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SMART CONTRACTS AND THE ILLUSION OF AUTOMATED ENFORCEMENT

Danielle D’Onfro*

ABSTRACT

Proponents of so-called “smart contracts” have suggested that these innovations could be deployed in the consumer finance space, providing automated enforcement that would lessen—if not eliminate—the need for judicial remedies. But as this essay explores, there are three significant barriers to deploying smart contracts in the consumer finance context: consumer behavior, existing consumer protection laws, and the businesses whose own collection efforts would be hindered by competing creditors with access to automated remedies. These three barriers render perfectly automated enforcement all but impossible. Nevertheless, existing consumer protection law may accommodate smart contracts where the “smart” features of the contract can be swiftly turned off. But providing any such “off switch” may render these contracts only marginally more efficient than traditional contracts and they may still face opposition from consumers and third parties.

INTRODUCTION

Smart contracts constitute one of the most promising but least understood corners of fintech. In their early days, the core idea of smart contracts was that “many kinds of contractual clauses . . . can be embedded in the hardware and software we deal with, in such a way as to make breach of contract

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expensive (if desired, sometimes prohibitively so) for the breacher.”¹ They were meant to be self-executing and self-enforcing agreements.² Today, the definition of smart contract remains in flux as the technology, and concept, matures.³ In their simplest form, smart contracts look like vending machines: money goes in, product comes out with no third-party intermediation.⁴ Few applications are quite so simple. As J.G. Allen explains, many applications of smart contracts consist of “‘smart’ performance mechanisms ‘wrapped’ in a conventional contractual framework” and therefore conventional contract law.⁵ Automation is what makes the performance mechanism “smart” and this automation may extend through the enforcement mechanisms as well.⁶ At the vanguard, smart contracts are the core of cryptocurrency and tokens. Here, a significant part of the contract is the code itself.⁷ Their more immediate potential lies in less fanciful applications, for example, electronic payment systems. And if smart contracts can be used in the consumer finance space, they may mitigate the power imbalance in consumer finance by re-empowering consumers in contract negotiation.⁸ That is, smart elements may overtake even the front end of contracting—negotiations. But that technology is not yet ripe for widespread use.

In the consumer finance space, the innovative potential of smart contracts has remained focused on automation of performance and enforcement. But even in this limited form, there are significant barriers to deploying smart contracts in consumer finance: the humans themselves, existing consumer protection laws, and businesses that have financial contracts with consumers but cannot deploy smart contracts. While small adjustments to existing consumer protection laws could unleash consumer smart contracts, it is

1. Nick Szabo, *Smart Contracts: Building Blocks for Digital Markets* (1996), http://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinte-school2006/szabo.best.vwh.net/smart_contracts_2.html [<https://perma.cc/U581-94GS>].

2. Lauren Henry Scholz, *Algorithmic Contracts*, 20 STAN. TECH. L. REV. 128, 147 (2017).

3. J.G. Allen, *Wrapped and Stacked: 'Smart Contracts' and the Interaction of Natural and Formal Language*, 14 EURO REV. CONTRACT L. 307, 312 (2018).

4. *Id.*; Jonathan G. Rohr, *Smart Contracts and Traditional Contract Law, or: The Law of the Vending Machine*, 67 CLEV. ST. L. REV. 71, 79 (2019); Szabo, *supra* note 1.

5. Allen, *supra* note 3 at 310, 313-314.

6. *Id.* at 313.

7. *Id.*

8. Joshua A.T. Fairfield, *Smart Contracts, Bitcoin Bots, and Consumer Protection*, 71 WASH. & LEE L. REV. ONLINE 35, 44-46 (2014).

neither clear that the benefits outweigh the risks nor that the political will to make these changes will exist in the near future. Moreover, compliance costs might quickly overrun the automation efficiencies of smart contracts.

This Essay roughly sketches these external barriers to deploying smart contracts in the consumer finance space. Its aim is to encourage those developing consumer applications for smart contracts to think about the complexities of working with consumers early in the design process. My hope is that any product designed with compliance in mind is more likely to achieve meaningful compliance with consumer protection laws. Until smart contracts develop efficient methods for accommodating complex and customer-specific compliance obligations, their widespread deployment in consumer finance will remain a mere thought experiment.

This Essay proceeds in four parts. It begins by briefly describing the potential role of smart contracts in the consumer finance space. It then describes how and why automated enforcement may be incompatible with consumer behavior. Next, it explores how a variety of consumer protection laws, most notably consumer bankruptcy law, render automated enforcement all but impossible. Finally, it explains why other businesses in the consumer finance space that cannot themselves deploy smart contracts may oppose any modifications to existing consumer protection laws facilitating automatic enforcement.

I. THE PROMISE OF AUTOMATION IN CONSUMER FINANCIAL CONTRACTS

The lifecycle of most contracts follows a few predictable stages: First, there is marketing to induce consumers to enter into the contract. Marketing makes certain terms especially visible to consumers.⁹ If consumers like the terms they see, they will consent to various obligations in exchange for some good or service. As commentators have noted for half a century, most consumer contracts—and therefore most contracts—are not the dickered agreements between equals that comprise most of a first-year contracts

9. Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203 (2003).

class.¹⁰ Instead, they are mostly standardized and preprinted forms that consumers must choose as a condition of purchasing a good or service.¹¹ Consumers rarely have the opportunity to customize these contracts to meet their needs.¹² Pressing need for particular goods or services may even make marketing irrelevant in certain contexts. While there is some hope that smart contracts will reintroduce bargaining into consumer contracts,¹³ the most likely scenario in the short term is that smart contracts will incorporate company-friendly features like automated enforcement well before they incorporate consumer preferences.¹⁴

Next, there is the performance of the contract—the actual exchange between the consumer and the company. Performance is the last step for many contracts, but when something does not go as planned, enforcement and collection follow.

