THE (UNFULFILLED) FINTECH POTENTIAL

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INTRODUCTION

Jane is considering getting a new credit card. She currently holds three cards. Mostly she remembers to pay her bills on time, but every so often she incurs a late fee. On average, she carries a balance of $1,000, nowhere near her credit limit. She is contemplating moving this balance to her new card. She has three kids and lives in the suburbs, so she shops a lot at Macy's, and fills her gas tank several times each month. The choice of the optimal card for Jane is quite complex. It entails assessing various features of each card, such as introductory and ongoing interest rates, annual fees, cash-back rewards, and late fees. These need to be calculated given Jane's specific expected behavior and where she shops, how much she makes, and the likelihood of her forgetting to pay on time, as well as the chance that a card will be approved given her credit score. It is quite possible that in theory Jane would be better off getting two or three different cards and using each one for different purposes or getting one card for a year and then switching to a different card. Such a complex decision is nearly impossible for Jane. But it is trivial for an intelligent algorithm. Choosing and signing up to the optimal card, picking which card to use for every purchase (as well as where to make that purchase and which coupons to utilize), alerting Jane to make a payment, or even making that payment for her while transferring funds from savings accounts to avoid an overdraft, are just a few of the functions modern technology could undertake for Jane quite seamlessly.

But it does not. Despite the high expectations of technology to come to consumers' aid, detailed by academics, technological experts, and government officials, the largest Fintech[1] companies that address these issues have made only limited progress in resolving market failures that are derived from consumers' bounded rationality, information, and attention. Despite the availability of relevant technologies and information, Fintech

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[1] "Fintech" refers to the use of technology to deliver financial services, but the term is colloquially used to describe more innovative forms of technological financial services.

intermediaries simply do not take on such roles, and in some cases, the design of these products even exacerbates existing market failures. Although technological innovations could change market dynamics and improve consumers' decision making, such products are not coming into fruition.

There are several possible explanations for why such services, despite their potential benefits, are not appearing as significant participants in financial markets. First and foremost, just as bounded rationality[2] distorts consumers' demand for financial products, it also limits their ability to assess the benefits of products offered to resolve such failures. While consumers may be somewhat sophisticated with regard to their limited attention and costs of gathering information, their ability to demand products that highlight the costs of non-salient features is limited. Second, since consumers are sensitive to the upfront costs of such products, they prefer to receive free services, which often entail lowering the quality of the services they receive, while forcing companies to profit from back-end services, often to the detriment of consumers.[3] Thus, since consumers do not pay for comparison websites' services, such sites often receive payments from credit card companies and banks, distorting the way information is presented to consumers and limiting such companies' incentives to optimize consumers' choices. Consumers' sensitivity to the price of the services they receive,[4] increases the benefit of companies design of their business model as a two-sided platform, in which they underprice the services offered to consumers, often providing them for free, while transferring such costs to other participants on the platform, such as retail businesses or credit card companies.[5] These, in turn, transfer the costs back to consumers through the prices of the services they provide.[6] Third, when financial service providers price their products with excessive margins, such platforms may try to capture these margins, instead of minimizing them. Finally, another factor influencing the design of such Fintech products may be the power and influence of existing incumbents, specifically banks and credit card networks. These incumbents can invest or buy out nascent competition, create barriers to entry through dependency on their approval for

[2] Bounded rationality is a term coined by Herbert Simon in the 1950s. It describes human beings' limited cognitive capacity to formulate and solve complex problems needed to form rational decision making in the real world. Bounded rationality, also referred to as limited cognitive bandwidth, is relied upon as part of the explanation for individuals' use of heuristics and biases in various decision-making settings. HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATION 137 (4th ed. 1997).

[3] *See infra* part III.A.

[4] *Id.*

[5] See *infra* note 119.

[6] *Id.*

certain services, as well as strong financial incentives for Fintech companies to align their services in a way that preserves and enhances the networks' profits.

Despite these challenges, there are several ways that markets can develop to fulfill the potential for enhanced products that resolve behavioral market failures. Policy interventions that look to antitrust and competition considerations, as well as the imposition of existing fiduciary duties or regulations promoting fairness and prohibiting misleading practices, can go a long way in driving out certain problematic practices. Additionally, market actors whose interests are aligned with those of consumers, such as employers and wealth managers, can help create the market demand needed to fund such services.

Part II will discuss some existing market failures, while presenting the potential of technological innovation in resolving such failures. Part III will present the realized potential of such innovative products, analyzing the design of credit card comparison websites, financial management tools, and mobile wallets.[7] I will demonstrate the significant benefits of such products, and yet the limited realization of the potential advantages of such services. Part IV will present several explanations for why such potential is not being fully realized. These explanations may also shed light on what may hinder such solutions from coming about in the future, highlighting the point that markets and technological innovation may not be expected to resolve many of the problems in existing financial markets. Part V will discuss several solutions for such problems, including regulatory intervention and market-based solutions.

I. THE UTOPIAN POTENTIAL

Technology has the potential to significantly improve the way individuals make financial decisions. First, the availability of internet connections, mobile networks, and smartphones enables the creation of cheaper and readily available communication networks and infrastructures, reducing both financial and nonfinancial transaction costs. Second, these infrastructures enable constant access to consumers, therefore facilitating new avenues to collect highly granulated information about them, and to reach and interact with them in real time. Finally, such detailed information

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[7] I focus on companies that are financially sustainable, in the sense that they no longer rely on seed funding and have more than a million monthly users. I chose to focus on companies that have a viable business model and are matured, due to the fact that companies at initial stages may not yet succumb to market pressures, and may price and design their services to attract an initial user base, even at losing prices. Additionally, companies without a significant user base have not yet demonstrated the existence of demand for the product.

about consumers, combined with big data analysis and machine learning, supports the creation of predictions about consumers' needs, preferences, and behavior. This facilitates the use of algorithms to improve and even replace consumers' decision-making processes in many instances. Google Maps optimize our navigation decisions by comparing routes and collecting information about others' locations and speed, offering real-time navigation instructions. Apple Music offers selections of music tailored to what individuals would like to hear. These same technological innovations have the potential to revolutionize consumer finance.

Fintech companies have already created significant efficiencies in financial markets, such as more efficient payment and money transfer; innovative risk assessment and algorithmic trading; improvements in cybersecurity through the implementation of fingerprint and facial recognition to improve identification and authentication, and tokenization of payments to reduce fraud and theft.[8] Technology also enables a reduction in both financial and nonfinancial transactions costs: payments have become easier as consumers pay with the tap of their phone for various purchases utilizing NFC technology, and the creation of mobile parking and vending machine payments.[9] Mobile banking offers services to previously underserved communities. Online platforms reduce transaction costs and resolve market failures such as trust or coordination, facilitating interactions that could not have occurred otherwise, and enabling individuals to tap unused resources.[10] These technological developments raise interesting questions about the impact of innovation and disruptive technology on existing industries. They can introduce competition into relatively concentrated and even monopolized industries such as the banking or credit industry, and may expand access to underserved communities. Additionally, it has the potential to reduce prices and transaction costs significantly, facilitating new and improved uses for existing financial services.

At the heart of this paper is the potential of such technological

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[8] For some of the efficiencies and benefits of Fintech services, *see, e.g.*, Australian Government, The Treasury, *Economic Benefits of FinTech* (Mar. 18, 2016) https://treasury.gov.au/publication/backing-australian-fintech/economic-benefits-of-fintech; CONSUMER FINANCIAL PROTECTION BUREAU, THE CONSUMER CREDIT CARD MARKET 269, 274-77 (2015) (discussing the benefits of Tokenization).

[9] Such a reduction in the effort and awareness associated with payment may also have negative consequences as it reduces attention and may weaken self-control mechanisms, discussed *infra* part I.C.

[10] For example, peer-to-peer lending platforms enable matching between lenders and borrowers, often based on innovative risk assessment models. Airbnb, Uber, and TaskRabbit permit individuals to tap unused resources and become suppliers for goods and services, by matching them with demand for such services. Currency trading, and online shopping platforms such as eBay and Amazon reduce transaction and search costs of interactions that had previously mainly occurred face-to-face.

innovation to significantly improve consumers' financial decision making, resolving many market failures that stem from limited financial literacy, limited attention, information asymmetries, and behavioral biases. These improvements, in turn, could alter existing relationships between businesses and consumers, while empowering consumers and facilitating efficient competition. Just as consumers can utilize Waze to optimize their navigation and travel time, they can rely on mobile wallets to optimize their payment choices, and could employ financial management tools to enhance their financial accounting and choice of financial products. Each section below will present an existing problem influencing consumers' ability to make optimal financial decisions, and show how existing technology could potentially resolve such issues. First, I will discuss how technology can impact consumers' limited ability to assess the costs and benefits of financial products and their features. Next, I will present the potential of technology to aid consumers in assessing their personal financial needs, and how financial products can cater to those needs by finding personally tailored products. Finally, I will present the impact of consumers' limited attention and self-control, and how existing technological solutions could mitigate such problems as well.

A. Consumers' Limited Ability to Assess Financial Products

When making choices with regard to which financial product to obtain, or which payment method to use, consumers are faced with significant information costs and inability to efficiently assess the attributes of various products offered to them. These products are often complex, and include a wide variety of features and costs. On the one hand, multi-layered structuring creates significant diversity between products that, in theory, improves consumers' ability to choose products perfectly tailored to their heterogeneous needs. But such complexity also impairs consumers' ability to compare products and assess the overall costs and benefits of a given option. For instance, in an experiment conducted by the Behavioral Insights team in the United Kingdom, consumers were able to pick the cheapest credit card out of a given set of alternatives less than 50 percent of the time.[11] Van Loo surveys the cost of mistakes in the choice of optimal service providers, which lead to excessive payments ranging from 8 to 30 percent

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[11] THE BEHAVIOURAL INSIGHTS TEAM, A BEHAVIOURAL APPROACH TO MANAGING MONEY: IDEAS AND RESULTS FROM THE FINANCIAL CAPABILITY LAB, 140-145 (2018), https://www.bi.team/wp-content/uploads/2018/05/Financial-Capability-Lab-Report-May18.pdf. Consumers were presented with different scenarios of spending and were incentivized to choose the cheapest alternative on a simulated credit card comparison website. Following an intervention in the design of the website, 60 percent managed to choose the cheapest alternative.

of consumer payments.[12] One explanation is that when faced with overly complex problems, consumers focus only on a small number of salient features, often disregarding more shrouded aspects of potential products or services. This, in turn, also leads to distorted competition, in which instead of pricing each product feature according to its marginal costs, businesses often underprice the more salient features while overpricing back-ended shrouded ones.[13] Such complexity is exacerbated by consumers' limited financial literacy and their inability to calculate and understand the terms of many products. As financial service providers collect more information about consumers and have a better ability to offer consumers personally tailored products, they're expected to cater to such *biased* demand, to a certain extent exacerbating existing market failures.[14]

Intermediaries can intervene in this dynamic. Online data collection enables third-party intermediaries to gather information about products and their attributes in systemic ways, therefore facilitating better comparison and competition between products.[15] While a consumer has limited ability to track and analyze the features of thousands of possible credit cards, an algorithm could do so quite easily. Calculating the costs and benefits of complex features, which are also dependent on future probabilities and complex mathematical calculations, is a daunting and nearly impossible task for an individual trying to assess the value of life insurance or a twenty-year varying mortgage plan, but can be quite seamless for the correct mobile app. In fact, even simpler calculations such as the expected interest payments on a two-year loan that is repaid monthly can be quite overwhelming for many people.[16] Finally, as will be detailed, combining this information with individuals' personal circumstances, behavior, and needs can assist consumers in choosing personally tailored solutions that best fit their preferences. Thus, technology has the ability to resolve problems of information overload, complex products, and dispersed markets in order to simplify decisions and tailor choices that result in optimal financial

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[12] Rory Van Loo, *Rise of the Digital Regulator*, 66 DUKE L.J. 1267, 1270 (2017).

[13] OREN BAR-GILL, SEDUCTION BY CONTRACT: LAW, ECONOMICS, AND PSYCHOLOGY IN CONSUMER MARKETS 52-54, 79-81 (2012). On the distinction between product attributes and product use information, *see* Oren Bar-Gill & Franco Ferrari, *Informing Consumers about Themselves*, 3 ERASMUS L. REV. 93, 95-96 (2010). It also incentivizes companies to add complexity and shrouded price attributes to their products.

[14] BAR-GILL, *supra* note 13, at 16, 24; Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373, 1376-77, 1401-11 (2004). *See also* Gerhard Wagner & Horst Eidenmueller, *Down by Algorithms? Siphoning Rents, Exploiting Biases, and Shaping Preferences: The Dark Side of Personalized Transactions*, 86 U. CHI. L. REV. 581, 585-86 (2019), discussing price discrimination and exploitation of individual biases.

[15] And, in some cases, may also create forms of implicit coordination.

[16] John Y. Campbell, *Restoring Rational Choice: The Challenge of Consumer Financial Regulation*, 106 AM. ECON. REV., AM ECON. ASS'N 1, 17-20 (2016).

outcomes for consumers.[17]

Such reduction in complexity can facilitate competition. As described, competition is often distorted because of complex, multi-layered products. Companies compete only over a small number of product attributes, often those that are short-term and highly salient, instead of over the overall price and benefit of a given product. Intermediaries can drive more efficient competition. Comparison websites may impact the salience of various features and present information about total expected costs and additional benefits. Additionally, they can focus on specific attributes that are relevant to a given customer, based on their past and expected profile. For instance, while bank accounts include a variety of different fees and benefits, most consumers only benefit from some of them, and pay only for certain services. Therefore, the importance of certain features varies between individuals. Similarly, health insurance can cover different types of services, which may be more or less relevant to an individual based on their medical and family history.

It is important to note that incumbents or new entrants can also utilize these tools, and indeed, many insurance companies offer comparison tools in order to guarantee consumers the lowest offer. But as will be demonstrated, such companies take this ability only so far. Incumbents and competitors have similar interests and are subject to similar market failures and limitations.[18] A third-party intermediary acting on behalf of consumers would be expected to enhance consumers' decision-making processes and reduce such behavioral market failures, compared to competitors that may succumb to existing structures of competition and consumer perception.

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[17] *See* THE BEHAVIORAL INSIGHTS TEAM, *supra* note 11, at 140-46 (demonstrating that altering the design of credit card comparison websites can improve consumers' ability to choose the card that is expected to lower their expenses). *See also* ESRC CENTRE FOR COMPETITION POLICY, UNIVERSITY OF EAST ANGLIA, BEHAVIOURAL ECONOMICS IN COMPETITION AND CONSUMER POLICY 109 (Judith Mehta ed., 2013) ("For example, price comparison websites can reduce the problems associated with pricing complexity. By automating the required calculations, these websites can provide consumers with a more easily comparable set of total prices, across suppliers. Such a reduction in complexity might be expected to enhance competition. As such, we may observe firms that rely on complex pricing seeking actively to keep their products off price comparison websites, or to frustrate the ability of such websites to provide a comprehensive comparison of pricing, for example, by holding back information (say, on additional fees or unexpected terms) until consumers have clicked through to their site.").

[18] DAN ARIELY & JEFF KREISLER, DOLLARS AND SENSE: HOW WE MISTHINK MONEY AND HOW TO SPEND SMARTER 21-24 (2017) (describing how an attempt by JC Penny to simplify pricing led to consumer dissatisfaction. Some banks have offered "consumer-friendly" credit cards with simpler rate structures and fewer fees.); BAR-GILL, *supra* note 13, at 102-103; Wagner & Eidenmueller, *supra* note 14, at 2, 28.

B. Consumers' Limited Ability to Assess Their Expected Product Use and Needs

Classic economic theory assumes consumers have private information about their expected preferences, needs, and future circumstances. But in practice, consumers often lack relevant information about their past and expected future behavior. In order to make the optimal choice of products, a consumer needs to compare a vast number of alternatives, understand the attributes of each product, and also assess how their individual expected use of the product would coincide with each attribute to create overall price and utility.[19] Thus, when a consumer chooses a credit card they need to understand both the meaning of different features of the card such as introductory APR, APR for purchases, late fees, annual fees, cash withdrawal fees, rewards, and more. But consumers also need to assess how often they will be late in making their payments, whether they will carry a balance on their card, and what types of purchases they will make.[20] These entail complex calculations and future predictions, which individuals get wrong (or do not even attempt). This inability to assess future needs is enhanced by the fact that consumers do not randomly miscalculate the future, but systematically underestimate their future spending, as they tend to be overly optimistic about their future circumstances and self-control.[21] Finally, consumers lack the information and ability to extrapolate from their personal circumstances and past behavior into future predictions.

While consumers get this wrong, credit card companies get it right. For

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[19] BAR-GILL, *supra* note 13, 11-15; Bar-Gill & Ferrari, *supra* note 13, at 96-97.

[20] *See* Oren Bar-Gill & Ryan Bubb, *Credit Card Pricing: The CARD Act and Beyond*, 97 CORNELL L. REV. 967, 1003 (2012) ("Traditional credit card disclosures provide disaggregate product-attribute information. Different rates and fees are disclosed, most prominently in the famous Schumer Box. The imperfectly rational consumer finds it difficult to aggregate this information into a single measure that would effectively guide credit card choice: Is a card with a high interest rate and a low annual fee better than a card with a low interest rate and a high annual fee? Is a card with an attractive teaser rate for purchases and a high interest rate for cash advances better than a card with no teaser rate and a lower interest rate for cash advances? Moreover, product-attribute information–information on rates and fees–is insufficient; consumers need information on how often these rates and fees will be triggered (i.e. product-use information). The relative importance of the interest rate and the annual fee depends on how much the consumer will borrow. And the relative importance of the teaser rate for purchases and the interest rate for cash advances depends on how many dollars' worth of purchases the consumer is going to finance during the introductory period and how many dollars will be needed from cash advances.").

[21] BAR-GILL, *supra* note 13, at 52-54, 83-90; Bar-Gill, *supra* note 14, at 1400-01; Jonathan Zinman, *Household Debt: Facts, Puzzles, Theories, and Policies*, 7 ANN. REV. ECON. 251, 275 (2015); Mark Armstrong & John Vickers, *Consumer Protection and Contingent Charges*, 50 J. ECON. LITERATURE 477, 483-88 (2012).

decades, companies have gathered information about individuals' personal traits and consumption patterns, using such information to predict consumers' needs and their expected behaviors and circumstances. This information is used to assess risk and to personally tailor advertising, pricing, and product offers (often according to the businesses' interests).[22] The importance of the availability of this information in facilitating competition for financial products is one of the core justifications for collecting consumers' credit history.[23] While credit history information is crucial to assess consumers' financial capabilities, and to predict their financial behavior, consumers generally do not have detailed access to information regarding their own past behavior, or the ability to utilize such information to predict their future circumstances. Other than generalized credit behavior, banks also provide consumers with annual summaries, and recent legislation in the European Union and the United Kingdom is encouraging banks to make information regarding consumers' transactions electronically available to third-party providers through open banking and access to application program interfaces (APIs).[24] Even without such legislation, many providers

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[22] Hong Ru & Antoinette Schoar, *Do Credit Card Companies Screen for Behavioral Biases?*, 2-3 (Apr. 7, 2015), https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=AFA2016&paper_id=815; Oren Bar-Gill, *Algorithmic Price Discrimination: When Demand is a Function of Both Preferences and (Mis)Perceptions*, 86 U. CHI. L. REV. 217 (2019); Wagner & Eidenmueller, *supra* note 14, at 1.

