LOCATING CONSUMER FINANCIAL REGULATION

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Recent advances in data-driven technology in consumer financial markets, commonly referred to as "fintech," have resurfaced the question of whether and to what extent data, particularly consumers' personal data, should be a locus for regulatory intervention in these markets. While innovation in fintech and the accompanying increase in the processing of personal data offer to improve the functioning of consumer financial markets, like all advances in technology, they also come with costs and risks. In 2024, in a move that favored the regulation of personal financial data per se and many of the traditional features of personal data protection regulation, the Consumer Financial Protection Bureau (CFPB or "the Bureau") issued a new "Personal Financial Data Rights Rule." The Rule seeks to mitigate the costs and risks of fintech and capture its benefits, specifically due to "Open Banking," a fast-growing digital network that enables consumers to transfer their personal financial data between financial institutions.

As fintech innovation advances and the Bureau looks to personal data protection regulation as a model for regulating consumer fintech markets, this Article sounds a note of caution. As theory predicts and empirical evidence corroborates, despite its intuitive appeal, there are clear limits to the effectiveness of personal data protection regulation. The problem is not only the limitations of the traditional, mostly procedural and contractarian approach of personal data protection regulation, but also, more conceptually, the limitations of personal data per se as a locus for balancing the costs and benefits, and opportunities and risks, of

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data-driven innovation. This is increasingly true in a world of "big data" and sophisticated "artificial intelligence" systems.

Coming from a position of pragmatism, and using consumer credit markets as a case study, this Article cautions against overreliance on the logic and traditional features of personal data protection regulation in consumer fintech markets. Regulators should not rely too heavily on traditional features such as categorical ex ante limits on the flow of consumer data, high-level principles such as "data minimization," or individual data processing rights such as consent and data deletion that require consumers to self-police and prevent harm. Rather, regulators should seek to facilitate the secure flow of consumer data in consumer fintech markets, while carefully controlling, through "product," "conduct," and "prudential," regulation, how firms use and apply that data in the design and sale of digital consumer financial products and services. Thus, data use, *rather than data* flow, *becomes the more meaningful locus for mitigating the costs and risks and capturing the benefits and opportunities of fintech innovation.*

In making this argument, this Article also advocates for a more consequentialist approach to consumer financial privacy, whereby the benefits to some consumers resulting from the use of their data—such as access to more affordable credit—can be balanced against, and conceivably outweigh, any intrinsic harms due to the collection and transmission of personal data per se, or consequential harms to other consumers due to harmful uses of that data—such as higher cost, less affordable credit. Relatedly, this Article advocates for the greater pursuit of substantive fairness—more favorable substantive outcomes for consumers due to the use of their data—and not only procedural fairness in digital consumer financial markets. This Article's conclusions could have broader implications for the methods and limits of personal data regulation in other digital consumer markets not limited to consumer fintech markets.

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INTRODUCTION

When and where should policymakers intervene to control harmful market activity? Determining the optimal locus of legislative and regulatory intervention is an enduring challenge for policymakers.[1] In the context of consumer financial markets,[2] the debate has often centered on the relative merits of regulating "ex ante" or "ex post": that is, respectively, before the consummation of a financial contract and with the aim of preventing harm (for example, by intervening in the activities of financial firms and the terms of consumer financial contracts), or after consummation of the contract and to remedy harm that has occurred, or both.[3] At a lower level of abstraction, the debate has centered on two key

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1 *See generally* Joseph Stiglitz, *Regulation and Failure*, *in* NEW PERSPECTIVES ON REGULATION 11 (David Moss & John Cisternino eds., 2009); ROBERT BALDWIN, MARTIN CAVE & MARTIN LODGE, UNDERSTANDING REGULATION: THEORY, STRATEGY, AND PRACTICE (2d ed. 2012); *infra* note 36 and accompanying text (discussing the temporal challenges of regulating emerging technologies).

2 Consumer financial markets are those in which consumers, acting in their personal capacity, carry out financial transactions such as borrowing, investing, and saving. *See* 12 U.S.C. § 5481(5), (15) (defining consumer financial products and services).

3 *See* Oren Bar-Gill & Elizabeth Warren, *Making Credit Safer*, 157 U. PA. L. REV. 1, 70–95 (2008) (contrasting and examining ex ante and ex post consumer financial market regulation); Iman Anabtawi & Steven L. Schwarcz, *Regulating* Ex Post*: How Law Can Address the Inevitability of Financial Failure*, 92 TEX. L. REV. 75 (2013) (focusing on systemic financial risk). Note that this framing is simplified and imperfect. Ex ante and ex post regulation necessarily overlap, and the boundary between them is porous. Inter alia, the threat of ex post judicial enforcement (or lack

loci for ex ante regulatory intervention: the supply of financial products and services (also referred to as primary market activity)[4] and the flow of information that supports that activity.[5] These two loci and their relative merits are the focus of this Article.

Beginning in the late 1960s and leading up to the 2008 global financial crisis ("GFC"), consumer financial market regulation, particularly consumer credit regulation, increasingly favored the information regulation paradigm.[6] This consisted of disclosure laws

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thereof) influences parties' behavior and incentives ex ante, including influencing the volume of credit supplied. Thus, the volume of credit supplied is at least partly endogenous to the relative permissiveness of bankruptcy laws (e.g., the time to discharge). *See, e.g.*, Iain Ramsay, *Consumer Credit Society and Consumer Bankruptcy: Reflections on Credit Cards and Bankruptcy in the Informational Economy*, *in* CONSUMER BANKRUPTCY IN GLOBAL PERSPECTIVE 17, 33 (Johanna Niemi-Kiesiläinen, Iain Ramsay & William C. Whitford eds., 2003) ("Bankruptcy law is part of the ground rules of credit markets and it might be useful to place it within a continuum of potential forms of regulation of the credit card market."); Adam Feibelman, *Defining the Social Insurance Function of Consumer Bankruptcy*, 13 AM. BANKR. INST. L. REV. 129, 140 (2005) ("Because every individual in the United States enjoys a nonwaivable right to file for bankruptcy protection, most unsecured lending agreements effectively include a mandatory term that the borrower retains the option to file for bankruptcy protection." (citing Barry Adler, Ben Polak & Alan Schwartz, *Regulating Consumer Bankruptcy: A Theoretical Inquiry*, 29 J. LEGAL STUD. 585, 587 (2000)) (footnote omitted)); Andreas Wiedemann, *A Social Policy Theory of Everyday Borrowing: On the Role of Welfare States and Credit Regimes*, 67 AM. J. POL. SCI. 324, 329 (2021) ("[C]redit markets only function as a substitute for social policies because governments create and enable permissive regimes. Interest rate subsidies, loan guarantees, *easier debt discharge through bankruptcy*, and interventions in secondary markets through government-sponsored enterprises entice lenders to offer loans to borrowers who might otherwise be excluded from credit markets." (emphasis added)). At a higher level of abstraction, the debate juxtaposes intervention through legal rules and social policy. *See, e.g.*, Jeremy Waldron, *Locating Distribution*, 32 J. LEG. STUD. 277 (2003) (comparing different loci for implementing distributional fairness goals); Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEG. STUD. 667 (1994) (arguing that it is more efficient to pursue distributional goals through government fiscal and social policy—tax and transfer—rather than legal rules).

4 *See generally* ANTHONY I. OGUS, REGULATION: LEGAL FORM AND ECONOMIC THEORY 121 (1994). Regulation of the supply of financial products and services consists, mainly, of regulating financial products per se ("product" regulation)—for example, controlling the terms of consumer financial contracts, such as interest rates and fees—and regulating the conduct and financial safety of firms that supply those products ("conduct" and "prudential" regulation)—for example, establishing duties for lenders to manage credit risk by assessing borrowers' "ability to pay" and maintaining adequate levels of capital and liquidity. *See generally* JOHN ARMOUR ET AL., PRINCIPLES OF FINANCIAL REGULATION 542 (2016) (contrasting conduct and prudential financial regulation).

5 *See generally* OGUS, *supra* note 4, at 121 (distinguishing information and product regulation and explaining that information regulation "applies not to primary market activity, the supply of goods and services, but rather to the flow of information which supports that activity"). In consumer financial markets, information regulation can apply to the flow of data and information about consumers, financial products and services, and the firms selling those products and services.

6 *See, e.g.*, Christopher L. Peterson, *Truth, Understanding, and High-Cost Consumer Credit: The Historical Context of the Truth in Lending Act*, 55 FLA. L. REV. 807, 875–80 (2003) (describing the rise of information disclosure laws in regulating consumer credit markets under the Truth in Lending Act (TILA)). *See generally* 15 U.S.C. §§ 1601–1667f.

mandating that firms disclose information to consumers about the terms of financial products,[7] and, to a lesser extent, "data protection" and "data privacy"[8] laws regulating consumer data processing by firms.[9] Information regulation was favored as a more light-touch market-based approach relative to the regulation of primary market activity, such as restrictions on the terms of financial products or the conduct and riskiness of financial firms.[10] Information regulation in the form of data privacy and data protection laws also reflected distinct concerns about protecting consumer data security and privacy in light of rapid advances in information technology and the increasing digitization of financial markets.[11]

The GFC, however, revealed the relative ineffectiveness of information regulation, particularly disclosure laws, in protecting consumers and the wider economy from substantive harms, such as unaffordable borrowing and excess household leverage.[12] It highlighted

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7 *See id.*

8 For simplicity, this Article uses the terms "data" and "information" interchangeably, as is common practice, while acknowledging that they are distinct. "Data" typically refers to raw, unprocessed, alphanumeric values, whereas "information" refers to the meaning derived from processing data and putting it into context. *See generally* Rafael Capurro & Birger Hjørland, *The Concept of Information*, 37 ANN. REV. INFO. SCI. & TECH. 343 (2003); Max Boisot & Agustí Canals, *Data, Information, and Knowledge: Have We Got It Right?*, 14 J. EVOLUTIONARY ECON. 43 (2004) (arguing for greater conceptual clarity on the distinctions between data, information, and knowledge); Chaim Zins, *Conceptual Approaches for Defining Data, Information, and Knowledge*, 58 J. AM. SOC'Y INFO. SCI. & TECH. 479, 479–81 (2007). This Article will refer only to "data protection regulation" and "data protection law," while acknowledging that data privacy law and data protection law are not fully coterminous.

9 *See infra* Section II.A (examining the Fair Credit Reporting Act (FCRA)).

10 *See* OGUS, *supra* note 4, at 121 (defining product, conduct, and prudential regulation and describing their relative merits); Peterson, *supra* note 6, at 880–86 (describing the promise of disclosure laws in regulating consumer credit markets under the TILA). Note that consumer financial market regulation during this period also included product, conduct and prudential rules. Among other things, the late 1960s and early 1970s saw the introduction of fair lending laws, notably the Equal Credit Opportunity Act and the Fair Housing Act, which proscribed discrimination in lending. The Basel framework strengthened bank prudential regulation beginning in the 1980s. *See* LYN THOMAS, JONATHAN CROOK & DAVID EDELMAN, CREDIT SCORING AND ITS APPLICATIONS 276 (2d ed. 2017) (discussing the Basel framework). But there was also a weakening of product regulation during this period, particularly following the Supreme Court's decision in *Marquette National Bank v. First Omaha Service Corp.*, 439 U.S. 299 (1978), which relaxed usury laws in consumer credit markets. *See* Peterson, *supra* note 6, at 811–12.

11 *See generally* JOSH LAUER, CREDITWORTHY: A HISTORY OF CONSUMER SURVEILLANCE AND FINANCIAL IDENTITY IN AMERICA (2017) (examining advances in computing beginning in the late 1960s and the rise of consumer credit surveillance systems); *infra* note 116 and accompanying text (discussing the privacy goals of the FCRA); *infra* Section II.B.2.b (discussing consumer privacy).

12 *See* Peterson, *supra* note 6, at 886–902 (discussing the failures of disclosure regulation under the TILA); Bar-Gill & Warren, *supra* note 3, at 7–56 (examining the theoretical and empirical failure of contractarian, information disclosure-based approaches to consumer credit market regulation);

the need for more substantive regulatory intervention in the terms of consumer credit and other financial products and the conduct and financial safety of firms selling those products.[13] This realization motivated the passage of laws such as the Dodd-Frank Wall Street Reform and Consumer Protection Act ("the Dodd-Frank Act")[14] and the creation of the Consumer Financial Protection Bureau (CFPB or "the Bureau"), among other domestic and international policy reforms.[15]

Recent advances in information technology in consumer financial markets, discussed under the rubric of "fintech," have resurfaced the question of whether, and to what extent, data—particularly consumers' personal data—should be a locus for regulatory intervention in consumer financial markets.[16] As with all advances in technology, fintech is a double-edged sword.[17] On the one hand, it can promote consumer

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Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647, 665–67 (2011) (discussing the failure of mandated disclosure of terms of consumer credit contracts); Jonathan Macey, *Fair Credit Markets: Using Household Balance Sheets to Promote Consumer Welfare*, 100 TEX. L. REV. 683, 705–11 (2022) (discussing the failures of the TILA and disclosure-based consumer protection); *see also infra* Section I.A (discussing the micro- and macroeconomic functions and effects of consumer credit markets).

13 *See* Bar-Gill & Warren, *supra* note 3, at 99 (proposing a product safety, rather than contractual, paradigm for consumer financial regulation, and setting out a blueprint for the CFPB); John C. Coffee, Jr., *The Political Economy of Dodd-Frank: Why Financial Reform Tends to be Frustrated and Systemic Risk Perpetuated*, 97 CORNELL L. REV. 1019, 1047–78 (2012) (discussing prudential measures under the Dodd-Frank Act targeted at reducing risk-taking by financial firms post-GFC); Macey, *supra* note 12, at 701–02.

14 Pub. L. No. 111-203, 124 Stat. 1376 (2010).

15 *See* 12 U.S.C. § 5491 (establishing the CFPB).

16 The term "fintech" commonly refers to both the application of digital technology in financial products and services, as well as the firms offering those products and services. *See* Marc Hochstein, *Fintech (The Word, that Is) Evolves*, AM. BANKER (Oct. 5, 2015, 7:12 PM), https://www.americanbanker.com/opinion/fintech-the-word-that-is-evolves [https://perma.cc/4HZV-H2Y8] (tracing usage of the term fintech to Citibank in the early 1990s); Douglas W. Arner, Jànos Barberis & Ross P. Buckley, *The Evolution of Fintech: A New Post-Crisis Paradigm?* (Univ. New South Wales Working Paper, Paper No. 2015/047, 2019), https://ssrn.com/abstract=2676553 [https://perma.cc/J9E7-RYKG] (distinguishing different phases of fintech innovation); COMM. ON GLOB. FIN. SYS. & FIN. STABILITY BD., FINTECH CREDIT: MARKET STRUCTURE, BUSINESS MODELS AND FINANCIAL STABILITY IMPLICATIONS (2017), https://www.fsb.org/2017/05/fintech-credit-market-structure-business-models-and-financial-stability-implications [https://perma.cc/H92T-XREK] (analyzing recent innovation in fintech credit markets and the nature of business models involved).

17 *See* Arner et al., *supra* note 16, at 3; Christopher G. Bradley, *FinTech's Double Edges*, 93 CHI. KENT L. REV. 61, 63 (2018); Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L.J. 235, 264–82 (2019); Nikita Aggarwal, *Fintech Credit and Consumer Financial Protection*, *in* ROUTLEDGE HANDBOOK OF FINANCIAL TECHNOLOGY AND LAW 138–56 (Iris H-Y Chiu & Gudula Deipenbrock eds., 2021); Christopher K. Odinet, *Predatory Fintech and the Politics of Banking*, 106 IOWA L. REV. 1739, 1741 (2021); Cesare Fracassi & William J. Magnuson, *Data Autonomy*, 74 VAND. L. REV. 327, 330 (2021); Nikita Aggarwal, *AI, Fintech, and the Evolving Regulation of Consumer Financial Privacy*, *in* OXFORD HANDBOOK OF AI GOVERNANCE 860 (Justin B. Bullock et al. eds., 2023).

welfare by, for example, improving access to affordable credit, such as a home mortgage or a personal loan.[18] On the other hand, it can undermine consumer welfare by, for example, increasing the cost of credit for other consumers[19] and reducing consumers' privacy.[20] As examined further below, these outcomes depend in large part on how lenders and other firms use consumer data, as well as how one conceptualizes consumer privacy.[21]

In 2024, in a move that favored the regulation of personal financial data per se and many of the traditional features of personal data protection regulation, the Bureau issued a "Personal Financial Data Rights Rule," colloquially known as the "Open Banking Rule."[22] The Open Banking Rule, which implements section 1033 of the Dodd-Frank Act, codified at 12 U.S.C. § 5533,[23] seeks to mitigate the costs and risks of

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18 *See* Rory Van Loo, *Making Innovation More Competitive: The Case of Fintech*, 65 UCLA L. REV. 232, 236 (2018); Fracassi & Magnuson, *supra* note 17, at 339–40 (discussing the promise of fintech); *infra* Section II.B.1.a (discussing the potential for more data-driven fintech lending to lower the cost of credit for marginalized consumers). This Article uses the term "consumer welfare" in the ordinary micro-economic sense, i.e., the benefit, or utility that a consumer derives from the consumption of goods and services and leisure (inter alia) over their lifetime. It follows that the price that a consumer pays for goods and services, including financial products and services, has an important bearing on their welfare (but not exclusively). *See generally* ALFRED MARSHALL, PRINCIPLES OF ECONOMICS (8th ed. 1920) (1890); DANIEL HAUSMAN, MICHAEL MCPHERSON & DEBRA SATZ, ECONOMIC ANALYSIS, MORAL PHILOSOPHY AND PUBLIC POLICY (3d ed. 2017). *But see* Amartya K. Sen, *Equality of What?*, *in* TANNER LECTURES ON HUMAN VALUES 197 (1979) (arguing that capabilities, or freedoms, are fuller proxies for individual welfare). References to consumer welfare in this Article are not intended to invoke the "Consumer Welfare Standard" as that term has been applied in the antitrust context. On the Consumer Welfare Standard, see generally Herbert Hovenkamp & Fiona Scott Morton, *Framing the Chicago School of Antitrust Analysis*, 168 U. PA. L. REV. 1843, 1876–77 (2020).

19 The expansion of access to high-cost, unaffordable credit is often referred to as "predatory inclusion." *See* Louise Seamster & Raphaël Charron-Chénier, *Predatory Inclusion and Education Debt: Rethinking the Racial Wealth Gap*, 4 SOC. CURRENTS 199, 199 (2017).

20 *See infra* Parts I–II (examining the effects of data and fintech on credit market outcomes and the concept of privacy).

21 *See infra* Section II.B.1 (discussing the opportunities and risks of fintech and Open Banking); *infra* Section II.B.2.b (reconceptualizing consumer privacy).

22 Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) (proposing the Open Banking Rule); Required Rulemaking on Personal Financial Data Rights, 89 Fed. Reg. 90838 (Nov. 18, 2024) (codified at 12 C.F.R. pts. 1001, 1033 (2025)).

23 12 U.S.C. § 5533. The Rule provides that consumers will have the following rights to access information:

> Subject to rules prescribed by the Bureau, a covered person shall make available to a consumer, upon request, information in the control or possession of the covered person concerning the consumer financial product or service that the consumer obtained from such covered person, including information relating to any transaction, series of

fintech while enabling its benefits, specifically due to "Open Banking."[24] Open Banking is a fast-growing digital network that enables consumers to transfer their financial data between financial institutions ("FIs"), particularly from incumbent FIs, to competitor fintech firms.[25] The Open Banking Rule is best understood as a type of sectoral consumer data protection law that adopts many of the traditional features of domestic and international personal data protection law, including the Fair Credit Reporting Act (FCRA),[26] the Health Insurance Portability and Accountability Act (HIPAA),[27] the EU's General Data Protection Regulation (GDPR),[28] and state data privacy laws such as the California Consumer Privacy Act (CCPA).[29] These features include consumers' "right to data portability"[30] and several "fair information practice

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transactions, or to the account including costs, charges and usage data. The information shall be made available in an electronic form usable by consumers.

Id. § 5533(a); *see also id.* § 5481(4) (defining "consumer"); *id.* § 5481(5) (defining "consumer financial product or service"); *id.* § 5481(6) (defining a "covered person" as "any person that engages in offering or providing a consumer financial product or service," or their affiliate).

24 Open Banking is referred to more broadly as "Open Finance." *See, e.g.*, Nydia Remolina, *Open Finance: Regulatory Challenges of the Evolution of Data Sharing Arrangements in the Financial Sector* (Oct. 24, 2019), https://ssrn.com/abstract=3475019 [https://perma.cc/2CCC-TFGZ]; Dan Awrey & Joshua Macey, *The Promise and Perils of Open Finance*, 40 YALE J. REG. 1 (2023). This Article shall use the term Open Banking, which is the more common term of reference, while acknowledging that the Open Banking network and section 1033 of the Dodd-Frank Act are not limited to transferring consumer financial data to and from banks. *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74797 (making a similar simplifying assumption); *infra* Section II.B.1 (examining Open Banking).

25 More specifically, transferred between their financial "apps"—shorthand for software applications, typically ones developed for mobile devices. *See* CLEARING HOUSE, 2021 CONSUMER SURVEY: DATA PRIVACY AND FINANCIAL APP USAGE (2021), https://www.theclearinghouse.org/-/media/New/TCH/Documents/Data-Privacy/2021-TCH-ConsumerSurveyReport_Final [https://perma.cc/WL22-4EGV] (discussing the growth of app-based consumer financial markets).

26 15 U.S.C. §§ 1681–1681x; Regulation V, 12 C.F.R. pt. 1022 (2025) (implementing the FCRA); *infra* Section II.A.

27 Pub. L. No. 104-191, 110 Stat. 1936 (1996) (codified as amended in scattered sections of 18, 26, 29, and 42 U.S.C.).

28 Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC, 2016 O.J. (L 119) [hereinafter Regulation 2016/679].

29 *See* CAL. CIV. CODE §§ 1798.100–.199 (West 2023) (as amended by the California Privacy Rights Act). This Article reserves for future work a more detailed examination of the institutional history of the Open Banking Rule and section 1033 of the Dodd-Frank Act, including the convergence and divergence between consumers' rights to data portability under section 1033 and other data protection laws, such as HIPAA and the GDPR.

30 *See, e.g.*, Regulation 2016/679, *supra* note 28, art. 20 (establishing a "right to data portability"); CAL. CIV. CODE § 1798.110.

principles" ("FIPPs"),[31] such as the requirement for firms to obtain consumers' "informed consent" prior to processing their data and to minimize processing of that data.[32]

As data-driven fintech innovation continues to advance, and the Bureau looks to personal data protection regulation as a model for balancing the opportunities and risks of fintech innovation in consumer financial markets, this Article sounds a note of caution.[33] The Bureau should be careful not to rely too heavily on the traditional features of personal data protection regulation, nor consumer data per se as the locus of regulatory intervention and unit of regulatory analysis in digital consumer financial markets. Decades of experience tell us that, despite their intuitive appeal, the prevailing approaches to personal data protection regulation are not that effective in protecting consumers, and the wider economy, from substantive, rather than procedural, harms. This is increasingly true in a world of big data and sophisticated artificial intelligence (AI) systems.[34]

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31 *See* FTC, PRIVACY ONLINE: FAIR INFORMATION PRACTICES IN THE ELECTRONIC MARKETPLACE (2000), https://www.ftc.gov/sites/default/files/documents/reports/privacy-online-fair-information-practices-electronic-marketplace-federal-trade-commission-report/privacy2000text.pdf [https://perma.cc/KR38-2RVD]; *infra* Section II.B.2 (examining the FIPPs under the Open Banking Rule).

32 This is commonly known as the "data minimization" standard. *See infra* Section II.B.2 (evaluating the data minimization standard under the Open Banking Rule).

33 Acknowledging that the Open Banking Rule is not the totality of the Bureau's approach to fintech market regulation and supervision, but part of a broader agenda. *See, e.g.*, 12 C.F.R. pt. 1090 (2025) (subjecting large nonbank "providers of funds transfer and wallet functionalities through digital applications for consumers' general use in making payments" to the CFPB's supervisory authority); *see also* 12 U.S.C. § 5514(a)(1)(B) (giving the CFPB authority to supervise large non-depository participants in consumer financial services markets); 12 C.F.R. § 1090.100 (defining large nonbank participants); *infra* Conclusion (proposing further extension of the Bureau's supervisory perimeter).

34 This reality is acknowledged by leading data privacy law scholars. *See, e.g.*, Edward J. Janger & Paul M. Schwartz, *The Gramm-Leach-Bliley Act, Information Privacy, and the Limits of Default Rules*, 86 MINN. L. REV. 1219 (2002) (examining the weaknesses of the Gramm-Leach-Bliley Act (GLBA), inter alia, "notice-and-consent" and "opt-out" defaults); Daniel J. Solove, *Introduction: Privacy Self-Management and the Consent Dilemma*, 126 HARV. L. REV. 1880 (2013) [hereinafter Solove, *Introduction*] (highlighting the limits of the consent- and individual data rights-based approach to information privacy regulation); Katherine J. Strandburg, *Free Fall: The Online Market's Consumer Preference Disconnect*, U. CHI. LEGAL F. 95, 146–47 (2013); Tal Z. Zarsky, *Incompatible: The GDPR in the Age of Big Data*, 47 SETON HALL L. REV. 995, 995–97 (2017); Woodrow Hartzog & Neil Richards, *Privacy's Constitutional Moment and the Limits of Data Protection*, 61 B.C. L. REV. 1687, 1688–94 (2020); Neil Richards & Woodrow Hartzog, *A Duty of Loyalty for Privacy Law*, 99 WASH. U. L. REV. 961, 977–978, 1009–10 (2021); Ari Ezra Waldman, *Privacy, Practice, and Performance*, 110 CALIF. L. REV. 1221, 1233–69 (2022) (describing and critiquing the performative and bureaucratic nature of data privacy law in practice); Daniel J. Solove, *Data Is What Data Does: Regulating Use, Harm, and Risk Instead of Sensitive Data*, 118 NW. U. L. REV 1081, 1083–84 (2024) [hereinafter Solove, *Data Is What Data Does*] (arguing for a

Take the example of consumer credit markets.[35] If we accept that consumer credit allocation will remain a primarily market-based activity and that competitive, well-functioning consumer credit markets depend on the availability of data about consumers (as well as about firms and products), a strongly preemptive and precautionary approach that starves these markets of consumer data is neither feasible nor desirable.[36] But once we accept that consumer credit markets require consumer data to function well, there are clear theoretical and empirical limits to the efficacy and optimality of many of the traditional features of personal data protection regulation in protecting consumers, and the wider economy, from substantive harm—particularly, rules and standards that try to balance the expected costs and benefits of consumer financial data processing at the level of the flow of data itself, prior to its use in the design and sale of credit products and services. This includes categorical, ex ante limits on the flow of certain types of consumer data and high-level data protection principles, such as data minimization. It also includes consumer data processing rights, such as the right to consent to data processing and request deletion of their data.

