Journal of Institutional Economics (2022), **18**, 587–604
doi:10.1017/S1744137421000473

RESEARCH ARTICLE

On legal bubbles: some thoughts on legal shockwaves at the core of the digital economy

Marco Giraudo[1,2]

[1]Department of Law, University of Turin, Turin, Italy and [2]Collegio Carlo Alberto, Turin, Italy
Corresponding author. Email: marco.giraudo@unito.it

(Received 26 January 2021; revised 30 May 2021; accepted 31 May 2021; first published online 5 July 2021)

Abstract

For two decades, economic agents have been investing in the personal data-driven industry on the assumption that courts, the keepers of the legal systems, would have backed their claims, turning their technological control of personal data into legally protected property rights. Courts' backing has proved only temporary as they are now revising early solutions by constraining collection, use, and trade of personal data to protect the hierarchically superior rights. The theory of 'legal bubbles' rationalizes the economics underlying the legal shockwaves affecting the personal data-driven economy. 'Legal bubbles' tend to arise when economic agents invest in the economic exploitation of a new resource in a context of uncertainty and ignorance about the legal implications of innovative activities. These legal foundations may eventually turn out to be unstable as a result of courts' *ex-post* attempt to re-adapt them to the previously ignored implications of unconstrained commodification, with disruptive economic consequences.

Key words: Legal Institutionalism; property rights dynamics; legal innovation hype; legal bubbles; digital economy

JEL codes: B 52, B 53, K00 K10, K11, K21, P12, P14

1. Introduction

In the last two decades, the lowering of the costs of collecting, storing, and processing personal data has paved the way for a whole ecosystem of innovative activities. The strong economic interests attached to the commodification of the new resource have fueled the bid to secure property rights over personal data, despite the early uncertainty as to its legal implications in terms of the prevailing order of rights (Schwartz, 2004). The main fear of the lawmakers was that the commodification of personal data would have weakened the legal protection of hierarchically superior legal interests – e.g. fundamental rights, competition law, and the democratic order (Pollicino and Romeo, 2016; Kolacz *et al.* 2019). As such, the main concern was that allowing personal data to be collected and traded would have implied the violation of constitutionally protected interests (Allen, 1999; Rotenberg, 2001).

The initial predominance of a management-based regulatory solution (Bonnín Roca *et al.*, 2017) implied that economic agents could prototype legal solutions by contract. This approach delegated to investors the legal balancing of the short-term benefits of commodification – by offering 'free' services in exchange for users' personal data – and the risk of violating hierarchically superior rights. Within such a framework, entrepreneurs like Facebook, Google, Apple, and other companies (hereinafter 'Big Tech') have taken the lead in defining property rights over data (Bygrave, 2015; van Erp, 2015), enabling personal data commodification by way of contract. Bold legal innovations were released on the spur of over-inflated optimism, thus unlocking avenues of technological innovation.

© The Author(s), 2021. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

Through the early 'codification' in case law, the optimistic narratives attached to the benefits of the 'sharing society' spread out within the judiciary, thus reinforcing the commodification assumption underpinning a soaring industry. In fact, the courts' support sounded like a green light for investments (Chander, 2014). This judiciary stance led to the construction of a multi-billion industry based on property rights by contract (van Erp, 2015), where 'notice and consent' forms framed ownership solutions over the new resources, as well as over the activities they enable. Any attempt to establish stricter data protection rules was seen as an attempt to impose distorting 'price control policies' (Fuller, 2018).

For more than a decade, two co-evolving dynamics within the judiciary and the economy have supported the view that a newly discovered resource, personal data, could become 'the new currency of the internet', thereby unleashing investments and participation in the rising personal-data-driven industry. This process occurred despite expressions of skepticism about the fact that contractual solutions were actually securing the proper balance between property rights over personal data and the hierarchically superior rights – e.g. fundamental rights, antitrust, and democratic order (Klonick, 2018).

Over the last few years, however, this widespread assumption has begun to falter, as courts and rule makers learned about the actual implications of personal data commodification in terms of its conflict with other prevailing rights. Some observers argue that the industry has long reached a legal 'boiling point' and there is growing concern about the fact that the sector is actually 'trading fundamental rights' (Buttarelli, 2018; Flórez Rojas, 2016). Courts and legislative branches of Western nations (e.g. USA and EU) have scrambled to regain control on the legal foundations of the industry (Hijmans, 2016). Rule makers too are now willing to roll out stronger regulation in the domain of data protection and privacy as well as in other related domains. Yet, at the time of writing (May 2020), the personal data driven economy exhibits record breaking stock market valuations and continues attracting investments at a record pace.

From a legal and economic viewpoint, however, economic agents' and investors' failure to promptly adapt their business models to the emergence of substantial limits to personal data commodification is puzzling. As if a market could thrive despite the lack of sound legal foundations. This is tantamount to a form of legal 'exuberance' where, instead of conforming to emergence and evolution of laws', economic agents double down in their 'commodification bet' as if they could rely on some form of implicit 'legal bailout' in the rescue of an increasingly strategic industry. It is an effective example of the Collingridge dilemma that is well known in innovation studies (Collingridge, 1980), where the fact that massive reliance interests have accumulated upon the early property rights solutions within an industry, is regarded as a substitute for the absence of strong legal foundations.

This time, however, the reliance interests might be frustrated to avoid deeper institutional crisis and for the benefit of hierarchically superior legal interests. As a matter of fact, the growing divergence between rolling investments and participation in the data-driven economy, and the ongoing consensus shift within the judiciary are enlarging a period of legal fragility in the industry, with potential implications for the stability of the legal foundations of the personal-data-driven economy.

To make sense of the potential economic consequences of the anomalous functioning of the legal foundations of the industry, this paper articulates the theory of legal bubbles. The main intuition is very simple. Akin to speculative bubbles that are driven by institutional imbalances favoring the spread of over-inflated expectations on price stability and are fueled by herd behavior, the legal bubbles emerge from similar institutional imbalances – inside and outside the market process.

These asymmetries favor the spread of over-optimistic views on the stability of property rights over a new asset, which eventually become systemic. The misplaced expectations of securing stable property rights over a new resource may generate an industry-wide collapse once the value of investments is no longer protected by courts and the legal system. This paper claims that legal bubbles exist in the digital economy and the recent developments in the industry corroborate the hypothesis.

The approach followed in this paper hints at the analytic narratives method and is based on qualitative data on the main legal economic evolutionary patterns of the industry (see Leeson, 2020). In this frame, there is no pretense of conclusiveness, especially in tracing 'every turn in the evolution of the

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

law' enabling the commodification of personal data (see Pistor, 2019: X). The primary ambition is to spark debate, whereas further theoretical and quantitative analysis will be performed in due time.[1]

The remainder of the paper develops as follows. The second section reports the schematic facts leading to the rise and fall of what we call the personal data 'commodification consensus', up to the current state of disarray of the industry's legal foundations. The third section articulates the theory of legal bubbles and the fourth section provides the theoretical grounding on how a legal bubble can arise and evolve. The fifth section deals with the burst of the legal bubble and the sixth ties the theory to the notion of speculative bubbles in financial markets. The seventh section shares some remarks on the economics of legal instability. The last section concludes.

2. The case of the personal data driven economy

2.1 The rise of the industry

In the early days of the industry, the US legal system was the primary reference for any nascent company looking for legal rules applicable to most innovative activities in the digital sector. Personal data processing for commercial purposes was no exception, and with respect to it, the widespread perception was that 'laws are generally unclear on which constituency […] owns the right to collect, aggregate, disseminate, and use personal […] data for commercial purposes' (McKinsey, 2011). The data-driven economy was not deterred by this uncertainty, but on the contrary, exploited it since its early stages of development to its own advantage.

The sources of legal uncertainty were multi-fold (Chander, 2014), but they essentially revolved around two ostentatious legal unknowns. The first related to the possibility to create tradable entitlements over personal data – whose alienability was questioned since the beginning – through property by contract solutions. The second related to the existence of limits to the trade and the use of commodified personal data *vis-à-vis* interdependent hierarchically superior legal interests, other than those laid down by boilerplate contracts (Ben-Shahar, 2014). In both cases, the political choice was to avoid taking responsibility for elaborating a clear-cut decision with regard to this emerging industry (Sloan and Warner, 2014). Thus, the regulatory regime in place eluded the adoption of a clear position on the matter, delegating the clarification of any applicable legal rules and limits to courts.

The first legal question concerning the creation of tradable entitlements was positively managed through the adoption of open-ended norms and 'notice and consent' contracts. The core issue was finding the right balance between the economic interests attached to the commodification of personal data and the uncertainty regarding the potential harm caused to users' fundamental rights (Allen, 1999; Hijmans, 2016), the proper functioning of the democratic order as well as the functioning of competitive markets (Stucke and Grunes, 2016; Sunstein, 2017).

