supports this author's claim due to the different publicity regime.

As the right of pledge is a limited right *in rem*, the issue of publicity needs to be resolved. Acknowledging this detail, Van ERP states, "*... In spite of all these differences and in light of the shared economic constitution, the European property law systems still share a common framework: the so-called "classical model" of property law, as developed by the end of the 19th century. It is characterized by two leading principles:* numerus clausus *and transparency (specificity and publicity) and several grounds rules (e.g. older rights have priority over younger rights).*"[58].

Van ERP's assessment clearly shows the importance of the publicity regime within the context of property law emphasized on limited real rights. In terms of the principle of publicity and its relationship with the implementation of non-possessory pledge; in Swiss law, real rights must be recognizable, respected by and enforceable against all third-parties[59]. The correct methods of fulfilling the publicity requirement depend on the type of the asset, whether movable or immovable. Concerning the real rights attached to movables; the publicity regime is based on possession, whereas for rights *in rem* attached onto immovables it could be held via an artificial publicity such as submitting a file to be inscribed in the registry, like a land registry[60].

58 van ERP, Sjef "*Cross-Border Electronic Conveyancing: overcoming problems with negative and positive integration in European property law*" in: European Property Law Journal Vol 1 Issue (1) pp. 3–9 retrieved 11 Mar. 2020, from doi:10.1515/eplj-2012–0002.

59 STEINAUER (Tome I) pp 82–83.

60 STEINAUER (Tome I) p 83.

1.6. Publicity regime and non-possessory security rights over movable property

The security instruments that have survived to this day have remained fiercely loyal to the traditional principle[61], never attempting to overstep application via legislation for a security device that would let parties circumvent its prohibition. Nevertheless, Swiss law houses a group of exceptions through which Swiss lawmakers have responded to the need for modernization in the field of finance[62], such as pledges on livestock and railway-related assets (*hypothèque mobilière*/*Mobiliarhypothek*).

For the *nantissement, a* pledge over movables, to be deemed valid according to Article 884 of the SCC, the pledger is obliged to transfer the exclusive possession of that movable over to the creditor[63], whereas Article 885 of the SCC regulates pledges over livestock and requires registration at the relevant registry[64]. As can be seen, Swiss law is not completely unfamiliar to the implementation of non-possessory pledges over movable property—livestock is a movable asset. This relative familiarity could be regarded as a sign that a publicity regime over movables may be possible.

Furthermore, FOËX implies the existence of this familiarity by addressing another type of limited right *in rem*: retention-of-title. He mentions that the Swiss Supreme Court has acknowledged the application of retention of title as a non-possessory security right that can be established over movable assets[65]. In this case law, registration is to be done at the relevant enforcement office is[66].

2. Article 717 of the Swiss Civil Code and the current mechanism in creating right of pledge over movable property

The publicity regime indeed concerns the validity of a legal transaction but more importantly is related to the enforceability of the limited right *in rem* conferred upon its holder. Article 717 paragraph 1 of the SCC is quite clear and reads as follows: "*... If as a result of a special legal relationship, the chattel remains in the*

61 EIGENMANN p 9.

62 STEINAUER (Tome III) pp 499–503.

63 EIGENMANN p 106; BÄR/OFTINGER (Zükomm.) (Art. 884); STEINAUER (Tome III) p 368; ZOBL/THURNHERR ZOBL, Dieter/THURNHERR, Christoph "*Berner Kommentar Schweizerisches Zivilgesetzbuch: Art. 884–887 ZGB und Die beschränkten dinglichen Rechte: Das Fahrnispfand, Systematischer Teil*" (Stämpfli Verlag, Bern, 2010) No 2 (Art. 884).

64 STEINAUER (Tome III) p 369.

65 FOËX, Bénédict "*Réserve de propriété sur un bien importé en Suisse: Confirmation de jurisprudence* " in: Centre de Droit Financier et Bancaire Newsletter see available at: https://cdbf.ch/403/.

66 ATF 131 III 595.

transferor's possession, this transfer of ownership is ***null and void*** *in relation to third parties if the underlying* ***intention*** *was to disadvantage them or to* ***circumvent the provisions governing the pledging of chattels***"[67] (emphasis added).

Thus, despite any agreement between the parties, third-party effectiveness is not established until the actual transfer takes place[68]. This clearly prevents the creation of a non-possessory limited right *in rem* under Swiss law. Yet, the existence of exceptions and a perfectly functioning land registry system beg the question, why Swiss law cannot pursue the same path as so many other legal systems in setting up a semi-centralized registry.

Transforming the traditional publicity regime of movable property by establishing a centralized registry may be a timely intervention. Nearly two decades ago, in 2001, EIGENMANN highlighted the growing value of movables,[69] signaling the need for such an improvement in the field of non-possessory secured transactions over movable property. Vis-à-vis the systems adopted under the other mentioned legal systems whose lawmakers have preferred either to construct a separate registry specifically dealing with chattel mortgages such as Turkish law, or to confine all the claims related to commercial entities under the control of a single institution like the Companies House functioning under English law, Swiss law stands out with its lack of a centralized authority to keep the records of legal transactions concluded on movable property.

3. Interaction between a centralized registry and actual problems of public-notice

One disadvantage of public-notice often brought up in legal circles is the feeling of insecurity that a creditor may have with respect to an acquisition in good faith by third-parties. This feeling is certainly mutual when the debtor is compelled to hand over the encumbered asset to the secured creditor. Acquisition in good faith is a matter of the visibility of the asset in the eyes of an external, so-called "third" party. This visibility can be sustained either by direct possession or by an inscription in a public registry. In other words, an acquisition can be achieved either by an act of disposition—transfer of possession (Article 714 of the SCC) or a request for inscription in the land registry (Article 971 of the SCC)[70]. In light of Articles 931

67 Translated Version of the Swiss Civil Code numbered 210, see available at: https://www.admin.ch/opc/en/classified-compilation/19070042/201801010000/210.pdf.
68 EIGENMANN p 41.
69 EIGENMANN p 115.
70 STEINAUER (Tome I) p 85.

and 933 of the SCC[71], keeping the publicity regime applicable, as it is relatively vulnerable, might cause bigger problems if the secured creditor in possession of encumbered assets acts in bad faith and transfers them to a third-party, who would be acquiring them in good faith. Hence, the constituent will be feeling unsafe against *bona fide* purchasers.

3.1. Benefits of a centralized registry through transformation of publicity regime over movable property

On the one hand, having a centralized registry would strengthen the protection against *bona fide* purchasers by introducing general liability; being a prudent merchant requires investigating counter parties' finances as part of due diligence, after all. Such a liability would render obsolete any reliance on good faith. On the other hand, expecting merchants to act prudently by checking the records of the special registry before any action may not be realistic. This may need to be reinforced through legislative acts by the relevant state. As an example of a system that could be introduced to strike a balance, one can mention Article 7 paragraph 3 of the PMCT in relation with a pledge over a movable in a commercial transaction. It protects the rights acquired over encumbered assets by third-parties that are not obliged to be aware of the existence of an anterior or superior limited right *in rem* over the encumbered asset. However, those obligated to check the records as a prerequisite are at risk since their acquisition could be avoided by law.

Consumers do also need to be considered, despite the fact that creating a non-possessory pledge is only possible for business-related entities in certain legal systems such as the English, French or Turkish system. We think in particular of a floating charge, a *gage sur stocks* or a pledge over movable property in **commercial transactions** that need to be registered. For a consumer, a strict obligation to check the registry's records would be an unfair requirement. Nevertheless, Article 7 paragraph 3 of the PMCT is not clear enough as to the scope of parties who will be entitled to benefit from the protection.

In fact, until an amendment published in 2018, Article 17 of the Ordinance of the Registry of Pledged Movables,[72] which regulates inquiry services, did not offer any clarification as to Article 7 paragraph 3 of the PMCT. The amendment added,

71 STEINAUER (Tome I) pp 83, 184; SCHMID/HÜRLIMANN-KAUP No 289; GEISER, Thomas/WOLF, Stephan "*Basler Kommentar Zivilgesetzbuch II*" (Helbing Lichtenhahn Verlag, Basel, 2019) Art 933 CC No 28; ATF 85 II 580/591 = JdT 1960 I 485/492.

72 Turkish Ordinance of the Registry of Pledged Movables, Published in the Official Gazette No 29935; Dated 31 December 2016, see available at: https://www.resmigazete.gov.tr/eskiler/2016/12/20161231M3–8.htm

however, a paragraph to Article 17 providing that parties not listed under Article 3 of the PMCT (scope of applicable parties) shall be treated as having no obligation to check the records in order to benefit from the protection of *bona fide* purchasers. In the same vein, we strongly argue that the protection must extend to consumers, as they do not intend to obtain a security interest over the encumbered assets.

Nonetheless, as long as a robust mechanism for public notice is lacking within a decent registration system, creditor's rights will never sufficiently be protected against *bona fide* purchaser acquisitions[73]. For instance, Germany rejects the implementation of publicity for such matters to avoid disclosing any business secrets. Rather, they have their own ways in arranging such lending opportunities. Thus, the implementation of the publicity regime could involve a variety of applications over movable properties.

3.2. The role of mortgage certificates in the implementation of publicity regime

Mortgage certificates (*cédule hypothécaire*/*Schuldbrief*) are extremely useful for parties to access credit under Swiss law. Yet, expecting an SME poised to enter the market to own real-estate may not be very realistic. The most valuable assets of such a merchant usually consist of movable assets, whether tangible or intangible. Therefore, allowing non-possessory pledges over movables is vital. Furthermore, the creation of mortgage certificates generally demonstrates price differentiation amongst the cantonal fees and expenses incurred from the public deeds and registration process. However, centralizing the registry systems could prevent these price fluctuations among the cantons, which happened in the field of land registration and could, for instance, hinder the application of *cédule hypothécaire de registre*, i.e., mortgage registration certificate recently enacted under the Swiss legal system[74]. Precisely, in the Canton of Geneva, the registration or transfer fees are extremely high at the land registry[75], which leads to fewer applications.

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73 TAJTI, Tibor "*Comparative Secured Transactions Law*" (Akademiai Kiado 2002) p 92.

74 CALEFF, Josef/JEANRENAUD, Yves "*The Register Mortgage Certificate*" (Schellenberg Wittmer Newsletter, March 2015) see available at: https://www.swlegal.ch/files/media/filer_public/69/9d/699dff46-c7c8-4760-837d-6ddc77b40001/newsletter_march_2015_english_final.pdf pp 1-2; PASQUIER, Shelby R. du/HÜNERWADEL, Patrick/MENOUD, Valeria "*Law&Practice – Switzerland*" CHAMBERS Global Practice Guides (Banking & Finance) Contributed by Lenz & Staehelin 2018 see available:https://www.lenzstaehelin.com/uploads/tx_netvlsldb/Chambers_Banking_and_Finance__Switzerland_Chapter_2018.PDF p 9.

75 CALEFF/JEANRENAUD, The Register Mortgage (2015) pp 3–4.

For a smoothly working system, it is important not just to establish an office within the Registry of Commerce or a separate registry for movables in addition to the land registry, but also a culture of registration. The *registre foncier*, i.e., the land registry, is organized to facilitate the inscription of the mortgage registration certificate. A similar level of organization could be attained by the publicity regime suggested over non-possessory secured lending over movables by the integration of immovables records like the mortgage certificates recognized by the land registry.

II. The security devices driving change elsewhere: England, France, Turkey, United States of America

A focus on security instruments that have led to significant changes in the publicity regime under systems such as the French and Turkish legal systems reveals two different procedures for registration: notice-filing and transaction-filing. The former is used in the US legal system while the latter is regulated under the English legal system.

The common law approaches have played a pivotal role in constructing the pillars of today's modified/updated version of the publicity regimes driven greater transparency and trustworthiness. Therefore, the historical background below will explore how and due to which security device, such a publicity regime evolved into its actual structure (English common law) (**1**), followed by the breakthrough changes from the perspective of French law (**2**) and Turkish law (**3**), respectively. Due to the massive impact of the US legal system on other countries' legal systems, we address the concept of notice-filing, which leads to favorable conditions where a non-possessory security interest can attach to debtor's personal property (**4**). This security interest was influential in civil law countries such as Belgium, France, whereas, interestingly, the idea was never welcomed in Switzerland or Germany. Also, young systems may experience challenges regarding the institution of floating charge. However, it is possible to enhance the efficiency of the transactions through which parties benefit the economic values of their movable property by reforming the publicity regime.