Crucially, the welfare (and distributional) effects of personal data processing are highly contextual and challenging to anticipate from consumers' data in the abstract and prior to use. This is especially true at the stages of data collection, transmission, and retention—stages at which the relative costs and benefits of future uses of data are largely unknown, unknowable, and unmeasurable.[37] Due to this inherent uncertainty and duality of outcomes from personal data processing, as articulated more fully below, many traditional regulatory interventions targeted at (and limited to) the flow of personal data are either ineffective or suboptimal—unlikely alone to sufficiently mitigate harmful credit market activity or, alternatively, risk over-suppressing beneficial activity, such as data-driven fintech innovation and greater competition in consumer markets

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shift from protecting and regulating sensitive personal data to basing regulation on the extent of risk and harm from the collection, use, or transfer of data). On AI generally, see STUART RUSSELL & PETER NORVIG, AI: A MODERN APPROACH (4th ed. 2020); *infra* note 144 and accompanying text (discussing AI and machine learning); *see also infra* Section II.A; *infra* note 181 and accompanying text (discussing AI for alternative credit scoring).

35 *See infra* Part II.

36 On the "precautionary principle" and temporal challenges in designing regulation of emerging technologies, see generally DAVID COLLINGRIDGE, THE SOCIAL CONTROL OF TECHNOLOGY (1981); Gary E. Marchant, *The Growing Gap Between Emerging Technologies and the Law*, *in* THE GROWING GAP BETWEEN EMERGING TECHNOLOGIES AND LEGAL-ETHICAL OVERSIGHT 19 (Gary E. Marchant, Braden R. Allenby & Joseph R. Herket eds., 2011) (discussing the "pacing problem" in technology regulation); Gregory N. Mandel, *Regulating Emerging Technologies*, 1 L. INNOVATION & TECH. 75 (2009).

37 *See generally* FRANK H. KNIGHT, RISK, UNCERTAINTY, AND PROFIT 19–20 (Sentry Press 1964) (1921) (distinguishing risk from uncertainty or unmeasurable risk).

that, among other things, improves access to affordable credit for marginalized consumers. As such, personal data protection regulation risks increasing regulatory compliance costs and in turn undermining competition, without delivering any improvement in consumer financial market functioning and consumer welfare.[38] Likewise, an overreliance on personal data protection regulation risks creating a false sense of complacency about consumer protection in financial markets—an appearance of consumer protection through consumer data protection—and, as a result, diverting regulatory resources away from mitigating the pecuniary and nonpecuniary harms to consumers arising from the sale and consumption of financial products that use consumer data, such as unaffordable, welfare-diminishing consumer credit.[39]

Using consumer credit markets as a case study, this Article argues that consumer financial market regulation must avoid relying too heavily on many of the traditional, often ineffective, and suboptimal features of personal data protection regulation. Instead, it should seek to facilitate the technologically enabled secure flow of consumer data and more strictly control how firms use and apply that data in the design and sale of consumer financial products and services, for example, through product, conduct, and prudential regulation.[40] Thus, data *use*, rather than data *flow*, becomes the more meaningful locus for balancing the costs and benefits of fintech innovation under consumer financial market regulation. In making this argument, this Article also advocates for a more consequentialist, rather than deontological, conceptualization of consumer (financial) privacy—one in which the instrumental benefits for (some) consumers resulting from the collection, transmission, and use of their data can be balanced against, and conceivably outweigh, any intrinsic harms due to the collection and transmission of personal data

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38 *See infra* Section II.A (discussing inefficiencies due to the FCRA).

39 *See infra* Section I.B (discussing the consumer welfare effects of consumer credit); *infra* Section II.B (discussing the risk of welfare-diminishing uses of consumer data in fintech markets).

40 *See supra* note 4 and accompanying text (describing different tools of financial regulation). The move this Article is proposing builds on, and extends, the prior literature. *See, e.g.*, Fracassi & Magnuson, *supra* note 17, at 374–76 (highlighting the weaknesses of "notice and consent" privacy regimes, and advocating for stronger individual data portability rights in financial markets, but not focusing on the relative merits of information and product regulation); Awrey & Macey, *supra* note 24 (supporting the informational benefits of Open Banking and proposing a regulatory blueprint, but focusing on network effects and the need for central coordination of technical standards and stricter regulation of data aggregators); Jack M. Balkin, *Information Fiduciaries and the First Amendment*, 49 U.C. DAVIS L. REV. 1183, 1186 (2016) (proposing fiduciary duties for tech platforms to use consumer data in consumers' best interests); Jonathan Zittrain, *How to Exercise the Power You Didn't Ask for*, HARV. BUS. REV. (Sept. 19, 2018), https://hbr.org/2018/09/how-to-exercise-the-power-you-didnt-ask-for [https://perma.cc/3FGT-JRQV] (making a similar proposal).

per se, or instrumental harms to other consumers due to harmful uses of their data, such as higher cost, less affordable credit.[41]

These conclusions could have broader implications for the limits of personal data protection regulation in other, nonfinancial digital consumer markets. Over the last decade, governments around the world have raced to adopt stricter personal data protection and data privacy laws, such as the GDPR and CCPA. But these laws have not prevented the rise of powerful, data-driven AI systems. More particularly, they have been relatively unsuccessful in preventing harmful uses of these systems—such as AI-generated "deepfakes" that corrupt the democratic process with misinformation.[42] Indeed, the recent shift of focus in digital market regulation—from regulating personal data to regulating digital applications—could attest to the relative failure of data protection regulation and the relative merits of the regulatory move advocated for by this Article.[43]

Before turning to the main discussion, a few observations about this Article's main aims and focus are in order. To begin with, as stated at the outset, this Article focuses on the relative merits of regulating the flow of consumer data through data regulation, and regulating the use of that data by firms, for example, through product, conduct, and prudential regulation. The main aim of this Article is to highlight the limitations and comparative failure of data per se as a locus for regulatory intervention in consumer credit and other consumer financial markets aimed at safeguarding the sound functioning of these markets and protecting consumers, and the wider economy, from substantive harm.[44] Clearly, this presentation is stylized.

First, it is important to note that the loci for regulatory intervention that are the focus of analysis in this Article are not mutually exclusive. As articulated further below, there are good reasons to continue to impose certain types of regulation on the flow of consumer data, for example, to safeguard data security and to enable consumers to transfer their data between FIs more easily and to achieve procedural fairness goals. Regulation of data flows can and should continue to co-exist with

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41 *See infra* Section II.B.2.a.

42 *See, e.g.*, Bobby Chesney & Danielle Citron, *Deep Fakes: A Looming Challenge for Privacy, Democracy, and National Security*, 107 CALIF. L. REV. 1753 (2019).

43 *See, e.g.*, Regulation 2024/1689, of the European Parliament and of the Council of 13 June 2024 Laying Down Harmonised Rules on Artificial Intelligence and Amending [the Artificial Intelligence Act], 2024 O.J. (L) (EU); *The Digital Services Act Package*, EUR. COMM'N (Oct. 4, 2024), https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package [https://perma.cc/A5KS-TMGH]; *see also* OFF. SCI. & TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE (2022) (advocating for regulation of automated systems that is conscious of civil rights and democratic values).

44 Thanks to Lili Levi, Professor of Law at the University of Miami, for offering this framing.

regulation of data use. Rather, this Article cautions against overreliance on data flow regulation and emphasizes the need in addition for effective data use regulation, particularly to mitigate substantive harms such as the sale of unaffordable, welfare-diminishing consumer credit.

Second, as anticipated earlier, the question of the optimal loci of regulatory intervention in consumer financial markets is necessarily much broader and more complex than the balance between data flow and data use. Albeit beyond the scope of this Article, a fuller treatment of the question of how to design optimal consumer financial market regulation would also consider the effects and relative merits of ex post regulation, for example, through bankruptcy law.[45] It would also address important institutional questions about which regulators should regulate consumer financial markets—another aspect of "locating" consumer financial regulation.[46]

Third, relatedly, by focusing on shifting the locus and focus of regulatory intervention from data flow to data use, this Article does not contend that this is necessarily the only or ideal way to mitigate harmful consumer financial market activity and thereby promote consumer welfare or other policy goals.[47] Deeper regulatory and social policy solutions are also needed. With respect to consumer credit markets, this might include strengthening the affirmative obligations of firms to supply affordable credit products (rather than simply a negative obligation not to supply unaffordable products), including concessional and subsidized loans that rely less on risk-based, actuarial assessments of credit risk—and thus consumer data—to price and allocate credit.[48] More fundamentally, much needed structural reforms, such as increasing public investment in education and healthcare and expanding the social

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45 *See supra* note 3 and accompanying text (juxtaposing ex ante and ex post regulation).

46 These questions are explored elsewhere in the literature. *See, e.g.*, Edward J. Janger, *Locating the Regulation of Data Privacy and Data Security?*, 5 BROOK. J. CORP. FIN. & COM. L. 97 (2010) (arguing that jurisdiction over data privacy and data security regulation should be shared between the CFPB and other bank-focused regulatory agencies). This Article also does not examine in detail the choice of the method or tools of regulation—for example, how best to regulate the conduct of firms that supply consumer credit products and services, or the terms of these products. This Article reserves further examination of these questions for future work.

47 On ideal and nonideal theory, see, for example, AMARTYA K. SEN, THE IDEA OF JUSTICE (2009) (distinguishing "realization-focused" theories of justice that focus on removing manifest injustice from the world as it is, from "transcendental," "arrangement-focused," or "perfect" theories of justice).

48 A full treatment of these avenues is beyond the scope of this Article and reserved for future work. *See infra* Section I.B (examining the use of consumer data for credit underwriting).

safety net, could reduce the demand for (unaffordable) consumer credit, particularly among lower-income groups.[49]

This Article's focus on market-based solutions and consumer financial market regulation is motivated by the reality that more ideal structural interventions, such as those canvassed above, face higher political hurdles in liberal market economies such as the United States.[50] The American political economy is one in which, for better or worse, social risks have been partly privatized through consumer credit markets,[51] consumer credit allocation remains a primarily market-based activity, credit risk is widely used as a heuristic for determining credit allocation and pricing (albeit not entirely without controversy),[52] and firms are seen as having a legitimate interest in profiting from lending, including lending using demand-based price discrimination.[53] This political reality motivates the Article's focus on what this Article considers to be lower hanging political fruit, namely, making a relative improvement in the functioning of consumer credit and other consumer financial markets by increasing the flow of consumer data and data-driven innovation, and shifting the locus and focus of regulatory intervention from data flow to data use.

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49 *See, e.g.*, SUSANNE SOEDERBERG, DEBTFARE STATES AND THE POVERTY INDUSTRY: MONEY, DISCIPLINE, AND THE SURPLUS POPULATION 61 (2014) (arguing that by promoting access to credit as a solution to the financing needs of low-income households, the Equal Credit Opportunity Act and Community Reinvestment Act legitimated the substitution of credit for welfare, exacerbating poverty and inequality); Abbye Atkinson, *Rethinking Credit as Social Provision*, 71 STAN. L. REV. 1093, 1147–54 (2019) (arguing that credit cannot effectively substitute social welfare provision for low-income Americans); Wiedemann, *supra* note 3, at 325, 339 (showing that credit substitutes welfare in countries with restrictive social welfare regimes but complements welfare in countries with more permissive social welfare regimes); *see also* Kaplow & Shavell, *supra* note 3, at 675–77 (arguing that distributional goals should be achieved through social policy rather than legal rules). *But see* Vijay Raghavan, *Consumer Law's Equity Gap*, 2022 UTAH L. REV. 511, 570 (2022) (arguing that the availability of social welfare or public options will not necessarily decrease demand for exploitative private credit).

50 *See* Peter A. Hall & David Soskice, *An Introduction to Varieties of Capitalism*, *in* VARIETIES OF CAPITALISM: THE INSTITUTIONAL FOUNDATIONS OF COMPARATIVE ADVANTAGE 1, 8 (Peter A. Hall & David Soskice eds., 2001) (taxonomizing market economies as either "liberal" or "coordinated").

51 *See* SOEDERBERG, *supra* note 49; Atkinson, *supra* note 49; Jacob S. Hacker, *Privatizing Risk Without Privatizing the Welfare State: The Hidden Politics of Social Welfare Retrenchment in the United States*, 98 AM. POL. SCI. REV. 243 (2004) (discussing modes and determinants of welfare state retrenchment); MONICA PRASAD, THE LAND OF TOO MUCH: AMERICAN ABUNDANCE AND THE PARADOX OF POVERTY (2012).

52 *See infra* Section I.B.1 (discussing credit pricing based on consumers' estimated credit risk); Barbara Kiviat, *The Moral Limits of Predictive Practices: The Case of Credit-Based Insurance Scores*, 84 AM. SOCIO. REV. 1134 (2019) (discussing the morality of using credit scores in credit and insurance pricing).

53 *See infra* Section I.B.1.

This Article proceeds in two parts. Part I provides the conceptual background for this Article's normative contribution by reviewing the economics of data in consumer credit markets. Part II develops this Article's central thesis: to mitigate the costs and leverage the benefits of data-driven fintech innovation in consumer credit and other consumer financial markets, and thereby promote consumer welfare, consumer financial market regulation should focus more on facilitating the technologically enabled secure flow of consumer data and more strictly controlling how firms use that data in the design and sale of consumer financial products and services. To develop this argument, Part II draws on two salient examples of personal data regulation in consumer financial markets: the FCRA and the new Open Banking Rule.

I. THE FUNCTIONS AND EFFECTS OF DATA IN CONSUMER CREDIT MARKETS

In the United States and other market-based economies, the availability of data and technologies for processing data, and the resulting asymmetry of data and information between lenders and borrowers, has long played a critical role in influencing the allocation, pricing, and affordability of consumer credit, and thus the welfare (and distributional) effects of consumer credit markets.[54] Recent advances in fintech have reinforced this function of data and amplified its effects.[55] Section I.A examines how consumer credit allocation, pricing, and affordability influence consumer welfare. Section I.B then examines the role that data plays in influencing the allocation, pricing, and affordability of consumer credit, and thus its effects on consumer welfare.

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54 This is particularly true in unsecured credit markets, where lenders lack collateral to mitigate credit risk. *See* Leonardo Gambacorta, Yiping Huang, Zhenhua Li, Han Qiu & Shu Chen, *Data vs Collateral* (Bank for Int'l Settlements, Working Paper No. 881, 2020), https://www.bis.org/publ/work881.pdf [https://perma.cc/WR7B-ARPQ]; *see also infra* Section I.B.1 (discussing risk-based price differentiation). Of course, data and information asymmetries—and the technologies and laws that influence them—are part of a more complex mix of co-evolving mechanisms that explain patterns of credit allocation and associated consumer welfare effects. They include credit, monetary, and social policies, as well as cultural and social norms relating to borrowing. *See* Nikita Aggarwal, When All Data Is Credit Data: Consumer Credit Markets, Technological Development, and Distributive Justice 148 tbl. 2 (2023) (Ph.D. thesis, University of Oxford), https://ora.ox.ac.uk/objects/uuid:975192f9-c333-4db7-800f-6fcc0c417c7e [https://perma.cc/CRR6-XKUM].

55 *See infra* Section II.B (examining fintech and Open Banking).

A. *Consumer Credit and Consumer Welfare*

The effects of consumer credit on consumer welfare are highly contingent on the terms of credit, particularly the quantum and price, and thus affordability, of credit. Credit is affordable where the borrower is not only able to repay the debt (including interest and other fees), but is able to do so in a sustainable manner, i.e., on time and without experiencing financial or nonfinancial distress.[56] Credit, on affordable terms, can have positive effects on consumer welfare.[57] Credit enables liquidity-constrained consumers to insure against temporary income shocks and fill financial shortfalls, thereby achieving a more desirable consumption pattern and increasing their lifetime utility (i.e., welfare).[58] Access to credit also enables consumers to invest and increase their lifetime utility through income and wealth gains.[59] Consumers can borrow to access higher education, start businesses, and buy homes and everyday items.

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56 *See, e.g.*, 15 U.S.C. § 1639c(a)(1) (creating a duty for residential mortgage lenders to assess a prospective borrower's "ability to repay"); 12 C.F.R. § 1026.51(a) (2025) (requiring credit card issuers to assess consumers' "ability to pay" before opening an open-end credit card account or increasing any credit limit applicable to that account); John Pottow, *Ability to Pay*, 8 BERKELEY BUS. L.J. 175 (2011); Macey, *supra* note 12, at 702–04 (examining the ability to pay rule under the Dodd-Frank Act); *see also* U.K. FIN. CONDUCT AUTH., *CONC 5.2A Creditworthiness Assessment*, in FCA HANDBOOK (2018), https://www.handbook.fca.org.uk/handbook/CONC/5/2A.html [https://perma.cc/2WZP-9BSV] (defining "affordability risk," which creditors are required to assess as part of the mandatory creditworthiness assessment); BENEDICT GUTTMAN-KENNEY & STEFAN HUNT, U.K. FIN. CONDUCT AUTH., PREVENTING FINANCIAL DISTRESS BY PREDICTING UNAFFORDABLE CONSUMER CREDIT AGREEMENTS: AN APPLIED FRAMEWORK 11–12 (2017), https://www.fca.org.uk/publication/occasional-papers/op17-28.pdf [https://perma.cc/GXC6-9HN5] (discussing credit affordability); Ofer Zellermayer, The Pain of Paying (Dec. 1996) (Ph.D. dissertation, Carnegie Mellon University) (ResearchGate); John Gathergood, *Debt and Depression: Causal Links and Social Norm Effects*, 122 ECON. J. 1094 (2012) (identifying the psychological costs of being a debtor and repaying debt).

57 The condition that credit must be affordable to be welfare-enhancing does not imply that affordable credit will be welfare-enhancing. *See, e.g.*, Dirk Krueger & Fabrizio Perri, *On the Welfare Consequences of the Increase in Inequality in the United States*, 18 NBER MACROECONOMICS ANN. 83 (2003) (noting that utility gains from credit may be offset by losses from a reduction in leisure time or an increase in hours worked).

58 This is referred to as "consumption smoothing," or "income smoothing." *See* MILTON FRIEDMAN, A THEORY OF THE CONSUMPTION FUNCTION (1957); Franco Modigliani & Richard Brumberg, *Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data*, *in* POST KEYNESIAN ECONOMICS 388 (Kenneth K. Kurihara ed., 1955).

59 Macey, *supra* note 12, at 697; *see* Giuseppe Bertola, Richard Disney & Charles Grant, *The Economics of Consumer Credit Demand and Supply*, *in* THE ECONOMICS OF CONSUMER CREDIT 1 (Giuseppe Bertola, Richard Disney & Charles Grant eds., 2006).

For many consumers, credit is essential to access these goods and services and realize associated welfare gains.[60]

Conversely, if credit is unaffordable, it is more likely to be welfare-diminishing; the gain in utility to the consumer from borrowing and consumption smoothing, or from investment, is likely to be outweighed by the disutility to the consumer from the pecuniary and non-pecuniary costs of managing and repaying the debt.[61] Even where debt is affordable, the cost of credit influences consumer welfare by influencing consumers' levels of post-debt service discretionary income, and thus savings and wealth.[62] Importantly, borrowers' and lenders' incentives are not perfectly aligned: lenders can profit from high-cost, unaffordable lending.[63]

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60 *See* BD. OF GOVERNORS OF THE FED. RSRV. SYS., ECONOMIC WELL-BEING OF U.S. HOUSEHOLDS IN 2023 39–43, 57 (2024), https://www.federalreserve.gov/publications/files/2023-report-economic-well-being-us-households-202405.pdf [https://perma.cc/EH5X-X522] (discussing credit usage and outcomes and discussing high dependence on education debt).

61 The boundary between welfare-enhancing and welfare-diminishing debt remains blurry and contested. *See, e.g.*, Brian T. Melzer, *The Real Costs of Credit Access: Evidence from the Payday Lending Market*, 126 Q.J. ECON. 517 (2011) (finding that payday loans increase financial distress). *But see* John Gathergood, Benedict Guttman-Kenney & Stefan Hunt, *How Do Payday Loans Affect Borrowers? Evidence from the U.K. Market*, 32 REV. FIN. STUD. 496, 500 (2018) ("In situations when the marginal utility of immediate consumption is high, payday loans may increase overall utility even if they lead to negative future outcomes . . . ."); Ronald J. Mann & Jim Hawkins, *Just Until Payday*, 54 UCLA L. REV. 855, 884–88 (2007) (examining the benefits of payday lending).

62 Macey, *supra* note 12, at 683 ("Loans to fund current consumption reduce the wealth of the borrower because they create a liability on the 'personal balance sheet' of the borrower without creating any corresponding asset."); Torben Iversen & Philipp Rehm, *Information and Financialization: Credit Markets as a New Source of Inequality*, 55 COMPAR. POL. STUD. 2349, 2350 ("A growing portion of personal income now goes to servicing debt, and this has a sizable effect on discretionary income."). At the macroeconomic level, the over-expansion of credit (a credit "boom") typically reduces output over the long run, as highlighted by the GFC. *See generally* Ben Bernanke, *Credit in the Macroeconomy*, 18 FED. RSRV. BANK N.Y. Q. REV. 50 (1993) (examining the credit-macroeconomy channel).

63 *See* Kathleen C. Engel & Patricia A. McCoy, *A Tale of Three Markets: The Law and Economics of Predatory Lending*, 80 TEX. L. REV. 1255, 1363–64 (2002); Ronald J. Mann, *Bankruptcy Reform and the "Sweat Box" of Credit Card Debt*, 2007 U. ILL. L. REV. 375, 384–86 (2007) (describing how lenders profit by "sweating" borrowers, i.e., allowing them to repeatedly rollover and refinance their debts, paying compounding interest and late payment fees); Press Release, Santander, Coalition of 34 State Attorneys General Announces over $550 Million Settlement with Nation's Largest Subprime Auto Financing Company (Sept. 14, 2022), https://santandermultistateagsettlement.com/Press-Release [https://perma.cc/7JSM-AQKJ] (settlement between State Attorneys General and Santander for knowingly selling unaffordable loans to vulnerable borrowers); Complaint at 1–6, CFPB v. Vanderbilt Mortg. & Fin., Inc., No. 25-cv-00004 (E.D. Tenn. Jan. 6, 2025) (alleging that the defendant home manufacturer originated loans for financially vulnerable consumers without properly determining the consumers' ability to pay loans, leading to delinquent loans and repossession of affordable housing). Lenders can also operate a loss-leading business model, funding unprofitable loans to high-risk borrowers to grow market share and later increasing prices. *See* Mann, *supra*, at 384–92.

B. *The Functions and Effects of Data*

The availability of data about borrowers (credit consumers), products, and firms plays an important role in influencing the allocation, pricing, and affordability of consumer credit, and thus its effects on consumer welfare. Section I.B.1 examines the functions and effects of consumer data in the hands of (profit-maximizing) lenders. Section I.B.2 examines the functions and effects of data about credit products and lenders in the hands of borrowers.

1. Informed Lenders

In allocating and pricing credit, profit-maximizing lenders seek consumer data for two main, overlapping purposes: to price *differentiate* based on borrowers' "credit risk," and to price *discriminate* based on borrower demand.[64] Personalized, risk-based price differentiation allows lenders to increase their profits by screening out borrowers who present too high a credit risk[65] and mitigating "adverse selection" effects that arise with uniform credit pricing.[66] Types of consumer data that are particularly useful for predicting a prospective borrower's credit risk and price differentiating include data indicating a consumer's current and expected income and assets during the credit term[67] and data from a consumer's current and past loans (known as a "credit history"), which indicates whether they have previously defaulted or fallen into arrears.[68] Where lenders lack adequate access to consumer data and are thus unable

64 Credit risk refers to the probability that a borrower will default ("PD"), and the loss to the lender given default ("LGD"), on a portfolio basis. *See* LYN THOMAS, CONSUMER CREDIT MODELS: PRICING, PROFIT AND PORTFOLIOS 5–8 (2009). On credit price discrimination based on consumer demand, see *infra* note 71 and accompanying text.

65 The process by which lenders screen prospective borrowers based on their expected credit risk, and decide whether a borrower is "creditworthy," is referred to as "credit underwriting." *See* THOMAS ET AL., *supra* note 10, at 1, 13.

66 *See* Joseph Stiglitz & Andrew Weiss, *Credit Rationing in Markets with Imperfect Information*, 71 AM. ECON. REV. 393, 393 (1981); George A. Aklerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488, 493 (1970) (identifying adverse selection effects under conditions of imperfect information).

67 *See, e.g.*, Consumer Financial Protection Bureau, Comment for 1026.51 Ability to Pay (Apr. 29, 2013), https://www.consumerfinance.gov/rules-policy/regulations/1026/interp-51 [https://perma.cc/HTW9-TVLY] (noting, inter alia, that a card issuer may consider "any current or reasonably expected income or assets of the consumer," and setting out the sources of information that a card issuer may use for this assessment).

68 *See* THOMAS ET AL., *supra* note 10, at 157 ("[T]he characteristics that turn out to be most powerful [in estimating credit risk] are those that show whether the borrower has defaulted in the past and the current status of the borrower's arrears position.").

to adequately observe the characteristics of prospective borrowers that influence their credit risk, they will be uncertain about the quality of those prospective borrowers. Under these conditions of "creditor ignorance" informational asymmetry[69]—where borrowers know more than lenders about characteristics that influence their credit risk—lenders are likely to offer higher interest rates, limit the amount of credit, or deny credit altogether.[70]

Profit-maximizing lenders also use consumer data to price discriminate. That is, to price credit as close as possible to a borrower's maximum "willingness to pay" ("WTP"), or demand, to the extent that it is profitable and feasible for the lender to do so.[71] Demand may be a

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69 *See* Richard Hynes & Eric Posner, *The Law and Economics of Consumer Finance*, 4 AM. L. & ECON. REV. 168, 172–73 (2002) (distinguishing "creditor ignorance" and "consumer ignorance," or "debtor ignorance," information asymmetry).

