

ON SOCIAL CREDIT AND THE RIGHT TO BE UNNETWORKED

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Tell me who your friends are and I will tell you who you are. This ancient social philosophy is at the heart of a new financial technology system—social credit. In recent years, loosely regulated marketplace lenders have increasingly developed methods to rank individuals, including those traditionally considered unscored or credit-less. Specifically, some lenders build their score-generating algorithms around behavioral data gleaned from social media and social networking information, including the quantity and quality of social media presence, the identity and features of the applicant’s contacts, the applicant’s online social ties and interactions, the applicant’s contacts’ financial standing, the applicant’s personality attributes as extracted from her online footprints, and more.

This Article studies the potential consequences of social credit systems predicated on a simple transaction: authorized use of highly personal information in return for better interest rates. Following a detailed description of emerging social credit systems, the Article analyzes the inclination of rational and irrational customers to be socially active online and/or disclose all their online social-related information for financial ranking purposes. This examination includes, inter

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alia, consumers' preferences as well as mistakes, gamesmanship, and consumers' self-doxing or lack thereof. The Article then moves to discuss policy challenges triggered by social-based financial ranking that may become the new creditworthiness baseline criteria. It focuses on (i) direct privacy harms to loan seekers, and derivative privacy harm to loan seekers' online contacts or followers, (ii) online social segregation potentially mirrored by offline social polarization, and (iii) due process violations derived from algorithmic decision-making and unsupervised machine learning. The Article concludes by making a significant normative contribution, introducing a limited "right to be unnetworked," to accommodate the welcomed aspects of social credit systems while mitigating many of their undesired consequences.

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I. INTRODUCTION

When people discovered gold on the remote Klondike River in Canada in 1897, they recognized its potential, became excited, and rushed to find more. The years following the 2008 financial crisis witnessed a similar rush for a new kind of gold: online marketplace lending. The term “best describes the many fast-growing firms using [financial] technology [“FinTech”] to build online platforms that stand between borrowers and lenders.”¹ Marketplace lenders reinterpreted the traditional notion that past conduct serves as a useful indicator for predicting an individual’s future. Historically, lenders used secretive scoring models to formulate a person’s credit score based on the individual’s past financial behavior and additional factors bearing predictive value.² The opacity surrounding financial rankings did not tally with their significance on individuals’

¹ Kevin Wack, Colin Wilhelm & John Adams, *Innovation of the Year: Online Marketplace Lending*, AM. BANKER (Dec. 17, 2014), <http://www.americanbanker.com/news/bank-technology/innovation-of-the-year-online-marketplace-lending-1071693-1.html?zkPrintable=1&nopagination=1> [<http://perma.cc/M65L-6AQ5>].

² See Ian O’Neill, *Disparate Impact, Federal/State Tension, and the Use of Credit Scores by Insurance Companies*, 19 LOY. CONSUMER L. REV. 151, 152–53 (2007) (explaining that credit scores are created by “applying complex formulas, also known as statistical models, to specific information contained within the consumer’s credit report”).

lives and their likelihood for errors.³ Statutory attempts to increase transparency and improve the scoring regime ensued, the most cited of which are the Fair Credit Reporting Act (“FCRA”),⁴ the Fair and Accurate Credit Transactions Act (“FACTA”),⁵ and the Equal Credit Opportunity Act (“ECOA”).⁶

Despite legislative initiatives, challenges remain—nearly twenty percent of the American population is financially underserved and disconnected from the mainstream financial system in some way.⁷ Broad financial inclusion enables economic growth by lessening poverty while increasing wealth, and, more importantly, driving profitability. By providing financial services to the underserved, marketplace lenders have been tapping into an underutilized market and successfully extracting impressive revenues.⁸ Specifically, new entrants have challenged the

³ See Frank Pasquale, *Restoring Transparency to Automated Authority*, 9 J. ON TELECOMM. & HIGH TECH. L. 235, 248 (2011) (“[W]hile a ‘credit score is derived after an information-gathering process that is anything but rigorous,’ it ‘has become the only thing that matters anymore to the banks and other institutions that underwrite mortgages.’”) (quoting Joe Nocera, *Credit Score is the Tyrant in Lending*, N.Y. TIMES (July 24, 2010), http://www.nytimes.com/2010/07/24/business/24nocera.html?_r=0 [<http://perma.cc/M5G5-Y5S7>])).

⁴ Fair Credit Reporting Act, 15 U.S.C. § 1681 (2012).

⁵ Fair and Accurate Credit Transactions Act (FACTA) of 2003, Pub. L. No. 108–159, 117 Stat. 1952 (codified as amended across sections of 15 U.S.C.) (amending the Fair Credit Reporting Act of 1970).

⁶ Equal Credit Opportunity Act, 15 U.S.C. § 1691 (2012).

⁷ See CONSUMER FIN. PROT. BUREAU OFFICE OF RESEARCH, CFPB DATA POINT: CREDIT INVISIBLES 12–14 (2015), http://files.consumerfinance.gov/f/201505_cfpb_data-point-credit-invisibles.pdf [<http://perma.cc/ZED2-6Q76>] (explaining that 19.4 million Americans have credit records that cannot be scored and approximately 26 million other Americans do not have credit records). For a discussion about the banking abilities, or lack thereof, of the poor, see Michael S. Barr, *Banking the Poor*, 21 YALE J. ON REG. 121, 123 (2004) (discussing the dual financial services market in which banks largely serve middle- and upper-income classes, and check cashers and other alternative service providers largely serve low- and moderate-income classes).

⁸ See Mal Warwick et al., *Do Impact Investors Expect Too Much?*, STAN. SOC. INNOVATION REV. (Jan. 7, 2015), <http://www.ssireview.org/blog/>

existing scoring model by offering loans based on new data-centric underwriting methods and algorithmic scoring. These entrants found that a person's shopping habits, the way an individual clicks through web pages or writes her name, and even a purchase of felt pads, correlate with forecasted financial behavior.⁹

Big data, a better and lower-cost method of risk prediction, has increasingly attracted data hungry creditors to the financial landscape. Among those creditors, an additional scoring model gradually gained traction. This model advances the idea that data collected and analyzed should measure character, which John Pierpont Morgan called the central predictor of creditworthiness a century ago.¹⁰ Character, in this sense, manifests through an online social footprint, especially a person's virtual social circles.¹¹

entry/do_impact_investors_expect_too_much [http://perma.cc/KR2Z-ZJQF] (noting that microfinance is now a \$68-billion-dollar industry).

⁹ See, e.g., Tracy Alloway, *Big data: Credit where credit's due*, FIN. TIMES (Feb. 4, 2015), <http://www.ft.com/intl/cms/s/0/7933792e-a2e6-11e4-9c06-00144feab7de.html#axzz3g5O59fj9> [http://perma.cc/KR2Z-ZJQF] (describing a man who had his credit limit cut by \$7000 because he shopped at stores frequented by individuals with poor repayment histories); *The 'Social' Credit Score: Separating the Data from the Noise*, WHARTON (June 5, 2013), <http://knowledge.wharton.upenn.edu/article/the-social-credit-score-separating-the-data-from-the-noise/> [http://perma.cc/P2LS-5BC7] ("ZestFinance founder and former Google CIO Douglas Merrill said people who type only in lower-case, or upper-case, letters are more likely to be deadbeats, all other things being equal.").

¹⁰ See J.P. MORGAN'S TESTIMONY: THE JUSTIFICATION OF WALL STREET 50 (1912), <http://memory.loc.gov/service/gdc/scd0001/2006/20060517001te/20060517001te.pdf> [http://perma.cc/5238-BU5K] (recording J. P. Morgan's statement about creditworthiness that "[t]he first thing is character"). J. P. Morgan's words are a favorite quote of Jeff Stewart, the co-founder of Lenddo Ltd., a successful social credit startup. Evelyn M. Rusli, *Bad Credit? Start Tweeting*, WALL ST. J. (Apr. 1, 2013), <http://www.wsj.com/articles/SB10001424127887324883604578396852612756398> [http://perma.cc/2CJY-8THU] (describing Jeff Stewart's affinity for J. P. Morgan's quote).

¹¹ See Sangwon Yoon, *Lot of Contacts in Your Mobile Phone May Get You Loans*, BLOOMBERG (Nov. 15, 2015), <http://www.bloomberg.com/news/articles/2015-11-15/lot-of-contacts-in-your-mobile-phone-you-may-qualify-for-a-loan> [http://perma.cc/ZMW9-2Z3B] ("[O]ne's friends are predictors for

Proponents of social credit claim that one's friends are a constructive indicator of financial trustworthiness, as people are more likely to be better borrowers if their friends are.¹² Creditworthiness predictors use information about the size and strength of a person's social network, exchanged messages, tagged photos, browsing habits, education, searches, and geo-spatial data from mobile phones.¹³ Smaller companies like Lenddo and Kreditech first unlocked the value of social financial ranking, but mainstream institutions have started eyeing it as well. Recently, Facebook indicated clear interest in the social credit market by registering a patent on financial ranking technology based on a user's social connections.¹⁴ An executive from FICO, the most dominant U.S. provider of underwriting frameworks, recently acknowledged the predictive value of information

creditworthiness just as they are for propensity to smoke, be obese or promiscuous.”).

¹² See *id.* (“[P]eople are more likely to be better borrowers if they have friends who pay back their loans on time.”)

¹³ See Tom Groenfeldt, *Lenddo Creates Credit Scores Using Social Media*, DIGITALIST MAG. (Feb. 5, 2015), <http://www.digitalistmag.com/financial-management/lenddo-creates-credit-scores-using-social-media-02155945> [<http://perma.cc/4TZH-YMZ5>] (describing Lenddo's efforts to use social data to help banks evaluate lending candidates).

¹⁴ U.S. Patent No. 9,100,400 (filed Aug. 4, 2015). Facebook's interest in this market and such a patent resulted in much discussion about the potential abilities of Facebook in the future. See, e.g., Kevin Maney, *Facebook Could Blow Up Credit Cards and Make Loans to Billions*, NEWSWEEK (Apr. 10, 2016), <http://europe.newsweek.com/facebook-payments-loans-credit-messenger-paypal-445675?rm=eu> [<https://perma.cc/A7JP-BUTV>] (noting that “[i]f Facebook provides you with the ability to pay, starts collecting your transaction data and adds that to your social data that already says a lot about your character—well, then Facebook will have the kind of information it needs to become a stand-alone credit card company.” The article further explains that this would allow Facebook to “jettison Visa, MasterCard and FICO scores and directly offer you credit based on everything its machines can learn about you—while charging much lower interest rates and cheaper fees than current cards. It would be free from all the costly infrastructure and middlemen now involved in credit cards.”)

volunteered on social media platforms.¹⁵ In addition, credit-reporting agency Experian will soon begin implementing a business loan program that uses data from social networks and media sources.¹⁶

The social credit model uses troves of personal consumer information, conveniently volunteered by the ultimate source—the consumer herself. Recent studies show that offering financial incentives drives many to disclose information about themselves and their social world with little consideration given to possible consequences of sharing.¹⁷ Social credit systems are thus likely to demonstrate continuous growth and move from fringe to mainstream lending institutions. As a result, consumers' behavior must adapt to the new set of social creditworthiness measurement standards.¹⁸

Assuming consumer behavior does adapt, this Article proposes rational individuals will react in one of two ways: one group, labeled Type A, maximizes its utility by avoiding online social associations or consciously refusing to exhibit a

¹⁵ Ben McLannahan, *Being 'wasted' on Facebook may damage your credit score*, FIN. TIMES (Oct. 15, 2015), <http://www.ft.com/cms/s/0/d6dae-dee-706a-11e5-9b9e-690fdae72044.html> [<http://perma.cc/Q34Z-9ZDQ>] (“If you look at how many times a person says ‘wasted’ in their profile, it has some value in predicting whether they’re going to repay their debt.” (quoting FICO CEO Will Lansing)).

¹⁶ See Kery Murakami, *Use of Facebook 'Likes' in Lending Decisions Raises Concerns*, BANKING DAILY (BNA) (Nov. 3, 2015) (describing Experian's new business loan program that “may factor in data from Yelp, Facebook, Twitter, and Foursquare to compare a business with others of the same type”).

¹⁷ See, e.g., Scott R. Peppet, *Unraveling Privacy: The Personal Prospectus and the Threat of a Full Disclosure Future*, 105 NW. U. L. REV. 1153, 1157–58 (2011) (“[I]f some individuals stand to benefit by revealing a favorable value of some trait, others will be forced to disclose their less favorable values.” (quoting ROBERT H. FRANK, *PASSIONS WITHIN REASON* 104 (1988))).

¹⁸ Erik F. Gerding, *Code, Crash, and Open Source: The Outsourcing of Financial Regulation to Risk Models and the Global Financial Crisis*, 84 WASH. L. REV. 127, 179 (2009) (“Individuals adapt to the behavior of other players in the market. Individuals also adapt to the set of legal rules designed to constrain their behavior.”).

better online social persona. They prioritize privacy or other interests above the benefits obtained from social networks, including the prospect of a better financial deal. Type A individuals are likely to be wealthy individuals, who can afford to pay more to maintain their privacy or other values.

The second group of rational consumers, referred to as Type B, acts to improve its online social image by deleting contacts that could potentially damage its credit score. Later, Type B individuals also limit new online social interactions only to links not perceived as financially problematic. Evidence from different markets, in which online social impressions factor into the decision-making process, suggests rational individuals would attempt to better their positions by artificially enhancing their online reputations.¹⁹ Individuals know their exhibited online behavior is observable and could spoil their chances of being admitted to an academic institution, hired for a job, or compensated by an insurance company. These rational actors react by limiting access to their online profiles, cleaning up their profiles, using different names, and even creating entirely new accounts tailored specifically to the image they wish to display.²⁰

¹⁹ See *infra* Parts III.B.1 & III.B.2 (noting that individuals often attempt to improve their positions and harness various systems to their advantage). As the examples discussed *infra* show, the use of social information as evidence of skills, status, or occurrences is a growing and significant phenomenon. While it could be the focus of future follow-up research, this Article focuses on social credit, and only briefly reviews other social ranking trends and the reactions to them. For more about “reputational systems” and the risk they pose, see Frank Pasquale, *Reputation Regulation: Disclosure and the Challenge of Clandestinely Commensurating Computing*, in *THE OFFENSIVE INTERNET, PRIVACY, SPEECH, AND REPUTATION* (Saul Levmore & Martha C. Nussbaum eds., 2010). See *infra* text accompanying notes 152–68 (describing the use of social information by academic institutions, human resource departments, and insurance companies to evaluate individuals).

²⁰ See *infra* text accompanying notes 154–55 (discussing a recent study that found many students delete or edit their social media accounts to improve their admission prospects).

However, cognitive bias affects some people and they depart from rational choice behavior.²¹ By acting irrationally, those individuals fail to maximize their utility and are subject to greater transaction costs.²² Cognitive bias gives rise to two additional types of groups; the first, Type C individuals, are the irrational reflection of Type A individuals. They, too, are social network avoiders or social networkers that would not attempt to improve their online social reflection. But unlike Type A individuals, whose choice is rationally calculated, Type C individuals are irrationally lazy, passive, or otherwise lacking understanding of technological advancement. They would not break away from harmful contacts and would refrain from guiding their online socialization to improve their credit scores.

Composed of social network avoiders, Type D individuals exemplify an additional set of irrational behaviors. Type D individuals avoid the network to conceal information that could be negatively impacting their scores. Type D individuals may have used social networks in the past, but responded to the rise of social credit by abstaining from social networks altogether. By dint of avoidance, Type D attempt to hide their low creditworthiness in the hope that they will be assigned a better score since less information is available. Nevertheless, because creditworthy individuals signal that they are indeed creditworthy, the attempt to hide information could mark Type D individuals as even worse than they really are; they would be viewed as lemons.

The rise of social credit systems poses a number of policy challenges. First, the use of an individual's social information may inflict privacy harms at two levels—direct, to the loan seeker, and derivative, to the loan seeker's contacts. At the direct level, the loan seeker waives her right to privacy as a part of the transaction: the user provides and

²¹ See *infra* text accompanying notes 169–70 (describing the cognitive biases, such as contextualization effects and self-control errors that cause irrational behavior on social networks).

²² See *infra* Part III.B.3 (explaining the consequences of being too passive to improve one's online profile or being altogether absent from social networking).

authorizes the use of information about her in return for attractive interest rates. At the derivative level, however, a troubling privacy risk transpires. Social credit systems inherently implicate the information of third parties, who never agreed their information could be collected, evaluated, or analyzed. Helen Nissenbaum's theory of contextual integrity further spotlights the privacy impairment, as third parties have rarely (and probably have not at any point) contemplated the possibility of being evaluated for the purpose of financially ranking others when first disclosing information in the course of online socialization.²³

Second, social scoring systems risk inducing social segregation. Systematic consideration of social information motivates individuals, such as those in the Type B group, to increase their chances of getting the best financial terms. Following this logic, we should expect rational individuals to eliminate social red flags and showcase contacts who exhibit good financial standing. Widespread artificial reorganization of online social circles may lead to online social polarization, in which users are regrouped by the level of financial risk they embody. Online and offline circles do not operate as separate domains for social action.²⁴ Instead, social networks

²³ See generally HELEN NISSENBAUM, *PRIVACY IN CONTEXT* (2010) (describing the importance of social contexts and context-relative informational norms when considering the right to privacy). For another interesting theory that can also be relevant in this context, see Joshua A.T. Fairfield & Christoph Engel, *Privacy as a Public Good*, 65 *DUKE L.J.* 385 (2015) (explaining that even though privacy is commonly studied as a private good, this notion misses a key aspect of the policy problem, as “an individual who is careless with data exposes not only extensive information about herself, but about others as well.” The article further explains that the “negative externalities imposed on nonconsenting outsiders by such carelessness can be productively studied in terms of welfare economics. If all relevant individuals maximize private benefit, and expect all other relevant individuals to do the same, neoclassical economic theory predicts that society will achieve a suboptimal level of privacy.”)

²⁴ See Nicole B. Ellison et al., *The Benefits of Facebook “Friends:” Social Capital and College Students’ Use of Online Social Network Sites*, 12 *J. COMPUTER-MEDIATED COMM.* 1143, 1144 (2007) (observing that “online connections resulted in face-to-face meetings”).

merge online and offline behaviors and support the conclusion that an online practice of filtering one's friends list based on financial health would bear real life consequences. The potential score-based segregation could curtail the resources accumulated through relationships among people, broadly conceptualized as social capital.²⁵ As social capital correlates with social mobility, social credit systems may further paralyze socioeconomic mobility.²⁶ Furthermore, social credit could force individuals to face a painful choice between their social ties from the past or a better financial score in the future.

Social credit systems combine traditional credit scoring with algorithmic decision-making based on large datasets. People criticize traditional scoring methods for their opacity, arbitrary results, and disparate impact on minorities.²⁷ Computer algorithmic scoring models that use big data mining further exacerbate these problems. The data mined might be inaccurate or inappropriate, algorithmic modeling may be biased or limited, machine-learning capabilities can make inferences as to undisclosed information and factor in forbidden or unsuitable variables, and the uses of algorithms are often opaque and hard to challenge.²⁸

²⁵ See PIERRE BOURDIEU & LOÏC J. D. WACQUANT, AN INVITATION TO REFLEXIVE SOCIOLOGY 14 (1992) (“Social structures and cognitive structures are recursively and structurally linked, and the correspondence that obtains between them provides one of the most solid props of social domination.”).

²⁶ See PABLO A. MITNIK ET AL., NEW ESTIMATES OF INTERGENERATIONAL MOBILITY USING ADMINISTRATIVE DATA 70–72 (2015), <https://www.irs.gov/pub/irs-soi/15rpintergenmobility.pdf> [<http://perma.cc/U726-KPXL>] (finding that a large share of inequality between families at the 10th and 90th income percentiles continues into the following generation).

²⁷ Danielle Keats Citron & Frank Pasquale, *The Scored Society: Due Process for Automated Predictions*, 89 WASH. L. REV. 1, 10–16 (2014) (criticizing credit scoring systems for their opaqueness, inconsistent results, and poor treatment of women and minorities).

²⁸ See *infra* Part V (arguing that “large data sets are prone to errors, outages, and losses that are amplified when multiple data sets are combined”).

Against the backdrop of broad privacy harm, the potential of social segregation, and algorithmic eradication of due process tenets, we argue that underwriting should generally exclude social information. Consequently, we introduce a limited “right to be unnetworked,” aimed at preventing financial penalties for social choices. Our proposal intends to confine the use of social information to a set of the prescribed exceptions, and to de facto bestow upon consumers a limited right to be unnetworked.

This proposal attempts to respond to the rise of social credit. Similar to the ban on the use of medical information for credit scoring purposes, such a limited right to be unnetworked weighs non-monetary values in addition to financially sound practices. A limited right to be unnetworked would balance the use of social credit systems with the goal of broadening financial inclusion, while eliminating some of the negative byproducts and minimizing those that cannot be prevented.

This Article consists of seven parts. Part II traces the evolution of credit scoring models and details the emergence of social credit systems. Part III reviews four types of consumer responses to social credit. Part IV discusses direct and derivative privacy challenges posed by social credit systems. Part V continues to describe the risk of social segregation, which is a natural consequence of online social cleanup. Part VI spotlights due process violations that computerized algorithmic decision-making may engender. Part VII introduces the limited right to be unnetworked after ruling out disclosure-based and disparate impact solutions. A brief conclusion follows the seventh part.