1. An English invention—the floating charge and the correlation between third-party effectiveness and floating charge crystallization

The security interest *in rem*, non-possessory pledge over movables has undergone significant amendments in civil law jurisdictions. The initial appearance of the

encumbrance of future property *was i*n 1870, when the court of appeal rendered the decision called "*Re Panama, New Zealand and Australian Co.*"[76], in which the very first implementation of the practice was established under *Holroyd v Marshall*[77]. Eventually, the floating charge was created as a type of equitable charge in equity[78]. Although the floating charge is a common law device in the field of private law, this embodiment of private law within the common law framework partly derives from the Roman legal heritage[79].

The floating charge differs from its sibling, the "fixed-charge", as it enables the debtor to remain in possession of the encumbered assets, while allowing the debtor to use them in the ordinary course of its business. However, under the fixed-charge, the creditor's consent is required for any disposition. Until crystallization takes place (explained in detail below) and the floating charge stops floating and the charge attaches to the entire property of the debtor involved in the commercial undertaking, the charger is entitled to use the assets granted as security without the creditor's consent[80]. While a floating charge may seem unrealistic to a jurist trained in a civil law country, the duty of publicity and the resulting registry regime (transaction-filing) averts any risk that might derive from its non-possessory characteristic.

1.1. The concept of crystallization—when the charge attaches to the floating assets

In the English legal system, a debtor is free to deal with their company and charged assets in the ordinary course of business and the creditor is not entitled to intervene in the debtor's business or enforce its security right over the assets comprising the floating charge, as long as the creditor continues to receive payment[81]. As long as the debtor runs its business in the ordinary course, without any cessation, the creditor must abstain from any interventions lest it face rendered liabilities due to breach of contract.

76 *Re Panama, New Zealand and Australia Royal Mail Co* [1870] L.R. 5 CH APP 318.
77 *Holroyd v Marshall* [1862] 10 HLC 191, 11 ER 999.
78 CASTELLANO, Guilliano G. "*Reforming Non-Possessory Secured Transactions: A New Strategy?*" The Modern Law Review, (2015) 78(4) Modern Law Review p 626.
79 BRIDGE, Michael/GULLIFER, Louise/McMEEL, Gerard/ WORTHINGTON, Sarah "*The Law of Personal Property*" 1st Edition (Sweet&Maxwell, London, 2013) pp 28–29 para 1–055.
80 BRIDGE/GULLIFER/McMEEL/WORTHINGTON p 182 para 7–074.
81 GOODE Sir Roy "*Legal Problems of Credit and Security*" 3rd Edition (Sweet&Maxwell, London 2003) pp 133–134 para 4–28.

Crystallization happens when the debtor becomes unable to conduct business in the ordinary course, or certain pre-determined events trigger crystallization. Crystallization causes a transition from a floating charge to a fixed-charge on the encumbered assets[82]. Once the relationship is based on or turns into a fixed charge, the debtor no longer has the freedom to use their assets for business purposes, and the creditor's consent becomes mandatory for any disposition of the assets comprising the security[83]. The situations in which the mechanism of crystallization begins to function can be summarized as two types of events -related and not related to the cessation of debtor's business-, an intervention by the creditor such as taking control of the collateral and the triggers formulated as fixed requirements set in the contract[84].

The grounds related to the cessation of the debtor's business are liquidation and cessation of trade of the debtor's business. However, if the liquidation has been rendered to ameliorate the debtor's business (beneficial winding up) regulated under Sections. 87 (1) and 167 (1) and Scheme 4 paragraph 5 of the Insolvency Act, it will not trigger crystallization[85]. With regard to the cessation of trade, i.e., as if the business has ceased its operations, there would be no reason to maintain a floating charge[86]. Therefore, the charge that was in float over the entirety of debtor's business will be crystallized and become a fixed charge. Examples if this can be observed in case law such in *Re Woodroffes (Musical Instruments) Ltd*.[87], *Re Real Meat Co. Ltd*.[88] and *Re Sperrin Textiles Ltd*.[89].

Events that cause crystallization but that are not related to the cessation of the debtor's business are as follows:

– Appointment of an administrator receiver by a debenture holder or upon its demand[90],

82 BRIDGE/GULLIFER/McMEEL/WORTHINGTON p 191 para 7–092.

83 BEALE, Hugh/BRIDGE, Michael/GULLIFER, Louise/LOMNICKA, Eva "*The Law of Personal Property Security*" (Oxford University Press, New York, 2007) p 116 para 4–52.

84 GOODE p 135 para 4–30; BRIDGE/GULLIFER/McMEEL/WORTHINGTON p 191 para 7–092.

85 GOODE p 136 para 4–32.

86 *Davey & Co v Williamson and Sons Ltd*. [1898] 2 QB 194, 200–1; *Re Woodroffes (Musical Instruments) Ltd*. [1986] CH 366; *Re Sperrin Textiles Ltd*. [1992] NI 323, 329; *Bank of Credit and Commerce International SA v BRS Kumar Brothers Ltd*. [1994] 1 BCLC 211, 221; *William Gaskell Group Ltd. v Highley* [1994] 1 BCLC 197; *Re The Real Meat Co. Ltd*. [1996] BCC 254, 261.

87 *Re Woodroffes (Musical Instruments) Ltd*. [1986] 2 ALL ER 908 per Nourse J. at 913–914.

88 *Re Real Meat Co. Ltd*. [1996] BCC 254 per Chadwick J. at 261.

89 *Re Sperrin Textiles Ltd*. [1992] NI 323 retrieved from GOODE p 136 para 4–33 footnote 47.

90 GOODE p 137 para 4–35; BEALE/BRIDGE/GULLIFER/LOMNICKA p 117 para 4–54; *Re Colonial Trusts Corporation ex p Bradshaw* (1879) 15 CH D 465.

- Crystallization of a prior or a subsequent floating charge[91],
- Administrative order[92].

The concept of crystallization demonstrates the broad approach of English property law in terms of the implementation of a limited right *in rem*. Crystallization is a transitional phase that empowers the registration that has been carried out by the parties in creating a floating charge. Until it happens, the publicity regime over movable properties is regulated mostly within the common law sphere, distinct from the rather rigid approach adopted by the Swiss legal system.

1.2. Transaction-filing

The concept of perfection serves to safeguard the security interest of a creditor against the external world under English law[93]. Perfection refers to a security interest attached to the asset(s) intended to be encumbered. In the English legal system, a security interest can be 'perfected' in one of five ways other than our main focus; i.e., registration. Nevertheless, since a floating charge generates a distinct category of registrable security under Sec. 859 A of the Company Act (**hereinafter "CA"**), registration is the applicable mode of perfection[94]. The English legal system calls this perfection process transaction-filing,[95] which takes place with Company Charges Register, a registry where any person can conduct an inspection[96].

1.2.1. Publicity by virtue of transaction-filing

Pursuant to Sec. 859 A (3) of the CA, transaction-filing requires a copy of the security agreement that parties have concluded for the creation of security interest, along with other particulars to the Company Charges Register in order to perfect their security interest in personal property[97]. In general, the company who grants

91 *Re Woodroffes (Musical Instruments) Ltd*. [1985] 2 ALL ER 908, see also [2018] BCLC 251 SAW 2010 (1985) BCLC 227; BEALE/BRIDGE/GULLIFER/LOMNICKA p 120 para 4–56.
92 GOODE p 139 para 4–38.
93 BEALE/BRIDGE/GULLIFER/LOMNICKA p 327 para 7–13.
94 BEALE/BRIDGE/GULLIFER/LOMNICKA p 335 para 8–01.
95 McCORMACK, Gerard "*Secured Credit under English and American Law*" (Cambridge University Press, Cambridge, 2004)) pp 129–130.
96 BEALE/BRIDGE/GULLIFER/LOMNICKA p 337 para 8–07.
97 BEALE/BRIDGE/GULLIFER/LOMNICKA p 337 para 8–07; McCORMACK p 132.

the charge or is the charge holder itself can carry out the transaction-filing[98]. However, Sec. 859 A (2) of the CA implies that any party interested in the charge can do this procedure.

Parties are required to undertake the entire procedure in 21-days after the attachment of security interest[99] as stated under Sec. 859 A (4) of the CA, unless an order allowing an extended period is made under section 859 F (3). This 21-day period is unique to the English legal system; under US law, there is no such obligatory period of time[100]. Registration that exceeds the 21-day deadline or is not done at all renders the security interest ineffective against third-parties, both public and private[101]. An example of such is *Re Jackson and Bassford Ltd*[102] and *Smith (Administrator of Cosslett [2001] UKHL 58 (Contractors) Ltd) v Bridgend County BC*[103].

1.2.2. Requirements of transaction-filing

The requirements of a transaction-filing are given in Sec. 859 A (5) and 859 D of the CA. In brief, parties must indicate the date and description of the tool creating the charge, short description of the assets intended to be encumbered via the charge, the name of the company, specifics of the persons entitled to the charge, the amount secured by the charge and lastly the details of any commission paid in the context of the subjected transaction[104] at the relevant registry, which is open for public inspection[105]. The English rules expect parties to disclose everything related to the security agreement concluded among themselves to the outside world, which poses a risk in terms of confidentiality.

98 BRIDGE/GULLIFER/McMEEL/WORTHINGTON p 426 para 14–094; BEALE/BRIDGE/GULLIFER/LOMNICKA pp 337–338 para 8–09.

99 GOODE p 77 para 2–21; BEALE/BRIDGE/GULLIFER/LOMNICKA p 340 para 8–13; McCORMACK pp 132–133.

100 McCORMACK pp 139, 159.

101 BEALE/BRIDGE/GULLIFER/LOMNICKA pp 324, 340 paras 7–04, 8–13; McCORMACK p 133.

102 *Re Jackson and Bassford Ltd* [1906] 2 CH 467.

103 *Smith (Administrator of Cosslett [2001] UKHL 58 (Contractors) Ltd) v Bridgend County BC* [2002] 1 AC 336 at [61].

104 GOODE pp 80–81 para 2–25; BRIDGE/GULLIFER/McMEEL/WORTHINGTON pp 426–427 para 14–097; BEALE/BRIDGE/GULLIFER/LOMNICKA p 338 para 8–10; McCORMACK p 133; GULLIFER, Louise/RACZYNSKA, Magda "*The English Law of Personal Property Security: Under-reformed*?" in: Secured Transactions Law Reform (eds.) Louise Gullifer and Orkun Akseli (pp 271–296) (Harts Publishing, London, 2016) p 277.

105 BEALE/BRIDGE/GULLIFER/LOMNICKA p 337 para 8–08.

1.2.3. Constructive notice to third-parties

Following the registration, what is called a constructive notice[106] is sent to all the parties dealing with the company granting security rights over its assets. The notice contains the details of the charge held at the registry[107].

1.2.4. Most recent reform in 2013 and digitalization of publicity

English law, for time and cost saving purposes, has introduced a new method of filing a transaction: an electronic platform named Companies House WebFiling. To file a charge electronically, parties must obtain an authentication code, which seems complicated enough to cause parties to opt for the old-school approach more often than not.

2. The French revolution on secured transactions: new non-possessory security devices and their impact on the publicity regime

French law has played a pioneering role in the re-formulation of the publicity regime over movable properties among the civil law countries. Having dealt with non-possessory security interests early on, French lawmakers have continued to make reforms in the field of secured transactions.

Extraordinary events in particular, such as the industrial revolution, or human-made disasters such as war or natural disasters can exacerbate the need for flexibility. Enabling parties to create a security right over their movable assets without losing possession to a creditor was a way of ensuring this flexibility. This made the debtors more capable of repaying the loan with their business still able to function using the movable assets in the ordinary course of their business. Over time, the rules governing the principle of publicity regarding movable property were amended to resemble the rules imposed on immovable property.