[23] In the United States, reporting of credit is regulated by the Fair Credit Reporting Act (FCRA), 15 U.S.C §1681, which is overseen by the Federal Trade Commission (FTC). 15 U.S.C.S. §1681 (2019). Lenders contribute information on a voluntary basis. Information about consumers' credit history and credit risk enables businesses to better compete in lending to consumers they have not transacted with in the past. *See* Michael E. Staten & Fred H. Cate, *The Impact of National Credit Reporting Under the Fair Credit Reporting Act: The Risk of New Restrictions and State Regulation*, 15-20, 25 (available at http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=FDF2BFFF97136FE86C912AC30872D656?doi=10.1.1.111.3481&rep=rep1&type=pdf). Regarding credit bureaus and credit scoring in the European Union, *see* Federico Ferretti, *The Legal Framework of Consumer Credit Bureaus and Credit Scoring in the European Union: Pitfalls and Challenges–Overindebtedness, Responsible Lending, Market Integration, and Fundamental Rights*, XLVI SUFFOLK U.L. REV. 791 (2013).

[24] In the European Union, access to APIs and banking information is regulated under the Payment Service Directive 2015/2366 (PSDII). *See* EU Commission Communication, *FinTech Action Plan: For a More Competitive and Innovative European Financial Sector*, at 8, COM (2018) 109/2 (Mar. 8, 2018) (noting that "[t]he revised Payment Services Directive, in application since January 2018, is an interesting test case: banks are required to open appropriate communication channels for FinTechs to provide their services based on access to payment accounts. The development of standardised application programming interfaces would create a level playing field to enable new and improved services in a truly open environment, while maintaining high standards of protection of personal data and consumer protection.") In the United Kingdom, the Competition and Markets

use "scraping" to extract information about individuals' finances by entering their banking and other financial websites with user names and passwords.[25] Additionally, mobile phones and location services enable companies to track information about consumers' location, routine, social circles, hobbies, tastes, and even their moods.[26]

As this information becomes available not only to financial service providers, but also to third-party intermediaries, there arises the potential to offer personally tailored products, presenting consumers with the optimal choices for their own personal needs. In his call for making such information about consumers' use patterns available to all consumers, Bar-Gill explains how access to such information should enable third-party intermediaries to assist consumers:

> The standard disclosure paradigm envisions disclosures that directly target consumers, namely disclosures that are read and used by consumers. But there is another option. Disclosures can help consumers, even when they are not directly targeted at consumers. Consumers often rely on agents - intermediaries and even sellers - to help them choose among competing products. These agents, however, rarely have enough information to effectively advise consumers. Disclosure regulation can solve this problem. . . . Disclosure regulation could require the old carrier to provide this information, in electronic form to the consumer. The consumer will not read the raw data. She will forward it to the intermediary that will now be in a position to help the consumer choose the product that best fits her use patterns.[27]

The HM Treasury Regulatory Innovation Plan clarifies that Open Banking and API standards are indeed expected to facilitate such competition on behalf of consumers:

> An open banking standard will create an ecosystem that allows authorized

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Authority mandated banks to create "open banking" enabling access to third parties. *See* HM Treasury, REGULATORY INNOVATION PLAN 5 (2017). *See also* Markos Zachariadis and Pinar Ozcan, *The API Economy and Digital Transformation in Financial Services: The Case of Open Banking* 4-5 (Swift Institute, Working Paper No. 2016-001, 2017), and *infra* part IV.A.

[25] "Data scraping" is a computerized extraction of readable information from other programs, often achieved by consumers giving such programs their user details and passwords. Such unregulated access to consumers' online data and accounts naturally creates fraud and personal privacy concerns.

[26] See Ryan Calo, *Digital Market Manipulation*, 82 GEO. WASH. L. REV. 995 (2014); Curtis Silver, *Patents Reveal How Facebook Wants to Capture Your Emotions, Facial Expressions and Mood*, FORBES (June 8, 2017, 9:57 AM), https://www.forbes.com/sites/curtissilver/2017/06/08/how-facebook-wants-to-capture-your-emotions-facial-expressions-and-mood/#306f09256014; Associated Press, *Google Records Your Location Even When You Tell It Not To*, THE GUARDIAN (Aug. 13, 2018, 2:30 PM), https://www.theguardian.com/technology/2018/aug/13/google-location-tracking-android-iphone-mobile.

[27] Oren Bar-Gill, *Competition and Consumer Protection: A Behavioral Economics Account*, 2 (NYU Ctr. for Law, Econ. & Org., Working Paper No. 11-42, 2011).

> third parties to access bank data, allowing the delivery of innovative services tailored to customer needs. This will allow customers to make better use of their financial data, and more easily compare financial products and services.[28]

Similarly, nearly a decade ago, IBM described the potential of mobile wallets in offering such personally tailored shopping and payment decision-making:

> Jane has recently switched to a more advanced mobile phone that includes a futuristic digital wallet on board, and this has helped to simplify her life. The phone receives coupons and promotions. . . . She can see the estimated total cost of her current shopping list at the three different stores she patronizes, and pick the one that optimizes cost and travel time. . . . She pays for her purchase by selecting a credit or debit card from her phone, which suggests a preferred card based on current balances, due dates, promotions, and interest rates. Sometimes she pleasantly finds that several of her expired coupons have been refreshed with valid coupons. As she checks out by briefly touching her phone to the point of sale terminal while entering her PIN code, the electronic receipt and new promotional offers are automatically sent to her wallet, replacing the old-fashioned offers on a printed receipt, which she never seemed to be able to find again the next time she shopped.[29]

Thus, technological solutions have the potential to intermediate between consumers and businesses, using information about consumers to create personally tailored products and services, and to help consumers optimize their choice and use of such products.

C. Consumers' Limited Attention and Self-Control

Many of consumers' financial choices are repetitive and ongoing, such as decisions regarding spending and budgeting, decisions regarding the use of various payment and savings products, and monitoring of accounts. The variety of financial products and services, and the volatility of consumers' income and expenses, often make consumers' ongoing financial management quite challenging. Individuals' limited attention curbs their ability to track account balances, often leading to late fees and overdrafts.

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[28] HM Treasury, *supra* note 24; *see also* White House and the National Archives and Records Administrations, *Informing Consumers Through Smart Disclosure: A Summit Hosted by the White House and the National Archives and Records Administrations with Support from ideas42* (Mar. 1, 2012), https://www.nist.gov/system/files/documents/ineap/Summit_Invitation_to_Agencies_FINAL.pdf (attaching a memorandum which notes that "[t]hird parties can also use smart disclosure to create tools that help consumers to make informed choices. . . . these tools can help them track their own information and analyze it to make better and more tailored choices." *See also* Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647, 649-51 (2011).

[29] Alan Cole, Scott McFaddin, Chandra Narayanaswami, & Alpana Tiwari, *Toward a Mobile Digital Wallet*, IBM RES. REP. 1-2 (2009), https://domino.research.ibm.com/library/cyberdig.nsf/papers/6BFB91694548FB3C852576F000594142/$File/RC24965.pdf.

Additionally, limited self-control resources, coupled with consumers' hyperbolic discounting, and present-oriented preferences often reduce consumers' ability to optimally manage their finances and maintain long-term goals, as they succumb to immediate temptations. Gathergood and Weber explain that 12 percent of households simultaneously hold funds in savings and carry credit card debt, which is explained as a (costly) means of self-control by reducing available liquid funds. This costs such households 650£ ($1050) on average in extra interest charges per annum.[30] The variety of products and decisions individuals face throughout the day often lead to information overload, resulting in arbitrary or intuitive (biased) decisions. Subsequently, seemingly easy tasks such as switching credit cards become formidable and taxing on attention, resulting in inertia and high psychological switching costs. Companies, aware of such biases and limitations, can design products and time their advertisements to exploit these biases.[31]

The constant availability of internet and location services can help detect triggers and efficient interventions for consumers the moment they make a decision: when entering a store, when choosing a payment method, or when repaying their debt. In some cases, technology can also "replace" consumers' choice process, by making decisions in their stead. Mobile wallets can assess the optimal payment method given consumers' existing balance on each card, the interest rate they are expected to pay, and the applicable rewards, and therefore reduce consumers' need to make such a decision every time they make a purchase. Algorithms can also decide the optimal repayment or savings amount, can warn consumers that a certain transaction might trigger an overdraft, or estimate how likely they are to be able to repay a given loan. Financial services can create location based, action based, or timing-based interventions, which reduce monitoring costs and information overload, resolve problems of inattention, can predict and prevent mistakes in real time, and can overcome problems of inattention and inertia.

Additionally, hyperbolic discounting, myopia, limited attention, and bounded willpower create a constant struggle for individuals to live within their budgets and to set and maintain clear spending and savings goals. Conclusions regarding optimal mechanisms for self-control, or even what the optimal levels of spending and savings are, are still pending. Nonetheless, technology has the potential to improve individuals' self-control mechanisms and the execution of their long-term goals. First, big data and machine learning enable experimentation as to the types of goals and

[30] John Gathergood & Jörg Weber, *Self-Control, Financial Literacy & the Co-Holding Puzzle*, 107 J. OF ECON. BEHAV. & ORG. 455, 455-56 (2014).

[31] *See* ARIELY & KREISLER, *supra* note 18, at 192-96, 239-41; Rajeev Batra & Douglas M. Stayman, *The Role of Mood in Advertising Effectiveness*, 17 J. OF CONSUMER RES. (1990); Bar-Gill, *supra* note 22, at 217.

interventions that are the most efficient for consumers, as well as to learn which situations trigger mistakes and what interventions result in desired behavior. Second, the wisdom of the crowd and big data can help individuals set desired and yet achievable goals. The design of budgets based on other households' spending, tailored to individuals' cash flow and predicted expenses, could be better calculated and designed using algorithmic learning. Further, technology has the potential to help monitor and reinforce desired behavior. By tracking individuals' spending and routines, technology can recognize triggers for problematic spending and common mistakes, and offer real-time and influential interventions, therefore resolving problems of inattention and information overload. These interventions can be based on location, consumers' actions and times of the month that are expected to lead to harmful decisions. Finally, technology can also offer self-restraint mechanisms, such as limiting types of spending by members of the household according to types of expenses or during certain hours of the day.

Management of accounts and budgets can be a daunting task for many individuals. Over the years, the number of transactions as well as the number of accounts and methods of payment have grown significantly. To navigate the maze of expenses and possible decisions, consumers need to correctly assess their income and expenses and predict their future needs.[32] Consumers also need to exert significant emotional and cognitive efforts to live up to their prescribed goals and refrain from succumbing to ongoing temptations. Additionally, consumers need to constantly monitor their finances and transactions to protect themselves from fraud or mistakes in charges, and to maintain a positive balance in their accounts so as to avoid additional fees and charges,[33] which demands constant attention. Finally, beyond the choice of which service provider to contract with, consumers often also have a choice of which payment mechanism to use for every transaction, which can depend on the type of expense, rewards on each card, existing balance and credit limit, transaction fees, and protections against fraud or faulty provision offered for each method of payment. The larger the household the more difficult such decisions become, and households that are in a poorer socio-economic condition pay a more significant

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[32] Classic life-cycle theory assumes an individual would calculate and adjust their spending and savings by approximating their life-long needs. But even yearly or monthly calculations can be quite daunting. Regarding deviation from life-cycle predictions, *see* Richard H. Thaler, *Anomalies Saving, Fungibility, and Mental Accounts*, 4 J. ECON. PERSP. 193, 194-98 (1990).

[33] Consumers that are more financially constrained and lack "slack" in their accounts have smaller safety buffers and therefore are much more prone to suffer from such additional fees. SENDHIL MULLAINATHAN & ELDAR SHAFIR, SCARCITY: WHY HAVING TOO LITTLE MEANS SO MUCH 52 (2013).

cost for inaccurately making these decisions.

A leading example for a potential solution is money management services, which offer consumers assistance in managing their finances, warranties, taxes, debt, and financial aid applications. Such services also offer alerts for expenses that are out of the ordinary, reminders for payments, and warnings when overdrafts and late fees might be incurred. Some digital wallets offer consumers the ability to upload their payment methods, receipts, and coupons. These could include services that enable limiting certain payment methods, splitting bills or paying for others.

In their book, Dan Ariely and Jeff Krieler describe the potential of mobile apps to help reframe financial decision making to reduce consumers' framing biases in order to better assess and monitor their expenses:

> If apps can help us with physical fitness and mental well-being, why not financial fitness and fiscal well-being, too? To keep track of opportunity costs, what if we developed an app that helped us do a bunch of comparisons and calculations all the time? It would automate the comparison: Thinking of $100 shoes? Bing bong buzz! Well, that's two movie tickets for you and your loved one, with popcorn and some wine after the film. Want to look good or feel good? For managing both the good and bad aspects of mental accounting, what about apps that create categories and spending limits and then offer warnings when a limit for a category approaches? . . . The promising concept is that the same phones that we take with us everywhere could not just distract and tempt us, but could provide tools for better decisions in real time.[34]

Similarly, in his letter to CEOs of financial institutions, former Consumer Financial Protection Bureau (CFPB) director Richard Cordray described how technology could be used to offer consumers alerts and self-control mechanisms, improving how they control their finances:

> Over the years, the Consumer Bureau has explored ways technology can help consumers take more control of their financial lives. For example, we have pointed out how real-time, low-balance alerts can assist consumers struggling to manage their checking accounts. . . . [W]e have researched how new tools can help people manage their spending, such as real-time feedback at the point of sale about how a purchase will affect their budget. . . . [W]e believe much greater capability can be made available to your customers through digital servicing, which can enable consumers to exercise very detailed control over their accounts. For example, with digital servicing, financial institutions may be able to offer consumers the ability to set spending limits on a card-by-card basis for particular merchants, channels of transactions (online versus phone versus in-person versus recurring transactions, for example), or categories of spending. Digital servicing may also allow customers to receive an alert or warning if a transaction is attempted that falls outside the consumer's personal preset parameters . . . .[35]

The availability of clear information about consumers' alternatives and

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[34] ARIELY AND KREISLER, *supra* note 18, at 241.

[35] Letter from Richard Cordray, Director of the Consumer Financial Protection Bureau, to CEOs (Nov. 17, 2017) (on file with the Notre Dame Journal on Emerging Technologies).

needs, coupled with the ability to access and serve a large group of consumers, enables such third parties to act as agents negotiating on consumers' behalf to obtain better deals. Furthermore, such services can help reduce consumers' switching costs, by streamlining the process of signing up and disconnecting from existing services, tracking ongoing contracts and expenses and facilitating parts of the bureaucracy. Thus, some services could offer consumers personalized comparisons of financial products tailored to their needs, such as reviewing their phone and internet subscriptions and negotiating better deals, comparing an individual's bank fees, insurance, pension plans, or credit cards and suggesting preferred alternatives.

II. THE (UN)REALIZED POTENTIAL

In the past decade, machine learning, the prevalence of smart-phones, location services, internet access, and digitalization of consumers' information have developed exponentially. These create the utopian potential described above to improve consumers' decision making. And yet, a look at the leading Fintech services suggests that many of these solutions are not being realized, and that existing products lack many features that could resolve prevailing market failures. In fact, the leading products that are being offered perpetuate and at times even exacerbate these market failures. In this part, I describe several key products and how they realize some of the potential for resolving the aforementioned problems but leave much of this potential unrealized. In Part IV I will try to offer explanations for why such products and services are not coming to fruition.

A. Credit Card Comparison Tools

There are a large variety of products available in the market, often at different stages of development and funding. I reviewed the descriptions and websites of several hundred startups, and met several dozen CEOs. Eventually, I chose to focus on companies that are financially sustainable, in the sense that they no longer depend on external funding but create their own revenues, have reached a significant market share, and have more than a million monthly users.[36] I chose to focus on products that have already matured, as they have a viable business model. Companies at earlier stages may not yet respond to market pressures, may price and design their services to attract initial users (even at below-cost prices), and may not yet

[36] In looking at existing products, I conducted searches on the databases of Crunchbase (https://www.crunchbase.com/), looking at key words such as Fintech, financial services, credit cards, and mobile wallets.

price and design their services to create constant income.[37] Additionally, companies with a small number of users have not yet demonstrated actual demand for their services and their ability to enter the market. Finally, I chose to look at companies that offer services to consumers or operate as an intermediary between consumers and businesses.[38] Among credit card comparison websites, I looked at the services offered by Credit Karma, Go-Compare, NerdWallet, Creditcard.Com, and Credit.Com.[39]

Price comparison tools and websites have been around for some time. The ability to compare insurance products, credit cards, flights, and other retail products is not (very) innovative. This capability has improved consumer welfare by reducing search and comparison costs significantly, which in turn induces price competition between service providers. Such websites and apps create online markets where providers compete, while also reducing providers' cost of reaching consumers.

Comparison websites at times also have an added benefit of offering

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[37] It is important to note that some products may still be "at a loss" but provide information and access to consumers that is profitable. For instance, Waze is assumed to have limited direct revenues, but nonetheless was purchased by Google in 2013 for over $1 billion, and is assumed to have sixty-five million active users; *see* Alyson Shontell, *The Argument for Google Spending $1.1 Billion on an App that Makes Minimal Money, Waze*, BUS. INSIDER (June 12, 2013, 1:12 PM), https://www.businessinsider.com/the-argument-for-google-spending-11-billion-on-an-app-that-makes-minimal-money-waze-2013-6; Craig Smith, *15 Interesting Waze Statistics and Facts (2020)*, DMR, https://expandedramblings.com/index.php/waze-statistics-facts/ (last updated Feb. 6, 2020).

[38] Some companies may offer similar services to retailers and businesses. For example, many management tools are marketed and later provided by banks. I focus on the products that are marketed to consumers directly. Conclusions regarding such intermediary products are likely to be relevant all the more for products offered by financial services suppliers, and to other intermediary products.

[39] Credit Karma has over seventy-three million monthly visits (last visited Mar. 31, 2020, 5.57 PM), https://www.crunchbase.com/organization/credit-karma#section-web-traffic-by-similarweb; Nerdwallet has over twenty-one million monthly visits (last visited Mar. 31, 2020, 5:58 PM), https://www.crunchbase.com/organization/nerdwallet#section-web-traffic-by-similarweb; CreditCards.Com has over two and one-half million monthly visits (last visited Mar. 31, 2020, 6:25 PM), https://www.crunchbase.com/organization/creditcards-com#section-web-traffic-by-similarweb; Credit.Com has over one and one-half million monthly visits (last visited Mar. 31, 6:28 PM), https://www.crunchbase.com/organization/credit-com#section-web-traffic-by-similarweb. I also looked at Consumer Reports, which has over sixteen million users (last visited Mar. 31, 6:29 PM), https://www.crunchbase.com/organization/consumer-report#section-website-tech-stack-by-builtwith. Consumer Reports is a non-profit, but it still receives commissions for clicks on certain products, and additionally it may utilize outside services to produce some of the search results. Since their business model with regard to credit cards is less definitive, I discuss them briefly *infra* Part IV.B. The data on monthly visits is based on Crunchbase, as of May 2018. It is important to note that these numbers refer to visits to the site or app, which may entail additional services other than credit cards comparison. CRUNCHBASE, https://www.crunchbase.com/ (last visited May 15, 2018).

reduced prices for offers received through their websites, and can reduce switching costs by enabling application and registration through the website or app.[40] What is lacking is the ability of such websites to also negotiate on behalf of consumers, for instance by aggregating consumers' consumption power to demand improved terms, or by *actively* pitting competing offers against each other. Still, existing utilization of aggregate consumer power or price competition might also be created implicitly by the mere creation of efficient comparisons, and the incentives for firms to offer improved prices for such sites as the sites gain a larger consumer base.[41] It is important to note that Nerdwallet and other companies do offer such negotiation and switching services with regard to other services such as Internet services or Mobile phones. For those services the Nerdwallet will interact with the service provider, and they profit by taking a percentage out of the annual savings of consumers. An alternative discussed below is that credit card suppliers improve their probability of reaching consumers not by reducing credit card prices, but by offering higher commissions to websites that display them more prominently or in top results, or present their features more favorably.