II. FROM A FACELESS CREDIT TO A SOCIAL SCORE

A. History of Traditional Credit Scoring

A credit score is a numerical expression based on a statistical formula to evaluate an individual’s financial

health and creditworthiness at a given point in time.²⁹ By comparing a potential borrower's weighted values with an actual borrower's weighted values, credit-scoring systems calculate the specific level of risk that a person or entity brings to a particular transaction.³⁰ The retail and banking industries were the first to assess the financial trustworthiness of potential borrowers in the United States.³¹ As time passed, banks delegated lending decisions to individual experts, and later to specialized finance companies.³² FICO first devised its ranking formula in the 1950s and has since established itself as an industry standard for consumer credit of all kinds.³³ Even though FICO provides scoring blueprints to the three major credit bureaus—Equifax, TransUnion, and Experian—cases of conflicting scores are common because each agency applies its own individual model.³⁴ Adding to the complexity and variation, specific industries use specialized versions of

²⁹ See Hussein A. Abdou & John Pointon, *Credit Scoring, Statistical Techniques and Evaluation Criteria: A Review of the Literature*, 18 INTELLIGENT SYSTEMS ACCT. FIN. & MGMT. 59, 62 (2011) for the different definitions of credit scoring.

³⁰ See O'Neill, *supra* note 2, at 152 (“[A] consumer credit score is calculated to represent the particular level of risk that the individual consumer poses in a commercial transaction.”).

³¹ See Citron & Pasquale, *supra* note 27, at 8–9 (presenting the history of credit scoring systems).

³² See *id.* (noting that experts were eventually “entrusted to make lending decisions” and that specialized finance companies “entered the mix” after World War II).

³³ See Nate Cullerton, *Behavioral Credit Scoring*, 101 GEO. L.J. 807, 810 (2013); see also Alloway, *supra* note 9 (“By 1995 Freddie Mac and Fannie Mae, the US government’s housing finance agencies, endorsed the use of credit scores as part of the mortgage underwriting process, embedding them in the fabric of the American financial system. By 2000, FICO scores were used in more than 75 per cent of home mortgage originations. In 2015, [FICO] says its scores are used in more than 90 per cent of lending decisions.”).

³⁴ See Kurt Eggert, *The Great Collapse: How Securitization Caused the Subprime Meltdown*, 41 CONN. L. REV. 1257, 1270 (2009) (noting that the three separate credit agencies can produce varying scores due to their distinct models).

credit scores.³⁵ Within the credit-card underwriting and certain personal-financial applications industries, VantageScore, which was jointly developed by the three major repositories, has grown to be the prevailing score.³⁶

Proprietary algorithms labeled as trade secrets protect the exact scoring methods for all credit scores.³⁷ Credit-rating companies justify secrecy as a means to keep competitors from learning how their systems are built and operated, and to prevent scored individuals from deceiving the lender by falsifying their applications to reach a desired score.³⁸ Nevertheless, critics claim that the opacity surrounding existing scoring methods disallows consumers, advocates, and regulators from challenging those models.³⁹ The lack of an industry-wide standard mathematical model for use in insurance credit scoring contributes to this overall lack of transparency and leaves consumers in the dark as to how their credit score is calculated.⁴⁰ The use of existing credit-scoring systems, however, is generally treated as a fair and objective method for evaluating an individual's creditworthiness.⁴¹

Congress enacted FCRA⁴² in 1970 to address the increasing collection of personal information.⁴³ The FCRA increased transparency in a previously guarded and

³⁵ See Terry Clemans, *Foreword*, 46 SUFFOLK U. L. REV. 761, 782 (2013) (explaining that there are “dozens of specialty versions of credit scores that are honed for specific industries”).

³⁶ See *id.* (describing the creation of VantageScore and its competition). *But see* O'Neill, *supra* note 2, at 172–73 (arguing that the lack of a uniform credit model was “largely eviscerated” by the development of VantageScore).

³⁷ See Adi Osofsky, *The Misconception of the Consumer As A Homo Economicus: A Behavioral-Economic Approach to Consumer Protection in the Credit-Reporting System*, 46 SUFFOLK U. L. REV. 881, 888 (2013).

³⁸ Federal Reserve Board Releases Staff Paper On Credit Scoring. Consumer Cred. Guide (CCH) ¶ 97,708, 1979 WL 486735 (Dec. 28, 1979).

³⁹ Pasquale, *supra* note 3.

⁴⁰ See O'Neill, *supra* note 2, at 172.

⁴¹ See Pasquale, *supra* note 3, at 249.

⁴² 15 U.S.C. §§ 1681a–x (2012).

⁴³ See Citron & Pasquale, *supra* note 27, at 16.

mysterious credit reporting industry.⁴⁴ Under the FCRA, credit repositories and all “consumer reporting agencies” must assure maximum possible accuracy of the information contained in the credit report.⁴⁵ The FCRA also bestows upon consumers the right to access their credit reports,⁴⁶ dispute the completeness or accuracy of their reports, ask for corrections, and annotate their records when resolutions cannot be achieved.⁴⁷ In 2003, Congress passed the FACTA,⁴⁸ which mandated the provision of complimentary annual credit reports to all consumers, added protections in the credit reporting industry to combat fraud, and offered victims of identity theft a procedure for clearing their credit scores of debt.⁴⁹ In addition to granting consumers rights to protect themselves, federal law prohibits discrimination by credit agencies as well. The ECOA, enacted in 1974, prohibits credit discrimination on the basis of race, color, religion, national origin, sex, marital status, age, or the receipt of public assistance.⁵⁰ ECOA mandates that while creditors may ask individuals for information about the characteristics listed above, creditors are prohibited from using that information when deciding whether to give

⁴⁴ Lea Shepard, *Toward a Stronger Financial History Antidiscrimination Norm*, 53 B.C. L. REV. 1695, 1744–48 (2012) (explaining how the FCRA alleviated the opacity associated with the credit reporting process).

⁴⁵ See 15 U.S.C. § 1681e(b) (2012) (“Whenever a consumer reporting agency prepares a consumer report it shall follow reasonable procedures to assure maximum possible accuracy of the information concerning the individual about whom the report relates.”).

⁴⁶ See 15 U.S.C. § 1681g(a)(1) (2012).

⁴⁷ See 15 U.S.C. § 1681i (2012) (“Procedure in Case of Disputed Accuracy”).

⁴⁸ Fair and Accurate Credit Transactions Act (FACTA) of 2003, Pub. L. No. 108–59, 117 Stat. 1952 (codified as amended across sections of 15 U.S.C.) (amending the Fair Credit Reporting Act of 1970).

⁴⁹ See DEE PRIDGEN & RICHARD M. ALDERMAN, CONSUMER CREDIT AND THE LAW (2010).

⁵⁰ The ECOA is a United States law (codified at 15 U.S.C. § 1691 et seq.); see also *Your Equal Credit Opportunity Rights*, FED. TRADE COMM’N (Jan. 2013), <http://www.consumer.ftc.gov/articles/0347-your-equal-credit-opportunity-rights> [<http://perma.cc/EQZ5-SLHD>].

individuals credit or when setting the terms of their credit.⁵¹ Moreover, the law provides protections when individuals deal with organizations or people who regularly extend credit, including banks, small loan and finance companies, retail and department stores, credit card companies, and credit unions.⁵² Everyone who participates in the decision to grant credit or in setting the terms of that credit must comply with the ECOA.

The 2008 financial crisis and ensuing recession exposed the inadequacy of the then-existing risk management tools and lending practices. Subsequently, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Dodd-Frank Act”)⁵³ implemented more legal protections to increase the transparency of the credit analysis process. Primarily, the Dodd-Frank Act required greater disclosure of the qualitative and quantitative content involved in credit decision-making.⁵⁴ Until the enactment of the Dodd-Frank Act, the Federal Trade Commission (“FTC”) had primary regulatory responsibility over the credit bureaus.⁵⁵ The Dodd-Frank Act transferred a significant part of the FTC’s enforcement authority to the Consumer Financial Protection Bureau (“CFPB”),⁵⁶ but the two regulatory agencies still share some overlapping enforcement power over FCRA consumer regulations.⁵⁷ Shortly after its initiation, the CFPB, which is empowered to oversee “larger participant[s] of a market for other consumer financial products or

⁵¹ *See id.*

⁵² *See id.*

⁵³ *See* Dodd-Frank Act, Pub. L. No. 111–203, § 932, 124 Stat. 1376, 1872–83 (2010).

⁵⁴ Jeffrey Manns, *Downgrading Rating Agency Reform*, 81 GEO. WASH. L. REV. 749, 771 (2013).

⁵⁵ 15 U.S.C. § 1681s(a)(1) (2012) (granting limited administrative enforcement power to state attorneys general). *See* 15 U.S.C. § 1681s (2012).

⁵⁶ 12 U.S.C. § 5581(5) (2012). For more on the agency, see, e.g., Todd J. Zywicki, *The Consumer Financial Protection Bureau: Savior or Menace?* 81 GEO. WASH. L. REV. 856, 860 (2013). *See, e.g.*, 12 U.S.C. § 5514(c)(3).

⁵⁷ *See, e.g.*, 12 U.S.C. § 5514(c)(3) (2012).

services,”⁵⁸ issued a rule to define credit-reporting agencies as “larger participants”⁵⁹ and confirmed that credit-reporting agencies are subject to the same supervision process applied to banks.⁶⁰

B. Future Opportunities for Financial Inclusion

Notwithstanding the constant improvement that the existing credit-scoring regime has undergone in the past few decades, it has yet to succeed in providing appropriate tools for broader financial inclusion. A 2013 report estimated the financially underserved community at nearly 67 million credit invisibles who have thin or no credit files.⁶¹ This cohort includes mostly college students and young adults, immigrants, widows or new divorcees, the elderly, ethnic minorities, low-income individuals, and individuals who mistrust large financial institutions.⁶² Lacking relevant financial records, such as evidence of a loan repayment, to meet the requirements of conventional scoring models, these consumers do not generate sufficient data to establish credit standing. As a result, millions are considered “unscorable,” and their economic behavior, which amounts to a significant share of the country’s economy, is marginalized.⁶³ Unscored individuals are generally ineligible for lending services such

⁵⁸ 12 U.S.C. § 5514(a)(1)(B) (Supp. IV 2011).

⁵⁹ Press Release, CFPB, CFPB to Supervise Credit Reporting (July 16, 2012), <http://www.consumerfinance.gov/about-us/newsroom/consumer-financial-protection-bureau-to-supervise-credit-reporting-2/> [<https://perma.cc/SGK6-S3U5>].

⁶⁰ See Carter Dougherty, *Consumer Bureau to Supervise Debt Collectors, Credit Bureaus*, BLOOMBERG (Feb. 16, 2012), <http://www.bloomberg.com/news/articles/2012-02-16/consumer-bureau-to-supervise-debt-collectors> [<http://perma.cc/Q8Q6-YPG3>].

⁶¹ See FED. DEPOSIT INS. CORP., 2013 FDIC NATIONAL SURVEY OF UNBANKED AND UNDERBANKED HOUSEHOLDS 4 (2014), <https://www.fdic.gov/householdsurvey/2013report.pdf> [<https://perma.cc/9BXK-NFWR>].

⁶² See David Bornstein, *‘Invisible’ Credit? (Read This Now!)*, N.Y. TIMES (Oct. 2, 2014), <http://opinionator.blogs.nytimes.com/2014/10/02/invisible-credit-read-this-now/> [<http://perma.cc/TSJ3-4MQC>].

⁶³ See *id.*

as auto loans, mortgages, and student loans. In addition, they cannot enjoy short-term credit for routine or emergency necessities.⁶⁴ In the absence of mainstream lending products, these individuals turn to alternatives like payday loans that entail excessive fees, high interest rates, and draconian terms.⁶⁵

Clearly, policy-makers must strike the right equilibrium between responsible underwriting and access to credit.⁶⁶ Access to credit is a cornerstone of financial advancement and a vital asset-building implement,⁶⁷ and regulators, policymakers, academics, and consumers share the understanding that broader financial inclusion is socially desirable.⁶⁸ Catering to the credit-underserved could also be an exceptional business opportunity for lenders to provide financial services to those outside traditional banking systems through microfinance loans.⁶⁹ The microfinance

⁶⁴ See *id.*; see also Mehrsa Baradaran, *How the Poor Got Cut Out of Banking*, 62 EMORY L.J. 483, 489–90 (2013).

⁶⁵ A recent report by the Center for Responsible Lending describes how mainstream credit alternatives attract poor consumers into revolving debt and a wealth of problems. See James H. Carr, *A \$1,000 Loan Can Balloon into a \$40,000 Debt—And It's Legal*, FORBES (July 14, 2015), <http://www.forbes.com/sites/janetnovack/2015/07/14/a-1000-loan-can-balloon-into-a-40000-debt-and-its-legal/> [<http://perma.cc/JR54-R8RE>].

⁶⁶ This is not to undermine the importance of striking the right equilibrium between responsible underwriting and access to credit. For the claim of a causal connection between permissive access to credit and the global growth in consumer bankruptcy filings see, e.g., Ronald J. Mann, *Optimizing Consumer Credit Markets and Bankruptcy Policy*, 7 THEORETICAL INQUIRIES L. 395, 402–04 (2006). Others who lobbied against poverty, such as Nobel laureate Muhammad Yunus, hold the belief that access to credit should be broad and even viewed as a human right. See MUHAMMAD YUNUS, CREDIT FOR SELF-EMPLOYMENT: A FUNDAMENTAL HUMAN RIGHT (1987).

⁶⁷ See Baradaran, *supra* note 64; see also Bornstein, *supra* note 62.

⁶⁸ See Debra W. Still, *New Credit Score Models Hold Promise for Credit Access*, AM. BANKER (June 2, 2015), <http://www.americanbanker.com/bankthink/new-credit-score-models-hold-promise-for-credit-access-1074633-1.html> [<http://perma.cc/7X93-52Y8>].

⁶⁹ See BEATRIZ ARMENDÁRIZ & JONATHAN MORDUCH, THE ECONOMICS OF MICROFINANCE 1–24 (2005).

industry was built on the shared premise that establishing revenue-generating loans methods that met the needs of the financially underserved both gave recipients dignity by allowing them to be customers rather than supplicants and yielded more capital than charity alone could have ever returned.⁷⁰ The appeal of these industries affected credit-scoring practices. As a result, financial professionals sought alternative segmentation and scoring techniques to admit additional consumers into the financial mainstream and boost revenue.⁷¹ Today, microfinance is a thriving global business estimated at \$68 billion worldwide.⁷²

1. Marketplace Lending—Big Data Mining

Advanced data collection and analytics capabilities, known as “big data,”⁷³ allow traditional credit score suppliers

⁷⁰ See Froth at the Bottom of the Pyramid, *ECONOMIST* (Aug. 25, 2009), <http://www.economist.com/node/14298996> [<https://perma.cc/9TVN-66XX>].

⁷¹ See Annamaria Andriotis, *FICO Announces New Credit Score Based on Alternative Data*, *WALL ST. J.* (Apr. 2, 2015), <http://www.wsj.com/articles/fico-announces-new-credit-score-based-on-alternative-data-1427989748> [<http://perma.cc/NAX7-KXRD>].

⁷² See Warwick et al., *supra* note 8. The industry’s failure to increase the income of the poor and eliminate poverty is often cited as a principal counterweight to the economic success of microfinance. See, e.g., Erica Field et al., *Does the Classic Microfinance Model Discourage Entrepreneurship Among the Poor? Experimental Evidence from India*, 103 *AM. ECON. REV.* 2196 (2013). Some even go as far as blaming microfinance for making poverty worse. See, e.g., Jason Hickel, *The Microfinance Delusion: Who Really Wins?*, *GUARDIAN* (June 10, 2015), <http://www.theguardian.com/global-development-professionals-network/2015/jun/10/the-microfinance-delusion-who-really-wins> [<http://perma.cc/R37S-EEMD>] (“Microfinance has become a socially acceptable mechanism for extracting wealth and resources from poor people.”).

⁷³ There is no unified definition of “big data.” The Oxford English Dictionary defines it as “[e]xtremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions.” *Big Data*, *OXFORD ENG. DICTIONARY*, http://www.oxforddictionaries.com/us/definition/american_english/big-data [<http://perma.cc/CPX3-AVNZ>]. For more on the definition of big data and the controversy surrounding it, see Jenna Dutcher, *What Is Big Data?*, *DATASCIENCE@BERKELEY* (Sept. 3, 2015), <http://datascience.berkeley.edu/blog/2015/09/03/what-is-big-data/>.

to increase the accuracy of their scoring methods, and embrace non-traditional credit criteria to augment financial inclusion. FICO, for example, recently announced that in addition to its legacy scoring methodologies it will now incorporate alternative data in its credit calculations.⁷⁴ Such data includes property and public records, as well as telecommunications and utility bills.⁷⁵ Furthermore, lenders have been reportedly expanding their evaluation methods beyond credit scoring to “credit analytics,” by tracking all recorded transactions and scrutinizing terms of a given credit accordingly.⁷⁶ One credit card issuer found a peculiar yet compelling correlation between purchases of felt pads for furniture and excellent credit risk.⁷⁷ Most credit card companies have also set up systems to detect unsettling patterns that are indicative of higher risk. For example, charges for marriage counseling may lead to a lower credit line, higher interest rates, or a tighter repayment schedule because other evidence points to a strong connection between marriage problems and high credit risk.⁷⁸

The great promise of big data as a way to screen loan candidates has attracted additional players into the lending industry. Finance start-ups have attempted to capitalize on the ability to harness information in novel ways to create

berkeley.edu/what-is-big-data/ [http://perma.cc/CFF8-YGAD]; Gil Press, *12 Big Data Definitions: What's Yours?*, FORBES (Sept. 3, 2014), <http://www.forbes.com/sites/gilpress/2014/09/03/12-big-data-definitions-whats-yours/2/> [http://perma.cc/MWH2-8YMY].

⁷⁴ See Andriotis, *supra* note 71.

⁷⁵ See *id.* (noting that as a result of these alternative scoring mechanisms, “of the approximately 53 million Americans who don't have enough credit data to generate traditional FICO scores, about 15 million can be scored”).

⁷⁶ See Frank Pasquale, *Redescribing Health Privacy: The Importance of Information Policy*, 14 HOUS. J. HEALTH L. & POL'Y 95, 109 (2014).

⁷⁷ See Lior Jacob Strahilevitz, *Toward A Positive Theory of Privacy Law*, 126 HARV. L. REV. 2010, 2021 (2013).

⁷⁸ See Charles Duhigg, *What Does Your Credit-Card Company Know About You?*, N.Y. TIMES (May 12, 2009), <http://www.nytimes.com/2009/05/17/magazine/17credit-t.html?pagewanted=all> [http://perma.cc/GK3A-MVMJ].

alternative, more accurate ranking systems. The ubiquitous use of smartphones has accelerated the amount of data created and aggregated for lending purposes. A recent study found that eighty percent of online adults own a smartphone⁷⁹ and sixty-four percent of Americans are smartphone users.⁸⁰ Specifically, the percentage of smartphone and mobile phone users among the credit-underserved is notably high: sixty-nine percent of the unbanked have been using a mobile phone, forty-nine percent of which are smartphones, and eighty-eight percent of the underbanked have access to mobile phones, sixty-four percent of which are smartphones.⁸¹ Despite their unsophisticated nature by today's technological standards, even non-smartphone mobile phones generate data with outstanding predictive value. Lenders study and analyze factors like adherence to airtime limits, voice usage, length of calls, and location to establish financial trustworthiness of loan candidates in the developing world.⁸²

The very grain of the data-driven lending market encompasses the notion that traditional methods take account of too few scoring indicators, leaving out many creditworthy borrowers who lack good (or any) credit histories. For underwriting, algorithms mine big data to score thousands of potential credit variables in relation to an individual's attributes and behavior, such as the way

⁷⁹ See Ingrid Lunden, *80% Of All Online Adults Now Own A Smartphone, Less Than 10% Use Wearables*, TECHCRUNCH (Jan. 12, 2015), <http://techcrunch.com/2015/01/12/80-of-all-online-adults-now-own-a-smartphone-less-than-10-use-wearables/> [<http://perma.cc/7CDS-WBP2>].

⁸⁰ See Aaron Smith, *U.S. Smartphone Use in 2015*, PEW RES. CTR. (Apr. 1, 2015), <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/> [<http://perma.cc/8QLZ-6CCL>].

⁸¹ See Bd. of Governors of the Fed. Reserve Sys., *Consumers and Mobile Financial Services 5* (2014), <http://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201403.pdf> [<http://perma.cc/KKP5-BWGW>].

⁸² See Evgeny Morozov, *Your Social Networking Credit Score*, SLATE (Jan. 30, 2013), http://www.slate.com/articles/technology/future_tense/2013/01/wonga_lenddo_lendup_big_data_and_social_networking_banking.html [<http://perma.cc/X4DJ-8N9Y>].

applicants click through web pages or file a loan application.⁸³ Some start-ups incorporate baseline credit bureau data into their own data-fueled system, while others develop a stand-alone risk model to establish credit indicators for scoring and interest rate decisions.⁸⁴ Lenders also experiment with sensor data derived from the “Internet of Things”⁸⁵ to learn about their applicants’ creditworthiness.⁸⁶ In addition, the very process of applying for credit opportunities has now become digitized. Potential customers apply quickly and efficiently online or through an app for virtually all of the new technology-centered lending companies.

2. Marketplace Lending—Social Credit

Utilizing big data for financial decision-making in a similar manner, some lenders have built their score-

⁸³ See Alloway, *supra* note 9. See also Steve Lohr, *Banking Start-Ups Adopt New Tools for Lending*, N.Y. TIMES (Jan. 18, 2015), <http://www.nytimes.com/2015/01/19/technology/banking-start-ups-adopt-new-tools-for-lending.html> [<http://perma.cc/F22F-ZAB7>].

⁸⁴ See ROBINSON + YU, KNOWING THE SCORE: NEW DATA, UNDERWRITING, AND MARKETING IN THE CONSUMER CREDIT MARKETPLACE 12–14 (2014), https://www.teamupturn.com/static/files/Knowing_the_Score_Oct_2014_v1_1.pdf [<http://perma.cc/Y8TL-CURJ>].

⁸⁵ Julie Brill, Comm’r, Fed. Trade Comm’n, *Keynote Address at the Silicon Flatirons Conference: The New Frontiers of Privacy Harm* (Jan. 17, 2014), <http://youtu.be/VXEyKGw8wXg> [<http://perma.cc/F335-E987>] (“On the Internet of Things, consumers are going to start having devices, whether it’s their car, or some other tool that they have, that’s connected and sending information to a number of different entities, and the consumer might not even realize that they have a connected device or that the thing that they’re using is collecting information about them.”).