2.1. Historical development of application of publicity over movables

Until the Germanic school of thought introduced its restrictive principle regarding the dispossession of the debtor for a pledge agreement over movable assets to be valid, the principles of Roman law reigned in French law[108]. Then, once the Ger-

106 BRIDGE/GULLIFER/McMEEL/WORTHINGTON pp 920–921 para 36–024.

107 BRIDGE/GULLIFER/McMEEL/WORTHINGTON p 428 para 14–100.

108 PICOD, Yves "*Droit des sûretés*" 3e édition (Thémis droit puf- Presses Universitaires de France, Paris, 2016) pp 6–7.

manic traditions captured the legal context of the continent in the 15th century[109], the ideology "*meubles n'ont pas de suite par hypothèque*" was established, abrogating the non-possessory pledge regime for another 500 years in France. The Germanic argument for the avoidance of the debtor's ostensible ownership that it might damage third-parties due to the fraudulent conveyances stayed applicable for a long time[110].

Regardless, the legacy of Justinian's Roman law remained in the legal systems of the European continent[111] such as in the concepts, *pignus* and *hypotheca* (*pignus conventum*)[112]. The application of *pignus* used to dispossess the debtor and prevent them from using or benefitting from the encumbered asset[113], whereas *hypotheca*—a security device based in Hellenistic law introduced a new approach to Roman law by eliminating the obligation of dispossessing the debtor[114]. In fact, *hypotheca* went a step further and let the debtor to use the encumbered movable or immovable asset[115]. The *hypotheca*, essentially a non-possessory system, made a comeback with the French revolution. However, at that time, this type of security was only allowed over immovable property[116]. Therefore, the publicity regime for movables had received its first update centuries before the modern private law era even began.

French law allowed the general hypothec, *obligatio bonorum générale*, in its very early days[117]. This type of security right was pivotal because it contradicted the traditional publicity approach based on possession, creating a limited right *in rem*. As indicated earlier, JHERING had also worked on the scrutiny of this progressive concept in the 19th century from a German legal perspective[118].

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109 LÉVY, Jean-Philippe/CASTALDO, André "*Histoire du droit civil*" 2ème édition (Dalloz, Paris, 2010) p 1107.

110 RIFFARD, Jean-Francois "*The Still Uncompleted Evolution of the French Law on Secured Transactions Towards Modernity*" in: Secured Transactions Law Reform (eds.) Louise Gullifer and Orkun Akseli (pp 369–389) (Harts Publishing, London, 2016) p 370; CABRILLAC, Michel/MOULY, Christian/CABRILLAC, Séverine/PÉTEL, Philippe "*Manuel- Droit des sûretés*" 10e édition (LexisNexis, Paris, 2015) p 436.

111 LÉVY/CASTALDO p 1106.

112 CABRILLAC /MOULY/CABRILLAC/PÉTEL p 435; BOURRASSIN, Manuella/BRÉMOND, Vincent "*Droit des sûretés*" 6e édition (DALLOZ, Paris, 2018) p 16.

113 LÉVY/CASTALDO p 1106.

114 LÉVY/CASTALDO p 1111.

115 PICOD p 7; BOURRASSIN/BRÉMOND p 16.

116 PICOD p 7; BOURRASSIN/BRÉMOND p 16.

117 LÉVY/CASTALDO p 1117.

118 JHERING, Rudolf von "*Scherz und Ernst in der Jurisprudenz*" 5th Edition (Breitkopf and Härtel, Leipzig, 1892) pp 60–63.

2.1.1. Growing need for modernized security instruments for credit access

After the Industrial Revolution, the dramatic rise in commercial practices made it inevitable for French legislators to reform their secured transaction regime, or at least to incorporate some alternative methods, to satisfy the needs of the market and provide easy access to credit without transferring equipment that merchants or farmers' need for their businesses to creditors. A law was introduced on 23 May 1863, providing a security device on "commercial pledge (*le gage commercial*)[119], in response to the market's needs. It was modified in 1937 and 1945 and written up in Articles L521-1 and 521–3 of the French Commercial Code (**hereinafter "FCCO"**)[120]. However, its constituent element, securing a commercial claim[121], raised complications since both parties had to be merchants to enter into such an agreement[122]. The enactment of a *gage commercial* was the first time after a long while that French law allowed opting out of the transfer of possession to create a security right over movable property.

2.1.2. Enactment of secured transactions in today's context—movable hypothec

The first non-possessory security regime in the current sense was enacted under the Rural Code Article L342–1, which regulates security rights on agricultural equipment. Enacted in 1898, it was originally called *Warrant Agricole*[123]. Then came an exclusive non-possessory pledge regime for transportation vehicles including motor cars, vessels (1874-boats, 1917-ships—types of non-possessory pledges) and aircrafts (1926), a non-possessory security regime on professional business equipment (*nantissement de material et d'outillage*) in 1951[124], and non-

119 HAMEL, J., "*Le gage commercial*" Études de droit commercial sous la direction de J. Hamel. In: Revue internationale de droit comparé. Vol 6 N°2 Avril-juin 1954 (Dalloz, 1953) pp 393–395, see available at: https://www.persee.fr/doc/ridc_0035-3337_1954_num_6_2_9045; LÉVY/CASTALDO p 1108 ; PICOD p 329; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 570.

120 AYNÈS, Laurent/CROCQ, Pierre "Droit des Sûretés" 12th Edition (eds.) Philippe Malaurie and Laurent Aynes (LGDJ-Lextenso editions, Issy-les-Moulineaux, 2018) p 296; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 570.

121 DUMONT-LEFRAND, Marie-Pierre "*Le gage de meubles corporels*" in: Evolution des sûretés réelles: regards croises Université-Notariat (sous la direction de) Severine Cabrillac, Christophe Albiges and Cecile Lisanti (LexisNexis, Paris, 2007) pp 33–34.

122 RIFFARD pp 371–372; AYNES/CROCQ p 296.

123 AYNÈS/CROCQ p 326.

124 AYNÈS/CROCQ p 327; PICOD p 333; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 621; BOURRASSIN/BRÉMOND pp 637–638.

possessory security rights in intellectual property rights based on two different options: *nantissement des films cinématographiques* and pledge of software[125].

The most revolutionary change until the one in 2006 was made in 1909. A long list of assets including businesses' incorporeal assets was given as possible assets for non-possessory security by Article 8 of the Law of 17 March 1909. Among these were leasehold rights, trading names, business signs, customer lists, goodwill, machinery, equipment, almost every item under a commercial undertaking used in the ordinary course of business. This is still given under Article L142-1 et seq. of the FCCO on the sales and *nantissement de fonds de commerce*[126]. It should be mentioned that there were several problems with the application of *nantissement de fonds de commerce*. First of all, it was and still is regulated under the FCCO, which automatically ascribes a commercial character to the relationship. In addition, there were certain types of goods that were not included in the scope of application whose exclusion was quite detrimental to its efficiency, given the fact that they were raw materials, stocks, consumable products, etc.

2.1.3. Traditional publicity regime on movable property regarding the secured transactions

Until 2006, Article 2071 of the French Civil Code (**hereinafter "FCC"**)[127] defined "*nantissement*" as a contract where a debtor hands over its asset to a creditor in return for a debt[128]. Furthermore, according to the former Article 2072 of the FCC, "*nantissement mobilier*" used to be called a pledge. Such a conservative manner is still observed in Germany and Switzerland, where it has resulted in wasting credit when debtors were unable to benefit from their asset that could be essential to their conducting business. AYNÈS and CROCQ refer to this malfunctioning regime of 1804 as: "*Système, qui gaspille le crédit et entrave la production,*"[129] an approach strongly supported by CABRILLAC, MOULY, CABRILLAC and PÉTEL[130].

125 RIFFARD p 375; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 589.

126 FAURÉ, Claude "*La pratique notariale en matière de sûretés mobilières*" in: Evolution des sûretés réelles: regards croises Université-Notariat (sous la direction de) Severine Cabrillac, Christophe Albiges and Cecile Lisanti (LexisNexis, Paris, 2007) p 66; PICOD p 359; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 436.

127 Code Civil (Version Consolidée au 14 février 2020) see available at: https://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000005634379.

128 LÉVY/CASTALDO p 1108.

129 AYNÈS/CROCQ p 289.

130 CABRILLAC/MOULY/CABRILLAC/PÉTEL p 579.

2.1.4. 2006: the year of the publicity regime reforms in limited rights in rem attached to movables

In 2003, French legislators launched a special mission facilitating access to credit through the FCC and the FCCO. More importantly, they decided to modernize a coherent body for a non-possessory pledge over movables, since, in today's context, the law on secured transactions must be a simple, efficient and, above all, transparent system[131]. As a result, the term "*nantissement*" has been preserved for intangible movables (*nantissement de meubles incorporels*—Article 2355 et seq. of the FCC)[132], whereas the term "*gage*" refers to security interests over tangible movables[133,134]. According to the new Article 2333 of the FCC (enacted in 2006), the debtor is no longer obliged to dispossess the encumbered assets as a condition for the validity of the transaction[135].

Then in 2006, the most recent and most significant effort to modernize the FCC was made, including the implementation of the non-possessory pledge over movable property[136]. Although French legislation already differed from the traditional approach adopted in the rest of Europe, it was further inspired for the 2006 reforms by examples from other countries, particularly security interest under the US legal system[137]. What had been a strict application of possessory pledges under the former Article 2279 of the FCC[138] were terminated in 2006, resulting in greater flexibility for movable properties. Thus, parties were enabled to take full advantage of their assets by virtue of an inscription in the relevant registry to fulfill the conditions of the new publicity regime[139].

2.2. Time restriction on the completion of publicity concerning certain security devices

The security tools allowed under the FCCO[140], in particular those classified as movable hypothecs, are even stricter in the publicity regime, allowing 15 or 30-

131 SEUBE, Jean-Baptiste "*Droit des sûretés*" 9th Edition (Dalloz, Paris, 2018) p 141; PICOD p 277.
132 LÉVY/CASTALDO p 1108; PICOD p 350; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 590.
133 SEUBE p 142; AYNES/CROCQ p 289; PICOD p 277.
134 DUMONT-LEFRAND p 31; LÉVY/CASTALDO p 1108; PICOD p 277.
135 BOURRASSIN/BRÉMOND p 645; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 567 ; DUMONT-LEFRAND p 32.
136 DUMONT-LEFRAND p 31; LÉVY/CASTALDO pp 1104, 1109.
137 LÉVY/CASTALDO p 1110.
138 SEUBE p 157; AYNÈS/CROCQ p 302; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 579.
139 DUMONT-LEFRAND p 31.
140 Code de Commerce (Version Consolidée au 25 mars 2020), see available at: https://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000005634379.

days[141] for registration with the National Counsel of Registry's Clerk of Commercial Court[142]. The time-limit allowed for parties to complete their registration regarding their legal relationship protects the public interest arising from the recognition of real rights.

As underlined earlier, civil law jurisdictions in particular attach great importance to the recognizability of real rights by all. Thus, French law renders parties' transactions null and void based on the establishment of either a *nantissement de fonds de commerce* or *nantissement de matériel et d'outillage*, if they do not fulfill the registration requirement. This invalidation does not only concern third-party effectiveness but also affects validity of the reciprocal relationship.

2.3. A long-standing non-possessory security interest: nantissement de fonds de commerce

The reforms undertaken in 2006 were not the first time that French lawmakers tweaked the framework of the ancient principle of possession-oriented publicity. The *nantissement de fonds de commerce*, which was created as a result of a project called, "*Loi relative à la vente et au nantissement des fonds de commerce*", was enacted as early as 1909.[143] It is the most flexible option for merchants to raise funds for their business activities under French law. Its sphere of application concerning assets is the broadest one yet and it grants the right to dispose over the encumbered assets in the ordinary course of business for the debtor. Pursuant to Article L142-2 paragraph 1 of the FCCO, a merchant running its business under the French legal system can pledge the sign and trade name, the right to lease, the clientele and the goodwill, the commercial furniture, equipment or tools used in the operation of the *fonds* as its tangible assets[144].