This Essay focuses on consumer financial contracts from performance through enforcement and collection. Collectively, I call this second part of a contract's life “servicing.”¹⁵ Servicing, to borrow a term from mortgage

10. See, e.g., W. David Slawson, *Standard Form Contracts and Democratic Control of Lawmaking Power*, 84 HARV. L. REV. 529, 529 (1971) (“Standard form contracts probably account for more than ninety-nine percent of all the contracts now made.”), Margaret Jane Radin, *Boilerplate Today: The Rise of Modularity and the Waning of Consent Boilerplate: Foundations of Market Contracts*, 104 MICH. L. REV. 1223, 1230 (2006) (explaining that contract terms “become part of the product, which is a unified set of disparate features: a battery, a forum selection clause, a microprocessor”), and Oren Bar-Gill & Kevin Davis, *Empty Promises*, 84 S. CAL. L. REV. 1, 19 (2010) (explaining how unilateral modification rights tend to allow firms to propose changes that “increase their profits, regardless of the adverse consequences to consumers.”).

11. Korobkin, *supra* note 9, at 1204; Friedrich Kessler, *Contracts of Adhesion—Some Thoughts about Freedom of Contract*, 43 COLUM. L. REV. 629, 632 (1943).

12. Kessler, *supra* note 11, at 632.

13. Fairfield, *supra* note 8, at 44.

14. There is a rich literature cataloguing how consumer contract innovation has made contracts less friendly to consumers over time. See David Horton, *The Shadow Terms: Contract Procedure and Unilateral Amendments*, 57 UCLA L. REV. 605, 619–45 (2010) (providing a detailed history of the development and dissemination of arbitration clauses after Bank of America began the trend of unilateral, post-formation contract amendment); Bill Maurer, *Late to the Party: Debt and Data*, 20 SOC. ANTHROPOLOGY 474 (2012) (finding that consumer contracts—such as retail sales agreements—have become systemically more business-friendly over time); Florencia Marotta-Wurgler & Robert Taylor, *Set in Stone? Change and Innovation in Consumer Standard-Form Contracts*, 88 N.Y.U. L. REV. 240, 244 (2013) (finding that, between 2003 and 2010, arbitration clauses became standard in end-user license agreements).

15. For a comprehensive explanation of servicing in the home mortgage context, see CHRISTOPHER K. ODINET, *FORECLOSED: MORTGAGE SERVICING AND THE HIDDEN ARCHITECTURE OF HOMEOWNERSHIP IN AMERICA* 40–47 (2019).

lending, encompasses billing, payment processing, and collection.¹⁶ It is firm-side performance of the financial portion of a contract whose primary subject may or may not be financial.

Servicing is typically not the product that the consumer believed themselves to be purchasing. As a result, particularly terrible servicing can impact a firm's reputation over time, but it's not clear that particularly good servicing offers any reputational advantage. Some of the worst servicing practices occur around default. Few consumers imagine that they are going to default on their contracts; therefore enforcement and collection provisions are not salient to them when they decide which contracts to form. Even if consumers are aware of their own risk of default, it is not obvious that they should choose their financial contracts based on enforcement and collection provisions instead of the provisions that directly bear on their risk of default. Servicing, then, is rarely subject to ameliorative market pressures. Instead, it is always a cost to be managed. It all but begs for automation.

For many consumers, the myriad of contracts into which they enter every day ceases to be relevant almost as soon as they form the contract. As with the aforementioned vending machine, performance is nearly instantaneous. These consumers receive their desired product or service nearly simultaneously with formation and then have no need for ongoing interactions with the firm. That these consumers have no say over the servicing of the contract may not matter because they have no ongoing relationship with their counterparty.

But when servicing extends over months and even years, the relationship between the consumer and the company may matter more. In financial contracts, consumers perform their contractual obligations by making payments. Some secured debt contracts entail additional obligations aimed at protecting the firm's collateral. Occasionally, consumers may have other ongoing obligations to the firm, but few, if any, of these obligations are as important as making right-sized, on-time, payments. Even under the best economic conditions, time creates opportunities for complexities to arise in this ostensibly simple relationship.¹⁷

16. Adam J. Levitin & Tara Twomey, *Mortgage Servicing*, 28 YALE J. ON REG. 1, 3 (2011).

17. See generally Richard A. Posner, *Let Us Never Blame a Contract Breaker*, 107 MICH. L. REV. 1349 (2009) (exploring how innocent parties breach contracts and the morality of their breach).

Firm-side performance is even more complicated. Consider payment processing. Companies wishing to automate their payment processing systems will need to constrain customers' payment options to those that work with their software. Although online transactions are becoming more common, no small number of consumers still makes payments by check or in cash. Looking at payments mailed by check reveals a labor-intensive process that is difficult to automate. Employees have to open envelopes, look for any special processing instructions in the envelope or on the check,¹⁸ decipher handwriting, match checks to accounts, cash the checks, then apply the payment against the account—accommodating special instructions, if any. Firms can simplify their processes by requiring consumers to make payments online but, as I will discuss below, they cannot entirely eliminate their capacity to process checks.