⁸⁶ See Scott R. Peppet, *Regulating the Internet of Things: First Steps Toward Managing Discrimination, Privacy, Security, and Consent*, 93 TEX. L. REV. 85, 122–23 (2014) (“For example, Safaricom, Kenya’s largest cell-phone operator, studies its mobile phone users to establish their trustworthiness. Based on how often its customers top up their airtime, for example, it may then decide to extend them credit.”); see also Alloway, *supra* note 9 (“The use of wearable technologies, which can track everything from exercise habits to heart rate, is also opening up an other [sic] realm of information for data-hungry lenders.”).

generating algorithm around behavioral data gleaned from social media and social networking information. Anthropologists, behavioral economists, psychologists, and microfinance professionals support data collection and analysis as means to achieve better predictions of financial risk.⁸⁷ Variables like education, career path, and the strength of social ties (such as the number of friends and followers and the information available about friends and followers) are just some of the many indicators gradually gaining traction in the move from a faceless credit score to a Facebook credit score.⁸⁸ For example, FinTech lending companies use online social data to authenticate factual information submitted in loan applications and further verify trustworthiness.⁸⁹

One of the leaders in the social finance market is Lenddo, a Hong Kong-based startup that built a thriving lending business based on the analysis of online social footprints.⁹⁰ To apply for a loan, users authorize Lenddo to access their social media profiles. Lenddo then assesses the information and assigns a score that determines whether the applicant can receive a loan and the terms under which such a loan will be granted.⁹¹ Lenddo utilizes the network effect not only to judge the character of the candidate, but also to penalize default and reward repayment. For example, a failure to pay could trigger an alert that is applied to the user's friends, whose own Lenddo scores would in turn be impaired by the default.⁹² LendUp, another lending startup, mixes data from

⁸⁷ See Groenfeldt, *supra* note 13. Similarly, in a more extreme manner, China has recently developed a new Social Credit System to leverage the explosion in personal data in order to improve citizens' behavior and motivate adherence to the rules of Communist Party. Rogier Creemers, *China tests "social credit score" system to crack down on critics*, CNN (Oct. 27, 2015), <http://www.cnn.com/2015/10/27/opinions/china-social-credit-score-creemers/> [<http://perma.cc/N56L-G58J>].

⁸⁸ See Rusli, *supra* note 10.

⁸⁹ See Morozov, *supra* note 82; see also Groenfeldt, *supra* note 13.

⁹⁰ See *About the Company*, LENDDO, <http://www.lenddo.com/#about> [<http://perma.cc/68E2-X88B>].

⁹¹ See Rusli, *supra* note 10.

⁹² See *id.*

credit bureaus with reputational information mined from social networks.⁹³ In contrast to Lenddo, allowing access to a candidate's social network is not mandatory under LendUp's policy. Applicants are nonetheless encouraged to fully disclose their social information because the more they reveal, the better their chances of approval.⁹⁴ Neo⁹⁵ and Earnest,⁹⁶ U.S.-based lenders, similarly screen loan applicants using both their actual incomes and social network data. Kreditech, a German startup, vets microloan applications based on social and commerce data.⁹⁷ Silicon

⁹³ See *What We Do*, LENDUP, <https://www.lendup.com/en/about> [<https://perma.cc/N8WM-559W>]. LendUp recently stated that while they have successfully experimented with the model, its potential grey-zone legal legitimacy prompted LendUp to not use social information in its "actual decision-making." Telis Demos & Deepa Seetharaman, *Facebook Isn't So Good at Judging Your Credit After All; Lenders drop plans to use social media to gauge creditworthiness as regulators balk; plus, one startup says, 'It's creepy'*, WALL ST. J. (Feb. 24, 2016), <http://www.wsj.com/articles/lenders-drop-plans-to-judge-you-by-your-facebook-friends-1456309801> [<http://perma.cc/NT9E-P5LD>].

⁹⁴ See Stephanie Armour, *Borrowers Hit Social-Media Hurdles*, WALL ST. J. (Jan. 8, 2014), <http://www.wsj.com/articles/SB10001424052702304773104579266423512930050> [<http://perma.cc/6H3W-Y9H2>].

⁹⁵ See *About*, NEO, <https://neoverify.com/about> [<http://perma.cc/3ZNA-3EYZ>]; see also Martha C. White, *Could Being Racist Make It Harder to Get a Loan?*, TIME (Feb. 21, 2013), <http://business.time.com/2013/02/21/could-being-racist-make-it-harder-to-get-a-loan/> [<http://perma.cc/3PY3-CXS8>].

⁹⁶ See *How it Works*, EARNEST, <https://www.meetearnest.com/> [<https://perma.cc/44EP-23TT>]; see also *Security & Privacy*, EARNEST, <https://www.meetearnest.com/privacy> [<https://perma.cc/5RDE-R4FG>] ("You can connect your loan application to your accounts on third-party services, like LinkedIn, in which case we may collect and store information identifying your account with the third-party service. We may use the information to inform your application. When you connect an account with us, you are requesting our third-party financial aggregator, Intuit, to create a new 'token' for Earnest. That token gives access to view account information without giving permissions to perform any other action inside that account.").

⁹⁷ See *What We Do*, KREDITECH, <https://www.kreditech.com/what-we-do/> [<http://perma.cc/6BDL-FCTT>] ("100% of smartphone or computer owners generate data by anything they do with that device (be it social media, surfing, ecommerce purchases, financial transactions, etc.). Our

Valley-based InVenture determines loan-applicants' creditworthiness based on information extracted from their smartphones, such as the content of their text messages, emails, Facebook or Twitter updates and the frequency of calls to uncover behavior that correlates with the likelihood that a borrower will repay or default on a loan.⁹⁸ Nigerian IT company BinCom developed a proprietary algorithm to calculate the social reputation score of loan seekers based primarily on the social information available about them and the duration of their social networking activity.⁹⁹ BinCom licenses their "social lender" software to Nigerian banks in order to create a community where users can access soft loans based on their social reputation.¹⁰⁰

Further indicating the value of social information for creditors, Facebook recently secured a patent for technology to approve a loan based on a user's social connections.¹⁰¹ The patent document explains the process:

When an individual applies for a loan, the lender examines the credit ratings of members of the individual's social network who are connected to the individual through authorized nodes. If the average credit rating of these members is at least a minimum credit score, the lender continues to process the loan application. Otherwise, the loan application is rejected.¹⁰²

proprietary algorithm factors in 20,000 data points, which are constantly changing based on newly identified patterns.").

⁹⁸ Lee Mwiti, *Why that Facebook post may give or deny you a loan*, STANDARD DIGITAL (Feb. 14, 2016), <http://www.standardmedia.co.ke/business/article/2000191608/why-that-facebook-post-may-give-or-deny-you-a-loan> [<http://perma.cc/824R-8CBM>].

⁹⁹ Gbenga Onalaja, *Have You Been Good? Social Lender Gives You Loans Based On Your Social Media Rep*, TECHCABAL (Dec. 17, 2015), <http://techcabal.com/2015/12/17/have-you-been-good-social-lender-gives-you-a-loan-based-on-your-social-media-rep/> [<http://perma.cc/687P-YMB3>].

¹⁰⁰ *Id.*

¹⁰¹ U.S. Patent No. 9,100,400 (filed Aug. 4, 2015).

¹⁰² *Id.*

Even the most dominant provider of credit scoring models, FICO, recently announced it is increasingly valuing data at different levels, treating credit card repayment history as the most reliable indicator of creditworthiness and, far behind it but still part of the spectrum, examining information volunteered on social media platforms.¹⁰³ According to FICO's chief executive, the number of times a person uses the word "wasted" in her profile has some predictive value—not determinative, but more than zero—for her loan repayment behavior.¹⁰⁴

Lenders also evaluate social media presence when making business loans. Lighter Capital,¹⁰⁵ an online revenue lender for technology companies, integrates social media data, including a business' LinkedIn page and consumer feedback, into its underwriting algorithm.¹⁰⁶ In addition, small businesses creditor Kabbage factors real-time information from bank accounts, social networks, and web analytical services into its risk analysis.¹⁰⁷ Credit reporting agency Experian is working on a business loan program that incorporates data from Yelp, Facebook, Twitter, and FourSquare to compare a business with others of the same

¹⁰³ See McLannahan, *supra* note 15.

¹⁰⁴ *Id.*

¹⁰⁵ See *What's a RevenueLoan®?*, LIGHTER CAPITAL, <https://www.lighter-capital.com/how-it-works/overview/> [<http://perma.cc/N96G-TRAG>].

¹⁰⁶ Penny Crosman, *Business Lender Finds Trove of Insights in Client CRM Data*, AM. BANKER (Sept. 10, 2013), http://www.americanbanker.com/issues/178_175/business-lender-finds-trove-of-insights-in-client-crm-data-1061933-1.html [<http://perma.cc/UG3P-PFRS>].

¹⁰⁷ See KABBAGE, <https://www.kabbage.com/> [<http://perma.cc/T8XM-TYZL>]; see also Darren Dahl, *The Six-Minute Loan: How Kabbage Is Upending Small Business Lending—And Building A Very Big Business*, FORBES (May 6, 2015), <http://www.forbes.com/sites/darrendahl/2015/05/06/the-six-minute-loan-how-kabbage-is-upending-small-business-lending-and-building-a-very-big-business/> [<http://perma.cc/WN4D-UFJN>]; Letter from Rob Frohein, CEO of Kabbage, Inc., and Kathryn Petralia, COO of Kabbage, Inc., to Laura Temel, U.S. Dept. of the Treasury, *Re: Marketplace Lending RFI* (Sept. 30, 2015), <http://src.bna.com/SG> [<http://perma.cc/S82E-X6VA>].

type.¹⁰⁸ Experian will offer the program to all its customers, including traditional banks.¹⁰⁹

Pure data-analysis start-ups, such as the U.K.-based Hello Soda, also evidence the link between online social footprints and financial evaluation. According to Hello Soda, their product, PROFILE, offers lenders the ability to gauge an applicant's creditworthiness by identifying personality attributes from the language exhibited across their social media.¹¹⁰ It might be the case that the value of the ranking algorithm exceeds that of the lending business itself. Indeed, Lenddo, the exemplifier of social data-driven lending, has recently abandoned its lending arm in lieu of selling its algorithmic services to businesses inside and outside the financial sector.¹¹¹

III. CONSUMERS' RESPONSES TO SOCIAL CREDIT

Social credit systems are built around a promising idea: using personal information about consumers' social footprints, contacts, and activities from the consumers themselves. Recent studies support this approach, showing that in order to gain specific transactional and personal advantages most individuals will willingly disclose information about themselves and their social activities

¹⁰⁸ See Murakami, *supra* note 16.

¹⁰⁹ See *id.*

¹¹⁰ See *Financial Services*, HELLO SODA, <http://hellosoda.com/alternative-finance/> [<http://perma.cc/8QML-UPWS>].

¹¹¹ See Judith Balea, *Lenddo stops lending, now helps clients determine customer trustworthiness*, TECH IN ASIA (Jan. 26, 2015, 10:30 PM), <https://www.techinasia.com/lenddo-customer-trustworthiness/> [<http://perma.cc/MNB8-46ZM>]. Aside from some banks that already use Lenddo's algorithm, Lenddo targets telecommunications companies, e-commerce sites, online dating sites, and hiring managers. See *id.* Business creditor Kabbage also plans to license or sell its scoring methods to banks. See JoAnn McFarland, *Need a Small Business Loan? Kabbage Recently Raised \$135 Million*, SMALL BUS. TRENDS (Oct. 30, 2015), <http://smallbiztrends.com/2015/10/kabbage-investment-funding.html> [<http://perma.cc/UMM8-FDRW>].

without thinking about the effects of their disclosures.¹¹² People also enthusiastically partake in profiling for a variety of purposes,¹¹³ including the receipt of financial benefits and discounts. Businesses offer these benefits and discounts in exchange for information because receiving all the information required for a proper due diligence analysis directly from the subject enables businesses to reduce transaction costs. Yet few individuals understand the significant consequences of businesses using their sensitive information.¹¹⁴ Most consumers lack both the information and the skills to properly evaluate this decision.¹¹⁵

It is a basic premise in economic theories that rational actors economize on transaction costs.¹¹⁶ Businesses and

¹¹² See, e.g., Peppet, *supra* note 17, at 1157–58 (citing ROBERT H. FRANK, *PASSIONS WITHIN REASON* 104 (1988)).

¹¹³ See Lior J. Strahilevitz, *Reputation Nation: Law in an Era of Ubiquitous Personal Information*, 102 NW. U. L. REV. 1667, 1670 (2008).

¹¹⁴ See, e.g., Alessandro Acquisti & Ralph Gross, *Imagined Communities: Awareness, Information Sharing, and Privacy on the Facebook*, in *PRIVACY ENHANCING TECHNOLOGIES* 36 (George Danezis & Philippe Golle eds., 2006); Alessandro Acquisti & Jens Grossklags, *What Can Behavioral Economics Teach Us about Privacy?*, in *DIGITAL PRIVACY: THEORY, TECHNOLOGIES AND PRACTICES* 363 (Alessandro Acquisti et al. eds., 2007); Alessandro Acquisti & Jens Grossklags, *Privacy and Rationality in Individual Decision Making*, *IEEE SECURITY & PRIVACY* 26–33 (Jan./Feb. 2005).

¹¹⁵ Danielle Keats Citron, *Reservoirs of Danger: The Evolution of Public and Private Law at the Dawn of the Information Age*, 80 S. CAL. L. REV. 241, 267 n. 142 (2007).

¹¹⁶ Since, in most real-world situations, transaction costs are not negligible, the initial allocation of rights matter and parties will have difficulty contracting around established rules. See, e.g., Todd J. Zywicki, *Libertarianism, Law and Economics, and the Common Law*, 16 CHAP. L. REV. 309 (2013). Accordingly, high transaction costs, which include information costs, may lead to less than desirable situations. For example, high transaction and information costs can prevent plaintiffs from suing and fully recovering, or properly negotiating and bargaining over various issues. See, e.g., Alexia Brunet Marks, *Check Please: Using Legal Liability to Inform Food Safety Regulation*, 50 HOUS. L. REV. 723, 728 (2013). Coase argued that in a world with low transaction costs, it really does not matter how the rights are initially allocated and that, once allocated, parties can

consumers constantly attempt to adopt models or methods that will help them minimize costs. In recent years, many businesses in different industries have creatively come up with strategies that provide short-term rewards for consumers that agree to share useful information. The last few years have shown an increase in consumers' doxing themselves and their contacts in return for incentives, discounts, and other benefits. This strategy's success has the potential to make social credit systems mainstream, especially if social credit algorithms prove to be accurate and profitable.¹¹⁷

To better understand the possible implications of these systems and strategies, this Part sets forth an analysis of consumers' reactions to social credit and examines their behavior in personal information markets. Specifically, the analysis looks at consumers' willingness or unwillingness to use social networks, given social credit's financial and social aspects. In addition to examining the incentives and bounded rationality of consumers,¹¹⁸ this Part emphasizes the financial and social consequences of a consumer's decision to participate in or avoid social networks.¹¹⁹ We use insights from law and economics, largely building upon the

then bargain to an efficient allocation of rights. *See generally* R.H. Coase, *The Problem of Social Cost*, 56 J.L. & ECON. 837 (1960).

¹¹⁷ A 2015 study by a group of researchers from the University of Pennsylvania found that the impact of using network-based measures on customer score accuracy is ambiguous. Yanhao Wei et al., *Credit Scoring with Social Network Data*, 35 *MARKETING SCI.* 234 (2015), <http://pubs.online.informs.org/doi/abs/10.1287/mksc.2015.0949> [<https://perma.cc/F659-WBP4>]. Some lenders have recently voiced doubts as to the effectiveness of social-media data as the sole source to judge creditworthiness. *See* Demos & Seetharaman, *supra* note 93. Nevertheless, many businesses admittedly make use of social information as an additional source of information. Furthermore, the consequences described in this Article are likely to materialize even if social information is not the main factor driving credit determination.

¹¹⁸ *See* Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 *STAN. L. REV.* 1471, 1477–79 (1998), for a description of bounded rationality and bounded will-power.

¹¹⁹ *See* Julie Cohen, *Irrational Privacy?*, 10 *J. TELECOMM. & HIGH TECH. L.* 241, 243 (2012).

assumption of individual rationality. In predicting consumers' preferences, behavioral law and economics also contribute concepts useful for exploring the legal and policy implications of departures from rational choice behavior.¹²⁰ In particular, findings in behavioral economics and cognitive psychology show individuals sometimes make decisions that are different from what they would have made if they had complete information, unlimited cognitive abilities, and no lack of willpower.¹²¹ Given that consumers are prone to incomplete knowledge, cognitive bias, and passiveness, behavioral law and economic analysis may complete the picture drawn by rationality theories and help explain decisions about social credit.

A. Rationality and Decision-making

Before moving on to analyze consumers' decision-making processes, we will lay out the theoretical foundations for this analysis. In general, rational actions and beliefs are defined as "guided by reason, principles, fairness, [or] logic," while irrational decisions and beliefs are not.¹²² The definition appears to be straightforward. Yet past decades have seen countless disagreements among scholars from different

¹²⁰ See Joshua D. Wright & Douglas H. Ginsburg, *Behavioral Law and Economics: Its Origins, Fatal Flaws, and Implications for Liberty*, 106 NW. U. L. REV. 1033, 1034–35 (2012) (explaining that the "behavioral law and economics regulatory agenda reflects a common philosophical source—so-called libertarian paternalism," and attempts to "regulate so as to improve economic welfare by more closely aligning each individual's actual choices with his 'true' or unbiased preferences without reducing his liberty, at least as it is represented by the choices available to him." Wright & Ginsburg argue, however, that "so long as libertarian paternalism ignores the economic welfare and liberty value of allowing individuals the freedom to err, it will fail to achieve its goal of increasing welfare without reducing liberty and will pose a significant risk of reducing both.").

¹²¹ See Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1160 (2003).

¹²² *Rational*, MERRIAM-WEBSTER'S DICTIONARY OF LAW 400–01 (2011). See also *Rational*, OXFORD AMERICAN DICTIONARY OF CURRENT ENGLISH 661 (3d ed. 1999).

schools of thought as to what it means for individuals to behave in a rational way.¹²³ The neoclassical economic theory builds upon the foundational assumption that economic individuals are rational maximizers of utility.¹²⁴ In a world of “perfect competition,” goes the claim, economic individuals are presumed to all be somewhat similar, never err, and avoid any information costs. As a result, the model predicts that resources are always and instantly directed to their highest value use.¹²⁵ However, because competitive activities of economic agents in the real world rarely conform to the definition of perfect competition, many criticize the neoclassical economic theory as unhelpful.¹²⁶

In the last half of the twentieth century, following decades of focus on the roles of markets and governments in allocating resources, scholars started extending neoclassical theory to incorporate some issues identified in real-world markets.¹²⁷ The broadening of the theory has factored in the

¹²³ See, e.g., Jeanne L. Schroeder, *Rationality in Law and Economics Scholarship*, 79 OR. L. REV. 147 (2000) (contrasting Judge Richard Posner’s conception of rational choice theory with those of a number of scholars who support models of rationality, such as Gary Becker, Ronald Coase, Paul Samuelson, and George Stigler, as well as scholars who are critical of the rational choice literature, such as Amartya Sen and Herbert Simon).

¹²⁴ Utility is the level of satisfaction that an individual achieves from consuming a good or undertaking an activity. See Ronald H. Coase, *The New Institutional Economics*, 140 J. INSTITUTIONAL & THEORETICAL ECON. 229, 231 (1984). However, note that Coase himself rejects this idea.

¹²⁵ See ARMEN A. ALCHIAN & WILLIAM R. ALLEN, UNIVERSITY ECONOMICS 114 (3d ed. 1972).

¹²⁶ See Harold Demsetz, *The Theory of the Firm Revisited*, 4 J.L. ECON. & ORG. 141, 142 (1988) (explaining that the neoclassical model is better described as a model that demonstrates the relative efficiency of decentralized allocation of resources).

¹²⁷ See Daron Acemoglu et al., *Markets Versus Governments*, 55 J. MONETARY ECON. 159, 159–61 (2008) (explaining that according to the classical economic approach building on Adam Smith’s invisible hand theory and the first welfare theorem, under certain conditions, free competition will achieve a Pareto optimal allocation of resources. Arguing that this concept is too optimistic, economists such as Arthur Pigou maintained that externalities and market failures lead to inefficiencies

cost of information, as well as the impact of mistakes and irrational behavior in the process of consumers' decision-making.¹²⁸ Certain scholars expanded the price-theoretic framework to show its tools were not only consistent with, but also useful for, examining detected irrational behavior.¹²⁹ Another group of scholars developed theories critical of the rational choice literature, arguing individuals do not have the cognitive abilities to properly analyze all that is needed in order to maximize their welfare.¹³⁰ Gradually, the economic literature introduced new concepts and explained a new form of bounded rationality different from the one described in price theory.¹³¹ Scholars such as Daniel Kahneman and Amos Tversky further developed these heuristics-related concepts in the modern research of behavioral economics, referred to as "prospect theory."¹³² In prospect theory, cognitive biases, based on empirical

and may require government intervention. Others, inspired by socialist ideas, such as Oskar Lange, argued that a government-operated mechanism that allocates resources is superior to free competition, but were criticized by economists such as Abba Lerner, Friedrich von Hayek, and Jacob Marschak. Building up on this debate, the mechanism design approach to economics was developed. In the 1960s to 1970s, Leonid Hurwicz attempted to develop a theory for the conditions under which markets provide the best possible resource allocation systems. Later inputs by scholars such as Myerson, Harris, Townsend, Baron, Dasgupta, Hammond, Maskin, Green, and Laffont, helped advance the theory of mechanism design.)