This approach was supposed to progressively reduce *ex-ante* sectoral specific rules and transfer 'the protection of privacy [and other rights] from the legal realm […] to the marketplace' (Rotenberg, 2001: 2). The implicit authorization to define the 'property rights by contract' solution over these new resources (Bygrave, 2015) offloaded 'the task of establishing how to manage risk and find optimal solutions onto controllers [i.e. economic agents], a task that may be challenging as well as costly' (EUAFR, 2020). In fact, it is true that economic agents were allowed to take the lead, and advance their favorite solutions, but that move was at their own risk. They faced the risk of *ex-post* rejection by the courts of the property rights solutions thus delineated, whenever they were found to be incompatible with the prevailing legal hierarchies. In turn, courts were left with the tough task of deciding how to solve *ex-post* emerging conflicts between 'property rights by contract' and the prevailing hierarchically superior rights (see Nicola and Pollicino, 2020).

[1]Legal bubbles lie at the intersection of economics and law. Such general and unifying theory inevitably comes at the cost of thorough elaboration on the various economic and legal aspects touched upon in the paper. Further research will disentangle the various aspects in economic and legal terms, respectively.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

Within this climate of legal uncertainty, leading tech companies have been competing over the control of the new resource and have been trying to seize dominant positions in the new industry (Srinivasan, 2019; Stucke and Grunes, 2016). The business model they relied on has been based on bulk personal data collection and commodification via 'notice and consent' contracts (Ben-Shahar, 2014), 'without much concern about social, economic, or legal consequences […] As the saying goes, it was better to ask for forgiveness than permission' (Chitkara *et al.* 2018: 8). In a textbook example of economic pressure to secure property rights over a new resource (Hodgson, 2015), economic agents have released suitable legal innovations to commodify privacy and personal data.

Entrepreneurs then tried to provide legal foundations to the new market and to this 'economic race' to gain users and market shares. They intended to turn a passing control over new resources into a stable, legally protected asset (Cole, 2015; Schwartz, 2004). The bid was twofold, as it also entailed the escape of as many legal limits as possible to the trade of personal data. In that phase, judicial recognition of their commodification claims was crucial, in order to rebuff sparse users' claims of privacy violations, contractual breaches, and claims for damages. The success of this attempt to secure robust legal foundations for their investments was contingent on, at least, two conditions.

First, a positive narrative had to be provided to the public, including judges and policymakers, to convey optimistic views about the possible consequences of commodification and self-regulation (Casilli, 2015). They, therefore, should be stressed on the beneficial effects of these disruptive innovations, as foreseen by the 'internet exceptionalism' doctrine that was already dominant in policy making (Kirkpatrick, 2010; Wu, 2010). The references to the 'end of privacy' and a 'transparent society' by leading companies played down the consequences of commodification on privacy and fundamental rights. The bid to downsize the legal relevance of personal-data protection and privacy has gone as far as to say that 'privacy may be an anomaly' from a historical perspective (Casilli, 2015; Hoffman *et al.*, 2018).

Second, these narratives had to be codified into legally persuasive arguments and contracts (Pistor, 2019). The 'terms of services and data use policies' adopted in the industry have become increasingly complicated and flexible (Bygrave, 2015: 95), but they substantially prioritized commodification claims over fears of subverting hierarchically superior rights. As Van Dijck argued (2013), 'Facebook's ideology of sharing has undergirded "new legal rulings concerning privacy and [users] accepting new forms of monetization" (Hoffman *et al.*, 2018: 202), on the assumption that "an acceptable overall trade-off between informational privacy and the benefits of information processing" was secured by their notice and consent contracts' (Sloan and Warner, 2014: 374).

The campaign was a success both in the economy and in courts (Chander, 2014). In less than a decade, the Big Tech companies have dominated the digital economy and the financial markets. Mark Zuckerberg was named Man of the year in 2010[2] and was regarded as a quasi-ruler in the field of social media (Kirkpatrick, 2010). On the spur of such technological enthusiasm, he declared that the protection of privacy no longer corresponded to the social norm,[3] because the praxis of sharing personal information had eventually become the default assumption in society (Tene and Polonetsky, 2014).

The widespread optimism about the legal implications of personal data commodification became entrenched in case law too. In fact, the majority of courts sided with the commodification claims by dismissing lawsuits that alleged the violation of 'consumers rights', 'consent breach', and 'violation of privacy expectations' (see Ballon, 2016). Moreover, the lack of experience about the way in which citizens and users may be exploited in the digital domain led to the widespread conviction that 'lack of an injury in fact' would have prevented any damage compensation.[4] Early concerns for the risks related to the unconstrained commodification propped in a minority of courts. However, the threat their rulings represented was dealt with through 'cheap out-of-courts settlements' (Ballon, 2016: 336). These settlements were considered the mere 'cost of doing business in today's digital economy' (Ballon, 2016: 418).

[2]Grossman, Lev (December 15, 2010). 'Person of the Year 2010: Mark Zuckerberg', *TIME*. For more information about Mark Zuckerberg's public influence see the *The Zuckerberg Files*.

[3]See Johnson, Bobbies (January 11, 2010) 'Privacy no longer a social norm, says Facebook founder', *The Guardian*.

[4]For an in depth recount of the rise of the 'commodification consensus' within the judiciary in the USA, see Ballon (2016). As to the UK and the European Union see Langhanke and Schmidt-Kessel (2015).

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

The 'codification' of optimistic views into case law resulted in the rise of contractually defined property rights over personal data (Noto la Diega and Walden, 2016). In other words, an expansive interpretation of contractual freedom made personal data the 'currency of the internet', used as remuneration for services within the industry (Langhanke and Schmidt-Kessel, 2015). In this context of 'commodification consensus', the legal protection of commodification claims spurred further investments in the industry and any attempt to establish stricter data protection rules was seen as an attempt to impose 'price control policies' (Fuller, 2018).

2.2 The faltering legal foundations of the industry

In recent years, as the industry has reached maturity, the 'commodification consensus' has started to wane. This has happened both with respect to the validity of users' consent to the transferring their personal data, and in terms of the commodification implications in terms of hierarchically superior rights. Big scandals such as Cambridge Analytica and Snowden's revelations[5] clearly exposed the negative implications of the commodification hype for the fundamental interests of the polity – democratic order, competition, and fundamental rights protection. Let alone the rising awareness of the degree of cyber insecurity exposed by several data breaches, threatening the actual protection of lawfully stored personal data. The wave of unintended consequences became clear and so did the degree of overestimation of the short-term gains in terms of liberty and autonomy against the losses in terms of prevailing legal interests that commodification implied (Morelli and Pollicino, 2020).

The optimistic narratives engraved in early case law crumbled under the ensuing political and social outcry, which debunked the myth of personal data commodification to achieve users' empowerment and democratization of the social discourse (Buchi *et al.*, 2020). Instead, the opposite became clear and the paramount role of privacy and data protection in a democratic market economy stood out with previously unseen clarity (Hijmans, 2016). The concerns have expanded to privacy issues, consumer law issues, and antitrust issues, and thus, started to shed light on the wider structural implications of the data-driven industry (Stucke and Grunes, 2016).

Consistent with this social and political awakening, courts have shifted their stance too.[6] They revised their early enthusiastic support of commodification claims and started clearing the way to collective redress actions across the USA. For instance, the most prominent American class actions were consolidated in multi-district litigation in California, reuniting all class actions across the USA with more than 70 million individuals linked to the Cambridge Analytica scandal. In this new phase, courts begin to reject the big techs' views on privacy protection, holding them wrong. Awarding damages for privacy violations.[7] On similar grounds, a collective action involving more than 7 million users was filed in Illinois, alleging that Facebook 'illegally collected and stored biometric data from millions of users without their consent', prohibited under the Illinois Biometric Information Privacy Act. Out-of-court settlements have reached much bigger orders of magnitude, as high as half a billion dollars.[8] At the time of writing, many other lawsuits appear to be in store.

In response to the raising legal turmoil affecting the US-based legal foundations of the industry, EU Courts have emerged as the guardians of privacy, data protection, and the prevailing order of

[5]See Graham-Harrison, Emma and Cadwalladr, Carole (March 17, 2018) 'Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach'. *The Guardian*.

[6]For instance, see Spokeo, Inc. *versus* Robins, 136 S. Ct. 1540, 1549 (2016). See also Yenouskas and Swank (2018).

[7]The lawsuit is still at the discovery stage. The importance of the lawsuits is illustrated by Judge Chabria's statement: 'Facebook's motion to dismiss is littered with assumptions about the degree to which social media users can reasonably expect their personal information and communications to remain private. Because Facebook's view of this issue pervades so many of its individual legal arguments – and because Facebook's view is so wrong – it is addressed at the outset': Facebook, Inc., Consumer Privacy User Profile Litig., MDL No. 2843 N.D. Pretrial order N. 20 Case 3:18-md-02843-VC Document 298 Filed 09/09/19 Page 10 of 71.