Fortunately for firms, it is possible to mostly automate the payment application step. Most borrowers pay on time according to standardized contract terms that remain consistent across several, or even all, payments during the lifetime of the contract. Unfortunately, the segment of payments that does not qualify to simple automation is almost infinitely complicated. The opportunities for complexity are boundless but a few examples are illuminating: a customer in bankruptcy may be required to make payments through a trustee who will pass along payments only intermittently and only by check,¹⁹ a deceased customer may have heirs who are entitled to assume the contract but who lack simple things like account passwords to continue making uninterrupted payments.²⁰ These more difficult payments are not rare, even if they are a usually small proportion of payments overall.

Finally, enforcement is one of the least efficient steps in many contracts because it often requires the intervention of lawyers along with some combination of mediators, arbitrators, or courts. Each of these additional parties increases time and transaction costs while potentially reducing the

18. For example, a customer on an installment plan may overpay to reduce their interest burden or even pay off the account early. Assuming that the terms of their contract permit prepayment, the firm must figure out how to apply the extra money according to both the terms of the contract and the customer's instructions. This may occasionally require additional communication with the customer, and with that, additional labor and complexity.

19. See *infra* Section III.B.

20. Ron Lieber, *A Shocking Death, a Financial Lesson and Help for Others*, N.Y. TIMES (Jan 11, 2013), <https://www.nytimes.com/2013/01/12/your-money/estate-planning/shell-tell-you-its-time-to-think-ahead.html> [<https://perma.cc/NRY8-LY8T>].

predictability of both the disputed contract and future contracts. In all its forms, enforcement typically involves significant labor costs in addition to court costs and other litigation expenses.

The inefficiencies of enforcement are particularly pronounced in consumer contracts where the expected return for either party is often dwarfed by fixed enforcement costs. Consider a consumer who owes an auto-lender \$3,000 for her car. If she fails to make a payment, the labor and compliance costs of reminding her about the payment, repossessing the car, and then selling the car to a new buyer, may quickly consume the lender's expected return on the contract. If the lender needs to go to court before repossessing the car, its expected return on its collection efforts will be less still. If the lender's compliance processes fail to keep its efforts aligned with a matrix of local, state, and federal consumer protection laws, fines and other regulatory action may further reduce its return.

Because enforcement is so inefficient, it is ripe for technological innovations. These innovations typically attempt to automate processes to reduce labor and compliance costs.²¹ At our hypothetical auto-lender, any employees calling the borrower would likely follow a script on their computer with pop-ups and other flags for key regulatory requirements. The auto-lender might even prefer robocalls because they cannot go off-script. An additional layer of software might ensure that calls only occur during regulatorily permissible hours and at permissible intervals. But there are still the issues of getting the car back from the consumer and dealing with any litigation that may occur. Those steps require people.

Companies that contract with consumers for post-paid²² utilities, goods, and services all face some compliance and labor costs. Although these companies may not think of lending as their primary business, in economic terms they are lenders: they give the consumer something of value and are a creditor of the consumer until the consumer pays their bill. If the consumer fails to pay, the creditor must either write off the debt or incur collection and enforcement costs attempting to avoid the write-down. For example,

21. See generally, Jeremy M. Sklaroff, *Smart Contracts and the Cost of Inflexibility*, 166 U. PA. L. REV. 263 (2017) (describing how technological innovation in contacting attempts to overcome perceived inefficiencies).

22. "Post-paid" refers to the order in which the consumer and the firm perform their contractual obligations. If the firm performs first and then bills the consumer, the contract is called "post-paid." If the consumer pays the firm and only then the firm performs, then the contract is "pre-paid."

gas companies need people or technology to recover late payments and often need humans on the ground if it intends to shut off service. And even if they are contractually entitled to cut service, most states constrain when they may do so in especially hot or cold weather and for vulnerable populations.²³ Some lenders, like credit card companies, may face fewer humans-on-the-ground costs if they merely want to stop extending credit to a consumer, but if they want to garnish their former customers' wages, they face complex consumer protection laws.

In sum, enforcing consumer contracts is labor-intensive. Because debt collection is so heavily regulated, it is a detailed process in which any one misstep can create material legal risk.²⁴ This risk comes from regulators and plaintiffs' lawyers alike.²⁵

Smart contracts are one solution to the inefficiencies of enforcing consumer contracts. They seek to reduce friction—the opportunities for delay and error—in the enforcement and collection processes. The dominant theme emerging in the literature is the removal of intermediaries such as traditional financial institutions.²⁶ As Joshua Fairfield explains, “[i]f financial transactions can be freed of banks as intermediaries, then contracts can be freed of courts as intermediaries.”²⁷ The prototypical example here is of a car with an ignition interrupter that prevents it from starting when the consumer misses payments.

In sum, one form of smart contract is a technological attempt to get the self-help rights that contract parties, especially creditors, have long wanted.²⁸ The problem is that there are many good reasons why private law

23. For example, Missouri's Cold Weather Rule bars utilities from disconnecting service when the weather is forecast to be under 32 degrees in the next 24 hours and includes additional protections for older adults and disabled individuals. MO. CODE REGS. ANN. tit. 4, § 240-13.055. Similar policies exist in most states. See Low-Income Home Energy Assistance Program (LIHEAP), *State Disconnection Policies*, LIHEAP CLEARINGHOUSE, <https://liheapch.acf.hhs.gov/Disconnect/disconnect.htm> [https://perma.cc/F4KS-N7DG].

24. See *infra* Section III.B.

25. See *infra* Section III.B.

26. Fairfield, *supra* note 8, at 38; see also Szabo, *supra* note 1 (envisioning smart contracts as a potential solution for jurisdictional concerns).