141 SIMLER, Philippe/DELEBECQUE, Philippe "*Droit Civil: Les Sûretés—La Publicité Foncière*" 7ième édition (Dalloz, Paris, 2016) pp 667, 679, 683.

142 CABRILLAC/MOULY/CABRILLAC/PÉTEL p 435; BOURRASSIN/BRÉMOND p 580.

143 TEKIL, Fahiman "*Ticari İşletme Hukuku*" 3rd Edition (Tekil Müşavirlik ve Yayıncılık, İstanbul, 1997) p 113.

144 BLAISE, Jean-Bernard/DESGORCES, Richard "*Droit Des Affaires*" (Commerçants, Concurrence, Distribution), 9e édition (LGDJ, Issy-les-Moulineaux, 2017) pp 291–292; LISANTI, Cécile "*Quelques remarques à propos des sûretés sur meubles incorporels, dans l'ordonnance n° 2006–346 du 23 mars 2006*", Recueil Dalloz (DALLOZ, Paris, 2006) p 58; FAURÉ pp 65–66; SIMLER/DELEBECQUE p 682; SEUBE p 193.

2.3.1. Comparative analysis of nantissement de fonds de commerce vis-à-vis Swiss law

The efficiency in creating a limited right *in rem* aside, from a comparative perspective, there is no possibility for a Swiss merchant to create a security package over a pool of assets that are supposed to be utilized in the ordinary course of its business, whereas the applicability of *nantissement de fonds de commerce* denotes the fact that French law had already taken the necessary steps to update their publicity regime pertaining to movable property.

2.3.2. Inspiration for the alteration of publicity regime of movable property under Turkish law

As a side note on the *nantissement de fonds de commerce;* in 1971, Turkish legislation took a significant departure from its Swiss roots for the first time regarding the property law and opted for the French non-possessory security devices. (More on that below).

French lawmakers, unlike the Turkish lawmakers they inspired (Article 5 of the PMCT), did not list every single type of asset that could be used to create a secured interest under *nantissement de fonds de commerce*. There is nothing on the inventory assets or receivables (intangible) that the merchant possesses on their premises. These assets can very well be used in the production process, yet there is no indication that a merchant can increase their credit amount by presenting them as additional security interests. *Nantissement de matériel et d'outillage, or* pledge of equipment, is another type of non-possessory pledge under French law, and allows merchants to use their inventory assets, excluding raw materials and stocks. Therefore, the reforms of 2006 seem to offer a more extended scope of applicable assets by creating such limited rights *in rem*.

2.4. Publicity regime and innovation in the field of registration

The introduction of several new security instruments has substantially altered the publicity regime over movable property. The two most notable ones are: *gage de meubles corporels* and *gage sur stocks*.

Nantissement de fonds de commerce has been called a counterpart to Britain's ages old floating charge[145], since 2006, French legislation on secured transactions, and in particular, the restrictions placed within the context of the FCC against the applicability of the non-possessory pledge over movable property, has

145 TAJTI p 91.

undergone a streamlining process[146]. French lawmakers, as pointed out under the historical background, introduced a general regime on the non-possessory movable pledge in the FCC between Articles 2333-2354[147].

2.4.1. Switch from compulsory transfer of possession to an inscription in the registry

One useful instrument, the *gage de meubles corporels*, remains under the branch called "*Droit Commun*", and according to Article 2333 of the FCC, it is a contractual type of security interest under which a debtor creates a security interest over its tangible movable property in favor of a creditor, in order to secure the performance of the debtor's obligation that derives from another contract concluded with the creditor[148]. Notably, the debtor may keep is not obliged to give over the encumbered asset (*gage sans dépossession avec publicité*),[149] and parties are entitled to decide on the alienation of the encumbered assets in their contract as per Article 2342 of the FCC. Thus, the publicity regime over movables has officially changed regardless of the exclusive security devices regulated under the FCCO. To be more precise, Article 2337 paragraph 1 of the FCC explicitly states that in order for such a limited right *in rem* to gain third-party effectiveness, it must be submitted to a public notice[150].

2.4.2. An entirely new security interest over movables with a changed publicity rule: *gage sur stocks*

Despite the efforts of the GRIMALDI Committee to create a security with a general application, the legislative body performed less than optimally, leading to a second, somewhat redundant type of security interest under the FCCO, the *gage de stocks*, introduced on 23 March 2006[151] regulated by Article L527-1 et seq. of the FCCO. It only involves the encumbrance of inventory material and could also take

146 PICOD p 277; BOURRASSIN/BRÉMOND p 585.
147 AYNÈS/CROCQ p 291; PICOD p 311; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 563; BOURRASSIN/BRÉMOND p 586.
148 SIMLER/DELEBECQUE p 580; PICOD p 311; CABRILLAC/MOULY/CABRILLAC/PÉTEL pp 435, 567; BOURRASSIN/BRÉMOND pp 586, 589.
149 BOURRASSIN/BRÉMOND p 595.
150 LÉVY/CASTALDO p 1110; SIMPLER/DELEBECQUE p 586; PICOD pp 319–320; CABRILLAC/MOULY/CABRILLAC/PÉTEL p 566; BOURRASSIN/BRÉMOND p 598.
151 PICOD pp 9, 336; CABRILLAC/MOULY/CABRILLAC/PÉTEL pp 437, 564, 584; BOURRASSIN/BRÉMOND pp 622–623.

non-possessory form, requiring a written contract between parties and registration for validity and third-party effectiveness[152].

Since *Gage de meubles corporels* already permitted parties to create such a non-possessory security interest to be established over the same type of assets (stocks, inventory), in practicality, non-possessory securities come up twice in French law. However, the *Cour de Cassation* interfered,[153] asserting that if the conditions of *gage sur stocks* are met, parties cannot avoid the implementation of *gage sur stocks*[154]. Besides, the Ordinance 2016–56 dated 29 January 2016 strengthened the applicability of this sophisticated security device its present form and is thus particularly important[155].

Even shortly after the enactment, there was somewhat of a crisis between the scholars and the *Cour de Cassation* regarding parties' ability to choose between *gage de meubles corporels* or *gage sur stocks* to create a security over fungible (tangible and movable) objects[156]. On 19 February 2013, the *Cour de Cassation* eliminated the choice, strictly imposing *gage sur stocks* if all the conditions were met[157].

From the beginning, a simplified scheme could have prevented this duality in practice since the publicity regime governing the establishment of limited rights *in rem* over movable property had already changed. Interestingly, French lawmakers have no plans to remove *gage sur stock* regulated between Articles L521-1 and 521–3 of the FCCO[158] even though it renders the application of *gage commercial* unnecessary. Parties are still able to attempt bypasses by referring to the applicability of standard pledge over movables—*gage de meuble corporels sans dépossession* in their contract[159].

152 PICOD pp 336–337; CABRILLAC/MOULY/CABRILLAC/PÉTEL pp 564, 585; BOURRASSIN/BRÉMOND pp 622–623.

153 CABRILLAC/MOULY/CABRILLAC/PÉTEL pp 584–585; BOURRASSIN/BRÉMOND pp 622–623.

154 Cour de Cassation Chambre Commerciale No 11–21763 dated 19 February 2013 (JCP E 2013, 1173).

155 BOURRASSIN/BRÉMOND pp 622–623.

156 BOURRASSIN/BRÉMOND pp 623–624.

157 Cour de Cassation Chambre Commerciale No 11–21763 dated 19 February 2013 (Bull. civ. IV no 29).

158 AYNÈS/CROCQ p 296; PICOD pp 329, 336.

159 Cour de cassation Plenary Assembly No 14–18435 dated on 7 December 2015; Cour de Cassation Chambre Commerciale No 11–21763 dated 19 February 2013 (Bull. 2013 IV no 29); Cour de Cassation Chambre Commerciale No 14–14401 dated 1 March 2016 (Bull. 2016 no 846 IV no 1081).

2.4.3. Improvements in the registration procedure for publicity

Undoubtedly, French law on the publicity regime pertaining to the encumbrance of movable property has improved remarkably within the last two decades. In particular, French lawmakers should be commended for successfully gathering all records in an accessible online national database (infogreffe.fr)[160] and the online forms[161] for various security tools concerning movable property. Form templates have rendered the perception of the procedure as user-friendly and the webpage allowing the investigation of the status of the assets of a potential debtor offers classifications for the assets, which protects business confidentiality. This is usually a principal concern cited by countries that refuse to establish the publicity regime, such as Germany. Nevertheless, French lawmakers have succeeded in establishing a nationwide registry for movable property for parties that decide on a non-possessory pledge.

2.5. An ongoing project for further reforms: the law of PACTE

French law is preparing for yet another novel reform, which will not affect the broadened scope of the publicity regime over movable property, in particular in creating a limited right *in rem*. In 2017, French legislation assigned the same task force, the GRIMALDI Committee and the Association of Henri Capitant, to modify the law of securities through a project called "the law of PACTE". The new regime will be put into force in 2021[162]. With regard to the *ratio legis* of the project PACTE, the author of this article was able to conduct interviews with the scholars at the University of Panthéon-Assas (Paris II), and found out that the haste to enact the Ordinance of 23 March 2006 caused some deficient clauses, which will now be removed, and some outdated security devices will be eliminated[163].

The ongoing project has 10 essential points, one of which has some bearing on the amelioration of the publicity regime of movables. The aim is to centralize the registration of all special movable secured transactions at the registry established via the decree numbered 2006–1804 and dated on 23 December 2006[164].

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160 CABRILLAC/MOULY/CABRILLAC/PÉTEL p 580; BOURRASSIN/BRÉMOND p 598.

161 See available at: https://www.service-public.fr/professionnels-entreprises/vosdroits/R32968.

162 ANSAULT, Jean-Jacque "*Regard sur l'avant-projet de réformedu droit de sûretés*" in: Revue de droit d'Assas No 19 December 2019 (Lextenso éditions, Issy-les-Moulineaux, 2019) p 104.

163 Interview on 19 November 2019 with Professor Philippe Dupichot; Interview on 21 November 2019 with Professor Charles Gijsbers; Interview on 25 November 2019 with Professor Alain Ghozi; Interview on 26 November 2019 with Claire Séjean-Chazal; Interview on 27 November 2019 with Professor Philippe Delebecque.

164 BOURRASSIN/BRÉMOND p 20.

This is important since an inclusive publicity regime requires a centralized system of registration for non-possessory security interests over movable property to ensure creditors' trust through transparency and an effectively functioning registry[165].

3. Turkish Law breaks away from its Swiss roots: The Establishment of the Registry of Pledged Movables

Turkish law is quite distinctive in that it has a hybrid structure. It is a civil law jurisdiction[166] that was vastly impacted by the Swiss, French and German legal systems, and is a verbatim adoption of the Swiss Civil Code and was inspired by the Swiss Code of Obligations during the drafting of the Turkish Code of Obligations (**hereinafter "TCO"**)[167]. However, in contrast to the Swiss approach, Turkish law has been allowing non-possessory pledges over commercial property almost for 50-years (since 1971), having implemented a different publicity regime for utilizing movable property for creating limited rights *in rem*. Turkish legislators chose a different path upon being inspired by the French *nantissement de fonds de commerce* in legislating a security device called "commercial pledge or pledge over commercial undertaking" under the Turkish Code of Pledge over Commercial Undertaking (what Turkish jurists today refer to as **the "Obsolete Code"**)[168].

Another unique quality of Turkish law stems from new legislation enacted recently on 20 October 2016, the Turkish Code of Pledge over Movables in Commercial Transactions (**the PMCT**), which triggered the creation of a new institution: The Registry of Pledged Movables to administer the new publicity regime on movable property. Through the enactment of PMCT, Turkish lawmakers have abrogated the Code of Pledge over Commercial Undertaking (**the Obsolete Code**). With regard to the PMCT, Turkish law stands as a modern regime – a civil law country that is up to date in terms of its practices regarding property law and law on secured lending over movable assets. The PMCT was drafted under the clear influence of The UNCITRAL Model Law on Secured Transactions (2016) and UN-

165 SEUBE p 158.

166 ANSAY, Tuğrul/SCHNEIDER, Eric C. "*General Introduction to Turkish Business Law*" in: Introduction to Turkish Business Law (Wolters Kluwer International, Alphen aan den Rijn, 2014) p 3.

