Making "Responsible Innovation" a Reality: Big Tech, Small Money, and U.S. Economic Equality

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- Congressional action on big tech privacy, antitrust, and political-integrity challenges must also anticipate the adverse impact of big-tech financial services on U.S. economic inequality and crisis risk. As recent events have proven all too clearly, retroactive "fix-it" efforts in areas such as consumer privacy are proving too little, too late.
- Warp-speed financial activities in the tech sector clearly evidence bias, credit, operational, conflict, and privacy risks with adverse impact on vulnerable households and U.S. financial stability. These require immediate remedy.
- Innovation can indeed enhance inclusion, but only if critical safeguards are in place.

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Of all of the critical economic activities that tech giants have yet fully to take on, financial services is perhaps the most important. Money moves to buy goods and services, to safeguard family income, to increase wealth accumulation, to use as an engine of productive growth, and to exchange for family welfare and global commerce. If finance unduly advantages providers instead of customers, allocates financial services based on biased algorithms, increases household or macroeconomic risk, fuels commercial transactions unknown to or ill-designed for consumers, or undermines prosperity-critical core infrastructure, then there will be a still more powerful and dangerous negative feedback loop from the way U.S. financial services are delivered to economic inequality and even financial crises. This report builds on our prior review of big-tech financial-sector risk[1] to explore looming threats to economic equality as the pace of unregulated, tech-driven product offerings continues to accelerate. Given the magnitude of these threats and how many are already evident in technology-based financial products, we also outline near-term policy recommendations for urgent congressional consideration.

The 116th Congress will shortly begin work on big-tech privacy, antitrust, and cyber-security legislation. Issues such as the inability of platform companies to control now-acknowledged risks and the impact of increasing big-tech dominance on daily life will be addressed, but what about the same problems already evident in financial-technology products in which households trust scarce savings or on which they depend for economic opportunity? Clear risks include not only possible discrimination against lower-income households, but also against persons of color and people with disabilities. Given the magnitude of big-tech product offerings and profit pipelines, integrating finance with commerce, media, and other activities also exposes consumers to misrepresented or complex products that put financial security at grave risk due to the absence of critical safeguards such as capital reserves, clear disclosures, transaction audit and error-correction systems, conflict-of-interest restrictions, and even FDIC insurance on products many consumers would consider a bank account. The risks grow higher when seemingly-innovative or financially-inclusive products outside regulatory safeguards are powered by hidden profit incentives and troves of personal information on each of our demographic characteristics, spending habits, financial resources, friends, and even political choices.

Technology firms have recognized the threat to their business model from growing debate about these risks, but the "best practices" they offer have always failed consumers each time they were proposed by prior providers of high-risk financial products. Innovation may well be all to the good, but only if it is accompanied by controls that ensure that financial technology is not another case in which un- or ill-regulated companies gain at the expense of vulnerable consumers. Been there, done that, had a financial crisis in 2008 that is still haunting all but the wealthiest American families.

Validated by the analysis presented below, we conclude that:

- Although every statement from federal and global financial regulators seeks to differentiate "responsible" innovation from exploitative, intrusive, or predatory tech-based products, none has even begun to define the boundary lines on which public policy must quickly be based. Retroactive efforts to put tech-based finance under mandates against discrimination, conflicts of interest, confusing disclosures, hidden pricing, and deceptive marketing will not undo the harm to U.S. economic equality. The damage of poor financial policy is all too evident in current inequality, slow economic recovery, and an increasingly unregulated financial system untouched by the reforms demanded after the 2008 crisis.
- Congress must consider the inequality effects of big-tech financial operations as legislation advances this year with regard to privacy, antitrust, political integrity, and other critical public-

welfare implications of big-tech operations. Failure to do so will increase the chances that households are discriminated against, take on unnecessary financial risk, pay more for critical financial products, and fall ever farther behind an ever-smaller number of still-richer Americans.