[8]See Patel *et al. versus* Facebook Inc., 9th U.S. Circuit Court of Appeals, No. 18-15982. Recently settled out of court for 550 millions of dollars.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

fundamental rights under the Charter of Fundamental rights of the EU *vis-à-vis* unconstrained personal data commodification (Hijmans, 2016). Over the last 6 years, EU courts have spearheaded courageous interpretations, and the Union has taken subsequent regulatory initiatives culminating in the General Data Protection Regulation, (EU Regulation 2016/679, also known as GDPR), which had a knock-on effect on global standards (Bendiek and Romer, 2019).

In particular, several groundbreaking decisions of the EUCJ have turned upside down the legal foundations of the market for personal data,[9] by clarifying the hierarchies between the legal interests involved. In these decisions, the EUCJ consistently established that 'the rights of the data subject override both the economic interests of search engines and those of the public in finding information' (Bougiakiotis, 2016: 314). Consequently, in one of its most recent decisions – the Schrems II case[10] – the EUCJ invalidated the administrative agreement called 'privacy shield'[11] made in the attempt to mitigate the consequences of an earlier EUCJ similar ruling on a previous administrative decision (Case C-362/14, Schrems), thereby sending further legal shockwaves across the industry (Krouse, 2018).

Along similar lines of reasoning, other state courts and independent authorities across the EU have endorsed the paradigm shift with a series of decisions.[12] For instance, in July 2020, the Bundesgerichtsof reaffirmed the decision of the German antitrust authority holding that 'contrary to Facebook's view',[13] consumers retain the right to privacy, despite the alleged silent assent to predatory contractual terms. The Italian top administrative Court (Consiglio di Stato) touched upon the *extra commercium* nature of personal data with unclear implications, thereby inflicting further blows to the commodification paradigm.[14]

Antitrust agencies both in the USA and in the EU have also changed their stance and have begun dismissing early optimistic views about the actual degree of competition within the data-driven economy (Khan, 2018; Srinivasan, 2019; Stucke and Grunes, 2016). On July 24th, 2019, the Federal Trade Commission fined Facebook with a record-breaking 5 billion dollar penalty for violating the Consent Order of 2012. In their announcement, the commissioners notably wrote, 'if you've ever wondered what a paradigm shift looks like, you're witnessing one today'.[15] Antitrust initiatives loom in the USA at both the State and Federal levels, with accusations of monopolist behavior within the personal data-driven industry. At the time of writing, antitrust agencies on both sides of the Atlantic are gearing up for unseen antitrust battles against some of the major big techs, which face a serious risk of being broken up.

These paradigm shifts coupled with the progressive constitutionalization of cyberspace are generating the balkanization of the internet. This in turn further jeopardizes the commodification

[9]For a thorough analysis of the groundbreaking decisions of the European Union Court of Justice on privacy and fundamental rights see Nicola and Pollicino (2020).

[10]Case C-311/18, Data Protection Commissioner *versus* Facebook Ireland and Maximillian Schrems, ECLI:EU:C:2020:559. This judgment of the Grand Chamber of the ECJ confirmed the primacy of privacy and data protection as fundamental rights, which must be protected even when personal data are transferred outside the EU. On the other hand, the Court held that the decision of the Commission on standard contractual clauses ('SCCs') for the transfer of personal data to processors established in third states was valid, in so far as under these clauses users are afforded a level of protection essentially equivalent to that guaranteed within the European Union by the GDPR, read in light of the Charter of Fundamental Rights of the European Union. Yet, also the validity of 'SCCs' is uncertain. On May 14, 2021 the Irish High Court dismissed Facebook Inc. legal challenge of the investigation launched by the Irish Data Protection on the compatibility of the 'SCCs' with the Schrems II case, thus generating further concerns in the industry See *Reuters*.

[11]The Privacy Shield was an administrative attempt to find a compromise between the protection of personal data of Europeans and the attainment of legal certainty for businesses transferring data to the USA–EU. See Krouse (2018).

[12]For instance, see: Italy, Delibera AGCOM, 29 November 2018, n. 27432; affirmed by Tribunale Amministrativo del Lazio, January 10, 2020, n. 261. France, Délibération n. SAN-2019-001, January 21, 2019, CNIL.

[13]German Federal Supreme Court, 23 June 2020, decision N. 80/2020 on Facebook *versus* Bundeskartellamt, affirming the decision of the Administrative body, BkartA, B6-22/16 at 671.

[14]Italy, Consiglio di Stato, Decision March 29, 2021 n. 2631.

[15]FTC Press release for the FTC decision, July 24th, 2019. Civil Penalty on Facebook. In the Matter of Facebook, Inc. 092 3184 182 3109 C-4365, civil action number 19-cv-2184.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

consensus, and highlights growing geopolitical tensions over the transatlantic flow of personal data (Nicola and Pollicino, 2020; Schwartz and Peifer, 2017). The bottom line is that violent shock waves are shattering the legal foundations of the industry,[16] and that litigation is spiraling out of control over the 'chain of title' of personal data.[17]

The 'fundamental questions about what data companies can collect about individuals, what they can do with them, and the circumstances under which they can be disclosed to third parties, will be shaped to a great extent through civil litigation' (Demarco and Fox, 2019: 1017), with persistent legal uncertainty and potential *ex-post* facto legislation. In light of the different stances of courts and rule makers, the digital ecosystem appears to have long reached a 'boiling point', with concerns over the apparent activity of 'trading fundamental rights' (Buttarelli, 2018; Flórez Rojas, 2016).

The belated attempts of the industry leaders to self-regulate the tradability of data are falling short. The kind of contractual changes being adopted along with the chain of titles over personal data, justifies the suspicion that big techs are attempting to limit personal data commodification at the sole expense of the downstream economic agents. There are even doubts that these unilateral contractual changes may amount to antitrust infringements.[18] The dilemmas arising from competitive, fundamental rights, and political aspects of personal data commodification are further signals of the instability of the commodification consensus.

Likewise, the legislative branches across both the EU and the USA are still struggling to find a balanced approach to commodification *vis-à-vis* the protection of fundamental rights as suggested by courts and much of the legal community (Marciano *et al.*, 2020). Even after the legislative initiatives within the EU, the regulatory model has not changed in substance, and 'legal certainty and a favorable investment climate […] does not yet exist' (Kop, 2021: 2).

In the face of such an evolving scenario, courts remain the keepers of the legal system and are consistently shifting toward establishing a higher level of protection of fundamental rights, fair competition, and democratic order with retroactive revision of their early interpretations (Nicola and Pollicino, 2020). And yet, economic agents keep investing in the essential resource of personal data (Kop, 2021), as if the legal foundations of the industry were stable, or the courts were sooner or later to give in. Their entrepreneurial attempts at convincing courts not to decide against the commodification and trade of personal data have not stopped,[19] and little has been done by most of them to adapt to the emerging reshaping of the legal foundations of the market (Krouse, 2018).

3. The (re)making of the legal foundations of innovative markets

3.1 The legal-economic puzzle

The previous section outlines how economic agents have been making investments into this novel industry, on the spur of the assumption that courts would have backed their claims over the new assets and turned their technological control into legally protected property rights. In particular, the

[16]The boiling scenario is exemplified by the recent collective complaints filed against 101 companies, for the alleged violation of users' fundamental rights of privacy by transferring them to the USA. To keep track of the several collective lawsuits and complaints see www.noyb.eu. As to the USA see the already mentioned in re Facebook, Inc., Consumer Privacy User Profile Litigation. For complete schedule see Pretrial Order no. 32: Case Management schedule.

[17]Litigation is also spiraling at the B2B level. See, for instance, Six4Three that commenced its action in April 2015, filing a complaint against Facebook alleging that the policy change concerning the sharing of users' personal data had destroyed its business in *Six4Three, LLC versus Facebook, Inc.*, A154890, 3 (Cal. Ct. App. Sep. 30, 2019). For a similar cases see also PeopleBrowsr, Inc. *versus* Twitter, Inc., Case No. C-12-6120 EMC, 2012 WL 7070542.

[18]Taylor, Josh (February 13, 2021) 'Facebook *versus* Apple: the looming showdown over data tracking and privacy', *The Guardian*. See also, Morrison, Sara (March 3, 2021) 'Google is done with cookies, but that doesn't mean it's done tracking you', *Vox.com*.

[19]See for instance: Hern, Alex (September 22, 2020). 'Facebook says it may quit Europe over ban on sharing data with US' *The Guardian*. It is also significant that many firms were slow to adapt to the new statutory legal enacted with the GDPR. Up to 92% of European businesses were unprepared for the entry into force of the GDPR, despite looming fines and stringent requirements: see www.prnewswire.com.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

combination of entrepreneurs' bets and courts' temporary legal support to commodification claims has paved the way for the rise of the 'commodification assumption' in the industry, which is based on the dominance of optimistic thinking both in courts and in the economy.

Admittedly, the analysis concentrates on entrepreneurs' and courts' learning dynamics, while leaving the users' role on the background even if it plays an obvious role in catalyzing these evolutionary dynamics. In fact, users' role has mainly been reactive to the changing institutional environments. That is because entrepreneurs' prototypation of legal innovation has rarely been negotiated over by users (Rubinstein and Good, 2013; Stucke and Grunes, 2016), and that courts' decisions have been the main filter of legal innovation for many years now. It is no accident if some observers have described users' condition as a 'take it or leave' situation, when forms of 'private legislation' ruled out any form of meaningful negotiated agreements (Bygrave, 2015).