167 Turkish Code of Obligations Law No 6098, Published in the Official Gazette No 27836; Dated 4 February 2011, see available at: https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6098.pdf.

168 KURTOĞLU, Serda "*Fransız Hukukunda Ticaret Fonu Üzerinde İpotek Tesisi*" Banka ve Ticaret Hukuku Dergisi Vol 1 No 3 (Bankacılık Enstitüsü Yayınları, Ankara, 1962) p 337; POROY, Reha/YASAMAN, Hamdi "*Ticari İşletme Hukuku*" 14th Edition (Vedat Kitapçılık, İstanbul, 2012) p 53.

CITRAL Legislative Guide on Secured Transactions (2010) that are intensively impacted by The Uniform Commercial Code (**hereinafter "UCC"**) Article 9, in particular[169].

3.1. Historical and fundamental characteristics of Turkish law

After the declaration of the Republic of Turkey and the conclusion of the reign of the Ottoman Empire[170] in 1923, one of the most radical reforms took place in the field of law when the SCC was translated into Turkish and enacted as the TCC. The same went for the TCO[171]. In that regard, all the principles, including principle of publicity, governing the application of the SCC are also applicable under Turkish law. For instance, concerning the creation of a standard pledge over movable property, the rules of *pignus conventum* such as requiring the conclusion of a real contract and transfer of possession (Article 939 of the TCC) are still applicable[172]. After all, Turkish law was vastly influenced first by Roman law, and then by Germanic law[173] due to the verbatim adoption to Swiss law.

3.1.1. Fundamentals of Turkish property law

Like Swiss law, Turkish law also has two types of property based on the classification of assets: movables and immovables and distinguishes personal and real securities according to the law of property[174]. Moreover, there are two branches of real securities: real security over immovable property and real security over movable property[175].

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169 BAYDAK, Ecrin "*Ticari İşlemlerde Taşınır Rehni*" (OnIkiLevha Yayıncılık, İstanbul, 2018) p 12; ŞIT-IMAMOĞLU, Başak "*Ticari İşlemlerde Taşınır Rehni Kanunu Üzerine Bir İnceleme*" (Sözkesen Matbaacılık, Ankara, 2017) p 8; ŞENOCAK, Kemal/KAHRAMAN, Zafer/TUNCER-KAZANCI, Idil/ÖCAL-APAYDIN, Bahar "*Ticari Işlemlerde Taşınır Rehni*" (Yetkin Yayınları, Ankara, 2019) pp 14–15.

170 ANSAY /SCHNEIDER p 1.

171 TERCIER, Pierre/PICHONNAZ, Pascal/DEVELIOĞLU, Murat "*Borçlar Hukuku—Genel Hükümler*" (OnIkiLevha Yayınları, İstanbul, 2016) p 13.

172 ACAR, Faruk "*Rehin Hukuku Dersleri*" 2. Baskı (Vedat Kitapçılık, İstanbul, 2017) p 221; ŞENOCAK/KAHRAMAN/TUNCER-KAZANCI/ÖCAL-APAYDIN p 36.

173 ORAL, Bahar "*Ticari İşlemelerde Taşınır Rehni*" (Adalet Yayınevi, Ankara, 2019) pp 21–22; SEVEN, Vural "*Ticari İşlemlerde Taşınır Rehni Kanunu'na Göre Taşınır (Varlık) Rehni*" 2nd Edition (Filiz Kitabevi, İstanbul, 2019) p 49.

174 KARAKUŞ-ERBAŞ, Burcu "*Ticari İşlemlerde Taşınır Rehni ve Rehin Alacaklısının Korunması*" (Seçkin Yayıncılık, Ankara, 2018) p 26.

175 SIRMEN, Lale "*Secured Transactions (Securities and Suretyship)*" in: Introduction to Turkish Business Law" eds. Tuğrul Ansay&Eric C. Schneider (Wolters Kluwer International, Alphen aan den Rijn, 2014) p 68.

Apart from the cutting-edge forms of secured transactions mentioned above, pledges as a type of real security over movable property are regulated under Article 939 of the TCC[176]. As limited rights *in rem*, real securities are tied to the principle of *numerus clausus*[177]. Rights *in rem* also abide by the principle of clarity and definiteness, principle of publicity, principle of preservation of public trust, and principle of lapse of time[178].

3.1.2. Publicity regime imposed on the transaction relating to movable property: pledge

To this day, Article 939 paragraph 1 of the TCC mandates the transfer of the possession of movable property that is intended to be encumbered[179]. Added later, Article 940 paragraph 2 of the TCC introduced a drastic amendment enabling parties to benefit from a non-possessory pledge system only if a publicity regime involving as recording claims in a registry is governed by law[180]. Prior to 1971, there was no other method to fulfill the necessities arising from the principle of publicity. Thus, Swiss law and Turkish law were identical regarding the application of publicity over movable properties until then. While the standard pledge over movables sought transfer of possession, until the enactment of the Obsolete Code, for only a group of specific assets, registration was permitted so that parties would not be obliged to transfer the encumbered movable assets.

176 ARKAN, Sabiha "*Ticari İşletme Hukuku*" 12nd Edition—Banka ve Ticaret Hukuku Araştırma Enstitüsü (Sözkesen Matbaacılık, Ankara, 2008) p 47; LALE (2014) p 73; OĞUZMAN, Kemal/SELIÇI, Özer/OKTAY-ÖZDEMIR, Saibe "*Eşya Hukuku—Zilyetlik-Tapu Sicili, Taşınmaz Ve Taşınır Mülkiyeti, Kat Mülkiyeti, Sınırlı Ayni Haklar*" 14th Edition (Filiz Kitabevi, İstanbul, 2011) p 816; POROY/YASAMAN (2012) p 52.

177 ACAR (2017) p 91.

178 OĞUZMAN/SELIÇI/OKTAY-ÖZDEMIR pp 21–22.

179 HELVACI, İlhan "*Türk Medeni Kanunu—Eşya hukuku Volume IV (Gerekçeli-Karşılaştırmalı- İçtihatla- Notlu)*" (OnIkiLevha Yayıncılık, İstanbul, 2013) pp 611–614; KARAKUŞ-ERBAŞ pp 26–27; ŞENOCAK/KAHRAMAN/TUNCER-KAZANCI/ÖCAL-APAYDIN p 17; TERCIER/PICHONNAZ/DEVELIOĞLU p 424; Turkish Supreme Court 8th Chamber Decision No E 7967/2006 K 692/2007 dated 13 February 2007.

180 HELVACI pp 611–614; TERCIER/PICHONNAZ/DEVELIOĞLU pp 424–425; Turkish Supreme Court 19th Chamber Decision No E 2970/2007 K 3133/2009 dated 15 April 2009; Turkish Supreme Court 19th Chamber Decision No E 1006/2009 K 1282/2009 dated 19 February 2009.

3.1.3. A new publicity regime is introduced

Before the breakthrough legislative act of 1971, under the Turkish legal system, personal securities based on the possessory pledge were not practical in terms of merchant-based loan transactions, since loan seekers had to do without their encumbered movables to get a loan, which they then had to pay off by generating money through their business, which suffered for lack of the very same movables. The existing publicity regime thus disrupted production, eventually putting the debtor in greater hardship trying to pay back the loan. It was also an imposition on the creditor, who had to physically keep the encumbered assets somewhere, causing unnecessary liability and expenses[181]. The extent of the impracticalities ultimately led to change. In 1971, after a lengthy research process, the Turkish legislative body introduced a new understanding of publicity concerning movables in creating a limited right *in rem* over their entire commercial undertaking[182]. In conformity with the Obsolete Code, parties had to register their limited right *in rem* in the Registry of Commerce. The principle of publicity now forced parties to check the Registry of Commerce, and any legal presumptions based upon possession was officially precluded under Turkish law.

Since the publicity regime was more or less on track with the recent changes Turkish law, through the mid-2010s, a new project was initiated to reform the Obsolete Code. In 2016 jurists introduced the PMCT, which contains many the EBRD Model Law on Secured Transactions (released in 1994) features from, the UNCITRAL Legislative Guide on Secured Transactions and the UNCITRAL Model Law on Secured Transactions.

3.2. The need for easier access to credit and the publicity regime over movable property

Registration at the Registry of Commerce was always a compulsory condition for parties for third-party effectiveness and had a constitutive character (Article 5 paragraph 2 of the Obsolete Code)[183]. As deficiencies came up in the Obsolete

181 ARKAN p 47; BAYDAK pp 6–8; KARAKUŞ-ERBAŞ p 30.

182 ARKAN pp 47–48; AYHAN, Rıza/ÇAĞLAR, Hayrettin "*Ticari İşletme Hukuku-Genel Esaslar*" 10th Edition (Yetkin Yayınları. Ankara, 2017) p 165; KARAKUŞ-ERBAŞ p 31; OĞUZMAN/SELIÇI/OKTAY-ÖZDEMIR p 805; ORAL p 24; POROY/YASAMAN (2012) p 53; ŞIT-IMAMOĞLU pp 3–4; TEKIL p 113.

183 ARKAN pp 51–52; AYHAN/ÇAĞLAR p 165; POROY/YASAMAN (2012) pp 64–65; Turkish Supreme Court 12th Chamber Decision No E 2923/1988 K 14847/1988 dated 5 December 1988; TEKIL p 115.

Code, changes were made through the Law No 4952[184], affecting the rules of the publicity regime. Ultimately, even these proved insufficient and a more extensive amendment became inevitable to facilitate easier access to credit. Among the reasons for the amendments were the narrow list of applicable parties and the obligation to include all the assets allocated to the commercial undertaking as a whole package of security—separate encumbrances based on single items not being allowed.[185].

To satisfy the needs of the market, Turkish lawmakers enacted the PMCT in 2016, avoiding damaging the publicity regime pertaining to movable properties by instituting the Registry of Pledged Movables. Thus, Turkish law distinguished itself in this field from the leading legal systems. They brought significant changes to the procedures required for the fulfillment of the principle of publicity over movable properties.

3.3. Modifications to the scope of applicable parties to benefit from the new publicity regime

The Obsolete Code brought flexibility to a regime that had been strictly tied to the principle of possession-oriented publicity, except for the non-possessory ones allowed by the TCC. However, it limited the identity of a secured creditor, to credit institutions established in the form of a legal entity, or a credit institution operating for sale of account, established either by a real person or legal entity (Article 2 paragraphs 1 and 2 of the Obsolete Code)[186]. In spite of the new regime, the sources of secured credit were broadened

However, the requirements that had to be met by the pledgers were as restrictive as those imposed on secured creditors under the Obsolete Code. In fact, Article 2 paragraph 1 of the Obsolete Code used to stipulate the same requirements to be met by the pledgors. This meant there was no opportunity for civil parties to benefit from the modernized publicity regime since they had to do without their encumbered assets until their debt was paid. From one point of view, it does make sense that such an option should be granted primarily for merchants. Once again, the applicability of such a well-functioning publicity regime over movable property enables tradespeople to access credit, which could play a key role in preventing bankruptcy or expanding their business capacity.

184 KARAKUŞ-ERBAŞ p 31; ORAL p 24; POROY/YASAMAN (2012) p 53.
185 BAYRDAK pp 10–11.
186 BAYDAK p 49; KARAKUŞ-ERBAŞ pp 51–52; ORAL p 94; ŞIT-IMAMOĞLU p 11.

Whether a real person or legal entity, pledgers had to be a registered undertaking under the Turkish legal system. Merchants, crafts people/artisans, and managers of industrial undertakings all had to meet the condition of being registered to become a party to such contract[187]. Article 3 paragraph 1 subparagraph (a) of the PMCT provides a more extensive list of applicable parties as pledgers: merchants, crafts people/artisans, farmers, producers, organizations and freelancers[188]. Furthermore, the PMCT does not contain the term "owner of the commercial undertaking". Instead, it solely states who can become a party to such a contract as a pledgor. Accordingly, it eliminates the compulsory owner status, and permits tenants as merchants, craftsmen, artisans and farmers to create such a security instrument[189]. This reform had a remarkable effect on the market. Despite the wealth emerging in the market, there remained limitations on parties' identity regardless of all the sophisticated developments in the publicity regime over the movables. Non-merchant (civil-real persons) parties could not avail themselves of the non-possessory concept in creating a limited right *in rem*.