70 *See* Stiglitz & Weiss, *supra* note 66, at 393–94; *see also* J.E. Stiglitz & A. Weiss, *Asymmetric Information in Credit Markets and Its Implications for Macro-Economics*, 44 OXFORD ECON. PAPERS 694 (1992) (theorizing that creditor ignorance information asymmetry *after* credit is extended also leads to credit rationing by lenders, due to "moral hazard" effects caused by the lender's inability to adequately monitor and control the borrower's actions); William Adams, Liran Einav & Jonathan Levin, *Liquidity Constraints and Imperfect Information in Subprime Lending*, 99 AM. ECON. REV. 49, 50 (2009) (finding empirical evidence of these effects). Lenders can also or alternatively mitigate credit risk by passing on the risk to third parties (for example, through securitization, or the "originate-to-distribute" lending model), thereby lowering their overall portfolio risk. *But see* Engel & McCoy, *supra* note 63, at 1273–98 (examining the role of securitization in enabling the growth of subprime and predatory home mortgage lending, compounding market inefficiencies and eventually culminating in the GFC in 2008); THOMAS ET AL., *supra* note 10, at 307–21 (discussing the role of securitization in the subprime mortgage crisis); RAGHURAM G. RAJAN, FAULT LINES: HOW HIDDEN FRACTURES STILL THREATEN THE WORLD ECONOMY 2 (2011) ("[D]eregulation and developments like securitization had increased competition, which increased the incentives for bankers (and financial managers more generally) to take on more complex forms of risk."); Katharina Pistor, *A Legal Theory of Finance*, 41 J. COMPAR. ECON. 315, 316 (2013) (arguing that, under conditions of Knightian uncertainty and liquidity volatility, risk diversification through securitization "cannot offer full protection against future events or a reversal of liquidity abundance"); Gambacorta et al., *supra* note 54, at 6–7 (discussing other mechanisms that influence credit pricing and allocation).

71 *See* HAL. R. VARIAN & MARC J. MELITZ, INTERMEDIATE MICROECONOMICS: A MODERN APPROACH 54–55 (10th ed. 2024) (discussing cardinal utility theories and willingness to pay); HAL R. VARIAN, JOSEPH FARRELL & CARL SHAPIRO, THE ECONOMICS OF INFORMATION TECHNOLOGY 13 (2004) ("The theory of monopoly first-degree price discrimination is fairly simple: firms will charge the highest price they can to each consumer, thereby capturing all the consumer surplus."); Mary Starks, Graeme Reynolds, Chris Gee, Gaber Burnik & Lachlan Vass, *Price Discrimination in Financial Services: How Should We Deal with Questions of Fairness?*, FIN. CONDUCT AUTH. 2 (2018), https://www.fca.org.uk/publication/research/price_discrimination_in_financial_services.pdf [https://perma.cc/GV23-PPQC] (defining price discrimination as "the practice of charging different prices to different consumers that have the same costs to serve, but different willingness to pay"); Financial Conduct Authority, *Fair Pricing in Financial Services*, 12–17 (Fin. Conduct Auth., Discussion Paper No. DP18/9, 2018), https://www.fca.org.uk/publication/discussion/dp18-09.pdf [https://perma.cc/67C6-KSND] (examining price discrimination in financial services).

function of a borrower's actual preferences or their misperceptions as to the true cost of credit.[72] Borrowers' misperceptions are typically a function of both their ignorance (i.e., lack of information about the often-complex terms of credit products and their use patterns over time)[73] and irrationality (i.e., cognitive biases that prevent them from processing information and deciding rationally).[74] Thus, to price discriminate, lenders seek data revealing characteristics that influence borrowers' preferences and misperceptions, such as their relative need for credit, level of education, and financial sophistication.[75] Lenders commonly leverage this data to design, market, and target naïve consumers with high-cost and unaffordable credit offers that exploit their biases, such as consumers' tendency to seek instant gratification.[76] In these ways, lenders also create demand for (high-cost) credit.[77]

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72 *See* Oren Bar-Gill, *Algorithmic Price Discrimination When Demand Is a Function of Both Preferences and (Mis)Perceptions*, 86 U. CHI. L. REV. 217, 219–20 (2019); *see also* Fin. Conduct Auth., *supra* note 71, at 13; Gathergood et al., *supra* note 61, at 499–500 (noting that a consumer's high WTP for credit may be rational).

73 *See* Hynes & Posner, *supra* note 69, at 172–73; Bar-Gill & Warren, *supra* note 3, at 11 (discussing missing use-pattern information and product complexity as sources of inefficiency in consumer credit markets); ARMOUR ET AL., *supra* note 4, at 214–15 (discussing informational impediments to consumer learning in markets for complex and heterogeneous consumer financial products).

74 *See* HERBERT A. SIMON, MODELS OF MAN: SOCIAL AND RATIONAL (1957); Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1130–31 (1974) (establishing that consumers face predictable cognitive limitations that impede rational decision-making); David Laibson, *Golden Eggs and Hyperbolic Discounting*, 112 Q.J. ECON. 443, 465 (1997) (showing that consumers make choices that diminish their future welfare in a way that they later regret but do not presently); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CALIF. L. REV. 1051, 1059 (2000); Cass Sunstein, *Boundedly Rational Borrowing*, 73 U. CHI. L. REV. 249, 251–53 (2006); Susan Block-Lieb & Edward J. Janger, *The Myth of the Rational Borrower: Rationality, Behavioralism, and the Misguided "Reform" of Bankruptcy Law*, 84 TEX. L. REV. 1481, 1526–28 (2006); Oren Bar-Gill, *The Behavioral Economics of Consumer Contracts*, 92 MINN. L. REV. 749, 761–66 (2008); Ben-Shahar & Schneider, *supra* note 12, at 676, 709–29; Bar-Gill & Warren, *supra* note 3, at 7–9; *see also infra* Section II.B.1 (discussing the opportunities and risks of Open Banking).

75 *See* Ryan Calo, *Digital Market Manipulation*, 82 GEO. WASH. L. REV. 995, 1010 (2014); Bar-Gill, *supra* note 72, at 224–32 (explaining algorithmic price discrimination).

76 This is also known as "present bias." *See* Laibson, *supra* note 74, at 443–46; Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Q.J. ECON. 505, 506–09 (2006) (showing how the design of credit cards increases the risk that more biased, "myopic" consumers will pay interest and other high add-on prices); Bar-Gill, *supra* note 72, at 765–67, 789–90; Stephen Meier & Charles Sprenger, *Present-Biased Preferences and Credit Card Borrowing*, AM. ECON. J.: APPLIED ECON., Jan. 2010, at 193, 205–06 (showing that present-biased, optimistic consumers are more likely to carry credit card debt); OREN BAR-GILL, SEDUCTION BY CONTRACT 1–4, 51–116 (2012).

77 *See, e.g.*, LUKE FIORIO, ROBERT MAU, JONATHAN STEITZ & THOMAS WELANDER, NEW FRONTIERS IN CREDIT CARD SEGMENTATION: TAPPING UNMET CONSUMER NEEDS 11–13 (2014),

For much of the last fifty years or so, lenders have relied on two main sources of consumer data to price and allocate credit. The first source is private, first-party data collected directly from consumers. This includes data collected from both consumers' credit applications and lenders' ongoing relationships with consumers, such as bank deposit and credit card accounts. The second source is public and private third-party consumer data obtained through the consumer credit information market, or credit reporting system, centered in the "Big Three" consumer reporting agencies ("CRAs"): Equifax, Experian, and TransUnion.[78] CRAs assemble and evaluate consumer data in the form of consumer reports and credit scores,[79] most often FICO scores,[80] using consumer data "furnished" by a range of entities, including lenders.[81]

Lenders typically combine third-party credit reporting data with first-party data to assess a credit applicant's creditworthiness and price credit.[82] This includes the use of statistical credit scoring models and

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https://www.mckinsey.com [https://perma.cc/V4C3-YSNR]; Michael D. Guttentag, *Law and Surplus: Opportunities Missed*, 2019 UTAH L. REV. 607, 655–56 (2019) (describing how sellers can use various, often deceptive tactics to increase consumers' WTP and get them to consummate transactions they would not otherwise have entered into); CFPB, BUY NOW, PAY LATER: MARKET TRENDS AND CONSUMER IMPACTS 6, 64 (2022), https://files.consumerfinance.gov/f/documents/cfpb_buy-now-pay-later-market-trends-consumer-impacts_report_2022-09.pdf [https://perma.cc/XE2Y-ZLFP] (describing how "Buy Now, Pay Later" ("BNPL") lenders create demand for short-term credit and finding that "BNPL consumers may not be simply shifting their existing purchases to a new payment platform; they may be spending (and borrowing) more than they otherwise would").

78 *See* CFPB, KEY DIMENSIONS AND PROCESSES IN THE U.S. CREDIT REPORTING SYSTEM: A REVIEW OF HOW THE NATION'S LARGEST CREDIT BUREAUS MANAGE CONSUMER DATA 2–6 (2012), https://files.consumerfinance.gov/f/201212_cfpb_credit-reporting-white-paper.pdf [https://perma.cc/MXN2-AHZM] (noting that Experian, TransUnion, and Equifax each maintain credit files on more than 200 million Americans); CHI CHI WU, CAROLYN L. CARTER & ELIZABETH DE ARMOND, FAIR CREDIT REPORTING 4, 76 (10th ed. 2022) (defining the Big Three CRAs). *See generally* LAUER, *supra* note 11 (examining the rise of the consumer and credit reporting system in the United States).

79 *See* Fair Credit Reporting Act, 15 U.S.C. § 1681a(f) (defining CRAs); *id.* § 1681a(d) (defining consumer reports); *id.* § 1681a(g) (defining the consumer "file" held with a CRA).

80 *FICO Score*, FICO, https://www.fico.com/en/products/fico-score [https://perma.cc/NVN4-Y8TB].

81 *See* CFPB, *supra* note 78, at 5, 9–10. In addition to consumer reports and credit scores, CRAs also sell marketing insights developed from furnished consumer data. *See* Request for Information Regarding Data Brokers and Other Business Practices Involving the Collection and Sale of Consumer Information, 88 Fed. Reg. 16951, 16951–54 (Mar. 15, 2023); *see also infra* Section II.A (discussing the regulation of the credit reporting system through the FCRA and its weaknesses).

82 *See* Noel Capon, *Credit Scoring Systems: A Critical Analysis*, 46 J. MKTG. 82, 83 (1982) (describing five "Cs"—credit, character, capacity, capital, and collateral—as a "conceptual framework" for judgmental credit decisions).

credit scores, such as the FICO score.[83] These models are conventionally characterized by linear statistical methods and a limited number of fixed, "hard" variables about borrowers.[84] Credit history is typically the highest-weighted variable.[85] The focus on credit history reflects the demonstrated statistical correlation between how a borrower has managed debt in the past and their willingness and ability to service debt in the future.[86] But it is also a function of the limited scope of data traditionally shared through the credit reporting system;[87] consumers' credit histories are the main category of data furnished to CRAs.[88] As discussed further below, the informational limitations of traditional credit reporting and scoring systems have encouraged the growth of alternative solutions.[89]

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83 Note that there are several FICO (and other) credit scoring models. More sophisticated lenders typically customize FICO scoring models and develop their own credit scores. Credit scores typically vary according to which FICO (or other) model and which CRA's credit report a lender uses. *See, e.g.*, *What Is a Credit Score?*, EQUIFAX, https://www.equifax.com/personal/education/credit/score/articles/-/learn/what-is-a-credit-score [https://perma.cc/SG6E-9SQF]; *What Is a FICO Score?*, EQUIFAX, https://www.equifax.com/personal/education/credit/score/articles/-/learn/what-is-a-fico-score [https://perma.cc/593S-2UH3]. Note also that different scores have different scoring ranges and that lenders will price these ranges differently. *See, e.g.*, Louis DeNicola, *What Are the Different Credit Scoring Ranges?*, EXPERIAN (Dec. 18, 2024), https://www.experian.com/blogs/ask-experian/infographic-what-are-the-different-scoring-ranges [https://perma.cc/EZT4-H6JL] (describing the credit score ranges for the base FICO score where a score between 300 and 579 is classified as "poor credit" and a score between 800 and 850 is classified as "excellent credit").

84 *See* THOMAS ET AL., *supra* note 10, at 14–18, 25–97, 157–77 (describing different statistical methods for credit scoring). Of course, "soft" information still plays a role in credit decisions, especially in community and relationship lending. *See* Mitchell A. Petersen & Raghuram G. Rajan, *The Benefits of Lending Relationships: Evidence from Small Business Data*, J. FIN., Mar. 1994, at 3; José María Liberti & Mitchell A. Petersen, *Information: Hard and Soft*, REV. CORP. FIN. STUD., Mar. 2019, at 1.

85 *See, e.g.*, DeNicola, *supra* note 83 (noting that, for the FICO score, "payment history is the most important factor").

86 *See supra* note 68 and accompanying text; Robert B. Avery, Paul S. Calem & Glenn B. Canner, *An Overview of Consumer Data and Credit Reporting*, FED. RSRV. BULL. 47, 48–51 (2003) (citing evidence that credit reports, and the credit scoring models derived from them, have improved the quality and reduced the cost of credit decision-making).

87 This limitation is, in turn, partly a function of the state of the art in technology. Until recently, lenders lacked the tools needed to process and store often large social and behavioral consumer datasets. *But see infra* Section II.B (discussing alternative credit scoring).

88 *See* Avery et al., *supra* note 86, at 48; CFPB, *supra* note 78, at 8–9, 13. Note that CRAs also collect additional types of financial and nonfinancial data, such as debt collection actions reported by debt collection agencies, and public record data such as past bankruptcies. *See* Avery et al., *supra* note 86, at 54; CFPB, *supra* note 78, at 14.

89 *See infra* Section II.B.

2. Informed Borrowers

The scope for lenders to price differentiate and discriminate is not only shaped by the informational capabilities of lenders, but also those of borrowers. Rational borrowers are expected to seek information about the terms and performance of credit products, assess the cost and affordability of credit, compare products, and "shop around" for the best deal. It follows that the availability of information about credit products, and borrowers' ability to access and rationally process this information, also influence the allocation and pricing of credit, and thus the affordability of credit and its effects on consumer welfare.[90]

As discussed above, however, borrower decision-making in practice is not perfectly rational.[91] Borrowers typically face high informational barriers—a directionally opposite "borrower ignorance" or "consumer ignorance" information asymmetry[92]—and cognitive limitations that impede rational decision-making. To begin with, lenders are typically better informed and understand more than borrowers about the often-complex terms of credit products, and their use patterns over time.[93] On the consumers' side, the "experience" and "credence" nature of consumer financial products means that consumers cannot easily discern their quality at the point of purchase and prior to use.[94] Many credit (and other financial) transactions are carried out infrequently, thereby reducing consumers' scope for learning by trial and error.[95] Many of the costs of financial contracts are shrouded and only materialize over the long term.[96] The scope for irrational decision-making is aggravated by the fact that consumer financial products are often differentiated by lenders—

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90 *See* Lawrence M. Ausubel, *The Failure of Competition in the Credit Card Market*, 81 AM. ECON. REV. 50, 68–72 (1991); Bar-Gill & Warren, *supra* note 3, at 6–14, 17–20.

91 *See supra* notes 73–74 and accompanying text.

92 *See* Hynes & Posner, *supra* note 69, at 172–73.

93 *See* Bar-Gill & Warren, *supra* note 3, at 11–22.

94 *See* Phillip Nelson, *Information and Consumer Behavior*, 78 J. POL. ECON. 311, 312 (1970) (taxonomizing products as either "search" goods or "experience" goods, and comparing information acquisition by consumers through search and experience); Michael R. Darby & Edi Karni, *Free Competition and the Optimal Amount of Fraud*, 16 J.L. & ECON. 67, 68–69 (1973) (coining the term "credence goods"); Sumit Agarwal, John C. Driscoll, Xavier Gabaix & David Laibson, *Learning in the Credit Card Market* 2–4 (Nat'l Bureau of Econ. Rsch., Working Paper No. 13822, 2008), https://www.nber.org/papers/w13822 [https://perma.cc/MZJ8-T2WV] (finding evidence of consumers learning from experience in the credit card market, but that consumers' "knowledge effectively depreciates" over time); ARMOUR ET AL., *supra* note 4, at 214 (discussing credence, experience, and search goods in the context of consumer financial markets).

95 *See* Alan Schwartz & Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 U. PA. L. REV 630, 662 (1979) (discussing search costs); ARMOUR ET AL., *supra* note 4, at 214.

96 *See* Gabaix & Laibson, *supra* note 76, at 505–09.

with terms, such as price, personalized for individual consumers or consumer segments—and thus hard to compare.[97]

As a result, borrowers often struggle to rationally assess the expected utility of financial products and services, even in the presence of extensive terms disclosures.[98] Whereas, under a rational borrower model, borrower ignorance would be expected to give rise to market failure due to the problem of adverse selection,[99] in practice, borrower irrationality staves off market failure. Despite their ignorance, consumers continue to purchase credit products, the terms of which they do not fully understand,[100] and that they may not be able to repay in a sustainable manner, i.e., they take on debt that is unaffordable.[101]

II. FINTECH AND THE TROUBLE WITH REGULATING CONSUMER DATA

Part I showed that the availability of data, and thus technologies for processing data, play an important but double-edged role in consumer credit markets—expanding access to either affordable or unaffordable credit, depending on how lenders and borrowers use data. The central role of data and digital technology in influencing credit outcomes for consumers raises the question of whether policymakers seeking to mitigate harmful credit market activity should regulate data per se, particularly personal consumer data, and the technologies used to process that data, and, if so, to what extent and how. This question has become more salient in light of recent advances in fintech that have amplified the role of data and digital technology in consumer credit markets and their influence on consumer credit market outcomes.[102]

Focusing on the regulation of consumer data in consumer credit markets, this Part argues that, while there are some merits to regulating

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97 *See* Ausubel, *supra* note 90, at 68–69 (attributing the failure of competition in credit card markets to high search and switch costs, due partly to consumer myopia); Peterson, *supra* note 6, at 890–98 (examining high search costs in high-cost credit markets); Bar-Gill & Warren, *supra* note 3, at 15 ("By comparison with physical products like the lawnmower, credit products often come in many more shapes and sizes."); ARMOUR ET AL., *supra* note 4, at 215.

98 *See* Block-Lieb & Janger, *supra* note 74, at 1526–29; Bar-Gill, *supra* note 74, at 761–65; Sunstein, *supra* note 74, at 251–53; Ben-Shahar & Schneider, *supra* note 12, at 665–67; Peterson, *supra* note 6, at 875–85; Bar-Gill & Warren, *supra* note 3, at 27–29.

99 *See* Stiglitz & Weiss, *supra* note 66.

100 Press Release, *supra* note 63; Complaint, *supra* note 63.

101 *See* Bar-Gill, *supra* note 74, at 792 (describing this as a "behavioral market failure"); Bar-Gill & Warren, *supra* note 3, at 26–56; Jonathan Zinman, *Restricting Consumer Credit Access: Household Survey Evidence on Effects Around the Oregon Rate Cap*, 34 J. BANKING & FIN. 546, 547 (2010) ("[A] growing body of work on psychological biases in household finance suggests that many consumers overborrow relative to an unbiased benchmark.").

102 *See infra* Section II.B (discussing fintech developments in consumer credit markets).

consumer data per se, including the use of some of the traditional methods of data protection regulation, these approaches suffer from significant limitations. Notably, as articulated further below, the dual beneficial and harmful uses of consumer data[103] make regulating the flow of data, rather than how firms use that data and digital technologies, a suboptimal and relatively less effective locus for consumer credit market regulation. To more effectively mitigate the costs of data-driven innovation in consumer credit markets while enabling its benefits, and thereby promote consumer welfare, consumer credit regulation should instead focus on facilitating the increased, technologically enabled, and secure flow of consumer data and more strictly controlling how firms use and apply that data in the design and sale of consumer financial products and services, for example, through product, conduct, and prudential regulation.

To develop this argument, this Part draws on two salient examples of consumer data regulation in consumer credit markets: the FCRA and the new Open Banking Rule. Section II.A shows how and why the FCRA, as a form of financial consumer data protection regulation, has failed to effectively regulate the consumer credit information market, centered in the credit reporting system. Section II.B, in turn, reveals the limits of the Bureau's new Open Banking Rule as a more recent attempt at financial consumer data regulation. While the Rule partly embraces the move from regulating data flow to regulating data use advocated for by this Article, its adherence to many of the traditional, ineffective features of data protection regulation—and, more conceptually, its focus on regulating consumer data per se—limits its scope for effectively promoting consumer welfare in digital consumer credit markets.

A. *The Fair Credit Reporting Act*

As discussed in Part I, the credit reporting system is a key source of consumer data for lenders in pricing and allocating credit. The development of the credit reporting system, the scope of consumer data included in it, and the interpretation of this data by CRAs and lenders, particularly through credit scoring models, have thus played an important role in determining who gets credit, at what price, and the

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103 This dual-use problem applies more broadly to (digital) technology. *See* Bradley, *supra* note 17, at 62; Nikita Aggarwal & Luciano Floridi, *Towards the Ethical Publication of Country of Origin Information (COI) in the Asylum Process*, 30 MINDS & MACHS. 247, 250 (2020) (discussing the "dual-use" problem of data processing); Nikita Aggarwal, *The Norms of Algorithmic Credit Scoring*, 80 CAMBRIDGE L.J. 42, 52–60 (2021) (examining the positive and negative effects of algorithmic credit scoring).

effects of consumer credit on consumer welfare.[104] The commercial opportunity for firms to profit from processing consumer data, whether by lending or compiling credit reports, drove investment and innovation in credit reporting and credit scoring systems.[105] But the contours of these systems, and their associated welfare (and distributional) effects, were shaped in important ways by law and regulation.[106] Notably, fair lending laws such as the Equal Credit Opportunity Act (ECOA)[107] legitimated statistical credit scoring as a neutral tool that offered to reduce implicit and explicit bias in lending decisions relative to the status quo.[108]

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104 *See* Alya Guseva & Akos Rona-Tas, *Uncertainty, Risk, and Trust: Russian and American Credit Card Markets Compared*, 66 AM. SOCIO. REV. 623, 623 (2001) (observing that the lack of development of institutions of risk calculation, such as credit scores and CRAs, inhibited the growth of consumer credit markets in Russia relative to the United States); Robert M. Hunt, *What's in the File? The Economics and Law of Consumer Credit Bureaus*, BUS. REV., Q. 2, 2002, at 17 (examining the role of CRAs); THOMAS ET AL., *supra* note 10, at 11–12; Lauer, *supra* note 11, at 3 (characterizing the rise of consumer credit surveillance systems as inextricably linked to the "ascent of consumer capitalism"); WU ET AL., *supra* note 78, at 1, 4 ("The growth of the credit and consumer reporting industry has paralleled the exponential growth in the availability of credit and personal information about consumers. . . . CRAs play an integral and expansive role in the United States economy, as they can facilitate, or in many cases frustrate, a consumer's access to credit, and determine the speed of credit transactions.").

105 *See generally* Paul M. Romer, *Endogenous Technological Change*, 98 J. POL. ECON. S71, S72 (1990) (arguing that technological change is endogenous, arising "in large part because of intentional actions taken by people who respond to market incentives"). Indeed, credit scoring and the opportunity to profit from lending were important drivers of advances in AI during the 1990s. *See, e.g.*, David West, *Neural Network Credit Scoring Models*, 27 COMPUT. & OPERATIONS RSCH. 1131 (2000); J. Galindo & P. Tamayo, *Credit Risk Assessment Using Statistical and Machine Learning: Basic Methodology and Risk Modelling Applications*, 15 COMPUTATIONAL ECON. 107 (2000); *see also* IAN GOODFELLOW, YOSHUA BENGIO & AARON COURVILLE, DEEP LEARNING (2015); *infra* note 144 and accompanying text (discussing machine learning and AI).

106 *See generally* DONALD MACKENZIE & JUDY WAJCMAN, THE SOCIAL SHAPING OF TECHNOLOGY (2d ed. 1999); Louis Hyman, *The Politics of Consumer Debt: U.S. State Policy and the Rise of Investment in Consumer Credit, 1920–2008*, 644 ANNALS AM. ACAD. POL. & SOC. SCI. 40, 43 (2012) ("New Deal policies not only legitimated borrowing but constructed the infrastructure necessary for credit networks to function."); Pistor, *supra* note 70, at 315 ("[Legal Theory of Finance's] critical contribution is to emphasize that the legal structure of finance is of first order importance for explaining and predicting the behavior of market participants as well as market-wide outcomes."); Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 YALE J. ON REGUL. 735, 739 (2019) ("Technology enables and drives financial transactions, but so does public policy embodied in financial laws and regulations.").

107 15 U.S.C. § 1691.

108 *See* THOMAS ET AL., *supra* note 10, at 5; Donncha Marron, *'Lending by Numbers': Credit Scoring and the Constitution of Risk Within American Consumer Credit*, 36 ECON. & SOC'Y 103, 104 (2007) (describing the rise of risk management devices such as credit scoring as part of a "Keynesian rationality of economic governance," sanctioned by the state through civil rights legislation). Of course, as discussed further *infra*, statistical credit scoring would introduce new vectors for bias in lending.

Together with the Fair Housing Act,[109] the ECOA also moderated the use of information on protected characteristics, such as gender and race, in credit decisions.[110] Relatively permissive consumer data privacy laws—notably the FCRA and the Gramm-Leach-Bliley Act (GLBA)[111]—facilitated the processing of consumer data for the purposes of credit reporting and scoring and helped construct the meaning of consumer creditworthiness.[112]

In adopting the FCRA, Congress in the early 1970s recognized that the credit reporting system, which was developing rapidly, played an important role in supporting well-functioning credit markets. At the same time, however, it became clear that firms participating in the credit reporting system could not adequately self-regulate to prevent harm to consumers and the wider economy.[113] In particular, data furnishers, data users, and CRAs did not have sufficiently strong private incentives to mitigate inaccurate and irrelevant credit reporting with the attendant risk of harming consumers' credit scores and terms of access to credit, nor to safeguard data security and privacy.[114] The FCRA sought to balance the private commercial interests of lenders in sharing and using consumer data with the public interest in having an efficient and well-functioning

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109 Fair Housing Act of 1968, Pub. L. No. 90-284, 82 Stat. 73 (codified as amended at 42 U.S.C. §§ 3601–3619).