In this context, entrepreneurs and courts are central. Especially, the role of courts is pivotal as they are the ultimate arbiters of the validity and the compatibility of any legal innovation with the legal order. At the level of the judiciary, over-optimistic expectations related to the fitness of property rights by contract solutions have triggered a form of 'legal innovation hype', thus generating a temporary consensus on the constructive legal implications of personal data commodification. Thus, in turn reinforces economic agents' reliance on the apparent stability of the legal foundations of the soaring industry.

However, this form of stability has proved to be only apparent. Because akin to any hype cycle (O'Leary, 2008), courts' views have eventually shifted from 'over-inflated expectations' to a 'trough of disillusionment', when the actual characters of a legal innovation come to light in one with the unintended legal implications of unconstrained commodification. As a result, the same reinforcing dynamics that originally gave rise to the emergence of the commodification consensus eventually turned into disruptive loops.

The courts have been revising their earlier views retroactively, thus jeopardizing the stability of the legal foundations of the commodification assumption. Nevertheless, economic agents are acting as if the emerging instability of their legal entitlements at the core of their business model did not harm their investments. As a matter of fact, the gradual and consistent divergence between expectations of legal protection held by economic agents and the actual legal practice in courts is opening a period of legal fragility with potential disruptive economic effects. The larger the time lag, the worse for the economy once the alignment occurs between over-inflated legal expectations and the actual legal foundations of the industry.

In hindsight, the acts of doubling down by the economics agents are sort of 'commodification bets' rather than conforming to the emerging laws, which are somehow surprising in at least two aspects. First, because their complacency defeats the common view about the constitutive role of property rights in the economy (Deakin *et al.*, 2017), as if a market could thrive and value be secured despite unstable legal foundations (see Pistor, 2019). Second, because it is incompatible with the rational choice models which equate legal rules to prices that form economic agents' opportunity sets (Engel *et al.*, 2018; Medema and Mercuro, 2006: 104). If the rules are substantially changing, even more so when change is retroactive, there is no apparent economic reason for economic agents not to adapt (Medema and Mercuro, 2006: 102). That is true insofar that we do not acknowledge, there are 'anomalies' in place in the way the order of actions and the order of rules (fail to) adjust.

If that is the case, there is no comprehensive theory to explain the legal-economic rationale and implications of such an unresponsive systemic behavior. This paper thus advances the theory that these anomalies can be understood as 'legal bubbles'. The theory based on this notion aims at explaining how a form of systemic overlook of the economic implications of legal dynamics can arise at the core of innovative markets. Recent developments seem to corroborate the hypothesis that one is developing in the data-driven economy.

3.2 Legal bubbles for the digital economy

The rationale behind the theory is indeed rather simple. Legal rules and the price system are both coordination mechanisms in place within the market economy, although they serve different functions

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

(Cooter, 1984). In this perspective, they both concur to establish the value of economic activities (Pistor, 2019). Yet, when their functioning is heavily reliant on over-inflated expectations, they can both be exposed to bubbles-wise phenomena with the consequence of systemic misallocation of capital and economic disruption. Moreover, unlike the price system, the evolution of legal rules and the stability of their outcomes are subject to *ex-post* courts' judgment, which adds an additional layer of instability and uncertainty. If that is the case, in a context of uncertainty and ignorance about the legal implications of innovative activities, legal bubbles are prone to arise in the economy.

Legal bubbles emerge when economic agents plan their economic actions for a new resource, in light of property rights provisionally granted by courts which are unduly regarded as stable. In fact, the initial feedback between economic agents' legal bets and courts' support reinforces systemic over-optimism, which leads to an overlooked widening of legal fragility of the innovative market.

That gives rise to a period of accumulation of expectations about the possibility of securing robust property rights over the newly discovered resource, without much concern for the stability of the legal foundations over time. Eventually, courts begin revising early property rights solutions as described in the previous sections. Such a shifts, generates an institutional change that paves the way for the waves of consumers' litigation, government pressure and further strategic actions aimed at taking advantage of the reaffirmation of hierarchically superior legal interests.

In fact, courts' revision enacts a form of unexpected retroactive reassignment of legal entitlements within the innovative industry. Thus, the possible consequence of which the economic agents find themselves with unexpected losses relating to past transactions, which were performed at the time when the then prevailing legal consensus appeared to allow is now leading to liabilities. Moreover, many economic agents may find themselves stuck in a business model at the core of which lies the economic exploitation of resources whose commodification has become highly restrained if not entirely prohibited. Such a reshaping elicits a substantial destruction of economic value in ways similar to speculative bubbles.

4. The legal and economic theoretical framework for the growth of legal bubbles

4.1 Entrepreneurs' commodification bid of newly emerging resources

Entrepreneurs must plan their economic activities by facing a certain degree of legal uncertainty (Lamoreaux, 2011; Lehavi, 2013; Nicita *et al.*, 2007). That is particularly true in the context of technological innovation, when the innovative activities are based on a newly discovered resource or technology surrounded by strong economic interests attached to its commodification and little consensus as to how to legally categorize the new relationships (Barzel, 1997; Bell and Ibbetson, 2012; Hodgson, 2015).

Since there is no specific legal provision to regulate the new resource or activity, entrepreneurs must experiment with both the economic and the legal dimension of innovation by combining the existing legal materials in innovative ways (Bell and Ibbetson, 2012; Graziadei, 2009). They press ahead to exploit the new resource and create an institutional environment that is functional to market their innovations, including favorable legal innovations to be codified in case law (Dekker and Kuchař, 2019; Kuchař, 2016). The entrepreneurs' incentive structure favors the release and adoption of audacious and risky legal innovations coupled with narratives to play down the risk of harming the prevailing order of rights.

Entrepreneurs usually do so by releasing 'property rights by contract' solutions to turn their actual control over the new resource into a legally protected claim to it (Pistor, 2019; van Erp, 2015). The success of both the legal and the economic dimension of their innovation rests on a substantial degree of persuasion whereby narratives and frames play a substantive role (Hedoin, 2019; Goff, 1987; McCloskey and Klamer, 1995). In fact, entrepreneurs are not only rule takers, but they are foremost rule shapers (Kuchař, 2016, see also Pistor, 2019). In its theory of economic change, Schumpeter (1934) saw the 'producer as being responsible for educating a submissive public into wanting new products and accepting change (…)'. In doing so entrepreneurs are 'innovators on a grand scale, their

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

actions contributing to the "creative destruction" of entire industries' (Horton, 1999). Such performative role is not confined to economic preferences as it extends onto the innovation of institutional and legal dimensions (Hedoin, 2019).

In fact, 'entrepreneurs must come up with institutional innovations to "help dismantle cognitive, legal and political obstacles, letting the market-supporting institutions emerge"' (Kuchař, 2016: 351). Legal innovations must be primarily 'sold' to rule-makers, with courts becoming their main target of the persuasive bids. That is especially true for management-based regulation (Bonnin Roca *et al.*, 2017), whereby agents themselves lay down the foundation for the new activities via 'property rights by contract' subject to *ex-post* courts' scrutiny (van Erp, 2015). In this view, the supply of over-optimistic narratives – e.g. the 'end of privacy' or the 'transparent society' – is instrumental to the shaping of the legal environment favoring the newly emerging activities.

Moreover, entrepreneurs can avail themselves of further litigation management options to influence courts' decisions and have their narratives used as normative interpretive tools. As they are repeated players, they enjoy a high stock of knowledge and access to specialized attorneys and they can also 'play for the rules' rather than play for the outcome of every single case (Galanter, 1974). Hence, they can also play for establishing favorable rules rather than only focusing on single cases' monetary outcome.

This strategic hedge allows them to favor the creation of favorable precedents and makes them more influential in the way consensus is formed within the judiciary. They can partly control which legal views are to be made public first, while keeping private unfavorable views through the recourse of out-of-court settlements. If their commodification bets are successful, they would secure property rights over new resources and influence the legal incentives in a way it attracts further economic agents and investments.

4.2 Courts' duty to decide and the legal innovation hype

Courts are the keepers of legal systems and are entrusted with filtering out those economic agents' legal solutions they find legally unsound. They must do so despite their lack of adequate knowledge and interpreting tools to gage the actual implications of the new reality. Which is often the case in a world of increasing technological complexity (Macey, 1989: 97), when courts lack both the knowledge to immediately form their judgments and the ability to anticipate all the legal implications of property rights solutions advanced by entrepreneurs (Mandel, 2017; Zywicki and Boettke, 2017).

Moreover, because no fully formed legal doctrine, sector-specific statute or legal scholarship are available, they must at a large extent rely on speculative and 'mutually exclusive theories that [are] of little practical use' (Bennet, 2019: 754).