27. Fairfield, *supra* note 8, at 39.

28. Some commentators have questioned whether the contracts underlying startup interrupters and vending machines are better conceived of as “contractware” instead of as truly smart contracts. See Allen, *supra* note 3 at 313-316; see also Max Raskin, *The Law and Legality of Smart Contracts*, 1 GEO. L. TECH. REV. 305, 309-320 (2017) (tracing the definition of smart contracts).

rarely allows self-help and these reasons do not disappear merely because the self-help mechanism is “smart.” That is, the mechanism for removing intermediaries and courts does not matter when those intermediaries and courts reflect conscious policy choices that promote both consumer protection and fairness among creditors.

Furthermore, much of the friction introduced by these intermediaries and courts is mandatory because it reflects a pro-consumer policy.²⁹ As such, it is difficult to see the political case for reducing, much less eliminating, this friction. This is not to say that the current levels of friction are optimal, but rather to say that no one has yet made a persuasive argument for eliminating this friction.

II. THE IRREDUCIBLE HUMANS OF CONSUMER CONTRACTS

The main source of the friction in consumer contracts is the consumers themselves. Both consumers and regulators expect contract counterparties in consumer financial contracts to be humans. This assumption implies that consumers and regulators expect the parties to be imperfect and then expect flexibility around those imperfections.³⁰ There is no reason to think that this expectation can or should change. After all, smart contracts may make certain interactions between parties more efficient by reducing the role of humans in the relationship, but they cannot make consumers less human.

The essential problem here is that no one actually wants perfect enforcement of contracts,³¹ especially not consumer financial contracts.

29. See *infra* Section III.B.

30. One vivid manifestation of this phenomenon is the debate around home mortgage modifications following the Great Recession. Putting aside cases in which there were allegations of lender misbehavior, there were widespread demand for consumer relief even where there could be little dispute that many borrowers had breached their contractual obligations. See e.g., Peter S. Goodman, *U.S. Will Push Mortgage Firms to Reduce More Loan Payments*, N.Y. TIMES (November 28, 2009), <https://www.nytimes.com/2009/11/29/business/economy/29modify.html> [<https://perma.cc/SA2K-9KG7>] (explaining that officials in the Obama administration were pressuring mortgage companies to do more to help struggling borrowers); Deborah Solomon and Robin Sidel, *Treasury Looks to Aid “Underwater” Mortgages*, WALL ST. J. (February 14, 2009), <https://www.wsj.com/articles/SB123457111387586375> [<https://perma.cc/2V67-VVMD>] (explaining that the Treasury Department was considering ten different proposals to aid borrowers).

31. See generally Irma S. Russell, *Reinventing the Deal: A Sequential Approach to Analyzing Claims for Enforcement of Modified Sales Contracts*, 53 FLA. L. REV. 49 (2001) (analyzing when efforts to modify a contract should in fact supersede the original terms).

Consumers want some flexibility around breach—wobble room before breach leads to enforcement.³² They want exceptions when circumstances beyond their control put them in breach of their contracts. Many companies want to be able to make these exceptions for several reasons, not the least of which is to avoid the kind of bad media coverage that makes them seem heartless and even evil. Without flexibility in how they enforce individual contracts, companies court more intrusive regulation of their business if their practices generate sufficient bad media coverage or calls for intervention.

The reasons consumers occasionally want flexibility in enforcement are obvious. Even the most responsible consumer will occasionally face unavoidable obstacles to making timely payments. Back when consumers made payments by check, postal delays and bad weather might occasionally delay a payment. Now, internet and power outages sometimes prevent consumers from meeting their commitments on time. And of course, there is always the risk that some error either at the consumer's financial institution or at the company receiving the payment will derail an otherwise timely payment. In any of these cases, the consumer might contact customer service and seek a forbearance. Depending on the situation, they may expect to receive a forbearance and attempt to punish the company by publicizing their situation or contacting regulators if they do not receive it. In other words, failing to meet customer expectations for flexibility in enforcement may increase a company's reputational and regulatory risk.³³

The reasons companies might want flexibility in enforcement are more nuanced. Flexibility may be good for business insofar as it is an opportunity to distinguish themselves from their peers or to build customer loyalty. But the whole point of smart contracts is that there are not humans on both sides of the contract, meaning that there is no one on the company side to exercise the kind of discretion consumers sometimes seek. Smart contracts could

32. These calls from consumers to customer service are functionally the same as out-of-court negotiations that occur when sophisticated contracting parties have a dispute. Since it is mutually preferable and more efficient to handle many disputes informally, contracting parties bring comparatively few disputes to court. Scholz, *supra* note 2, at 149.

33. One way for unmet customer expectations to increase regulatory oversight is through public customer complaint systems. See Ian Ayres, Jeff Lingwall & Sonia Steinway, *Skeletons in the Database: An Early Analysis of the CFPB's Consumer Complaints*, 19 *FORDHAM J. CORP. & FIN. L.* 343, 351-52 (2014).

allow for some kind of enforcement override, but this kind of feature adds complexity and risk to the technology.³⁴ Returning to the example of the car with an ignition interrupter, imagine the wrath of a customer who cannot make an online payment due to a power outage, who receives assurances that their car will start tomorrow but nevertheless finds their car disabled because the customer service agent making the assurance could not or did not override the automatic enforcement in time. The potential for complexity in any individual's life makes perfectly automated enforcement unappealing.

III. THE ILLUSION OF PERFECT ENFORCEABILITY

The previous section explained why consumer behavior is unlikely to support full automation. This section explores the risks that come with attempts to automate despite human behavior.