110 *See generally* Talia B. Gillis, *The Input Fallacy*, 106 MINN. L. REV. 1175 (2022). Other regulatory changes that influenced the development of the credit information market include the broader deregulation of consumer credit markets beginning in the 1970s and the introduction of bank prudential rules beginning in the late 1980s. *See* THOMAS ET AL., *supra* note 10, at 5–7.

111 Gramm-Leach-Bliley Act (GLBA), Pub. L. No. 106-102, §§ 501–27, 113 Stat. 1338, 1436–50 (1999) (codified as amended at 15 U.S.C. §§ 6801–6809, 6821–6827). *See generally* Janger & Schwartz, *supra* note 34 (examining the weaknesses of the GLBA).

112 *See* Gunnar Trumbull, *Regulating for Legitimacy: Consumer Credit Access in France and America* 2–3, 21–24 (Harvard Bus. Sch. BGIE Unit, Working Paper No. 11-047, 2010) (observing that strict data privacy laws in France restricted the growth of credit databases and thus consumer credit markets, especially lending to riskier borrowers—whereas, the United States followed a vastly different trajectory); *see also* WU ET AL., *supra* note 78, at 7 ("FCRA's fundamental premise that credit reporting is permitted, albeit with certain restrictions, is not universally accepted around the world."); *id.* at 14 ("[I]t was the consumer reporting industry that embraced the Act with enthusiasm."). The ensuing discussion will focus on the regulation of the credit reporting system under the FCRA. This system is also regulated by state credit reporting laws, among other laws. *See, e.g.*, California Consumer Credit Reporting Agencies Act, CAL. CIV. CODE § 1785.135 (West 2010); WU ET AL., *Summary of State Laws on Consumer Reporting, Identity Theft, Credit Repair, and Security Freezes*, *in* FAIR CREDIT REPORTING, *supra* note 78, at 1251.

113 *See generally* WU ET AL., *supra* note 78, at 14–29 (discussing the legislative history and normative goals of the FCRA); Request for Information Regarding Data Brokers and Other Business Practices Involving the Collection and Sale of Consumer Information, 88 Fed. Reg. 16951, 16952 (Mar. 15, 2023) (discussing motivations for the enactment of the FCRA).

114 WU ET AL., *supra* note 78, at 14–29; Request for Information Regarding Data Brokers and Other Business Practices Involving the Collection and Sale of Consumer Information, 88 Fed. Reg. at 16952.

banking system through "fair and accurate" credit reporting and consumers' information privacy and security interests.[115] Consumer privacy was conceptualized primarily as an interest in limiting the processing of personal data to the extent that such processing is not justified by its utility (for example, in assessing consumers' credit risk and creditworthiness), and giving consumers more control over the processing of their personal data.[116]

To balance these interests and achieve its aims, the FCRA establishes a set of duties for data furnishers, CRAs, and data users as well as corresponding rights for consumers with respect to consumer credit reporting.[117] They include duties for data furnishers to report accurate information[118] and to obtain consumer consent before using information for marketing purposes.[119] They also include duties for CRAs to furnish credit reports only for "permissible purposes,"[120] limit the duration of reporting of certain types of adverse and sensitive data,[121] obtain consumer consent prior to reporting certain categories of sensitive data,[122] "follow reasonable procedures to assure maximum possible

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115 *See* 15 U.S.C. § 1681 (congressional findings and statement of purpose for the FCRA); WU ET AL., *supra* note 78, at 14–29; S. 823, 91st Cong., 1st Sess., 115 CONG. REC. 2410 (1969) (discussing normative objectives, which would eventually become the FCRA); Prohibition on Creditors and Consumer Reporting Agencies Concerning Medical Information (Regulation V), 90 Fed. Reg. 3276, 3276 (Jan. 14, 2025) (codified at 12 C.F.R. pt. 1022 (2025)) (referring to the "overarching privacy protection purpose of the FCRA").

116 S. 823; WU ET AL., *supra* note 78, at 17.

117 *See generally* WU ET AL., *supra* note 78, at 6–7 (providing a high-level overview of the structure of the FCRA). The FCRA incorporates many of the "fair information practice principles," or FIPPs, that were being developed in response to the growth of the information economy, specifically credit and consumer reporting systems. *See supra* note 31 and accompanying text (discussing the FIPPs).

118 15 U.S.C. § 1681s-2(a)(1) (prohibiting "[r]eporting [of] information with actual knowledge of errors"); *id.* § 1681s-2(a)(2) (establishing a duty for data furnishers to update and correct furnished information); *id.* § 1681s-2(a)(6) (establishing a duty not to refurnish information that results from identity theft).

119 15 U.S.C. § 1681s-3.

120 15 U.S.C. § 1681e(a) (requiring CRAs to maintain "reasonable procedures" to ensure that credit reports are furnished for permissible purposes only); *id.* § 1681b(a)(3)(A) (defining credit transactions as a permissible purpose); *id.* § 1681b(a)(3)(F) (including any "legitimate business need" as a permissible purpose).

121 15 U.S.C. § 1681c (establishing a general reporting limit of seven years, with exceptions, e.g., ten years for a bankruptcy record and no limit for large credit and insurance transactions). Several states have adopted shorter reporting periods, e.g., for reporting criminal convictions, which are indefinite under the FCRA. *See, e.g.*, CAL. CIV. CODE § 1786.18(a)(7) (limiting reporting of criminal arrest, conviction, and other related information by CRAs, and other third parties that carry out background checks, to seven years from the date of disposition, release, or parole).

122 *See, e.g.*, 15 U.S.C. § 1681b(b) (establishing stricter limits on consumer reporting for employment purposes); *id.* § 1681b(c) (establishing stricter reporting limits for credit or insurance

accuracy of the information" in credit reports,[123] and disclose a consumer's credit file and credit score upon request (including sources of the data).[124] Consumers have corresponding rights to request disclosure of their credit files and credit scores from CRAs,[125] dispute the accuracy and completeness of information in their reports (with both data furnishers and CRAs),[126] and have certain categories of information removed from their reports upon request, among other rights.[127]

Yet, despite several enforcement actions brought by the CFPB and FTC against CRAs,[128] and some improvements to credit reporting

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transactions not initiated by consumers); *id.* § 1681b(g) (establishing additional conditions for medical information reporting).

123 The duty includes deleting or modifying inaccurate information. *See* 15 U.S.C. §§ 1681e(b), 1681i (establishing the procedure to be followed by a CRA in case a consumer disputes the accuracy or completeness of information in their consumer file).

124 15 U.S.C. § 1681g. "Nationwide" CRAs ("NCRAs")—notably, the Big Three, Equifax, TransUnion, and Experian—have additional duties, including the duty to provide free annual disclosure of consumer reports. *See* 15 U.S.C. § 1681j(a); *see also* 15 U.S.C. § 1681a(p) (defining NCRAs as those that collect public record information and credit account information of consumers); WU ET AL., *supra* note 78, at 76–82 (discussing NCRAs). Data users, such as lenders, also have duties, e.g., to notify consumers of "adverse actions" taken using their credit reports, and to notify consumers of the use of risk-based pricing. 15 U.S.C. § 1681m.

125 15 U.S.C. § 1681g; CFPB, A SUMMARY OF YOUR RIGHTS UNDER THE FAIR CREDIT REPORTING ACT (2018), https://files.consumerfinance.gov/f/documents/bcfp_consumer-rights-summary_2018-09.pdf [https://perma.cc/Q5MJ-JDGT].

126 15 U.S.C. §§ 1681i(a), 1681s-2(a)(8).

127 *See, e.g.*, 15 U.S.C. § 1681s-2(a)(1)(E)(i) (giving consumers the right to request a financial institution to remove defaulted private education loan information from their credit file); *id.* § 1681b(e)(1) (giving consumers the right to request removal of their name and address from reports furnished for credit or insurance transactions not initiated by the consumer, and to withhold consent for the use of their credit reports for credit or insurance transactions that are not initiated by them).

128 *See, e.g.*, Complaint, *Bureau of Consumer Fin. Prot. v. Equifax Inc.*, No. 19-cv-3300 (N.D. Ga. July 22, 2019) (alleging that Equifax engaged in unfair and deceptive practices in violation of section 1031(a) of the Dodd-Frank Act by, among other things, failing to adequately secure consumer data); Press Release, FTC, Equifax to Pay $575 Million as Part of Settlement with FTC, CFPB, and States Related to 2017 Data Breach (July 22, 2019), https://www.ftc.gov/news-events/news/press-releases/2019/07/equifax-pay-575-million-part-settlement-ftc-cfpb-states-related-2017-data-breach [https://perma.cc/T7SC-BSPE]; Press Release, CFPB, Consumer Financial Protection Bureau Settles with Santander Consumer USA Inc. for Credit Reporting Violations in Connection with Its Auto Loans (Dec. 22, 2020), https://www.consumerfinance.gov/about-us/newsroom/consumer-financial-protection-bureau-settles-with-santander-consumer-usa-inc-for-credit-reporting-violations-in-connection-with-its-auto-loans [https://perma.cc/3MJZ-H4QT] [hereinafter Press Release, CFBP] (discussing the settlement between the CFPB and Santander for furnishing erroneous consumer loan data to the CRAs, in violation of the FCRA). The FTC and the Bureau are the main agencies responsible for enforcing the FCRA. Rulemaking authority for most provisions of the FCRA was transferred from the FTC to the Bureau by the Dodd-Frank Act. *See* WU ET AL., *supra* note 78, at 8–9. The Bureau also has supervisory authority over the largest institutions in the credit reporting system. *See* 15 U.S.C. § 1681s; 12 C.F.R. § 1090.104(b) (2025) (defining larger participants of the consumer reporting market).

processes made by CRAs in recent years,[129] there remain various inefficiencies and inequities in the credit reporting system and, thus, consumer credit markets. Large data security breaches remain commonplace.[130] Consumers' credit files and reports frequently contain errors, such as mistaken identities, discharged debts, and obsolete past accounts.[131] Because participation in the credit reporting system is voluntary, credit files are often missing information and vary between CRAs. Combined with the fact that data is typically shared with CRAs on a lagging, monthly basis, the result is that each CRA holds a different, partial snapshot of consumers and their "creditworthiness" at any given time.[132]

These inefficiencies and inequities persist in large part due to weaknesses in the design of the FCRA and its enforcement, or lack thereof.[133] To begin with, as noted above, the FCRA does not mandate participation in the credit reporting system.[134] Entities become subject to the FCRA to the extent that they participate in the credit reporting system as data furnishers, CRAs, or data users.[135] But they have discretion to choose whether to participate in the system, and once they choose to participate, considerable discretion over which data to share, withhold and use.[136] While this is consistent with the practice in other jurisdictions in which credit reporting systems are privately owned and operated, such

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129 *See generally* CFPB, *supra* note 78.

130 *See generally* DANIEL J. SOLOVE & WOODROW HARTZOG, BREACHED!: WHY DATA SECURITY LAW FAILS AND HOW TO IMPROVE IT (2022) (arguing that data security laws are often too narrow in scope to prevent or mitigate breaches).

131 *See, e.g.*, Avery et al., *supra* note 86, at 70–73 (discussing data issues in credit reports); CFPB, *supra* note 78, at 23–26, 36; Gretchen Morgenson, *Held Captive by Flawed Credit Reports*, N.Y. TIMES (June 21, 2014), https://www.nytimes.com/2014/06/22/business/held-captive-by-flawed-credit-reports.html [https://web.archive.org/web/20220217020454/https://www.nytimes.com/2014/06/22/business/held-captive-by-flawed-credit-reports.html]; CFPB, MEDICAL DEBT BURDEN IN THE UNITED STATES (2022) (finding that the credit reporting system is being used to coerce consumers to pay medical bills that may not be accurate, are being disputed, or are not owed); Ramirez v. TransUnion LLC, 951 F.3d 1008, 1016 (9th Cir. 2020) ("[TransUnion]—aware that its practice was unlawful—incorrectly placed terrorist alerts on the front page of the consumers' credit reports and subsequently sent the consumers confusing and incomplete information about the alerts and how to get them removed."), *rev'd and remanded*, 594 U.S. 413 (2021); Press Release, CFPB, *supra* note 128.

132 The data is typically furnished to CRAs electronically in batch files. CRAs typically update consumers' credit files "within one to seven days of receiving new information." Avery et al., *supra* note 86, at 49; *see* CFPB, *supra* note 78.

133 *See generally* WU ET AL., *supra* note 78.

134 15 U.S.C. § 1681 (not establishing any affirmative obligation for entities to participate in the credit reporting system); *id.* § 1681s-2 (establishing obligations for entities that choose to furnish information to CRAs); WU ET AL., *supra* note 78.

135 *See supra* notes 117–127 and accompanying text.

136 *See supra* note 134 and accompanying text.

as the United Kingdom, the discretion and voluntariness of participation is a leading cause of the incompleteness and asymmetry of information in the consumer credit information market. As discussed further below, not all lenders and credit products participate in the system and furnish data.[137] Furthermore, unlike jurisdictions such as the United Kingdom, there is no principle of reciprocity between data furnishers and users: an entity does not need to furnish consumer data in order to purchase credit reports.[138] This lack of reciprocity weakens firms' incentives to furnish data and to do so accurately.

At the same time, the FCRA does not generally establish strong requirements that data that is furnished is relevant to, and useful for, the purposes for which it is sought.[139] As a result, consumer credit reports frequently include data that is accurate, but not clearly useful for (and often deleterious to) predicting outcomes of interest such as consumers' credit risk. This includes, for example, data on unpaid medical debts; empirical studies have shown that medical debt arrears have limited value as predictors of credit risk, and thus can unfairly harm consumers by lowering their credit scores.[140] Similarly, it includes historical data that is

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137 This includes payday lenders, informal, unauthorized moneylenders ("loan sharks"), and (until recently) new fintech products such as "buy now, pay later." *See* Avery et al., *supra* note 86, at 49; CFPB, *supra* note 78, at 14 (noting that the ten largest FIs account for more than half of all credit account data furnished to CRAs and are also the largest users of credit reports); Martin Kleinbard & Laura Udis, *Buy Now, Pay Later and Credit Reporting*, CFPB (June 15, 2022), https://www.consumerfinance.gov/about-us/blog/by-now-pay-later-and-credit-reporting [https://perma.cc/J8WF-96LU]. The asymmetry and incompleteness of information in the credit reporting system is also a function of the availability and lack of standardization of CRA data furnishing codes. *See* CFPB, *supra* note 78, at 10, 14–17 (discussing the Metro reporting standard developed in the 1970s); Press Release, Equifax, Equifax First to Formalize Inclusion of 'Buy Now, Pay Later' Payment Information in Consumer Credit Reports (Dec. 20, 2021, 7:45 AM), https://investor.equifax.com/news-events/press-releases/detail/1204/equifax-first-to-formalize-inclusion-of-buy-now-pay [https://perma.cc/2XU8-2Z22] (introducing industry codes for reporting BNPL credit data).

138 *See generally* STEERING COMM. ON RECIPROCITY, PRINCIPLES OF RECIPROCITY VERSION 41 (2021) (explaining the principle of reciprocity for participation in the credit reporting system in the United Kingdom).

139 With the limited exception of medical information. *See* 15 U.S.C. § 1681b(g)(1)(B)(i) (requiring that, in the case of employment and credit transactions, medical information reported by CRAs be "relevant to process or effect the employment or credit transaction"); WU ET AL., *supra* note 78, at 16 (describing mitigating the problem of irrelevant information in credit reporting as one of the original aims of the FCRA).

140 *See generally* CFPB, DATA POINT: CONSUMER CREDIT AND THE REMOVAL OF MEDICAL COLLECTIONS FROM CREDIT REPORTS 2 (2023); CFPB, DATA POINT: MEDICAL DEBT AND CREDIT SCORES (2014). Note, however, recent initiatives to stop reporting certain medical collection debts. *See* Press Release, TransUnion, Equifax, Experian, and TransUnion Remove Medical Collections Debt Under $500 from U.S. Credit Reports (Apr. 11, 2023), https://newsroom.transunion.com/equifax-experian-and-transunion-remove-medical-collections-debt-under-500-from-us-credit-

technically accurate and within the permissible reporting periods defined by the FCRA—including data on past credit default, arrears, and bankruptcy—but is, due to changes in the consumer's financial condition, no longer an accurate proxy for their current creditworthiness. The FCRA's prescribed data retention and reporting periods—such as ten years for bankruptcy data—are not backed by robust evidence demonstrating their utility for predicting outcomes such as consumer credit risk.[141]

To a limited extent, the FCRA distinguishes between more and less "sensitive" types of data as a mechanism for mitigating data processing harms—a common feature of data protection laws. Notably, there are stricter restrictions pertaining to medical information,[142] both on the grounds of its limited predictive value, as discussed above, and because it reveals sensitive personal information relating to a person's health and other personal characteristics and thus infringes on individual privacy.[143] As researchers have established in various contexts, however, masking certain sensitive data types and variables—such as health characteristics or other personal characteristics such as gender and race—will not necessarily prevent CRAs and lenders from inferring those variables from seemingly "non-sensitive," "proxy" variables—such as a person's zip-

reports [https://perma.cc/5VRZ-NCSL] (announcing that the Big Three NCRAs would no longer report medical collection debts under $500); Prohibition on Creditors and Consumer Reporting Agencies Concerning Medical Information (Regulation V), 90 Fed. Reg. 3276, 3276 (Jan. 14, 2025) (codified at 12 C.F.R. pt. 1022 (2025)) ("Research has shown that medical debt has limited predictive value in predicting future default for credit underwriting purposes."). *But see* 90 Fed. Reg. at 3285 ("Commenters disagreed with the proposal's evidence that medical debt information has limited predictive value and asserted it is necessary for credit underwriting purposes and should not be treated differently than other debt information.").

141 *See* CHI CHI WU, TESTIMONY OF CHI CHI WU, NATIONAL CONSUMER LAW CENTER BEFORE THE U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON FINANCIAL SERVICES REGARDING "A BIASED, BROKEN SYSTEM: EXAMINING PROPOSALS TO OVERHAUL CREDIT REPORTING TO ACHIEVE EQUITY" 15 (2021) (proposing shorter time periods for negative credit data reporting); WU ET AL., *supra* note 78, at 14–23 (discussing the legislative history of the FCRA and failed attempts in the past to shorten credit reporting limits).

142 *See* 15 U.S.C. § 1681b(g)(1)(B)(i) (requiring that, in the case of employment and credit transactions, reported medical information should be "relevant to process or effect the employment or credit transaction"); WU ET AL., *supra* note 78, at 313–18; Prohibition on Creditors and Consumer Reporting Agencies Concerning Medical Information (Regulation V), 90 Fed. Reg. 3276.

143 *See* Prohibition on Creditors and Consumer Reporting Agencies Concerning Medical Information (Regulation V), 90 Fed. Reg. at 3276 ("Information about a person's medical history and health is sacrosanct and among the most intimate and sensitive categories of data. Recognizing the uniquely sensitive nature of such information, Congress acted to limit the use and sharing of medical information in the financial system by amending the Fair Credit Reporting Act (FCRA) through the Fair and Accurate Credit Transactions Act of 2003 . . . ."); *see also* Health Insurance Portability and Accountability Act (HIPAA) of 1996, Pub. L. 104-191, 110 Stat. 1936 (codified as amended in scattered sections of 18, 26, 29, and 42 U.S.C.); Regulation 2016/679, *supra* note 28, art. 9 (imposing stricter restrictions on the processing of sensitive personal data, such as health data).

code—and using that information in ways that could harm consumers. Advances in machine learning ("ML")[144] techniques, which enable relationships in data to be reconstructed more easily from proxy variables, increase this risk.[145]

Another major fault line is the FCRA's heavy reliance on consumers to enforce firms' duties, for example, to safeguard data security and accuracy, combined with limitations on the potential liability of CRAs, data furnishers, and users of consumer reports, among other things for the accuracy of furnished, stored, and reported consumer data.[146] In doing so, the FCRA largely ignores the economics of data processing and the behavioral economics of consumer decision-making in consumer credit markets, as discussed in Part I and articulated further below. In practice, a minority of consumers access their credit reports and even fewer challenge the accuracy of information in their reports.[147] More generally, consumers regularly fail to read information disclosures and exercise genuine informed consent, whether to limit processing of their data ex ante or enforce their rights ex post—for example, following a data security breach.[148] And while consumers can elect not to have certain

144 ML methods are a key subcategory of applied AI and the reason for much of the recent advance in, and excitement about, AI. *See generally* GOODFELLOW ET AL., *supra* note 105; RUSSELL & NORVIG, *supra* note 34; *infra* Section II.B.1.

145 *See, e.g.*, Latanya Sweeney, *Weaving Technology and Policy Together to Maintain Confidentiality*, 25 J.L. MED. & ETHICS 98 (1997); Paul Ohm, *Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization*, 57 UCLA L. REV. 1701 (2010); Zarsky, *supra* note 34; Brent Mittelstadt, *From Individual to Group Privacy in Big Data Analytics*, 30 PHIL. & TECH. 475 (2017); Andreas Fuster, Paul Goldsmith-Pinkham, Tarun Ramadorai & Ansgar Walther, *Predictably Unequal? The Effects of Machine Learning on Credit Markets*, 77 J. FIN. 5 (2022); Gillis, *supra* note 110 (showing that sensitive attributes such as race can easily be reconstructed from nonsensitive (housing mortgage) data using ML methods); Anya E.R. Prince & Daniel Schwarcz, *Proxy Discrimination in the Age of Artificial Intelligence and Big Data*, 105 IOWA L. REV. 1257 (2020); Maria Lilla Montagnani & Mark Verstraete, *What Makes Data Personal?*, 56 U.C. DAVIS L. REV. 1165 (2023); Solove, *Data Is What Data Does*, *supra* note 34, at 1084.

146 *See* WU ET AL., *supra* note 78, at 17–20.

147 *See* CFPB, *supra* note 78, at 27 (noting that, in 2010 and 2011, forty-four million consumers obtained copies of their consumer file disclosure, and in 2011, NCRAs received approximately eight million consumer disputes about information completeness and accuracy).

148 *See* Strandburg, *supra* note 34 (describing consumers' inability to assess costs associated with purchasing online products and services bundled with data collection); Solove, *Introduction*, *supra* note 34 (noting that most consumers do not read privacy notices); Ben-Shahar & Schneider, *supra* note 12 (finding that consumers often do not read information disclosures). The "notice-and-consent" model of the GLBA is severely weakened for the same reason. *See, e.g.*, Janger & Schwartz, *supra* note 34.

types of data shared with CRAs,[149] consumers often fail to exercise this right.[150]

These failures are due, in large part, to consumers' ignorance and bounded rationality, as a result of which they are often unaware of, and fail to fully internalize, the costs of processing their data.[151] The scope for irrational consumer decision-making in the credit information market is exacerbated by the fact that the effects of data processing on consumer welfare are highly contextual and challenging to anticipate in the abstract from the data. That is, the inferences that a CRA or lender may draw from consumer data—and how they use that data to influence credit decisions and consumer outcomes—depend on various factors that are typically unobservable and unknowable from data at the point at which the consumer consents to the processing of their data.[152] These factors include the type and sophistication of computational techniques used by CRAs and lenders to analyze the data, and whether the data is aggregated with other data.[153] There are also large (negative and positive) externalities to data processing—a consumer's data can reveal inferences about other consumers, or groups of consumers, which are typically unobservable and unknowable at the point at which consumers are asked to consent to the processing of their data.[154] More fundamentally, to the extent that consumers need to share their data with lenders and CRAs to build a credit file and credit score and to access essential goods and services such as credit, insurance, housing, and employment, opting out from data-sharing is not a viable option.[155] For all these reasons,

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149 *See, e.g.*, *supra* note 127 and accompanying text.

150 *See* NICOLA JENTZSCH, FINANCIAL PRIVACY: AN INTERNATIONAL COMPARISON OF CREDIT REPORTING SYSTEMS 129–31 (2d ed. 2007) (noting that special protections for medical and financial information introduced in the late 1990s, which rely on consumer consent, had limited effect on the activities of credit bureaus).

151 *See supra* note 74 and accompanying text (discussing behavioral biases that prevent consumers from making rational decisions).

152 *See supra* Section I.B (examining how lenders can use consumer data to influence consumer welfare in different ways).

153 *See* Carl Öhman & Nikita Aggarwal, *What if Facebook Goes Down? Ethical and Legal Considerations for the Demise of Big Tech*, 9 INTERNET POL'Y. REV. 1, 8 (2020).

154 *See* Omri Ben-Shahar, *Data Pollution*, 11 J. LEGAL ANALYSIS 104 (2019) (observing the externalities, positive and negative, due to processing of personal data); Alessandro Acquisti, The Economics of Personal Data and the Economics of Privacy 27 (Nov. 24, 2010) (unpublished manuscript), https://www.heinz.cmu.edu/~acquisti/papers/acquisti-privacy-OECD-22-11-10.pdf [https://perma.cc/65NX-XR27]; Mittelstadt, *supra* note 145; Ignacio N. Cofone, *Nothing to Hide, but Something to Lose*, 70 U. TORONTO L.J. 64, 73 (2020) (arguing that individuals tend to reveal more personal information than they are aware of and prefer normatively).

155 Although not in focus here, there are also indirect welfare (and distributional) effects of the consumer credit reporting system, for example, due to the role of credit scores as a gateway to

consumer consent to data processing is largely illusory. The collective result is that consumers are often either unable or unlikely to exercise their rights under the FCRA to control and preempt welfare-diminishing uses of consumer data shared through the credit reporting system.

Where consumers do attempt to exercise their rights under the FCRA, for example, to correct inaccurate information in their credit files, they face many practical hurdles—as revealed by the high proportion of consumer complaints to the CFPB that relate to consumer reporting.[156] In 2016, the Supreme Court began imposing new hurdles by narrowly construing firms' duties under the FCRA and consumers' standing to bring claims under the FCRA in federal courts. In particular, the Court has held that future harm to individuals solely due to the storage of inaccurate consumer data by CRAs is not sufficient to constitute a "concrete injury" to satisfy Article III standing requirements, at least for the purposes of seeking damages rather than injunctive relief.[157] Thus, although it was the realization that the credit information market could not adequately self-regulate to protect consumers that first motivated the creation of the FCRA,[158] the weak threat of enforcement under the FCRA—both public and private—severely limits its effectiveness in achieving its aims in practice.