More specific actions are detailed below. My prior writing and recent Federal Financial Analytics work provides extensive background on the link between financial policy and economic inequality, including the relationship between high-risk offerings, increased inequality, and financial-crisis risk. Much of this work points to the unintended inequality impact of post-crisis monetary policy – a framework governing big-tech as much as big banks. This work also shows that the regulatory reforms from which big tech is virtually immune have made banks safer, but reduced their capacity to innovate, build required operational infrastructure for tech-based products, or serve higher-risk customers. It might be argued that big tech will do a better equality job since none of these rules applies. However, this regulatory asymmetry has instead created a market vacuum in which problematic products are almost always outside regulatory reach.

The Existential Threat

A recent speech by the head of the Bank for International Settlements (BIS) outlined an array of emerging risks big-tech companies pose to central banking, bank regulators, and the entire body of post-crisis financial reform.[2] The head of the central bank for central banks is not alone in his worries, but he unfortunately also joins his colleagues in failing to go beyond them to policy solutions more meaningful than "continued monitoring." That so little of substance is being said about a phenomenon with so much recognized risk reinforces the critical importance of including big-tech financial activities in congressional initiatives to address privacy, data security, antitrust, and political integrity.

The equality-focused analysis below does not differentiate between smaller-scale companies with an expressly financial focus – so called "fintech" – from far larger big-tech colossi. The fintech ideas of today will either be copied by big-tech or acquired by them, much as the now-giant big-tech empires swallowed so many other early-stage start-ups. There are of course antitrust and systemic-risk differences between smaller fintech companies and the giant platforms. However, very small technology-based providers can pose very big risks to vulnerable customers. Early-stage companies are far more likely to change their service agreements as they experiment with different offerings without necessarily alerting customers (see below for several cases) and often rely on vulnerable third parties for core technology services instead of owning and managing their own data centers. Further, as the financial crisis all too expensively demonstrated, small-scale financial firms can redefine market risk with awesome speed as big firms acquire them or simply copy what they do. Thus, the analysis below applies not only to the big-tech companies that are its principal focus, but also to like-kind ventures regardless of size. As the *Financial Times* recently noted, "…Regulatory arbitrage is actually at the heart of most fintech models."[3]

Finally, this paper is focused on the U.S. in order to urge congressional action, noting in several cases instructive examples from other developed countries in which lower barriers to fintech innovation demonstrate the power of and problems with integrating finance and technology without advance consideration of equality risk. One case in point is a new bank in South Africa that uses "vitality points" to link client behavior with loan cost.[4] The bank suggests that raising lending costs for borrowers who do not exercise enough to suit its algorithms promotes healthier living, but it surely also discriminates against borrowers who live in crime-ridden areas or just work too hard to work out. It's not even clear that being in good physical shape means being a prudent steward of a big bank loan – this bank says so,

but perhaps because its algorithms self-select only affluent borrowers and thus misrepresent the risk of poorer, less athletic households with similar ability-to-repay characteristics.

High-Powered Engines of U.S. Inequality

The aviation industry distinguishes between micro-bursts that suddenly take a single plane from the sky and thrust it back on the runway from broader meteorological dangers across the airfield as a whole. In the same way, equality micro down-bursts affect individuals or households singly or as a group due to income, wealth, demographic factors, or even geography. An economy might well look prosperous or even equal in aggregate, but analysis by equality-relevant factors reveals sharp, adverse distinctions based on policy or market factors over which individuals and households have little control.

To identify both micro- and macro-equality impact, we rely on our prior work identifying how financial policy drives U.S. economic equality. Detailed in it, "economic inequality" subsumes the two ways in which households fall farther behind their neighbors and families fear ever more for the economic well-being of their children. First, income equality derives from factors such as take-home pay, transfer payments, and capital income earned from savings accounts or financial assets such as stock holdings. Second, wealth equality is determined by how much a household keeps of what it earns, its ability to acquire the highest-return and lowest-risk assets, and the extent to which one generation's income turns into the next generation's wealth. Clearly, financial services are critical at each step in the process of generating income and wealth equality and, should these engines backfire or blow up, also in making already grave U.S. inequality still worse.