A. Reputation Risk

The case of the ignition interrupter is one of many scenarios in which automated enforcement may increase a contract's reputational risk to a company. A company using smart contracts may suffer reputational consequences if the automated enforcement kicks in when the consumer is especially vulnerable, even if the terms of the contract allow enforcement at that moment. The potential examples here are legion but the ignition interrupter example is plenty illuminating. Imagine that the consumer believes that she made the payment and now finds herself in labor with a car that won't start. The cable news coverage writes itself.

The same is potentially true for the smart TV that won't turn on without payment. Imagine a California family that does not receive a fire evacuation warning in time because it did not make its technology payments. Additional technology, perhaps incentivized by regulation, may mitigate some of these problems. Just as any cell phone can reach 911 even if it lacks a post-paid plan or pre-paid minutes,³⁵ so too any television or radio might

34. See *infra* Section III.B.

35. *911 Wireless Services*, FED. COMM'NS COMM'N (June 29, 2018), <https://www.fcc.gov/consumers/guides/911-wireless-services> [<https://perma.cc/2PY2-EQQL>].

transmit emergency broadcasts even if it is disabled due to contract enforcement. But these exceptions to enforcement add complexity to a system that exists to reduce complexity. These complexities reduce the advantage of using a smart contract.

Indeed, prior scholarship has explained that this reputational risk makes debt more valuable in the hands of smaller, more reputation-immune companies.³⁶ Reputation-sensitive companies have to accept less perfect enforcement of their contracts to protect their reputations. Nameless debt collectors face no such constraints.³⁷

Companies that aggressively enforce their consumer contracts may attract not only negative publicity but also additional regulatory oversight. Specifically, companies that fail to build exceptions procedures into their automated enforcement mechanisms risk running afoul of various consumer protection laws or inviting new laws into their industry.³⁸ Even where they do not fail to meet particular regulatory requirements, consistently failing to meet customer expectations invites scrutiny.³⁹

While the U.S. legal system generally promotes efficient contract enforcement, even at the periodic expense of consumer welfare, there are exceptions to this policy. These exceptions tend to focus on particularly vulnerable consumers, concerns for third parties, and, in the case of consumer bankruptcy, the idea that periodically giving some consumers a fresh start is better for the economy than perfect enforcement of consumer obligations.⁴⁰ Smart contracts' promise of automated enforcement runs squarely into these policies. For example, many states require that landlords

36. Dalie Jimenez, *Dirty Debts Sold Dirt Cheap*, 52 HARV. J. ON LEGIS. 41, 52 (2015); Ronald J. Mann, *Bankruptcy Reform and the "Sweat Box" of Credit Card Debt*, 2007 U. ILL. L. REV. 375, 391; Jeff Sovern & Kate E. Walton, *Are Validation Notices Valid? An Empirical Evaluation of Consumer Understanding of Debt Collection Validation Notices*, 70 SMU L. REV. 63, 66 (2017).

37. Jimenez, *supra* note 36; Mann, *supra* note 36; Sovern & Walton, *supra* note 36.

38. For example, the Home Affordable Modification Program was a federal framework designed to help mortgage borrowers keep their homes by modifying their mortgage, ideally to make the monthly payments more affordable. While the program was voluntary for servicers, many participated even though it imposed significant compliance costs on them and exposed them to additional liability. Harry N. Arger & Brett J. Natarelli, *Support for Dismissal of State Law Based HAMP TPP Cases*, BUS. L. TODAY (Jan. 2013), at 1.

39. See Ayres et al., *supra* note 33.

40. See generally Charles G. Hallinan, *The "Fresh Start" Policy in Consumer Bankruptcy: A Historical Inventory and an Interpretive Theory*, 21 U. RICH. L. REV. 49 (1986) (surveying the theoretical justifications for debt forgiveness in bankruptcy).

give tenants notice before evicting them from their apartments, even when the tenant fails to pay rent.⁴¹ Putting smart locks on doors so that they only open when a tenant pay rent does not change this concern. Similarly, most states limit when utility companies can shut off the heat, because the states' concern for the safety of their citizens in extreme weather outweighs their concern for efficient contracting.⁴² Installing smart valves on water mains or smart switches on electrical lines is not going to change these concerns.

Breach of peace may be one of the few enforcement concerns that smart contracting can solve. Breach of peace is a limitation on lenders' right to repossess collateral themselves.⁴³ This limitation protects neighbors from nuisance and potential violence.⁴⁴ If lenders cannot repossess their collateral without disturbing the neighbors, they must use law enforcement to collect their collateral.⁴⁵ Involving the sheriff will impose additional costs, delay, and offers no guarantee that the lender will receive the property.⁴⁶

The goals of repossession against consumers may be less about actually taking possession of the collateral to resell it and more about incentivizing the consumer to pay the debt. Indeed, by the time the lender pays the repossession costs, there may be little, if any, value left in the item repossessed.⁴⁷ Self-enforcing contracts solve this problem by reducing or eliminating the need to repossess collateral provided that they can make the collateral's usefulness conditional on payment. Still, it is unclear if this benefit outweighs the increased reputational risk.

41. *E.g.*, *Wilson v. Kavanaugh*, 941 S.W.2d 605, 608 (Mo. Ct. App. 1997) (holding that a landlord wrongfully evicts a tenant when it changes the locks prior to giving the tenant 30 days' notice as required by statute).

42. *See supra* note 23.

43. Adam B. Badawi, *Self-Help and the Rules of Engagement*, 29 YALE J. ON REG. 1, 14-17 (2012).

44. *Id.* at 13-14.