There are, importantly, market structure factors that impede both effective self-regulation of the credit information market, and compliance

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noncredit goods and services such as employment, rental housing, and insurance. *See* CFPB, *supra* note 78, at 5–6; Luke Herrine, *Credit Reporting's Vicious Cycles*, 40 N.Y.U. REV. L. & SOC. CHANGE 305 (2016); Pamela Foohey & Sara Sternberg Greene, *Credit Scoring Duality*, 85 L. & CONTEMP. PROBS. 101 (2022).

156 *See* CFPB, ANNUAL REPORT OF CREDIT AND CONSUMER REPORTING COMPLAINTS (2023), https://files.consumerfinance.gov/f/documents/cfpb_fcra-611-e_report_2023-01.pdf [https://perma.cc/DV3U-GVWQ]; CFPB, SUPERVISORY HIGHLIGHTS 5–11 (2022), https://files.consumerfinance.gov/f/documents/cfpb_supervisory-highlights_issue-26_2022-04.pdf [https://perma.cc/4MCH-2DTC] (finding multiple failures by CRAs to comply with FCRA dispute investigation requirements, and failures by data furnishers to comply with FCRA and Regulation V accuracy and dispute investigation requirements).

157 In contrast, the *dissemination* of inaccurate data, such as the sharing of credit reports with third parties, meets the threshold of concrete injury. *See* TransUnion LLC v. Ramirez, 594 U.S. 413, 432–38 (2021); Spokeo, Inc. v. Robins, 578 U.S. 330, 340–43 (2016). *But see infra* Section II.B.2.b (favoring the Supreme Court's more consequentialist definition of individual privacy). Recent court rulings also limit the duty of data furnishers to investigate when consumers dispute inaccurate information. *See, e.g.*, Ingram v. Waypoint Res. Grp., LLC, 83 F.4th 231, 237–39 (3d Cir. 2023); Brief of Amici Curiae CFPB & FTC in Support of Plaintiff-Appellant & Reversal, Ingram v. Waypoint Res. Grp., LLC, 83 F.4th 231 (3d Cir. Sept. 13, 2022) (No. 18-cv-3776), 2022 WL 4354576; *see also*, Milgram v. JPMorgan Chase Bank, No. 19-cv-60929, 2021 WL 6755283, at *7, *9–14 (S.D. Fla. Dec. 30, 2021); Gross v. CitiMortgage, 33 F.4th 1246, 1249–53 (9th Cir. 2022); *cf.* Sessa v. Trans Union LLC, 74 F.4th 38, 42–44 (2d Cir. 2023) (holding that the FCRA does not require a threshold inquiry into the nature of the inaccuracy so long as the challenged information is "objectively and readily verifiable").

158 *See supra* note 113 and accompanying text.

with the FCRA. The credit information market is characterized by large network effects and economies of scope and scale from data processing that naturally favor consolidation and impede competition. Indeed, as noted earlier, the credit information market is highly concentrated, dominated by the Big Three nationwide CRAs.[159] Among other things, the high concentration of consumer data increases the potential costs of a data security breach at any one CRA. But under conditions of weak competition,[160] large externalities from data processing, and limitations on potential liability, CRAs have relatively weak incentives to prevent data breaches and safeguard the security of consumer data, or to ensure that furnished data is accurate, or innovate and improve credit information products, such as credit scores and credit reports.[161]

Given that mainstream lenders rely heavily on credit reports and credit scores obtained through the credit reporting system to allocate and price credit, the information gaps, asymmetries, and errors in this system—and the heavy emphasis on credit history as a proxy for credit risk—result in the misallocation and mispricing of credit, harming both consumers and the wider economy.[162] A particularly salient problem is credit market exclusion resulting from "credit invisibility," i.e., the lack of a credit file with one of the Big Three CRAs. It is estimated that, in 2022, twenty-eight million adult Americans were credit invisible and a further twenty-one million were "thin files," i.e., they had limited data, particularly credit histories, with the Big Three CRAs.[163] Due to their lack

159 *See supra* note 78 and accompanying text; JENTZSCH, *supra* note 150, at 134–35 (observing that the FCRA created a misaligned and incomplete regime because it is industry-oriented and it disregarded some of the features of network industries); Awrey & Macey, *supra* note 24.

160 *See* Fracassi & Magnuson, *supra* note 17, at 331–33.

161 On data security, see generally SOLOVE & HARTZOG, *supra* note 130. Evidence of these market failures has contributed to calls to establish a public credit registry and to regulate CRAs as utilities. On regulating CRAs as utilities, see, for example, JENTZSCH, *supra* note 150, at 134–35; Awrey & Macey, *supra* note 24 (making similar observations and arguments for the regulation of "data aggregators" in the Open Banking network). On proposals for a public credit registry, see for example, AMY TRAUB, DEMOS, ESTABLISH A PUBLIC CREDIT REGISTRY (2019), https://www.demos.org/sites/default/files/2019-03/Credit%20Report_Full.pdf [https://perma.cc/9UQE-BE3V]. *But see* Adam Levitin, *The Unconvincing Case for a Public Credit Registry*, CREDIT SLIPS (Dec. 10, 2020, 9:13 PM), https://www.creditslips.org/creditslips/2020/12/the-unconvincing-case-for-a-public-credit-registry.html [https://perma.cc/KS6U-QRBV] ("Public provision just isn't a solution to most of the market failures in credit reporting.").

162 The information gaps, asymmetries, and errors in the credit reporting system also cause harm in noncredit markets that rely on credit scores, for example, where consumers are erroneously denied jobs or rental applications based on their credit scores. *See supra* note 155.

163 *See* Mike Hepinstall, Chaitra Chandrasekhar, Peter Carroll, Nick Dykstra & Yigit Ulucay, *Financial Inclusion and Access to Credit*, OLIVER WYMAN (Jan. 2022), https://www.oliverwyman.com/our-expertise/insights/2022/jan/financial-inclusion-and-access-to-credit.html [https://perma.cc/9CSN-3YFA]; CFPB, DATA POINT: CREDIT INVISIBLES (2015)

of conventional credit data, these consumers—representing approximately one-fifth of the total American adult population—are "unscorable" or have low credit scores.[164] As a result, they are often denied credit in mainstream credit markets and must rely on higher cost, often unaffordable credit, such as payday loans or informal credit sources.[165] Many more consumers have lower credit scores due to errors in their credit reports, resulting in more limited access to affordable credit.

The asymmetry and incompleteness of information in the consumer credit information market also impede market entry and competition in consumer credit markets, which have historically been oligopolistic and bank-dominated.[166] Large, incumbent FIs, particularly the large national banks, have historically enjoyed privileged access to large volumes of first-party consumer data in addition to third-party data obtained from credit reports, giving them a significant competitive advantage over new market entrants.[167] Impediments to accessing credit information also prevent independent consumer-helping firms, like credit product comparison websites, from helping consumers make more informed, rational decisions and switch lenders to find the best products, which supports competition.[168] More generally, by creating a large, bureaucratic compliance burden for firms to draft privacy and security policies and notices, data privacy laws like the FCRA have themselves been shown to favor larger firms and impede competition.[169]

(finding similar ratios in 2015—11% of the adult population was credit invisible, and a further 8.3% was "unscorable" or "thin files," at the time, a total of approximately forty-five million Americans).

164 These consumers are also disproportionately low-income, Black and Hispanic, which often reflects historic and ongoing socioeconomic discrimination. *See* CFPB, *supra* note 163; MEHRSA BARADARAN, THE COLOR OF MONEY: BLACK BANKS AND THE RACIAL WEALTH GAP (2017) (discussing the racial wealth gap due to credit market discrimination); CLAIRE KRAMER-MILLS, REBECCA LANDAU & JOELLE SCALLY, FED. RSRV. BANK N.Y., THE STATE OF LOW INCOME AMERICA: CREDIT ACCESS & DEBT PAYMENT (2020).

165 *See supra* note 61 and accompanying text.

166 *See* Ausubel, *supra* note 90; Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74798 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) (noting that loans and deposits in the United States are concentrated among the largest depositories); Fracassi & Magnuson, *supra* note 17, at 341 (describing the fragmented and concentrated structure of the U.S. financial sector).

167 *See* Nizan Geslevich Packin, *Show Me the (Data About the) Money!*, 2021 UTAH L. REV. 1277 (2021); Fracassi & Magnuson, *supra* note 17, at 331, 341–45; Awrey & Macey, *supra* note 24, at 9; Zhiguo He, Jing Huang & Jidong Zhou, *Open Banking: Credit Market Competition When Borrowers Own the Data*, 147 J. FIN. ECON. 449 (2023); *infra* Section II.B.1 (examining how Open Banking can increase competition in consumer financial markets).

168 *See* Ausubel, *supra* note 90, at 68–72; *infra* Section II.B.1.

169 *See generally* James Campbell, Avi Goldfarb & Catherine Tucker, *Privacy Regulation and Market Structure*, 24 J. ECON. & MGMT. STRATEGY 47 (2015) (arguing that consent-based approaches to privacy regulation favor larger firms that offer a large scope of services); Michal S.

B. *The Open Banking Rule*

Rapid advances in fintech, beginning in the early 2000s, have reinforced the central functions of data and digital technology in consumer credit markets and amplified their effects. One of the most significant fintech developments in recent years is Open Banking—a digital network through which consumers can move their financial account data between FIs.[170] While the development of Open Banking in the United States was largely market-led,[171] it was enabled in part by the passage of the Dodd-Frank Act, section 1033 of which gives consumers a right to access their financial data from covered consumer financial services providers, subject to rules issued by the Bureau.[172] Fintech firms such as Plaid,[173] Venmo,[174] and Rocket Mortgage,[175] consumers, and policymakers have widely interpreted section 1033 as a right for consumers to not only access their financial data from incumbent FIs, but also to "port" this data to other providers, notably fintechs.[176]

Gal & Oshrit Aviv, *The Competitive Effects of the GDPR*, 16 J. COMPETITION L. & ECON. 349 (2020) (finding that the cost of complying with the GDPR has favored larger firms); Waldman, *supra* note 34, at 1261 (arguing that larger, wealthier companies have more resources to build larger in-house privacy departments to comply with privacy regulations). Of course, concern about smaller firms disproportionately bearing the cost of regulation is a general one, not limited to data privacy regulation.

170 *See supra* notes 24–25 and accompanying text.

171 *See* Remolina, *supra* note 24, at 3–4, 13–16 (contrasting the Unites States with other regions, like the United Kingdom and European Union, where the development of Open Banking was more government-led). *See generally Retail Banking Market Investigation Order 2017*, U.K. COMPETITION & MKTS. AUTH. (Feb. 2, 2017), https://assets.publishing.service.gov.uk/media/5a759cc7ed915d506ee80283/retail-banking-market-investigation-order-2017.pdf [https://perma.cc/SD3U-CQLW] (order from the United Kingdom's competition authority to the nine largest banks to provide access to data to third parties as a legal remedy for the lack of competition in retail banking markets); Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74797 (describing the development of Open Banking in the United States beginning in the early 2000s); 88 Fed. Reg. at 74798 (noting that the United States has a much larger number of users of Open Banking "on a per-capita basis" compared to some other countries with Open Banking).

172 *See supra* note 23.

173 PLAID, https://plaid.com [https://perma.cc/S539-PUQP].

174 VENMO, https://venmo.com [https://perma.cc/3WRF-XJD7].

175 ROCKET MORTG., https://www.rocketmortgage.com [https://perma.cc/YQ7H-7C6T].

176 *See, e.g.*, CFPB, CONSUMER PROTECTION PRINCIPLES: CONSUMER-AUTHORIZED FINANCIAL DATA SHARING AND AGGREGATION 3 (2017) ("Consumers are generally able to authorize trusted third parties to obtain such information from account providers to use on behalf of consumers . . . ."); Request for Information Regarding Consumer Access to Financial Records, 81 Fed. Reg. 83806, 83807–08 (Nov. 22, 2016); Consumer Access to Financial Records, 85 Fed. Reg. 71003 (proposed Nov. 6, 2020); Capital One, Comment Letter on the Advanced Notice of Proposed Rulemaking Regarding Consumer Access to Financial Records 3–6 (Feb. 9, 2021),

Open Banking offers to promote consumer welfare by enabling more data-driven innovation and competition in historically oligopolistic, bank-dominated consumer financial markets, particularly from fintechs.[177] This opportunity is particularly significant in consumer credit markets, as examined below. But, as with all advances in technology, it also presents risks. Sections II.B.1.a and II.B.1.b explore the opportunities and risks of Open Banking in consumer credit markets due to changes in the balance of information and power between consumers and firms. Sections II.B.2 and II.B.3 critically examine the new Open Banking Rule and its limits. This Article argues that, while the Open Banking Rule marks the start of a desirable shift in the logic and methods of consumer financial data regulation, its effectiveness in mitigating the harms and capturing the benefits of Open Banking, and data-driven fintech innovation more broadly, will be limited for many of the same theoretical and empirical reasons that have undermined the effectiveness of the FCRA and other data protection laws.

1. The Opportunities and Risks of Open Banking in Consumer Credit Markets

Open Banking and fintech more broadly carry a significant opportunity to alleviate the market and regulatory failure in consumer credit information and consumer credit markets examined in Section II.A.[178] A particularly salient application is "algorithmic" or "alternative" credit reporting and scoring.[179] This describes the use of "alternative"

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https://www.regulations.gov/comment/CFPB-2020-0034-0077 [https://perma.cc/8K3P-XV4C] (arguing that the original legislative intent of section 1033 of the Dodd-Frank Act was not to give data aggregators such broad-based consumer-permissioned access to consumer data, but nevertheless accepting that section 1033 includes data portability rights).

177 *See* Van Loo, *supra* note 18, at 251–53 (discussing the potential for fintech innovation more generally to increase competition in consumer financial markets and promote consumer welfare); Yadav & Brummer, *supra* note 17, at 275–77; Consumer Access to Financial Records, 85 Fed. Reg. 71003, 71005 ("This type of consumer-authorized data access and use holds the promise of improved and innovative consumer financial products and services, enhanced control for consumers over their financial lives, and increased competition in the provision of financial services to consumers."); Exec. Order No. 14,036, § 5(t)(i), 86 Fed. Reg. 36987, 36998 (July 14, 2021) (referring to the "pro-competition objectives" of the Dodd-Frank Act and encouraging the Bureau to consider "commencing or continuing . . . rulemaking under section 1033").

178 *See supra* Section II.A.

179 *See, e.g.*, Nate Cullerton, *Behavioral Credit Scoring*, 101 GEO. L.J. 807, 811 (2013); Danielle Keats Citron & Frank Pasquale, *The Scored Society: Due Process for Automated Predictions*, 89 WASH. L. REV. 1, 4–5 (2014); Mikella Hurley & Julius Adebayo, *Credit Scoring in the Era of Big Data*, 18 YALE J.L. & TECH. 148, 163 (2016); Matthew Adam Bruckner, *The Promise and Perils of Algorithmic Lenders' Use of Big Data*, 93 CHI.-KENT L. REV. 3, 15–17 (2018); Christopher K.

data—data not traditionally shared through the credit reporting system, such as cash flow data and rental payments data[180]—and alternative, algorithmic data analysis techniques, such as ML, to screen borrowers and price credit.[181]

Alternative credit scoring was pioneered by fintech lenders beginning in the mid-2000s. Section 1033 of the Dodd-Frank Act and the growth of the Open Banking network have enabled and shaped further innovation in alternative credit scoring. Notably, section 1033 strengthened the legal basis for fintechs to access consumer financial data from incumbent FIs, inter alia, for alternative credit scoring. The development and adoption of Open Banking application programming interfaces ("APIs"),[182] particularly "credential-free" APIs, has increased the speed, efficiency, and security with which fintech firms can access consumer financial data relative to methods traditionally used by

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Odinet, *Consumer Bitcredit and Fintech Lending*, 69 ALA. L. REV. 781, 820–23 (2018); Aggarwal, *supra* note 103, at 43, 46–47. Note that the boundaries between conventional and alternative credit scoring are porous and dynamic; what is considered alternative credit scoring today could become conventional and mainstream a few years from now.

180 At its broadest, alternative data for credit scoring includes both alternative financial data and alternative nonfinancial, behavioral, and social data, such as social media and education data. *See, e.g.*, ROBINSON + YU, KNOWING THE SCORE: NEW DATA, UNDERWRITING, AND MARKETING IN THE CONSUMER CREDIT MARKETPLACE 10 (2014), https://www.upturn.org/static/files/Knowing_the_Score_Oct_2014_v1_1.pdf [https://perma.cc/QAN5-JTFD] (taxonomizing alternative data). Note, however, that positive expectations about the predictive power of, and attitudes toward the ethics of using alternative nonfinancial data, particularly social media data, have subsided in recent years. *See, e.g.*, Telis Demos & Deepa Seetharaman, *Facebook Isn't So Good at Judging Your Credit After All*, WALL ST. J. (Feb. 24, 2016, 5:30 AM), https://www.wsj.com/articles/lenders-drop-plans-to-judge-you-by-your-facebook-friends-1456309801 [https://web.archive.org/web/20240705012500/https://www.wsj.com/articles/lenders-drop-plans-to-judge-you-by-your-facebook-friends-1456309801]; Sean Kamkar, *If Alternative Data Is the New Black, Zest AI's Been Ahead of the Trend*, ZESTAI (Aug. 20, 2024), https://www.zest.ai/learn/blog/if-alternative-data-is-the-new-black-zest-ais-been-ahead-of-the-trend [https://perma.cc/XLW9-42QE] (noting the trade-offs due to, and the importance of being judicious about, the use of alternative data for credit scoring). Social media platforms have also limited third-party access to consumer data, particularly through web screen scraping tools. *See, e.g.*, Mike Schroepfer, *An Update on Our Plans to Restrict Data Access on Facebook*, META (Apr. 4, 2018), https://about.fb.com/news/2018/04/restricting-data-access [https://perma.cc/H5YS-RQ8E].

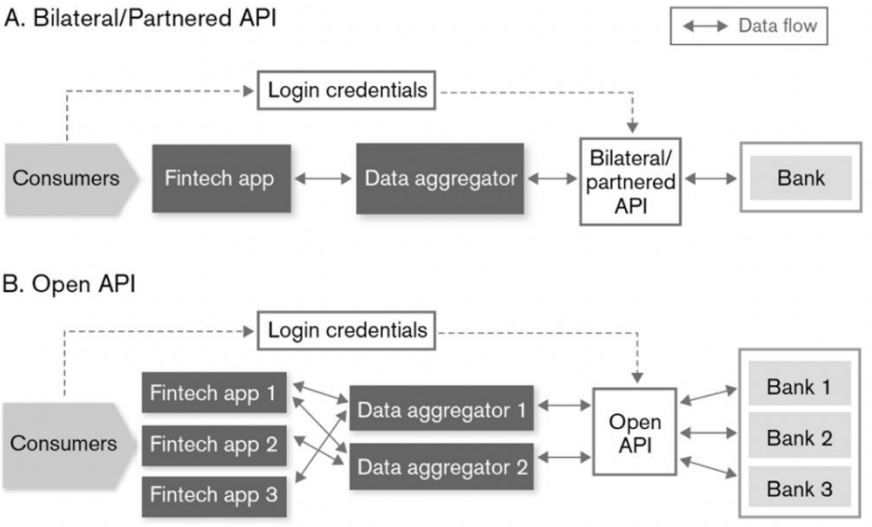
181 *See, e.g.*, UPSTART, https://www.upstart.com/about [https://perma.cc/92J3-FQ8F] (describing its AI lending platform); Majid Bazarbash, *FinTech in Financial Inclusion: Machine Learning Applications in Assessing Credit Risk* 13–21 (IMF, Working Paper No. 2019/109, 2019), https://www.imf.org/en/Publications/WP/Issues/2019/05/17/FinTech-in-Financial-Inclusion-Machine-Learning-Applications-in-Assessing-Credit-Risk-46883 [https://perma.cc/DUP3-GW8W] (describing key ML techniques for credit risk analysis); *supra* note 144 and accompanying text (defining ML).

182 *See infra* Figure 1. An API is a set of definitions and protocols that enable communication (data exchange) between different software applications and computer systems, typically via a web browser. *See generally* MARTIN REDDY, API DESIGN FOR C++ 1 (2011); BRENDA JIN, SAURABH SAHNI & AMIR SHEVAT, DESIGNING WEB APIS 1 (2018); Michael Goodwin, *What Is an API?*, IBM (Apr. 9, 2024), https://www.ibm.com/topics/api [https://perma.cc/KF5V-L5CR].

fintechs—such as web screen scraping and credential-based APIs—or indeed the techniques traditionally used to share consumer data through the credit reporting system.[183]

183 Screen scraping methods may be less secure, accurate, and private than, for example, "credential-free" APIs, as they collect larger volumes of data, including sensitive information like consumer credentials, and involve transposing unstructured information into a structured form. *See* REDDY, *supra* note 182, at 25–26 (discussing the security advantages of APIs); U.S. DEP'T TREASURY, A FINANCIAL SYSTEM THAT CREATES ECONOMIC OPPORTUNITIES: NONBANK FINANCIALS, FINTECH, AND INNOVATION 25–27 (2018), https://home.treasury.gov/sites/default/files/2018-08/A-Financial-System-that-Creates-Economic-Opportunities---Nonbank-Financials-Fintech-and-Innovation.pdf [https://perma.cc/C2NB-AZGB]; Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74845 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) (noting that while the use of credential-free APIs has grown sharply, and the use of screen scraping has fallen, since 2021, most access attempts through Open Banking still rely on either screen scraping or credential-based APIs); 88 Fed. Reg. at 74797 ("Widespread screen scraping allowed open banking to grow quickly in the United States."); 88 Fed. Reg. at 74798 ("Based on feedback received through public comments and stakeholder outreach, there is nearly universal consensus that developer interfaces should supplant screen scraping."); William Hockney, *OFX 2.2*, PLAID (Nov. 21, 2018), https://plaid.com/blog/ofx-2-2 [https://perma.cc/7PZV-MYG2] (discussing the "Open Financial Exchange" Open Banking API, which uses a token-based authentication protocol to allow consumers to share their data with third parties more selectively and securely). On the wider role of APIs in enabling the digital, app- and platform-based economy, see, for example, Chinmayi Sharma, *Concentrated Digital Markets, Restrictive APIs, and the Fight for Internet Interoperability*, 50 U. MEM. L. REV. 441, 450–62 (2019); Seth G. Benzell, Jonathan Hersh & Marshall van Alstyne, *How APIs Create Growth by Inverting the Firm*, 70 MGMT. SCI. 7120 (2024).

Figure 1. Open Banking with APIs[184]



Open Banking APIs have also enabled consumers to access and port their data more easily from nonfinancial firms, such as utility and property management companies, to lenders and CRAs, for the purposes of alternative credit scoring. This includes not only fintech lenders but also traditional lenders, as well as CRAs, who are increasingly adopting Open Banking-enabled alternative credit scoring methods.[185] For example, Experian allows consumers to add positive payment history data, such as rental payments data, to their credit scores using a product called Experian Boost, which utilizes Open Banking APIs.[186] UltraFico, an

184 U.S. DEP'T TREASURY, *supra* note 183, at 27.

185 *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74798 ("While many major use cases [of Open Banking] began as innovative offerings by third parties, incumbent financial institutions have adopted many of them in response to consumer demand."); *see also supra* note 179 and accompanying text (noting that the boundary between "alternative" and "conventional" credit scoring and reporting is dynamic and porous).

186 *See Instantly Raise Your Credit Scores for Free*, EXPERIAN, https://www.experian.com/consumer-products/score-boost.html [https://perma.cc/K5GA-47W4] (adding to consumers' credit files bills with a positive payment history—defined as at least three payments in the last six months, and including one payment in the last month); *see also Experian Connect API*, EXPERIAN, https://www.experian.com/connect/api/index [https://perma.cc/34VL-9RJV]; *Open Banking*, EQUIFAX, https://www.equifax.co.uk/business/open-banking/en_gb [https://perma.cc/3PZF-EJ6V]. In a parallel development, states, such as Maryland and California, and governmental agencies, such as Fannie Mae, are authorizing—in some cases mandating—the use of alternative data, such as rental data, for credit scoring. *See, e.g.*, *Fannie Mae Introduces New Underwriting Innovation to Help More Renters Become Homeowners*, FANNIE MAE (Aug. 11, 2021), https://www.fanniemae.com/newsroom/fannie-mae-news/fannie-mae-introduces-new-

alternative credit scoring product offered jointly by FICO, Experian, and Finicity/Mastercard,[187] uses APIs to allow consumers to add alternative financial data to improve their FICO scores.[188] Financial "data aggregators," like Plaid and Yodlee, which have become key intermediaries in the Open Banking network, have developed various products and services for aggregating, reformatting, standardizing, and transferring consumer data between FIs using Open Banking APIs.[189]

a. More Informed Lenders

By improving lenders' ability to observe borrowers' characteristics—that is, by reducing the cost and time it takes to acquire this information—alternative credit scoring, supported by Open Banking, offers to alleviate creditor ignorance in consumer credit markets, particularly in low-FICO-score and unscorable consumer segments.[190] As Part I showed, this could have both positive and negative effects on consumer welfare, depending, among other things, on how lenders use their new data-driven insights due to alternative credit scoring and the

underwriting-innovation-help-more-renters-become-homeowners [https://perma.cc/W9WD-LCS5]. Some of these data-sharing schemes are "positive only," i.e., alternative data can only be used to increase a consumer's credit score.

187 FINICITY, https://www.finicity.com [https://perma.cc/PCD4-X22X].

188 *See* ULTRAFICO, https://www.fico.com/ultrafico [https://perma.cc/334C-P9FE].

189 *See* Request for Information Regarding Consumer Access to Financial Records, 81 Fed. Reg. 83808 (proposed Nov. 22, 2016) (summarizing the main actors in the Open Banking ecosystem); *Access Detailed Borrower Information Directly from Their Bank Account*, PLAID, https://plaid.com/products/assets [https://perma.cc/Z79C-Q7V8] (enabling third parties to access data from a consumer's financial account in the form of a machine readable assets report); *see also Create Consumer for the Customer*, MASTERCARD, https://developer.mastercard.com/open-banking-us/documentation/api-reference [https://perma.cc/MSX6-DAPM] (describing an API for creating a consumer record associated with a given consumer); YODLEE, PIONEERING FINANCIAL DATA EXTRACTION AND AGGREGATION (2017), https://solutions.yodlee.com/rs/789-EJH-884/images/B_Pioneering-Financial-Data-Extraction-and-Aggregation.pdf [https://perma.cc/W8RL-EJLT]. Data aggregators typically enter bilateral data-sharing contracts with large banks and other FIs to access consumers' financial data, conditional on consumer authorization. *See* JULIAN ALCAZAR & FUMIKO HAYASHI, FED. RSRV. BANK KAN. CITY, DATA AGGREGATORS: THE CONNECTIVE TISSUE FOR OPEN BANKING 2 (2022), https://www.kansascityfed.org/research/payments-system-research-briefings/data-aggregators-the-connective-tissue-for-open-banking [https://perma.cc/SF8Q-BG27]; *Finicity Finalizes Secure Direct Data Agreement with Charles Schwab*, FINICITY (Sept. 18, 2020), https://www.finicity.com/in-the-news/direct-data-charles-schwab [https://perma.cc/6AAR-C8QD].