Tech-Driven Inequality Micro-Bursts

Joining and sometimes working in concert with other equality down-burst are the following big-tech phenomena already all too evident in the growing array of financial products on offer to vulnerable households:

- ***Biased Assumptions and Expectations***

  It has long been known that overt discriminatory views and assumptions based on factors such as age, disability, race, or gender adversely affect credit allocation, the cost of safeguarding hard-earned income, insurance-product cost and availability, and the extent to which financial products include high-cost, high-risk, or even predatory features that destroy income and wealth. For the most part, financial institutions have dropped explicitly discriminatory practices such as declining loan applications from creditworthy African-Americans or unmarried women. However, it remains all too easy even inadvertently to discriminate one way or the other based on data that appear to show that certain characteristics – e.g., lower credit scores – disproportionately found in certain demographic groups mean that certain individuals pose higher default risk or an increased customer-service burden. Extensive research has demonstrated that default or similar risks actually do not track well with simple demographic data, but it is at best unclear the extent to which new financial-product algorithms reflect these important differences or the degree to which alternative data – e.g., the nature of higher education a borrower received – is screened by tech providers to prevent disparate treatment. As a recent article pointed out,[5] models are black boxes and could easily use factors that appear

to predict default – e.g., membership in a certain golf club – in ways with sweeping discriminatory effect without any meaningful impact on credit risk.

The power embedded in AI also may combine with massive troves of data to enable seemingly-predictive methodologies that in fact target financial customers in ways that change availability, pricing, terms, and conditions in discriminatory ways. There is already disturbing evidence that employment ads are targeted to white men and temporary rentals are screened to prevent offerings to minority and disabled individuals, with a congressional study recently finding evidence that online lenders charged minority-owned small businesses more than white-owned applicants.[6] It's also likely that even the process of offering a financial product only via AI through a mobile or other device has discriminatory effect because older individuals and those with disabilities are likely to have the same kind of access difficulties women used to have when bankers offered loans over lunches at all-men's clubs.

Mobile-phone and online offerings are also harder to find and more expensive to access, especially in rural areas with spotty broadband service. Absent revised product designs and delivery options, the rural poor could be priced out of financial services at a time when alternative delivery options – e.g., community-bank branches – are in ever-shorter supply.[7] Bias issues also arise due to the increasing ability of mobile-service providers to use a single phone number to geocode a user – would those in "bad" neighborhoods or in areas too costly to service simply find themselves blocked from new financial products?

Of course, current credit-scoring and non-AI loan underwriting practices have long, sad histories of discriminating against borrowers by race, ethnicity, age, gender, and other "protected" criteria. Reflecting this, many U.S. laws and rules bar financial institutions from explicit or implicit actions that lead to different financial-product offerings, pricing, or terms and conditions. Most of these laws apply to both banks and non-banks, but none of the rules or penalties applied to regulated banks governs nonbanks. When discriminatory practice is based on human behavior or transparent assumptions that remain fixed and are subject to bank examination, enforcement is possible and often likely. But, when AI is based on discriminatory human assumptions that are then transformed into complex black box algorithms using criteria that third parties may have trouble understanding or have no authority to review, then bias is a significant risk, as a recent study assessing AI versus human mortgage underwriting concluded.[8]

Even if algorithms aren't discriminatory, they can still be incorrect. Credit reports from lenders, landlords, and others are notoriously error-prone, leading Congress in 1970 to enact the Fair Credit Reporting Act[9] and to amend it frequently ever since to force credit-report providers to take more care, to give consumers the power to correct false or outdated information, and to demand that credit bureaus monitor their own practices to enhance timeliness and accuracy. Credit-underwriting or other financial-product decisions made by parties outside the scope of FCRA enforcement – i.e., tech companies – or models based on data other than credit scores are generally exempt from these data-quality and consumer-protection controls.