45. *Berg v. Wiley*, 264 N.W.2d 145, 151 (Minn. 1978) (sanctioning a landlord for changing the locks on commercial property, even though the tenant was absent, out of concern that changing locks may lead to a breach of peace).

46. The reasons why collections can and do fall short are legion but it is not uncommon for the sheriff to be unable to reclaim the property subject to judgment. While amercement offers remedy against sheriffs who unreasonably fail to secure property for creditors, it is a "seldom used remedy." *Meyers v. Hadsell Chem. Processing, LLC*, No. 18AP-387, 2019 Ohio App. LEXIS 3068, *18, *28 (Ohio Ct. App. July 23, 2019) (explaining the history of amercement).

47. *See* Badawi, *supra* note 43, at 9-12 (modeling when creditors are likely to use self-help).

B. Compliance Risk

While smart contracts can reduce some companies' compliance costs, they do not inherently exempt companies from consumer protection statutes and other applicable contract doctrines.⁴⁸ Many consumer protection doctrines may ultimately prove compatible with automation, but others will not. The challenge for any system that purports to automate enforcement is to efficiently accommodate all of the regulatory exceptions to the enforcement of private contracts.

The protections that are least likely to be compatible with automation are those that provide consumers with individual-specific exceptions to their contractual obligations. Consumer bankruptcy and its state-law analogues are the largest obstacles, but there are legions of similar protections scattered through federal, state, and even local law. In addition to the utility disconnection laws mentioned above,⁴⁹ consider provisions such as the Servicemembers Civil Relief Act (SCRA),⁵⁰ which describes itself as enabling servicemembers to “devote their entire energy to the defense needs of the Nation”⁵¹ by “provid[ing] for the temporary suspension of judicial and administrative proceedings and transactions that may adversely affect the civil rights of servicemembers during their military service.”⁵² The act caps the interest rate on certain debt at six percent⁵³ while blocking some repossessions,⁵⁴ non-judicial foreclosures,⁵⁵ and lease terminations.⁵⁶ The policy concern animating these protections—encouraging servicemembers to “devote their entire energy to the defense needs of the Nation”⁵⁷—does not change merely because the servicemembers' contracts purport to be

48. For example, there is no reason to think that smart contracts are immune from challenge based on doctrines such as mistake or impossibility. Similarly, parties may allege fraud and its kin to undo them.

49. See *supra* note 23.

50. 50 U.S.C. §§ 3901–4043 (2012).

51. *Id.* § 3902(1).

52. *Id.* § 3902(2).

53. *Id.* § 3937.

54. *Id.* § 3952.

55. *Id.* § 3953.

56. *Id.* § 3955.

57. *Id.* § 3902(1).

“smart.” It is therefore difficult to see any principled justification for exempting smart contracts from these protections.

The only way that a smart contract can accommodate these protections is if it is possible to modify it post-formation to accommodate the applicable protections.⁵⁸ Although originally touted for their immutability, modern iterations of smart contracts often have some provision for post-formation modification, even if that means scrapping the contract for a new, amended contract.⁵⁹ The difference between modifying the sophisticated smart contracts used among businesses in financial transactions and those used in consumer transactions is that many of the post-formation modifications needed in the consumer context will be highly individualized. Consumers or their agents will need some way to trigger the modification process themselves. At the present, that trigger is likely another human who can collect, verify, and process the consumers’ eligibility for protection. In this scenario, the smart part of the contract provides little value and may indeed increase costs depending on the complexity of the modification process.

Consumer bankruptcy is even more antithetical to automation than the SCRA. When consumers file for bankruptcy, an automatic stay stops all collection action against the consumer notwithstanding any company’s contractual right to self-help or other enforcement.⁶⁰ For typical post-paid contracts, this means that companies must have a timely way to receive notifications of bankruptcy proceedings and to stop their collections activities. For most companies, this involves having customer service agents, automated or human, place some kind of hold on the consumers’ file in the company’s system of record.⁶¹ Companies who fail to respond in time and nevertheless proceed with dunning letters, calls, or other collection activity face sanctions.⁶²

One way a company using smart contracts can reduce their risk of violating bankruptcy and other consumer protection rules is to turn their contracts into pre-paid systems. So in the ignition interrupter scenario,

58. See Raskin, *supra* note 28, at 327 (explaining options to for modifying smart contracts to accommodate ex-post compliance obligations).

59. Shaahan Cohny, David Hoffman, Jeremy Sklaroff & David Wishnick, *Coin Operated Capitalism*, 119 COLUM. L. REV. 591, 630 (2019).

60. 11 U.S.C. § 362 (2012).

61. See Jimenez, *supra* note 36, at 49–55 (explaining systems of record).

62. 11 U.S.C. § 362(k) (2012).

imagine that buying a car becomes like purchasing a cell phone on a pre-paid contract: the physical car and the driving “minutes”—or “miles”—are purchased via separate transactions. Companies could sell the car at a discounted price, then make up the difference by selling the right to drive the car separately.⁶³ One can do the same for televisions and all kinds of other consumer goods. While this model would be a fundamental change to what it means to “own” something, it already exists for many products. For example, consumers purchase computer hardware outright, but this hardware is unusable without a license for an operating system, productivity software and whatever else the consumer may need.⁶⁴

This model is easy to implement where there is no residual value in the physical item held by the consumer, but harder to implement where the company might want the item back. Bankruptcy, and the underlying law of secured transactions, strictly polices efforts to re-characterize loans for the purchases of goods as leases, licenses, or other transactions.⁶⁵ At the very least, proving in court that transactions that look like financial contracts are actually something other than a financial contract because of the smart contract structure is another cost to overcome.