3.4. The new publicity regime and the novel institution of the PMCT

Other than the main goal of legislating the Code Law No 6750 (Pledge over Movables in Commercial Transactions) to extend the scope of movables (type of assets) that could be pledged by an SME demanding a credit line[190], they also aimed to unite separate parts of different registries under a single, centralized system[191]. Supporting SMEs and gradually ensuring growth in the market would only be possible through flexibility and agility. Thus, the Obsolete Code had to be updated in accordance with the changing standards and developing technology.

Turkish lawmakers established a new registry named "Registry of Pledged Movables", and one of the ordinances enacted to cover and clarify the PMCT governs the rules and functioning of this institution: the Ordinance of the Registry of Pledged Movables. Turkey, like many Anglo-inherited jurisdictions along with other civil law jurisdictions, was inspired by US law on this matter[192].

187 POROY/YASAMAN (2012) pp 54–56.

188 AYHAN/ÇAĞLAR p 175; BAYDAK p 56; ERDIL p 67; ORAL p 93; ŞENOCAK/KAHRAMAN/TUNCER-KAZANCI/ÖCAL-APAYDIN p 106; ŞIT-IMAMOĞLU pp 15–18.

189 BAYDAK p 57; ORAL p 101; ŞENOCAK/KAHRAMAN/TUNCER-KAZANCI/ÖCAL-APAYDIN pp 106–107; ŞIT-IMAMOĞLU pp 18–20.

190 AYHAN/ÇAĞLAR p 166.

191 ARVAS, Mehmet Mücahit "*6750 Sayılı Kanun'a Göre Rehne Konu Olabilecek Taşınırlar*" (Lotus Life Ajans, Ankara, 2017) p 11; ORAL p 23.

192 ŞENOCAK/KAHRAMAN/TUNCER-KAZANCI/ÖCAL-APAYDIN p 13.

3.4.1. Registry of Pledged Movables

In substance, as per Article 1 paragraph 1 of the PMCT, the right granted to the creditor is a real right under the agreement involving the pledge of a movable asset in commercial transactions;[193] thus, it could be enforced against anyone once made public through the Registry of Pledged Movables. However, Article 939 paragraph 1 of the TCC required possession as the condition for validity, whereas the PMCT required registration (Article 4 paragraph 1 of the PMCT)[194]. This contradiction was resolved by a Supreme Court decision rendered while the Obsolete Code was in effect and remained unchanged under the PMCT[195].

In connection with the novel approach in the publicity regime, Article 8 of the PMCT regulates the Registry of Pledged Movables[196]. Previously, under the Obsolete Code, the regulation of this registration issue had been a bit more complicated. It involved two optional steps, meaning the pledge had to be registered either with the Registry of Commerce, or Registry of the Craftsman and Tradesmen depending on the identities associated with the parties' businesses[197]. The confusion no longer exists; all applications are made to the Registry of Pledged Movables.

For a pledge to be registered there must first be a request for registration[198]. The list of the persons entitled to make such a request is regulated by Article 22 paragraph 1 of the Ordinance of the Registry of Pledged Movables. Article 23 of the same ordinance lists the documents necessary for proper publicity.

3.4.2. Interaction between the Registry of Pledged Movables and other institutions

The concept of registry has another key role for the third-party effectiveness of a pledge over movable property in commercial transaction. Since a great number of different intangible assets, such as intellectual property rights, are allowed as security tools, cooperation is needed and exists between the Registry of Pledged Movables and the Turkish Patent Institute. The efficient flow of information between institutions administering publicity of real rights in turn creates greater

193 ACAR/ANTALYA p 4.
194 AYHAN/ÇAĞLAR p 193; BAYDAK p 180.
195 Turkish Supreme Court 15th Chamber Decision No E 4309/1989 K 658/1989 dated 20 February 1989.
196 AYHAN/ÇAĞLAR p 193; ORAL p 61; SEVEN p 132; ŞENOCAK/KAHRAMAN/TUNCER-KAZANCI/ÖCAL-APAYDIN p 129.
197 ACAR/ANTALYA p 4.
198 BAYDAK p 168; ORAL pp 61–62, 64–65.

efficiency for the parties. This collaboration used to be regulated under Article 7 of the Obsolete Code and is now under Article 5 paragraph 2 of the PMCT and Article 13 of the Ordinance of the Registry of Pledged Movables. However, a lack of communication between the relevant registry institution and Registry of Pledge Movables does not render the transaction invalid[199], an issue that came up in a Supreme Court decision. It was stated that when a right of pledge is established in accordance with the rules, the lack of notification to the relevant registry does not affect the validity of its establishment[200].

4. Publicity regime over movable assets in creating a non-possessory security interest under US Law: notice-filing and perfection

Unlike the other legal systems examined above, in principle, a security interest over a movable asset is effective against third-parties without being public (judicial enforceability) (Art. 9–201 (a) of the UCC)[201]. Under the US legal system, perfection is the name of the process that renders a secured creditor's security interest in a debtor's personal property effective against other secured and unsecured creditors, and third-parties[202]. It ensures priority over subsequent secured creditors (Art. 9–317 of the UCC)[203]. Parties setting up a non-possessory security interest have to complete the notice-filing procedure to perfect the security interest, and the publicity regime denotes the notice-filing procedure.

4.1. Notice-filing requirements

The regulatory sections on notice-filing and the filing of the financing statement start from Article 9–502 of the UCC, which sets the minimum information that parties must include in the financing statement at the names of the debtor and creditor and description of the collateral[204]. Articles 9–502 and 9–516 of the UCC

199 BAYDAK pp 186–188.

200 Turkish Supreme Court 19th Chamber Decision No E 4132/2001 K 6811/2001 dated 25 October 2001.

201 EIGENMANN p 205

202 EIGENMANN p 203.

203 EIGENMANN p 204.

204 DEL DUCA, Louis F./GUTTMAN, Egon/MILLER, Frederick H./WINSHIP, Peter/HENNING, William H., *Secured Transactions Under the Uniform Commercial Code and International Commerce* (Anderson Publishing Co, Ohio, 2002) p 194; EIGENMANN p 206; McCORMACK (2004) pp 77–78, 131.

explain the conditions to be met by the parties in a notice-filing process[205]. Article 9–502 deals with the conditions that are essential and that, if unfulfilled, can render the filing of a financing statement not 'perfected' and thus ineffective against third-parties. The consequences of the failure to fulfill the additional requirements listed under Article 9–516, however, are usually at the discretion of the filing officer[206]. In fact, Article 9–516 sets forth a list of cases in which the filing request will be quashed[207]. Combining Article 9–502 and 9–516 creates the following general list of requirements:

- Names of debtor and creditor
- Description of collateral
- Mailing addresses of debtor and creditor
- Indication whether the debtor is an individual or legal entity
- In case there is a corporate debtor:
  a. Form
  b. Domicile
  c. Indication of its organizational identification number if there is one, otherwise indication of such absence
- In case there is an individual debtor—indication of their last name
- Indication of real-estate's description included to the collateral in light of Article 9–502 (b)
- Properly communicated
- Fee tendered[208].

4.2. A matter of efficiency: Publicity regime in the US vs. Switzerland

Although the US legal system does not abandon the traditional publicity rule of possession, granting parties the right to register their security interest rather than dispossessing the encumbered assets is important. This right to register and this publicity regime permits the pledger to continue to take advantage of the encumbered assets in the ordinary course of business without damaging the interest of the secured creditor. In fact, it could be said to make it more likely that the creditor will receive what is owed to them if the debtor is able to maintain an opera-

205 EIGENMANN p 207.

206 BAILEY III, Henry J./HAGEDORN, Richard B. "*Secured Transactions in a nutshell*" 4th Edition (WESTGROUP, St. Paul, 2000) p 220.

207 McCORMACK p 147.

208 EIGENMANN pp 207–208; WHITE, James J./SUMMERS, Robert S. "UNIFORM COMMERCIAL CODE" 6th Edition (West Publishing Co, St. Paul, 2010) p 1224; BAILEY III/HAGEDORN pp 218–219; McCORMACK p 131; TAJTI pp 146–147.

tional business. It also maintains the sufficient protection for secured creditor. Therefore, it seems certain changes to the Swiss publicity regime for beneficial security interest may serve Swiss law and businesses well.

III. Possible impacts of Blockchain technology on publicity regimes

Two famous sayings attributed to Heraclitus of Ephesus (late 6th century B.C.) are "*Change alone is unchanging*" and "*You could not step twice into the same river; for other waters are ever flowing onto you*", both applicable to the speed of today's technological advances and the inevitable changes to which we are obliged to adapt. One such change technology that has contributed to the topic at hand is the Distributed Ledger[209], which can help the publicity regime over movable property adapt to the evolution in the business sector. This evolution concerns the role and functioning of 'middlemen' such as intermediary agents, notaries, and registry's clerks, playing the role of third-party guarantor, which may be taken over by this technology[210]. Moreover, in the context of de-humanization, the involvement of smart contracts could impact parties' contractual performances against each other. Algorithms that remove the human factor from the phase wherein contracts are bargained and eventually created will certainly make things interesting[211].

Nevertheless, one of the greatest technological advances that could change the way publicity regimes work, as well as how the world is run, is blockchain technology. Just as the long-standing principle of positive pledge imposed on movable property has mutated into a non-possessory pledge system, which currently features digitalized registries, third-party effectiveness could one day be achieved through blockchain, whose impact is already visible in the procedures related to the publicity regime of immovables. Nonetheless, how the full-integration of a

209 It should be noted that the term "Distributed Ledger" can be referred to as distributed ledger or shared ledger and that it should not be used interchangeably with blockchain. In fact, the DLT includes various forms of utilizations, with the blockchain system being only one of them. For further information, see FILIPPI, Primavera De/WRIGHT, Aaron "*Blockchain and the Law—The Rule of the Code*" (Harvard University Press, London, 2018) Parts 1 & 2; see MIGNON, Vincent "*Blockchain —perspectives and challenges*" in: Blockchains, Smart Contracts, Decentralised Autonomous Organizations and the Law (eds.) Daniel Kraus, Thierry Obrist, and Olivier Hari (Edward Elgar, Cheltenham [UK] & Northampton [USA], 2019) pp 18–48.

210 FILIPPI/WRIGHT p 20; WITZIG/ SALOMON p 22.

211 BAYERN, Shawn "*Artificial Intelligence and private law*" in Research Handbook on the Law of Artificial Intelligence (eds.) Woodrow Barfield and Ugo Pagallo (Edward Elgar Publishing, Cheltenham [UK] & Northampton [USA], 2018) p 146.

blockchain-based currency such as bitcoin (public permissionless blockchain) would transform transactions that involve the transfer of proprietary rights or limited real rights over movable and immovable property has yet to be seen. The creation and perfection of a limited right *in rem* might be arranged through blockchain, as it allows the storage and transmission of information online without the need to involve a middle person[212] to orchestrate the entire system.

The article firstly provides a summary on the essentials of blockchains (**1**). It is followed by the analysis of the interaction between the blockchain technology and land registry regarding their role in property transactions (**2**). Taking the theoretical information given in the preliminary sub-chapters **1** and **2** into consideration, the author briefly touches upon the Swedish example to combine the theory and practice based on an ongoing conduct (**3**). In conclusion, the research paper addresses possible further changes in the near future regarding the utilization of blockchain technology in the field of property law (**4**).

1. Essentials of blockchain and computerized records[213]

The developments up to now have mainly kept to immovable property in terms of transforming the customary publicity regime into a digitalized version. Since the transformation of the publicity regime for movable properties is not yet complete across the globe, it may be a bit premature to start working on methods to bridge blockchain technology and the publicity regime of movable property.