The Federal Trade Commission (FTC) may have the authority to demand corrections if a tech company uses data in a false or fraudulent fashion, but even this limited enforcement power is uncertain. Most tech companies build their codes and bring them to market as quickly as possible and in an iterative fashion – i.e., through trial and error. Mark Zuckerberg is so nonplused by all of Facebook's problems that he now suggests that they could only be corrected by some sort of Supreme Court-like body that makes decisions about truth and falsehood.[10]

Absent structural change to big-tech culture, consumer data is at considerable risk in algorithmic finance and consumers can do little to protect themselves.

- ***Algorithmic Determinism***

Bias risk is thus a significant equality challenge in the building blocks of technology-based financial product design and delivery – old models to prevent discrimination may apply, but penalties are uncertain and the ability to impose them is significantly complicated by opaque methodologies based on new data fields. This already grave equality risk is exacerbated because, as a recent paper has noted, "…biases can be created within AI systems and then become amplified as the algorithm evolves."[11] A leading advocate of "responsible AI" calls this process "algorithmic determinism."[12]

Algorithmic determinism derives from both the genius and danger of AI and machine learning: they learn from experience and, reinforced by it, retain decision criteria that achieve primary goals – e.g., low default rates – no matter the cost to secondary outcomes – e.g., discrimination – not factored into the initial model or measured in efforts to explain it. Further, algorithms designed to allocate financial products for primary goals such as market share or fee income will not necessarily consider secondary outcomes such as safety and soundness.

Preventing high-risk secondary outcomes requires advance programming and monitoring as well as initial incentive alignment between model-builder reward and model-user impact. It is unclear if any of these design controls are institutionalized in technology financial-product development protocols; it is, though, clear that no authority can ensure that they are.

Determinism also derives from another AI blessing or curse: "filter bubbles." These are most familiar on social media, which screen information by an individual's likes modified of course by the platform company's business objectives so that the individual more and more sees only what confirms his or her thinking that also profits the platform-company provider. Filter bubbles also drive financial transactions and their equality impact by, for example, only offering products to households that express certain likes or that through their data demonstrate certain characteristics – for example, the more these customers take out loans or use a tech firm's other services, the more they are the only ones offered credit. This of course not only has significant risk implications, but also undermines economic equality – when a sign is up in a bank branch's window, anyone can walk in and apply; when a product is on offer only to those selected by the lender, considerable equality risk is virtually certain.

Reflecting model risks evident even in far less opaque models than those developed by AI or machine learning, 2011 guidance by the Federal Reserve and Office of the Comptroller of the Currency (OCC)[13] governs model validation. It has recently been interpreted by a senior Fed official to apply to AI when banks make use of it.[14] Features of these standards are directly aimed at limiting algorithmic determinism, in part by mandating use of independent reviewers. No such standards apply to non-bank AI or related methodologies, a particularly problematic lapse given the huge data resources on which big-tech companies can draw and the products and services to which financial offerings are linked.

Further, none of the assumptions in current AI models has been tested in a financial-market or macroeconomic downturn. We'll only know how wrong they may be and who suffers when losses mount, but the lack of transparent independent model validation, stress testing, backstop

capital, or other risk mitigants makes it clear that the equality harm of big-tech financial offerings is not likely to be offset by the benefits of a more resilient financial system.

- ***Unanticipated Risk***

  It is likely that individuals and households will not understand the sharply different risks they run when dealing with an unregulated consumer-finance provider because most customers will not know the difference between banks and technology providers and will expect that the body of consumer protections on which consumers have long relied apply regardless of provider. This is incorrect, but no current disclosure requirements address this risk in ways consumers will clearly understand up-front. Square has recently launched a product akin to debit cards that the financial press believes poses a franchise-threatening risk to traditional banks.[15] Small businesses will give Square their money and earn reward points beyond those usually on offer from banks, but depositor money will be pooled in accounts outside FDIC protection. Square says its terms of service ensure small businesses know this risk. Will they? Have they ever? One analyst has concluded that, on a standard reading rate, it would take almost four months of eight-hour days to read the service agreements for the websites most Americans use.[16] And, even if a consumer gives up on life and undertakes this exercise, he or she is wasting an awful lot of time – terms of service can change at any time and sometimes based solely on a consumer's transactions with the service provider. What if terms of service are altered in targeted ways – most are – and these targets raise the bias questions already evident in other predictive-data applications?