Even where companies manage to comply with the automatic stay notwithstanding the automatic enforcement provisions in their contracts, the customer-specific servicing requirements of bankruptcy are likely to make accounts in bankruptcy at least partially incompatible with automation. For example, in some jurisdictions, a consumer who is making payments under a Chapter 13 plan must make those payments first to their trustee who then

63. Tesla’s business model arguably does this already. All of the company’s Model S and Model X electric vehicles include the same battery, but the company sells some models at a discount and uses software to restrict the range of those models. During Hurricane Irma, it pushed out a software update which temporarily lifted the range restriction on the lower priced models. Brian Fung, *As Hurricane Irma Bore Down, Tesla Gave Some Florida Drivers More Battery Juice. Here’s why that’s a Big Deal*, WASH. POST (Sept. 11, 2017), <https://www.washingtonpost.com/news/innovations/wp/2017/09/11/as-hurricane-irma-bore-down-tesla-gave-some-florida-drivers-more-battery-juice-heres-why-thats-a-big-deal/> [<https://perma.cc/LL64-7ZF8>].

64. See AARON PERZANOWSKI & JASON SCHULTZ, *THE END OF OWNERSHIP: PERSONAL PROPERTY IN THE DIGITAL ECONOMY* 57–59 (2016) (discussing the fine line between ownership and licenses).

65. Steven L. Harris & Charles W. Mooney Jr., *When Is a Dog’s Tail Not a Leg?: A Property-Based Methodology for Distinguishing Sales of Receivables from Security Interests That Secure an Obligation*, 82 U. CIN. L. REV. 1029, 1040–43 (2014) (explaining how the law looks at the substance of a transaction to determine whether it is a sale or something else).

forwards them onto the company after taking a cut themselves.⁶⁶ Because of the stay and the binding terms of the plan, the company cannot penalize the customer if it receives the payments late from the trustee or in a format that contradicts how the contract between the customer and the company dictates that the customer must make payments.⁶⁷ Complying with the servicing rules for accounts in bankruptcy has proven to be a significant problem for financial institutions.⁶⁸ The risk for companies that intentionally lack this personnel is potentially greater.

Creative contracting and technological self-help cannot squeeze court-administered consumer protection out of the system. For example, the bankruptcy code itself renders unenforceable any contractual provision that purports to limit the debtor's rights to bankruptcy protection.⁶⁹ Similarly, most jurisdictions require some kind of court proceeding before creditors can take possession of real property.⁷⁰ These proceedings ensure oversight of the relationship between consumers and their counterparties. In some cases, notably bankruptcy⁷¹ and housing courts,⁷² even arbitration clauses

66. See Gordon Bermant & Jean Braucher, *Making Post-Petition Mortgage Payments Inside Chapter 13 Plans: Facts, Law, Policy*, 80 AM. BANKR. L.J. 261 (2006) (analyzing the merits of these so-called "conduit payments").

67. Indeed, some courts have operating orders instructing how trustees should handle conduit payments notwithstanding the specific contractual obligations of the borrower. See, e.g., *In re Conduit Mortgage Payments in Chapter 13 Cases Assigned to Judge Taites and Judge Duncan*, Operating Order 16-02 (revised) (Bankr. D.S.C. Sept. 28, 2016), <http://www.scb.uscourts.gov/pdf/oporder/opor16-02.pdf> [<https://perma.cc/V4PF-3ZJU>].

68. See e.g., *Complaint, Consumer Fin. Prot. Bureau v. Ocwen Fin. Corp.*, No. 9:17-cv-80495 (S.D. Fla. April 20, 2017) (detailing Ocwen's difficulty in adapting its servicing technology to the requirements of the Bankruptcy Code); see also Craig Rule & Heather McGivern, *Chapter 13 Trustee Pay-All/Conduit Jurisdictions: Some Issues, Challenges, and Pointers*, USFN (Nov. 7, 2016), <https://www.usfn.org/blogpost/1296766/260680/Chapter-13-Trustee-Pay-All-Conduit-Jurisdictions-Some-Issues-Challenges-and-Pointers> [<https://perma.cc/WM2J-ZJ9W>] (detailing some of the challenges of Chapter 13 compliance).

69. 11 U.S.C. §365(e)(1) (2012).

70. See Badawi, *supra* note 45, at 23-24 (exploring how nearly every jurisdiction has eliminated self-help for the repossession of real property, although many still allow it under certain conditions for the repossession of personal property).

71. *MBNA Am. Bank, N.A. v. Hill*, 436 F.3d 104, 109 (2d Cir. 2006) (explaining that bankruptcy courts may refuse to send so-called "core" claims to arbitration where doing so would "jeopardize the important purposes that the automatic stay serves: providing debtors with a fresh start, protecting the assets of the estate, and allowing the bankruptcy court to centralize disputes concerning the estate").

72. See, e.g., Washington Residential Landlord-Tenant Act of 1973, WASH. REV. CODE ANN. § 59.18.320(1)(b)(ii) (West, Westlaw through 2019 Legis. Sess.) (prohibiting arbitration in actions for unlawful detainer).

cannot divert cases away from the specialized tribunal. For smart contracts to avoid these tribunals, they would need some kind of special legislation that prioritized the efficiency of automatic enforcement over the protective processes of existing consumer protection law. While it is possible that automated enforcement will lower consumers' costs and expand access, it is far from obvious that these arguments outweigh the policies behind consumer protection. In sum, consumer protection laws will make it extremely difficult to remove humans from consumer contracts. While smart contracts may evolve to be more modifiable,⁷³ the very need to modify smart contracts to accommodate compliance mandates reduces their comparative advantage over traditional contracts.