Almost all credit card comparison tools offer consumers the ability to choose what they want to focus on, be it rewards, introductory APRs, or balance transfers.[42] This is offered either initially before the presentation of results, or as an option to filter or re-order the results.[43] Additionally, many companies also offer specific calculators in which the consumer can manually input information to understand how some of the terms of

[40] For retail consumption, websites such as Amazon offer additional benefits of specific warranties and quality assurance incorporated through a consumer-friendly return policy used to induce trust, and a reduction in transaction costs which manifest through free delivery. *See* Shep Hyken, *Change in Amazon's Liberal Return Policy Is Good For Consumers*, FORBES (May 24, 2018, 6:00 AM), https://www.forbes.com/sites/shephyken/2018/05/24/change-in-amazons-liberal-return-policy-is-good-for-customers/#32c8cfa34e4d.

[41] Additionally, in market research conducted by the Competition & Markets Authority regarding the use of comparison websites, it was found that small groups of savvy consumers use the information collected on comparison websites to later directly negotiate better deals with credit card suppliers. *See* KANTAR PUBLIC, DIGITAL COMPARISON TOOLS: CONSUMER RESEARCH FINAL REPORT 11, 56, 83, 157 (2017), https://assets.publishing.service.gov.uk/media/58e224f5e5274a06b3000099/dcts-consumer-research-final-report.pdf. On the other hand, as will be described later, if the comparison provided on these websites isn't efficient, for instance if cards aren't ordered by total price or certain price features are hidden, then the consumer may *perceive* they're making an efficient choice or negotiation, but prices may not actually be lower. *See infra* p. 17.

[42] *See* NERDWALLET, https://www.nerdwallet.com/credit-cards (last visited Mar. 21, 2020); CREDITCARDS.COM, https://www.creditcards.com/ (last visited Mar. 21, 2020).

[43] Users may not necessarily be aware of this function or how to use it; *see* KANTAR PUBLIC, *supra* note 41, at 10, 124-7, 139-40.

different cards would translate into dollar terms.[44] What this lacks is the translation of the numerous credit card terms into total costs over a period of time, balancing the costs and benefits of a given card on various dimensions. Refraining from offering such a comparison reinforces consumers' tendency to focus only on one or two aspects of the card. It may even exacerbate this tendency, as websites often choose how to filter results and which features of the card to display more prominently, emphasizing those features that consumers myopically focus on such as rewards or teaser rates. In this sense, filtering creates an inaccurate perception that the products offered are personally tailored to consumer's needs.[45] For instance, on Nerdwallet, filtering by rewards leads to a display of cards based on the amounts of cash rewards expected annually, with added information about annual fees and sign-up bonuses only. Thus, the design of these sites often caters directly to consumers' biases. Even when pressing for more details on a card, no information is provided about APRs, and other than information about annual fees, only details about which fees *do not* exist is presented. Similarly, a consumer who notes they are looking for a rewards card will only be asked questions about expenses and preference for types of rewards, and no information is presented regarding additional fees or interest rates. And a consumer who notes they are looking for a card to make a large purchase will be presented with introductory APR information and the time needed to clear existing debt, without questions regarding revolving balances and rewards for ongoing expenses. As detailed above, this perpetuates several problems: first, consumers may be mistaken about which features will matter the most to them financially. Thus, for example, Experian found that in 2015, only 29 percent of consumers were "transactors" who paid off their bills in full every month, while 43 percent of cardholders were "revolvers" who carried a balance with interest.[46] Still,

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[44] *See* CREDITCARDS.COM: CREDIT CARD CALCULATORS, https://www.creditcards.com/calculators/ (last visited Mar. 21, 2020).

[45] With regard to insurance comparison, the U.K. regulators network found that "[p]ut simply, where PCWs [Price Comparison Websites] focus on (or rank by) price, that might mean the overall value of the product is not easy to compare. The FCA's [Financial Conduct Authority's] consumer research on PCWs found that it can often be difficult for consumers to find detailed and accessible information on PCWs summarizing how the products which they are displaying work, making it difficult to compare policies in a meaningful way." UK REGULATORS NETWORK, PRICE COMPARISON WEBSITES 21 (2016), https://www.ukrn.org.uk/wp-content/uploads/2018/06/201609027-UKRN-PCWs-Report.pdf.

[46] Bob Sullivan, *State of Credit*, EXPERIAN (Jan. 11, 2018) (on file with the Notre Dame Journal on Emerging Technologies).

approximately 73 percent of credit cards are "reward" cards.[47] While the mere preference for cards that offer rewards over those that do not seems trivial, and cards with a lower interest or balance transfer rate may also offer rewards, clearly the focus on such features may not be warranted.

Consumers are also likely to be myopic and focus only on short-term features of the cards, which are the ones most prominently presented to them in such comparison tools. Additionally, consumers are likely to underestimate certain expenses and their future circumstances, so that information that they input or focus on may skew their results. Third, presenting consumers with information on one aspect of the card (such as balance transfer, or rewards) enables (and in fact drives) companies to offer cards that are extremely skewed: priced to offer below marginal costs on one feature, and above marginal costs on other features. This result is both inefficient from a market standpoint, and limits consumers' ability to choose the product that reduces their overall costs.[48]

Additionally, other than information that consumers input manually, comparison tools at most utilize consumers' credit score information. Such companies do not extract information about consumers' previous credit card and consumption patterns, data about their current and predicted income levels, or their propensity to be late on payments or to exceed their credit limit. Such information could be used to offer consumers personally tailored products that would minimize their total costs based on their predicted behavior and circumstances. As described above, personalization is used to offer consumers products that would be more appealing to them given their biased perceptions, instead of those that are based on their overall needs. In this sense, the service acts more as tailored advertising than as a personalization tool. Additionally, it does not help mitigate consumers' over-optimism, or provide consumers with a more accurate estimation of the costs and benefits of a product based on their own past behavior. Finally, consumers are not presented with information about how individuals like them have benefited from the use of various cards over time.

One possible response is that since consumers' demand for credit cards is biased, and consumers are focused on specific features such as rewards, these comparison tools *have no choice* but to cater to the biased demand, or consumers will use a different tool. While catering to such biased demand may explain the way credit card companies design their products, it has limited force in explaining the design of comparison websites. Thus,

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[47] Sean McQuay, *Consumer Credit Behavior and Market Statistics*, NERDWALLET (Nov. 7, 2016), https://www.nerdwallet.com/blog/credit-cards/consumer-credit-behavior-market-statistics/.

[48] This is inefficient because consumers over-consume services that are priced below marginal cost, and under-consume those that are overpriced.

for instance, the total expected cost of a product could be presented alongside the expected benefit of rewards. When presenting the pros and cons of a card, the website could also present consumers with fees that are not waived.

Another explanation is that such companies may lack access to consumers' personalized information, as consumers don't freely give such websites access to their bank account information or credit card statements. First, it is unclear how reluctant consumers are to give such tools access to their personal information, especially if they expect such access to be beneficial for them.[49] Additionally, as will be demonstrated, financial management tools such as Mint,[50] which obtain access to consumers' granulated financial information, offer comparisons of credit cards and other financial products, but similarly present consumers with limited information, and do not personally tailor such offers to consumers' needs based on their history and a reduction of total expected costs. Even Nerdwallet offers consumers the ability to link their accounts and view their financial information in an aggregated manner, but does not enable a comparison of costs based on their personal fees and expenses. Finally, credit card comparison tools could also rely on anonymized annual credit reports to offer such comparisons.[51]

A leading explanation that will be further detailed, is that these comparison services don't benefit from helping consumers choose *the best* credit card. They profit when consumers choose *a* credit card. In certain cases, they may also profit from getting a consumer to choose a card that is best *for the website* (or a third party paying the website), and not for the consumer. Thus, indicating to consumers that certain products have downsides is expected to reduce the number of consumers applying for new cards. Furthermore, in retrospect, consumers have a hard time knowing whether they could have gotten a better deal. By comparison, tools for comparing internet or phone bills often offer consumers the ability to negotiate and make the switch on their behalf, charging consumers a percentage of their savings. This too, encourages consumers to make a switch, but

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[49] In their research, the CMA noted that some consumers are cautious about giving personal financial data but are more willing to do so if they assume the information is relevant for their search. KANTAR PUBLIC, *supra* note 41, at 84, 95, 138. The UK Regulators Network noted that this is driven mainly by fear of receiving unsolicited offers, for instance by phone or email, and less due to privacy concerns. Additionally, they found that 19 percent of consumers using GoCompare in the United Kingdom to compare current accounts for banks were using their "Midata" files to compare offers, and that consumers who utilized this tool were far more likely to switch service providers. UK REGULATORS NETWORK, *supra* note 45, at 17-18, 27.

[50] *See infra* Part II.B; MINT, https://www.mint.com (last visited Mar. 21, 2020).

[51] For instance, Feezback, an Israeli startup company, accepts consumers' annual bank reports in an anonymized format to compare the potential fees consumers could save. FEEZBACK, https://feezback.com/ (last visited Mar. 21, 2020)

the companies' incentives are at least aligned financially with those of consumers, as they profit more as the consumer saves more.[52] When looking for details on credit card comparison websites' compensation model, one website explains:

> CreditCards.com is an independent, advertising-supported comparison service. The offers that appear on this site are from companies from which CreditCards.com receives compensation. This compensation may impact how and where products appear on this site, including, for example, the order in which they appear within listing categories. Other factors, such as our proprietary website's rules and the likelihood of applicants' credit approval also impact how and where products appear on the site. CreditCards.com does not include the entire universe of available financial or credit offers.![53]

Some companies, such as Nerdwallet, offer a vague commitment to be objective:

> It's simple: You're our first priority. . . . [T]he guidance we offer, the information we provide and tools we create are objective, independent, and straightforward and free. So how do we make money? In some cases, we receive compensation when someone clicks to apply or gets approved for a financial product through our site. However, this in no way affects our recommendations or advice. We're committed to helping you make your smartest money move.[54]

Despite such disclaimers, the majority of consumers do not know, and do not give much thought or attention to how comparison websites make a profit. To a certain extent, they even prefer not to know. They assume that the results are aligned with their interest, and that they have control and the ability to make the optimal choice. This is despite the fact that most consumers do not review more than the top three or four options presented to them.[55]

First and foremost, this means that only certain credit card companies

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[52] *See, e.g.*, SWITCHER: ABOUT SWITCHER.IE, https://switcher.ie/about-us/ (last visited Mar. 21, 2020) (describing "How does Switcher.ie make money? Is it really impartial?" noting they receive a commission every time the consumer switches). This alignment is only relevant as far as financial considerations prevail, as such companies profit based on financial savings, regardless of attributes such as the quality of service, internet speed, reliability, and customer service.

[53] CREDITCARDS.COM: ABOUT US, https://www.creditcards.com/about-us/(last visited Mar. 21, 2020). The Federal Trade Commission (FTC) requires that websites disclose referral fees. No such mandate exists for disclosing fees that impact placement. *See* Federal Trade Commission, *The FTC's Endorsement Guides: What People are Asking*, (Sept. 2017), https://www.ftc.gov/tips-advice/business-center/guidance/ftcs-endorsement-guides-what-people-are-asking.

[54] NERDWALLET, https://perma.cc/NM38-HQE7 (last visited Mar. 21, 2020).

[55] KANTAR PUBLIC, *supra* note 41, at 82-83. Even when presented with percentages of commission, they perceived these numbers as marginal until they were compared to other markets. Commissions generally did not impact trust in the site and consumers believed it was still an efficient means to get a good deal.

are available to consumers on such sites. Additionally, for some companies it may mean that they alter the order or prominence of some cards over others.[56] Even companies for which this "in no way affects [their] recommendations or advice" have no incentive for consumers to obtain the best card.[57] While they need to ensure that consumers *perceive* their choice as optimal, they have limited incentives to put effort into making sure the actual costs of the chosen products are optimal or even beneficial for consumers.[58] In this sense, these websites' interests are misaligned with those of consumers. In fact, these comparison sites' ability to charge commissions from credit card companies is dependent on the existence of credit card companies' margins. If consumers choose the optimal cards with lowest total costs, credit card companies' profit margins will be reduced, lowering intermediaries' ability to capture a part of this profit margin.

Thus, while such comparison tools often reduce the time and effort associated with searching and collecting information about various credit cards in the market, they make little headway in improving the quality of choices and mitigating consumers' biases. Additionally, while the mere creation of an online market and comparison improves competition and may reduce credit card prices, it only reduces prices of *salient* features, and not the overall price a consumer is expected to pay for the card, and it does not ensure the optimal choice for a given consumer.

B. Financial Management Tools

Financial management tools have even greater potential to influence consumers' financial wellbeing and to resolve market failures, albeit a

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[56] *See* Martha C. White, *Do Credit-Card-Comparison Sites Work as Promised*, TIME, (Aug. 10, 2012), http://business.time.com/2012/08/10/do-credit-card-comparison-sites-work-as-promised; Consumer Action News, *Comparing the Credit Card Comparison Websites*, (2012), https://www.consumer-action.org/downloads/english/CA_News_Fall_2012.pdf (finding that websites presented the same top results, regardless of consumers' stated preferences or credit ranking, and despite the availability of preferable options further down the page); Mint notes in their paid advertiser disclosure: "As you know, Mint is a free product you can use to help stay on top of your finances. So, how do we make money? We get paid by the advertisers on our site. This compensation may affect how and where products appear on the site (and in what order). Mint.com does not include all products or all available offers." MINT, WAYS TO SAVE: CREDIT CARDS, https://www.mint.com/ (on file with author).

[57] NERDWALLET, *supra* note 54.

[58] It is important to clarify that such a perception of the quality of comparison must be lasting, and not temporary. Such companies rely on their reputation as being a useful tool for consumers, and so even if consumers' choices aren't optimal, they may offer consumers benefits compared to their existing alternatives. The problem is that consumers may not be able to assess the quality of their choice compared to alternatives even in hindsight.

vaguer definition of the services they are expected to fulfill. Existing tools make significant progress in minimizing the costs resulting from consumers' limited attention and self-control. Mint, the leading financial management tool, and similar competitors such as Quicken, Clarity Money, Personal Capital, and even Nerdwallet give consumers a unique ability to get an aggregated view of their accounts and assets, therefore reducing the costs of monitoring their various accounts, overall balances, and obligations. This, in turn, reduces the benefit from the convenience of holding all of the consumers' accounts with one service supplier, therefore enabling consumers to more readily unbundle the services they receive from their bank.[59] Additionally, Mint, Quicken, and Clarity Money offer consumers the ability to set up alerts notifying consumers of large expenses or deposits, low account balances, and bills due.[60] This reduces consumers' monitoring and attention costs, and accordingly decreases the likelihood that consumers will mismanage their balances or miss an unauthorized transaction, therefore minimizing bounced check and overdraft fees, and the potential costs of mistaken charges and fraud.[61]

Finally, such tools also enable consumers to set budgets, and track their spending accordingly. While it is possible that the design of such budget categories and the interaction and fungibility between budgets and accounts could benefit from previous behavioral research and structures of

[59] Many banks offer some financial management tools with their bank accounts, but not an aggregated overview of several service providers, linking a consumers' checking account, savings account, investment accounts, mortgages, loans, credit cards, and more. KANTAR PUBLIC, *supra* note 41.

[60] Personal Capital offers daily or weekly emails that track consumers' accounts and expenses but does not offer specific alerts. Its main notifications focus on savings and investment choices. PERSONAL CAPITAL: HOW TO, PROFILE & SETTINGS, https://support.personalcapital.com/hc/en-us/sections/200230620-Profile-Settings (last visited Mar. 21, 2020).

[61] Small companies have gone a step further to attempt to predict when consumers are likely to overdraft their accounts, while also offering consumers *low-cost* small-dollar loans as smoothing-over solutions, such as Change Labs and Dave.Com. Change Labs has changed it business model, which is currently aimed at offering services for banks. CHANGE LABS, ABOUT, https://www.changelabs.ai/about (last visited Mar. 21, 2020). Dave.Com has a relatively small user base. Bill Guard, offering consumers alerts of potential frauds and mistaken bills (without funding solutions) has been purchased by Prosper Marketplace, and later integrated its services with Clarity Money. *Prosper Marketplace to Acquire Leading Personal Finance Company BillGuard*, PROSPER (Sept. 24, 2015) https://www.prosper.com/about-us/media/2015/09/24/prosper-marketplace-to-acquire-leading-personal-finance-company-billguard-2/; *Important News About Prosper Daily*, PROSPER BLOG, (July 28, 2017), https://www.prosper.com/blog/2017/07/28/important-news-prosper-daily/.

mental accounting,[62] the creation of budgets that correspond with individuals' perception of expenses enables consumers to better set goals and monitor their behavior according to those goals. Such tools do not often take the extra step of enabling individuals to identify their weak spots and potential mistakes and mismanagement, do not offer tools to learn from other users' budgets or spending habits, and do not offer self-commitment tools such as rainy day savings or pre-set limitations on certain categories of spending, payment mechanism, or times.[63] In this sense, they enable consumers to set and track their spending more easily, but do not offer consumers ways to optimize such budgets and tracking to fulfill their goals. As will be explained when discussing Mobile Wallets and Payment Solutions, some of these limitations may be the result of such tools' limited ability to monitor consumers' behavior in real time, or directly influence their financial behavior. Mint advertises certain savings and investment products, and recently, also presented "Digit," a paid service that transfers small savings amounts from consumers' accounts based on their predicted expenses and account balances, therefore encouraging consumers to make small contributions to rainy day savings.[64] Clarity Money similarly offers consumers the ability to set aside small amounts of money to be withdrawn to a savings account, but does not offer an algorithmic choice of when and how

[62] *See generally* Richard H. Thaler, *Anomalies: Saving, Fungibility, and Mental Accounts*, 4 J. ECON. PERSPECTIVES 193 (1990); Richard H. Thaler, *Mental Accounting Matters*, 12 J. BEHAV. DEC. MAKING 183 (1999); Hersh M. Shefrin & Richard H. Thaler, *Mental Accounting, Saving, and Self-Control*, *in* CHOICE OVER TIME 287 (George Loewenstein & Jon Elster eds., 1992); Yuntong Gou et al., *The Nonfungibility of Mental Accounting: A Revision*, 41 SOC. BEHAV. & PERSONALITY 625, 625-27 (2013); Adrian Winnett & Alan Lewis, *Household Accounts, Mental Accounts, and Savings Behaviour: Some Old Economics Rediscovered?*, 16 J. ECON. PSYCHOL. 431, 434-39 (1995); Richard H. Thaler, *Mental Accounting and Consumer Choice*, 27 MARKETING SCI. 51 (2008); Rob Ranyard et al., *The Role of Mental Accounting in Consumer Credit Decision Processes*, 27 J. ECON. PSYCHOL. 571 (2006).