The result is that courts find themselves in an unpleasant position. On the one hand, they have to learn about the underlying reality in order to formally articulate their judgments in a way 'to achieve an intellectually satisfying body of rules and principles' (Bell and Ibbetson, 2012: 163; see also Graziadei, 2009). On the other hand, they must solve conflicts around the new resources, without the possibility to avoid deciding upon the opposing claims, just because they haven't formed their views yet.

They must do so under entrepreneurs' pressure to secure legal protection for their investments, with the high risk of hampering innovation with no guarantee of effectively defending fundamental rights if their earlier decisions turn out to be too strict on personal data commodification (Chander, 2014). As a result of such a context, courts face an asymmetric cost structure when it comes to deciding whether to back a legal innovation or not.

In fact, the way in which their views are expressed in the case law is influence by the fact that 'going short', i.e. filtering out, a newly emerging solution, is more costly than embracing it. No wonder if legal literature acknowledges that courts tend to be 'blinded by spectacular technological achievement and consequently neglect the underlying legal concerns' (Mandel, 2017: 235), insofar entrepreneurs offer a persuasive enough interpretive frame (Sayo' and Ryan, 2016).

In this view, entrepreneurs' ability to offer optimistic views is instrumental to factually justify their claims that property rights by contract solutions do not harm any fundamental legal interests.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

The adoption of these interpretive frames is favored by the fact they are cognitively cheap as they allow to 'take only a limited number of factors into serious consideration' (Simon and Scurich, 2013: 419), without taking any political risk connected to challenging the emerging consensus (Lessing, 1996: 874, Tokson, 2015).

Moreover, group dynamics may favor the diffusion of early solutions, because they make conformism socially rewarding and cognitively cheap. The more the courts are showing support to the legal innovation, the higher the costs of opposing it, due to the network effect that is attached to legal doctrines in the legal decision making (see Harnay and Marciano, 2006). That is especially true when such frames allow courts not 'to rethink the merits of a particular legal doctrine' and thereby save cognitive, writing and persuasive costs (Macey, 1989: 71).

These incentive structures pave the way for 'precedential cascades' (Daughety and Reinganum, 1999; Harnay and Marciano, 2006; Talley, 1999), with the result that optimistic views are incorporated in early legal decisions, become normative and rapidly spread within the judiciary (Sayo' and Ryan, 2016). Hence, the over-inflated narratives get hyped, thus becoming the reference for the analysis of the emerging legal issues (Morelli and Pollicino, 2020).

Collective enthusiasm, however, may come to a 'trough of disillusionment' especially if early decisions were based 'on unrealistic empirical assumptions' (Petersen, 2013), being corroded by learning and experience (Arruñada 2020). As courts learn and the practical implications emerge they may turn more activists and revise their decisions (Arruñada, 2020; Morelli and Pollicino, 2020). As a result, courts' conditional sustain to legal innovation remains precarious and potentially be revoked insofar courts have adequately learned and collectively gaged its implications in terms of the prevailing legal order.

4.3 Temporary appearance of legal stability

The peak of the legal innovation hype inside the judiciary corresponds to the maximum of cost asymmetry in the market in favor of optimistic views, thus creating the condition for the legal bubble to form. Such an asymmetry can persist for some time, despite disillusion and dissatisfaction with the prevailing legal solution spreads within the group (Kuran, 1989: 42). This phenomenon aggravates the potential economic fallout for economic agents because it delays the public disclosure of the newly emerging legal consensus.

In fact, the revision of the prevailing legal rules cannot occur overnight nor immediately (Büchi *et al.*, 2020). Due to the political and social dimension of legal adjudication and legislative evolution (Harnay and Marciano, 2006; Tokson, 2015: 923), the majority of courts may be reluctant 'to take the lead in publicizing their opposition' (Kuran, 1989: 42) to the prevailing property rights solutions. As a result, even in the presence of rising privately held opposition to the prevailing legal regime, courts may not immediately change their decisions and a 'spiral of silence' begins (Noelle-Neumann, 1974). In this context, judges monitor the social environment and retain opinions that benefit of widespread consensus – at least for some time (Tokson, 2015).

'A window of fragility opens up when the economy remains temporary stuck in a sort of 'lock-in' equilibrium where [better considered legal] innovation never spreads' (Bogliacino and Rampa, 2012) or spreads more slowly than it would if group dynamics were not in place. The result is that economic agents find themselves planning their investments on precarious entitlements.

5. How legal bubbles pop up

5.1 The breaking of apparent consensus within courts

The burst of a legal bubble is sparked by the collapse of a consensual order within the judiciary, which in turn triggers a fallout of litigation because of economic agents' reaction, although delayed, to the newly emerged incentive structure (see Dughera and Giraudo, 2021). The burst of the bubble tends

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

to originate within the judiciary, when unforeseen events contribute to the undoing of the prevailing legal consensus. As it is typical of group deliberation processes (see e.g. Kuran, 1989), the shifts in the way legal entitlements are assigned and protected sometimes need a 'spark' to trigger the change (Goff, 1987).

In the legal domain, external shocks as contributing factors are not rare. Public scandals or incidents expose tensions and disagreements concerning the prevailing legal regime (2016; Van Elten and Rehedera, 2020). Such an input can legitimize and help a judge to take leadership in publicizing opposition to the prevailing consensus (Friedman, 2006), thereby eliciting others to follow.

As a result, forms of legal 'prairie fires' à la Kuran (1989) may erupt. Courts then start enforcing their revised views retroactively to past facts. The activation of cascades similar to those that at first favored the adoption of the now rejected early solution marks a turn in the sequence of events. New legal rulings rapidly spread, thus amplifying the ensuing investment debasement. In turn, users' oscillating strategies in response to the new courts' activism fuel the evolution of the bubble through litigation in courts (see Dughera and Giraudo, 2021).

5.2 The delayed adaptation of economic agents

If change is both fast and retroactive economic agents have little chance to divest from the industry in an orderly fashion, and thus significant economic disruption becomes unavoidable. When 'rule makers speak and nobody listens' (Engel *et al.*, 2018: 1), economic disruption is further exacerbated, as it happens –when most economic agents overlook early signals of the legal shift, thus delaying the prompt adaptation of their business models.

It may take years before newly announced legal rules are widely followed (Engel *et al.*, 2018), even if potentially disruptive in their implications. The literature on institutional change explains that the acquisition of information is not enough to learn that something has changed and act upon it (Hodgson, 1998). Information about changes requires implementation by individual agents to learn the behavioral implications of the new entitlements structure and trust it (see Engel *et al.*, 2018: 1), which is not obvious or costless.

Gathering knowledge about the normative implications of legal change is costly, as experts and information are expensive (Macey, 1989: 100). As a result, not all economic agents equally learn about the legal change, or uniformly invest in legal expertise to anticipate possible legal implications of such change. In fact, in the legal domain as well there are 'muppets' and 'gazelles' (Nightingale and Coad, 2014; see also Engel, 2008: 8). Only the market leaders, who have already invested heavily in the edification of the legal foundations of the industry, possess knowledge and resources to effectively monitor the evolution of law, and possibly anticipate any undesired change so as to minimize any economic adverse impact (Engel, 2008; Kutchar, 2016).

The group of followers, instead, learn the law in terms of behavioral expectations on them, by imitating exemplars, or following the social mirror rule present in their environment (Engel, 2008: 287). They autonomously react only to those decisions that directly involve them. As a result, followers, tend not to anticipate changes, even if they might access information about case law (Macey, 1989), and are more prone to be caught unprepared by legal shifts that are already underway.

5.3 The retroactive revision of legal entitlements and the possibility of unexpected liabilities

When courts announce a new rule, its retroactive impact can be limited. This is possible under the 'prospective overruling doctrine' (Beswick, 2020: 279). This judicial technique is adopted especially when the social and economic relevance of the reliance interests are big. The retroactive reshuffling of property rights is particularly relevant in economic terms because such rights 'are typically treated as merely a recognition of what the law has always been' (Calabresi, 2018: 164; Chen, 2016), meaning that the shifts 'affect conduct that already has occurred' (Macey, 1989: 100). Thus, the retroactive

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

application of new rules may generate the emergence of unexpected liabilities relating to past transactions, while also making it necessary to set reserves aside to cover the previously overlooked legal risk.

For this reason, courts tend to preserve reliance interests as much as they can, when the economic and social implications of retroactivity would have unacceptable destructive effects for entire industries (Tritt-Lee Ford, 2016). As Collingridge pointed out (1980), it is typical at the early stages of development of any new technology for rule makers not to know about how to properly gage the implications of the new activities. This is the reason for their initial support to the consequent legal innovations which are based on mere expectations, if not mere guesses. By contrast, when the undesirable consequences are discovered, the degree of penetration within the economy and society is already so profound that it tends to shield the industry from any hindsight attempt to re-regulate it (1980).

If that is the general rule, there are exceptions. That is especially the case in the domain of technological innovation (Martini, 2020), where *ex-post* facto solutions are more frequent than expected. In some cases, rule-makers may not be willing to legally bail-out the new industry if it's doing it away with fundamental legal interests of the polity, thereby generating an unforeseen constitutional crisis (Beswick, 2020). In those circumstances, courts prioritize the survival of legal order over the preservation of the economic interests, with the acceptance of the ensuing economic disruption.