¹²⁸ Milton Friedman, *The Methodology of Positive Economics*, in *ESSAYS IN POSITIVE ECONOMICS* 3, 3–16 (1953); Armen A. Alchian, *Uncertainty, Evolution, and Economic Theory*, 58 *J. POL. ECON.* 211, 220–21 (1950); Gary S. Becker, *Irrational Behavior and Economic Theory*, 70 *J. POL. ECON.* 1, 12–13 (1962); George J. Stigler, *The Economics of Information*, 69 *J. POL. ECON.* 213 (1961).

¹²⁹ See Wright & Ginsburg, *supra* note 120, at 1037.

¹³⁰ See Herbert A. Simon, *Rational Decision Making in Business Organizations*, 69 *AM. ECON. REV.* 493, 495 (1979); see also Herbert A. Simon, *A Behavioral Model of Rational Choice*, 69 *Q.J. ECON.* 99, 99–100 (1955).

¹³¹ See, e.g., RICHARD M. CYERT & JAMES G. MARCH, *A BEHAVIORAL THEORY OF THE FIRM* 10 (2d ed. 1992).

¹³² See Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263, 274–84 (1979).

research, explain departures from rationality.¹³³ The empirical support led behaviorists to believe that prospect theory, which incorporates comparatively more realistic psychological accounts of economic actors, would have greater predictive power than that of an economic theory based on a hypothesis of individual rationality.¹³⁴ Continuing this line of scholarship in recent years, various scholars, including Cass Sunstein and Richard Thaler, have contributed to the elaboration of what is now considered to be a massive behavioral law and economics body of literature.¹³⁵ Sunstein and Thaler also coined the term “libertarian paternalism,” with the goal of developing “an approach that preserves freedom of choice but that authorizes both private and public institutions to steer people in directions that will promote their welfare.”¹³⁶

¹³³ See, e.g., Daniel Kahneman & Shane Frederick, *Representativeness Revisited: Attribute Substitution in Intuitive Judgment*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT* 49 (Thomas Gilovich et al. eds., 2002); Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 *J. POL. ECON.* 1325, 1329–36 (1990).

¹³⁴ See Wright & Ginsburg, *supra* note 120, at 1040.

¹³⁵ See, e.g., Richard H. Thaler, *Doing Economics Without Homo Economicus*, in *FOUNDATIONS OF RESEARCH IN ECONOMICS: HOW DO ECONOMISTS DO ECONOMICS?* 227 (Steven G. Medema & Warren J. Samuels eds., 1996); Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 *STAN. L. REV.* 683 (1999); Cass R. Sunstein, *Moral Heuristics and Moral Framing*, 88 *MINN. L. REV.* 1556 (2004); Sunstein & Thaler, *supra* note 121; Richard Thaler, *Mental Accounting and Consumer Choice*, 4 *MARKETING SCI.* 199 (1985).

¹³⁶ Richard H. Thaler & Cass R. Sunstein, *Libertarian Paternalism*, 93 *AM. ECON. REV.* 175, 179 (2003). Many scholars have criticized this concept. See, e.g., Jonathan Klick & Gregory Mitchell, *Government Regulation of Irrationality: Moral and Cognitive Hazards*, 90 *MINN. L. REV.* 1620 (2006); Gregory Mitchell, *Libertarian Paternalism Is an Oxymoron*, 99 *NW. U. L. REV.* 1245, 1255 (2005); Wright & Ginsburg, *supra* note 120, at 1041 (“The behavioral law and economics literature exhibits a strong tendency to ignore the social benefits of error. At the same time, it tends to overestimate the social costs of errors.”).

B. To Network or Not to Network

Traditional law and economics rests on the assumption that pursuant to a set of consistent preferences, individuals attempt to maximize their utility. Utility is commonly defined as the level of satisfaction they obtain from selecting a certain activity or product, based upon preferences. Individuals in financial markets are no different: they too adapt to the behavior of other players in the market and to the legal rules that govern their behavior in an attempt to maximize their utility.¹³⁷ Rational individuals are expected to respond in one of two ways to the rise of a shadow credit system that heavily relies on their social qualities. The first type would avoid social networks or actively minimize her online social footprints as a means to prioritize other, more valuable interests. The second type would act to achieve the highest possible social score for herself by portraying an online image of creditworthy social circles.¹³⁸

1. Type A—Rational and Maximizing Non-Financial Utility

The first group of rational individuals, referred to as Type A, includes individuals who, when applying for a loan, would maximize their utility by prioritizing privacy or other non-monetary interests above saving transaction costs. Type A individuals would act to minimize their online social footprint, make themselves untraceable, completely avoid social interactions online, or consciously refuse to make changes to their online social persona.¹³⁹ As with other alternative underwriting methods, determining the social-based score of a loan seeker requires a detailed due diligence process that comes with extra costs. Collecting sufficient and

¹³⁷ See Gerding, *supra* note 18, at 179.

¹³⁸ *Id.* (noting that, in general terms, such adaptive response means to look for innovative ways to game the system and achieve abnormal returns).

¹³⁹ For the contrasting approach of Type B individuals, see Part III.B.2.

relevant information about social attributes to analyze creditworthiness reassigns some of the data analysis work from efficient automated systems back to human hands. It also necessitates a return to traditional underwriting models that are less efficient and costlier in terms of processing than those offered by alternative lenders. Thus, the lower the place privacy or other interests have in an applicant's preferences list, the more readily available relevant information on the applicant is found via social networks and big data aggregators, the simpler the process of obtaining and analyzing information to assess an applicant's creditworthiness is, and the cheaper the related transaction costs are.

Because lower transaction costs mean fewer costs would be passed on to loan seekers, many individuals would prefer that lenders calculate a social credit score for them using social networks. Maximizing utility by prioritizing a discount or other benefits over privacy has proved to be a viable business model for many businesses, including Progressive's car insurance.¹⁴⁰ By placing the highest utility value on privacy or other non-monetary interests such as ideological social networks avoidance, Type A individuals pay the price of having the transaction costs for the due diligence processes rolled over to them. These additional costs would be further intensified by dynamics of "unraveling."¹⁴¹

In a world where social credit slowly becomes more and more mainstream, individuals may increasingly choose to over-disclose information on social networks, both because of custom and because the equilibrium in the marketplace would tilt toward disclosure as a condition of market entry.¹⁴² As a result, Type A individuals, who maximize their utility by prioritizing non-monetary values, would suffer from an increasingly costly financial penalty for doing so.

¹⁴⁰ See Robert Passikoff, *Progressive Adds 'Bad Driver' Surveillance to Snapshot Telematics*, FORBES (Mar. 31, 2015), <http://www.forbes.com/sites/robertpassikoff/2015/03/31/progressive-adds-bad-driver-surveillance-to-snapshot-telematics/> [<http://perma.cc/5J6H-XMEV>].

¹⁴¹ See Peppet, *supra* note 17, at 1176.

¹⁴² See *id.*

The more mainstream social credit becomes, the more likely the unraveling dynamic would prevail, allowing only wealthy individuals to protect their privacy. These individuals can afford to organize their preferences in a way that incurs substantial financial costs to protect privacy. Many less financially secure individuals, even while sharing similar views regarding the importance of privacy, would not be able to bear the expense of added transaction costs passed on to them. Relying on this rationale, we argue that Type A individuals have essentially bought for themselves a right to be unnetworked, as explained *infra* in Part VII, because they can afford it. Unlike Type A individuals, Type B individuals that act to improve their perceived online persona would enjoy lower transaction costs. By deviating from pure financial utility maximization, Type A individuals knowingly opt for less than ideal financial terms.

2. Type B—Rational and Socially Practical

The second group of rational individuals, labeled as Type B, includes individuals who use social networks and maximize their utility by prioritizing savings to gain financial advantages. Indeed, recognizing the far-reaching effects of credit scores on their financial lives, consumers tend to be very mindful of their credit.¹⁴³ In fact, access to credit reports, which are valuable sources of information for consumers, has even been cited as a fundamental right.¹⁴⁴ A consumer with a better understanding of her credit standing

¹⁴³ Consumers feel their reports are relevant to their lives to a great extent and wish they had more power to affect them. *See generally* Vanessa G. Perry & Marlene Morris, *Who is in Control?: The Role of Self-perception, Knowledge, and Income in Explaining Consumer Behavior*, 39 J. CONSUMER AFF. 299 (2005).

¹⁴⁴ CONSUMER FIN. PROT. BUREAU, KEY DIMENSIONS AND PROCESSES IN THE U.S. CREDIT REPORTING SYSTEM: A REVIEW OF HOW THE NATION'S LARGEST CREDIT BUREAUS MANAGE CONSUMER DATA (2012). The CFPB has also reported that approximately twenty-six million consumers buy or obtain credit reports from commercial credit monitoring services.

is better equipped to shop for better credit terms.¹⁴⁵ Consumers who monitor their credit reports can also identify potential errors or problems in a credit file and make corrections quickly to improve their credit score.¹⁴⁶ Moreover, consumers can access information that can prove useful in helping improve and better manage their credit obligations, and, consequently, their credit standing.¹⁴⁷ Currently in the consumer credit market, consumers are mindful of their credit score and aspire to improve it if possible, or at least attempt to avoid taking actions that would have a negative impact on their scores. Studies have shown that consumers generally understand the inclusion and exclusion of certain elements of their financial histories in their credit report.¹⁴⁸

Some recent news reports headlines describe a new era in social credit systems in which “your deadbeat Facebook friends could cost you a loan,”¹⁴⁹ or alternatively, “[y]our Facebook friends could be the ticket to your next loan.”¹⁵⁰ Upon learning about social credit and the main factors considered, Type B individuals would become more mindful of what can help them obtain and maintain a better credit score. Type B consumers, who prioritize savings and seek to achieve the best financial terms, would likely delete “deadbeat” friends and all other potentially tolling friends who could negatively affect their credit score.¹⁵¹ Indeed, a

¹⁴⁵ See, e.g., CONSUMER FIN. PROT. BUREAU, CONSUMER VOICES ON CREDIT REPORTS AND SCORES 7 (2015), http://files.consumerfinance.gov/f/201502_cfpb_report_consumer-voices-on-credit-reports-and-scores.pdf [<http://perma.cc/GR9T-8W5N>].

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ See *id.* at 12.

¹⁴⁹ See Erika Eichelberger, *Your Deadbeat Facebook Friends Could Cost You a Loan*, MOTHERJONES (Sept. 18, 2013), <http://www.motherjones.com/politics/2013/09/lenders-vet-borrowers-social-media-facebook> [<http://perma.cc/F4D5-YZ5S>].

¹⁵⁰ See Kia Kokalitcheva, *Your Facebook friends could be the ticket to your next loan*, FORTUNE (Aug. 4, 2015), <http://fortune.com/2015/08/04/facebook-loan-approval-network/> [<http://perma.cc/E6SF-74H5>].

¹⁵¹ Such an inference is further supported by a group of economists who found that social credit is likely to make online friendships more

social credit world affords very little room for social mistakes. With this understanding, Type B individuals would quickly warm up to the possibility of a complete social cleanup of their online circles. However, merely deleting contacts is not enough to significantly improve one's credit standing. Thus, further adaptation is expected. Just as consumers understand and act upon the negative consequences of not paying a past due bill, Type B individuals will constantly have the social credit concept on their minds. As a result, they would not only manicure their existing network, but also avoid adding new contacts, and possibly even avoid forming new offline friendships with individuals perceived as financial red flags.

Such adaptation in consumer behavior would be neither surprising nor a first. Rational individuals try to better their positions in various aspects of life by harnessing different systems to their advantage. Empirical evidence of players' behavior in other markets support the assumption that rational consumers will adapt their behavior to new social credit standards and norms. Players in other markets, understanding the link between online influence and the social standing and future prospects, have already demonstrated a propensity to maximize financial gain. Examples of such markets include: (i) education enrollment, (ii) human resources, and (iii) insurance.

It is a well-established truth that the university admission process includes careful examination of an applicant's online social activities, contacts, profile, and posts. On top of traditional factors that admission officers factor into their decisions, they have admittedly started to look into indications about students' extracurricular activities, judgment calls, and other relevant pieces of information extracted from students' social media and digital footprints.¹⁵² Oftentimes a candidate's poor judgment

socioeconomically homogeneous. As a result, social credit scores would become better predictors of true credit risk and improve credit availability. See Wei et al., *supra* note 117.

¹⁵² See Victor Luckerson, *When Colleges Look Up Applicants on Facebook: The Unspoken New Admissions Test*, TIME (Nov. 15, 2012),

displayed online can cause an institution to deny a candidate. Admissions officials report that they have occasionally rejected applicants or revoked their acceptances because of online materials, saying, for example, that “[i]t’s something that is becoming more ubiquitous and less looked down upon.”¹⁵³ Not surprisingly, students are realizing the stakes and responding to the background check by shoring up their online social presence.¹⁵⁴ Specifically, a recent study found that students believed cleaning up their Facebook presence or other social media profiles improved their admission prospects; many took active measures to delete, edit, or otherwise alter their social media profiles, including modifying their names.¹⁵⁵ Social media is the ultimate venue

<http://nation.time.com/2012/11/15/when-colleges-look-up-applicants-on-facebook-the-unspoken-new-admissions-test/> [<http://perma.cc/PR9N-69DZ>].

¹⁵³ See Natasha Singer, *They Loved Your G.P.A. Then They Saw Your Tweets*, N.Y. TIMES (Nov. 9, 2013), <http://www.nytimes.com/2013/11/10/business/they-loved-your-gpa-then-they-saw-your-tweets.html> [<http://perma.cc/JVQ3-VBKD>] (“Of 381 college admissions officers who answered a Kaplan telephone questionnaire this year, 31 percent said they had visited an applicant’s Facebook or other personal social media page to learn more about them—a five-percentage-point increase from last year. More crucially for those trying to get into college, 30 percent of the admissions officers said they had discovered information online that had negatively affected an applicant’s prospects.”).

¹⁵⁴ See, e.g., *id.* (“If you’ve got stuff online you don’t want colleges to see . . . deleting it is kind of like joining two more clubs senior year to list on your application to try to make you seem more like the person they want at their schools.”); see also #Accepted: *The Changing Role of Social Media in College Admissions*, EDUC. ADVISORY BD. (Nov. 24, 2014), <https://www.eab.com/daily-briefing/2014/11/24/accepted-the-changing-role-of-social-media-in-college-admissions> [<http://perma.cc/3NQJ-VJPK>] (“More college admissions staff are looking at applicants’ social media profiles, but students are getting savvier about sanitizing their online images.”).

¹⁵⁵ See Katherine Kiang & Marissa Page, *Are Colleges Really Creeping on Your Facebook?*, HUFFINGTON POST (Nov. 6, 2013), http://www.huffingtonpost.com/2013/11/06/colleges-facebook_n_4228586.html [<http://perma.cc/QQ6D-T89>] (explaining that, when asked what actions they have taken or plan to take to safeguard their online presence, students responded that 21.6% change their searchable name, 21.9%

for millennial branding, and many individuals understand they should use it to their advantage. Effective branding in this context also means carefully picking contacts, because “bad” friends can take a toll on one’s online reputation.¹⁵⁶

In the job market, reviewing potential candidates’ online social accounts is already standard for many human resources and recruiting offices. Most interviewers check out applicants on social networks and scan their profiles for any issues that may raise a red flag.¹⁵⁷ According to research done by the Society for Human Resource Management, approximately three quarters of companies surveyed confessed to using social networking sites to recruit job candidates, and a fifth of the companies surveyed also admitted to using social media to screen or background check job applicants.¹⁵⁸ Similarly, major human resources and recruiting companies openly state on their websites that they frequently examine use of mainstream social media platforms for hiring purposes.¹⁵⁹ The U.S. Equal Employment Opportunity Commission (“EEOC”) started examining this issue in March 2014,¹⁶⁰ and courts have also started to hear cases dealing with improper use of social

change their public profile picture, 26.4% untag themselves in photos, and 12.1% delete their Facebook or other social media accounts).

¹⁵⁶ See Emily Driscoll, *Attention College Applicants: Admissions Can See Your Facebook Page*, FOX BUS. (Mar. 23, 2011), <http://www.foxbusiness.com/personal-finance/2011/03/23/attention-college-applicants-admissions-facebook-page/> [<http://perma.cc/65JL-KV9M>].

¹⁵⁷ See Molly Triffin, *8 reasons you weren’t hired*, MARKET WATCH (Feb. 12, 2015), <http://www.marketwatch.com/story/7-reasons-you-werent-hired-2015-02-12> [<http://perma.cc/C7TD-JPUV>]. See also Kathryn Barcroft & Barrie Dnistrian, *The EEOC Hears Concerns About Social Media and Hiring*, N.Y. L.J. (Mar. 9, 2015), <https://www.cohengresser.com/assets/publications/aaa.pdf> [<http://perma.cc/N4PB-4SMW>] (“Because a qualified job candidate may not have considered his future job prospects when he posted lewd Mardi Gras photos . . . or took to Twitter to rail against President Obama in 2012, a quick check of social media by a recruitment manager could sink an otherwise certain offer of employment.”).

¹⁵⁸ *Id.*

¹⁵⁹ See, e.g., *id.*; ENTELO, <https://www.entelo.com> [<http://perma.cc/BU95-X9TC>].

¹⁶⁰ Triffin, *supra* note 157.

media during the hiring process, focusing on employers' discriminatory use of social media in deciding between candidates.¹⁶¹ As a result, job applicants should maintain and use their social profiles in a conservative fashion. Many job seekers affirm that they are scrubbing their online resumes by making changes to their social networking accounts or increasing privacy settings to prevent potential employers from accessing their personal information.¹⁶²

Online social information is similarly used in the insurance market when investigating claims. Insurers are checking whether the individuals involved in liability issues have taken reasonable steps to protect themselves.¹⁶³ Some have gone so far as to designate an internal team of cyber-analysts to inquire into a person's digital activities and learn whether individuals are lying about injury claims.¹⁶⁴ Others have used services from external specialty firms to obtain "dirt" on individuals.¹⁶⁵ Accordingly, insured and third parties should refrain from sharing certain content on social networks while involved in an insurance claim. Even insurance organizations recommend thinking carefully about the content posted on one's social media accounts.¹⁶⁶

¹⁶¹ *Id.*

¹⁶² See Stephanie Goldberg, *Young job-seekers hiding their Facebook pages*, CNN (Mar. 29, 2010), <http://www.cnn.com/2010/TECH/03/29/facebook.job-seekers/> [<http://perma.cc/7FQH-CGPR>]. According to Jobvite's Job Seeker Nation Study, forty percent of job seekers have modified their social media presence in some way, and seventeen percent have deleted specific content. See JOBVITE, JOB SEEKER NATION STUDY (2014), <http://web.jobvite.com/rs/jobvite/images/2014%20Job%20Seeker%20Survey.pdf> [<http://perma.cc/C35A-G9JR>].

¹⁶³ See Robin Ash, *Online Holiday Snaps May Cost Dearly, Insurers Warn*, TIMES (London) (Apr. 25, 2015), <http://www.thetimes.co.uk/tto/money/insurance/article4420650.ece> [<https://perma.cc/2QAK-VMAP>].

¹⁶⁴ See Rob Shaw, *Internet Reduces ICBC's Need for Private Investigators*, VANCOUVER SUN (Apr. 22, 2015), http://www.vancouver.sun.com/technology/Internet+reduces+ICBC+need+private+investigators/10995448/story.html?_lsa=0fda-7a3b [<http://perma.cc/C8LV-FL8N>].

¹⁶⁵ See, e.g., *What We Do*, NOVARICA, <http://novarica.com/> [<http://perma.cc/2QCE-UHUD>].

¹⁶⁶ Rebecca Perring, *No 'hot-dog legs'—Keep holiday selfies OFF Facebook or have insurance claims REJECTED*, DAILY EXPRESS (London)

Concealing, editing, or deleting online social information continues to play a role even when such claims mature into actual litigation. For example, the Florida Bar's Professional Ethics Committee recently discussed this matter, at the request of a Florida attorney who handles personal injury and wrongful death cases.¹⁶⁷ The committee ultimately confirmed that an attorney could advise her client to tighten privacy settings and to conceal information relevant to the foreseeable proceeding from social media accounts as long as an appropriate record is maintained and no rules or substantive laws regarding the preservation and/or spoliation of evidence are broken.¹⁶⁸

3. Type C—Lazy, Idealistic, Or Benefiting in A Different Way

While traditional law and economics assumes that individuals attempt to maximize their utility based upon preferences, behavioral law and economics finds that deviations from such behavior commonly occur. These departures typically relate to well-researched and long-recognized types of cognitive bias, which include contextualization effects¹⁶⁹ and self-control errors.¹⁷⁰

(Apr. 24, 2015), <http://www.express.co.uk/news/uk/572365/Holiday-insurance-claims-rejected-selfies-Facebook> [<http://perma.cc/8254-F84E>].

¹⁶⁷ See Brian Karpf, *Florida's Take On Telling Clients To Scrub Social Media Pages*, LAW360 (Sept. 15, 2015), <http://www.law360.com/articles/702288/florida-s-take-on-telling-clients-to-scrub-social-media-pages> [<http://perma.cc/P6S3-6S33>].

¹⁶⁸ *Id.*

¹⁶⁹ Frequently described as “framing effects,” these effects occur when individuals face an identical set of options to choose from and select different options in different contexts. See Jolls et al., *supra* note 118.

¹⁷⁰ Self-control errors include errors in decisions about allocating resources over time. See Shane Frederick et al., *Time Discounting and Time Preference: A Critical Review*, in *TIME AND DECISION: ECONOMIC AND PSYCHOLOGICAL PERSPECTIVES ON INTERTEMPORAL CHOICE* 13, 24–26 (George Loewenstein et al. eds., 2003). Such errors also include optimism bias. See Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806, 806–07 (1980).

Type C individuals are consumers who are likely to depart from rational choice behavior by avoiding social networks or not improving their online social impression. Type C individuals mirror the behavior of Type A individuals, who avoid social networks or refuse to make changes to their online persona. But unlike Type A individuals, the choice exhibited by Type C is not a rational one. Instead, they are passive, lazy, or lack understanding of technological and financial advancements.