  Consumers are now completely accustomed also to bearing little data-breach risk due to the longstanding body of law governing credit cards along with a binding voluntary agreement by banks on debit cards. It is at best unclear if these same $50 ceilings for all but negligent losses apply to emerging technology payment products such as Square's debit-card simulacrum and many other like-kind ventures. And, even if these voluntary agreements apply, nonbanks in this arena often lack the capital and operational-risk safeguards mandated for banks providing like-kind products. These safeguards are expensive, reducing interest rates, reward points, or the other benefits consumers desire. But, if problems arise, the bank is there to absorb a lot of loss.

  Consumers unaware of the lack of these protections dealing with aggressive product pricing offered through effective tech-company marketing have no such recourse. Further, complex partnerships between banks and big-tech companies create new grey zones in current liability requirements. Case in point: the *Wall Street Journal* has recently reported that JPMorgan is in talks with Amazon to offer some sort of joint checking account.[17] Press reports also indicate that Facebook is seeking a way to work with banks to offer deposit and other products.[18] Small banks are now ginning up to offer FDIC-insured deposit services to big-tech providers that then tout these deposits as their own. Where risks lie in these "captive accounts" is sure to be a complex legal fight between banks and tech firms, with consumers doubtless caught in the middle at considerable immediate risk regardless of the ultimate agreement between the companies or federal intervention.

  Indeed, consumer risks are not limited to instances in which funds go missing or a provider fails. Vulnerable households by definition have little financial resilience. Even small losses can wreak havoc when a financial provider lacks the human infrastructure with which to handle confusions or short-term challenges such as a missed payment. The lack of sufficient mortgage-servicing capacity and human interface led all too many Americans to unnecessarily lose their homes to

foreclosure at banks that thought they had sufficient servicing capacity. It is unclear if tech providers even recognize the need for servicing as they complete all the coding necessary to launch a new financial product. Banks have paid billions to compensate at least a little for foreclosures that never should have happened, now devoting millions not only to mortgage servicing but also to answering customer questions about bounced checks, lost payments, and identity theft.

Does any big-tech company have the capacity to support its retail-finance offerings with like-kind servicing that is an order of magnitude more complex than handling customers irate about some holes in the socks they ordered? If not, tech providers will be considerably more profitable than banks, but only because customers suffer unnecessarily when errors go uncorrected or market stress overloads system capacity.

As markets migrate to new providers, risks will grow, especially for the younger customers most likely quickly to adopt non-traditional consumer-finance and payment products who are also the customers least able to absorb even a bit of loss because income and wealth curve up with age,[19] even with this now even more true given that student-loan debt has doubled to $1.47 trillion since 2009.[20] The president of the Federal Reserve Bank of Atlanta recently told bankers he won't use non-traditional products because they are simply too risky.[21] Lower-income, younger households are likely to be far more susceptible to fast-paced products tailored to their personal data and customer profiles by the tech companies on which these households already depend for much of their social connections and, increasingly, financial transactions.[22] The more tech services you use, the greater the risk due to the complexities of identity management and the many uses to which firms put consumer data across their own platforms or via sale to third parties without the consumer being any the wiser to all of these shared data and heightened risks.

- ***Misleading Marketing***

Nothing epitomizes the propensity of technology-based financial providers to misunderstand or even misrepresent their products better than a fintech broker named Robinhood that recently launched what was touted as a high-rate savings account with what it described as federal insurance that consumers and perhaps the firm itself confused with that provided by the FDIC.[23] Notably, publicity forced Robinhood to redefine its product as "cash management," but the extent to which consumers understand the difference is at best uncertain either for this offering or the increasing number of similar ventures that skirt, it not transgress, accepted regulatory consumer-finance protections. Half of the country now feels financially insecure, with 25 percent of the population telling researchers that they think about money "all the time."[24] Innovative financial-management platforms could well comfort these customers – fintech providers who offer them already know this and are doing their best to say so.