6. A parallel with speculative bubbles

Manifestly, the notion of legal bubbles hints at the idea of speculative bubbles, the 'treacherous' term referred to by E. Fama and many advocates of the efficient market theory (2014). There are different positions about what are the speculative bubbles, why they exist, as well as on their rationality (Himmelberg *et al.*, 2005; Le Roy, 2004). It is not the intention of this paper to solve these issues. The idea is rather that of tying legal bubbles to the specific account of speculative bubbles advanced by Scheinkman (2014), who relates the awakening of speculative bubbles to structural institutional imbalances at the core of financial markets. Scheinkman's intuitions can work as a template to explain the governing institutional dynamics at the core of legal bubbles.

The assumptions of Scheinkman's model are as simple as compelling, in the presence of uncertainty and radical innovation in the economy, the value of new activities is mainly driven by optimistic views about future payoffs, which tend to be over expressed in the market, irrespective of the actual distribution of beliefs (Scheinkman, 2014: 8). The main reason for that is the 'fluctuating heterogeneous beliefs among investors' and that there is 'an asymmetry between the cost of acquiring an asset and the cost of shorting that same asset' (Scheinkman, 2014: 8). The transactional costs and legislative limits to short selling distort the incentive structure in favor of long position, because cost 'asymmetry between going long and going short on an asset implies that optimists' views are expressed more fully than pessimists' views in the market' (Scheinkman, 2014: 8).

These simple assumptions, which are far from being standard in the literature on asset pricing, explain why the prevailing views on prices are biased upward irrespective of the normal distribution of the beliefs among investors as well as of the fact that uncertainty about the economic value is substantial. Admittedly, the cost asymmetry alone is not the only factor to affect the evolution of the latter. Scheinkman's model overlooks feedback mechanisms and the importance of 'precipitating factors' which are surely at play and contribute to generating over-excitement in some investors, whose views then easily spread (Scheinkman, 2014: 11; see also Shiller, 2006). Yet, the core message of his account is that from an institutional asymmetry perspective, the over-expression of optimistic views drives the arrival of the speculative bubbles, once a precipitating factor occurs.

On closer inspection, similar cost asymmetries affect the evolution of legal bubbles, although in a peculiar way, as their dynamics depend on the interactions between entrepreneurs' persuasive bids and courts' oscillating views. In fact, in legal innovation, the costs of expressing economic agents' views on the stability of new legal solutions are mainly defined by the way courts adjudicate legal cases, which in turn is initially influenced by dominant narratives in the economy. Hence, the way courts are keen to

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

balance conflicting claims over a new resource defines the cost structure of expressing legal views in the market. Whether they favor some and not others economic agents' expectations and claims create asymmetric costs.

If courts' decisions are overly positive about the legal implications of legal innovation, the legal incentive structure favors the expression of positive views on the stability of the newly emerging legal rules. As a result, even if legal uncertainty is still present, the views of those economic agents that are skeptical about the probability of success of legal innovation, in the long run, are poised not to be fully expressed in the market. By contrast, if courts shift their views the cost asymmetry in the market changes with the ensuing reversal of the incentives structure in the economy.

Although they present similarities to speculative bubbles in terms of cost asymmetries, regarding the legal bubbles, the cost asymmetry itself can change over time, and subsequently disappear entirely. In fact, the institutional imbalance at the core of the legal bubble is determined by the uneven evolution of the way courts adjudicate cases, which itself is determined by social learning and bubbling group dynamics.

7. Some remarks on the economics of legal instability

The theory of legal bubbles claims that in the face of legal uncertainty, institutional imbalances, learning, and group dynamics have favored legal innovation bets at the core of the digital economy as an innovative market. However, the shift in the way courts apply legal rules to the emerging reality is not entirely explained by these factors alone. As a matter of fact, these swings are due to multiple and interdependent reasons that cannot all be addressed here.

For instance, the alternate fortunes of the commodification consensus can be characterized as a story of courts capture (in general, see Kaufmann and Vicente, 2011), where the prevailing vested interests of either side of the conflict used the courts' system to expropriate the wealth created by successful entrepreneurs. Indeed, the data-driven economy is a form of transition economy in which the role of courts is substantial in the formation of the applicable legal framework (see e.g. Hellmann *et al.*, 2003). Obviously, the way courts apply fundamental rights and other prevailing legal interests also becomes a source of internal political and economic confrontation. Further exploration of the reinforcement between such vested interests and courts' learning patterns may shed more light on the political and economic forces pacing the evolution of legal bubbles.

However, due to its limited scope, this paper concentrates on the knowledge problem and uncertainty relating to the legal implications of the data-driven economy and emphasizes the learning processes generating legal instability. Yet, the law is a form of mediated action (Graziadei, 2009), where shared knowledge and persuasive use of rules is a preliminary condition for stable legal evolution (Grief and Mokyr, 2017). If the interplay between the legal rules, the newly emerging reality, and the broader shared cognitive rules are not well understood, the legal foundations of markets is at risk of being unexpectedly unsettled (Zywicki and Boettke, 2017).

Moreover, uncertainty hampers legal stability for another reason as well: because it prevents Coasean bargaining over the newly discovered resources. First, Coasean bargaining is unavailable when legal entitlements are not clearly defined, nor their alienability well established (see Nicita *et al.*, 2007). As a result, any bargaining is conditional on learning and consensus dynamics within the judiciary, as courts may eventually reassign previously negotiated entitlements. Second, the users' impossibility to assess the economic value of what is exchanged, as well as the companies' actual use of personal data, undermines the contractual framework as the proper legal tool to effectively transfer entitlements over personal data. That framework remains highly disputed (Ben-Shahar, 2014; Jolls, 2013).

In fact, the validity and relevance of consent given to innovative terms and conditions advanced by leading entrepreneurs are highly disputable both in legal terms (Sloan and Warner, 2014; Tene and Polonetsky, 2014), and economic meaning (Acquisti *et al.* 2015; Garbaix and Laibson, 2006). The very nature of the legal interests involved, fundamental in nature and mandatory in their application,

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

makes it that: 'the legal framework remains one of balancing of the two substantive interests rather than a simple on-off switch of "consent"' (Jolls, 2013: 1,696). In this frame, the governing legal dynamics are rather defined by courts' evolving consensus about how to balance the legal interests involved, than by vague contractual negotiations over unstable entitlements between dominant platforms and users (see Jolls, 2013; see also Buchi *et al.*, 2020).

8. Conclusion

This paper traces the main legal-economic dynamics underlying the rise of the personal data-driven economy and argues that a legal bubble has characterized its development so far. A legal bubble is elicited by a form of 'legal innovation hype' inside the judicial system, whereby rapid consensus emerges on the spur of over-inflated expectation on the validity of legal solutions, which in turn reinforces investments within the industry. This opens the door to the possibility of a downturn, and eventually of a disruptive loop.

A period of legal fragility appears to be open as the burst of the bubble follows courts' gradual, continuous revocation of their support to commodification claims, with little space of maneuver for rule-makers to legally bailout the industry. This example shows how courts' failure to properly filter and stabilize legal innovations can have unintended economic consequences on the innovative services they originally allowed.

Awareness of the existence of such consequences is essential at a time where tumultuous technological innovation may fuel various legal bubbles. Face recognition, biotechnology, and artificial intelligence are only some of the disruptive technologies that are at risk in this respect. Since the full spectrum of their unintended consequences is largely unforeseeable in terms of threats to fundamental rights and other hierarchically superior legal interests, economic agents should explore innovative forms to hedge against the risk of legal bubbles, either through innovative forms of insurance, or by way of alternative financial hedge. In turn, regulators should find institutional innovations to reduce costs asymmetries that favor the over-representation of one-sided views on the legal implications of innovative solutions. They should favor the emergence of more balanced and grounded, shared legal expectations.

Institutional bubble-wise phenomena are there to remind us that innovative markets are contingent on the innovative legal solutions they use, and on their grounding. As long as their legal foundations are not properly settled, the economic value thereby generated and exchanged remains at risk. Exuberance is not enough to build a prosperous future. The need to preserve the coordination function of prices as well as the stabilizing features of legal rules should be taken seriously.

References

Acquisti, A., L. Brandimarte and G. Loewenstein (2015), 'Privacy and human behavior in the age of information', *Science*, **347**(6221): 509–514.

Allen, A. L. (1999), 'Coercing Privacy', *William & Mary Law Review*, **40**(3): 723–750.

Arruñada, B. (2020), 'The Impact of Experience on How We Perceive the Rule of Law', *Journal of Institutional Economics*, **16**(3): 251–269.

Ballon, I. C. (2016), 'Cyber Boot Camp: Data Security at the Intersection of Law and Business', in I. C. Ballon (ed.), *E-Commerce and Internet Law: A Legal Treatise with Forms*. Thomson Reuters, pp. 354–418.

Barzel, Y. (1997), *Economic Analysis of Property Rights* (2nd edn), Cambridge: Cambridge University Press.