190 *See supra* note 163 and accompanying text (discussing credit market invisibility); Edward Golding, Richard K. Green & Douglas A. McManus, *Imperfect Information and the Housing Finance Crisis* (Joint Ctr. for Hous. Stud., Harv. Univ., Working Paper No. 08-6, 2008) https://www.jchs.harvard.edu/research-areas/working-papers/imperfect-information-and-housing-finance-crisis [https://perma.cc/MF7A-ZN3F] (observing that in high FICO score consumer segments, most of the predictable association with credit risk can be discerned from borrowers' long credit histories and conventional credit scores).

resulting effect on the cost and affordability of credit for borrowers.[191] Lenders can leverage Open Banking and alternative credit data and credit scoring techniques to verify a consumer's identity more accurately,[192] develop alternative credit scoring models to predict consumers' credit risk and price differentiate more accurately,[193] and compete for consumers with better credit terms like lower interest rates and fees.[194] Several forms of alternative credit scoring data and techniques have been shown to predict consumers' credit risk more accurately than conventional credit scoring approaches.[195] Despite their lack of

191 *See supra* Part I.

192 *See, e.g.*, *Data Partners*, ROCKET MORTG., https://www.rocketmortgage.com/legal/data-partners [https://perma.cc/T6TC-L5NF] ("At Rocket Mortgage, we're dedicated to giving you a seamless online mortgage experience. One way we do this is by giving you the option to import your bank account and other information so that we can verify your financial info right in Rocket Mortgage."); Daniel Tannenbaum, *Open Banking Is Revolutionary, but Will It Take Off?*, ACCOUNTANCYAGE (Feb. 22, 2021), https://www.accountancyage.com/2021/02/22/open-banking-is-revolutionary-but-will-it-take-off [https://perma.cc/7PQQ-2WQP] ("Open banking is revolutionary when it comes to underwriting . . . . Previously, we would run a number of automated rules and decisions to determine which customer was best to lend to . . . [but] these could never be fully verified. . . . But with Open Banking, we can see the exact bank transactions that customers have had . . . . If there is a history of repeat gambling or taking out other high cost loans . . . [then] we know that we should be more cautious with this kind of client." (quoting Dan Kettle of Pheabs, a Los Angeles-based payday lender)).

193 *See supra* Section I.B.1 (discussing the use of consumer data to price differentiate and discriminate); ADAM LEVITIN, CONSUMER FINANCE: MARKETS AND REGULATION 767 (2d ed. 2018) (discussing the utility of financial data for lenders and retailers); Fracassi & Magnuson, *supra* note 17, at 340 ("[B]ank account transactions include a trove of data useful for lending decisions, from disposable income to cash flow stability. Sharing such information with lenders could allow borrowers to get loans on better terms."); Iversen & Rehm, *supra* note 62, at 2351 ("As the data available to lenders improve, they can make more differentiated risk-of-default assessments, which means that interest rates increasingly reflect the underlying risk distribution."); He et al., *supra* note 167, at 451 (referring to the "checking account hypothesis," dated to Fischer Black in 1975, that checking account data contains useful credit information); Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74803–04, 74809 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) (highlighting "transaction-based underwriting" as a key "beneficial use case" of Open Banking).

194 *See, e.g.*, Victoria Holmes & Mike Nelson, *Upstart and the National Bankers Association Partner to Provide AI Lending Technology for Minority-Owned Banks*, UPSTART (Dec. 9, 2021, 9:00 AM), https://ir.upstart.com/news-releases/news-release-details/upstart-and-national-bankers-association-partner-provide-ai [https://perma.cc/8PNE-SPJB] ("By leveraging Upstart's AI platform, Upstart-powered banks can offer higher approval rates and experience lower loss rates, while simultaneously delivering the exceptional digital-first lending experience their customers demand.").

195 *See, e.g.*, Amir E. Khandani, Adlar J. Kim & Andrew W. Lo, *Consumer Credit Risk Models via Machine Learning Algorithms*, 34 J. BANKING & FIN. 2767 (2010); Rajkamal Iyer, Asim Ijaz Khwaja, Erzo F.P. Luttmer & Kelly Shue, *Screening Peers Softly: Inferring the Quality of Small Borrowers*, 62 MGMT. SCI. 1554 (2016) (using alternative data variables to estimate consumer credit risk); FINREGLAB, THE USE OF CASH-FLOW DATA IN UNDERWRITING CREDIT: EMPIRICAL

conventional credit data, or the presence of adverse data, credit-marginalized consumers often have alternative financial data, such as cash flow and rental payment data, that can demonstrate to lenders that they are more creditworthy than their missing, thin, or blemished credit files might imply.[196] And, in recent years, ML techniques have been shown to be more effective than conventional credit scoring techniques at effectively parsing datasets—particularly large, unstructured, high-dimensional datasets[197]—to capture features and patterns that are relevant to predicting borrower creditworthiness.[198]

This could, in turn, lower the cost of credit and improve credit market access for marginalized borrowers, particularly the millions of Americans who are locked out of mainstream credit markets because of missing or inadequate credit files.[199] Indeed, several available empirical studies have shown that alternative credit scoring has lowered the cost of

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RESEARCH FINDINGS 2 (2019) (finding empirical evidence that cash-flow data variables and scores, used for credit underwriting by six nonbank fintechs, were at least as predictive as traditional credit scores); Leonardo Gambacorta, Yiping Huang, Han Qi & Jingyi Wang, *How Do Machine Learning and Non-Traditional Data Affect Credit Scoring?* 19–20 (Bank for Int'l Settlements, Working Paper No. 834, 2019), https://www.bis.org/publ/work834.pdf [https://perma.cc/WDE6-82QD]; Sumit Agarwal, Shashwat Alok, Pulak Ghosh & Sudip Gupta, *Financial Inclusion and Alternate Credit Scoring: Role of Big Data and Machine Learning in Fintech* (2023) (unpublished manuscript), https://ssrn.com/abstract=3507827 [https://perma.cc/WUF9-YM5T]; Tobias Berg, Valentin Burg, Ana Gombović & Manju Puri, *On the Rise of FinTechs: Credit Scoring Using Digital Footprints*, 33 REV. FIN. STUD. 2845, 2847–48 (2020) (finding correlation between alternative data variables and credit risk); Apaar Sadhwani, Kay Giesecke & Justin A. Sirignano, *Deep Learning for Mortgage Risk*, 19 J. FIN. ECONOMETRICS 313, 318 (2020); *infra* note 200 and accompanying text (discussing empirical results). Note that many of these ML techniques were developed decades ago but, until recently, were missing the data and hardware needed to deliver noticeable improvements in predictive accuracy. *See* GOODFELLOW ET AL., *supra* note 105, at 12–22; Galindo & Tamayo, *supra* note 105, at 110.

196 This is shown by the empirical studies cited *supra* note 195.

197 *See generally* GOODFELLOW ET AL., *supra* note 105. Unstructured data is normally written in natural language, not formulated for neat databases and "not already coded in terms of the researcher's analytical categories." David Boulton & Martyn Hammersley, *Analysis of Unstructured Data*, *in* DATA COLLECTION AND ANALYSIS 243 (Roger Sapsford & Victor Jupp eds., 2d ed. 2006). High-dimensional data is data that can provide typically thousands of measured parameters, variables, or features, e.g., emails, text documents (Microsoft Word documents, PDFs, etc.), social media posts, videos, audio files, and images.

198 *See supra* note 195 and accompanying text (discussing empirical findings on alternative credit scoring using ML).

199 *See, e.g.*, EQUIFAX, *Expanding Access to Credit with Alternative Data*, https://www.equifax.com/resource/-/asset/infographic/expanding-access-to-credit-with-alternative-data [https://perma.cc/Q9C9-9S4N]; Amanda Harris, *Leveraging Alternative Data to Increase Financial Inclusion*, AUTO FIN. NEWS (Sept. 16, 2022), https://www.autofinancenews.net/allposts/technology/leveraging-alternative-data-to-increase-financial-inclusion [https://perma.cc/8ZDY-8UAC]; *supra* note 163 and accompanying text (discussing credit market invisibility).

credit, and improved credit market access for marginalized borrowers.[200] Consumers in mainstream credit markets who are paying higher credit prices due to adverse data and errors on their credit files that overestimate their credit risk, or due to demand-based price discrimination by traditional lenders, could also benefit from Open Banking, alternative credit scoring, and increased competition from fintechs.[201]

Beyond the instrumental value to consumers from sharing their financial data with competitor fintech firms, stronger consumer data portability rights can also be viewed as intrinsically valuable to the extent that they make consumers feel more "in control of their financial lives,"[202]

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200 *See, e.g.*, Julapa Jagtiani & Catharine Lemieux, *The Roles of Alternative Data and Machine Learning in Fintech Lending: Evidence from the Lending Club Consumer Platform* (Fed. Rsrv. Bank Phila., Working Paper No. 18-15, 2019), https://www.philadelphiafed.org/-/media/frbp/assets/working-papers/2018/wp18-15r.pdf?la=en [https://perma.cc/57U9-T7LZ] (finding that the use of alternative data by the peer-to-peer fintech lender Lending Club expanded access to credit and lowered the cost of credit for higher risk subprime borrowers); Marco Di Maggio & Dimuthu Ratnadiwakara, *Invisible Primes: Fintech Lending with Alternative Data* (Nat'l Bureau Econ. Rsch., Working Paper No. 29840, 2024), https://ssrn.com/abstract=3937438 [https://perma.cc/GRZ2-G9GV] (finding that the use of alternative data in credit underwriting by the fintech lender Upstart increased loan origination to previously marginalized high-risk borrowers with low credit scores and credit invisibles); Robert Bartlett, Adair Stanton, Richard Morse & Nancy Wallace, *Consumer Lending Discrimination in the FinTech Era*, 143 J. FIN. ECON. 30, 40 (2021) (finding that lower credit costs under AI lending are caused by an increase in competition from fintech firms, and a reduction or elimination of "taste-based" discrimination by human loan officers due to the automation of underwriting decisions); Fuster et al., *supra* note 145 (hypothesizing based on simulated data); Tania Babina et al., *Customer Data Access and Fintech Entry: Early Evidence from Open Banking* (Nat'l Bureau of Econ. Rsch., Working Paper No. 32089, 2024), https://www.nber.org/system/files/working_papers/w32089/w32089.pdf (finding that the introduction of Open Banking increased venture capital investment in fintechs and increased the entry of new firms in financial markets by improving firms' screening ability and product offerings).

201 *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74803 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) (highlighting credit card account switching, by existing credit card consumers, as a key beneficial use case of Open Banking). This effect is likely to be more pronounced in subprime (mainstream) credit market segments, where consumers have low credit scores, rather than high score segments where most of the predictable association with credit risk can be discerned from borrowers' long credit histories and conventional credit scores. *See* Golding et al., *supra* note 190, at 1; Liran Einav, Mark Jenkins & Jonathan Levin, *The Impact of Credit Scoring on Consumer Lending*, 44 RAND J. ECON. 249, 272 (2013) (finding that better information following the adoption of credit scoring and risk-based pricing mitigated inefficiency due to adverse selection problems in U.S. subprime auto loan markets).

202 *See* CFPB, *supra* note 176, at 1; Consumer Access to Financial Records, 85 Fed. Reg. 71003, 71005 (proposed Nov. 6, 2020); Rohit Chopra, *Laying the Foundations for Open Banking in the United States*, CFPB (June 12, 2023), https://www.consumerfinance.gov/about-us/blog/laying-the-foundation-for-open-banking-in-the-united-states [https://perma.cc/E9TM-KGX5]; Brian Costello, *Getting Ready for Open Banking in the United States*, ENVESTNET YODLEE (Apr. 21, 2020), https://www.yodlee.com/open-banking/getting-ready-open-banking-united-states

thereby increasing their subjective wellbeing and welfare. Individual control over personal data has long been considered a key facet of individual privacy.[203] In addition, by distributing consumer data and decentralizing consumer credit markets, and encouraging the development of faster and more secure data sharing techniques, particularly credential-free APIs, the technological architecture of Open Banking offers to improve data security in consumer credit markets.[204] Decentralization stands to reduce the cost of a cyberattack on any one node in the network.[205]

These positive outcomes are, however, contingent. Most obviously, realizing the benefits of Open Banking depends on consumers being able and willing to exercise their data portability rights in the first place, as well as the development and adoption of secure, standardized Open Banking APIs. Lack of consensus on API standards, legal uncertainty over the scope of consumers' data rights under section 1033, risks of, and uncertainty over, the apportionment of liability for data security breaches and unauthorized data use, and divergent interests between market participants have held back the development of Open Banking.[206]

[https://perma.cc/M7FQ-FY75] ("At its core, open banking is about a consumer's right to provide their financial data to their third party financial service providers."); *see also* Fracassi & Magnuson, *supra* note 17, at 328 (conceptualizing individual control over personal data through Open Banking as "data autonomy").

203 *See, e.g.*, ALAN F. WESTIN, PRIVACY AND FREEDOM (1967) (conceptualizing individual control over personal data as a key facet of information privacy); Charles Fried, *Privacy*, 77 YALE L.J. 475, 482 (1968) (defining privacy as "the control we have over information about ourselves"); BVerfG, 1 BvR 209/83, Dec. 15, 1983, https://www.bundesverfassungsgericht.de/SharedDocs/Entscheidungen/EN/1983/12/rs19831215_1bvr020983en.html [https://perma.cc/9RT8-TQWM] (defining the concept of "informational self-determination"); Anita L. Allen, *Privacy as Data Control: Conceptual, Practical and Moral Limits of the Paradigm*, 32 CONN. L. REV. 861 (2000); Julie E. Cohen, *What Is Privacy for*, 126 HARV. L. REV. 1904 (2013) (defining privacy to include the ability to choose and construct one's identity, or informational self-determination); ROBERT H. SLOAN & RICHARD WARNER, THE PRIVACY FIX: HOW TO PRESERVE PRIVACY IN THE ONSLAUGHT OF SURVEILLANCE 2 (2021) ("Informational privacy consists in the ability to control what others do with information about you."). *But see infra* note 267 and accompanying text (discussing trade-offs between the instrumental and intrinsic goals of individual data control).

204 *See supra* note 183 and accompanying text (discussing improved data security using APIs relative to the status quo).

205 *See* Dirk A. Zetzsche, Douglas W. Arner & Ross P. Buckley, *Decentralized Finance*, 6 J. FIN. REG. 172 (2020); Nizan Geslevich Packin & Yafit Lev-Aretz, *Decentralized Credit Scoring: Black Box 3.0*, 61 AM. BUS. L.J. 91 (2024); BLOOM, https://bloom.co [https://perma.cc/E48R-QU5U] (using blockchain-based, end-to-end protocol for decentralized identity issuance, identity verification, and fraud prevention). *See generally* PAUL BARAN, ON DISTRIBUTED COMMUNICATIONS NETWORKS (1962), https://www.rand.org/content/dam/rand/pubs/papers/2005/P2626.pdf [https://perma.cc/62MK-BNMZ].

206 *See* Request for Information Regarding Consumer Access to Financial Records, 81 Fed. Reg. 83806, 83807–08 (Nov. 22, 2016); Consumer Access to Financial Records, 85 Fed. Reg. 71003; Press

Incumbent FIs are denying consumers and fintechs access to financial data and terminating or failing to agree on terms and technical standards for data sharing.[207] Consumers may also be holding back from using Open Banking more actively for the same reasons.[208]

A significant concern is the potential of data aggregators and fintech lenders to use consumer financial data obtained through Open Banking in ways that harm consumers.[209] For instance, rather than using their data-driven insights to expand the supply of affordable credit for marginalized borrowers, fintech lenders can instead use it to substitute or expand the supply of unaffordable credit.[210] The continuing high and unaffordable cost of credit for these borrowers could reflect their high credit risk and the high costs of lending to them, i.e., risk- and cost-based price differentiation (rather than demand-based price discrimination).[211] But alternative credit scoring could also lead to a worse credit risk assessment, and higher and less affordable cost of credit, due to the

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Release, CFPB, CFPB Kicks Off Personal Financial Data Rights Rulemaking (Oct. 27, 2022), https://www.consumerfinance.gov/about-us/newsroom/cfpb-kicks-off-personal-financial-data-rights-rulemaking [https://perma.cc/66WF-RM3E]; Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74797–99 (discussing litigation between incumbent FIs and data aggregators over screen scraping and permissionless access to consumers' accounts and discussing challenges in the Open Banking system).

207 Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74799.

208 *See, e.g.*, OXERA, THE (UNMET) POTENTIAL OF OPEN BANKING (2023), https://www.oxera.com/wp-content/uploads/2023/07/Open-Banking-Report_Final-1.pdf [https://perma.cc/9F5W-878C] (noting, with respect to Open Banking in the United Kingdom, that concerns about data security and unauthorized use by fintechs is also holding consumers back from more actively using Open Banking); He et al., *supra* note 167 (modeling the effects on credit market competition of privacy-conscious borrowers that do not sign up for Open Banking due to privacy and data misuse concerns); *infra* Section II.B.2 (discussing the Rule and the impetus for regulation).

209 *See generally supra* note 17 and accompanying text (discussing fintech's double-edged beneficial and harmful effects); Floridi & Aggarwal, *supra* note 103 (discussing dual-use data risk).

210 *See supra* note 19 and accompanying text (defining predatory inclusion).

211 *See supra* Section I.B.1 (discussing the use of consumer data for price differentiation); John Y. Campbell, Howell E. Jackson, Brigitte C. Madrian & Peter Tufano, *Consumer Financial Protection*, 25 J. ECON. PERSPS. 91, 100 (2011) (noting that the high interest rate on payday loans often reflects the high-risk profile of this borrower segment, rather than excessive rent-seeking by lenders or excessive market concentration); Will Dobbie & Paige Marta Skiba, *Information Asymmetries in Consumer Credit Markets: Evidence from Payday Lending*, 5 AM. ECON. J.: APPLIED ECON. 256 (2013); Foohey & Greene, *supra* note 155 (hypothesizing that high-risk borrowers will continue to receive high-cost credit under alternative credit scoring); *see also* Itzhak Ben-David, Mark J. Johnson, Jason Lee & Vincent Yao, *FinTech Lending with LowTech Pricing* (Fisher Coll. of Bus., Working Paper No. 2023-03-008, 2023) (observing that, due to various institutional constraints, fintech lenders did not leverage alternative data to reduce the cost of lending to subprime borrowers, did not lower the cost of credit, and that credit pricing remains very sensitive to FICO score bins); Thomas Philippon, *The FinTech Opportunity* 3–6 (Nat'l Bureau of Econ. Rsch., Working Paper No. 22476, 2016) (hypothesizing that firms may not pass on cost savings due to the use of new technology).

revelation of previously hidden negative characteristics.[212] Higher credit costs could also, or alternatively, reflect more accurate price *discrimination* by lenders using alternative credit scoring techniques.[213] For example, the analysis of alternative data using ML techniques could allow a lender to more accurately identify borrowers who, due to ignorance (lack of information), irrationality (behavioral biases), or both, may be less inclined to shop around or more in need of credit, and therefore willing to pay more to borrow. Based on this analysis, a lender's recommender system, optimized to maximize profits, could recommend pricing credit as close as possible to the borrower's expected WTP.[214] In these ways, alternative credit scoring, enabled by Open Banking, could over-alleviate creditor ignorance and over-empower fintech lenders with information about consumers.[215] In addition, greater credit product complexity and heterogeneity, particularly due to more data-driven, algorithmic personalization of product terms, makes it harder for consumers to comparison shop, increasing their susceptibility to exploitation of their irrationality by lenders. As such, even though Open

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212 *See* Iversen & Rehm, *supra* note 62, at 3 (hypothesizing that alternative credit scoring will increase interest rates for high-risk borrowers due to the more precise observation of credit risk); Fuster et al., *supra* note 145 (hypothesizing that African American and Hispanic borrowers are more likely to be offered higher interest rates and experience greater within-group dispersion of rates, relative to white and Asian borrowers, as a result of the use of ML for credit underwriting); Gillis, *supra* note 110 (reaching a similar conclusion); Mark Jansen, Fabian Nagel, Constantine Yannelis & Anthony Lee Zhang, *Data and Welfare in Credit Markets* (Nat'l Bureau of Econ. Rsch., Working Paper No. 30235, 2022) (finding that greater data availability increases lenders' surplus); *see also* NAT'L CONSUMER L. CTR., EVEN THE CATCH-22S COME WITH CATCH-22S: POTENTIAL HARMS AND DRAWBACKS OF RENT REPORTING (2022), https://www.nclc.org/wp-content/uploads/2022/10/IB_Catch_22_Rent.pdf [https://perma.cc/C2M8-NUT6] (hypothesizing that full-file rent reporting, i.e., including both negative and positive rental payment data, is more likely to disadvantage lower-income, Black and Latinx tenants and borrowers who are more likely to have negative data and experience higher credit costs and be denied tenant applications as a result).

213 *See supra* Section I.B.1 (discussing credit price discrimination and consumer irrationality).

214 *See* VARIAN ET AL., *supra* note 71, at 12 ("[I]nformation technology allows for fine-grained observation and analysis of consumer behavior. This permits various kinds of marketing strategies that were previously extremely difficult to carry out."); Ramsi A. Woodcock, *Big Data, Price Discrimination, and Antitrust*, 68 HASTINGS L.J. 1371 (2017); Gerard Wagner & Horst Eidenmüller, *Down by Algorithms? Siphoning Rents, Exploiting Biases and Shaping Preferences—The Dark Side of Personalized Transactions*, 86 U. CHI. L. REV. 581 (2019); Bar-Gill, *supra* note 72; Talia B. Gillis & Jann L. Spiess, *Big Data and Discrimination*, 86 U. CHI. L. REV. 459 (2019); Bartlett et al., *supra* note 200, at 40 ("An algorithm could naturally discover that higher prices could be quoted to profiles of borrowers or geographies associated with low-shopping tendencies.").

215 *See* He et al., *supra* note 167, at 451 (hypothesizing that, if Open Banking gives fintech lenders too much power, they will enjoy greater monopoly power than banks had before); Babina et al., *supra* note 200 (noting potential negative distributional effects of Open Banking); *see also* Jack Hirshleifer, *The Private and Social Value of Information and the Reward to Inventive Activity*, 61 AM. ECON. REV. 561 (1971) (noting that firms overinvesting in information gathering is socially wasteful).

Banking offers to increase market entry and make consumer credit markets more competitive, at least technically, firms can still enjoy a degree of market power and engage in anticompetitive pricing.[216]

Conversely, there is a risk that Open Banking will eventually reduce competition by increasing market concentration, thereby enabling lenders to price discriminate and extract consumer surplus more effectively. Strong network effects and economies of scope and scale from data processing,[217] "winner-takes-all" effects in platform-based digital markets,[218] and evident coordination failures between market participants in the Open Banking network,[219] make the network more susceptible to concentration.[220] This has already been seen in the growing market power of data aggregators, such as Plaid, which has raised concerns about anticompetitive conduct.[221] Data aggregators—which currently sit outside the Bureau's supervisory perimeter—can, for example, abuse their dominant positions by restricting or raising the costs of access to Open Banking APIs and by acquiring competitors.[222] They can also offer their own financial products and leverage their greater access to consumer data to more effectively price discriminate and extract

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216 *See* VARIAN ET AL., *supra* note 71, at 13–14 (finding that the "enhanced surplus extraction effect" of personalized pricing dominates the "intensified competition effect" where consumer tastes are heterogeneous (citing David Ulph & Nir Vulkan, Electronic Commerce and Competitive First-Degree Price Discrimination (2000) (unpublished manuscript) (on file with author)); Hynes & Posner, *supra* note 69; GEORGE A. AKERLOF & ROBERT J. SHILLER, PHISHING FOR PHOOLS: THE ECONOMICS OF MANIPULATION AND DECEPTION (2013) (describing "phishing" equilibria); Rory Van Loo & Nikita Aggarwal, *Amazon's Pricing Paradox*, 37 HARV. J.L. & TECH. 1, 12 (2023) ("Price-related harms can occur even in a market that is competitive in the sense that the market has many sellers.").

217 *See supra* note 159 and accompanying text.

218 *See* VARIAN ET AL., *supra* note 71, at 12 ("[T]he high-fixed-cost, low-marginal-cost technologies commonly observed in these [high tech] industries often lead to significant market power, with the usual inefficiencies."); Ariel Ezrachi & Maurice E. Stucke, *Artificial Intelligence & Collusion: When Computers Inhibit Competition*, 2017 U. ILL. L. REV. 1775 (2017); Karen Croxson, Jon Frost, Leonardo Gambacorta & Tommaso Valleti, *Platform-Based Business Models and Financial Inclusion: Policy Trade-Offs and Approaches*, 19 J. COMP. L. & ECON. 75 (2023) (discussing platform-based financial markets).

219 *See supra* notes 206207 and accompanying text.

220 *See* Awrey & Macey, *supra* note 24 (identifying concentration risks in the financial data aggregation market); He et al., *supra* note 167.

221 *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74803–04, 74809 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033); *id.* at 74799 ("Due to the lack of progress on access agreements and the establishment of open, fair, and inclusive industry standards, the open banking system has come to depend heavily on a handful of data aggregators.").