[63] There are smaller Fintech companies that offer savings tools such as Acorns, and some are looking to cooperate as third-party providers with larger financial management companies. *See* Kristin Stoller, *The 5 Best Round-Up Apps for Saving Money*, FORBES, (Feb. 29, 2020 5:30 PM), https://www.forbes.com/advisor/personal-finance/the-5-best-round-up-apps-for-saving-money/; ACORNS SUPPORT, https://www.acorns.com/support/does-acorns-integrate-with-mint-com/ (last visited Mar. 21, 2020).

[64] These have been shown to have significant importance for consumers' financial wellbeing, as unexpected expenses in the range of several hundred dollars have been shown to lead consumers into expensive debt cycles. The creation of "rainy-day" savings is expected to mitigate the costs of such expense or income shocks. *See* THE MONEY ADVICE SERVICE, CLOSING THE SAVINGS GAP: INSIGHTS FROM MONEY ADVICE SERVICE RESEARCH, 12 (2016); MIMI LIU ET AL, SAVETY NET: HOW BIT VENTURES CAN HELP UK CUSTOMERS BUILD EMERGENCY SAVINGS FUNDS 1 (2017).

much to withdraw.[65] Therefore, these aspects of financial management tools take a step in the right direction in making it easier for consumers to monitor and manage their finances, but do not yet seem to go all the way in optimizing such choices and behavior. Unsurprisingly, such features of budgeting and monitoring create the main appeal for consumers to use these services.

Financial management tools have the same ability as comparison websites to offer users comparisons of available financial products, and yet they still do not fulfill any of the aforementioned potential benefits. But financial management tools differ from digital comparison websites in three major ways. First, these websites have access to consumers' personalized financial data. Since consumers give such companies access to their bank account information, the companies gain access to consumers' detailed transactions and financial history. Therefore, issues of trust and concerns of privacy do not explain why such firms do not give consumers personalized assessments of the impact and cost of certain financial decisions and products, as well as the likelihood they will be approved for various products. Second, unlike digital comparison tools, for which consumers choose to approach the site when searching for specific products, financial management tools can actively track and highlight potential savings and comparisons that consumers were not even aware of. Thus, recognizing potential savings on energy, broadband, cellphones, credit cards and bank accounts can be quite easy, pointing these out to users. This can help mitigate market failures derived from inertia or limited attention. Potential comparisons of expenses and spending habits can be utilized to offer savings on ongoing expenses such as travel, flights, groceries, or gas, and to point out to consumers where they have unusual expenses compared to peers. In other words, these financial management tools, through access to consumers' personal data and the ability to analyze other consumers' patterns of spending, as well as information about financial products, have the ability to help consumers save money by choosing competing service providers and comparing to otherwise similar customers.[66] In an interview with *Forbes,* Mint founder Aaron Patzer noted:

> We make money if we can help the user save money. Mint will tell you, "Hey, you've got $20,000 in a Bank of America checking account. Maybe you should move it to an account where you can earn 5% interest. You'd earn $800 in interest over the course of a year." For that, we might get a $30 referral fee.

[65] E-mail from Clarity Money to author (Mar. 11, 2018, 11:59 EDT) (on file with author).

[66] Such social comparisons are also useful in creating self-control and motivating desired behavior. THE BEHAVIOURAL INSIGHTS TEAM, EAST: FOUR SIMPLE WAYS TO APPLY BEHAVIOURAL INSIGHTS, 28-36 (2015), https://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf.

> Of course, we'll show you the best prices and interest rates, regardless of whether we have a relationship or not. The goal is to give you the best price and best user experience. The average user, when they log in, can find $1,000 worth of savings within five minutes.[67]

But this description is slightly misleading. When opening the Mint website, consumers are led to a tab named "Ways to Save," under which Mint offers a variety of financial categories, including credit cards, checking accounts, savings accounts, investments, insurance, and loans.[68] But while these features utilize consumers' information to offer more personally tailored *advertising*, the offered products are not better tailored to consumers' *needs*, and in no way guarantee that the product offers for consumers will save them money overall or compared to their existing products. In the same interview, Patzer goes on to explain:

> The brand promise of Mint is that the ads or offers you see are individually calculated to save or make you money. On Mint, ads are features. On our "Ways to Save" page, where we offer these savings features, we've found that the click-through rate [the number of times a link is clicked for every time it appears] is between 8% and 10%. That's much higher than the industry standard for online ads… [W]e make money when we help users save money and when we help advertisers acquire a new customer. *The model aligns all three parties.* That doesn't happen in most businesses.[69] [Emphasis added]

But in fact, this business model doesn't align all three parties. It aligns Mint and the advertisers, but not users. Mint needs users to have a *perceived* saving, so they click on the advertised product, but not necessarily an actual overall saving. In other words, Mint simply offers the benefits of well-tailored personalized advertising. The benefits of such advertisements are that they are more likely to be relevant to consumers' heterogeneous interests and needs, just like tailored advertising from Amazon based on previous consumption, or Booking.com's choice of hotels based on your previous tastes and willingness to pay. But this in no way guarantees that the product is optimal for consumers, or even that the product is better for consumers than their existing service provider. Mint notes that "Matches are credit card offers from our partners you are more likely to be interested in based on your ### credit score profile."[70] But the offers are presented in the exact same way described above for comparison websites: highlighting

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[67] Andy Greenberg, *Making a Mint,* FORBES (Jan. 3, 2008, 1:00 PM), https://www.forbes.com/2008/01/03/microsoft-google-intuit-tech-ebiz-cx_ag_0103mint.html#660d86572840; *see also*, Mint's 2007 presentation, explaining the revenue structure based on commissions from consumers' switching service providers, Presentation by Aaron Patzer, Founder & CEO of Mint, *Founders Institute: Accounting for Startups*, (June 30, 2008) , https://www.slideshare.net/malaparte/mint-founder-institute-accounting/11-LeadGen_CPA_Opportunity_30useryr_Original.

[68] MINT, *supra* note 56.

[69] Greenburg, *supra* note 66.

[70] MINT, *supra* note 56. "###" is the user's personal credit score.

only the benefits of the card, and without presenting the total expected costs or savings of a given card.[71] As Mint clarifies in its "Paid Advertising Disclosure":

> As you know, Mint is a free product you can use to help stay on top of your finances. So, how do we make money? We get paid by the advertisers on our site. This compensation may affect how and where products appear on the site (and in what order). Mint.com does not include all products or all available offers.[72]

Similarly, while checking account offers present potential benefits to consumers based on APY or benefits offered for signing into the account, such calculations disregard potential maintenance fees and encourage consumers to focus on the short-term sign-up benefits. Investment tools and opportunities ads likewise highlight the benefits of potential offers but do not compare the associated fees to consumers' existing portfolios, risk, or financial needs.

In other words, while Mint utilizes its access to personalized data to adjust the advertisements presented to consumers so they are more appealing, they in no way work to overcome the market failures that limit consumers' ability to choose the optimal product for them. In fact, they more often than not build on these same behavioral market failures to encourage consumers to choose the products offered by their partners. Thus, personalized information is used to benefit financial service providers, regardless of whether it actually benefits consumers.

The third and most important difference is that, unlike a credit card comparison website, which is viewed as an objective comparison tool, Mint presents its offers as savings opportunities and functions as individuals' personal financial management tool,[73] therefore inducing even more trust in its recommendations. While credit card comparison tools are (inaccurately) assumed to be neutral in their presentation of information,[74] Mint goes another step, creating the impression that it is acting on consumers' behalf. Thus, a consumer can receive one email that simultaneously informs consumers of unusual spending that may be suspicious, or tips for improving their credit score, while also offering consumers a new credit

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[71] *Id.*

[72] *Id.*

[73] MINT, *supra* note 50.

[74] While both Mint and such credit card websites are obligated to disclose their fee structure, the integration of advertised commercials presented as savings options, within a tool designed to assist consumers to save money creates a higher level of trust. The UK regulators network found that well-known brands of comparison websites induced trust in the providers on the site as well, and that none of the consumers read the terms and conditions of the website. UK REGULATORS NETWORK, *supra* note 45, at 19. More importantly, increased trust may reduce consumers' motivation to multi-home, comparing results across multiple sites. COMPETITION & MARKETS AUTHORITY, *supra* note 41, at 56.

card. While Mint is by far the largest personal finance tool with nearly 10 million users,[75] Clarity Money works in a similar manner.[76] Quicken offers similar budgeting tools, and endorses certain products, but does not offer any product comparison options,[77] and Personal Capital offers more limited budgeting tools but enables tracking of expenses and sells its own investment management services.[78] Despite access to the relevant information, none of these products offer consumers such a comparison tool. Personal Capital does not offer any such comparison, and only offers personalized asset management and investment advice.[79] Quicken, Mint's predecessor and one of the two lead competitors, bases its business model on consumers' direct payment for its services.[80] And yet, it similarly does not offer any comparisons or potential savings by comparing existing providers to potential ones. Thus, despite the available information, such products have not yet evolved to actively help consumers better assess financial products' costs and benefits, or their personal needs and uses of these products. Those that do present products to consumers, do so only to advance their own investment services, or to receive commissions from partner firms.

C. Mobile Wallets

The term "mobile wallets" is used to describe a large variety of products that rely on different innovative technologies. They fall into four categories: (1) virtual storage, (2) utilization of virtually stored products, (3) alternative payment products, and (4) optimization and management of stored products. The products serve four corresponding functions, as follows.

First, as the name indicates, mobile wallets can offer to virtually store and organize financial products one would ordinarily keep in a wallet, such as coupons, store cards, tickets, and payment methods. They reduce the need to carry around a physical wallet and cash, and help organize, access,

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[75] Based on Crunchbase, and Similarweb. SIMILIARWEB, https://www.similarweb.com, (last visited Mar. 21, 2020), CRUNCHBASE, *supra* note 39.

[76] With only 55,000 monthly users. CRUNCHBASE, *supra* note 39; Email from Clarity Money, *supra* note 65.

[77] Quicken has more than 1.5 million users. As will be explained, Quicken's business model is built on revenues by paid subscription. While this explains why it does not need to profit from advertising financial products, it does not explain why the product does not offer such comparisons for the benefit of consumers. *See* Email from Quicken to author (May 1, 2018, 19:07 EDT) (on file with author); CRUNCHBASE, *supra* note 39.

[78] With over 3 million users. CRUNCHBASE, *supra* note 39; PERSONAL CAPITAL: SEE HOW IT WORKS, https://www.personalcapital.com/see-how-it-works (last visited Mar. 10, 2020).

[79] PERSONAL CAPITAL: SEE HOW IT WORKS, *supra* note 78.

[80] *How can we help you manage your money?*, QUICKEN, https://www.quicken.com/products (last visited Mar. 22, 2020).

and preserve such products in an efficient manner. Thus, for example, Masterpass or Visa Checkout enable consumers to use their credit cards to check out virtually.[81] Second, such storage devices often also utilize innovative technology to enable payment or use of such virtually stored products, and to authenticate users. This is meant to improve consumers' convenience and speed of use and payment and checkout, and also to ensure the security of these services. Utilization technologies range from QR codes solutions in which consumers scan products with their phone, or present a code on their phone screen for a business to scan, Near-Field Communication (NFC) solutions, often based on RFID tags that allow for payment with the phone with a quick tap to a nearby device, payment for vending machines or parking, different techniques of securing the storage of consumers' data either on the cloud or on a secure element of the phone, authenticating users via pin, thumbprint, face and voice recognition, or smart algorithms that track behavioral and typing patterns.[82] Most of these services also incorporate tokenization solutions, where the consumers' financial information is not passed on directly, but only a temporary token is used.[83] This enhances security, and enables users to create a derived limited token to use as a payment method, for instance by enabling their children to make certain limited use of their card or giving vendors a temporary number. Apple Pay, for example, enables consumers to upload various payment methods and coupons.[84] These are coded and then stored on a secure element on the phone. When consumers wish to pay, they are either authenticated with their thumbprint, facial recognition, or pin code.[85] The payment is either conducted as an online payment (for instance, for Uber or Airbnb) or by tapping the phone using NFC technology.[86] Consumers' credit card numbers are not transferred to the merchant, who receives only a temporary token. The Current[87] system enables parents to pay for their children's purchases from afar, by approving their purchases or extending a limited

[81] *See* MASTERPASS BY MASTERCARD, https://masterpass.com/en-us.html (last visited Mar. 22, 2020); VISA: PAY WITH CONFIDENCE, https://www.visa.com/betterway/pay.html (last visited Mar. 22, 2020); VISA, https://usa.visa.com/pay-with-visa/visa-checkout.html (last visited Mar. 22, 2020) ("The online checkout has evolved").

[82] Omkar Ghag & Saket Hedge, *A Comprehensive Study of Google Wallet as an NFC Application*, 58 INT'L J. COMPUTER APPLICATIONS 37 (2012); CONSUMER FINANCIAL PROTECTION BUREAU, *supra* note 8, at 270-83.

[83] CONSUMER FINANCIAL PROTECTION BUREAU, *supra* note 8, at 270-83 (describing tokenization).

[84] APPLE: APPLE PAY, https://www.apple.com/apple-pay/ (last visited Mar. 22, 2020).

[85] APPLE: APPLE PAY SUPPORT, https://support.apple.com/apple-pay (last visited Mar. 22, 2020).

[86] *See* APPLE PAY, *supra* note 84; APPLE PAY SUPPORT, *supra* note 85.

[87] With only 154,000 users. CRUNCHBASE, *supra* note 39.

amount of money from their card to their child's card.[88]

Third, while such mobile wallets can simply store and help utilize existing payment methods, they can also offer competing payment solutions, such as Peer-to-Peer payments (offered by Venmo), the creation of competing money transfer services (such as Paypal or international remittance services), the creation of a local or internal payment currency that is accepted in limited locations (such as Colu's local currency, or Starbucks' points), or cryptocurrencies, which may or may not be accepted more widely.[89] Fourth, certain financial products could enable consumers not only to store and utilize their existing financial products but also offer services that help manage them.[90] Thus, coupons can be stored by a mobile wallet, and can also be renewed or matched to a consumer's transaction. Consumers can choose which card to pay with, but technological solutions can also help consumers optimize the choice of cards according to existing balances, rewards, and discounts.

All of these technological innovations have the potential to create significant efficiencies, in the reduction of consumers' and businesses' transaction costs, time, and risk of fraud, and to create cheaper networks, as well as reducing the use of cash which is often the most socially expensive payment alternative. An interesting question, which I will only indirectly touch upon, is whether the majority of these solutions create competition for existing credit card networks, or actually strengthen them, as many of these products rely to some extent on the use of credit cards as the underlying payment mechanism. Additionally, they may also impact competition or create consolidation within suppliers in the credit card industry.[91] A different question is the impact of these products on the aforementioned

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[88] *Tip For Parents: Link Your Account to Your Teen's*, CURRENT (Oct. 21, 2019) https://current.com/blog/linkingteenbankaccounts/.

[89] VENMO, https://venmo.com/ (last visited Mar.22, 2020); PAYPAL, https://www.paypal.com/il/webapps/mpp/personal (last visited Mar. 22, 2020); PAYONEER, https://register.payoneer.com/get-paid-by-clients-worldwide/?utm_source=Google&utm_medium=Search&utm_campaign=Search-Brand-Israel-EN&network=g&device=c&Devicemodel=&Creative=109327364216&Keyword=Payoneer&Placement=&gclid=Cj0KCQiAv8PyBRDMARIsAFo4wK1Af0vO2lE2DTQ6X9cXlzzVMkWKeInM6xA7zpo1OXyjko4rOToMIXAaAvmhEALw_wcB (last visited Mar. 22, 2020); COLU., https://colu.com/ (last visited Mar. 22, 2020); CONSUMER FINANCIAL PROTECTION BUREAU, *supra* note 8, at 341-42.

[90] *See e.g.*, APPLE: IPHONE USER GUIDE, *Add and Manage Passes in Wallet on iPhone*, https://support.apple.com/en-il/guide/iphone/iphe7aa3336/ios (last visited Mar. 22, 2020).

[91] WORLD ECONOMIC FORUM, THE FUTURE OF FINANCIAL SERVICES: HOW DISRUPTIVE INNOVATIONS ARE RESHAPING HE WAY FINANCIAL SERVICES ARE STRUCTURED, PROVISIONED AND CONSUMED, 31-41 (2015), http://www3.weforum.org/docs/WEF_The_future__of_financial_services.pdf.

market failures.

Compared to financial management tools, mobile wallets often have real-time access to consumers' consumption and payment decisions, and therefore can have a significant advantage in assisting consumers in recognizing their self-control weak spots and triggers, and in the creation of self-control mechanisms and real-time alerts and interventions, setting constraints on times, locations, and types of spending. Additionally, with regard to consumption decisions, mobile wallets can help optimize shopping carts and choose between suppliers. More importantly, at the point of payment, mobile wallets can help optimize consumers' choices, helping them overcome problems of complexity, limited attention, information overload, and salience.

The leading apps used for point of sale checkout in the United States have been Apple Wallet, Starbucks app, Google Pay, and Samsung Pay.[92] All of these apps (except the Starbucks app) enable consumers to store and pay with their mobile wallets, but do not include a function to help optimize consumers' choices at checkout, or when choosing and comparing products. To some extent, the creation of mobile payments only exacerbates consumers' market failures. As payments become faster and more automated, consumers pay less attention to the choice of payment method. The payment method that is chosen as a default is likely to be used for all transactions.[93] Furthermore, research has indicated that the pain of payment, which is used by consumers to impose self-control on their spending, is reduced as the payment becomes more abstract or is given less attention. Just as the transfer from cash to card increases consumers' willingness to pay for products and reduces their awareness of the price paid,[94] the transfer from card to mobile wallet and payment with a tap of the phone is expected to have similar effects.

Similarly, while some apps enable you to create a shopping list and locate all the products on it, these are offered by specific supermarkets and vendors, and do not enable comparisons between suppliers and do not

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[92] *Amazing Stats Demonstrating the Unstoppable Rise of Mobile Payments Globally*, MERCHANT SAVVY (Updated Feb. 2020) https://www.merchantsavvy.co.uk/mobile-payment-stats-trends/.

[93] WORLD ECONOMIC FORUM, *supra* note 91, at 15–16, 28, 33–34.

[94] *See* Zinman, supra note 21, at 255; see Drazen Prelec & Duncan Simester, *Always Leave Home Without It: A Further Investigation of the Credit-Card Effect on Willingness to Pay*, 12 MARKETING LETTERS 5, 5–6 (2001); *see also* Richard Feinberg, *Credit Cards as Spending Facilitating Stimuli: A Conditioning Interpretation*, 13 J. CONSUMER RES. 348, 348–49 (1986) (indicating that in the presence of credit card cues consumers were more likely to spend, were likely to spend more and to make spending decisions more quickly); Drazen Prelec & George Loewenstein, *The Red and the Black: Mental Accounting of Savings and Debt* 17 MARKETING SCIENCE 22-23 (1998).

necessarily guarantee price comparisons within stores.[95] The possibility to create limitations on credit card payments exists when transferring funds to teenagers and the elderly, and not as self-control mechanisms. This is despite the fact that the CFPB in the United States and the Behavioral Insights Team in the United Kingdom found high consumer demand for a payment card that gives users real-time feedback on their spending and budgeting, and enables setting limits.[96] Several small startups offer an underlying physical payment card, through which consumers can pay with all cards.[97] While these offer additional protections against fraud and the ease of only carrying one card, the leading products do not offer consumers any optimization of their consumption decisions.[98] There are a handful of startups that offer consumers a way to optimize their choice of cards, based on recognizing the store in real time and then offering a consumer the best card to use out of their available options.[99] The market shares for all of

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[95] *E.g.*, WALMART: WALMART APP, https://www.walmart.com/cp/walmart-mobile-app/1087865 (last visited Mar. 22, 2020); *e.g.*, TARGET: TARGET APP, https://www.target.com/c/target-app/-/N-4th2r?Nao=0 (last visited Mar. 22, 2020); *e.g.*, COSTCO WHOLESALE: THE COSTCO APP, https://www.costco.com/costco-app.html (last visited Mar. 22, 2020).