The blockchain revolution has impacted especially the finance sector. In 2008, Bitcoin (public permissionless) was introduced as a brand-new payment method in which A can send money to B without the involvement of any financial institutions (peer-to-peer)[214]. Indeed, this exclusion is quite an advantage as it eliminates multiple compulsory fees required by such a transaction, especially on a cross-border scale[215]. Nevertheless, according to Jacques Vos and many others investigating this state-of-the-art device, blockchain is a decentralized ledger, as

212 For instance, this middle person corresponds to the registry's clerk, who is tasked with checking the registration applications for non-possessory pledges under Turkish law.

213 This article mainly deals with two types of blockchain while making comparative analysis: public permissionless blockchain and private permissioned blockchain. Concerning the integrability to the traditional property law, private permissioned blockchain stands more possible even though private permissioned blockchains contains a risk of collusion between the users and it is referred as trust problem in the legal literature. See FILIPPI/WRIGHT pp 31,32.

214 NAKAMOTO, Satoshi "*White Paper- Bitcoin: A Peer-to-Peer Electronic Cash System*" see available at: https://bitcoin.org/bitcoin.pdf accessed 18 September 2020; FILIPPI/WRIGHT p 20.

215 MIGNON p 3.

indicated earlier[216]. This decentralized ledger contains a list of records that is constantly growing[217]. It is composed of blocks attached to one another[218]. Once a transaction has been carried out and added into the ledger, it stays there as irrevocably registered (immutability)[219]. There are three fundamental ingredients of a blockchain: consensus[220], verification, and securing the existence of certain information in relation to the operations carried out in this platform (transparency in co-relation to enhanced trust[221]).

Furthermore, blockchain is mainly split into two types, a private and a public one. Each form can then be categorized based on the element of permission, thus giving us: private permissioned and private permissionless, and public permissioned and public permissionless blockchains.[222] Public permissionless blockchains lack any state-involvement[223]. In other words, it is privately regulated, and thus remains untouchable by the government. This critical element of blockchain technology, as well as other DLT, which is generally pointed out as the prevailing advantage, is the lack of central authority. It poses some problems for the functioning of land administration in such a portal, which are touched upon below. Private permissioned blockchain differs from the latter by enabling a quasi-central authority to supervise the processing of the transactions[224]. It is not publicly accessible, though it is equipped with blockchain technology. Once the decentralization element is removed from blockchain technology, it no longer seems such a novelty for the market, since most administrative authorities tasked with keeping the records of land transactions have set up an electronic system through which parties can carry out such transactions. The Netherlands, for instance, an-

216 MIGNON p 1; VOS, Jacques "*Blockchain and Land Administration: a happy marriage?*" in: European Property Law Journal Vol 6 Issue 3 (De Gruyter, Berlin, 2017) p 293; WITZIG/SALOMON p 22.
217 IDELBERGER, Florian "*Connected Contracts Reloaded –Smart Contracts as Contractual Networks*" in: European Contract Law in the Digital Age (ed.) Stefan Grundmann (Intersentia, Cambridge, 2018) p 207; VOS p 293.
218 IDELBERGER pp 209–210.
219 CARRON, Blaise/BOTTERON, Valentine "*How smart can a contract be?*" in Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law (eds.) Daniel Kraus, Thierry Obrist and Olivier Hari (Edward Elgar, Cheltenham [UK] & Northampton [USA], 2019) p 103; FILIPPI/WRIGHT p 22.
220 FILIPPI/WRIGHT p 42.
221 FILIPPI/WRIGHT pp 37–38.
222 WITZIG/SALOMON p 24.
223 PEIRO, Nicholas Nogueroles/GARCIA, Eduardo J. Martinez "*Blockchain and Land Registration Systems*" in: European Property Law Journal Vol 6 Issue 3 (De Gruyter, Berlin, 2017) p 299.
224 FILIPPI/WRIGHT p 31; LEMIEUX, Victoria L. "*Evaluating the Use of Blockchain in Land Transactions: An Archival Science Perspective*" in: European Property Law Journal Vol 6 Issue 3 (De Gruyter, Berlin, 2017) p 396.

nounced that 98 % of the deeds that the Dutch cadaster received were electronically transmitted in 2005[225]. As a matter of course, for such a system, the state must have introduced a regime to authenticate such deeds via e-signatures.

The original concept of the blockchain technology is based on the public permissionless one, which is publicly accessible, and it is nearly impossible to interfere with the records, except for the group of designers running the operations[226], the system cannot be shut down or hacked, particularly if it involves many well-distributed independent nodes, and it is a cure against the double-spending problem[227]. The functioning of the system has been purposefully designed to be so complex as to ensure validity of the operations. More simply, each money transfer request has to be verified in conjunction with certain elements. It usually resembles a mathematical puzzle whose solution requires collective effort. So, in order for a block, which symbolizes the money transfer request in this case, to be chained, a group of workers, so-called miners, run operations to solve this mathematical problem by checking the validity of each previous block[228]. Thus, the designers, or in line with the technical term, the miners, are the ones who are carrying out the necessary transactions in context of the "proof of work game"[229] and in return, getting earnings (e.g. bitcoins) that can be converted into monetary value.

Nevertheless, the immutability of the stored information can be observed in the public permissionless concept, which creates a major challenge. In the context of immutability and decentralized ledgers, hacking a public permissionless blockchain is extremely challenging but not completely impossible, per se. The more independent nodes a system has, and the more largely distributed they are, the more secure the ledger system is. The smallest vulnerability in the system could be exploited for a massive financial gain. In fact, a few years ago, users exploited a malfunction in the Decentralized Autonomous Organization's code of a type of cryptocurrency called Ethereum[230]. This led to one third of the DAO's funds being captured, and the Ethereum society had to restore all of the funds in accordance with the original contract by carrying out an action called a "hard fork"[231] in the technical language.

225 LEMMEN, Christiaan/VOS, Jacques/BEENTJES, Bert "*Ongoing Development of Land Administration Standards*" in: European Property Law Journal Vol 6 Issue 3 (De Gruyter, Berlin, 2017) p 483.
226 LEMIEUX p 396.
227 WITZIG/SALOMON pp 22–23.
228 FILIPPI/WRIGHT pp 23–24.
229 FILIPPI/WRIGHT p 24.
230 MIGNON pp 5–6.
231 As a term, "hard fork" means that that particular cryptocurrency society is reversing the system in order to fix a mistake or wrongdoing that occurred in the previously chained blocks to make them valid afterwards, which is a radical alteration to a network's protocol.

2. Blockchain vs. Land registries

In property law as it pertains to land administration and immovable property, the land registry has a very simple function: keeping track of the conveyance of a land from A to B. All the reforms undertaken in the field of land administration up until now attempted to introduce a simpler, more efficient and a more trustworthy registration system[232]. Nevertheless, this simple operation is not the only transaction that can be carried out related to immovable property. The application of limited rights *in rem,* for one, complicates the task of the employees of a land registry a great deal. Arguably, the most important function of the land registry is that it safeguards the fundamental trust society holds towards property. Broadly speaking, blockchain technology must retain this trust since it aims to replace written records, instead establishing a digitized platform where parties would not be obliged to apply to intermediaries such as land registry clerks and handle their business on a peer-to-peer basis[233].

2.1. Potential benefits

The World Bank made a statement to the effect that blockchain technology is a viable concept to adopt in land administration in a conference held in 2016 in Washington. Additionally, Goldman Sachs had estimated 2–4 billion US dollar savings if the paper-based land administration was replaced with blockchain technology[234].

The public permissionless blockchain system, on the one hand, does truly offer enhanced transparency by allowing enabling all relevant parties access to records, which mainly list transactions concluded over a particular asset, automatically resolving the issue of trust. Therefore, this particular feature of public permissionless blockchain technology is quite promising for the transparency of property rights[235]. On the other hand, slightly more restricted access to records is regulated under private permissioned blockchain, wherein there is relatively lower risk than in public permissionless blockchain. Private permissioned blockchain limits accessibility by requiring authenticity from the users to some extent. While

232 PEIRO/GARCIA p 296.

233 CARRON/BOTTERON p 101; WITZIG/SALOMON p 18.

234 THOMAS, Rod "*Blockchain's Unsuitability for Real Property Transactions*" (January 13, 2019). Rod Thomas "Blockchain's unsuitability for real property transactions" in S Murphy and P Kenna and (eds.) Conveyancing and Title Registration in Ireland (Clarus Press, Dublin, 2018), see available at SSRN: https://ssrn.com/abstract=3315000 or http://dx.doi.org/10.2139/ssrn.3315000.

235 FILIPPI/WRIGHT p 109.

recognizing that trust constitutes the main pillar of the rights *in rem* when it comes to the publicity regime, one must also note that public permissionless blockchain technology has no way of testing the legality of a transaction nor a record entered into the system. In this respect, a hybrid blockchain technology as a combination of these two may offer the greatest benefits.

Approaching the distributed ledger system from a cost-scaling perspective, *Coase's* theory seems to prove the efficiency of the blockchain system. As COASE pointed out in his famous article titled "*The Problem of Social Costs*"[236], which was published in 1960 when computers were uncommon, high transaction costs are very likely to have a repelling effect by decreasing trading in the market. Social costs must be minimized by the system so that the public can alienate these property rights in respect of initial allocation[237]. One novelty proposed by blockchain technology is that it can substantially decrease transaction costs. It does away with all paperwork and several intermediary agents such as public notaries who are supposed to carry out transactions concerning the purchase of the land[238]. The lack of paperwork with private permissioned blockchain and avoiding intermediaries' fees could dramatically increase efficiency.

Victoria L. Lemieux lists some other advantages as follows: "... *increased processing efficiencies that reduce the cost of land transaction processing, reduction in errors during the recording process, prevention of title fraud, added levels of security, auditability and transparency, data archiving and lower levels of vulnerability to natural or man-made disasters.*"[239]. However, even in legal systems where this time and cost saving technology has been established for keeping records of transactions pertaining to immovable property, the preferred applicable procedure is increasingly becoming the permissioned blockchain mechanism, which requires either state or private institutions to play an intermediary role, monitoring and approving transactions to avoid any forgeries. However, the land administration is not only responsible for recording property rights, which is relatively straightforward, but also for limited rights *in rem*, bringing up the issue of safety of transactions. As regards this tendency, perhaps the level of development in accountability has not yet reached the level of transparency in the world of block-

236 COASE, Ronald H. "*The Problem of Social Cost*" Journal of Law and Economics, vol. 3, 1960 ht tps://www.law.uchicago.edu/files/file/coase-problem.pdf.

237 COLE, Daniel H./GROSSMAN, Peter Z. "*The Meaning of Property Rights: Law versus Economics?*" Land Economics, vol. 78, no. 3, 2002, pp. 317–330. JSTOR, www.jstor.org/stable/3146892 p 326.

238 FILIPPI/WRIGHT p 94; MIGNON p 2.

239 LEMIEUX p 393.

chain. Sweden and Estonia, for example are using permissioned blockchain for transactions related to law of property[240].

2.2. Foreseeable difficulties

While blockchain technology (public permissionless) stores information in a way that is immutable and tamper-proof[241], it also presents us with the problem of "roll-back", or repairs. As a matter of fact, during the Swiss Digital Day held in Zurich on 3 September 2019, the adoption of the blockchain technology for the Registry of Commerce was discussed, and the difficulty of correcting any errors in the transactions came up[242]. Blockchain technology does not allow anyone entry into the system to fix a mistake made in a previous transaction. This could cause problems for contract law, particularly if unforeseeable events might cause gaps that cannot be resolved by a sensitive computer code[243]. The lack of legal presumptions and the advanced level of indefeasibility could cause parties to suffer massive losses considering the significant value of immovable properties. However, as observed above, permissioned blockchain allows roll back in time to fix any mistakes. Therefore, blockchain technology still has a great deal to offer land administration. One possible solution for the problem described above could be reverse transactions. However, such an implementation may firstly consist in a major contradiction to the most advantageous feature of the public permissionless blockchain, i.e. the inalterability of the blockchain. And secondly, to conduct reverse transactions, parties must be in agreement, which will be difficult to achieve in case of conflicting interests.