222 *See* Awrey & Macey, *supra* note 24; Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74799 ("The commercial interests of such intermediaries [data aggregators] may not always advance open banking, since they stand to benefit from private network effects against open standards that could displace them or lower their rents.").

consumer surplus.[223] Large incumbent FIs have sought to acquire or partner with data aggregators or develop their own aggregation platforms, thereby consolidating their existing informational and competitive advantages and neutralizing the potential pro-competitive effects of Open Banking.[224] Similar effects may favor large, data-rich nonfinancial platforms, like Apple, Google, and Facebook, which are rapidly growing their presence in financial markets.[225] These platforms can gain access to more consumer financial data through Open Banking, consolidating their existing informational advantage.[226]

The potential harm to consumers from Open Banking extends beyond the use of consumer financial data by fintechs in credit decisions. Fintechs can also, for example, monetize consumer data through sales to third parties—like advertisers—who can subsequently use that data to harm consumers.[227] Another concern is unauthorized data use, for example where third parties illicitly obtain consumer data from fintechs and harm consumers through identity theft or fraud.[228] In the absence of coordination on secure data-sharing standards, such as APIs, greater access to and portability of consumer financial data through Open Banking using relatively insecure methods for consumer financial data portability, such as screen scraping, could instead increase consumers' exposure to harm from data security breaches and unauthorized data uses.[229]

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223 *See* Awrey & Macey, *supra* note 24; Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74799 ("Dependency on a handful of data aggregators creates incentives for them to rent seek and self-preference.").

224 *See* Packin, *supra* note 167; Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74798–99 (discussing recent acquisitions); *Visa and Plaid Abandon Merger After Antitrust Division's Suit to Block*, DEP'T JUST. (Jan. 12, 2021), https://www.justice.gov/opa/pr/visa-and-plaid-abandon-merger-after-antitrust-division-s-suit-block [https://perma.cc/8SFN-WNBF].

225 *See* Dirk A. Zetzsche, Ross P. Buckley, Douglas W. Arner & Janos Nathan Barberis, *From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance*, 14 N.Y.U. J.L. & BUS. 393 (2018); BANK FOR INT'L SETTLEMENTS, *Big Tech in Finance: Opportunities and Risks*, *in* BIS ANNUAL ECONOMIC REPORT 55, 62 (2019), https://www.bis.org/publ/arpdf/ar2019e3.htm [https://perma.cc/2PAM-J55C] (describing how the "data analytics, network externalities and interwoven activities" business model of big tech companies in finance enables them to increase and consolidate market share).

226 *But see* Defining Larger Participants of a Market for General-Use Digital Consumer Payment Applications, 88 Fed. Reg. 80197, 80197 (proposed Nov. 17, 2023) (to be codified at 12 C.F.R. pt. 1090) (subjecting to the CFPB's supervisory authority large nonbank "providers of funds transfer and wallet functionalities through digital applications for consumers' general use in making payments").

227 *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74799–800.

228 *Id.*

229 *See* Request for Information Regarding Consumer Access to Financial Records, 81 Fed. Reg. 83806, 83809 (Nov. 22, 2016) (discussing the privacy and security risks of Open Banking). Although

b. More Informed (and Rational?) Borrowers

Of course, the opportunities and risks of Open Banking, and fintech more broadly, in consumer credit markets are not limited to alleviating creditor ignorance through alternative credit scoring and reporting. Notably, Open Banking has also enabled and supported the development of more personalized, digital consumer-helping solutions, such as credit product comparison and personal financial management apps.[230] By alleviating borrower ignorance and irrationality, and thereby helping borrowers to make better credit decisions, these apps could preempt or mitigate the welfare-diminishing effects of lenders using Open Banking data, discussed above.[231]

For example, the personal finance platform Credit Karma provides free, personalized credit recommendations to consumers using data accessed through the Open Banking network.[232] Its services include credit monitoring (alerting consumers to changes in their credit reports), credit building (advising consumers on how to raise their credit scores), and credit management (helping consumers manage borrowing and spending).[233] Other apps enabled or enhanced by Open Banking help consumers calculate the likely cost of credit and set up automatic savings and debt repayment schedules.[234] Importantly, by offering consumers

not in focus here, Open Banking and alternative credit scoring also affect consumer welfare through the credit-macroeconomy channel, e.g., due to overheating resulting from faster credit origination (a "fintech credit cycle"), inaccurate modeling of and provisioning for credit risk resulting in systemic nonperforming loans, or a combination thereof. *See* Engel & McCoy, *supra* note 63, at 1273–98 (discussing market failures in the home mortgage market due to loan securitization, eventually leading to the GFC); 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, 129 (2009) (examining the failure of quantitative risk models, and regulatory "outsourcing" to, or overreliance on, these models in the GFC); Omarova, *supra* note 106, at 752–54; RATNA SAHAY ET AL., THE PROMISE OF FINTECH: FINANCIAL INCLUSION IN THE POST COVID-19 ERA 37 (July 1, 2020), https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2020/06/29/The-Promise-of-Fintech-Financial-Inclusion-in-the-Post-COVID-19-Era-48623 [https://perma.cc/YHC3-BSPQ] (discussing the "fintech credit cycle"); Jón Daníelsson, Robert Macrae & Andreas Uthemann, *Artificial Intelligence and Systemic Risk*, J. BANKING & FIN., July 2022, at 1, 1–3.

230 *See* Request for Information Regarding Consumer Access to Financial Records, 81 Fed. Reg. at 83808–09 (summarizing use cases for Open Banking in consumer financial markets).

231 *See* Michal S. Gal & Niva Elkin-Koren, *Algorithmic Consumers*, 30 HARV. J.L. & TECH. 309 (2017); ARMOUR ET AL., *supra* note 4, at 212–13; Rory Van Loo, *Digital Market Perfection*, 117 MICH. L. REV. 815 (2019) (examining the economic benefits and risks of digital intermediaries); Awrey & Macey, *supra* note 24, at 30–31 (describing how these platforms can help consumers to comparison shop).

232 CREDIT KARMA, https://www.creditkarma.com [https://perma.cc/7F3R-4YET].

233 *Id.*

234 *See, e.g.*, OPORTUN, https://oportun.com/savings [https://perma.cc/3K3L-XBW7]; Gal & Elkin-Koren, *supra* note 231; Van Loo, *supra* note 231; Scott R. Peppet, *Freedom of Contract in an Augmented Reality: The Case of Consumer Contracts*, 59 UCLA L. REV. 676 (2012).

more personalized advice and "nudges,"[235] these consumer-helping digital products offer to improve upon existing "Web 1.0" solutions, such as the product comparison websites Consumer Reports and NerdWallet.[236]

Yet, while consumer-helping products like Credit Karma can help mitigate the risks to consumers in credit markets, they cannot be fully effective.[237] Notably, their effectiveness depends on consumers adopting them in the first place. Because of their ignorance and irrationality, more behaviorally biased, less financially and technologically literate consumers, who are also more likely to be low-income, may not be able to recognize the value of consumer-helping products and fail to adopt them.[238] This is more likely in consumer financial markets, particularly consumer credit markets, where the costs of consumer credit contracts are often shrouded and only materialize over the long term, as discussed above.[239]

Even when consumers install and use a consumer-helping digital product, they will not always use it effectively. Other factors will most likely influence their decision-making, leaving intact the risk of irrational decisions.[240] Furthermore, greater product personalization and differentiation in digital credit markets,[241] as well as the increased ability of firms to "capture" consumers in digital ecosystems,[242] increases the chance that a consumer commits reflexively to a credit offer before shopping around, and before a digital consumer-helping app can

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235 *See* RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS (2008) (conceptualizing nudges as light-touch interventions designed to improve consumers' decision-making by changing consumers' choice architecture to overcoming their predictable behavioral biases); *see also supra* note 74 and accompanying text (discussing the behavioral biases that influence consumer decision-making).

236 CONSUMER REPS., https://www.consumerreports.org [https://web.archive.org/web/20250213052701/https://www.consumerreports.org]; NERDWALLET, https://www.nerdwallet.com [https://perma.cc/84N6-FFZC].

237 *See* Rory Van Loo, *Rise of the Digital Regulator*, 66 DUKE L.J. 1267, 1296–310 (2017) (discussing the limits of market-based digital intermediaries); ARMOUR ET AL., *supra* note 4, at 213–15 (discussing limits of consumer-helping market solutions); Aggarwal, *supra* note 103, at 62–65.

238 *See supra* notes 73–74 and accompanying text (discussing informational and behavioral impediments to rational consumer decision-making).

239 *See supra* note 96 and accompanying text.

240 *See* Aggarwal, *supra* note 103, at 62–65. A related concern is deadweight efficiency loss due to a technological "arms race" between lenders—seeking to extract and manipulate consumer data—and consumers—seeking to defend and control the use of their data. *See* Gal & Elkin-Koren, *supra* note 231, at 329; Wagner & Eidenmüller, *supra* note 214, at 588–89.

241 *See supra* note 97 and accompanying text.

242 *See, e.g.*, *Frictionless Fruit*, ECONOMIST (June 7, 2014), https://www.economist.com/business/2014/06/07/frictionless-fruit [https://perma.cc/T2D6-8JMN] ("Apple hopes that the sheer ease of having several interconnected apps in one place will bind people to its ecosystem of devices and software.").

intervene to protect them.[243] There are also principal-agent risks that could undermine the suitability of financial advice offered by these apps to consumers.[244]

2. The Open Banking Rule: A Positive, but Incomplete, Move in Consumer Credit Market Regulation

In 2020, having determined that additional regulation might be needed to realize the opportunity of Open Banking and mitigate its risks, the Bureau commenced a rulemaking process under section 1033 of the Dodd-Frank Act.[245] In 2024, the Bureau issued a final rule, the Open Banking Rule.[246] Viewed as part of the Bureau's broader rulemaking agenda, the Open Banking Rule marks the start of a desirable move in the logic, methods, and focus of personal data protection regulation and consumer credit market regulation. This is a move away from promoting consumer welfare through rules and standards that try to balance the expected costs and benefits of consumer data processing at the level of the data itself, particularly by categorically limiting the flow of certain types of consumer data prior to its use in the design and sale of credit products and services.[247] And it is a move toward promoting consumer welfare by enabling more consumer-directed flow of financial data, mandating the development and adoption of technologies for more secure and accurate

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243 *See* Wagner & Eidenmüller, *supra* note 214, at 592–95.

244 *See, e.g.*, *Real Talk: How Does Credit Karma Work?*, CREDIT KARMA, https://www.creditkarma.com/about/howitworks [https://perma.cc/R6AT-LFBN] ("We get paid by the bank or lender. If you're approved for a product, we typically make a commission."); ARMOUR ET AL., *supra* note 4, at 213–14; Maurice E. Stucke & Ariel Ezrachi, *How Digital Assistants Can Harm Our Economy, Privacy, and Democracy*, 32 BERKELEY TECH. L.J. 1239 (2017).

245 *See* Consumer Access to Financial Records, 85 Fed. Reg. 71003 (proposed Nov. 6, 2020); *see also Small Business Advisory Review Panel for Required Rulemaking on Personal Financial Data Rights: Outline of Proposals and Alternatives Under Consideration*, CFPB (Oct. 27, 2022), https://www.consumerfinance.gov/rules-policy/small-business-review-panels/small-business-review-panel-for-personal-financial-data-rights-rulemaking [https://perma.cc/9R8F-VGQF] [hereinafter CFPB, *Small Business Panel Outline of Proposals*]; *see also* CFPB, HIGH-LEVEL SUMMARY AND DISCUSSION GUIDE OF OUTLINE OF PROPOSALS AND ALTERNATIVES UNDER CONSIDERATION FOR SBREFA: REQUIRED RULEMAKING ON PERSONAL DATA FINANCIAL RIGHTS (2022), https://files.consumerfinance.gov/f/documents/cfpb_data-rights-rulemaking-1033-SBREFA-high-level-summary-discussion-guide_2022-10.pdf [https://perma.cc/2LXS-XA87]; *see also* CFPB, FINAL REPORT OF THE SMALL BUSINESS REVIEW PANEL ON THE CFPB'S PROPOSALS AND ALTERNATIVES UNDER CONSIDERATION FOR THE REQUIRED RULEMAKING ON PERSONAL FINANCIAL DATA RIGHTS (2023), https://files.consumerfinance.gov/f/documents/cfpb_1033-data-rights-rule-sbrefa-panel-report_2023-03.pdf [https://perma.cc/XB3R-KV5H].

246 *See* Required Rulemaking on Personal Financial Data Rights, 89 Fed. Reg. 90838 (Nov. 18, 2024) (codified at 12 C.F.R. pts. 1001, 1033 (2025)).

247 *See infra* Sections II.B.2.b–c.

data processing, and shifting regulatory focus toward controlling the use of that data by financial firms.[248] These aspects of the Open Banking Rule are examined in turn. As Section II.B.3 will show, however, this desired move is only partially embodied by the Open Banking Rule, the potential effectiveness of which thus remains limited.

a. Supporting Consumer Data Portability and Increasing Information Completeness in Consumer Credit Markets

The Open Banking Rule reinforces consumers' rights to financial data portability under section 1033, with the aim of facilitating the sharing and use of consumer financial data held by incumbent FIs with third-party fintech firms, thereby enabling the benefits of Open Banking.[249] Specifically, the Rule strengthens the obligations of financial services providers to make "covered" types of financial data available to both consumers and authorized third parties, such as data aggregators and other fintech firms, acting on behalf of consumers, in an electronic, standardized, credential-free, and machine-readable form.[250] The Rule also establishes conditions for mandatory data access, particularly requirements for authentication and authorization of third parties, thereby alleviating some of the key sources of legal uncertainty that have impeded the development of Open Banking.[251]

By giving consumers, rather than firms, greater control over consumer data, the Rule offers to overcome firms' disincentives to sharing consumer data with competitors, in ways that can benefit consumers.[252] Moreover, the Rule construes section 1033 as a right for consumers to not only *access* their financial data from financial services providers—a narrower interpretation of section 1033 favored by some incumbent market participants during the development of the Rule—but also to *share*, or port, this data to other providers.[253] This right extends

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248 *See infra* Sections II.B.2.a–b.

249 *See supra* Section II.B.1.

250 *See* Obligation to Make Covered Data Available, 12 C.F.R. § 1033.201(a) (2025); Machine-Readable Files Upon Request, *id.* § 1033.301(b); Fees Prohibited, *id.* § 1033.301(c); Standardized Format, *id.* § 1033.311(b); Access Caps, *id.* § 1033.311(d); *infra* note 283 and accompanying text (discussing credential-free data).

251 *See* sources cited *supra* note 250; *supra* note 207 and accompanying text (discussing coordination failure in the Open Banking network and termination of data-sharing agreements by incumbent FIs).

252 *See supra* Section II.A (critiquing the voluntariness of the consumer credit reporting system under the FCRA and the resulting informational asymmetry and incompleteness).

253 *See supra* note 176 and accompanying text (discussing conflicting interpretations of section 1033); Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74804, 74810

not only to consumers accessing and porting their financial data from providers of "covered" financial products and services (referred to as "data providers") directly,[254] but also consumers authorizing third parties, notably data aggregators, to access their data from data providers.[255] Likewise, the category of covered financial services and products is defined broadly to include not only traditional, incumbent FIs providing these products and services, but also newer, nonbank fintech firms such as digital wallet providers and "buy now, pay later" lenders.[256] Thus, consumers can exercise their rights under section 1033 to transfer data not only from incumbent FIs to fintechs, but also vice versa, from fintechs to incumbent FIs.

In all of these ways, the Rule offers to alleviate the problems of informational incompleteness and asymmetry in consumer credit markets, thereby increasing competition and credit market inclusion, and promoting consumer welfare.[257] The symmetry of consumer data portability rights under the Rule (i.e., the ability for consumers to not only transfer data to fintechs but also away from them), viewed alongside the Bureau's broader agenda to increase supervision over nonbank fintechs,[258] could help to mitigate the risk of over-empowering fintechs, with the attendant risks of concentration, anticompetitive conduct, and consumer harm.[259]

b. Reconceptualizing Consumer Financial Privacy

Normatively, the move toward greater sharing and use of consumer data embraced by the Open Banking Rule implicitly deprioritizes informational noninterference as a determinant of consumer privacy and

(proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) (discussing use cases and motivations for broad scope of covered data).

254 *See* 12 C.F.R. § 1033.111 (defining the scope of "data providers" that are obliged to share with consumers data concerning a covered consumer financial product or service that the consumer obtained from them). This definition excludes certain consumer financial accounts, such as mortgage, auto, student loan, and EBT accounts, and thus data aggregators to the extent that they do not provide the qualifying financial products or services.

255 *See id.* §§ 1033.401–.411 (establishing conditions for authorized third parties to access covered data from a data provider on the consumer's behalf).

256 *Id.* § 1033.111 (defining the accounts and entities subject to consumer financial data portability requirement).

257 *See supra* Section II.A (discussing informational incompleteness and asymmetry in the consumer credit information market); *supra* Section II.B.1 (discussing how Open Banking offers to alleviate these informational constraints and promote consumer welfare).

258 *See* 12 C.F.R. pt. 1090 (2025).

259 *See supra* note 215 and accompanying text; 12 C.F.R. pt. 1090; *infra* Conclusion (proposing that the CFPB's supervisory perimeter should be extended even further to include data aggregators).

consumer welfare, at least in financial markets.[260] More specifically, it treats the nonpecuniary psychological and dignitary harms due to the processing of personal data per se—such as the "chilling effects" of "data surveillance"[261]—as a less significant consumer harm in digital financial markets.[262] As noted earlier, these deontological dimensions of individual information privacy partly informed the logic and design of the FCRA, as well as other data protection laws.[263] Rather, the Rule, and section 1033, appear to increase the intrinsic and instrumental value ascribed to the right of individuals to control their personal data, and the mitigation of consequential harm to consumers resulting from the use of their data, as facets of consumer privacy (including under the FCRA) and determinants of consumer welfare.[264]

This move, while subtle, should be welcomed. There are important intra-normative, "autonomy-autonomy" trade-offs implied by the greater use of consumer data due to advances in fintech.[265] Consumers stand to gain autonomy from porting their data between different financial services providers, and by gaining access to credit and other financial services on more favorable terms as a result. By the same token, however, consumers stand to lose autonomy to the extent that the processing of personal data is considered per se autonomy diminishing (privacy as noninterference), consumer control over their personal data is merely illusory (i.e., the fiction of informed consumer consent) and thus does not in fact increase consumer autonomy, or greater control

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260 *Cf.* Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193, 193 (1890) (defining privacy as freedom from interference).

261 *See, e.g.*, Peter P. Swire, *Financial Privacy and the Theory of High-Tech Government Surveillance*, 77 WASH. U. L.Q. 461, 473–75 (1999) (describing intangible privacy harms); M. Ryan Calo, *The Boundaries of Privacy Harm*, 86 IND. L.J. 1131 (2011); Jonathon W. Penney, *Understanding Chilling Effects*, 106 MINN. L.R. 1451 (2022); *see also* Regulation 2016/679, *supra* note 28, recitals 75, 83, art. 24, recital 85, art. 33 (referring to "physical, material and non-material damage"); Regulation 2016/679, *supra* note 28, art. 82(1) (referring to "material and non-material damage").

262 *See* TransUnion LLC v. Ramirez, 594 U.S. 413 (2021) (similarly conceptualizing individual privacy). For an opposing view, see Daniel J. Solove & Danielle Keats Citron, *Standing and Privacy Harms: A Critique of* TransUnion v. Ramirez, 101 B.U. L. REV. ONLINE 62 (2021) (criticizing the majority's ruling in *TransUnion LLC v. Ramirez* and supporting a more deontological, rights-based conceptualization of information privacy).

263 *See supra* note 116 and accompanying text.

264 *See supra* notes 116, 202 and accompanying text.

265 *See* Aggarwal, *supra* note 103, at 59 (discussing the intra-normative, "autonomy-autonomy" trade-offs due to algorithmic credit scoring); Aggarwal, *supra* note 17, at 866–68 (distinguishing the intrinsic and instrumental dimensions of consumer privacy, and privacy as individual data control, and applying them to assess AI-driven finance); Nikita Aggarwal, *Autonomy v. Autonomy in the Information Economy*, BALKINIZATION (Dec. 8, 2024, 9:30 AM), https://balkin.blogspot.com/2024/12/autonomy-v-autonomy-in-information.html [https://perma.cc/ZSP4-FQEB].

over personal data leads to unfavorable material or nonmaterial outcomes—such as consumers accessing credit on unaffordable, welfare-diminishing terms.

To the extent that the greater use of consumer data can improve material and nonmaterial outcomes for consumers—for example, by improving access to affordable credit—this Article argues that it can and should outweigh the intrinsic, deontological harms due to data processing per se.[266] It follows that a more consequentialist approach to consumer financial privacy, focused on mitigating harmful data uses rather than the processing of personal data per se, also implies that the intrinsic value of consumers' rights to control data processing—whether consenting to data processing or accessing and porting data—will at times need to be subordinated to their instrumental goals, i.e., consumers' ability to control the use of their data is in fact, and should be, restricted, where the consequences of such use would be welfare-diminishing, for example, due to unaffordable lending.[267]

c. Modifying and Rejecting (Some) Fair Information Procedures

The Open Banking Rule modifies and rejects some of the demonstrably ineffective features of traditional data protection laws, many of which have been previously contemplated by the Bureau.[268] This includes, for example, a rejection of broad-based "purpose limitation" and "data minimization" standards, hallmarks of the FIPPs[269] and, to a lesser extent, the FCRA.[270] Pursuant to the Rule's new "data limitation" standard, third parties are required to limit the "collection, use, and retention of covered data to what is reasonably necessary to provide the consumer's requested product or service."[271] This standard is meaningfully more parsimonious than its antecedents in data protection law given that it applies only to data processing by third parties, such as

266 Assuming that they are in fact commensurable and amenable to balancing. On value commensurability, see, for example, JOSEPH RAZ, THE MORALITY OF FREEDOM (1986); RUTH CHANG, INCOMMENSURABILITY, INCOMPARABILITY, AND PRACTICAL REASON (Ruth Chang ed., 1997).

267 *See supra* note 265 and accompanying text.

268 *See* CFPB, CONSUMER PROTECTION PRINCIPLES: CONSUMER-AUTHORIZED FINANCIAL DATA SHARING AND AGGREGATION 3–5 (2017); CFPB, *Small Business Panel Outline of Proposals*, *supra* note 245.

269 *See supra* note 31 and accompanying text (discussing the FIPPs).

270 *See, e.g.*, 15 U.S.C. § 1681b (stipulating the "permissible purposes" under the FCRA for furnishing consumer report data); Regulation 2016/679, *supra* note 28, art. 5(1) (stating the purpose limitation principle requiring data to be "collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes").

271 12 C.F.R. § 1033.421(a) (2025) (requiring third parties to limit the "collection, use, and retention of covered data to what is reasonably necessary to provide the consumer's requested product or service").

fintechs; it does not apply universally to all data processing in the Open Banking network, including, importantly, data transmission by incumbent FIs to third-party fintechs upon the consumer's request. The latter, broader application is the typical formulation of the data minimization standard under data protection law,[272] and one considered by the Bureau at earlier stages of the rulemaking process.[273]

This is also a welcome move. As discussed earlier, the effects of data processing on consumer welfare are highly contextual and challenging to anticipate in the abstract, particularly from large datasets.[274] More particularly, at the stages of data collection and transmission—for example, between an incumbent FI and a third-party fintech or vice versa—the necessity of, and expected benefits and risks from, future uses of that data are relatively hard to predict. The future inferences that a fintech lender may draw from consumer data, including data shared via Open Banking, how it applies these inferences, and the ultimate effects on consumer welfare, are largely unobservable and unknowable when the incumbent FI collects a consumer's financial data, or a consumer authorizes and the incumbent FI grants the fintech access to that data.[275] Given the high degree of uncertainty at these stages over what data may be "reasonably necessary" to provide a product or service to a consumer,

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272 *See, e.g.*, CAL. CIV. CODE § 1798.100(c) (West 2023) (codifying a data minimization standard requiring a firm's collection, use, retention, and sharing of a consumer's personal information to be "reasonably necessary and proportionate to achieve the purposes for which the personal information was collected or processed, or for another disclosed purpose that is compatible with the context in which the personal information was collected, and not further processed in a manner that is incompatible with those purposes"); Regulation 2016/679, *supra* note 28, art. 5(1) (data minimization principle requiring personal data to be "adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed"). Data processing under the GDPR includes the collection, retention, transmission, and use of data, among other forms of processing. *Id.* art. 4(2) (defining data processing). Note that the CCPA does not apply to the processing of personal data (of California residents) that is subject to the FCRA or GLBA. *See* CAL. CIV. CODE § 1798.145(d)–(e).

273 *See* CFPB, *Small Business Panel Outline of Proposals*, *supra* note 245, at 40–41 (considering proposals for a broader data limitation standard that "would be aimed at reducing the risks of overcollection and retention of sensitive information, including risks associated with breaches of retained information" and noting that this data minimization standard "also would be consistent with various State and International privacy regimes").

274 *See supra* note 152 and accompanying text.