Those who avoid social networking do not properly appreciate the context, meaning, and nature of social credit. They might not understand that missing out on social networking means more than not being able to see newly posted pictures of their grandchildren or share interesting news articles. Because they never joined a social network, there is less readily available information on those Type C users online, and thus it is costlier for lenders to assess their creditworthiness. As explained above, such information scarcity forces lenders to spend higher transaction costs on due diligence and pass these costs on to the applicants. Had these Type C applicants rationally analyzed the social credit ecosystem, they might have reconsidered their avoidance.

There are also Type C individuals who would continue to network freely online without changing their past or future social networking standards despite the potential negative impact to their credit scores. If minimally informed about the main factors coming into play in a social credit analysis, there is no rational explanation for such a behavior, given (i) the relatively negligible effort that is associated with modifying one's own social network accounts, and (ii) the ensuing negative financial consequences.

4. Type D—Non-Tech Savvy and Lemons?

Also deviating from the behavior rational choice behavior, Type D individuals would avoid online social networking because of poor strategic reasoning. Those individuals realize they are not strong candidates for a high social credit score and hence avoid social networks as a game plan to conceal negative information. In an environment of information-

seeking lenders, a simplified understanding of credit underwriting would view risk assessment as conducted by classifying consumers into “good” or “bad” groups. The good group consists of those who are extremely creditworthy and pose minimal risk. The bad group consists of those who are not creditworthy and do pose risks. By concealing information, Type D individuals hope to move from the bad group to the good group.

In reality, however, all defendants are under a cloud of suspicion as lenders gather information and compile their credit score. As a result, the good group will want to differentiate themselves by disclosing information, while the information-seeking lenders will simultaneously prefer that they do so.¹⁷¹ When the good group signals they are creditworthy, the concealing strategy of the bad group turns out to be irrational. Such a strategy would likely backfire, as lenders would believe those consumers’ credit scores are worse than they are in reality. Indeed, lenders would view them as lemons.¹⁷²

IV. PRIVACY-RELATED HARMS

The utilization of social information for financial ranking purposes poses a number of policy challenges, the first of which relates to privacy issues that would directly result from the rational choice behavior of Type B individuals. At the direct level, the social credit apps have an obvious impact on the loan seeker’s privacy; they accrue and survey data to

¹⁷¹ See Samuel Bray, *Not Proven: Introducing a Third Verdict*, 72 U. CHI. L. REV. 1299, 1309 (2005).

¹⁷² The “buyers,” who are often the lenders, who are the information-seekers) lack and cannot detect information the “sellers” (consumers) have. In the lemons problem, given the lack of information, the prices one is willing to pay with less information fall and the good products drop out, leaving only lemons. This lemons argument has been used in many disciplines. For a lemons argument in the context of juvenile records, see T. Markus Funk & Daniel D. Polsby, *Distributional Consequences of Expunging Juvenile Delinquency Records: The Problem of Lemons*, 52 WASH. U. J. URBAN & CONTEMP. L. 161, 166 (1997).

learn about applicants' marital status, family ties, friendships, jobs, shopping preferences, political stances, and more. As opposed to other applications of big data that aggregate and anonymize information, the use of social intelligence for financial ranking is dependent upon personal identification. Some apps ask for the loan seeker's login passcodes and then scan her entire activity, including not only visible online footprints but also private exchanges.¹⁷³ Others simply notify the applicant that their risk analysis takes into account her online social image.

A. Direct Privacy Effect

At the direct level of interaction between the loan seeker and the lender, the penetration into the former's private matters is justified against the backdrop of her conspicuous consent. This is a simple and in many ways reasonable transaction: one barter the private details of one's life for better interest rates. Trading away personal information in return for products or services is not new and has long been a dominant model in other markets. A very common example is the behavioral advertising business model, in which advertising is selected and displayed based on information about the individual user.¹⁷⁴ Data is often collected based on a consensual exchange, in which personal information is used as currency to pay for various products and services.¹⁷⁵ Critics challenge this assumption, arguing that users cannot reasonably estimate their disutility from the tradeoff and the harm associated with the data collection.¹⁷⁶ Unlike a common retail transaction, the ongoing nature of the "payment" (i.e., data collection) that is not completed at the point of purchase

¹⁷³ At some point Lenddo, for example, checked messages for shared slang or wording that suggests affinity. *See Stat oil*, *ECONOMIST* (Feb. 9, 2013), <http://www.economist.com/news/finance-and-economics/21571468-lenders-are-turning-social-media-assess-borrowers-stat-oil> [http://perma.cc/5FLK-KYG5].

¹⁷⁴ Katherine J. Strandburg, *Free Fall: The Online Market's Consumer Preference Disconnect*, 2013 U. CHI. LEGAL F. 95, 100 (2013).

¹⁷⁵ *Id.* at 106.

¹⁷⁶ *Id.* at 107.

further obstructs users' ability to appreciate the privacy harm.¹⁷⁷

While those arguments have some merit in the behavioral advertising context, they lose much of it when applied to data collection by social credit services. The social credit framework is predicated on a different kind of information sharing: to be considered for a loan, a candidate must interact closely with the service, fill out an application, browse through the app or webpage to learn about the various products, and then select those suitable for her needs. As opposed to the passive, often oblivious sharing of information presented by the behavioral advertising business model, applicants for social credit-based loans engage in an active, voluntary, and better-informed sharing of personal details. From a user's perspective, this information is shared and the subsequent surveillance is agreed to at low or no apparent cost for a clear economic reward.

Businesses built around consensual disclosure of previously unavailable information in return for a discount or other financial incentive exist and flourish in other markets as well. An example of this model is Progressive Snapshot.¹⁷⁸ The insurance company Progressive Corporation has gone beyond calculating risk based on one's accident record and created a voluntary driver-monitoring program called Snapshot. Consumers who choose to enroll receive a personalized insurance rate from Progressive based on their safe driving habits as recorded by a small box plugged into their vehicle.¹⁷⁹ Data about a driver's mileage, vehicle speed, timing of driving (day or night), and frequency of hard braking is amassed and analyzed to establish one's driving patterns and accordingly estimate the risk posed to

¹⁷⁷ *Id.* at 130–31.

¹⁷⁸ See PROGRESSIVE, <https://www.progressive.com/auto/snapshot/> [http://perma.cc/R63Q-23AD].

¹⁷⁹ See *Snapshot Terms and Conditions*, PROGRESSIVE, <https://www.progressive.com/auto/snapshot-terms-conditions/> [http://perma.cc/H4VZ-SM68].

the insurance company.¹⁸⁰ Additional data such as record location information is collected in some devices for research and development purposes, and Progressive states that it would retain information collected or derived from the device indefinitely.¹⁸¹ The Snapshot program seems to have gained traction, with more than 2.5 million enrolled drivers that share information about their habits to get better premium rates.¹⁸²

Authorizing collection and use of personal information in exchange for an economic benefit makes perfect economic sense to some consumers.¹⁸³ As those exchanges materialize in various markets, they appeal to a wide range of consumers with different sets of preferences. A study by the European Network and Information Security Agency found that, when given a choice, the majority of consumers would prefer buying from a more privacy-invasive provider if they charged a lower price.¹⁸⁴ Against this backdrop, we argue that the challenge lies not in the direct interaction between the social credit providers and loan seekers because this interaction can be justified on freedom of contracts grounds.

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² See Press Release, Progressive, Safer Drivers Pay Less for Car Insurance with Snapshot Pay As You Drive Insurance Program from Progressive (May 20, 2015), <http://www.marketwatch.com/story/safer-drivers-pay-less-for-car-insurance-with-snapshot-pay-as-you-drive-insurance-program-from-progressive-2015-05-20> [<http://perma.cc/7LP5-5ASV>].

¹⁸³ Peppet, *supra* note 17, at 1157 (“Even with control over her personal information, he argued, an individual will often find it in her self-interest to disclose such information to others for economic gain. If she can credibly signal to a health insurer that she does not smoke, she will pay lower premiums.”).

¹⁸⁴ NICOLA JENTZSCH ET AL., EUR. NETWORK & INFO. SEC. AGENCY, STUDY ON MONETISING PRIVACY: AN ECONOMIC MODEL FOR PRICING PERSONAL INFORMATION 1 (2012), <https://www.enisa.europa.eu/activities/identity-and-trust/library/deliverables/monetising-privacy> [<http://perma.cc/V3LJ-3424>].

B. Derivative Privacy Effect

Instead, we find the troubling privacy challenge transpires at the derivative level: those facing the greatest privacy risk in the wake of social credit systems are third parties, whose presence is intertwined with the loan seeker's actions. By "third parties" we refer to the loan seeker's contacts, followers, and friends, whose interaction with the loan seeker, whether of a one-time or reoccurring nature, are analyzed and factored into a calculation of financial risk. Third parties' privacy harm depends on the amount and type of information collected and evaluated by the specific credit-generating algorithm, and generally correlates with the degree of disclosure and invasiveness authorized by the loan seeker. On the worse end of the spectrum are lenders that require unlimited access to an applicant's social network accounts. By granting such access, the loan seeker in fact delegates the privilege to access and view information about her contacts to the lender, without notifying or obtaining approval for such delegation. Subsequently, the lender can view posts and photos from third parties, learning about some remarkably private aspects of their lives.

On the better end of the privacy-invading spectrum are lenders that look at publicly available information without bypassing privacy firewalls. Third parties are still unaware of the use, but there is seemingly less discomfort with use of publicly available details. Just like in the offline world, goes the claim, one must assume responsibility for the information one unveils to the world. Leaving one's social footprints traceable and available online comes at the cost of it being used for various purposes without consent. Indeed, the argument in favor of using publicly accessible information about third parties for financial ranking is powerful, but four considerations significantly mitigate these rationalizations. First, even though the initial inquiry is directly fixated on the loan seeker, information collected could potentially be retained and cross-referenced to make future creditworthiness determinations related to one of the indirectly-involved third parties. Second, unlike widely used big data analytics that generally lack personal components,

personal identification is inherent to the process of social-based scoring, making the prospects of a privacy harm greater to third parties. Third, advanced algorithmic modeling and big data can yield inferences about private information that may have never been disclosed to the online platform, leaving individuals exposed in ways they could not have anticipated.¹⁸⁵ Finally, as the subsequent discussion below illustrates, whether a particular use agrees with existing privacy norms should not be squarely contingent on the public/private dichotomy. Instead, subject to a reasonableness check, the expectations of an individual whose privacy interest may be harmed should be used as the barometer of privacy violation claims.

1. Contextual Integrity Theory of Privacy

Two benchmark theories of privacy shed light on the legitimacy of the practice of collection and use of information about third parties. Helen Nissenbaum's contextual integrity theory offers a conceptual framework that marries the protection of private information and the norms of information flow within particular contexts.¹⁸⁶ Designed to detect whether the introduction of a new practice or technology into a given social context breaches governing informational norms, the contextual integrity theory rejects the traditional distinction of public versus private information. Instead, the theory suggests that information-sharing activities present themselves in a "plurality of distinct realms," all of which are governed by norms of information flow that define the contours of our essential entitlements regarding personal information.¹⁸⁷ The theory distinguishes between two classes of informational norm:

¹⁸⁵ For example, researchers were able to fairly accurately guess the characteristics of a group of Facebook users by analyzing their "likes." See Zeynep Tufekci, *Algorithmic Harms Beyond Facebook and Google: Emergent Challenges of Computational Agency*, 13 COLO. TECH. L.J. 203, 210 (2015).

¹⁸⁶ See NISSENBAUM, *supra* note 23.

¹⁸⁷ *Id.* at 137.

norms of appropriateness and norms of flow or distribution.¹⁸⁸ Norms of appropriateness determine whether information of a certain type or nature is appropriate for disclosure in a given context.¹⁸⁹ In addition to the question of appropriateness in a given context, contextual integrity also considers whether the distribution or flow of the information conforms to contextual norms of information flow.¹⁹⁰ Accordingly, privacy is invaded when these informational norms are violated.

In the direct privacy harm context, from a loan seeker's perspective, both informational norms are preserved. The loan seeker chooses to disclose personal information about herself for an economic reward. The user understands that the information shared will be used to evaluate her financial well being and may or may not result in a loan with preferred terms. Neither norms of appropriateness nor norms of flow are contravened. Though information flow has undoubtedly changed since the loan seeker first signed up to the social network or otherwise made her online footprints visible, when a user opts to use a lending service that takes account of her online social image, she actively and willfully changes the information flow for what she believes to be her advantage.

In the derivative privacy harm context, the same argument does not stand when the subject of the data analysis is a third party. The third party has control over the first point of sharing in the social network: she signed up to the network to interact with friends, family, co-workers, and people of various levels of proximity under a certain degree of exposure and privacy expectations. However, when disclosing information in the course of online socialization, third parties rarely contemplate the possibility of being evaluated to financially rank others. Furthermore, while it is unclear from the description of current lending practices, we

¹⁸⁸ See Helen Nissenbaum, *Privacy as Contextual Integrity*, 79 WASH. L. REV. 119, 138 (2004).

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

assume the information collected and the financial grade of third parties is kept and could be used for future reference if the third party decides to apply for a loan via a social credit system.

Thus, norms of appropriateness are transgressed when lenders collect and use information shared in the interest of online socialization for financial ranking purposes of others and, possibly, of third parties as well. Norms of information flow are also breached as third parties are generally unaware and have not expected such use of social information at the specific point of the data chain where the risk analysis takes place. To put it differently, third parties' right to privacy is violated due to the unexpected flow of personal information from entities that they reasonably expect to collect and use social information (e.g., social networks) to other entities (e.g., marketplace lenders) that use the same information to gauge financial risk.

The contextual integrity theory is directly dependent on individual and societal privacy expectations, and those are highly susceptible to changes over time. Thus, if social credit systems become widespread, many of the arguments listed above would lose much of their strength because the use of social information for financial ranking purposes would no longer be utterly outside the purview of an individual's expectations. The more people turn to those alternative lenders, the more people will be familiar with social credit services. Consequently, with online socialization frequently factored into financial risk determinations, an argument that condemns such practice based on unexpected information flow would be unpersuasive at best.

2. Social Network Theory of Privacy

Another guiding theory, which rests on similar fundamental assumptions, is Lior J. Strahilevitz's social network theory of privacy.¹⁹¹ It, too, looks closely at

¹⁹¹ Lior Jacob Strahilevitz, *A Social Networks Theory of Privacy*, 72 U. CHI. L. REV. 919 (2005). Importantly, notwithstanding the clear reference to what we today call "social networks," this theory is based on ongoing

reasonable privacy expectations given the context of the initial disclosure by applying predictive social analytics and advocating that courts use the same analytics. Specifically, Strahilevitz argues that the nature of the information shared as well as the subject of disclosure can determine to what extent the information is likely to be disseminated outside of the original group of recipients and accordingly to what extent such dissemination could reasonably give rise to privacy violation claims.¹⁹² He lists predictive factors to help courts establish whether, when the information was initially shared, it was likely to have been further disseminated regardless of any subsequent disclosure.¹⁹³ For example, the more interesting, surprising, novel, revealing, or entertaining a particular piece of information is, the more an individual should reasonably expect it will be disseminated through a network.¹⁹⁴ Conversely, it is fairly difficult to effectively aggregate and analyze complex information through weak ties, thus these kinds of details are likely to stay confidential.¹⁹⁵ When highly connected individuals, which Strahilevitz refers to as “supernodes,” disclose information, the number of people exposed to the information increases and so does the likelihood that the information crosses networks and reaches individuals beyond the initial group.¹⁹⁶

Under the social network theory of privacy, the use of social information for financial ranking purposes cannot ground a valid privacy violation claim from a loan seeker’s perspective. The loan seeker, in this respect, acts as a supernode—disseminating and authorizing the use of personal information about her in return for an economic reward. Third parties, however, who are not directly involved in the transaction and are generally unaware of the

research in social network theory and does not specifically analyze online social media.

¹⁹² *Id.*

¹⁹³ *Id.* at 970–71.

¹⁹⁴ *Id.* at 972.

¹⁹⁵ *Id.* at 971.

¹⁹⁶ *Id.* at 975.

use, would have a valid breach of privacy claim under the theory. Much like the contextual integrity argument, the analysis here revolves around users' expectations: when signing up to a social network or otherwise socially interacting online, one could rarely anticipate information about her online social whereabouts to go rampant. She could certainly rarely anticipate this information to be used to financially rank others and, potentially, even herself. If the lender conducts information mining using the loan seeker's login passcode, a third party privacy violation claim is further reinforced.

Naturally, an application of the social network theory of privacy to social credit systems depends on the specific circumstances. It requires an in-depth examination of the social credit system used, its users, how popular it is and among which populations, the algorithm employed, the weight given to social factors in the overall calculation, and more. One interesting point to note, however, is that initially social credit systems targeted young individuals, who perhaps lacked financial history but exhibited impressive social credentials, such as a significant communal or political pursuit, a large number of friends, high frequency exchanges, and deep online social interactions. Those individuals fit neatly within the description of the supernode category, which consists of individuals who "tend to be happier and better informed than the peripherals . . . more likely to be perceived as 'leaders' and . . . more likely to earn promotions within a workplace."¹⁹⁷ While this does not necessarily mean that supernodes assign lower value to their own or to someone else's privacy interest, it is a noteworthy coincidence that the same group that acts as a driving force in an illegitimate dissemination of private information under the social network theory of privacy is also the same group targeted by social credit lending services.¹⁹⁸

¹⁹⁷ *Id.* at 957.

¹⁹⁸ This coincidence also further supports the unraveling effect discussed *supra* in Part II.B.1. Those who choose to use social credit lending services are willing to disclose personal information about themselves, putting others that refuse to disclose in an inferior bargaining

V. SOCIAL POLARIZATION

A. Online and Offline Social Segregation

Many consumer advocates criticize algorithmic profiling and personalization, such as those produced by social credit systems, for endangering open society and democratic speech.¹⁹⁹ By cataloging people into pre-determined categories, such systems divide society into echo chambers of like-minded peers.²⁰⁰ Building on this observation, we argue that social credit systems pose greater risks for advancing social polarization.²⁰¹ As explained above, systematic consideration of social information motivates individuals to polish their online image for a better creditworthiness grade. The more desirable the end product, the more individuals, such as Type B, would tend to act to improve their chances of getting the best deal. Following this logic, rational users aware of potential financial harm from certain online interactions may seek to remove hazardous links while strengthening beneficial social ties. They may sanitize their list of friends by unfriending those who went bankrupt, lost their jobs, live in a poor neighborhood, or are otherwise

position. Supernodes also provide backdoor access to this same information that third parties prefer to keep veiled, because “social” ranking inherently involves an information tie that keep all the contacts in an online social circle linked together. The system offers a clear incentive for supernodes to act as access facilitators: “Supernodes maintain their privileged status by continuing to serve as information clearinghouses, and, in certain contexts, become supernodes based in part on their willingness to share previously private information about themselves.” *Id.*

¹⁹⁹ See ELI PARISER, *THE FILTER BUBBLE: WHAT THE INTERNET IS HIDING FROM YOU* (2011); JOSEPH TUROW, *THE DAILY YOU: HOW THE NEW ADVERTISING INDUSTRY IS DEFINING YOUR IDENTITY AND YOUR WORTH* (2011); Omer Tene & Jules Polonetsky, *Big Data for All: Privacy and User Control in the Age of Analytics*, 11 NW. J. TECH. & INTELL. PROP. 239, 252 (2013).

²⁰⁰ Tene & Polonetsky, *supra* note 199.

²⁰¹ For the possibility of network fragmentation and its effect on the accuracy of social credit systems see Wei et al., *supra* note 117.

perceived as financially risky, and by permitting their social network friends to include only those with good careers and financial standing. Rational individuals would apply the same cleansing process to followers—those who are not “friends” but with whom the rational social networker interacts with by consuming and commenting on content they post. Friends and accounts followed by a social networker also include service providers, celebrities, radical public figures, media bodies, governmental agencies, and more. In other words, one’s online social image merges social interactions with intellectual (and non-intellectual) interests, shopping preferences, news consumption, and more.

From a rational user’s perspective, an online social cleanup makes perfect economic sense. Artificial acts of online social restructure, however, have ramifications beyond the individual user. Such changes may lead to online social polarization, where users are regrouped by the level of financial risk they embody to their contact. Those from disadvantaged backgrounds would interact only with users who, likewise, have not been able to break free of the cycle of poverty; Ivy League alumni would only allow themselves to be associated with similarly elite peers;²⁰² an executive wishing to virtually follow an organization committed to helping poor families is likely to avoid creating a traceable connection between herself and the unfortunate, and for similar reasons may be reluctant to “like” the business page for her best friend’s debt refinancing company.

Indeed, individuals tend to form online relationships with individuals who share similar backgrounds, characteristics, interests, and locations.²⁰³ As people generally interact primarily with their peers offline, social networks further facilitate homophily.²⁰⁴ While early research on online

²⁰² Kadhim Shubber, *SoFi really wants you to think it isn’t a bank*, FIN. TIMES (Dec. 3, 3015), <http://ftalphaville.ft.com/2015/12/03/2146561/so-fi-really-wants-you-to-think-it-isnt-a-bank/> [<http://perma.cc/BB63-RK3G>].

²⁰³ M. McPherson et al., *Birds of a Feather: Homophily in Social Networks*, 27 ANN. REV. SOCIOLOGY 415, 416 (2001).