However, as the Robinhood case makes clear, a high-risk financial product offering can easily be masked as a financial-management one or otherwise marketed in ways that lead consumers astray. "Robo-advice" investment products are particularly problematic in this respect since all of the AI bias and determinism problems cited above could well pick investment offerings in ways that turn out to profit the product provider, not to protect vulnerable customers or genuinely to meet retirement-savings goals. If the models are set for the primary purpose of provider profit, then algorithmic determinism ensures that even a heartfelt secondary goal – i.e., customer investment return – may fall by the wayside.

The Securities and Exchange Commission regulates and sanctions broker-dealers, but its ability to do so is complicated not only by the opaque nature of these services, but also the uncertain extent to which a registered broker is involved. The FTC has jurisdiction over misrepresented products, but its enforcement reach is limited no matter the cost to the customer of erroneous product or advice.

Equality risk comes not only from the loans, deposit products, or advice a vulnerable consumer selects from a technology-based provider. Payment services, especially those that directly interface with the borrower, also pose equality risks due to possible loss of funds and/or ancillary, undisclosed use of personal or transaction data. Payment services at their simplest take funds from one person and transfer them to another individual or business. If funds are lost along the way, then harm is done at one or both ends of the transaction in ways that can be critical to a lower-income customer's financial survival. Currently, four in ten adults in the U.S.[25] – roughly 100 million Americans – have less than $400 readily on hand. One lost paycheck or remittance from a family member can thus spell immediate, acute financial distress.

Notably, unregulated start-up companies such as Plaid Inc. that thrive on venture capital and aggressive acquisitions often lie at the heart of data interchanges between non-bank payment products such as Venmo and consumer bank accounts. How secure these are from an increasing number of risks is uncertain, as is firm capacity to make consumers whole in the event of loss. What if a glitch means that a consumer's rent doesn't make it to the landlord? Who pays the late fees or, even more critical, defends the payor from eviction? Remittance services that transfer funds from immigrant households to family members in a home country are already being targeted by Facebook and smaller digital-currency ventures; whether these would even work has yet to be demonstrated but experimentation puts the customer – not the provider – at risk given the absence yet again of a clear body of U.S. law and rule that protects the vulnerable.

Finally, even if products are prudent and equality-helpful, the personal data on which offerings are based may well be used by the provider for many purposes – e.g., third-party sale, related-product pricing – unknown to the customer and potentially dangerous to him or to her. As platforms increasingly offer an array of services using single identifiers, consumer convenience increases but so do an array of security, integrity, and financial risks. These data have tremendous monetary value to providers, but a consumer's right to his or her own data is at best unclear. If a tech-based entity falters, it could well try to realize the monetary value of these data in ways that then put consumers at risk. If the provider fails, data with great value to a consumer could be irretrievably lost, forcing households to rebuild credit histories or otherwise reconstruct financial profiles in ways sure to cost them dearly in terms of not only money, but also time. Data security for such high-value personal information is also at best uncertain. Lower-income households have a thin margin of financial error – if they have any margin at all. Thus, inappropriate, deceptive, or hidden-risk products do disproportionate damage to them and, thereby, to U.S. economic equality.

Look no farther than current commercial sales practices to see the power of big data, AI, and formidable profit incentives when big tech combines with major consumer-finance activities. Many financial-product disclosures are, to say the least, difficult to read. Wouldn't consumers simply select products ranked "best for them" by a search engine? Are the products on offer through a robo-advice platform or in conjunction with product purchases the least-cost, most-

suitable ones or those that include hidden fees or product costs? What about financial-product or product offerings based on personal data affording big tech a unique insight into a customer's financial status?