[96] *See* CONSUMER FINANCIAL PROTECTION BUREAU, CONSUMER INSIGHTS ON MANAGING SPENDING 19–21 (2017), https://files.consumerfinance.gov/f/documents/201702_cfpb_Consumer-Insights-on-Managing-Spending.pdf; THE BEHAVIOURAL INSIGHTS TEAM, *supra* note 11, at 167–200, (demonstrating consumers' stated desire to block potential offers that would tempt them with fast loans, and for tools that would enable setting limitations on credit card spending); *see also* Gathergood & Weber, *supra* note 30, at 455-56. (demonstrating that individuals co-hold credit card debt and savings, spending hundreds of dollars in unnecessary fees, as a self-control mechanism to limit their liquidity).

[97] CURVE, https://www.curve.com/ (last visited Mar. 22, 2020).

[98] Curve, for example, gives consumers a way to consolidate all their payment mechanisms into one card that's connected to an app. This card lets consumers choose which payment method to use, but in practice simply offers one card that holds various different cards, without any simplification or optimization of the choice of payment method. *Id.*

[99] Stores are recognized in real-time based on their geolocation. Some of these apps, such as Birch, or Reward Summit, refer only to optimizing the rewards. Others, such as Glyph or Wallaby, also take into consideration factors such as interest, available balance and spending limit, and even impact on credit score when recommending the payment method. While Wallaby started off charging an annual fee, the pricing model of all of these companies is currently based on making recommendations to the consumer for new, additional cards. *See e.g.*, *Reward Summit: Mobile App for Increasing Credit Card Rewards*, INDIEGOGO, https://www.indiegogo.com/projects/reward-summit-mobile-app-for-increasing-credit-card-rewards#/ (last visited Mar. 22, 2020); *see e.g.*, Sarah Perez, *Glyph's New iPhone App Tells You What Credit Cards to Use to Earn Better Rewards*, TECHCRUNCH (Nov. 13, 2012, 11:46 AM) https://techcrunch.com/2012/11/13/glyphs-new-iphone-app-tells-you-what-credit-cards-to-use-to-earn-better-rewards/; *see e.g.*,

these services are currently extremely small, reaching less than a hundred thousand users at most, and some may even be inactive.[100] It would be interesting to see whether such apps gain traction and a larger user base over time. As will be discussed, and perhaps not surprisingly, none of these apps enable actual payment through the app but only recommend to the consumer which card to use. It would also be interesting to see if such advice features are also incorporated into the actual payment method. This, in turn, also limits consumers' ability to automate their choice of cards to the optimal choice, as they have to actively use one of these apps every time, they make a consumption decision.

III. WHY IS THE POTENTIAL NOT FULFILLED?

Technological developments have led to improvements and growing efficiencies in financial markets, creating the potential for significant disruptions and structural changes in ecosystems remained unchanged for decades. And yet, the promise of the resolution of behavioral market failures to the benefit of consumers is not being fulfilled. Fintech products are designed and offered in ways that preserve, build on, and at times even exacerbate prominent market failures. These patterns of market development are not the result of limited technological capabilities, as the technology is often already being utilized in other ways. Which begs the question, why are such products not entering the market?

A. *Old (Behavioral) Habits Die Hard*

Many of the solutions offered by Fintech products cater to the interests of retail businesses or incumbent financial institutions. For Fintech products that serve the interests of consumers to succeed, they must fulfill consumers' *biased* demand. While many of the aforementioned market failures harm consumers, consumers may not be sophisticated regarding them, and therefore may not be fully conscious of the benefits of resolving such failures. Additionally, even if consumers are aware of some of their limitations, and have a demand for products that address such problems, their assessment of potential products is similarly affected by cognitive biases, creating a vicious cycle of distorted consumer demand.

Consumers have varying levels of sophistication with regard to biases

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Press Release, *Wallaby Financial App for Android Leverages Geo-location Technology to Maximize Reward Earnings Opportunities*, MARKETWATCH (Nov. 1, 2016, 10:00 AM), https://www.marketwatch.com/press-release/wallaby-financial-app-for-android-leverages-geo-location-technology-to-maximize-reward-earnings-opportunities-2016-11-01.

[100] CRUNCHBASE, *supra* note 39.

that impact their decisions. Experience enables consumers to be conscious of their limited self-control and present biases, leading them to take on various self-commitment mechanisms and lock-in tools.[101] Consumers are also somewhat aware of their limited attention and information overload, even though they tend to be overly optimistic regarding their future ability to pay sufficient attention and effort to avoid late fees or to remember to switch or cancel subscriptions.[102] While consumers are likely aware of the difficulty of assessing products due to information gaps and complexity, they are less likely to be aware of the impact of the salience of certain product features on their decision making. Such varying levels of sophistication with regard to biases and ability to overcome them may explain why there seems to be significant demand for products that reduce information and comparison costs such as financial management tools, and automated alerts, but less demand for products that present the total costs of a product or advisory services that aren't conflicted.[103] An interesting question is whether supply can drive the demand for such products. If a company presents consumers with a product that creates significant savings and can demonstrate such benefits (for instance, by demonstrating the overall savings from alternative credit cards or optimal card use), would consumers become more sophisticated in demanding such services?

Even if consumers have a demand for a certain product or service, behavioral biases may lead consumers to prefer free products or advice, even if this reduces the quality of the services they receive or makes them more expensive overall. Specifically, with regard to apps or websites, consumers are accustomed to receiving free services. Over the years, prices of apps have gradually dropped, with more apps profiting through advertisements,

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[101] *See* John Beshears et al., *Which Early Withdrawal Penalty Attracts the Most Deposits to a Commitment Savings Account?* 183 J. PUBLIC ECON. 104144 (2020) (finding that individuals prefer to voluntarily bind themselves through financial penalties for withdrawing funds).

[102] Bar-Gill, *supra* note 14, at 1375-76; BAR-GILL, *supra* note 13, at 52-54, 83-90; Oren Bar-Gill & Elizabeth Warren, *Making Credit Safer*, 157 U. PA. L. REV. 1, 34, 53 (2008); Mark Armstrong & John Vickers, *Consumer Protection and Contingent Charges*, 50 J. ECON. LITERATURE 477, 483-88 (2012); COMPETITION & MARKETS AUTHORITY, RETAIL BANKING MARKET INVESTIGATION: ACTUAL AND PERCEIVED BEHAVIOR OF PERSONAL CURRENT ACCOUNT CUSTOMERS (REVISED) 4, 7-14 (2015) (finding that 50% of the users of unapproved overdrafts in the United Kingdom were unaware that they had used the services, and that most consumers significantly underestimated the amount of times they overdrew their account).

[103] But as noted above, there are certain products that consumers have expressed demand for (such as self-control mechanisms for spending and budgeting) that still do not come to fruition for other reasons.

data collection, in-app purchases, or premium products.[104] Loss aversion leads consumers to view even a low price as significantly expensive compared to free products, as consumers suffer disutility from even a small payment.[105] Additionally, with regard to professional and financial advice, previous research has demonstrated consumers' lack of willingness to pay for such advice directly, with a very strong preference for payment out of profits, commissions for sales, and other fees that are less salient.[106] This is coupled with consumers' disregard for the impact of conflicts of interests on the advice they get, and the limited impact (and even reverse impact) that disclosures of conflicts have on consumers' trust of financial advice they receive.[107] Additionally, comparison websites and algorithms are themselves complex products, and consumers have difficulty assessing the benefits and costs of each product and comparing them.[108]

Such preferences distort the market, inducing (and to a certain extent even forcing) suppliers to offer free products while profiting "on the back end," often by receiving commissions from incumbents. Additionally, and as will be explained next, this may be part of the incentive for the "Platform Economy." Within such virtual platforms, various participants have a stake in the relationships created on the platform, often with conflicting

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[104] Mary Ellen Gordon, *The History of App Pricing, and Why Most Apps Are Free,* FLURRY ANALYTICS BLOG (July 18, 2013), https://flurrymobile.tumblr.com/post/115189750715/the-history-of-app-pricing-and-why-most-apps-are.

[105] ARIELY & KREISLER, *supra* note 18, at 86–88, 102–03. *See also* Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk,* 47 ECONOMETRICA 263 (1979).

[106] Yevgeny Mugerman et al., *Out-of-Pocket vs. Out-of- Investment in Financial Advisory Fees: Evidence from the Lab,* 4–5, 18–19, (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3061020 (finding that even when consumers pay advisers directly, their willingness to pay increases when payments are made out of their investment portfolio than when they are made out-of-pocket).

[107] The European Commission found that comparison websites' business model had little impact on consumers' trust. *See* European Commission, *Study on the Coverage, Functioning and Consumer Use of Comparison Tools and Third-Party Verification Schemes for Such Tools,* EAHC/FWC/2013 85 07, 191–92 (2013). Previous research has demonstrated that disclosure of conflicts didn't reduce consumers' trust, and in some cases actually increased advisers' biases and encouraged consumer adherence to the advice provided. Daylian M. Cain, et al., *The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest,* 34 J. LEGAL STUD. 1, 22 (2005); *see* Omri Ben-Shahar and Carl E. Schneider, *The Failure of Mandated Disclosure,* 159 U. PA. L. REV. 647, 718, 739 (2011); *but see also* Sunita Sah & George Loewenstein, *Nothing to Declare: Mandatory and Voluntary Disclosure Leads Advisors to Avoid Conflicts of Interest,* 25 PSYCHOL. SCI. 575, 577-579 (2013) (finding that while generally disclosure of conflicts backfired, disclosure of conflicts that are avoidable leads advisers to avoid such conflicts).

[108] *See* European Commission, *supra* note 108, at 80, 86, 128 (discussing the opaqueness of most comparison websites business models); Van Loo, *supra* note 12, at 1291–92.

interests. As platform owners design the interactions and pricing in the platform, consumers' heightened price sensitivity may lead to underpricing the services they receive so that products can be offered for free, while preserving other stakeholders' participation by promoting their financial interests through alternative benefits, often less salient to consumers.

B. "Show Me the Money"

One of the main factors influencing the development of such Fintech products is the companies' business model and sources of revenue, which naturally drive their interest and the features offered. Assuming such products are marketed as services that assist the consumer or intermediate between the consumer and the business,[109] one possible source of revenue is to charge consumers directly for the services they receive, either as a percentage of their savings or as a fixed sum. As noted above, such business models are rare, given consumers' predisposition for free services.[110] Another is for incumbents to offer such services directly. For instance, banks can and do offer consumers budgeting and financial management tools.[111] Insurance companies offer consumers comparison tools to guarantee their premium is the lowest.[112] Visa and Mastercard offer consumers their own mobile and online payment services.[113] Incumbents can either offer these innovative services directly, or utilize third-party providers. In either case, such business models directly align the financial product with the interest of the business supplying it. Thus, as banks offer consumers financial management tools, they want to provide consumers with added value compared to competitors, but they have limited interest in offering consumers

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[109] Compared to products advertised to businesses only, such as risk management algorithms or cybersecurity tools, or even financial management tools offered by the banks themselves as part of the benefit of a checking account.

[110] *See* European Commission, *supra* note 108, at 97–103 (describing the unwillingness of comparison websites to disclose their business models, and details the known business models, which focus on advertising, commissions, and payments per clicks).

[111] *E.g.*, BANK OF AMERICA: SPENDING AND BUDGETING TOOLS, https://www.bankofamerica.com/online-banking/mobile-and-online-banking-features/spending-budgeting/ (last visited Mar. 22, 2020); *e.g.*, BARCLAYS: THE BARCLAYS APP, MANAGE YOUR WEALTH ON YOUR MOBILE, https://www.barclays.co.uk/wealth-management/banking-online/barclays-app/ (last visited Mar. 22, 2020); *e.g.*, Query for "What is TD MySpend?", TD AMERITRADE, https://td.intelliresponse.com/tdapp/index.jsp?interfaceID=21&requestType=NormalRequest&source=100&id=5469&question=What+is+TD+MySpend (last visited Mar. 22, 2020).

[112] *E.g.*, GEICO: COMPARING CAR INSURANCE QUOTES & RATES, https://www.geico.com/auto-insurance/comparison/ (last visited Mar. 22, 2020).

[113] MASTERPASS BY MASTERCARD, *supra* note 81; VISA: PAY WITH CONFIDENCE, *supra* note 81.

comparisons of financial products that are not offered by them.[114] Similarly, just as supermarkets that offer mobile shopping lists and coupons benefit from the perceived savings and convenience of consumers, they have limited interest in ensuring overall savings and prefer to increase consumption and profit margins. Therefore, it is unsurprising that such products provide only limited benefits. Such a business model is different from the one that is the focus of this paper and characterizes the challenge of every innovation offered by a competitor in the market striving to improve their services. Additionally, with such products, consumers are aware that they are utilizing the services of a financial institution or retailer, and therefore are likely to place limited trust in their motivations.[115]

A more interesting business model, at the heart of this analysis, is that of a multi-sided platform, where the Fintech company acts as an intermediary between the consumer and the financial institution or retailer. In such a model, the Fintech company, coordinating the transaction between the parties, ensures demand for its services by creating network externalities and market efficiencies, facilitating interactions that would not have been possible otherwise, or reducing the costs of such interactions. The Fintech company profits by capturing as much of these externalities as possible. The success of a platform is often dependent on drawing in a sufficient number of participants on both sides of the market to create network efficiencies.[116] Thus, consumers' benefit from the use of mobile wallets increases as they are accepted by more retailers and as they can virtually store more payment mechanisms in the wallet. Retailers benefit from the acceptance of mobile payments, either if they are cheaper than alternative payment methods, or if many consumers use such payments. While they generally prefer to have limited competition from other retailers, they also

[114] Also, there is limited interest in making sure consumers don't incur overdrafts and additional loans, even though this may be debatable; despite the centrality of overdrafts to banks' revenues in the United States, they are also highly correlated with account closures and loss of customers.

[115] For instance, if a consumer's bank were to offer them a credit card, presenting its potential savings compared to existing products, such recommendation would likely be taken with a grain of salt, compared to such a recommendation by a credit card comparison website or by a financial management tool.

[116] Mark Armstrong, *Competition in Two-Sided Markets*, 37 RAND J. ECON. 668, 669-70 (2006); David S. Evans & Richard Schmalensee, *The Antitrust Analysis of Multi-Sided Platform Businesses*, (Nat'l Bureau of Econ. Research, Working Paper No. 18783, 2013), https://www.nber.org/papers/w18783; Bernard Caillaud & Bruno Jullien, *Chicken & Egg: Competition Among Intermediation Service Providers*, 34 RAND J. ECON. 309, 309 (2003); HEIKE SCHEITZER, JUSTUS HAUCAP, WOLFGANG KERBER, & ROBERT WELKER, FED. MINISTRY FOR ECON. AFFAIRS & ENERGY (GERMANY), MODERNIZING THE LAW ON ABUSE OF MARKET POWER 2-3 (2018); FED. TRADE COMM'N, THE "SHARING" ECONOMY ISSUES FACING PLATFORMS, PARTICIPANTS, AND REGULATORS 26-27 (Nov. 2016).

need other retailers to join the network in order to draw in more consumers. Additionally, while retailers would prefer for such mobile wallets to reduce the transaction costs and interchange fees they incur for the use of various payment methods, they also need the wallets to offer a variety of payment mechanisms in order to draw in as many consumers as possible.[117] As platforms become large and influential enough, the costs of abstaining from participation can be quite deterring and outweigh the costs of participation, as consumers may refrain from consumption when certain payment methods are unavailable.[118] For example, if a consumer uses Apple Pay to avoid carrying around a physical wallet, they may not purchase at a store that does not accept such payments. While mobile wallets are dependent on the approval of the various participants in the platform, comparison websites can choose to either be one-sided, contracting with consumers alone or multi-sided, as they contract with product suppliers and advertisers.

A platform business model relies on creating benefits for all its participants while allocating costs between the sides of the market. In such platforms, prices are not necessarily allocated according to the costs of the services provided to each party, but according to the elasticity of demand for each side of the market.[119] This means that platforms can draw in consumers by underpricing the services provided to them, often even offering free services, while transferring costs to financial institutions or retailers (which may roll them over to consumers through the prices of their services). But such a business model and the ability to cross-subsidize the costs of services to consumers is contingent on the relationship between the platform and the service supplier, which depends on the benefit to the service suppliers from participating on the platform (or the costs of abstaining from it), which in turn impacts their ability to bargain for the terms of their participation. First, theoretically, some platforms do not need the voluntary participation of all retailers and service providers. For example, credit card price comparison websites can obtain information about the price of cards and their terms online, and do not need the voluntary participation of

[117] See Sujit Chakravorti & Roberto Rosen, Platform Competition in Two-Sided Markets: The Case of Payment Networks, 5 REV. NETWORK ECON. 118 (2006).

[118] Armstrong, *supra* note 117, at 670; Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets,* 1 J. EUR. ECON. ASS'N 990 (2003).

[119] *See* Armstrong, *supra* note 117, at 673–77; David S. Evans & Michael Noel, *Defining Antitrust Markets When Firms Operate Two-Sided Platforms,* 2005 COLUM. BUS. L. REV. 667, 668, 681–82 (2005); Chakravorti & Roson, *supra* note 118 at 119–120; Rochet & Tirole, *supra* note 119, at 997, 1008, 1011.

credit card suppliers.[120] And indeed, some of the new apps offering optimization of consumer rewards, or financial management tools that utilize scraping of consumers' banking information, do so without the active participation of existing financial institutions, simply by gathering available online information.[121] Second, if a product is successful enough and is utilized by many consumers, businesses are pressured into participating. Thus, as Apple Pay becomes more popular, businesses that do not accept it may lose customers who do not carry around a wallet, and cards that cannot be uploaded to the app may be used less often, leaving less leverage for retailers and banks to influence the design of such services.[122] Finally, the relationship between the platform and such third parties may or may not create conflicts of interest with consumers' core interests from the services they receive. Thus, advertising on Facebook may reduce consumers' enjoyment from the site, but it does not conflict with the core services that are offered to consumers. But the true benefit of such platforms for third-party providers is often related to their core services. While Mint could offer consumers tailored advertisements for cars or vacuum cleaners, their competitive advantage is in advertising financial services, both because of their ability to more accurately tailor such advertisements to consumers' circumstances, and due to the trust they obtain from consumers. Additionally, blending such advertisements in with their core services is more likely to lead consumers to click on them. Similarly, while credit card comparison websites could profit from gathering information about consumers and displaying advertisements accordingly, the financial incentives offered by credit card suppliers places significant pressure on such websites to alter the placement of cards presented in their search results and design the information they present in these results to promote profitable cards, especially if consumers are not highly sensitive to such changes.[123]

These dynamics greatly influence the quality of the services consumers receive overall. Consumers' extreme price sensitivity leads them to prefer free services but give less weight to conflicts of interest and indirect

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[120] *See* AnnaMaria Andriotis, *Lender Drops Challenge to Credit-Card Comparison Website,* WALL ST. J. (Jan. 12, 2015 6:37 PM), https://blogs.wsj.com/totalreturn/2015/01/12/lender-drops-challenge-to-credit-card-comparison-website/.