Bell, J. and D. Ibbetson (2012), *European Legal Development: The Case of Tort*, Cambridge: Cambridge University Press.

Ben-Shahar, O. (2014), 'Regulation Through Boilerplate: An Apologia', *Michigan Law Review*, **112**(6): 883–904.

Bendiek, A. and M. Römer (2019), 'Externalizing Europe: The Global Effects of European Data Protection', *Digital Policy, Regulation and Governance*, **21**(1): 32–43.

Bennett, T. D. C. (2019), 'Triangulating Intrusion in Privacy Law', *Oxford Journal of Legal Studies*, **39**(4): 751–778.

Beswick, S. (2020), 'Retroactive Adjudication', *The Yale Law Journal*, **130**(2): 275–545.

Bogliacino, F. and G. Rampa (2012), 'Quality Risk Aversion, Conjectures, and New Product Diffusion', *Journal of Evolutionary Economics*, **22**(5): 1081–1115.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

Bonnín Roca, J., P. Vaishnav, M. G. Morgan, J. Mendonça and E. Fuchs (2017), 'When Risks Cannot be Seen: Regulating Uncertainty in Emerging Technologies', *Research Policy*, **46**(7): 1215–1233.
Bougiakiotis, E. (2016), 'The Enforcement of the Google Spain Ruling', *International Journal of Law and Information Technology*, **24**(4): 311–342.
Büchi, M., E. Fosch-Villaronga, C. Lutz, A. Tamò-Larrieux, S. Velidi and S. Viljoen (2020), 'The Chilling Effects of Algorithmic Profiling: Mapping the Issues', *Computer Law & Security Review*, **36**(10): 53–67.
Buttarelli, G. (Speech, Brussels, March 20, 2018) Speech to LIBE on Annual Report 2017.
Bygrave, L. A. (2015), *Internet Governance by Contract*, Oxford: Oxford University Press.
Calabresi, G. (2018), 'Reflections of a Torts Teacher on the Bench', *Journal of Tort Law*, **11**(2): 161–172.
Casilli, A. (2015), 'Four Theses on Digital Mass Surveillance and the Negotiation of Privacy.' 8th Annual Privacy Law Scholar Congress 2015, Berkeley Center for Law & Technology, Jun 2015, Berkeley, United States. halshs-01147832.
Chander, A. (2014), 'How Law Made Silicon Valley', *Emory Law Journal*, **63**(3): 639–694.
Chen, H. (2016), 'Balancing Implied Fundamental Rights and Reliance Interests: A Framework for Limiting the Retroactive Effects of Obergefell in Property Cases', *University of Chicago Law Review*, **83**(3): 1417–1457.
Chitkara, R., M. Gloger and M. Mccaffrey (2018), *Technology Trends 2018/19. Address the risks and disruptive potential of products and services*, London: PriceWaterhouseCooper.
Cole, D. (2015), 'Economic Property Rights' as 'Nonsense upon Stilts': A Comment on Hodgson', *Journal of Institutional Economics*, **11**(4): 735–730.
Collingridge, D. (1980), *The Social Control of Technology*, New York, London: Pinter, St. Martin's Press.
Cooter, R. (1984), 'Prices and Sanctions', *Columbia Law Review*, **84**(6): 1523–1560.
Daughety, A. F. and J. F. Reinganum (1999), 'Stampede to Judgment: Persuasive Influence and Herding Behaviour by Courts', *American Law and Economics Review*, **1**(1–2): 158–189.
Deakin, S. F., D. Gindis, G. M. Hodgson, K. Huang and K. Pistor (2017), 'Legal Institutionalism: Capitalism and the Constitutive Role of Law', *Journal of Comparative Economics*, **45**(1): 188–200.
Dekker, E. and P. Kuchař (2019), 'Lachmann and Shackle: On the Joint Production of Interpretation Instruments', in L. Fiorito, S. Scheall and E. Suprinyak (eds), *Research in the History of Economic Thought and Methodology* 37, Bingley: Emerald Publishing Limited, pp. 25–42.
DeMarco, J. V. and B. A. Fox (2019), 'Data Rights and Data Wrongs: Civil Litigation and the new Privacy Norms', *Yale Law Journal Forum*, **128**(1): 1016–1028.
Dughera, S. and M. Giraudo (2021), 'Privacy Rights in Online Interactions and Litigation Dynamics: A Social Custom View', *European Journal of Political Economy*, **67**(1): 101967.
Engel, C. (2008), 'Learning the Law', *Journal of Institutional Economics*, **4**(3): 275–297.
Engel, C., A. Klement and K. Weinshall (2018), 'Diffusion of Legal Innovations: The Case of Israeli Class Actions', *Journal of Empirical Legal Studies*, **15**(4): 708–731.
Epstein, L. (2016), 'Some Thoughts on the Study of Judicial Behavior', *William and Mary Law Review*, **57**(6): 2017–2073.
EUAFR – European Union Agency for Fundamental Rights (2020), *Getting the Future Right. Artificial Intelligence and Fundamental Rights*, Luxembourg: Publications Office of the European Union.
Fama, E. (2014), 'Two Pillars of Asset Pricing', *American Economic Review*, **104**(6): 1467–1485.
Flórez Rojas, M. L. (2016), 'Legal Implications After Schrems Case: Are We Trading Fundamental Rights?', *Information & Communications Technology Law*, **25**(3): 292–309.
Friedman, L. M. (2006), 'Judging the Judges: Some Remarks on the Way Judges Think and the Way Judges Act', in J. N. Drobak (ed), *Norms and the Law*, Cambridge: Cambridge University Press, pp. 139–160.
Fuller, C. S. (2018), 'Privacy Law as Price Control', *European Journal of Law and Economics*, **45**(2): 225–250.
Galanter, M. (1974), 'Why the "Haves" Come out Ahead: Speculations on the Limits of Legal Change', *Law & Society Review*, **9**(1): 95–160.
Garbaix, X. and D. Laibson (2006), 'Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets', *Quarterly Journal of Economics*, **121**(1): 505–540.
Goff, R. (1987), 'Judge, Jurist and Legislature', *Denning Law Journal*, **2**(80): 79–95.
Graziadei, M. (2009), 'Legal Transplants and the Frontiers of Legal Knowledge', *Theoretical Inquiries in Law*, **10**(2): 723–743.
Grief, A. and J. Mokyr (2017), 'Cognitive Rules, Institutions, and Economic Growth: Douglas North and Beyond', *Journal of Institutional Economics*, **13**(1): 25–25.
Harnay, S. and A. Marciano (2006), 'Intellectual Property Rights and Judge-Made law. An Economic Analysis of the Production and Diffusion of Precedent', in D. Porrini and G. Ramello (eds.), *Property Rights Dynamics in Third Millennium: A Law and Economics Perspective*, London and New York: Routledge, pp. 198–218.
Hedoin, C. (2019), 'Institutions, Rule-Following and Conditional reasoning', *Journal of Institutional Economics*, **15**(1): 1–25.
Hellman, J. S., G. Jones and D. Kaufmann (2003), 'Seize the State, Seize the day: State Capture and Influence in Transition Economies', *Journal of Comparative Economics*, **31**(4): 751–773.
Hijmans, H. (2016), *The European Union as Guardian of Internet Privacy*, New York: Springer International Publishing.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