²⁰⁴ Homophily is the idea that “a contact between similar people occurs at a higher rate than among dissimilar people.” *Id.* at 416.

communities assumed that online social networkers would connect with others outside their offline social group—for example, forming communities around shared interests as opposed to shared geography—later studies suggested that people used online social networks to maintain preexisting offline affairs or otherwise solidify offline connections, as opposed to meet new people.²⁰⁵

The natural inclination to interact within a homogenous group, however, does not suggest that existing social circles necessarily reflect a strict allocation by financial risk. Furthermore, individuals online connect on various grounds that could bring together people from entirely different economic classes. Even the latest studies acknowledge that in addition to their role as offline relationship boosters, online social networks enable the launch of new social ties, even with complete strangers.²⁰⁶ Similar interests, like a shared taste in music or a favorite online game, often give rise to such online social interfacing.²⁰⁷ Furthermore, individuals use social networks as an information conduit beyond the social context (e.g., consuming news), as a way to learn about and communicate with businesses (e.g., following Macy's on Instagram), and to form connections around similar interests (e.g., using the networking platform MeetUp, which allows users to connect online and then “meet up” offline). Those common uses, that are not social in the traditional sense, group social networks' users in interest-based categories with no clear financial standing match. Social networks also allow people to maintain connections as they move from one offline community to

²⁰⁵ Ellison et al., *supra* note 24, at 1144.

²⁰⁶ *Id.* at 1143; see also Daria J. Kuss & Mark D. Griffiths, *Online Social Networking and Addiction—A Review of the Psychological Literature*, 8 INT'L J. ENVTL. RES. & PUB. HEALTH 3528, 3531 (2011).

²⁰⁷ Sabine Trepte et al., *The Social Side of Gaming: How Playing Online Computer Games Creates Online and Offline Social Support*, 28 COMPUTERS HUM. BEHAV. 832, 832 (2012) (“The results complement existing research by showing that online gaming may result in strong social ties, if gamers engage in online activities that continue beyond the game and extend these with offline activities.”).

another, going through career and life changes. Thus, social networks preserve connections initiated in an earlier point of life, even if the number of similarity points has decreased dramatically over time.²⁰⁸

The consequences of rational users' perfecting their profiles in response to social-based financial ranking are likely to go beyond virtual realms. Studies have found a strong link between online and offline socialization, both in terms of causality—offline connections result in online connections and vice versa—and in terms of maintenance. Offline social networks are supported and reinforced via online social networks.²⁰⁹ That is, rather than operating as separate domains for social action, online social networks merge online and offline behavior and should be viewed as an integrated set of communication practices.²¹⁰

Accordingly, if a practice of filtering one's online friends list based on financial health and possible risk indicators becomes commonplace, it would have real life consequences. Because our tangible world is heavily supported by its virtual counterpart, online social polarization means that offline connections with no online equivalence are costlier. Support from online social networks allows individuals to more efficiently bolster their offline social ties. Judging by

²⁰⁸ Ellison et al., *supra* note 24, at 1165.

²⁰⁹ See, e.g., *id.* at 1144 (finding that individuals tend to use the online space for supporting mostly offline relationships but also to form new connections); Kaveri Subrahmanyam et al., *Online and offline social networks: Use of social networking sites by emerging adults*, 29 J. APPLIED DEVELOPMENTAL PSYCHOL. 420, 427–28 (2008); Sandra Zwier et al., *Boundaries to the Articulation of Possible Selves Through Social Networking Sites: The Case of Facebook Profilers' Social Connectedness*, 14 CYBERPSYCHOLOGY, BEHAV. & SOC. NETWORKING 571, 575 (2011).

²¹⁰ See, e.g., Nicole Ellison et al., *With a Little Help from My Friends: Social Network Sites and Social Capital*, in A NETWORKED SELF: IDENTITY, COMMUNITY AND CULTURE ON SOCIAL NETWORK SITES (Zizi Papacharissi ed., 2011); Charles Steinfield et al., *Online Social Networks Sites and the Concept of Social Capital*, in FRONTIERS IN NEW MEDIA RESEARCH 115 (Francis L. F. Lee et al. eds., 2012); Ellison et al., *supra* note 24, at 1150; Adalbert Mayer & Steven L. Puller, *The old boy (and girl) network: Social network formation on university campuses*, 92 J. PUB. ECON. 329, 346 (2008).

the number of active users, this choice is enthusiastically opted for and widely used.²¹¹ While users could maintain offline relationships with no online trace, such maintenance would be harder. Most individuals would be left with only strong bonds that are oftentimes supported by geographical proximity. Without Facebook, keeping in touch with one's high school friends across the ocean could seem less attractive and unworthy of one's time. Widespread online segregation caused by social financial ranking could also legitimize the idea that people should be valued by their economic standing, and that friendships should accordingly occur only among homogenous groups. Once validated online, such a view may be easily exported offline, bringing a second-generation separate-but-equal regime into being.

B. Social Harms: Decrease in Social Capital and Lower Social Mobility

The potential score-based segregation online and offline could have a number of adverse consequences. First, intentional changes to one's online social circles curtail the resources accumulated through relationships among people, broadly conceptualized as social capital.²¹² Social capital empowers individuals to draw on the resources of other members of their networks, such as useful information, personal relationships, or the capacity to organize groups.²¹³ Studies have established a clear link between communities

²¹¹ As of the second quarter of 2015, Facebook had 1.49 billion monthly active users. See *Number of Monthly Active Facebook Users Worldwide as of 2nd Quarter 2015 (in Millions)*, STATISTA, <http://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/> [<http://perma.cc/T6MP-HY8R>].

²¹² See BOURDIEU & WACQUANT, *supra* note 25, at 119 (expanding the concept of "capital," which was traditionally related only to economics, to include social, cultural, and symbolic resources, and defining social capital as "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition").

²¹³ See Pamela Paxton, *Is Social Capital Declining in the United States? A Multiple Indicator Assessment*, 105 AM. J. SOC. 88, 92 (1999).

possessing greater social capital and a variety of positive social outcomes, including better public health, lower crime rates, and more efficient financial markets.²¹⁴ Various forms of social capital were also found to positively affect psychological well-being, self-esteem, and satisfaction with life.²¹⁵ Conversely, declining social capital may lead to increased social disorder, reduced participation in civic activities, and potentially more distrust among community members.²¹⁶ There is a robust connection between online social network usage and the accumulation of two forms of social capital: the bridging type, which involves exposure to information and resources from weak ties like coworkers, classmates, and acquaintances, and the bonding type, which encompasses connections to stronger ties such as family and close friends.²¹⁷

Against this backdrop, changes to an individual's online social circles that reduce the variety and number of ties she may form and maintain are expected to drive decreased social capital. Financially risky contacts, which may be unattractive to maintain from an economic viewpoint, could potentially offer access to non-redundant information and accelerate one's social capital just as much as financially ideal contacts would. Furthermore, access to a variety of financial resources, which has been growing since the introduction of online social networks and which the rise of social credit now threatens, has economic value in and of itself. This value consists in allowing individuals to convert social capital into economic capital.²¹⁸ This economic capital may be greater than the financial benefit one could enjoy by

²¹⁴ See Paul S. Adler & Seok-Woo Kwon, *Social capital: Prospects for a new concept*, 27 ACAD. MGMT. REV. 17, 29–30 (2002).

²¹⁵ See John A. Bargh and Katelyn Y. A. McKenna, *The Internet and social life*, 55 ANN. REV. PSYCHOL. 573 (2004).

²¹⁶ See Ellison et al., *supra* note 24, at 1145.

²¹⁷ See Steinfield et al., *supra* note 210, at 120–22.

²¹⁸ A similar argument was made in the context of traditional (offline) social networks by Pierre Bourdieu. See Pierre Bourdieu, *The Forms of Capital*, in SOCIOLOGY OF ECONOMIC LIFE 69, 103 (Mark Granovetter & Richard Swedberg eds., 2001).

maintaining a strictly elite social circle.²¹⁹ However, unlike the clear and defined value of financial benefits an individual could gain by pertaining to a strictly elite social circle, the value of economic capital that originates in social capital is hard to quantify, making it virtually impossible to determine which benefit is greater. Individuals are thus expected to follow the clearer path, fine-tune their online persona, and as a result reduce their social capital.

Because social capital correlates with social mobility, a decrease in the former leads to a decrease in the latter. Social mobility quantifies the movements of specific entities through the distribution of economic well-being over time,²²⁰ namely, the connection between the relative economic status of an agent and her starting conditions, such as parental income or family background. A recent study has shown that in the United States roughly half of parental income benefits are rolled over to the next generation in the form of higher earnings and that a significant share of the inequality between families at the tenth and ninetieth income percentiles persists into the next generation.²²¹ Social capital and the way people capitalize on social relations to move across social strata explain these different mobility chances.²²² Specifically, social capital of the “bridging” type

²¹⁹ Similarly, note that “it is unclear how large the increased online socioeconomic segregation would be and whether the social cost will be low relative to the credit benefits.” Wei et al., *supra* note 117.

²²⁰ See e.g., Jere R. Behrman, *Social Mobility: Concepts and Measurement*, in *NEW MARKETS, NEW OPPORTUNITIES? ECONOMIC AND SOCIAL MOBILITY IN A CHANGING WORLD* 69, 70 (Nancy Birdsall & Carol Graham eds., 2000); Gary S. Fields, *Income Mobility: Concepts and Measures*, in *NEW MARKETS, NEW OPPORTUNITIES? ECONOMIC AND SOCIAL MOBILITY IN A CHANGING WORLD* 101 (Nancy Birdsall & Carol Graham eds., 2000).

²²¹ See MITNIK ET AL., *supra* note 26, at 70–72.

²²² See Xavier de Souza Briggs, *Social Capital and Segregation: Race, Connections, and Inequality in America* 34 (Kennedy Sch. of Gov't, Harvard Univ. Working Paper No. RWP02-011, 2003); see also Silvia Domínguez & Celeste Watkins, *Creating Networks for Survival and Mobility: Social Capital Among African-American and Latin-American Low-Income Mothers*, 50 *SOC. PROBS.* 1 (2003).

secures social leverage and helps individuals change their opportunity structure and socioeconomic mobility.²²³ The size and essence of the network receive special emphasis, because pre-digital age studies have established that great, dispersed, and heterogeneous social networks amplify prospects for advancement.²²⁴ As social segregation could detrimentally affect social capital, an already slow and unsatisfactory rate of socioeconomic mobility would be further stymied.

C. A “Duty” to be Forgotten

Social financial ranking and the ensuing social polarization would also force people to choose between their social ties from the past and a better financial score in the future. A traceable connection to a poor community, bad neighborhood, or detrimental financial record could put a person’s good score at risk. It does not matter, for ranking purposes, if the person belonged to that poor community in the past, used to live in or in proximity to the bad neighborhood, or knows that bankrupt from elementary school. The connection would be considered harmful from an economic perspective. Thus, the rational move would be for individuals to detach themselves from their financially destructive past.

The desire to disconnect oneself from an unsavory past is at the heart of a highly debated fair information principle: the right to be forgotten. The right to be forgotten affords individuals the right that at some point data about their personal life will be deleted, rather than exist in databases

²²³ See Xavier de Souza Briggs, *Brown Kids in White Suburbs: Housing Mobility and the Many Faces of Social Capital*, 9 HOUSING POL’Y DEBATE 177 (1998).

²²⁴ See, e.g., Ronald S. Burt, *Social Contagion and Innovation: Cohesion Versus Structural Equivalence*, 92 AM. J. SOC. 1287 (1987); Barry Wellman & Milena Gulia, *The Network Basis of Social Support: A Network is More than the Sum of its Ties*, in NETWORKS IN THE GLOBAL VILLAGE: LIFE IN CONTEMPORARY COMMUNITIES 83, 107–08 (Barry Wellman ed., 1999).

indefinitely.²²⁵ The right to be forgotten could hypothetically mean the right to have information deleted after a preset period, the right to have a clean slate, and the right to be connected to current information and delinked from outdated information.²²⁶ The revisability principle, another component of a hypothetical right to be forgotten, allows individuals the ability to revise their identity to some significant extent. Revisability would permit individuals to update their socially-expressed beliefs and identities and edit views from the distant past.²²⁷

The eternal record of one's online past stands in sharp contradiction to the rationale behind the right to be forgotten and the revisability principle. It is also at odds with current credit law, as the FCRA sets limitations on the time that negative information can be reported, practically deeming such information "forgotten": credit reporting agencies are prohibited from reporting negative information older than seven years, except for certain information that can be reported for ten years such as bankruptcies and student loans.²²⁸

²²⁵ The Court of Justice of the European Union embraced the right to be forgotten in its May 2014 ruling in *Google Spain SL v. Agencia Espanola de Proteccion de Datos (AEPD)*, Case C-131/12, *Google Spain SL v. Agencia Española de Protección de Datos* (May 13, 2014).

²²⁶ See Michael L. Rustad & Sanna Kulevska, *Reconceptualizing the Right to Be Forgotten to Enable Transatlantic Data Flow*, 28 HARV. J.L. & TECH. 349, 367 (2015).

²²⁷ See Andrew Tutt, *The Revisability Principle*, 66 HASTINGS L.J. 1113, 1116 (2015).

²²⁸ 15 U.S.C. § 1681c (2012). A similar rationality guides scholarly proposals to allow individuals to part ways with information about them that is no longer relevant and that under existing legal standards they could "delete" or otherwise conceal as a means of providing a second chance. See JONATHAN ZITTRAIN, *THE FUTURE OF THE INTERNET AND HOW TO STOP IT* (Yale University Press, 2008), 227; Jonathan Zittrain, *Reputational Bankruptcy, The Future of the Internet and How to Stop It* (Sept. 7, 2010), <http://futureoftheinternet.org/2010/09/07/reputation-bankruptcy/> [<http://perma.cc/N5UD-3BEQ>]; VICTOR MAYER-SCHONBERGER, *DELETE: THE VIRTUES OF FORGETTING IN THE DIGITAL AGE* (Princeton Univ. Press, 2009); Danielle Keats Citron, *Technological Due Process*, 85 WASH.

Interestingly, while the right to be forgotten, the revisability principle, and the FCRA terms all relate to the notion of decoupling the present from the past, none address the challenges raised by the rise of social credit. Because it is the social networks' users that determine the substance of their accounts, they could simply delete information they prefer would be forgotten and reconstitute their past social image by making the changes they see fit. Thus, social credit does not implicate any need to resort to the FCRA, the right to be forgotten, or the revisability principle. It does, however, turn those voluntary rights into virtual obligations. Faced with a difficult choice between her social history and her social credit score, a person would not simply have a *right* to disconnect from her past, but a perceivably rational *duty* to erase her damaging societal record.

VI. ON ALGORITHMS, DISCRIMINATION, AND INTEGRITY²²⁹

In his book, *The Black Box Society*, Frank Pasquale notes that credit bureaus pioneered “black box techniques,” generating decisions of crucial importance for people, yet hiding their methods for data collection and analysis.²³⁰ Indeed, the credit scoring process is an enigma not only to the common consumer, but even to the most sophisticated and cautious borrower.²³¹ Because of the opacity around credit scoring systems, those systems fail in directing the scored individuals to the optimal credit behavior. Consumers cannot clearly identify acts that would strengthen their

U. L. REV. 1249 (2007); Frank Pasquale, *Ranking, Reductionism, and Responsibility*, 54 CLEV. ST. L. REV. 56 (2006).

²²⁹ An additional challenge that could be grouped with this class of risks relates to cybersecurity. The massive volume of personal data that is mined, analyzed and stored by private corporations increases the risks of data security breaches for consumers. See EXEC. OFF. OF THE PRESIDENT, BIG DATA: SEIZING OPPORTUNITIES, PRESERVING VALUES 51 (May 2014), https://www.whitehouse.gov/sites/default/files/docs/big_data_privacy_report_may_1_2014.pdf [<http://perma.cc/B523-FLBU>].

²³⁰ See FRANK PASQUALE, *THE BLACK BOX SOCIETY* 22 (2015).

²³¹ See Citron & Pasquale, *supra* note 27, at 10.

measured creditworthiness as well as acts that could potentially lower their score.²³² Even if consumers pay to learn about their credit score by purchasing scores from consumer reporting agencies, they have no way of knowing ahead of time whether the scores they obtain will adhere closely to, or differ moderately or considerably from, a score sold to creditors.²³³ In addition to invoking fairness concerns, such information asymmetry hinders consumers' ability to determine if they can obtain credit at a fair price.²³⁴ Under the veil of secrecy and their complex structure, existing scoring models also puzzle regulators, who frequently cannot fully understand, challenge, or audit them.²³⁵

Credit scoring systems arguably generate arbitrary results. A 2012 study by the Consumer Financial Protection Bureau found that one out of five consumers is expected to have a score that is “meaningfully” different from the score a lender would use to make a credit decision.²³⁶ Amidst a long-lasting state of opacity, those deviations indicate a significant share of arbitrary valuations.²³⁷ Due to their arbitrary nature, existing credit scoring systems ended up penalizing consumers for responsible behavior,²³⁸ facilitating de facto discriminatory lending practices,²³⁹ and having the

²³² See *id.* at 11.

²³³ See CONSUMER FIN. PROT. BUREAU, ANALYSIS OF DIFFERENCES BETWEEN CONSUMER- AND CREDITOR-PURCHASED CREDIT SCORES (Sept. 2012), http://files.consumerfinance.gov/f/201209_Analysis_Differences_Consumer_Credit.pdf [<http://perma.cc/J9WP-TD46>].

²³⁴ See Brenda Reddix-Small, *Credit Scoring and Trade Secrecy: An Algorithmic Quagmire or How the Lack of Transparency in Complex Financial Models Scuttled the Finance Market*, 12 U.C. DAVIS BUS. L.J. 87, 118 (2011).

²³⁵ See Citron & Pasquale, *supra* note 27, at 11.

²³⁶ See CONSUMER FIN. PROT. BUREAU, *supra* note 233, at 7 (analyzing 200,000 credit files from the three major credit bureaus, TransUnion, Equifax, and Experian).

²³⁷ See Citron & Pasquale, *supra* note 27, at 12.

²³⁸ *Id.*

²³⁹ See Cassandra Jones Havard, “On The Take”: *The Black Box of Credit Scoring and Mortgage Discrimination*, 20 B.U. PUB. INT’L L.J. 241, 245 (2011).

potential for worldwide calamitous results. This potential materialized in the financial crisis of 2008.²⁴⁰

Credit scoring practices also perpetuate structural racism and negative biases about minority groups by systemizing existing discriminations. Evidence suggests that, because there are common factors among minority groups that reflect higher rates of denial or approval for credit, credit scoring has a disparate impact on traditionally disadvantaged classes.²⁴¹ For example, a 2014 study examining minority access to housing found that minorities were much more likely to have their mortgage applications denied.²⁴² Hoping to minimize disparate impact on minorities, many states today regulate the use of credit scores in insurance underwriting.

Algorithmic models that utilize big data mining and insights magnify opacity, arbitrariness, and disparate impact on minorities endemic to credit scoring systems. What are commonly referred to as “black box systems” implicate four main problems: (i) the data used may be inaccurate or inappropriate, (ii) algorithmic modeling may be biased or limited, (iii) machine learning may increasingly replace much of the control humans had on algorithmic decision-making, and (iv) the uses of algorithms are oftentimes opaque.

Originating in Internet sources, errors, outages, and losses in large data sets are amplified when multiple data sets are combined.²⁴³ The choice of data to be mined and analyzed is also a source of concern because data mining can immortalize the preconceptions of former decision-makers or

²⁴⁰ See Reddix-Small, *supra* note 234, at 95.

²⁴¹ See Citron & Pasquale, *supra* note 27, at 13–16.

²⁴² See Skylar Olson, *A House Divided—How Race Colors the Path to Homeownership*, *Zillow and the National Urban League*, ZILLOW (Jan. 15, 2014), <http://www.zillow.com/research/minority-mortgage-access-6127/> [<http://perma.cc/3L6Q-ZSPT>].

²⁴³ See Danah Boyd & Kate Crawford, *Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon*, 15 INFO. COMM. & SOC’Y 662, 668 (2012).

mirror the widespread biases that persist in society.²⁴⁴ This is especially true for collection of social information: many individuals live full lives outside the social networking realm, and even those who perform online/offline social dualism do not exhibit equal qualitative and quantitative practices of information sharing.²⁴⁵ Data sets can also be manipulated or limited,²⁴⁶ and due to their magnitude they also run the risk of finding bogus correlations in which the statistical significance belies the lack of a meaningful connection between the variables.²⁴⁷

The ground for errors and bias continues from the data collection phase to the design of the algorithm. Indeed, in theory and practice, big data digitally transforms cultural clichés and stereotypes into empirically certifiable data sets.²⁴⁸ Some discriminatory measures are obvious. Zip codes, for example, are notoriously known to signal race, but others are more nuanced and can be effectively disguised behind numerous masks and proxies.²⁴⁹

Recent studies also found that the choice between mobile and web browsing could also indicate racial identity as African-Americans and Latinos were far more likely to

²⁴⁴ See Solon Barocas & Andrew D. Selbst, *Big Data's Disparate Impact*, 104 CALIF. L. REV. (forthcoming Feb. 2016), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2477899 [<http://perma.cc/J6NJ-VGLZ>].

²⁴⁵ See Rick Swedloff, *Risk Classification's Big Data (r)evolution*, 21 CONN. INS. L.J. 339, 355 (2015); see also Boyd & Crawford, *supra* note 243, at 669 (“Twitter does not represent ‘all people’, and it is an error to assume ‘people’ and ‘Twitter users’ are synonymous; they are a very particular sub-set. Neither is the population using Twitter representative of the global population. Nor can we assume that accounts and users are equivalent.”).

²⁴⁶ See Swedloff, *supra* note 245; Boyd & Crawford, *supra* note 243.

²⁴⁷ See Boyd & Crawford, *supra* note 243; see also Gary Marcus & Ernest Davis, *Eight (No, Nine!) Problems With Big Data*, N.Y. TIMES (Apr. 6, 2014), http://www.nytimes.com/2014/04/07/opinion/eight-no-nine-problems-with-big-data.html?_r=0 [<http://perma.cc/QLJ9-JN7U>].

²⁴⁸ Michael Schrage, *Big Data's Dangerous New Era of Discrimination*, HARV. BUS. REV. (Jan. 29, 2014), <https://hbr.org/2014/01/big-datas-dangerous-new-era-of-discrimination/> [<http://perma.cc/HD2F-L4VX>].