[121] In 2014, First Premier filed a lawsuit against CardHub.com parent, Evolution Finance Inc., alleging trademark infringement for displaying the bank's name and linking to its website. The suit called for all First Premier content to be taken down. The lawsuit was dropped in 2015. *Id.*

[122] *See* Armstrong, *supra* note 118.

[123] Consumers' sensitivity to these relationships may change over time, *see, e.g.*, AnnaMaria Andriotis, *Credit-Card Comparison Sites Come Under Fire,* WALL ST J. (Aug. 22, 2014, 6:35 PM), https://www.wsj.com/articles/credit-card-comparison-sites-under-fire-1408732727?ns=prod/accounts-wsj; Still, business models based on advertising and commissions are prevalent, *see* European Commission, *supra* note 108, at 97–103.

costs.[124] Consequently, Fintech companies are forced to transfer the costs to businesses, limiting their ability to act one-sidedly on behalf of consumers. Even if they can profit directly from consumers, voluntary participation on behalf of financial institutions often creates the potential for additional sources of revenue. As will be discussed, many products are technically dependent on the cooperation and participation of such third parties, and specifically of credit card networks to approve their payment technology.[125] All of these create significant tension between the Fintech products' need to create a benefit for consumers and their need to benefit retailers and especially financial incumbents. But as detailed above, consumers may be satisfied with *perceived* benefits, which might not reduce the overall price of the service they receive and may limit such products' ability to create significant changes in market dynamics.

Another important point is that as new entrants to the market, intermediating between incumbents and consumers, Fintech products may attempt to *capture* as much as they can of existing margins or to capture the benefits from the reduction in costs created by technological efficiencies. For instance, if credit card companies manage to extract additional profits by consumers choosing sub-optimal cards or not switching often enough, comparison websites could profit by offering consumers choices that lead to a reduction in these margins, while splitting the savings between consumers and the websites. But since consumers are not keen to pay for such services, comparison websites can also maintain such existing sub-optimal choices, while splitting the margins with credit card companies.[126] Naturally, if consumers could differentiate between products that lead to greater savings, competition would drive the market to create products that benefit consumers, but consumers' limited sophistication decreases the profitability of such business models. This naturally drives price comparison websites to profit from commissions from credit card companies, drives financial management tools to profit either from tailored advertising of financial products or by offering such products themselves, and drives mobile wallets to look for profits either from retailers by encouraging

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[124] Gordon, *supra* note 105; ARIELY & KREISLER, *supra* note 18; Mugerman, *supra* note 107; European Commission, *supra* note 108; Cain, et al., *supra* note 108; Ben-Shahar & Schneider, *supra* note 108; Sah & Loewenstein, *supra* note 108.

[125] *See infra* note 142.

[126] Regulators have begun looking at "most-favored nation" provisions by such websites, which mandate that suppliers cannot offer products for lower prices than those offered on the site. This reduces the pressure from comparison websites to lower their commissions, as entrants cannot offer lower commissions to attract consumers through overall lower prices. *See* Van Loo, *supra* note 12, at 1294–96; Press Release, Competition & Markets Authority, *ComparetheMarket home insurance deals could deny people better prices* (Nov. 2, 2018), https://www.gov.uk/government/news/comparethemarket-home-insurance-deals-could-deny-people-better-prices.

consumption, by charging transaction fees, or from credit card companies and banks.

Currently, many products are competing with banks for their consumers, not in the traditional sense of holding deposits and making loans, but as consumers' point of contact to their other financial transactions and decisions.[127] Due to the complexity and overload of financial products, such products can offer consumers the benefit of simplicity, and a reduction in the attention and time required for financial management.[128] This can enable consumers to consolidate their interactions with financial service providers.[129] Becoming the consumers' point of contact with the financial world has the potential to create significant revenues, challenging banks' traditional role. "Banking as a Platform" refers to the role of banks not only in holding consumers' deposits but also as conduits to other financial products.[130] In traditional banking, banks often offer such services directly. Through their relationship with the consumer and access to their funds, banks have a significant advantage in offering account holders payment cards, loans, mortgages, and investment products.[131] "Banking as a Platform" suggests that in order to keep their customers, banks are beginning to offer account holders access to quality third-party services (such as P2P

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[127] Markos Zachariadis & Pinar Ozcan, *The API Economy and Digital Transformation in Financial Services: The Case for Open Banking* 7-14 (SWIFT Institute, Working Paper No. 2016-001. 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2975199; FINANCIAL CONDUCT AUTHORITY, STRATEGIC REVIEW OF RETAIL BANKING BUSINESS MODELS 44-49, 51 (2018); Dirk A. Zetzsche, Ross P. Buckley, Douglas W. Arner, & Janos N. Barberis, *From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance* 3-5, 9-11 (EBI, Working Paper Series 2017 – No. 6, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2959925; Kalina S. Staykova & Jan Damsgaard, *The Race to Dominate the Mobile Payments Platform: Entry and Expansion Strategies*, 14 ELECTRONIC COM. RES. APPLICATIONS 319, 319-323 (2015); Dan Awrey & Kristin van Zwieten, *The Shadow Payment System*, 43 J. CORP. L. 775 802-807 (2018); Aakanksha Gaur & Jan Ondrus, *The Role of Banks in the Mobile Payment Ecosystem: A Strategic Asset Perspective*, INT'L CONF. ELECTRONIC COM. 171, 173-74 (2012); WORLD ECONOMIC FORUM, THE FUTURE OF FINANCIAL SERVICES: HOW DISRUPTIVE INNOVATIONS ARE RESHAPING THE WAY SERVICES ARE STRUCTURED, PROVISIONED AND CONSUMED 100 (2015); FINANCIAL STABILITY BOARD, FINANCIAL STABILITY IMPLICATIONS FROM FINTECH: SUPERVISORY AND REGULATORY ISSUES THAT MERIT AUTHORITIES' ATTENTION 7-13 (2017); Imran Gulamhuseinwala, *From Pipes to Platforms: Imagining an Uber Moment in the Financial Services Sector*, EY FINANCIAL SERVICES (2017), https://www.fca.org.uk/publication/research/from-pipes-platforms.pdf.

[128] *See* articles and reports cited *supra* note 128.

[129] *See* articles and reports cited *supra* note 128.

[130] *See* articles and reports cited *supra* note 128.

[131] Aluma Zernik, *Overdrafts: When Markets, Consumers, and Regulators Collide*, 26 GEO. J. ON POVERTY L. & POL'Y, 1, 16–18, 39–40, (2018); *see* OFFICE OF FAIR TRADING, PERSONAL CURRENT ACCOUNTS IN THE UK: AN OFT MARKET STUDY, 2008 OFT 1005, at 19–20 (2018), http://oft.gov.uk/shared-oft/reports/financial-products/OFT1005.pdf.

payments),[132] which can offer specialized services that the banks cannot efficiently fulfill. But it also suggests that companies that compete with banks for the role of consumers' point of contact to their financial assets and services will have a lucrative opportunity to create such loyalty, profiting from the role of taking over the bank's position as a conduit to additional financial products (such as insurance, investing, payments, loans, and more).[133] As Credit Karma's CEO, Kenneth Lin noted, many service providers offer free products in order to create such habitual interaction between the consumer and their service.

> It can seem counterintuitive that features that don't generate revenue could be your greatest competitive advantage later on," founder and CEO Kenneth Lin said. "We've built credit simulators and tools to dispute credit report errors even if it didn't bring in money *because we wanted to drive habitual engagement with the site*.[134]

Similar value can be derived from the role of a consumers' wallet ("wallet as a platform") as a point of contact between the consumer and both the retail and payment transaction sectors. On the one hand, in order to become consumers' preferred point of contact to manage their finances, such service providers need to compete in offering real benefits, such as efficient alerts, ease of management and reduction of costs, and efficient connections to additional services. On the other hand, this preserves such companies' interest to profit from increased margins and suboptimal financial decisions on consumers' behalf as these increase the available revenues from financial service providers that participate on the platform.

Overall, a platform business model often blurs the line between an adviser, who is expected to act as an agent on behalf of the consumer, an objective intermediary, situated equally between consumers and other service providers, and an agent on behalf of financial service providers, acting to increase (and capture) their revenues.[135] As these roles blur, and with consumers' limited ability to tell such roles apart, the risk arises of

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[132] *See* articles and reports cited *supra* note 128.

[133] Such platforms can also offer thinner, more efficient solutions, which rely on less personnel and different models of risk management.

[134] *We Analyzed 8 Of The Fastest-Growing Personal Finance Apps Of All Time To Figure Out The Secrets To Their Success – Here's What We Learned*, CBINSIGHTS: RESEARCH BRIEFS (Aug. 24, 2019), https://www.cbinsights.com/research/personal-finance-apps-strategies/.

[135] The creation of a pricing structure that fully aligns an agent's interest with that of the principal is also often a challenge, especially when the principal's ability to assess the quality of provided services is limited. *See* Steven D. Levitt & Chad Syverson, *Market Distortions When Agents Are Better Informed: The Value of Information in Real Estate Transactions*, 90 REV. ECON. & STATISTICS 599 (2008). While such incentives are never fully aligned, they differ from financial incentives that directly conflict with those of the principal.

exacerbating unconscious consumer biases and taking advantage of their trust. It is important to note that intermediaries that are situated in multi-sided markets are not unique to the Fintech world, and are popular in media, gaming markets, and credit card networks, where similar challenges of pricing and conflicting interests arise.[136] Among Fintech products that intervene at the point of consumers' financial decision making, such business models are extremely prevalent.[137] This, in turn, can help explain why such products have developed to only partially fulfill their potential benefits, as such Fintech companies have a significant interest in the preservation of profit-margins of other participants on their platform.

C. The Power of Incumbents in the Ecosystem

Incumbents in the ecosystem have a strong incentive to maintain existing structures and their profit sources. And indeed, many of the new offered solutions preserve and even enhance the power of incumbents, specifically that of credit card networks.[138] One reason, described above, is that for Fintech companies, "taking a cut" out of the profits earned by incumbents can often be more profitable than minimizing them.[139] While some companies try to beat incumbents by taking their place (for instance, Paypal), others often simply join them, by creating improved interfaces and upgrading the safety and convenience of using such payment methods.[140]

Other than the potential profit available to those cooperating with incumbents, many products are currently also dependent on existing networks and services. Mobile wallets often depend upon the agreement of

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[136] Andrei Hagiu, *Strategic Decisions for Multisided Platforms*, 55 MIT SLOAN MANAGEMENT REVIEW 71, 73, 78 (2014); Mark Rysman, *The Economics of Two-Sided Markets*, 23 J. ECON. PERSP. 125, 131-135 (2009).

[137] This can be demonstrated by the aforementioned companies with the largest market share, which offer (free) services to consumers on the one hand and charge financial institutions or retailers for these services on the other hand.

[138] For example, nearly all of the mobile wallets described above rely on the use of credit cards for payment. *See* THE PAYPERS, PAYMENT METHODS REPORT 2019: INNOVATIONS IN THE WAY WE PAY 49-51. It is important to note that this is true mostly for the United States and the United Kingdom. In Asia, Africa and certain European Union countries, mobile wallets are more often reliant on bank to bank payments, or mobile networks.

[139] *See supra* p. 31.

[140] In fact, even PayPal significantly relies on underlying credit card payments, often preserving the use of cards for transactions, and in instances in which consumers would have refrained from making an online credit payment, at times even increasing their use. They do compete with credit card networks for payments between accounts and online transactions. Finally, PayPal contracted with Mastercard to issue a physical payment card. *See* PAYPAL: CREDIT CARD, https://www.paypal.com/us/webapps/mpp/credit-card (last visited Feb. 22, 2020).

various payment methods in order to upload them to the wallet and to clear transactions, creating the need to contract with existing issuing banks or to contract with one of the credit card networks to offer a competing card.[141] The networks' infrastructure that includes terminals at points of sales and significant information and knowhow about risk management is hard to replace, creating barriers of entry for service providers that challenge them. Even companies that offer alternative payment methods often depend on credit cards to "top-up" their accounts.[142] Additionally, while companies often manage to access information on existing accounts through "scraping," incumbents may try to circumvent such access.[143]

In specific cases of companies that may challenge incumbents' strength, such startups may also be bought or invested in, to be directed to work in a manner that strengthens incumbents (often by reducing the use of cash and increasing underlying card payments).[144]

D. Heterogeneity and the Challenge of Optimization

In some cases, the question of what the optimal choice is for a consumer has a clear solution, such as giving consumers alerts before expected overdrafts, preventing unintentional overdrafts.[145] But some choices are more

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[141] *See, e.g.*, APPLE: APPLE PAY PARTICIPATING BANKS IN CANADA, LATIN AMERICA, AND THE UNITED STATES, https://support.apple.com/en-il/HT204916 (last visited Mar. 23, 2020); GOOGLE PAY, https://pay.google.com/about/banks/ (last visited Mar. 23, 2020); *see also* APPLE: APPLE CARD, https://www.apple.com/apple-card/ (the new apple card supported by Mastercard).

[142] For example, individuals can link a bank account or credit card if they need to send funds from their Venmo account or to withdraw the funds to their bank account. VENMO: BANK ACCOUNTS AND CARDS, https://help.venmo.com/hc/en-us/sections/201950958-Bank-Accounts-Cards (last visited Mar. 23, 2020). Similarly, payments on PayPal are made by linking a bank account or payment card. PAYPAL: HOW CAN WE HELP?, *What payment methods can I use with PayPal?*, https://www.paypal.com/us/smarthelp/article/what-payment-methods-can-i-use-with-paypal-faq1867 (last visited Mar. 23, 2020)

[143] Daniel Huang & Peter Rudegeair, *Bank of America Cut Off Finance Sites From Its Data,* WALL ST. J. (Updated Nov. 9, 2015, 7:47 PM), https://www.wsj.com/articles/bank-of-america-cut-off-finance-sites-from-its-data-1447115089.

[144] *See,e.g.*, Paul R. La Monica, *Visa Discloses Big Stake in Jack Dorsey's Square,* CNN BUS. (Feb. 12, 2016, 2:25 PM), https://money.cnn.com/2016/02/12/investing/visa-square-jack-dorsey/index.html; *see* Chris Barth, *Visa And Square: Why Goliath Is Investing In David,* FORBES (Apr. 27, 2011, 4:04 PM), https://www.forbes.com/sites/chrisbarth/2011/04/27/visa-and-square-why-goliath-is-investing-in-david/#79ca4fa7623c; *see* Trefis Team, *Why Did PayPal Pay Such A High Price For iZettle?,* FORBES (June 7, 2018, 3:17 PM), https://www.forbes.com/sites/greatspeculations/2018/06/07/why-did-paypal-pay-such-a-high-price-for-izettle/#392b7cc26860.

[145] Some overdrafts may be intentional, but others are influenced by inattention. *See* Zernik, *supra* note132, at 19–20.

complex, and may also be influenced by heterogeneous preferences. When choosing a credit card, should consumers look at the expected costs of a card over a year? Over three years? Over a month? If holding multiple cards becomes seamless, perhaps consumers should obtain a new card every few weeks. And if so, how should credit scores be taken into account? And the hassle, fraud risk, and paperwork have an additional cost that should be factored in. A more complex optimization problem arises with regard to decisions that include a significant heterogeneity in consumers' preferences, for instance, in balancing between price and quality. When creating and balancing budgets, such variations need to be factored in. While big data creates the ability to provide smart algorithms that make such individual differentiation, it can also misdirect consumers to products that are less appropriate for them, reducing the visibility of other options and the choice process, and systemically driving groups of consumers to specific products. Finally, when assessing consumers' "optimal" financial behavior, should that include their long-term financial welfare, their current quality of life, or their satisfaction with the service they receive? While for certain financial products reducing the price may seem optimal, for others, such as insurance products, there may be a give-and-take between the price of the product and its quality or level of risk, which may be subject to personal needs and preferences. In these instances, the overall rating or simplification of advice may lead to an over-simplification and superficial presentation of complex choices.

In the extreme version of such optimization of consumers' decision-making process, consumers may waive their judgment completely, relying on algorithms to learn their preferences and then to choose their next meal, potential spouse, credit card, and savings plan. While overly trusting in such services' recommendations as objective, consumers insist on preserving a feeling of free choice and self-control over the final decision.[146] This perception may be overstated, as research indicates that consumers rarely go past the first page of choices offered to them, and are greatly influenced by the way the choices are presented.[147] On the other hand, consumers' insistence on refraining from relinquishing their discretion seems to be warranted, given the fact that, as detailed above, such businesses' choices and preferences are far from being perfectly aligned with those of consumers.

But the challenge of optimization should not be overly dramatized. While the choice between minimizing consumers' costs over a year, three years, or a month may lead to different outcomes, given consumers'

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[146] *See* KANTAR PUBLIC, *supra* note 41, at 80–81.
[147] *Id.* at 141.

current limited ability to make such choices,[148] any alternative would likely make them better off. While certain preferences can be left to consumers (for instance, consumers' preference for miles, cash rewards, or entrance to a lounge), others, such as the reduction of overall fees and interest paid on a card are quite straightforward and can be significantly improved compared to the current situation in which many of these decisions are made almost arbitrarily. Companies that rely on big-data and machine learning have an ongoing process of optimizing their algorithms and adapting to changing market conditions. Naturally, services offered to consumers will have to do the same. But just as Fintech companies can rely on such algorithms to find innovative (if not "optimal") ways to assess a consumer's credit risk, they should be able to assess the benefit of a financial product for that same consumer.

IV. WHERE TO?

If current market outcomes are not sufficient in bringing about desired results and resolving existing market failures, how can consumer financial wellbeing and decision-making be improved? One possibility is to reconsider solutions that address such market failures directly, by mandating disclosures, or prohibiting certain practices altogether. The CARD Act takes this approach by prohibiting certain fees and updating disclosure obligations for credit card companies.[149] Such solutions have their costs and benefits that have been discussed in depth,[150] and are increasingly being considered by regulators around the globe as more attention is given to market

[148] *See* Campbell, *supra* note 16; THE BEHAVIORAL INSIGHTS TEAM, *supra* note 11; *see generally supra* Part II.

[149] The Credit Card Accountability, Responsibility and Disclosure Act of 2009 (the CARD Act), which specifically targets non-salient pricing structures of credit cards. Oren Bar-Gill & Ryan Bubb, *Credit Card Pricing: The CARD Act and Beyond*, 97 CORNELL L. REV. 967, 968–69 (2012).

[150] *See, e.g.*, Hiroaki Sakaguchi, et al., *When Setting a Default Payment Harms Credit Card Holders* (July 27, 2018), *available at* https://ssrn.com/abstract=3221299 (finding that signing up to automated minimum repayments reduces late fees, but increases smaller repayments which results in more significant debt and interest accumulation); Michael S. Barr, et al., *Behaviorally Informed Financial Services Regulation*, University of Michigan Law School Scholarship Repository (2008), https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1028&context=other; ESRC CENTRE FOR COMPETITION POLICY, BEHAVIOURAL ECONOMICS IN COMPETITION AND CONSUMER POLICY, , 35–38, 46–48, 81–104 (Judith Mehta ed., 2013); Hal E. Hershfield & Neal J. Roese, *Dual Payoff Scenario Warnings on Credit Card Statements Elicit Suboptimal Payoff Decisions* 25 J. CONSUMER PSYCHOL. 15, (2015) (finding that dual disclosure of time to repayment of debt on credit card statements may lead consumers to pay less than with only the minimum repayment disclosure).

failures stemming from behavioral biases and limited financial literacy.[151] But this section will focus specifically on existing and potential regulatory and market solutions that rely on sophisticated technological intermediaries, and attempt to bring into fruition the potential of such solutions.