Those touting fintech's financial-inclusion benefits rightly cite technology's ability to identify sustainable financial offerings for vulnerable households, but these products are often the least profitable ones on offer across the financial ecosystem. Products with sometimes predatory features – e.g., certain "payday" loans – may be those first on offer at providers without a social-impact finance perspective, with their marketing edge formidably empowered by data obtained through other transactions with the company for tech-specific or commercial activities outside the reach of U.S. financial regulation.

- ***Cross-Selling and Self-Dealing***

The big-tech business model thus already poses an array of internal-control risks resulting not only from company profit incentives, but also those of platform vendors whose activities pose significant challenges as the companies seek to "moderate" postings and discussions hosted on their various sites and products. With regard to platform-company incentives, data-use risk goes beyond those cited above to include also the degree to which technology-based providers and advertisers will use household income, wealth, transaction volume, and other data to cross-sell products within their wide swath of commercial and information-service empires. The U.S. has a history of separating banking from commerce going back at least to 1956, with U.S. banking agencies reinforcing their stand against expanding banking's reach into non-traditional products as recently as 2016.[26] However, these barriers principally govern traditional financial institutions that operate through bank holding companies. U.S. law includes numerous exemptions that permit non-traditional companies to establish "non-bank banks" such as industrial loan companies.

Several fintech entities are vigorously seeking these powerful charters and others are determining the extent to which they can exploit the new special-purpose national bank recently authorized by the OCC.[27] Few of the inter-affiliate transaction restrictions and "anti-tying" prohibitions apply to these charters, as discussed in more detail in our prior assessment of technology/finance risk.

When banks deal with third-party vendors, banks are also liable for the practices of their vendors, which are subject to examination by the federal banking agencies. When platform companies work with vendors such as advertisers, political entities, and sellers of goods and services, no such standards apply nor do any of these vendors themselves fall under conduct standards beyond those imposed by the platform companies except to the extent behavior is found to violate civil or criminal fraud statutes. The "wild west" landscape of platform-company vendors and the inability of these companies to contain them was on ample display at numerous congressional hearings in the last Congress. Recent media coverage also describes the lengths to which Amazon vendors will go to position their products most favorably for sale and the inability of the platform company to regulate this without collateral damage to legitimate vendors.[28]

It is one thing – bad to be sure, but manageable – if one gets a counterfeit dog toy from an unscrupulous Amazon vendor. It's quite another to invest in a high-risk financial product or company represented by an unscrupulous provider well versed in the best way to seduce

vulnerable investors such as those just starting their independent financial lives or senior citizens. The absence of effective controls for existing activities demonstrates considerable scope for extensive equality damage in the event platform companies offer consumer-finance products directly or through third parties outside the scope of federal regulation.

Macro Big-Tech Equality Risks

Many of the micro equality risks posed by big-tech financial activities could grow into a macro equality threat. For example, if enough households have unsustainable debt and/or lose what little savings they have, national consumption patterns would radically realign into a recession or even renewed financial crisis. Once low-and-moderate income households lose economic ground, it can take years to make it up, especially in the absence of simulative fiscal policy or other initiatives to boost employment, prevent foreclosures, and protect social welfare. The grave damage to the U.S. macroeconomy more than a decade after the great financial crisis shows this all too clearly.

However, the structural differences between data-driven technology financial services and more traditional offerings pose risks all on their own with macro-inequality impact. These risks include:

- ***"Surveillance Capitalism"***

  The term "surveillance capitalism" was aptly coined by a new book focusing on the extent to which personal data are now the coin of the capitalist realm.[29] The building blocks of surveillance capitalism, based on a statement from a top Google official, are 1) "data extraction and analysis" 2) "new contractual forms due to better monetization," 3) "personalization," and 4) "continuous experimentation."[30] Digital information is the most important capital asset of the 21st century.[31]

  The relevance of these observations to finance and economic equality derives from the fact that finance now is little more than code. To be sure, many financial transactions are accomplished in cash, but these are minor and almost always associated with small-dollar consumer exchanges for goods and services. Real money now isn't in some vault; it's in the codes transmitted in the trillions each day across the financial system, stored on servers and, increasingly, the cloud. The application of surveillance capitalism to the code on which financial transactions depend is clear from the examples provided above about the risks this poses to U.S. economic equality.