²⁴⁹ Tene & Polonetsky, *supra* note 199, at 985.

access bank accounts using a mobile phone.²⁵⁰ But even if the initial design lacks discriminatory intent, the interpretation of the data, which lies at the heart of this technology, is susceptible to limitation and bias.²⁵¹ Indeed, algorithms are prone to the same bias their human originators suffer from:

Credit scores are only as free from bias as the software and data behind them. Software engineers construct the datasets mined by scoring systems; they define the parameters of data-mining analyses; they create the clusters, links, and decision trees applied; they generate the predictive models applied. The biases and values of system developers and software programmers are embedded into each and every step of development.²⁵²

Even if we assume that both the mined data and the algorithms are as neutral as possible, the latter is designed to find trends in the data and learn so it can improve in performance over time (also known as “unsupervised machine learning”).²⁵³ The learning algorithm is devised to identify general statistical patterns in the data that are not specifically related to some state or outcome, inferring absent attributes from those that are present.²⁵⁴ Variables like race and gender are commonly concealed in the observed attributes because they are typically explicitly or implicitly encoded in rich data sets. Still, the learning algorithm is

²⁵⁰ Alloway, *supra* note 9.

²⁵¹ Danah Boyd & Kate Crawford, *Six Provocations for Big Data*, A DECADE IN INTERNET TIME: SYMPOSIUM ON THE DYNAMICS OF THE INTERNET AND SOCIETY (Sept. 2011), <http://ssrn.com/abstract=1926431> or <http://dx.doi.org/10.2139/ssrn.1926431> [<http://perma.cc/UGN3-SMXB>].

²⁵² Citron & Pasquale, *supra* note 27, at 13–14.

²⁵³ See PETER FLACH, MACHINE LEARNING: THE ART AND SCIENCE OF ALGORITHMS THAT MAKE SENSE OF DATA 3 (2012); see also COMMITTEE ON THE ANALYSIS OF MASSIVE DATA ET AL., FRONTIERS IN MASSIVE DATA ANALYSIS 66–69 (2013), <http://www.nap.edu/catalog/18374/frontiers-in-massive-data-analysis> [<http://perma.cc/HSR2-R7U6>].

²⁵⁴ See *id.* at 101–02.

likely to discover those factors and lead to less advantageous decisions for members of minority groups.²⁵⁵

Advanced algorithmic modeling and big data can also yield inferences about private information that may have never been disclosed to the online platform.²⁵⁶ The overreach of data analytics is often exemplified by the ability to infer a fairly reliable “profile” based exclusively on Facebook “likes.” Researchers were able to predict with accuracy range of eighty to ninety percent traits such as sexual orientation, ethnicity, religious and political views, intelligence, happiness, use of addictive substances, parental separation, age, and gender.²⁵⁷ Inferences of this sort go far beyond basic demographics and open the door to additional analytics and ranking factors that are rooted in personal traits and state of mind.²⁵⁸ If the underlying data is, as most cases show, a product of biased mining or analytics, the resulting discriminatory harm is even greater.²⁵⁹

Data mining and algorithmic predictions are also commonly criticized for their opacity. Even though those methods of automated decision-making could potentially harm individuals’ life opportunities in arbitrary and discriminatory ways, they remain secret.²⁶⁰ The process is technically opaque insofar as the code is oftentimes kept

²⁵⁵ See Lauren Kirchner, *When Big Data Becomes Bad Data*, PAC. STANDARD (Sept. 9, 2015), <http://www.psmag.com/nature-and-technology/when-big-data-becomes-bad-data> [<http://perma.cc/RWK5-CATL>].

²⁵⁶ See Tufekci, *supra* note 185, at 210 (noting that “this kind of ‘guessing’ via data modeling—where algorithmic processes model data to make a reasonable guess at a trait that is not known or disclosed at all—is in technical literature sometimes called ‘latent trait inference’”).

²⁵⁷ *Id.* (citing Michal Kosinski et al., *Private Traits and Attributes are Predictable from Digital Records of Human Behavior*, 110 PROC. NAT’L ACAD. SCI. 5802 (2013)).

²⁵⁸ *Id.*

²⁵⁹ See Barocas & Selbst, *supra* note 244, at 10–11.

²⁶⁰ See, e.g., Citron, *supra* note 228, at 1308–09; Lucas D. Introna & Helen Nissenbaum, *Shaping the Web: Why the Politics of Search Engines Matters*, 16 INFO. SOC’Y 169 (2000); Pasquale, *supra* note 3; Daniel J. Steinbock, *Data Matching, Data Mining, and Due Process*, 40 GA. L. REV. 1, 45 (2005).

secret and, moreover, substantively opaque because outsiders have no way of knowing what kind of data is collected, which correlations are targeted, and what considerations are factored into the credit profiling of consumers. Those layers of opacity can conceal biased, discriminatory, or otherwise unacceptable decisions from oversight until negative consequences are noticeable.²⁶¹ The secrecy protects companies and public institutions against public criticism because no entity would submit itself to being labeled racist or sexist. There is also a sincere intellectual property interest because exposing algorithms to public review also means handing them out to competitors.²⁶² The non-transparent nature of algorithmic decisions harms due process both *ex ante* by empowering the unregulated collection and analysis of information, and *ex post* by preventing users from challenging unfavorable decisions, as it is impossible to review the decision-making process. Algorithmic opacity frustrates both oversight and accountability.

Finally, critics have also argued that relegating the decision-making authority to algorithmic systems unleashes human subject research that is not limited or scrutinized by ethical norms.²⁶³ When the ethical Wild West of data analytics materializes for the purpose of targeted advertising, the scenario seems less frightening. But when the financial well being of the entire population is at stake, an ethics-free system accompanied by low to no accountability is a modern society's nightmare.

²⁶¹ See Pasquale, *supra* note 228, at 16–18.

²⁶² Jeremy Kun, *Beware! Big Data Is Not Free of Discrimination*, SOCIAL SCI. SPACE (Aug. 13, 2015), <http://www.socialsciencespace.com/2015/08/beware-big-data-is-not-free-of-discrimination/> [<http://perma.cc/U8BH-P2PU>].

²⁶³ Jules Polonetsky & Omer Tene, *Who Is Reading Whom Now: Privacy in Education from Books to MOOCs*, 17 VAND. J. ENT. & TECH. L. 927, 985–86 (2015). The legal requirements for algorithmic decision-making of this sort are slim at best and very vague. As a result, the bare minimum ethical standard, which is compliance with the law, is toothless at this point.

VII. REGULATING SOCIAL CREDIT

Social credit systems are innovative, efficient, and effective tools that promote broader financial inclusion with fewer transaction costs. Marketplace lenders have been able to capitalize on the current legal vacuum surrounding FinTech caused by delayed regulatory response to technological growth. Consequently, the issue of marketplace lending regulation is highly controversial,²⁶⁴ with one side advocating for minimal or no intervention in order not to stifle the innovation necessary to effectively fill in market gaps, and the other side warning that if not properly regulated, marketplace lending can become the next subprime-lending crisis,²⁶⁵ in addition to causing irreversible

²⁶⁴ This controversy is hardly surprising. To some extent, different financial industries and phenomena in the past have resulted in similar debates, including, for example, the housing bubble prior to the financial crisis in 2008. While many in the government and the financial industry were putting pressure to expand home ownership, arguing for social goals such as financial inclusion, and the development of the subprime loans industry, others were calling for more prudent regulation on the standards of the loans, and the resulting consequences of those that were getting such loans, if it turns out that they could not afford them after all. *See, e.g.*, Peter J. Wallison & Edward J. Pinto, *A Government-Mandated Housing Bubble*, FORBES (Feb. 12, 2009), http://www.forbes.com/2009/02/13/housing-bubble-subprime-opinions-contributors_0216_peter_wallison_edward_pinto.html [<http://perma.cc/D8SY-L2X3>]; Peter Wallison, *Hey, Barney Frank: The Government Did Cause the Housing Crisis*, ATLANTIC (Dec. 13, 2011), <http://www.theatlantic.com/business/archive/2011/12/hey-barney-frank-the-government-did-cause-the-housing-crisis/249903/> [<http://perma.cc/Q6N3-JUF5>].

²⁶⁵ Brayden McCarthy, *Regulation Could Be a Blessing in Disguise for Online Lenders*, AM. BANKER (Aug. 4, 2015), <http://www.americanbanker.com/bankthink/regulation-could-be-a-blessing-in-disguise-for-online-lenders-1075841-1.html> [<http://perma.cc/W5PK-LLC3>]; Todd Baker, *Marketplace Lenders Are a Systemic Risk*, AM. BANKER (Aug. 17, 2015), <http://www.americanbanker.com/bankthink/marketplace-lenders-are-a-systemic-risk-1076047-1.html> [<http://perma.cc/V74A-E5SK>]; Mike Cagney, *How Marketplace Lenders Will Save Financial Services*, AM. BANKER (Aug. 19, 2015), <http://www.americanbanker.com/bankthink/how-marketplace-lenders-will-save-financial-services-1076174-1.html> [<http://perma.cc/DJP9-5MBC>]; Lalita Clozel, *Working with Marketplace Lenders Carries Risks, FDIC Says*, AM. BANKER (Feb. 2, 2016), <http://www.americanbanker.com>.

social harms.²⁶⁶ Against this backdrop, in the next sections of this Part we discuss and rule out regulatory frameworks that were found inefficient in different financial markets and conclude by proposing a limited right to be unnetworked.

A. Disclosure

There are a number of possible courses to alleviate some of the difficulties innovative social credit systems generate. One such option is mandating increased disclosure. Disclosure provides relevant information to consumers for informed decision-making, and frequently reveals estimated costs and effects to consumers, commitments of the relevant parties, existence of any conflicts of interest, and descriptions on relationships between parties.²⁶⁷ For example, regulators have proposed similar disclosures in the context of educational institution admission, hiring, insurance, and credit.²⁶⁸ Regulators must ensure that information aggregators and decision-makers disclose the online sources they scrutinize to inform their decisions. Similarly, decision-makers should reveal the particular information they discovered about the individual to the individual if that information grounded a decision.²⁶⁹

Since the Great Depression, the federal government's philosophy as to financial markets and corporations has generally been to push for more disclosure. Increased

com/news/marketplace-lending/working-with-marketplace-lenders-carries-risks-fdic-says-1079162-1.html [http://perma.cc/HS4L-9H6M]. See also Todd J. Zywicki & Joseph D. Adamson, *The Law & Economics of Subprime Lending*, 80 U. COLO. L. REV. 1, 11–20 (2009).

²⁶⁶ Cathy O'Neil, *How to Talk About Big Data and Lending Discrimination*, AM. BANKER (Sept. 10, 2015) <http://www.americanbanker.com/bankthink/how-to-talk-about-big-data-and-lending-discrimination-1076600-1.html> [http://perma.cc/SGV2-E69J].

²⁶⁷ ANGELA A. HUNG ET AL., RAND LABOR AND POPULATION, EFFECTIVE DISCLOSURES IN FINANCIAL DECISIONMAKING, (2015), <https://www.dol.gov/ebsa/pdf/conflictinterestresearchpaper3.pdf> [http://perma.cc/H3GQ-GWF8].

²⁶⁸ See Pasquale, *supra* note 19, at 113–16.

²⁶⁹ *Id.* at 108, 112–13.

disclosure, in the government's view, fosters a robust informational foundation for private decision-makers and advances efficiency and governance.²⁷⁰ The same approach may at first seem plausible to mitigate many of the difficulties associated with social credit systems. More transparency could spotlight the downsides of social credit systems for both consumers and decision-makers.

Nevertheless, this Article takes the view that disclosure could not deliver the desired informational and awareness results for the upcoming world of social credit. In recent years, scholars have started questioning the disclosure paradigm. Following the 2008 financial crisis, some have argued disclosure, as a tool, may not be effective given the complexities created by financial innovation, modern markets, and institutions.²⁷¹ Services and products created by financial innovation are much more multifaceted than in the past, often exceeding the capacity of the verbal, visual, accounting, risk measurement, and other capacities on which

²⁷⁰ See, e.g., Henry T. C. Hu, *Too Complex to Depict? Innovation, 'Pure Information,' and the SEC Disclosure Paradigm*, 90 TEX. L. REV. 1601 (2012).

²⁷¹ See, e.g., Emiliios Avgouleas, *The Global Financial Crisis and the Disclosure Paradigm in European Financial Regulation: The Case for Reform*, 6 EUR. COMPANY & FIN. L. REV. 440 (2009). For example, even with detailed annual reports mandated by the Dodd-Frank Act, highly sophisticated investors and government agencies still do not know enough about the risk-assessment and financial standing of some financial institutions. This resulted in referring to some big banks as not only too big to fail, but also too complex to depict. See Hu, *supra* note 270, at 1713–14; see also Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647 (2011) (arguing that mandated disclosure not only fails to achieve its stated goal but also leads to unintended consequences that often harm the very people it intends to serve); Jeff Sovern, *Preventing Future Economic Crises Through Consumer Protection Law or How The Truth in Lending Act Failed The Subprime Borrowers*, 71 OHIO ST. L.J. 761 (2010) (suggesting a switch from the current TILA disclosure regime to a comprehension regime under which lenders would be obliged to insure that borrowers understand their loan terms, or that lenders should be required to determine what proportion of their borrowers understand their loan terms and disclose those figures with the goal of generating competition among lenders for better comprehension scores).

representations are based.²⁷² Opaque algorithmic decision-making and unsupervised machine learning design further exacerbates this complexity.²⁷³ Merely requiring institutions to reveal more information is unlikely to result in a truly informed environment for consumers,²⁷⁴ especially because information systems are so complex, that sometimes even those disclosing the information do not fully understand it and appreciate its implications.²⁷⁵

Bounded rationality²⁷⁶ and cognitive biases²⁷⁷ similarly prevent decision-makers from fully understanding and appropriately monitoring financial markets. As boundedly rational constituencies, decision-makers lack the information, time, and incentives to perform an inclusive due diligence on the financial markets' various services and

²⁷² See Avgouleas, *supra* note 271.

²⁷³ See *supra* Part VI.

²⁷⁴ See, e.g., Nizan Geslevich Packin, *The Case Against the Dodd-Frank Act's Living Wills: Contingency Planning Following the Financial Crisis*, 9 BERKELEY BUS. L.J. 29 (2012) (arguing that that the biggest financial institutions' annually mandated contingency plans are mainly a disclosure requirement with limited power; accordingly, living wills should not be perceived as a satisfactory regulatory solution to the too-big-to-fail problem); DAVID SKEEL, *THE NEW FINANCIAL DEAL: UNDERSTANDING THE DODD-FRANK ACT AND ITS (UNINTENDED) CONSEQUENCES* 185 (2010) (stating that living wills in essence are merely a type of a disclosure requirement, and not enough to potentially prevent another too big to fail scenario).

²⁷⁵ See Hu, *supra* note 270; see also Emilios Avgouleas, *What Future for Disclosure as a Regulatory Technique? Lessons from the Global Financial Crisis and Beyond* (Mar. 26, 2009) (unpublished manuscript), <http://ssrn.com/abstract=1369004> [<http://perma.cc/ME5G-96N6>] (arguing that in specific contexts, such as the field of prudential regulation of banks, disclosure will only work if it is supplemented by protective regulation).

²⁷⁶ See Herbert Simon, *A Behavioral Model of Rational Choice*, 69 Q.J. ECON. 99 (1955); Herbert Simon, *Rationality as Process and Product of Thought* 68 AM. ECON. REV.: PAPERS & PROC. 1, 1–16 (1978).

²⁷⁷ See Emilios Avgouleas, *Reforming Investor Protection Regulation: The Impact of Cognitive Biases*, in *ESSAYS IN THE LAW AND ECONOMICS OF REGULATION IN HONOR OF ANTHONY OGUS* 143 (M. Faure & F. Stephen eds., 2008).

products, their terms, risk level, and the differences among them.²⁷⁸

Additionally, while helpful in promoting transparency to various extents, disclosure requirements are often less effective than substantial regulation that alters negative market incentives or undesired economic incentives.²⁷⁹ Reviews of existing studies also support this claim. These studies indicate that, while in theory disclosure can reduce the information asymmetries present in the financial services market, disclosure does not offer adequate support for making more informed decisions, especially if used in isolation.²⁸⁰ In areas of financial decision-making such as mortgages, credit cards, payday loans, and mutual funds, long and detailed disclosure documents have not been effective at helping consumers make informed choices, due to either limited attention or limited understanding of the material.²⁸¹ Therefore, while mandating disclosure is a key component of financial markets regulation, relying on it alone to act as a holistic panacea would prove to be a mistake. This is particularly true for credit scoring markets founded on confidential formulas²⁸² and that exhibit delayed technological understanding by regulators and public advocacy groups.²⁸³

²⁷⁸ See EMILIOS AVGOULEAS, *THE MECHANICS AND REGULATION OF MARKET ABUSE* 30–32 (2005); Donald P. Morgan, *Rating Banks: Risk and Uncertainty in an Opaque Industry* 92 AM. ECON. REV. 874 (2002).

²⁷⁹ *Id.*; Martin F. Hellwig, *Market Discipline, Information Processing and Corporate Governance* (Max Planck Inst. for Res. on Collective Goods, Preprint No. 2005/19, 2005), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=873431 [<https://perma.cc/LG85-DJBN>] (explaining that market discipline works only if market actors have sufficient incentives to fulfill their monitoring role and there are no impediments to information signals).

²⁸⁰ See HUNG ET AL., *supra* note 267, at 24.

²⁸¹ *Id.*

²⁸² See Reddix-Small, *supra* note 234.

²⁸³ See Frank Pasquale, *Redescribing Health Privacy: The Importance of Information Policy*, 14 HOUS. J. HEALTH L. & POL'Y 95, 117 (2014) (“The Federal Trade Commission has expressed some interest in understanding what data brokers are doing, but it is technologically outmatched.

B. Disparate Impact

The creditor assumes that consumers are more likely to be creditworthy if those with whom they associate are also creditworthy. Statistics support this notion: wealthier consumers tend to have wealthier friends, who are more likely to have higher credit scores.²⁸⁴ Even where financial-based social classification has yet to take place, rational consumers would soon turn it into reality. Against this backdrop, it is reasonable to ask whether the disparate impact doctrine could address the difficulties brought about by social credit systems. The doctrine prohibits procedures that favor a specific group of individuals over another, whether or not the discrimination is intentional.²⁸⁵ Importantly, such preference is already said to exist in the context of determining consumers' creditworthiness.²⁸⁶

Many criticize existing credit scoring models for systemizing discriminatory practices. In general, regulators do not permit scoring models for use in loan application and pricing assessments that are based on characteristics forbidden under the ECOA, such as the applicant's religion, race, sex, national origin, color, marital status, the applicant's receipt of income from public assistance

Consumer protection agencies have nowhere near the staff they would need to monitor all companies trafficking in reputational data.”).

²⁸⁴ See O'Neil, *supra* note 266.

²⁸⁵ The disparate impact concept is not a new one, and has been used in various contexts. For example, just recently, the Supreme Court has ruled that a plaintiff may establish a prima facie case under the Fair Housing Act (“FHA”) on the basis of statistical evidence that a legislative policy triggers a disparate impact, without evidence that the discrimination was intentional. See, e.g., Robert A. Spolzano, *U.S. Supreme Court Upholds Disparate-Impact Claims in Fair Housing Act Cases*, NAT'L L. REV. (July 2, 2015), <http://www.natlawreview.com/article/us-supreme-court-upholds-disparate-impact-claims-fair-housing-act-cases#sthash.xcgibTKO.dpuf> [<http://perma.cc/L2KL-R9J9>].

²⁸⁶ See, e.g., *The Future of Housing Finance: The Role of Private Mortgage Insurance: Hearing Before the Subcomm. on Capital Mkts., Ins. & Gov't Sponsored Enters. of the H. Comm. on Fin. Servs.*, 111th Cong. 16 (2010) (statement of Deborah Goldberg, Hurricane Relief Program Director, National Fair Housing Alliance).

programs, or the applicant's good faith exercise of rights under the Consumer Credit Protection Act.²⁸⁷ Yet some argue that even legally permitted factors used in scoring models result in disparate impact for specific demographic groups.²⁸⁸ In the years prior to the 2008 financial crisis, scholars were already skeptical about the fairness of credit scoring systems, arguing that the calculations were "inevitably subjective and value-laden," however "incontestable by the apparent simplicity of [a] single figure."²⁸⁹ Moreover, evidence suggests that current credit scoring systems do have an actual negative disparate effect on certain disadvantaged groups.²⁹⁰

Recognizing those discriminatory practices, regulators have attempted to better standardize the credit industry. In 1970, Congress designed the FCRA to address concerns that growing databases of personal data "could be used in ways

²⁸⁷ See Citron & Pasquale, *supra* note 27.

²⁸⁸ Certain critics of credit scoring, including those within the CFPB, have argued that variables permitted for use in scoring models can themselves be correlated with protected group characteristics. Accordingly, they have argued that use of such variables results in disparate impact based on race, gender, or other off-limits characteristics, and therefore violates ECOA. See Robert B. Avery et al., *Does Credit Scoring Produce a Disparate Impact?*, 40 REAL EST. ECON. 1, 3 (2012). Similarly, Federal Reserve Board researchers have found that different demographic groups have very different credit scores, on average. For example, Blacks and Hispanics have lower credit scores than non-Hispanic whites and Asians. See BD. OF GOVERNORS OF THE FED. RESERVE SYS., REPORT TO CONGRESS ON CREDIT SCORING AND ITS EFFECTS ON THE AVAILABILITY AND AFFORDABILITY OF CREDIT (2007), <http://www.federalreserve.gov/boarddocs/rptcongress/creditscore/creditscore.pdf> [http://perma.cc/3JRZ-Q7A4].

²⁸⁹ See Citron & Pasquale, *supra* note 27, at 10; see also Donncha Marron, *'Lending by Numbers': Credit Scoring and the Constitution of Risk Within American Consumer Credit*, 36 ECON. & SOC'Y 103, 111 (2007).