3. A case study: Swedish Land Registration Authority

In 2017, Sweden's entire land registry (cadaster), ownerships etc. had long been computerized. The Swedish Land Registration Authority worked in cooperation with Chroma Way (a Swedish blockchain technology company) and collaborated with other Swedish technology consulting companies like Kairos Future, Land-

240 BOUCHER, Philip "*How blockchain technology could change our lives*" European Parliamentary Research Service (Scientific Foresight Unit) see available at: https://www.europarl.europa.eu/RegData/etudes/IDAN/2017/581948/EPRS_IDA(2017)581948_EN.pdf p 18; FILIPPI/WRIGHT p 109.
241 FILIPPI/WRIGHT p 37; LEMIEUX p 395; PEIRO/GARCIA p 310.
242 Swiss Digital Day, afternoon-session entitled "Assets on the Blockchain" on 3 September 2019 in Zurich.
243 CARRON/BOTTERON pp 120–121.

shypotek Bank, Telia Company and SBAB [bank][244]. They made a substantial investment to digitize the old systems and case management. Finally, as a crucial component of such a cutting-edge regime, they established a communication portal called "My messages—*Mina Meddelanden*". According to Lemieux's research, 10 % of the applications submitted to the land administration were automatically decided, as a result of all these improvements[245]. The parties that can be involved in a legal transaction related to transfer of ownership or the sale of an immovable property, are limited to some extent, and this scope excludes any lawyer or notary (intermediaries). Once parties sign the documents, the transaction becomes valid and binding for the buyer and seller. Next, the Swedish Land Registration Authority delivers both parties hard copies of their transaction carried in the land registry. This delivery includes an invoice (registration fee and stamp duty) to be paid within 30-days of the issuance date of the invoice[246].

4. Inevitable end: Modernization of the immovable property publicity regime

Sooner or later, publicity regimes will inevitably be transformed due to developments in blockchain technology. However, it is very important to benefit from advanced technologies at the fullest. A device such as blockchain can provide trust, transparency and durability in the preservation of property rights. It can also serve to minimize the costs of financial burden of transactions by leading to the automatization of the control-decision-supervision process. Nevertheless, utilizing such a technology with movable property seems a bit unrealistic, considering there are still countries that are extremely skeptical and hesitant about the establishment of a limited right *in rem*, whose publicity regime would enable parties to create a non-possessory security right over movable asset. One final comment could be made on the possible impact of the concept of Color Coin, which is a protocol through which parties are able to carry out a transaction with nominal amount of digital currency, e.g. bitcoin, concerning the alienation of a tangible movable asset and/or of an intangible value such as copyright work[247]. The Color Coin protocol might be heralding a change as to the publicity regime imposed over movable property.

244 LEMIEUX p 410.
245 LEMIEUX p 411.
246 LEMIEUX p 411.
247 FILIPPI/WRIGHT p 30.

Concluding Remarks

I. Swiss adherence to traditional publicity regime over movable property and existing alternatives

We find that most countries are inevitably transitioning away from a strict, possession-oriented understanding in their publicity regime involving movable assets. Yet, the role model and a source of inspiration for so many other legal systems, the Swiss legal system, has not only ignored this particular field, but is also vehemently opposed to making any changes. It seems quite possible to more widely implement the *cédule hypothécaire/schuldbrief*, i.e. the mortgage certificate, which is composed of a negotiable instrument, "*papier-valeur*". Swiss lawmakers argue that the other types of securities (e.g. retention-of-title, transfer of ownership for security purposes, leasing etc.) currently in practice render any other legislation unnecessary[248]. The alternatives they present for movable assets are retention-of-title (*la réserve de la propriété*), transfer of ownership for security purposes (*le transfert de propriété aux fins de garantie*), assignment for security purposes (*la cession aux fins de garantie*)[249].

To be fair, the Swiss publicity regime over movables did undergo somewhat of a transformation when it introduced numerous new secured lending methods. For instance, Article 715 of the SCC regulates the retention-of-title, which resembles the purchased-money-security-interest regulated under the US legal system. It enables a party to keep a movable asset in possession but requires an inscription to be made at the official registry kept by the debt enforcement office of the parties' domicile[250]. After the encumbrance of certain special types of movable assets, this is the second time Swiss law has engaged with a publicity regime based on a registration process in the context of movables. The creditor is empowered to reclaim the possession unless the debtor pays in full[251]. For this, there must be a sale contract concluded between the creditor and debtor. Then comes operative leasing, which is a type of contract that functions as a security device, in which the creditor allows the debtor to use movable assets such as equipment[252]. This could also include consumable products, in which case it is called leasing of

248 Interview on 24 September 2019 with Monsieur Frédéric Bétrisey (Partner at BÄR & KARRER [Geneva]).
249 SCHMID/HURLIMANN-KAUP No 1871.
250 EIGENMANN p 118; HONSELL/SCHWANDER No 1 Art 715.
251 EIGENMANN pp 11–12; HONSELL/SCHWANDER No 8 Art 715.
252 EIGENMANN p 12.

consumable materials[253]. This transaction gives the debtor the right to dispose encumbered assets in the course of business, whereas the creditor, i.e., the 'owner', can claim the title if the debtor fails to perform its obligation in full[254].

However, as STEINAUER states, none of the personal securities offers a real right[255]. Thus, it seems quite necessary to modernize the edge publicity regime and allow the application of a novel limited right *in rem* such as a non-possessory pledge over movable property. This would certainly strengthen the position of a secured creditor against the risk of not being reimbursed due to debtor's default. The cases of France, Turkey and provide sound evidence that this transformation will result in increased efficiency for all involved.

Using mortgage certificates to access credit may not be a realistic option for every merchant. Not every SME can be expected to own immovable property to use as a security. Therefore, it would help to allow for flexibility in Swiss law on the publicity regime of movable properties. That the proposed system originates from another country should have no bearing on the decision lawmakers make to improve conditions for their businesses. Obviously, every legal system has its own cultural determinants and the needs of their market might be distinct. In such cases, legal transplantation may not be a viable option. In most cases, however, other countries' practices and experience offers benefits such as preventing mistakes or legal gaps that could turn into ambiguities. Therefore, comparative analysis can be pivotal for jurists.

II. The French revolution in the publicity regime over movable assets

A society that is known for revolutions, France began making changes to the publicity regime a long time ago. They established a novel limited right *in rem*, the *gage commercial*, as early as 1863. This was followed by the enactment of a series of new limited rights *in rem* such as *nantissement de fonds de commerce*, *nantissement de matériel et d'outillage* and so on, that ultimately transformed the publicity regime. They initially propounded the concept of registration for the enforceability of real rights associated with movable assets. These security devices elimi-

253 BOEGLI, Thomas "*Leasing – Untersuchung spezieller Aspekte einer neuen Finanzierungsform*" (Verlag Paul Haupt, Bern and Stuttgart, 1984) p 9; EIGENMANN p 12; GIRSBERGER, Daniel "*Grenzüberschreitendes Finanzierungsleasing (International Vertrags-, Sachen- und Insolvenzrecht*" (Schulthess Polygraphicher Verlag, Zurich, 1997) p 11.

254 ATF 118/1992 II 150 = JdT 1994 II 98.

255 STEINAUER (Tome III) p 375.

nated the possession-based dogma and enabled the pledgor to remain in possession of their encumbered assets.

One wonders whether the English concept of the floating charge might have provided a bit of inspiration though no explicit confession regarding the source of inspiration seems to exist in the literature. One wonders at the fact that that the date when French law introduced *gage commercial* is relatively close to the date when the English practitioners were experimenting the concept of the floating charge in equity. Therefore, French law may have made amendments to the publicity regime before any other civil law jurisdictions. The most sophisticated feature of the floating charge may not be that it allows the establishment of a non-possessory pledge. The encumbrance of future property, in fact, was the most critical feature of this breakthrough security instrument under equitable charges. However, it certainly enabled a new publicity regime emphasizing movable assets. This seems to be another interesting example of a bridge between legal traditions.

Not only did the French law allow room for its publicity regime to develop over time, but it also served as a model for many civil legal systems. In fact, their well-known security tool, *nantissement de fonds de commerce* enticed Turkish lawmakers away from the rules and principles that they had adopted from Swiss law. Despite having adopted the Swiss Civil Code and Swiss Code of Obligations verbatim, Turkish jurists regulated the pledge over commercial undertaking (non-possessory pledge).

Having completely renewed their publicity regime over movable assets, in 2006, France released a new order allowing parties to create a limited right *in rem, gage de meuble corporels,* without transferring the possession of the encumbered asset to the creditor. What matters here is that they legislated this new publicity regime under the French Civil Code, without complicating matters by delving into the exclusive circumstances of business, which are usually governed by the French Commercial Code.

Thus, Article 2337 paragraph 1 of the FCC incorporated a condition on public notice, which has to be met by the parties for third-party effectiveness. Two things to note here are: first, they did not abrogate the ordinary pledge over movable assets, whose validity is based upon possession. Hence, French law currently has two publicity regimes concerning movable assets. Second, the process involved in the publicity regime imposed on the security devices as stated in the FCCO requires parties to complete the registration within a limited period of time lest the mutual validity and third-party effectiveness is impacted.

Another set of legal reforms are underway in France. Nevertheless, information from interviews with French legal experts and research confirm that publicity regime imposed on movable properties will not be affected at all. In fact, it makes

sense to make further improvements after accomplishing a certain level of modernization. As is well-known, property law is not a field where lawmakers can experiment a great deal since public interest is a predominant element. Any modification requires that this is taken into consideration. Real rights are strictly bound to the public interest and public order, after all.

III. Turkish law: Substantially reformed publicity regime of movable property could be even better

Turkey was early in improving the publicity regime over movables '70s and has since continued in the same vein, ever modernizing. Particularly, establishing a specific registry for pledged movables was a very astute move that served to increase the reliability of the authorities and the level of transparency. Although the aim of Turkish legislation was streamlining the system, there ended up being an excess number of regulations and directives. Therefore, an ordinance was enacted to clarify the functioning of the new registry for pledged movables.

Still, there are many separate registries in interaction for the establishment of a secured transaction under the Turkish legal system. The ultimate aim should be a single centralized registry to embrace all the types of secured interest and broaden publicity to enhance the quality of the protection relating to the priority rights and the protection against the *bona fide* purchasers. This is one of the goals of the author of this article: to ensure that when Turkish and Swiss lawmakers do decide to establish a separate institution, that the separate body is empowered to successfully administer the system. Besides, communication among different registries in connection with different types of assets (e.g. registry for IP rights, registry of vessels etc.) could be done more effectively, if the separate registries were united.

So far, there are no particular complaints related to the Registry of Pledged Movables. On the contrary, it seems to be doing quite well. Therefore, centralizing the registries and improving upon the PMCT to unify all dispersed records does not currently seem to be a priority. In addition, Turkish lawmakers have allowed parties to register their secured interest electronically. While the registration process is environment-friendly as in France and the US, the transaction-filing requirement, like in the UK, unnecessarily burdens the parties due to the strict conditions required. Thus, one small modification on the procedure of publicity regime that would help could be to replace this step with the US approach to "notice-filing".

IV. Blockchain and property law

Although the outcomes of establishing a distributed ledger system will take decades to appear, there is a great deal of discussion taking place in both the legal and technical literature in this particular field. There are specific routes that are almost finished with their design and have begun testing. As pointed out earlier, Swedish authorities are testing a permissioned blockchain system for transactions with immovable assets. Moreover, Estonia, Ghana, Kenya and Nigeria have already switched to this advanced technology for land registries[256].

To conclude, the integration of a registration system for movable assets is not only quite possible once the necessary steps are taken, but also extremely useful for all parties involved. In his article entitled "Property Transactions and Certainty of Title Transfer", Peter Limmer reveals the critical difference between the movable and immovable property, he states, "*... Real estate as the object of a transaction is characterized by the very fact of its singularity. In principle, real estate cannot be reproduced, owing to its specific uniqueness...*"[257]. This assessment sums up the inherent difficulty in building a registry for movable assets. The only feasible method is the establishment of a nation-wide registry integrated with electronic-filing. This will ensure the transparency of property rights, while also mitigating the costs, which Van ERP once determined as prevailing over any other concern in regard to publicity[258].

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