275 *See generally* KNIGHT, *supra* note 37 (distinguishing risk and uncertainty); JONATHAN ZITTRAIN, THE FUTURE OF THE INTERNET—AND HOW TO STOP IT 70 (2008) (defining "generativity" of web and computing systems as the "capacity to produce unanticipated change through unfiltered contributions from broad and varied audiences"); Matthew Salganik et al., *Measuring the Predictability of Life Outcomes with a Scientific Mass Collaboration*, 117 PROC. NAT'L ACAD. SCIS. 8398 (2020) (showing that state-of-the-art ML methods optimized for prediction and trained on a large longitudinal dataset were only slightly more accurate than simple benchmark models at predicting important life outcomes and that the overall accuracy of these models was poor).

and the future welfare effects of the use of that data, a broad, under-specified duty for incumbent FIs to limit data transmission is difficult to enforce.[276] Incumbents will inevitably seek to construe the data limitation standard narrowly to deny third-party fintechs access to consumer financial data unless they can capture the returns from data-driven innovation.[277]

Of course, for the same reasons, third parties could also construe the standard broadly to collect, retain, and use as much consumer financial data as possible, in ways that both benefit and harm consumers.[278] In this regard, the Bureau supplements the data limitation standard with more granular guidance and rules limiting data collection, retention, and, importantly, data use by third parties. For example, the Bureau has established that, for the purposes of the data limitation standard, a "product or service" will be treated as the "core function that the consumer sought in the market and that accrues to the consumer's

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276 *See* Zarsky, *supra* note 34, at 1005–12 (discussing conflicts between the value of big data and the GDPR's purpose limitation and data minimization standards); Lilian Edwards & Michael Veale, *Slave to the Algorithm? Why a 'Right to an Explanation' Is Probably Not the Remedy You Are Looking for*, 16 DUKE L. & TECH. REV. 18, 80 (2017) (arguing that, in practice, firms treat their obligations under data protection law as a box-checking exercise); Lee A. Bygrave, *Minding the Machine v.2.0: The EU General Data Protection Regulation and Automated Decision-Making*, *in* ALGORITHMIC REGULATION 248 (Karen Yeung & Martin Lodge eds., 2019) (discussing weaknesses in regulatory design and enforcement of the GDPR); Aggarwal, *supra* note 103, at 66; Waldman, *supra* note 34 (describing the performativity of data privacy law in practice); Andrew Selbst, *An Institutional View of Algorithmic Impact Assessments*, 35 HARV. J.L. & TECH. 117 (2021) (critiquing the incentives for firms to carry out algorithmic impact assessments); Aislinn Kelly-Lyth, Halefom Abraha & Jeremias Adams-Prassl, *From 'Code' to 'Guidance': Revising the Instrument on Data and Employment*, 51 INDUS. L.J. 744, 745–46 (2022) (finding that between 2018 when the GDPR came into effect in the United Kingdom and 2021, the United Kingdom's data protection authority was approached just seventeen times by data controllers seeking clearance for "high-risk processing" under the GDPR's "Data Protection Impact Assessment" obligation); Awrey & Macey, *supra* note 24 (discussing barriers). For more on the literature on rules versus standards or principles, see, for example, Duncan Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685 (1976); Kathleen M. Sullivan, *The Justices of Rules and Standards*, 106 HARV. L. REV. 22, 57–59 (1992); Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557 (1992); Julia Black, *Forms and Paradoxes of Principles-Based Regulation*, 3 CAP. MKTS. L.J. 425 (2008); *see also* Dan Awrey, *Regulating Financial Innovation: A More Principles-Based Approach?*, 5 BROOK. J. CORP. FIN. & COM. L. 273 (2011) (observing that rules are less agile in the face of rapid financial innovation); Aggarwal, *supra* note 103, at 71 (discussing the challenges of data protection rules).

277 *See* Fracassi & Magnuson, *supra* note 17, at 344 (discussing the incentive problem); Benzell, *supra* note 183, at 3–4 (describing the "inverted firm" model of platforms); Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74799 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) ("Data providers may minimize the data they share or refrain from sharing altogether to protect their market position.").

278 This concern has also been acknowledged by the Bureau. *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74799 ("Motivated by their own self-interest, third parties may use screen scraping to collect more data than they reasonably need.").

benefit."[279] Certain secondary, presumptively harmful data uses—namely, targeted ads, cross-selling, and data sales—are specifically excluded from the category of "reasonably necessary" uses.[280] Additionally, the Rule introduces temporal limits on the duration of data processing. Specifically, third-party collection of consumer data is limited to one year from authorization and requires re-authorization beyond that period.[281] The retention or use of consumer data beyond that period is permitted to the extent "reasonably necessary" to provide the product or service requested by the consumer (defined in terms of core product function and consumer benefit, as noted above).[282]

Lastly, the Rule introduces a requirement that consumer data be shared in a "credential-free" form, i.e., without disclosing a consumer's personal credentials, such as name or social security number.[283] This requirement, which explicitly rules out the use of screen scraping and encourages the use of more secure interfaces, notably credential-free APIs,[284] aims to increase protection for consumer data security and mitigate risks such as identity theft and fraud. But the Rule takes a more technologically specific—and arguably more effective—approach toward safeguarding data security and data accuracy relative to existing data

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279 *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74833 (providing guidance on the interpretation of the "reasonably necessary" standard under the proposed Rule); Required Rulemaking on Personal Financial Data Rights, 89 Fed. Reg. 90838, 90932 (Nov. 18, 2024) (codified at 12 C.F.R. pts. 1001, 1033 (2025)) ("[W]hat constitutes a consumer's requested product or service is informed by context, such as general public understanding of what attributes a given product or service has or how the product or service functions in the market. The third party cannot rely on disclosures to expand the scope of a consumer's requested product or service or use disclosures to create technical loopholes and include any purposes the company chooses."); 12 C.F.R. § 1033.421(c) (providing examples of permitted uses of covered data under § 1033.421(a)).

280 *See* 12 C.F.R. § 1033.421(a)(2) (prohibiting specific uses of covered data); Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74873–74 (defining secondary uses that are considered reasonably necessary, for example, for compliance with laws).

281 *See* 12 C.F.R. § 1033.421(b)(2)–(3).

282 *See id.* § 1033.421(i)(2). *But see infra* Section II.B.3 (critiquing the "reasonably necessary" standard even as it applies only to third parties).

283 *See* 12 C.F.R. § 1033.311(e)(1) (requiring that third party access to consumer data through the data provider's developer interface should not access consumer credentials).

284 *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74800 ("The proposed rule would prevent data providers from relying on screen scraping to comply with the proposal because it is not a viable long-term method of access."); Required Rulemaking on Personal Financial Data Rights, 89 Fed. Reg. at 90876 ("Given the more sensitive nature of other personally identifiable information requested by some commenters, such as SSN, at this time the CFPB is limiting this category [basic account verification information required to be shared by data providers pursuant to the Rule] to name, address, email address, and phone number associated with the covered consumer financial product or service, and, as applicable, account identifier."); 89 Fed. Reg. at 90957–58 (discussing the costs and benefits of requiring adoption of credential-free APIs); *supra* note 182 and accompanying text (discussing APIs).

protection laws like the FCRA or the CCPA. Notably, it establishes specific obligations for covered firms to maintain consumer and developer interfaces that make consumer data available in a machine-readable, standardized, and credential-free form.[285] The Rule also sets de minimis performance and security thresholds, which include the requirement that data access should be credential-free. However, invoking the principle that laws should be technologically neutral to avoid obsolescence, the Rule does not define in further detail the specifications and standards for developer interfaces, deferring instead to industry standard-setting bodies.[286]

More generally, the Rule does not rely on a distinction between sensitive and non-sensitive types of consumer financial data, or data variables, as a mechanism for mitigating data harms—another hallmark of existing data protection laws[287]—and an approach that was mooted by market participants and contemplated by the Bureau in earlier stages of the rulemaking process.[288] As discussed earlier, bright-line rules that try to protect consumers by distinguishing "good" and "bad" data variables or data types are unlikely, by themselves, to be effective in mitigating welfare-diminishing outcomes from consumer data processing, such as unaffordable borrowing. This is particularly true in an environment of big data processing and increasingly sophisticated AI and ML techniques.[289] For the most part, the Rule seeks to enable the portability

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285 *See* 12 C.F.R. § 1033.301(a) (establishing a "[r]equirement to maintain interfaces"); *id.* § 1033.301(b) (establishing a requirement to make available "[m]achine-readable files upon request"); *id.* § 1033.311 (outlining the "[r]equirements applicable to developer interface[s]"); sources cited *supra* note 284.

286 Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74801 ("A rule with very granular coding and data requirements risks becoming obsolete almost immediately . . . ."); *id.* at 74807 (encouraging the development of "fair, open, and inclusive industry standards" and setting out indicia for compliance); *id.* at 74808 ("The proposed rule would be agnostic about what specific technical format a data provider must use . . . ."); *see also* Regulation 2016/679, *supra* note 28, recital 15, art. 2 ("In order to prevent creating a serious risk of circumvention, the protection of natural persons should be technologically neutral and should not depend on the techniques used."); 12 C.F.R. pt. 1033 (establishing minimum attributes a standard-setting body must possess to receive CFPB recognition and issuing consensus standards when the full rule is finalized).

287 *See, e.g.*, Regulation 2016/679, *supra* note 28, art. 9 (establishing stricter limits on processing of sensitive personal data, such as genetic data or data revealing racial and ethnic origin); *supra* note 142 and accompanying text (discussing sensitive data and the FCRA).

288 *See, e.g.*, *CFPB Symposium: Consumer Access to Financial Records*, CFPB (Feb. 1, 2021), https://www.consumerfinance.gov/about-us/events/archive-past-events/cfpb-symposium-consumer-access-financial-records [https://perma.cc/RNC8-QKY4] (contemplating limits on the portability of "sensitive" consumer information).

289 *See supra* notes 144–145 and accompanying text (discussing the use of ML to reconstruct relationships in data even where sensitive variables are masked or anonymized); sources cited *supra* note 276 (regarding rules versus standards or principles).

of a broad range of financial accounts and financial data, which ostensibly includes data revealing sensitive data variables such as gender and race.

3. The Limits of the Open Banking Rule and Personal Data Protection Regulation

By enabling and supporting Open Banking in the ways discussed above, the Open Banking Rule offers to make a relative improvement in the functioning of consumer credit markets. As discussed, Open Banking offers to increase market entry by new fintech participants, increasing innovation and competition, and helping consumers more effectively search and switch to lower-cost, more affordable credit products.[290] There are further measures that the Bureau could adopt to enhance the effectiveness of the Rule, thereby helping to unlock the benefits of Open Banking and mitigate its risks. They include, for example, expanding the scope of data that is subject to section 1033 to increase the symmetry of data sharing in consumer credit and other consumer financial markets, including sharing data to and from data aggregators,[291] clarifying rules for the apportionment of liability between data providers and third parties,[292] and providing further support for the technical standardization process to facilitate consumer financial data portability. Standardization is essential for data and system interoperability.[293] Indeed, Congress envisaged a role for the Bureau in standardizing data formats.[294] Industry standard-setting bodies, such as Financial Data Exchange, are in the process of developing common Open Banking API standards to increase interoperability. This includes the popular "OFX API."[295] But, as the experience of other countries such as the United Kingdom suggests, the

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290 *See supra* Section II.B.1 (discussing the opportunities and risks of Open Banking).

291 *See supra* note 256 and accompanying text (discussing the scope of data that is subject to section 1033 and the exclusion of data aggregators to the extent that they do not provide qualifying financial services or accounts, concerns about concentration, and the Bureau's indicated intention to expand the scope of section 1033 through subsequent rulemaking).

292 *See* OXERA, *supra* note 208, at 2, 18.

293 *See* Awrey & Macey, *supra* note 24, at 11.

294 *See* 12 U.S.C. § 5533(d).

295 *See* Hockney, *supra* note 183. The OFX API has been the dominant API for banks to provide data to financial applications since the 1990s but is being modernized. The OFX consortium is currently made up of data aggregators, such as Plaid, Yodlee, and Finicity, and financial services providers, such as JP Morgan, Intuit, and Wells Fargo. *See OFX Work Group*, FIN. DATA EXCH., https://www.financialdataexchange.org/FDX/FDX/About/OFX-Work-Group.aspx [https://perma.cc/E3TC-NPUD]; *Open Financial Exchange API Specification*, FIN. DATA EXCH., https://www.financialdataexchange.org/FDX/FDX/About/OFX-Work-Group.aspx?a315d1c24e44=2 [https://perma.cc/LCV8-GVV3].

Bureau may need to do more to help coordinate the standardization process.[296]

Even with these further measures, however, there are clear theoretical and empirical limits to the potential effectiveness of the Open Banking Rule in promoting consumer welfare in consumer credit markets. The Rule still retains several bureaucratic, relatively ineffective features of existing data protection laws, particularly the FIPPs. More fundamentally, it largely focuses on regulating data flows, consistent with the traditional logic and approach of data protection law. As stated earlier, and articulated further below, the flow of consumer data is a less effective locus for regulatory intervention in digital consumer credit markets relative to specific uses of that data by firms, for example, in the design and sale of credit products and services.

To begin with, the Rule continues to rely on several of the FIPPs. They include, notably, the requirement for consumers to provide "express informed" consent (i.e., "opt-in" rather than "opt-out" consent) to authorize third-party data access,[297] corollary rights for consumers to withdraw consent for data use from third parties (but not from incumbent FI data providers),[298] duties for data providers to disclose information about themselves and their developer interfaces,[299] and duties for third parties accessing data to disclose the terms of authorization for data access.[300] The Rule also requires third parties to delete the consumers' data upon revocation of authorization,[301] similar in

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296 *See, e.g.*, OXERA, *supra* note 208, at 24 (discussing the importance of standard-setting for a well-functioning Open Banking system); OPEN BANKING, https://standards.openbanking.org.uk [https://perma.cc/989Z-KCCY] (stating that the U.K. Open Banking standard developed by Open Banking Limited, the government-mandated Open Banking implementation entity); Awrey & Macey, *supra* note 24, at 19–21 (discussing the Bureau's deference to industry standard-setting bodies). *But see* Required Rulemaking on Personal Financial Data Rights; Industry Standard-Setting, 89 Fed. Reg. 49084 (codified at 12 C.F.R. pt. 1033 (2025)) (establishing minimum attributes for standard-setting bodies); 12 C.F.R. pt. 1033; OXERA, *supra* note 208, at 14–20 (identifying ongoing challenges in implementing Open Banking in the United Kingdom, despite well-defined standards and a standard-setting entity and process).

297 12 C.F.R. § 1033.401(c). This is the enhanced standard of consent found under recent data privacy laws like the GDPR and CCPA. *See supra* note 32 and accompanying text; Michael E. Staten & Fred H. Cate, *The Impact of Opt-in Privacy Rules on Retail Credit Markets: A Case Study of MBNA*, 52 DUKE L.J. 745, 760–69 (2003) (discussing opt-in and opt-out privacy regimes).

298 12 C.F.R. § 1033.421(h) (obligation for third parties to make available a mechanism for consumers to revoke third-party authorization).

299 *Id.* § 1033.341.

300 *Id.* §§ 1033.401, 1033.411.

301 *Id.* § 1033.421(a) (requiring authorized third parties to delete covered data when retaining it is no longer reasonably necessary to provide the consumer's requested product or service); *id.* § 1033.421(h)–(i) (requiring third parties to provide a method for consumers to revoke their authorization to access consumer's covered data, and to delete data when required due to revoked

effect to the right to data deletion under data protection and data privacy laws like the GDPR,[302] CCPA,[303] and, to a more limited extent, the FCRA.[304]

The potential effectiveness of these features is, however, limited. As discussed above, due to ignorance and irrationality, consumers are often unable to process information disclosures rationally and exercise their Open Banking rights in ways that will avoid harmful outcomes, such as unaffordable borrowing.[305] More myopic consumers could either fail to exercise their data portability rights altogether or exercise them in a way that is unfavorable, i.e., "search and switch" to firms that deliver unfavorable outcomes, such as unaffordable credit.[306] Some consumers could experience an increase in the cost of credit, and loss of welfare, due to the revelation of previously hidden negative characteristics.[307] Other consumers may experience a relative reduction in the cost of credit due to Open Banking. But this does not necessarily imply that credit will be affordable in absolute terms. Even in a competitive equilibrium, firms can still lend, and consumers can still borrow, on high-cost, unaffordable terms.[308]

There are, similarly, limits to the likely effectiveness of the Rule's data limitation standard, even as it applies more parsimoniously to third parties.[309] Whereas incumbent FIs have strong private incentives to construe this standard narrowly and deny data access, third parties have strong private incentives to construe this standard broadly and collect, retain, and use as much consumer financial data as possible.[310] Although the Bureau partly mitigates these concerns by providing more detailed guidance on the interpretation of the data limitation standard, and more

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authorizations, lapsed authorization after maximum durational periods ending, unless retention and use of the data remains reasonably necessary to provide the consumer's requested product or service).

302 *See* Regulation 2016/679, *supra* note 28, recital 75, art. 17 (promulgating the right to data erasure, also known as the "right to be forgotten").

303 *See* CAL. CIV. CODE § 1798.105 (West 2023) (establishing consumers' right to delete their personal information).

304 *See supra* note 127 and accompanying text (discussing consumers' right to challenge and request deletion of inaccurate data in their credit files).

305 *See supra* note 74 and accompanying text (discussing the behavioral biases that influence consumer decision-making).

306 *See supra* note 229 and accompanying text; *supra* Section II.B.2.a.

307 *See supra* note 212 and accompanying text.

308 *See supra* note 63, 209 and accompanying text.

309 *See supra* note 271 and accompanying text.

310 *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74799 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033).

granular rules limiting presumptively harmful secondary data uses,[311] even these rules and guidance may be unable to satisfactorily mitigate harmful uses of consumer financial data and enable beneficial ones. To illustrate, the collection and use of a consumer's cash flow data to assess their creditworthiness and sell high-cost or unaffordable credit products could conceivably meet the "core function" and "benefit" conditions of the data limitation standard, as specified under the Rule.[312] But this is not necessarily a beneficial and desirable outcome for consumers and credit markets, at least beyond the short term.[313] Conversely, the more precautionary categorical prohibitions on presumptively harmful secondary uses may themselves be overinclusive, preventing not only harmful secondary uses of consumer data but also beneficial ones, including targeted advertising.[314] Thus, while the data limitation standard as it applies to data use could go part of the way to mitigating welfare-diminishing uses of consumer financial data, including unaffordable lending—and is thus more consistent with the regulatory and conceptual move advocated for in this Article—it is still too blunt to discriminate effectively between beneficial and harmful data uses. These constraints are, fundamentally, a function of the focus on consumer data per se as the unit of regulatory analysis and locus of balancing in consumer fintech markets, rather than actual uses of consumer data, and their real and expected effects on consumer welfare.

Finally, to safeguard data security in the Open Banking network, the Rule extends the GLBA Safeguards Framework (for data providers and third parties that are FIs under the GLBA) and the FTC's Safeguards Rule (for other data providers and third parties).[315] To safeguard data accuracy,

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311 *See supra* notes 279–280 and accompanying text; *see also* Black, *supra* note 276, at 425 (observing that, to be effective, "principles-based" regulation needs to be accompanied by effective regulatory guidance); Aggarwal, *supra* note 103, at 67.

312 *See* FINREGLAB, *supra* note 195 (discussing the use of cash flow data in credit underwriting).

313 *See supra* Section I.A (discussing credit affordability).

314 *See* Aggarwal & Floridi, *supra* note 103 (discussing the dual-use nature of data processing); Zittrain, *supra* note 40 (arguing for information fiduciary duties partly based on the dual potential benefits and harms from data processing); *see also* COLLINGRIDGE, *supra* note 36 (discussing temporal challenges in regulating emerging technology).

315 12 C.F.R. § 1033.311(d)(2) (2025) (requiring data providers to apply to the developer interface an information security program that satisfies the requirements of the GLBA safeguards framework); *id.* § 1033.421(e) (requiring third parties to apply an information security program that satisfies the GLBA safeguards requirements); *id.* § 1033.321 (permitting data providers to deny third parties access to consumer data if they do not maintain adequate data security). Of course, many data providers and third parties are already subject to these frameworks. Note that data providers also have a general obligation to avoid inadequate data security measures under the prohibition on unfair, deceptive, or abusive acts or practices ("UDAAP"). *See* Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. at 74818–19; CFPB, CONSUMER

the Rule requires data providers and third parties to maintain policies and procedures "reasonably designed to ensure the accuracy of covered data made available."[316] As discussed, however, the effectiveness of these features in safeguarding data security and accuracy, and protecting consumers from harm in consumer financial markets is limited. Although the more technological approach to safeguarding data accuracy and security under the Rule may be able to partly compensate for these weaknesses, by expanding the bureaucratic compliance burden for firms to draft privacy and security policies and notices, the Rule also risks favoring larger firms and impeding competition.[317]

CONCLUSION

The Open Banking Rule marks the start of a desirable move in the logic, methods and focus of personal data protection regulation and consumer credit market regulation. This is a move away from trying to balance the expected costs and benefits of consumer data processing at the level of the data itself, including by categorically limiting the flow of certain types of data prior to its use in the design and sale of credit products and services. And it is a move toward promoting consumer welfare by enabling greater consumer-directed flow of financial data, mandating the development and adoption of technologies for more secure and accurate data processing, and shifting regulatory focus toward controlling the use of that data by financial firms. By partly embodying this move, the Rule, and Open Banking, collectively offer to make a relative improvement in the functioning of consumer credit markets, inter alia, by enabling market entry by new participants and helping consumers to more effectively search and switch to lower-cost, more affordable credit products.

While this progress should be welcomed, it is clearly bounded. As with the FCRA and other information laws, the limited potential of the Open Banking Rule is rooted in its primary focus on regulating the flow of data, and the relative ineffectiveness and suboptimality of locating consumer financial regulation at the level of personal data itself, rather than the use of that data by firms—data use, and digital financial products

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FINANCIAL PROTECTION CIRCULAR 1 (2022), https://files.consumerfinance.gov/f/documents/cfpb_2022-04_circular_2022-08.pdf [https://perma.cc/5HBD-B93N] (confirming that inadequate information security can constitute a UDAAP violation and summarizing recent precedents).

316 12 C.F.R. § 1033.351(c) (describing data accuracy obligations for data providers); *id.* § 1033.421(d) (describing data accuracy obligations for authorized third parties).

317 *See supra* note 169 and accompanying text.

and services, being the more effective locus for discriminating between substantive, welfare-enhancing and welfare-diminishing market outcomes. As this Article shows, some consumers may not enjoy any improvement in their terms of credit access through Open Banking—either because they fail to effectively exercise their data portability rights, or because they are more likely to be exploited by unscrupulous lenders. Even if they obtain lower credit costs, this does not necessarily imply that credit is affordable, i.e., that the borrower can repay the debt sustainably, without experiencing financial or nonfinancial distress. Some consumers could even experience an increase in the cost of credit and loss of welfare due to Open Banking and fintech more broadly.

Resolving extant inefficiency and inequity in consumer credit markets and further improving market functioning will require interventions that lie beyond the scope of personal data regulation, and, specifically, regulation of data flows. These interventions must target the supply of, and demand for, unaffordable, welfare-diminishing digital financial products that use consumer data. While a detailed examination of these interventions is beyond the scope of this Article, they must include, inter alia, more comprehensive regulation of the affordability of credit products and services, and thus how lenders use consumer data.[318] To that end, the Bureau should more actively exercise its authority, under section 1031 of the Dodd-Frank Act, to identify and prevent unfair, deceptive, or abusive acts or practices in fintech markets, including unaffordable lending.[319] New rules could extend the existing obligations of credit firms to assess a borrower's "ability to pay" beyond qualified mortgages and credit cards, and require more lenders to assess credit affordability and validate the accuracy of credit decisioning models on an ongoing basis.[320] The Bureau should also bring larger participants of the data aggregation market within its supervisory perimeter, in addition to

318 Further reforms could also come from credit discrimination law. *See generally* Gillis, *supra* note 110.

319 12 U.S.C. § 5531; Exec. Order No. 14,036, § 5(t)(ii), 86 Fed. Reg. 36987, 36998 (July 14, 2021) (encouraging the Director of the CFPB to consider exercising its UDAAP authority under section 1031); Adam Levitin, "Abusive" Acts and Practices: Towards a Definition? (June 19, 2019) (unpublished manuscript), https://files.consumerfinance.gov/f/documents/cfpb_levitin-written-statement_symposium-abusive.pdf [https://perma.cc/674C-7SEB] (advocating against a definitional rulemaking of the "abusive" standard under section 1031 and favoring definition through enforcement/common law process).

320 *See, e.g.*, 15 U.S.C. § 1639(c) (governing the ability to pay requirement for qualified mortgages); 12 C.F.R. § 1026.51(a) (2025) (requiring credit card issuers to assess consumers' "ability to pay" before opening an open-end credit card account or increasing any credit limit applicable to that account); *see also supra* note 56 and accompanying text.

large nonbank payments services fintechs.[321] These more substantive interventions could, however, face political hurdles.[322]

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321 *See supra* notes 33, 221 and accompanying text; Letter from Am. Bankers Ass'n et al., to Hon. Rohit Chopra, Director, CFPB, Regarding Petition for Rulemaking Defining Larger Participants of the Aggregation Services Market 5–7 (Aug. 2, 2022), https://www.aba.com/advocacy/policy-analysis/defining-larger-participants-aggregation-services [https://perma.cc/8PZW-2H5Z] (citing other organizations making a similar request in their responses to the section 1033 advance notice of proposed rulemaking); Awrey & Macey, *supra* note 24 (endorsing a larger participant rule for data aggregators). However, for the reasons discussed in this Article, bringing data aggregators within the scope of the FCRA as CRAs, as some have advocated, would not be the most effective way of improving the functioning of consumer credit markets. *See, e.g.*, Consumer Access to Financial Records, 85 Fed. Reg. 71003, 71008 (proposed Nov. 6, 2020) (asking whether data aggregators are CRAs); Request for Information Regarding Data Brokers and Other Business Practices Involving the Collection and Sale of Consumer Information, 88 Fed. Reg. 16951, 16952 (Mar. 21, 2023) ("Many companies whose business models rely on newer technologies and novel methods purport not to be covered by the FCRA."). On technical grounds alone, financial data aggregators are conduits and do not generally "assemble" or "evaluate" consumer data for the purposes of meeting the definition of CRAs under the FCRA. *See* FTC, 40 YEARS OF EXPERIENCE WITH THE FAIR CREDIT REPORTING ACT 29 (2011), https://www.ftc.gov/sites/default/files/documents/reports/40-years-experience-fair-credit-reporting-act-ftc-staff-report-summary-interpretations/110720fcrareport.pdf [https://perma.cc/9UGV-R6D3] (discussing conduit functions); Required Rulemaking on Personal Financial Data Rights, 88 Fed. Reg. 74796, 74801 (proposed Oct. 31, 2023) (to be codified at 12 C.F.R. pts. 1001, 1033) (noting that if a data aggregator carries out the FCRA-defined activity of credit reporting, it is regulated as a CRA under the FCRA); *see also* Zabriskie v. Fed. Nat'l Mortg. Ass'n, 912 F.3d 1192 (9th Cir. 2019) (determining that Fannie Mae is not a CRA). *But see* Pauline Kim & Erika Hanson, *People Analytics and the Regulation of Information Under the Fair Credit Reporting Act*, 61 ST. LOUIS U. L.J. 17, 28–30 (2016) (discussing other courts reaching a different conclusion).

322 *See, e.g.*, Megan Leonhardt, *Trump Administration Rolls Back Payday Loan Protections, Which Could Affect Millions of Young People*, CNBC (Feb. 6, 2019, 5:22 PM), https://www.cnbc.com/2019/02/06/trump-administration-rolls-back-payday-loan-protections.html [https://perma.cc/EKQ4-NTYG]; Payday Lending Rule, 12 C.F.R. pt. 1041 (2020) (identifying as unfair and abusive the practice of making or increasing the credit available under covered short-term loans or covered longer-term balloon payment loans without reasonably determining that consumers have the ability to repay the loans according to their terms); *see also supra* note 50 and accompanying text (discussing political impediments to structural interventions).