²⁹⁰ See BIRNY BIRNBAUM, INSURERS' USE OF CREDIT SCORING FOR HOMEOWNERS INSURANCE IN OHIO: A REPORT TO THE OHIO CIVIL RIGHTS COMMISSION 2 (2003) ("Based upon all the available information, it is our opinion that insurers' use of insurance credit scoring for underwriting, rating, marketing and/or payment plan eligibility very likely has a disparate impact on poor and minority populations in Ohio.").

that were invisible and harmful to consumers.”²⁹¹ In 2003, in an attempt to increase transparency, the FACTA began requiring credit bureaus to disclose credit scores to individuals.²⁹²

The disparate impact doctrine could address the concerns raised by social credit systems that are similar to those raised by traditional credit scoring systems. However, the disparate impact doctrine is not equipped to face the multiple challenges of social credit systems for several reasons. First, notwithstanding evidence suggesting that current credit scoring systems have a negative disparate effect on disadvantaged groups,²⁹³ the system, as a whole, has not been reformed, and discriminatory effects still exist.²⁹⁴ Second, it is still not clear whether a disparate

²⁹¹ See Edith Ramirez, Chairwoman, Fed. Trade Comm’n, Keynote Address at the Technology Policy Institute Aspen Forum: Privacy Challenges in the Era of Big Data: A View from the Lifeguard’s Chair 3 (Aug. 19, 2013), https://www.ftc.gov/sites/default/files/documents/public_statements/privacy-challenges-big-data-view-lifeguard%E2%80%99s-chair/130819bigdataaspen.pdf [http://perma.cc/5UXC-EPWW].

²⁹² 15 U.S.C. § 1681g (2012).

²⁹³ See, for example, the statement of the National Fair Housing Alliance, from 111th Cong. 16 (2010), *supra* note 286. Claims of disparate impact on minorities and specifically that insurers’ use of credit scores is discriminatory were litigated in court. *Dehoyos v. Allstate*, 240 F.R.D. 269, 275 (W.D. Tex. 2007). These claims eventually resulted in a settlement over “deficiencies in Allstate’s credit scoring procedure which plaintiffs say resulted in discriminatory action against approximately five million African-American and Hispanic customers.” *Id.* The parties settled after the Fifth Circuit determined that federal civil rights law was not reverse preempted by the McCarran-Ferguson Act’s grant of insurance regulatory authority to states. See *Dehoyos v. Allstate*, 345 F.3d 290, 299 (5th Cir. 2003). ECOA, which regulates lending practices, does not preempt state laws that are stricter than ECOA.

²⁹⁴ This does not mean that specific aspects of specific users’ scoring systems were never altered or improved to reduce discrimination. Minor specific modifications do happen when the need to do so arises, as it did for example, in the Allstate litigation, which resulted concluding that as part of the settlement plaintiffs’ experts were permitted to critique and refine future scoring models. *Dehoyos*, 240 F.R.D. at 276. Similarly, this type of evidence about disparate impact also led many states to take active action to regulate how credit scores should be used in insurance underwriting.

impact argument can be used to challenge algorithmic decision-making. Even though experts argue that “[f]ar from eliminating existing discriminatory practices, credit-scoring algorithms instead grant them an imprimatur, systematizing them in hidden ways,”²⁹⁵ proving prohibited biases and systematic discriminatory treatment is proving to be extremely complicated. Specifically, one would need access to the relevant source code, programmers’ summaries and logs,²⁹⁶ and the actual algorithms protected by trade secrets in order to detect a prohibited human bias.²⁹⁷ Moreover, supervised machine-learning is even more immune to reverse engineering or scrutiny, as described above.²⁹⁸

C. The Right to Be Unnetworked²⁹⁹

Against the backdrop of potential privacy harms, social segregation, due process violations, and the de facto discrimination it generates, we submit that the use of social

CREDIT-BASED INSURANCE SCORING: SEPARATING FACTS FROM FALLACIES, NAMIC POL’Y BRIEFING 1 (2010), https://iiky.org/documents/NAMIC_Policy_Briefing_on_Insurance_Scoring_Feb_2010.pdf [<http://perma.cc/43S8-RMMY>].

²⁹⁵ See Citron & Pasquale, *supra* note 27, at 13.

²⁹⁶ See Tal Zarsky, *Transparent Predictions*, 2013 ILL. L. REV. 1503, 1518 (2013) (explaining that the programmers create the datasets mined by scoring systems, define the parameters for the scoring analyses, and create the clusters, links, and decision trees applied).

²⁹⁷ See Reddix-Small, *supra* note 234 at 91 (“As property, complex finance risk models often receive intellectual property proprietary protection. These proprietary protections may take the form of patents, copyrights, trade secrets, and sometimes trademarks.”).

²⁹⁸ See *supra* text accompanying notes 224–59.

²⁹⁹ The right to be unnetworked is inspired by the right to be let alone. In their *Harvard Law Review* article, *The Right to Privacy*, Louis Brandeis and Samuel Warren identified protection of the private realm as the foundation for individual freedoms in the modern age and coined the phrase “the right to be left alone,” which stems from the right to privacy. Louis Brandeis & Samuel Warren, *The Right to Privacy*, 4 HARV. L. REV. 193 (1890). Later, in his famous 1928 dissent in *Olmstead v. United States*, Brandeis identified the “right to be let alone” as “the most comprehensive of rights, and the right most valued by civilized men.” *Olmstead v. United States*, 277 U.S. 438, 478 (1928) (Brandeis, J., dissenting).

information for creditworthiness determinations should be more limited and regulated. Inspired by the ban on the use of medical information for credit scoring purposes, our proposal aims at minimizing the use of social information to uses that fall into one of the prescribed exclusions.³⁰⁰ Therefore, the proposal allows individuals to benefit from social information under certain conditions, without being penalized for their social choices. The proposal grants individuals a limited right to be unnetworked or be networked but not socially scored, while redirecting creditors to the original aim of microfinance—broadening financial inclusion.

The right to be unnetworked marks the first attempt to respond to the rise of social credit. As such, the proposal does not intend to provide a comprehensive answer but to present initial views and provoke further discussions as to how social credit systems should be addressed conceptually and regulated in practice. We hope that the right to be unnetworked will be further developed and that its list of exceptions will be refined and extended in light of the goal we advocate for: retaining the benefits that social credit systems embody while mitigating some of the challenges those systems generate.

“Social Information,” for this Part, is broadly defined as information or data, in any form or medium, created by or derived from a social network or the consumer that relates to the past, present, or future physical, virtual, and interactive social ties of an individual;³⁰¹ the providing of social activities to individual by digital platforms; or the payment

³⁰⁰ See generally Laura Hobson Brown, *Final Rule: Using Medical Information in Determining Creditworthiness*, 60 CONSUMER FIN. L.Q. REP. 664 (2006).

³⁰¹ While social ties could be interactive, they could also be one-sided following or monitoring of a different person’s activities and online footprints. A person, for this definition, includes individuals as well as entities.

for enhanced or non-free services offered by digital platforms to an individual.³⁰²

“Derivative Social Information,” for the purpose of this Part, is broadly defined as information or data, in any form or medium, created by or derived from a social network or the contacts of the consumer that relates to the past, present, or future physical, virtual, and interactive social ties of an individual’s contacts; the providing of social activities to an individual’s contacts by digital platforms; or the payment for enhanced or non-free services offered by digital platforms to an individual’s contacts.

Information extracted from any transactions with social networks acting as service providers or intermediaries in sales and financial transactions is not defined as social information per se. The use of such information for the purpose of assessing creditworthiness and the value of such transactions is therefore not in violation of the broad exclusionary rule against obtaining or using social information in assessing and calculating an individual’s credit-worthiness.

Possessing Social Information and Derivative Social Information might not necessarily be the result of a creditor’s deliberate planning or specific request. Hence, a creditor that merely obtains unsolicited social information about individuals from themselves, a consumer reporting agency, or any other person, will not be considered to be in violation of the broad exclusionary rule against obtaining or using social information in assessing and calculating an individual’s credit-worthiness. The creditor, however, may only use unsolicited Social Information in connection with determining an individual’s creditworthiness, if doing so is based on one of the limited exceptions to the broad exclusionary rule. Under no circumstances may a creditor use unsolicited Derivative Social Information independently of Social Information.

³⁰² A classic example would be a LinkedIn Premium account for which members would typically pay and register when looking for a job or expanded networking opportunities.

The exclusionary rule against obtaining or using social information in assessing and calculating an individual's credit-worthiness is not all-inclusive and is subject to the following exceptions. First, a creditor can factor into credit assessment social information on financial guaranties, which are based on personal social ties that make individuals agree or even want to become other consumers' guarantors.³⁰³ Second, a creditor may obtain and use social information to comply with applicable requirements of state, local, or federal laws. Third, a creditor may obtain and use social information in connection with its determination of a consumer's eligibility for a special credit program or a credit-related assistance program that is: (i) designed to benefit "unscored" consumers with exceptional social standing that include individuals with thin or no credit file, such as college students and young adults, immigrants, widows or new divorcees, the elderly, ethnic minorities, and low-income individuals, and (ii) established and administered under a written plan that identifies the class of persons it is designed to benefit, and sets out the procedure and criteria for extending credit or providing other credit-related assistance under the program. Fourth, a creditor may obtain and use social information in determining a consumer's eligibility for credit to the extent necessary for fraud prevention or detection. Creditors who wish to operate based on this exception might be asked to demonstrate the need for, and the actual use of, the social information in the detection or prevention of the fraud. Fifth, a creditor may use a consumer's social information if the consumer requests that the creditor use his or her information in determining credit eligibility, in order to accommodate the consumer's particular circumstances, provided the creditor documents that request. The social accommodation exception is not triggered until the consumer makes a formal detailed request for such an accommodation. Either way, the creditor may not deny a consumer's application or otherwise treat the

³⁰³ This is similar to the concept of power of attorney, and the use of medical information to determine mental or physical capacity.

consumer less favorably as a result of the consumer's request for social accommodation, if the creditor would have treated the consumer more favorably under its otherwise existing and established criteria.³⁰⁴ Notwithstanding the listed exceptions, under no circumstances should Derivative Social Information be analyzed, used, or stored independently of Social Information.

D. Against a Financially Sound Policy—Precedents

As a society, we typically tend to promote methods and techniques that help us establish policy frameworks for effective and efficient financial regulation.³⁰⁵ The use of social information as a factor for determining one's credit holds an accuracy promise, and thus makes financial sense.³⁰⁶ Yet both legal and business concerns may cause

³⁰⁴ Allowing creditors to factor in social information at the consumer's request creates an opt-in regime. Nevertheless, the use of the social information is limited to solely benefiting the consumer and cannot decrease her score. Limiting the scope of such an opt-in regime by making it a narrow and carefully tailored exceptions minimizes negative effects on other consumers as it does not establish a new baseline. Therefore, the suggested exception does not prejudice consumers choosing not to opt in as no negative inferences are made about them and their reasons for not participating.

³⁰⁵ See generally ORG. FOR ECON. CO-OPERATION & DEV., POLICY FRAMEWORK FOR EFFECTIVE AND EFFICIENT FINANCIAL REGULATION (2012), <http://www.oecd.org/finance/financial-markets/44362818.pdf> [<http://perma.cc/3WJQ-Y34D>].

³⁰⁶ See, e.g., Alina Selyukh, *Could Your Social Media Footprint Step On Your Credit History?*, NPR (Nov. 4, 2015), <http://www.npr.org/sections/thetwo-way/2015/11/04/454237651/could-your-social-media-footprint-step-on-your-credit-history> [<http://perma.cc/V2PN-AERN>] (stating that “[t]hese alternative data sources have proven to accurately score more than 90% of applicants who otherwise would be returned as no-hit or thin-file by traditional models”); Tom Groenfeldt, *Lenddo Creates Credit Scores Using Social Media*, FORBES (Jan. 29, 2015), <http://www.forbes.com/sites/tom-groenfeldt/2015/01/29/lenddo-creates-credit-scores-using-social-media> [<http://perma.cc/C6XS-PDRQ>] (noting that some banks are quickly adopting Lenddo, which in turn is “finding a lot of interest in its lending application from outside of banking. Telcos are interested because they already have a credit history with their customers, and because their

society to opt to disallow a financially sound policy that socioeconomic, cultural, and moral arguments counsel against.

One such policy that is financially sound but has been broadly rejected is price discrimination against overweight individuals based on the reasonable argument they cost more to service. Specifically, adopting weight bias as a financial policy has recently appeared in the context of airfare pricing policy, which required overweight passengers pay for an additional seat³⁰⁷ or changed the pricing scheme to a “pay-per-pound” rate system, as suggested by an airline in Samoa.³⁰⁸ These new schemes have prompted discussions over whether American airlines should adopt comparable pricing systems.³⁰⁹ Nevertheless, similar practices, except for

revenues are going down as people use mobiles more for texting and data and less for voice.”).

³⁰⁷ See Arya M. Sharma, *How “Pay As You Weigh” Shames the Obese*, HUFFINGTON POST BLOG (Apr. 24, 2014), http://www.huffingtonpost.ca/arya-m-sharma-md/pay-as-you-weighh_b_3112315.html [http://perma.cc/BR8N-YR23] (explaining the new pay-per-pound airline fare system); *How Should Airlines Treat Larger Passengers?*, ECONOMIST (Nov. 12, 2012), <http://www.economist.com/blogs/gulliver/2012/11/obese-flyers> [http://perma.cc/SFC6-B732] (describing Air Canada’s policy of giving a free additional seat to overweight passengers with a medical caregiver’s note).

³⁰⁸ See Lucy Craymer, *Weigh More, Pay More on Samoa Air*, WALL ST. J. (Apr. 3, 2013), <http://www.wsj.com/articles/SB10001424127887323646604578399943583708244> [http://perma.cc/8M8Q-PG4U]; *Pay Your Weight to Fly*, FREAKONOMICS (Apr. 10, 2013), <http://freakonomics.com/2013/04/10/pay-your-weight-to-fly/> [http://perma.cc/VH7P-NUQD].

³⁰⁹ See, e.g., Harold Maass, *Should Airlines Charge Passengers by Weight?*, WEEK (Apr. 2, 2013), <http://theweek.com/article/index/242156/should-airlines-charge-passengers-by-weight> [http://perma.cc/KT7P-BBC7] (highlighting that some airlines require passengers to pay second fare if they cannot fit comfortably in single seat). *But cf.* Mary Jane Credeur & Mary Schlangenstein, *Pay-by-Weight Fares in Samoa Seen Unlikely to Be Copied*, BLOOMBERG (Apr. 3, 2013), <http://www.bloomberg.com/news/2013-04-03/pay-by-weight-fares-in-samoa-seen-unlikely-to-be-copied.html> [http://perma.cc/D2AE-RG45]; Mark Johanson, *‘Too Fat To Fly’: A Look At Airline Policies For ‘Customers Of Size,’* INT’L BUS. TIMES (Nov. 27, 2012), <http://www.ibtimes.com/too-fat-fly-look-airline-policies-customers-size-903686> [http://perma.cc/W24W-ZTPW]; Michael L. Huggins, *Not “Fit” For*

the instances mentioned, have thus far not been adopted. Attempts to adopt weight bias as a financial policy have also occurred and failed in other industries. In 2008, legislators in Mississippi, attempting to respond to constantly increasing numbers of individuals classified as overweight, pushed for a bill that would forbid restaurants from serving food to overweight individuals.³¹⁰ The public instantly recognized the prejudicial impact of the initiative and the proposal never made it beyond the subcommittee level.³¹¹

Another example of a rejected financially sound policy is the use of medical information as a factor for credit determinations. The FCRA,³¹² as amended by section 411 of

Hire: The United States And France On Weight Discrimination In Employment, 38 FORDHAM INT'L L.J. 889, 900–02 (2015).

³¹⁰ See H.B. 282, 2008 Leg., Reg. Sess. (Miss. 2008), <http://billstatus.ls.state.ms.us/documents/2008/pdf/HB/0200-0299/HB0282IN.pdf> [<http://perma.cc/8PED-4APU>] (“Any food establishment to which this section applies shall not be allowed to serve food to any person who is obese”); *Miss. Considers Restaurant Ban For Obese*, CBS NEWS (Feb. 5, 2008), <http://www.cbsnews.com/news/miss-considers-restaurant-ban-for-obese/> [<http://perma.cc/WTE4-286G>] (discussing how the proposal’s drafters hoped to deal with obesity, which is the state’s main problem); Tom Leonard, *Ban Restaurants from Serving Obese People*, TELEGRAPH (London) (Feb. 3, 2008), <http://www.telegraph.co.uk/news/worldnews/1577463/Ban-restaurants-from-serving-obese-people.html> [<http://perma.cc/GUJ4-48Q9>] (explaining that Mississippi’s population is the heaviest in America).

³¹¹ See Peggy Elam, *Mississippi “Obesity” Bill To Be Killed in Subcommittee*, ON THE WHOLE BLOG (Feb. 4, 2008), <http://www.onthewhole.info/2008/02/mississippiobe.html> [<http://perma.cc/ZT4Z-5M4Z>] (stating that the Bill would be vetoed when it reached assigned subcommittee); *OAC and Patients Bring National Attention to Discriminatory Mississippi House Bill 282*, OBESITY ACTION CENTER, <http://www.obesityaction.org/wp-content/uploads/Advocacy-MS.pdf> [<http://perma.cc/9T6W-9YTV>] (shedding light on the biased impact of the proposal); *Obesity Bill Won’t Make it to Floor*, CLARION-LEDGER (Jackson, Miss.) (Feb. 5, 2008), <http://archive.clarionledger.com/article/20080205/NEWS010504/802050377/Lawmaker-Obesity-bill-won-t-make-floor> [<http://perma.cc/LH2N-AQS7>] (interviewing a member of the legislature who said the proposal would be “dead on arrival at my desk”).

³¹² 15 U.S.C. §§ 1681–1681x (2012). See generally Stephen Gardner, *Credit Reports; Basic Rights and Responsibilities of Creditors and Consumers*, 59 CONSUMER FIN. L.Q. REP. 248 (2005).

the FACTA,³¹³ impedes the capability of creditors to acquire and use consumers' medical information in the context of determining the consumers' credit eligibility, as well as to share medical information with affiliates.³¹⁴ Based on the FACTA, the government regulatory agencies created exceptions to these restrictions that permit the use of medical information, but only in specific situations.³¹⁵ These exceptions are unique and narrow despite the fact that noting if and when, for example, a consumer is terminally ill and factoring that information into the individual's credit score makes perfect financial sense. Similarly, acknowledging the uniqueness of the medical context, FICO amended its approach to factoring in medical billing information in creditworthiness calculations. Despite the clear difference between medical billing information and medical information, FICO has announced in 2014 that its upcoming scoring model, FICO 9, will weigh medical bills in collections less heavily than other types of unpaid accounts.³¹⁶

Along similar lines, even though genetic information is vital in evaluating one's health condition and prospects for sickness in the future, the inclusion of such information in coverage decisions is strictly prohibited. The 2008 Genetic Information Nondiscrimination Act ("GINA") provides strong

³¹³ H.R. 2622, 108 Pub. L. No. 159 (Dec. 4, 2003). See Lawrence A. Young and Patrick McCarren, *Just the FACT(s), Ma'am—A Roadmap to the FACT Act*, 59 CONSUMER FIN. L.Q. REP. 239 (2005).

³¹⁴ See generally Laura Hobson Brown, *Final Rule: Using Medical Information In Determining Creditworthiness*, 60 CONSUMER FIN. L.Q. REP. 664 (2006).

³¹⁵ *Id.*

³¹⁶ See Nick Clements, *5 Reasons New Lenders Are Ignoring FICO Credit Scores*, FORBES (Apr. 21, 2015), <http://www.forbes.com/sites/nick-clements/2015/04/21/5-reasons-new-lenders-are-ignoring-fico-credit-scores/> [<http://perma.cc/WC6W-ZR2F>] (noting that the rationale for this, as stated by CFPB Director Richard Cordray, is that "it's hard for consumers to navigate the medical debt maze and come out with a clean credit report on the other side"); Bob Sullivan, *The Impact of Medical Debt on FICO Scores*, CREDIT SCORE (July 20, 2015), <http://blog.credit.com/2015/07/the-impact-of-medical-debt-on-fico-scores-121229/> [<http://perma.cc/VG6B-C3UM>].

protections against access to genetic information and genetic discrimination in both the health insurance and employment context.³¹⁷

VIII. CONCLUSION

While technology companies have transformed the way we interact, they have only recently begun the unavoidable banking revolution, seeking to replace some of the services historically offered by banks. In particular, such innovative tech and big data companies now provide consumers and businesses alternative methods to access marketplace lending, while taking advantage of the current state and application of law to financial technology, as well as the gap between regulatory and technological growth. Regulation in marketplace lending has generated a debate with one side arguing for minimal or no regulation of this growing sector in order to not stifle the innovation necessary to fill market gaps. Simultaneously, another side is arguing that if not monitored and somewhat regulated, this growing industry can become the next subprime-lending crisis,³¹⁸ and cause irreversible extreme social harms.³¹⁹

In this Article, we focused on social credit, which is a recent and unique phenomenon in marketplace lending. Social credit is arguably a highly efficient and accurate tool that can be used in various ways and formats to expand access to credit to populations that otherwise might be credit-less or underserved under the current credit system. While using social credit makes sense financially, using machine learning advanced algorithms presents certain unavoidable harms to society that must be carefully addressed. As described, our main concerns relate to privacy consideration and in particular, derivative privacy harms, as well as social polarization and potential increased damage to social mobility. Based on law and economic analysis, we

³¹⁷ Pub. L. No. 110-233, 122 Stat. 881 (2008).

³¹⁸ See McCarthy, *supra* note 265; see also Baker, *supra* note 265; Cagney, *supra* note 265.

³¹⁹ See O'Neil, *supra* note 266.

show that, for different reasons, it appears inevitable that these types of harms would result in shocking social, personal, and eventually economic consequences. We believe that the privacy unraveling process is here to stay. We also believe the benefits social credit presents should not be easily dismissed. Therefore, we suggest an initial regulatory proposal for dealing with social credit in a hope to accommodate financial innovation, while preserving key rights and addressing the concerns raised.