IV. THIRD-PARTY HARM

In addition to the challenging optics of exempting new technology from existing consumer protection laws, political economy poses a further challenge. The entities who cannot move their consumer contracts onto self-enforcing smart contracts—say the heating company in the dead of winter—are unlikely to sit quietly and watch newcomers jump them in the race for the consumers' assets.

In a world in which some significant group of consumers does not have sufficient liquid assets to make all of their payments on time every month,⁷⁴ smart contracts can give those companies using them a preference over the consumer's other obligations. A preference is when a borrower pays a creditor ahead of other creditors, thereby increasing the risk that the

73. See Bill Marino & Ari Juels, *Setting Standards for Altering and Undoing Smart Contracts*, in *RULE TECHNOLOGIES 151* (Jose Julio Alferes, Leopoldo Bertossi, Guido Governatori, Paul Fodor, & Dumitro Roman eds., Springer Int'l Publ'g Lecture Notes in Computer Science, Vol. 9718, 2016) (explaining how contract modifications occur on Ethereum).

74. One manifestation of the mismatch between income and obligations in American households is the rate at which Americans turn to payday loans and other kinds of short-term, high-interest credit to make ends meet. In 2016, the Pew Charitable Trusts estimated that 12 million American turn to payday loans each year. *Payday Loan Facts and the CFPB's Impact*, PEW CHARITABLE TRUSTS (Jan. 14, 2016), <https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2016/01/payday-loan-facts-and-the-cfpbs-impact> [<https://perma.cc/9QJS-BBTQ>]; see also Abbye Atkinson, *Rethinking Credit as Social Provision*, 71 *STAN. L. REV.* 1093 (2019) (exploring how easy access to credit "ease[s] the reality of a bleak financial future" for middle class Americans while serving as one of the main sources of social provision for lower income families).

borrower will not pay the other creditors.⁷⁵ For example, if failure to make a car payment means that the car will not start today, a rational consumer will prefer to pay their auto-lender before they pay other creditors including credit card issuers, landlords, and utilities. Assuming that the consumer cannot possibly pay all of their obligations, this payment shifting means that other creditors are more likely to have to absorb a loss. In other words, smart contracts shift risk onto other creditors.⁷⁶

To be sure, many creditors already have remedies that shift risk onto consumers' other creditors. Landlords can begin eviction proceedings, utilities can cut off services, credit-card issuers can deny new charges, and traditional auto-lenders can repossess cars. Rational consumers may order their payments to avoid these remedies, even where that means failing to pay other creditors to whom their obligations are no less valid. The difference between these remedies and smart contracts is timing. With smart contracts, as soon as the consumer neglects a payment, automatic enforcement occurs. Few other creditors can do the same,⁷⁷ even when they are entitled to self-help under applicable law.

The timing advantage of smart contracts increases the risk that they will receive a preference over other creditors because some forms of self-help against consumers limit those consumers' ability to earn future income. Notably, consumers who cannot drive to work on time cannot earn the money they need to make their next payment. Consumers whose water shuts off automatically may not be able to shower enough to keep some jobs.

In other words, the inefficiency in the current system of consumer contract enforcement gives consumers wiggle room on their payments. Although it makes perfect enforcement impossible, it may actually increase enforcement overall by stalling the collateral consequences of enforcement.

75. This risk that how borrowers time their payments to particular creditors can create unfairness between creditors is one reason the Bankruptcy Code makes certain transfers on the eve of bankruptcy voidable. See 11 U.S.C. § 547; see also Thomas H. Jackson, THE LOGIC AND LIMITS OF BANKRUPTCY LAW 125 (1986) (describing preference law as a "solution" to "the common pool problem that results from strategic planning in the prebankruptcy period").

76. This risk shifting parallels the risk shifting that occurs when borrowers acquire secured debt and that has made secured creditors' rights controversial. See Lynn M. LoPucki, *The Unsecured Creditor's Bargain*, 80 VA. L. REV. 1887 (1994).

77. See Rebecca Crootof, *The Internet of Torts: Expanding Civil Liability Standards to Address Corporate Remote Interference*, 69 DUKE L.J. (forthcoming 2019) (manuscript at 44-47) (on file with author) (explaining the risks of enforcement through the internet of things).

In this way, smart contracts may be a boon for companies that can use them, but value destroying for companies that cannot.

CONCLUSION

It is difficult to see the strategic advantage of smart contracts in consumer finance unless the purpose of those contracts is to short-circuit existing consumer protection safeguards. Although other recent trends in consumer finance have not been uniformly consumer-friendly, I am skeptical that smart contracts will succeed in such a mission. Consumer protection law is a myriad of overlapping obligations from several layers of regulators. Even if smart contracts could win preferential treatment from one regulator, that does not solve their problems elsewhere. The volume of consumer protection laws, and their tendency to change over time, all but eliminates the prospect of coding smart contracts for perfect compliance ex-ante. Furthermore, there is good reason to think that entrenched industries that are unable to use smart contracts will oppose efforts to exempt smart contracts from the kinds of consumer protection statutes with which they must contend.

If there is any room for smart contracts in the consumer finance space, this Essay has shown that those contracts will need to be modifiable ex-post. These modifications will need to be easily implemented by customer service representatives interacting with humans. It remains to be seen whether smart contracts can accommodate this kind of modification process and still be more efficient than traditional contracts.