  Public discourse is now keenly focused on the risks surveillance capitalism poses to data privacy, market competition, and the free flow of ideas. All of these concerns warrant immediate policy attention, but so too does the financial-product delivery recalibration sure to result if the code that is money is transformed into a code that is monetized in opaque, biased, self-interested, and/or misleading ways outside the reach of consumer protections and financial-market safeguards.

- ***Concentrated Markets***

  The FTC late last year convened a comprehensive series of hearings on U.S. antitrust policy to determine if the longstanding "consumer-welfare" standard should continue to govern antitrust decisions, especially when it comes to big-tech companies. When he opened the hearings, FTC

Chairman Simons suggested that the consumer-welfare standard could be reconfigured or replaced to bring factors such as economic equality into the antitrust equation.[32]

Those advocating doing so include Nobel Prize winner Joseph Stieglitz,[33] with this "populist" approach to antitrust policy focusing principally on the extent to which giant firms concentrate so much economic power as to set wages and otherwise control pricing and production across the economy to disadvantage low-and-moderate income households. Thinking here is sometimes dubbed "neo-Brandeisian" in reference to the Progressive Era Supreme Court Justice's crusade against the "curse of bigness."[34]

Reshaping U.S. antitrust law with an eye towards bigness and equality might, for example, have led the FTC to look harder at Facebook's acquisition in 2014 of WhatsApp. It didn't seem particularly germane then to consumer welfare that Facebook was about to get still bigger. Now, the ability of the social-media behemoth to enter the payment system through new remittance products poses the equality risks described above. If the FTC does not revise its antitrust methodology, then transactions such as this may get no scrutiny until it's too late to reverse unintended, but nonetheless devastating, inequality impact.

Bigness does power up a company's capacity to exploit data and monetize it as described above, but it is far from the only aspect of the current antitrust framework that threatens economic equality when it comes specifically to companies that engage in financial services either as a primary business or in concert with other technology services. A case in point is to be found in the business of facilitating transactions between non-traditional payment services such as Venmo and regulated bank accounts, a function that as noted poses potential equality risk due to the cost to vulnerable households of even minor transaction glitches and the ways in which critical transaction data may be used to violate privacy and/or promote cross-selling of all sorts of goods and services. The companies in this space are small by big-tech standards, but the dominant provider, Plaid Inc. now plans to buy its main competitor.[35]

This transaction appears to pose no consumer-welfare risks since pricing for this transaction service is remote to users and small on a per-transaction basis. However, the more concentrated the provider, the greater the risk that customers might wake up and find that all of their transactions between unregulated providers – whose operational resilience is already uncertain – have gone offline and are even irrecoverable.

- ***Financial Crises***

Finally and most disturbingly, an increase in U.S. economic inequality attributable to big-tech financial offerings raises the risk of another catastrophic U.S. financial crisis. As detailed in a recent ***Economic Equality*** blog post,[36] extensive research has demonstrated that income inequality is the most reliable predictor of financial crisis along with the reason why certain recessions are longer, deeper, and thus more devastating to economic equality in ways that also increase crisis risk. Fintech financial offerings may be particularly risky in the inequality/crisis nexus because the lack of internal controls discussed above along with related profit incentives are likely to provide considerably more consumer credit on problematic terms in ways that vulnerable households can ill afford. When the majority of a nation is comprised of debt-strapped households with scant financial resilience, even small market or geopolitical shocks have immediate, adverse impact on credit quality. When lenders to these households have no

capital or liquidity reserves with which to absorb these losses and/or rapidly exit a troubled credit market, severe liquidity shortages quickly translate into broader financial-market stress.

Regulated banks may stand aloof from all of these damaging activities leading up to the crisis, but their viability will nonetheless be threatened if large amounts of credit delinquencies threaten major tech companies and, through them, the global funding market and U.S. payment system.

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