A. Regulatory Interventions

Policymakers are faced with the challenge of keeping up with the fast pace of technological developments while balancing between conflicting goals. On the one hand, they aim to promote innovation, competition, and new market entrance, but on the other to guarantee that incumbents play on a level playing field as new market participants, to ensure the stability of financial markets, and to protect consumers from fraud and financial harm.[152]

Financial services in the United States face a myriad of regulatory frameworks. Different regulatory agencies have varying authorities and agendas, leading to conflicting approaches. While no regulatory agency focuses solely on resolving consumers' behavioral biases, agencies assigned with the role of enhancing competition or some agencies are in charge of both consumer protection (such as the CFPB in the United States and the Financial Conduct Authority (FCA) in the United Kingdom) take into consideration the impact of such bounded rationality as well. [153]

1. Competition and Market Entrance. – As mentioned above, recent legislation in the United Kingdom and European Union mandates that incumbents enable Fintech products to collaborate with existing services (often through APIs), and ensures consumers have access to digitalized and

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[151] Brian Johnson, Deputy Director, Consumer Fin. Prot. Bureau, Speech at Consumer Fin. Prot. Bureau Symposium on Behavioral Economics (Sept. 19, 2019); Kristine Erta, Stefan Hunt, Zanna Iscenko, & Will Brambly, *Applying behavioural economics at the Financial Conduct Authority* (Financial Conduct Authority Occasional Paper No. 1, Apr. 2013); Press Release, Financial Conduct Authority, FCA Confirms Price Cap Rules for Payday Lenders (Nov. 17, 2014).

[152] *See e.g.*, CONSUMER FINANCIAL PROTECTION BUREAU: THE BUREAU, https://www.consumerfinance.gov/about-us/the-bureau/ (last visited Mar. 23, 2020); CONSUMER FINANCIAL PROTECTION BUREAU: INNOVATION, https://www.consumerfinance.gov/about-us/innovation/ (last visited Mar. 23, 2020); FINANCIAL CONDUCT AUTHORITY: APPLYING TO THE REGULATORY SANDBOX, https://www.fca.org.uk/firms/innovation/regulatory-sandbox-prepare-application (last visited Mar. 23, 2020); *Applying to the Regulatory Sandbox*, FINANCIAL CONDUCT AUTHORITY (last updated Jan. 17, 2020), https://www.fca.org.uk/news/speeches/innovation-and-improving-outcomes.

[153] Both the CFPB in the United States and several regulators in the United Kingdom have been giving growing attention to the potential of behavioral interventions, to the design of comparison websites, and the impact of limited attention and self-control mechanisms. *See* CONSUMER FINANCIAL PROTECTION BUREAU, *supra* note 96; THE BEHAVIORAL INSIGHTS TEAM, *supra* note 11*;* KANTAR PUBLIC*, supra* note 41.

standardized information about their behavior and services.[154] Such policies enable incumbents to diversify the services they offer consumers, preserve consumer protection and financial stability, and also ensure the entrance of new service providers and services that facilitate competition and intermediation between consumers and businesses. The HM Treasury Regulatory Innovation Plan clarifies that Open Banking and API standards are indeed expected to facilitate such competition on behalf of consumers.[155]

This approach could be expanded to make sure that such intermediaries are less dependent on the approval of incumbents, for example, so that digital wallets become less reliant on the approval and cooperation of banks, credit card companies, and retailers to offer their services to consumers, and payment solutions can rely on clearance within the credit card networks even without succumbing to their interests.[156] Such solutions need to be tailored carefully, so as to protect consumers and their privacy as well as incumbents' legitimate financial interests and bargaining power within the ecosystem.[157]

In this context, competition regulation also needs to take into account the impact of platform pricing schemes,[158] and free products and services on the market entrance. If services are offered for free, new players cannot attract consumers by cutting prices.[159] This reduces the flexibility of the tradeoff between quality and pricing. Quality of services is often less salient to consumers than pricing, and new entrants may have a hard time raising the quality of products before they gain sufficient access to the market,

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[154] HM Treasury, *supra* note 24.

[155] *Id.*

[156] One possibility is the ability to make cheaper credits and debits directly to bank accounts.

[157] The EU General Data Protection Regulation attempts to balance between consumers' need for data access and portability, so that consumers can use such information to their benefit, and data privacy. Council 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) article 1.

[158] As many of these intermediaries base their business model as a multi-sided platform, there comes a risk of convergence and possibly even tipping to monopolization of the intermediation markets. Since participants on platforms benefit from network effects, this leads them to prefer services with multiple participants, making it harder for new platforms to enter the market and gain sufficient participation, even though this may depend on the tendency of the sides of the platform to "multi-home," i.e., use more than one platform simultaneously. Armstrong, *supra* note 118, at 669–70; Caillaud & Jullien, *supra* note 117, at 320-22. *See also*, Press Release, Competition & Market Authority, *supra* note 126 (discussing the anti-competitive impact of "most favored nation" clauses applied in some of these platforms).

[159] Offering negative prices is costly and can also draw in consumers that do not use the product.

especially in products that benefit from network effects.[160]

2. Regulation of Financial Services. – Fintech companies may simply be subject to "classic" financial regulation if the services they provide come under the penumbra of regulated activities. For instance, companies that offer algorithmic investing, mobile banking, and insurance based on innovative risk models are likely to come directly under the authority of the OCC (Office of the Comptroller of Currency) and FDIC (Federal Deposit Insurance Corporation), the SEC (Securities and Exchange Commission), and state insurance regulators respectively. But since many of the services discussed here do not directly fall under existing definitions,[161] regulators have been creating innovative regulatory solutions meant to ensure oversight of such services. In the United States, the OCC has indicated its intention to offer special-purpose banking charters for Fintech companies that provide one of the core banking services, such as lending, receiving deposits, or paying checks.[162] Such chartered banks will be subject to customary obligations regarding anti-money laundering, fair lending, and debt collection. Simultaneously, state bank regulators have challenged the authority of the OCC to issue such charters.[163]

Other than those services that have been brought into the licensing fold of banking,[164] the FCA in the United Kingdom and the CFPB in the United States have created programs that offer a lighter regulatory touch through safe havens and "sandbox" approaches.[165] The Consumer Financial Protection Bureau has created "Project Catalyst," indicating its desire for ongoing debate with financial service providers regarding their products, offering to issue no-action letters and approvals for experimentation with innovative disclosure techniques.[166] In the United Kingdom, the Financial Conduct Authority has similarly created the "Regulatory Sandbox" and "Project Innovate," enabling financial companies to receive approval for their services and a more limited regulatory burden, focusing specifically on payment

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[160] Benjamin Edelman & Damien Geradin, *An Introduction to the Competition Law and Economics of "Free,"* COMPETITION POL'Y INT'L: ANTITRUST CHRON., (Sept. 20, 2018).

[161] Such as banking, lenders, and money transmitters.

[162] OFFICE OF THE COMPTROLLER OF THE CURRENCY, EXPLORING SPECIAL PURPOSE NATIONAL BANK CHARTERS FOR FINTECH COMPANIES (2016), https://www.occ.gov/topics/responsible-innovation/comments/special-purpose-national-bank-charters-for-fintech.pdf.

[163] *See* Conference of State Bank Supervisors v. Office of the Comptroller of the Currency, No. 18-CV-2449 (DLF), 2019 WL 4194541, at *1 (D.D.C. Sept. 3, 2019).

[164] And similarly, for insurance or investment advisors and brokers.

[165] *See infra* note 167 and note 168.

[166] CONSUMER FINANCIAL PROTECTION BUREAU, PROJECT CATALYST REPORT: PROMOTING CONSUMER-FRIENDLY INNOVATION 11-17 (2016), https://files.consumerfinance.gov/f/documents/102016_cfpb_Project_Catalyst_Report.pdf.

services.[167] Finally, regulators can also offer voluntary accreditation programs, such as those offered for "Financial Planners,"[168] and nearly every regulator has created teams to research the impact of technological innovation on the markets.[169]

All of these regulatory approaches (which are naturally influenced by the varying authorities and powers granted to each agency) enable agencies to pre-approve certain practices and business designs, and to observe companies' influence on the market. Agencies can give special consideration to their impact on existing patterns of decision-making and consumer welfare, prohibiting certain practices and incentivizing firms to offer increased benefits to consumers, even if they do not profit the firms directly. But this is contingent on the existing and at times, conflicting goals of these agencies. Thus, the OCC is mandated to focus on prudential regulation and financial stability, whereas the CFPB looks at the impact of consumer financial decision-making, the potential of products to increase competition, empower consumers, and lead to overall improved financial wellbeing.[170] Unsurprisingly, the OCC's considerations for approving bank charters do not mention a business's impact on consumer financial decision making or wellbeing.[171]

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[167] FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX (last updated Jan. 2, 2020), https://www.fca.org.uk/firms/regulatory-sandbox.

[168] Credentials that require more experience are offered by the Certified Financial Planner Board of Standards, designating financial planners as a Certified Financial Planner (CFP), but these are not required by law. *See* CFP BOARD, https://www.cfp.net/ (last visited Mar. 23, 2020). For an additional list of potential designations and accreditations, *see Professional Designations*, FINRA, https://www.finra.org/investors/professional-designations/cfp.

[169] The proposed "H.R.6118 – Financial Services Innovation Act of 2016" offered to create "Financial Services Innovation Offices" within the CFPB, OCC, Federal Trade Commission, and Securities and Exchange Commission. Financial Services Innovation Act of 2016, H.R. 6118, 114th Cong (2016).

[170] CONSUMER FINANCIAL PROTECTION BUREAU, *supra* note 153; OFFICE OF THE COMPTROLLER OF THE CURRENCY, THE OCC STRATEGIC PLAN 2 (Sept. 2018) (identifying the mission of the OCC "To ensure that national banks and federal savings associations operate in a safe and sound manner, provide fair access to financial services, treat customers fairly, and comply with applicable laws and regulations.")

[171] However, the OCC does consider increasing access to underserved communities. *See,* Office of the Comptroller of the Currency, News Release 2018-74 OCC Begins Accepting National Bank Charter Applications From Financial Technology Companies (July 31, 2018), https://www.occ.gov/news-issuances/news-releases/2018/nr-occ-2018-74.html; "In its review, the OCC will consider whether the proposed bank has a reasonable chance of success, will be operated in a safe and sound manner, will provide fair access to financial services, will promote fair treatment of customers, and will ensure compliance with laws and regulations." OFFICE OF THE COMPTROLLER OF THE CURRENCY, COMPTROLLER'S LICENSING MANUAL SUPPLEMENT: CONSIDERING CHARTER APPLICATIONS FROM FINANCIAL TECHNOLOGY

Like the CFPB, the FCA's regulatory sandbox also considers whether "the innovation offer[s] a good prospect of identifiable benefit to consumers (either directly or via heightened competition)."[172] The FCA's sandbox previous cohorts already covered several services that offer relevant services such as financial management tools[173] and comparison tools.[174]

A safe-haven approach does not fully resolve the difficulty of such firms to create business models that profit from optimizing consumer behavior, but it enables regulators to tweak and optimize such products, for instance by minimizing conflicts through obligations to accept only equal commissions, to avoid altering placement of orders,[175] or to alter their design and disclosures. While regulators need to tread lightly so as not to drive certain services out of the market by demanding products that cannot compete in the market or that do not have a sustainable business model, such

COMPANIES, 5 (2018), https://www.occ.gov/publications/publications-by-type/licensing-manuals/file-pub-lm-considering-charter-applications-fintech.pdf. (Due to the preemptive authority of national banking charters, the special purpose charter may actually preempt action by the CFPB and by state regulators focusing on consumer wellbeing).

[172] FINANCIAL CONDUCT AUTHORITY, APPLYING TO THE REGULATORY SANDBOX, https://perma.cc/Q4NH-36YN (last updated Jan. 17, 2020, last visited Mar. 23, 2020).

[173] FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX - COHORT 1, https://www.fca.org.uk/firms/regulatory-sandbox/cohort-1 (last updated June 15, 2017) (including companies such as Bud, Citizens Advice, HSBC, Oval, Swave); FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX – COHORT 2, https://www.fca.org.uk/firms/regulatory-sandbox/cohort-2 (last updated Jan. 11, 2018) (including companies such as Evalue, Money Dashboard, Moneyhub Enterprise); FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX – COHORT 3, https://www.fca.org.uk/firms/regulatory-sandbox/cohort-3 (last updated Jan. 11, 2018) (including companies such as Nationwide); FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX – COHORT 4,

https://www.fca.org.uk/firms/regulatory-sandbox/regulatory-sandbox-cohort-4-businesses (Last updated, Feb. 20, 2019) (including companies such as Mortgage Kart, 1825 (part of the Standard Life group)).

[174] FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX – COHORT 2, *supra* note 174, (including companies such as Experian); FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX – COHORT 3, *supra* note 174, (including companies such as First Direct and Bud); FINANCIAL CONDUCT AUTHORITY, REGULATORY SANDBOX – COHORT 4, *supra* note 173, (including companies such as Multiply). *See also* Genevieve Melford & Dan Quan, *Project Catalyst Collaboration to Improve Understanding of Financial Well-Being*, CONSUMER FIN. PROT. BUREAU BLOG (Sept. 18, 2017), https://www.consumerfinance.gov/about-us/blog/project-catalyst-collaboration-improve-understanding-financial-well-being/, (noting a cooperation of the CFPB with Credit Karma to assess the impact of certain tools and consumers' financial wellbeing).

[175] *See,* European Commission, *supra* note 107, at 80 (noting the limited transparency regarding search neutrality on comparison websites); Van Loo, *supra* note 12, at 1282–84 (differentiating between platforms that promote certain products compared to those that are neutral, explaining that no platform is completely neutral but some have stronger incentives to drive consumers to specific products).

sandboxes actually enable experimenting with demand and profitability for certain features. Importantly, attributes such as commissions and conflicts of interest are not fully salient to consumers but can be assessed by regulators, which may later prohibit products that do not comply with such standards, or at least green light and clearly rank and endorse those that do. Cooperation with regulators also at times gives companies access to relevant information and databases, reducing some of their dependence on incumbents. This approach also gives regulators an opportunity to empirically assess the impact of such products on actual consumer behavior and well-being.

3. Fiduciary Duties, Fairness, and Fraud. – It is evident from current (imperfect) market outcomes that existing fiduciary, fairness, and disclosure obligations are not a sufficient response to existing problems. Still, existing legal frameworks of fiduciary obligations, as well as provisions preventing fraud and misleading conduct, have the potential to create better alignment of such services, be it through their interpretation and implementation by regulators or by innovative judicial doctrines.

i. Fiduciary Obligations. – While mobile wallets are unlikely to be seen as taking on an agency role, or that of financial experts, this is not the case with credit card comparison websites, and even more so financial management tools. Imposing fiduciary obligations, either through common law duties or regulatory obligations,[176] is a possible means of aligning such services' interests with those of consumers. Given the nature of such services as providing consumers with information and assistance in choosing financial products and services, seeing such obligations as creating a fiduciary obligation does not seem far-fetched.[177] In their terms of service, Mint clarifies:

> <u>Not a Financial Planner, Broker or Tax Advisor.</u>
>
> NEITHER INTUIT NOR THE SERVICES ARE INTENDED TO PROVIDE LEGAL, TAX OR FINANCIAL ADVICE. INTUIT IS NOT A FINANCIAL PLANNER, BROKER OR TAX ADVISOR. The services are intended only to assist you in your financial organization and decision-making and is broad in scope. Your personal financial situation is unique, and any information and advice obtained through the Service may not be appropriate for your situation. Accordingly, before making any final decisions or implementing any financial strategy, you should

[176] For an in-depth analysis of the difference between fiduciary duties imposed ex-ante through financial regulation and enforced by agencies, and those enforced ex-post via judicial decisions and common-law standards, *see* Howell E. Jackson & Talia B. Gillis, *Fiduciary Duties in Financial Regulation* (Harvard Pub. L. Working Paper No. 18-24, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3149577.

[177] *See,* RESTATEMENT (SECOND) OF TORTS, § 874, cmt. a (AM. LAW INST. 1979), (notes that a fiduciary relationship "exists between two persons when one of them is under a duty to act for or to give advice for the benefit of another upon matters within the scope of the relation.").

> consider obtaining additional information and advice from your accountant or other financial advisers who are fully aware of your individual circumstances.[178]

A chicken and egg problem arises, where if service providers offer more personally tailored advice and take on a more significant role in the intermediation between consumers and financial institutions, they take on a greater risk that they will be found to be an adviser or agent on behalf of consumers,[179] but lack of a fiduciary obligations enables them to offer advice that is not personally tailored to consumers' needs, and at times even contradicts them.

Within the investment and insurance world, such services are heavily regulated, resulting in ongoing discussions as to the role of robo-advisers as brokers and investment advisers.[180] Most comparison websites offering insurance comparisons, like Nerdwallet, generally connect individuals to insurance agents and refrain from registering as agents themselves, even though GoCompare in the United Kingdom is a member of the Association of British Insurers.[181] Things get a bit murkier when considering at what point does Mint cross over from being an extremely sophisticated Excel

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[178] *Terms of Use*, INTUIT MINT, https://www.mint.com/terms (last revised Dec. 2, 2019).

[179] Courts have found banks liable for fiduciary obligations in instances where they breached arm's length negotiation and service provision to consumers, such as giving advice and encouraging reliance. Banks have often contractually added disclaimers of such relationship, but such contractual waiver of a fiduciary obligation has not always been deemed sufficient. *See* Andrew F. Tuch, *Fiduciary Principles in Banking Law, in* THE OXFORD HANDBOOK OF FIDUCIARY LAW, 24–26 (Evan J. Criddle, et al. eds., 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3211548.

[180] FINRA clarifies that "a broker-dealer is a person or company that is in the business of buying and selling securities…on behalf of its customers (as broker), for its own account (as dealer), or both." These are licensed by the SEC, are members of FINRA, and are licensed by state securities regulators. Investment advisers are paid for providing advice about securities and must be registered with either the SEC or a state securities regulator (depending on the amount of assets they manage). These often include asset managers, investment counselors, investment managers, portfolio managers, and wealth managers. *Brokers,* FINRA, https://perma.cc/JYD8-SU5C (last visited Mar. 23, 2020). Insurance agents help consumers obtain insurance products, and are regulated and licensed by state insurance commissions, under the National Association of Insurance Commissioners (NAIC). NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS, ABOUT, https://content.naic.org/index_about.htm (last visited Mar. 23, 2020). *See also* Tom Baker & Benedict Dellaert, *Regulating Robo Advice Across the Financial Services Industry*, 103 IOWA L. REV. 713, 714-721, 737 (2018).