Himmelberg, C., C. Mayer and T. Sinai (2005), 'Assessing High House Prices: Bubbles, Fundamentals and Misperceptions', *Journal of Economic Perspectives*, **19**(4): 67–92.
Hodgson, G. M. (1998), 'The Approach of Institutional Economics', *Journal of Economic Literature*, **36**(1): 166–192.
Hodgson, G. M. (2015), 'Much of the "Economics of Property Rights" Devalues Property and Legal Rights', *Journal of Institutional Economics*, **11**(4): 683–709.
Hoffmann, A. L., N. Proferes and M. Zimmer (2018), '"Making the World More Open and Connected": Mark Zuckerberg and the Discursive Construction of Facebook and Its Users', *New Media & Society*, **20**(1): 199–218.
Horton, M. (1999), 'The Internet and the Empowered Consumer: From the Scarcity of the Commodity to the Multiplicity of Subjectivity', *Media International Australia Incorporating Cultural Policy*, **91**(May): 111–123.
Jolls, C. (2013), 'Privacy and Consent Over Time: The Role of Agreement in Fourth Amendment Analysis', *William Mary Law Review*, **54**(5): 1693–1714.
Kaufmann, D. and P. C. Vicente (2011), 'Legal Corruption', *Economics & Politics*, **23**(2): 195–219.
Khan, L. (2018), 'The New Brandeis Movement: America's Antimonopoly Debate', *Journal of European Competition Law and Practice*, **9**(3): 131–132.
Kirkpatrick, D. (2010), *The Facebook Effect: The Inside Story of the Company That is Connecting the World*, New York: Simon and Schuster.
Klonick, K. (2018), 'The New Governors: The People, Rules, and Processes Governing Online Speech', *Harvard Law Review*, **131**(6): 1598–1670.
Kolacz, M. K., A. Quintavalla and O. Yalnazov (2019), 'Who Should Regulate Disruptive Technology?', *European Journal of Risk Regulation*, **10**(1): 4–22.
Kop, M. (2021), 'The Right To Process Data for Machine Learning Purposes in the EU', *Harvard Journal of Law & Technology*, **34**(1): 1–23.
Krouse, W. (2018), 'The Inevitable Demise of Privacy Shield: How to Prepare', *The Computer & Internet Lawyer*, **35**(6): 19–22.
Kuchař, P. (2016), 'Entrepreneurship and Institutional Change', *Journal of Evolutionary Economics*, **26**(2): 349–379.
Kuran, T. (1989), 'Sparks and Prairie Fires: A Theory of Unanticipated Political Revolution', *Public Choice*, **61**(1): 41–74.
Lamoreaux, N. R. (2011), 'The Mystery of Property Rights: A U.S. Perspective', *The Journal of Economic History*, **71**(2): 275–306.
Langhanke, C. and M. Schmidt-Kessel (2015), 'Consumer Data as Consideration', *Journal of European Consumer and Market Law*, **4**(6): 218–223.
Leeson, T. P. (2020), 'Economics is not Statistics (and Vice Versa)', *Journal of Institutional Economics*, **16**(4): 423–425.
Lehavi, A. (2013), *The Construction of Property: Norms, Institutions, Challenges*, Cambridge: Cambridge University Press.
Le Roy, S. F. (2004), 'Rational Exuberance', *Journal of Economic Literature*, **42**(3): 783–804.
Lessing, L. (1996), 'Reading the Constitution in the Cyber Space', *Emory Law Journal*, **45**(Summer): 869–886.
Macey, J. R. (1989), 'The Internal and External Costs and Benefits of Stare Decisis', *Chicago-Kent Law Review*, **65**(1): 93–113.
Mandel, G. N. (2017), 'Legal Evolution in Response to Technological Change', in R. Brownsword, E. Scotford and K. Yeung (eds), *The Oxford Handbook of Law, Regulation and Technology*, Oxford: Oxford University Press, pp. 226–246.
Marciano, A., A. Nicita and G. B. Ramello (2020), 'Big Data and Big Techs: Understanding the Value of Information in Platform Capitalism', *European Journal of Law and Economics*, **50**(3): 345–358.
Martini, M., (2020), 'Regulating Algorithms How to Demystify the Alchemy of Code?', in M. Ebers and S. Navas (eds.), *Algorithms and Law*, Cambridge: Cambridge University Press, pp. 100–135.
McCloskey, D. N. and A. Klamer (1995), 'One Quarter of GDP is Persuasion', *America Economic Review*, **85**(2): 191–195.
McKinsey Global Institute (2011), Big Data: The Next Frontier for Innovation, Competition, and Productivity, June 2011.
Medema, S. and N. Mercuro (2006), *Economics and the Law: From Posner to Postmodernism and Beyond* (2nd edn), Princeton: Princeton University Press.
Morelli, A. and O. Pollicino (2020), 'Metaphors, Judicial Frames and Fundamental Rights in Cyberspace', *American Journal of Comparative Law*, **68**(3): 616:646.
Nicita, A., M. Rizzolli and M. A. Rossi (2007), 'Towards a Theory of Incomplete Property Rights'. Available at SSRN: https://ssrn.com/abstract=1067466
Nicola, F. G. and O. Pollicino (2020), 'The Balkanization of Data Privacy Regulation', *West Virginia Law Review*, **123**(61): 62–115.
Nightingale, P. and A. Coad (2014), 'Muppets and Gazelles: Political and Methodological Biases in Entrepreneurship Research', *Industrial and Corporate Change*, **23**(1): 113–143.
Noelle-Neumann, E. (1974), 'The Spiral of Silence a Theory of Public Opinion', *Journal of Communication*, **24**(2): 43–51.
Noto La Diega, G. and I. Walden (2016), 'Contracting for the "Internet of Things": Looking Into the Nest', *European Journal of Law and Technology*, **7**(2): 1–38.
O'Leary, D. E. (2008), 'Gartner's Hype Cycle and Information System Research Issues', *The International Journal of Accounting Information Systems*, **9**(4): 240–252.
Petersen, N. (2013), 'Avoiding the Common Wisdom Fallacy: The Role of Social Sciences in Constitutional Adjudication', *International Journal of Constitutional Law*, **11**(2): 294–318.
Pistor, K. (2019), *The Law of Capital*, Princeton: Princeton University Press.

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press

Pollicino, O. and G. Romeo (2016), *Internet Law, Protection of Fundamental Rights and Constitutional Adjudication*, London and New York: Routledge.
Rotenberg, M. (2001), 'Fair Information Practices and the Architecture of Privacy (What Larry Doesn't Get)', *Stanford Technology and Law Review*, (1): 92–97.
Rubinstein, I. R. and N. Good (2013), 'Privacy by Design: A Counterfactual Analysis of Google and Facebook Privacy Incidents', *Berkeley Technology Law Journal*, **28**(2): 1333–1413.
Sayo', A. and C. Ryan (2016), 'Judicial Reasoning and New Technologies: Framing, Newness, Fundamental Rights and the Internet', in O. Pollicino and G. Romeo (eds), *The Internet and Constitutional Law*, London and New York: Routledge, pp. 3–25.
Scheinkman, J. A. (2014), *Speculation, Trading, and Bubbles*, New York: Columbia University Press.
Schumpeter, J. (1934), 'The Theory of Economic Development An Inquiry into Profit, Capital, Credit, Interest and the Business Cycle', in M. Casson (ed), *Entrepreneurship*, Cheltenham: Edward Elgar, pp. 105–134.
Schwart, P. and K. Peifer (2017), 'Transatlantic Data Privacy Law', *The Georgetown Law Journal*, **106**(1): 115–179.
Schwartz, P. M. (2004), 'Property, Privacy, and Personal Data', *Harvard Law Review*, **117**(7): 2056–2128.
Shiller, R. J. (2006), *Irrational Exuberance*, New York: Crown Business.
Simon, D. and N. Scurich (2013), 'Judicial Overstating', *Chicago-Kent Law Review*, **88**(2): 411–431.
Sloan, R. H. and R. Warner (2014), 'Beyond Notice and Choice: Privacy, Norms, and Consent', *Journal of High Technology Law*, **14**(2): 370–412.
Srinivasan, D. (2019), 'The Antitrust Case Against Facebook: A Monopolist Journey Towards Pervasive Surveillance in Spite of Consumers' Preference for privacy', *Berkeley Business Law Journal*, **16**(1): 39–101.
Stucke, M. E. and A. P. Grunes (2016), *Introduction: Big Data and Competition Policy, Big Data and Competition Policy*, Oxford University Press
Sunstein, C. (2017), *#Republic: Divided Democracy in the Age of Social Media*, Princeton: Princeton University Press.
Talley, E. (1999), 'Precedential Cascades, an Appraisal', *Southern California Law Review*, **73**(1): 87–137.
Tene, O. and J. Polonetsky (2014), 'A Theory of Creepy: Technology, Privacy and Shifting Social Norms', *Yale Journal of Law and Technology*, **16**(1): 59–102.
Tokson, M. (2015), 'Judicial Resistance and Legal change', *The University of Chicago Law Review*, **82**(2): 901–973.
Tritt, L.-F. (2016), 'The Retroactive Application of *Obergefell*', *Wisconsin Law Review*, (5): 873–945.
Van Dijck, J. (2013), *The Culture of Connectivity: A Critical History of Social Media*, Oxford: Oxford University Press.
Van Elten, K. and B. Rehder (2020), 'Dieselgate and Eurolegalism. How A Scandal Fosters the Americanization of European Law', *Journal of European Public Policy*, (1): 1–20. https://doi.org/10.1080/13501763.2020.1813792.
Van Erp, S. (2015), 'Fluidity of Ownership and the Tragedy of Hierarchy', *European Property Law Journal*, **4**(1): 56–80.
Wu, T. (2010), 'Is Internet Exceptionalism Dead?', in B. Szoka and A. Marcus (eds), *The Next Digital Decade: Essays on the Future of the Internet*, Washington: TechFreedom, pp. 179–188.
Yenouskas, J. F. and L. W. Swank (2018), 'Emerging Legal Issues in Data Breach Class Actions', *Business Lawyer*, **73**(2): 475–485.
Zywicki, T. J. and P. J. Boettke (2017), 'Conclusion: The Future of "Austrian" Law and Economics', in T. J. Zywicki and P. J. Boettke (eds), *Research Handbook on Austrian Law and Economics*, Cheltenham: Edward Elgar, pp. 423–429.

Cite this article: Giraudo M (2022). On legal bubbles: some thoughts on legal shockwaves at the core of the digital economy. *Journal of Institutional Economics* **18**, 587–604. https://doi.org/10.1017/S1744137421000473

https://doi.org/10.1017/S1744137421000473 Published online by Cambridge University Press