[181] Press Release, British Insurer's Brokers Association, GoCompare.com Welcomed into BIBA Membership (May 27, 2008), https://www.biba.org.uk/press-releases/gocompare-com-welcomed-into-biba-membership/.

sheet to being a "robo-accountant."[182] As such services more actively offer consumers tools and advice on financial management, tax reporting, and planning, resulting in trust and reliance by consumers, these lines blur. As FINRA describes accountant certification, they note:

> Some CPAs are also certified by the AICPA as Personal Financial Specialists (PFSs), which means they have met AICPA's education requirements for providing financial planning services, including assessing your overall financial situation, developing a budget, setting goals for saving and investing, and developing a plan for monitoring your progress and reaching your goals.[183]

Other than licensed accountants, individuals can also become "Financial Planners,"[184] which is a more flexible term, but may actually be the most suitable for these types of services. Financial planners may also be accountants, investment advisers, or insurance agents, but do not necessarily have to be licensed if they do not offer those regulated services.[185] They may also voluntarily be certified by various organizations,[186] but can also provide services with no official credentials or professional certification.[187] Taking on the role of advisers can limit financial planners' ability to receive commissions from the companies supplying the products on which they advise. Since these companies rely on the trust of consumers and create such reliance, future fiduciary or agency liability claims can be used to drive such services to offer more objective and personally optimal advice. For instance, when banks were found to give advice or create a relationship of faith, confidence, and trust with the consumers, courts were willing to find the existence of fiduciary obligations.[188] Thus, such fiduciary obligations can arise either as a result of regulatory designation, voluntary accreditation, or common law agency and advice obligations. One way in

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[182] Certified Public Accountants (CPA) must pass a national examination administered by the American Institute of Certified Public Accountants (AICPA) and meet education and experience requirements set by the state Board of Accountancy. *See Certified Public Accountant (CPA)*, ASSOCIATION OF INTERNATIONAL CERTIFIED PROFESSIONAL ACCOUNTANT, DESIGNATIONS AND CERTIFICATIONS, https://www.aicpa-cima.com/designations-certifications/certified-public-accountant-cpa.html (last visited Mar. 23, 2020).

[183] *Accountants*, FINRA, https://www.finra.org/investors/accountants (last visited Mar. 23, 2020).

[184] Or financial coaches, financial advisers, and many variations of such titles.

[185] *See supra* note 184 and note 185; *infra* note 187.

[186] Unless they additionally offer insurance or investment advice, as described above. Credentials that require more experience are offered by the Certified Financial Planner Board of Standards, designating financial planners as a Certified Financial Planner (CFP), but these are not required by law. *See* CFP BOARD, https://www.cfp.net/ (last visited Mar. 23, 2020). For an additional list of potential designations and accreditations *see Professional Designations,* FINRA, https://www.finra.org/investors/professional-designations/cfp (last visited Mar. 31, 2020).

[187] *See supra* note 184, 185, and 187.

[188] *See* Tuch, *supra* note 179.

which companies can be deterred from blurring the distinction between advertisements, information provision, recommendations, advice, and full agency is to subject these companies to liability for their impact on the financial decisions of their customers.[189]

But the existence of fiduciary relationships may not be sufficient, as companies are often able to waive such obligations by contract or by disclosing their conflicts to consumers.[190] Since consumers do not give much weight to such disclosure (at least in its current form), unless regulators or courts create more stringent fiduciary obligations, current limitations on conflicts of interests are not expected to resolve the aforementioned limitations in intermediaries' contributions to consumer welfare.

One possibility is to prohibit conflicts of interest altogether. But such intervention may have an undesired impact, limiting the existence of business models designed as multi-sided platforms. Existing platforms may also have beneficial externalities and may have a hard time funding such services due to consumers' limited willingness to pay for advice, resulting in these products being eliminated completely. Another possibility is to place more stringent limitations on fiduciaries' ability to waive their obligations and act in conflict with consumers' interests. For example, at the very least, such fiduciaries should be obligated to maintain search neutrality–not giving preference to one result over the other based on sellers' interests. A similar result can be reached by requiring companies to demonstrate that there is an (efficient) information barrier between the sides of the platform, so that the financial interests created by users on one side (financial service providers or retailers) will not affect the quality of services provided on the other side of the platform to consumers.[191] An alternative solution would be to apply "suitability requirements," such as those placed on investment advice by FINRA rule 2111.[192] Under this requirement, a recommendation needs to have a reasonable basis, given both information

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[189] The flip side of such a claim is that companies may be deterred from offering more personally tailored services and from charging consumers directly, specifically because this may enhance the likelihood that they will be deemed a fiduciary, or even an agent on behalf of the consumers.

[190] *See*, Tuch, *supra* note 179, at 5-8. Similarly, obligations placed on advertisers by the Federal Trade Commission, discussed next, can be waived by disclosure to consumers even when the fiduciary obligations are by law.

[191] *See*, Tuch, *supra* note 179, at 29.

[192] FINRA rule 2111 requires the "suitability" of an investment recommendation, stating that "[a] member or an associated person must have a reasonable basis to believe that a recommended transaction or investment strategy involving a security or securities is suitable for the customer, based on the information obtained through the reasonable diligence of the member or associated person to ascertain the customer's investment profile." *Suitability*, FINRA, https://www.finra.org/rules-guidance/rulebooks/finra-rules/2111 (last visited Mar. 23, 2020)

about the offered products and the customer's background.[193] Naturally, this needs to be adapted to the types of recommendations given by such intermediaries and the information that is available to them. While this requirement does not eliminate conflicts completely, it ensures that the products that are presented to consumers as being suited to their needs will not be completely mismatched to their actual circumstances. FINRA also gives consideration to the expertise of investors when making certain recommendations, as well as their stated goals.[194] These are combined with information about an investor's age, tax situation, other available assets, and so on.[195] Similarly, while intermediaries should consider a consumer's stated choice of card (for instance, a preference for rewards or miles), this preference should be taken under consideration together with other aspects such as consumer's existing debt, income, and repayment history, to ensure that consumers are not "nudged" to choose products that are generally ill suited to their financial situation.

ii. Fairness and Misrepresentation. – Even if fiduciary obligations do not apply, intermediation services may also be subject to fair disclosure obligations and to rules governing advertising and endorsement of products and services. Currently, the law in the United States generally prohibits fraud and misrepresentation of information and obligates disclosure of the service providers' contractual relationships and commissions. For instance, the FTC requires a disclosure of the affiliation between such search engine or advertisers and the products endorsed or offered on the site.[196] When offering information about loans, investments, or insurance products, such websites may be subject to more rigorous disclosure obligations (even if they do not offer such services themselves).[197] But as described in detail

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[193] *Id.*

[194] *Id.*

[195] *Id.*

[196] *See*, Federal Trade Commission Act, 15 U.S.C. §§ 41-58 (1914) (addressing unfair and misleading commercial acts); *The FTC's Endorsement Guides: What People Are Asking*, FED. TRADE COMM'N (Sept. 2017), https://www.ftc.gov/tips-advice/business-center/guidance/ftcs-endorsement-guides-what-people-are-asking. In the United Kingdom, Consumer Protection from Unfair Trading Regulations 2008 (CPRs), and specifically provisions 5 and 6, refer to the prohibition of misleading consumers through actions or omissions that would make the average consumer take a different transactional decision, regarding material information about the ranking or price, the manner price is calculated, or market coverage. The Consumer Protection from Unfair Trading Regulations 2008, SI 2008/1277 (Eng.). *See also*, *Guidance on the Implementation /Application of Directive 2005/29 EC on Unfair Commercial Practices*, SWD (2016) 163 final (May 25, 2016).

[197] The Truth in Lending Act, 15 U.S.C. §1601 (1968) (and its implementation in Regulation Z, 12 C.F.R. 226); The Financial Services and Markets Act 2000 (Regulated Activities) Order, SI 2001/544, (Eng.) (referring to obligations on services such as credit brokering or insurance mediation in the United Kingdom).

above, these relationships are often blurred, and even when consumers are aware of them, they may fail to appreciate their importance.[198] A first step may be to make such disclosure less vague and hidden, making sure consumers are aware of how much such intermediaries are paid in commission, and how this influences their algorithms. An additional step may be to place closer scrutiny on the way such websites advertise their services to consumers and the manner in which they induce consumers' trust. For instance, Mint notes that they "help you effortlessly manage your finances in one place" and present advertised offers for credit cards and investment products under "ways to save," despite the fact that such offers are in no way guaranteed to offer the consumer any savings, and that they also admit that compensation affects how and where products appear on their side, and in what order.[199]

Thus, if companies advertise products that are meant to assist consumers financially (and they may, in fact, achieve that goal), they cannot rely on this same presentation to simultaneously sell consumers products that the consumer may perceive to assist them financially but do not do so. This does not preclude any form of advertising, but only that which is influenced by the perception created by other services on the website. Alternatively, companies may have to alter how they advertise their overall service to clarify the various (and conflicting) roles they take on. To a lesser extent, credit card comparison websites face similar misrepresentation issues. The website Creditcards.com mentions on the opening page that the service enable the consumer to "[f]ind your perfect match: Get personalized recommendations that reward you the most." On that same page, consumers can also click on an advertising disclosure that clarifies that the website receives commissions that influence the manner in which products are presented on the site, including the order in which products are presented.[200] If regulators choose not to intervene in the basic business model of these firms, they can, at the very least, oversee how such products are advertised to ensure that consumers do not assume they are being offered personally tailored products that best suit their needs. This can also give an advantage to entrants that do in fact, present objective or personally tailored results in drawing in users.

In his research, Van Loo makes a distinction between "neutral marketplaces" and "promoters,"[201] explaining that the former offers an objective presentation of products. But since nearly all service providers rely on

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[198] *See*, KANTAR PUBLIC, *supra* note 41, at 82-83.

[199] *See supra* Part III.B. *See also* White, *supra* note 56.

[200] *See, e.g.*, CREDITCARDS.COM, https://www.creditcards.com/ (last visited Mar. 23, 2020).

[201] Van Loo, *supra* note 12, at 1282-84.

third-party commissions, very few actually offer such search neutrality. Furthermore, without clear regulation of the way such services are presented to consumers, it is unclear that consumers can make a clear distinction between the two. More stringent enforcement and penalties regarding such advertising mechanisms can help create a better and useful distinction.

iii. Voluntary Accreditation. – Regulatory obligations and enforcement may be challenging to apply. Regulators have a hard time keeping up with ongoing technological developments,[202] and highly stringent regulation may stifle beneficial innovation. Additionally, some regulators may simply not have sufficient powers to make such changes without legislation. In these cases, regulators can offer accreditation schemes meant to standardize desired practices. These can point to specific features such as enabling consumers to filter search results by price, a search neutrality commitment, and the type of information that should be presented with each offer.

As a first step, regulators have begun conducting market studies, looking into how consumers use and perceive such services, as well as the impact of default rankings in the way that products are presented.[203] These may have a similar effect to that of the sandbox approach, which enables regulators to better understand the function of these services. For example, the FCA reviewed the use of insurance price comparison websites,[204] finding that some consumers choose only a few salient features to drive their choice and that consumers had a difficult time considering information about both price and relevant coverage. The UK Regulators Network Report, which was followed up by research conducted by the CMA (Competition and Markets Authority), looked at the potential benefits of price comparison websites, and consumers' perception of these services and their objectivity.[205] Such market surveys look into relevant information regarding how such websites influence consumers' decisions, and may create the factual foundation needed for future regulatory intervention and cooperative projects. Money Advice Services had been conducting a joint research project with the Behavioral Insights Team, looking into the features and design of such comparison websites to improve consumers'

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[202] *See* JOHANNES EHRENTRAUD, DENISE GARCIA OCAMPO, LORENA GARZONI, & MATEO PICCOLO, POLICY RESPONSES TO FINTECH: A CROSS-COUNTRY OVERVIEW (2020), https://www.bis.org/fsi/publ/insights23.pdf.

[203] *See*, FINANCIAL CONDUCT AUTHORITY, PRICE COMPARISON WEBSITE: CONSUMER MARKET RESEARCH (2014), https://www.fca.org.uk/publication/research/price-comparison-website-consumer-research.pdf.

[204] *Id.*

[205] UK REGULATORS NETWORK, *supra* note 45; KANTAR PUBLIC, *supra* note 41. *See also* EUROPEAN COMMISSION, KEY PRINCIPLES FOR COMPARISON TOOLS (2017), https://ec.europa.eu/info/sites/info/files/key_principles_for_comparison_tools_en.pdf.

financial decision-making, specifically with regard to credit card comparison websites and consumers' ability to choose the optimal card for their needs.[206] Additional field research on the implementation of their conclusions is expected to be conducted with the voluntary participation of several websites.[207] Such market investigation and potential accreditation or intervention has not been implemented by regulators in the United States, other than initial sporadic efforts by the CFPB to call for the use of technology to improve consumers' financial decision-making and self-control mechanisms.[208]

B. Market Solutions

Regulatory intervention is difficult to achieve. The quick pace of developing technology, the variety of products and changes, the costs of collecting sufficient information, limited regulatory power, and the (justified) fear of stifling desired innovation, all make it challenging to offer governmental solutions. A more fundamental question, given existing market forces and consumers' existing biases that reduce the demand for objective products, is how can such "pro-consumer" products come about and succeed in the market. Discussed above is the possibility that through sandboxes or voluntary accreditation, agencies can greenlight certain products over others to encourage beneficial solutions.[209] But this does not resolve more fundamental issues of the difficulties of funding such business models and aligning businesses' incentives.

One possibility is for governments to offer these products themselves. But such solutions are difficult to achieve, maintain, and fund.[210] NGOs can sometimes fill this void but still have more limited resources than technology companies, especially if, due to the aforementioned problems, they cannot create business models that, at the very least, cover their costs. Consumer Reports, a large non-profit based consumer comparison website, still suffers from similar limitations as other websites and is unlikely to develop the expertise and technological advances needed to offer personally

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[206] THE BEHAVIORAL INSIGHTS TEAM, *supra* note 11, at 140–150 (demonstrating that simple changes such as altering the colors of certain features, presenting them in pounds instead of percentages, and adding interactive sliders can improve consumers' ability to choose the cheapest card for a given financial scenario by up to 20 percentage points).

[207] *See* THE MONEY ADVICE SERVICE, THE BEHAVIOURAL INSIGHTS TEAM & IPSOS MORI, A BEHAVIOURAL APPROACH TO MANAGING MONEY: IDEAS AND RESULTS FROM THE FINANCIAL CAPABILITY LAB (2018) https://www.bi.team/wp-content/uploads/2018/05/Financial-Capability-Lab-Report-May18.pdf.

[208] CONSUMER FINANCIAL PROTECTION BUREAU, *supra* note 96.

[209] *See supra* Part. V.A.ii.

[210] Van Loo, *supra* note 12, at 1273, 1296–1310.

tailored solutions for each product.[211] Government and NGO alternatives can attempt to one-up existing Fintech companies, therefore creating indirect incentives through (hopefully efficient) competitive pressure to offer pro-consumer products. But this does not create a direct financial incentive and alignment of interests for profit-driven market participants.

Employers can create this financial power on behalf of their employees. Employers have a financial interest in their employees' financial wellbeing, as this is in direct correlation with their productivity, consistency, and turn-over rates.[212] Employers can act as sophisticated agents on behalf of consumers, demanding and funding products that benefit employees' financial wellbeing. Employers are less likely to suffer from limited sophistication regarding the costs and benefits of certain products and can fund them on behalf of consumers. And indeed, as Baker demonstrates, technological solutions for short-term small-dollar credit have already been designed for employer-based solutions, and these are more likely to be profitable and scalable.[213] Naturally, these are likely to be taken up by larger employers at first, but once fixed costs are covered, expanding such services and creating a different market standard and consumer demand might take over.

A wider question is which current actors in the market actually benefit from consumers' financial wellbeing? Actors that currently already owe fiduciary duties and act within the world of wealth management seem suited to offer these types of products. Investment managers, financial advisers, and even IRAs already owe fiduciary duties to consumers,[214] and generally benefit as consumers' savings grow. The problem is that these products entail consumers directly paying for advice and financial management. As a result, mostly wealthy and financially-savvy consumers obtain such services.[215] But just as companies like Betterment and other "robo-advisors"

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[211] *See Credit Card Buying Guide*, CONSUMER REPORTS, https://www.consumerreports.org/cro/money/credit-cards/credit-card-comparison-tool/index.htm (last updated Mar. 31, 2017).

[212] Todd H. Baker, *FinTech Alternatives to Short-Term Small-Dollar Credit: Helping Low-Income Working Families Escape the High-Cost Lending Trap* 8, 11, 27, 65–66, 72 (Harvard Kennedy School, M-RCBG Associate Working Paper Series No. 75, 2017), https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/75_final.pdf.

[213] Baker, *supra* note 213.

[214] Commission Interpretation Regarding Standard of Conduct for Investment Advisers, 84 Fed. Reg. 33669 (July 12, 2019) (to be codified at 17 C.F.R. pt. 276); Arthur Laby, *The Fiduciary Structure of Investment Management Regulation, in* RESEARCH HANDBOOK ON MUTUAL FUNDS (John D. Morley & William A. Birdthistle, eds., 2017) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2993429.

[215] This may also explain the success of Mint in surpassing Quicken in terms of the number of market participants, as they offered a free service.

have managed to use technology to scale-up services and cut prices,[216] they may also be able to offer financial management tools at affordable prices. An important caveat is that while financial advisers have managed to offer cheaper products due to technological advances, stringent fiduciary duties and prohibition of conflicts of interest curb the ability of platforms to offer such products for free by utilizing a platform model as discussed above, constraining competition for such robo-advisers.[217] In other words, such affordable automated advisers compete with costly service providers, and not with platforms offering free services.

The benefit of these companies is that they already have a business model based on direct consumer payment and fiduciary obligations, already have a trusting consumer base and that these companies generally benefit from their consumers' benefit. A similar process can be seen with the development of micro-savings and micro-investment programs. While banks and credit card companies are likely to profit from consumers' being leveraged,[218] investment companies profit when consumers save more. Scaling up such products to encourage savings and better financial management in other areas of consumers' financial decision making can be profitable for such businesses while incentivizing them to create actual consumer savings.

If governments, NGOs, employers, and wealth managers start offering these products, consumers may also grow more sophisticated regarding the objectivity and the quality of services they demand. Combined with media and social interactions, as well as limitations on misleading advertisements, it is possible that awareness will grow, and such products will become more widespread. Without such first steps by actors incentivized to act on behalf of consumers (and perhaps taking measures to educate consumers), it is unlikely that the unique potential of Fintech intermediaries can come into fruition.

CONCLUSION

While technology has the potential to significantly improve financial decision making, many of the existing market solutions only make incremental steps to resolve market failures resulting from consumers' bounded

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[216] *See* BETTERMENT, https://www.betterment.com/ (last visited Mar. 23, 2020); Elizabeth Dilts, *Betterment Breaks Out of Robo-Mode, Lets Wealthy Clients Select Assets*, REUTERS, (Mar. 28, 2018, 8:11 AM), https://www.reuters.com/article/us-wealth-betterment/betterment-breaks-out-of-robo-mode-lets-wealthy-clients-select-assets-idUSKBN1H41YX (last visited Mar. 23, 2020).

[217] *See supra* note 217.

[218] As they profit from charging interest, assuming that such leverage is sustainable and financially stable.

rationality, and in some cases, they entrench or even exacerbate such failures. This is despite the fact that the relevant technology is readily available. Behavioral biases and misaligned financial interests are hindering the development of beneficial products, making it less likely that markets will fulfill the high expectations set by policy makers and academics. One potential solution is to consider regulatory intervention, rethinking the use of existing frameworks of financial regulation, suitability requirements, and prohibitions on misleading consumers. Another is to promote and encourage sophisticated market participants whose interests are better aligned with those of consumers to promote such endeavors, such as NGOs, employers, and investment advisers. Overall, it may be time to rethink previous notions of the role of Fintech intermediaries, as, without a nudge or even a strong push in the right direction, they are not likely to fulfill the potential ascribed to them.