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'Level up your money game': an analysis of gamification discourse in financial services

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ABSTRACT

The idea of gamification, or implementation of game-like elements and mechanisms in non-game contexts, has, throughout the past decade, swept the fields of healthcare and fitness as well as education. More recently, various tech writers, bloggers, and consultants have begun proposing gamification as a solution also in financial services, where gamification has already made headway, for instance, with day trading apps that simplify trading and turn it into a real-time game. In this paper, we examine the emerging discourse of finance gamification and situate it in the expectational dynamics and performative struggles that shape technological developments in finance and the FinTech industry. We argue that the discourse creates positional uncertainty among finance incumbents by linking the notion of a generational wealth transfer to narratives about generational change. Tech writers, consultants and journalists neutralize this uncertainty by propagating a model of human nature, which may be 'tapped into' and harnessed with games to rationalize subjects' financial behavior. However, despite finance gamification's promises to democratize finance and empower small-time investors by extending access to financial markets, we argue that, in the end, the discourse on finance gamification reinforces the 'observational boundaries' between finance and society.

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Introduction

In May 2020, the price of oil futures fell rapidly, declining eventually into negative territory. The event received much attention not only from the press but also, as it appears, a large group of non-professional investors, who flocked into exchange-traded funds that tracked the 'price of oil' on 'gamified' investment platforms such as Robinhood. Many of these relatively small-time investors, Shrikanth suggested in the *Financial Times*, 'appear to have bought low and sold much lower' (Shrikanth 2020), losing significant sums of money. In the following June, gamified investment apps made headlines again. This time, the apps were linked to the suicide of a 20-year old student who erroneously believed he had lost nearly $750,000 by trading options (Platt *et al.* 2020). In both instances, the disastrous turn of events was causally linked to the notion of 'gamification.' In the first case, for instance, it was suggested that new and inexperienced investors were 'enticed by stock trading apps such as Robinhood, E*Trade, and SoFi Invest, which offer slick user interfaces, low fees and near-instant account opening … "Trading is now so simple that it can be easy to make

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impulsive decisions"' (Shrikanth 2020). Similarly, in the latter case, the gamification of investment was seen as a core aspect of the problem: 'Some observers worry the new class of e-brokers have helped turn the experience into something akin to a video game, with constant updates about profits and losses and social media fuelling the frenzy' (Platt *et al.* 2020). Whether or not these comments accurately characterize these apps, they do chime well with how such apps are represented in advertising. As an advertisement of the German online broker Trade Republic suggests, for instance, trading complex financial products has become so easy that one can do it while commuting on the bus.

In this article, we seek to illuminate the gamification of finance by investigating the discourse that propounds it. Gamification, or 'the use of game design elements in non-game contexts' (Deterding *et al.* 2011, p. 2), has been gaining traction throughout the past two decades, fueled by fast development of technology, particularly smartphones and social media. It is underpinned by the notion that 'since video games are designed with the primary purpose of entertainment, and since they can demonstrably motivate users to engage with them with unparalleled intensity and duration, game elements should be able to make other, non-game products and services more enjoyable and engaging as well' (Deterding *et al.* 2011, p. 1). Although 'parallel terms continue being used and new ones are still being introduced, such as "productivity games," "surveillance entertainment," "funware," "playful design," "behavioral games," "game layer" or "applied gaming" … "gamification" has arguably managed to institutionalize itself as the common household term' (Deterding *et al.* 2011, p. 1) – a development Deterding locates in the Silicon Valley of the latter half of the noughties (Deterding 2015). In a few years, the institutionalization of the term has yielded 'a sizable research literature,' which has been accompanied by the creation of a commercial field where consultants and vendors seek to commodify various forms of 'gamification' (Landers *et al.* 2018, p. 317).

To date, gamification has been especially successful in the healthcare industry, where researchers found a 'burgeoning market' and 'abundant use of gamification in health and fitness apps' such as Fitbit and Nike+ (Lister *et al.* 2014). Over the past few years, however, the success of gamified products has increasingly drawn the attention of financial actors, including investment managers, wealth management companies, online brokerages, banks, as well as emerging FinTech companies. Even if not all appear equally keen on embracing the concept of gamification, it has nonetheless become clear that the discourse of gamification influences technological developments in the finance and insurance industries (on insurance, see: McFall 2019, Meyers and Hoyweghen 2020), with some, like the producers of the podcast 'How to Money,' actively spurring small-time investors to use gamification to 'level up your money game.' While some companies that seek to apply game-like elements in the specific domains of finance (such as financial education and trading simulation) explicitly embrace the label of gamification, others like the online brokerages E-Toro and Robinhood seem more reluctant to do so in public, most likely for the simple reason that it may undermine finance's claims to be a productive activity.

Although few sociologists have scrutinized developments in gamification – save for exceptions Woodcock and Johnson (2018) – they may nevertheless be seen as part of a broader cultural shift, which is marked by the erosion of boundaries between the domains of play and the economy (Malaby 2007, Goggin 2012). Media scholar Deterding, for instance, suggests that gamification 'is only one symptom of the broader digital convergence of games, one little current in the double tide of the ludification of culture and the cultivation of ludus' (Deterding 2015, p. 24) And even if Goggin (2012) doesn't explicitly mention the rise of gamification, she nonetheless places the convergence of economics and play in the broader context of the rise of financial capitalism, the financialization of daily life, and links it to the production of financial subjectivities (Langley 2008, Langley and Leaver 2012, Maman and Rosenhek 2020, Martin 2002), claiming that it 'blurred the perceived line that was once thought to divide work from play, and finance from fun' (Goggin 2012, p. 442).

By analysing the discourse on finance gamification, we combine these sensitivities and investigate how the gamification movement contributes to the production of new subjectivities in the domain of finance. Currently, there are three dominant frames through which this development is generally understood. The first applies to discourses about gamification in general and tends to portray it as 'bullshit.' This perspective is most forcefully articulated by Ian Bogost, who argues that gamification is a 'marketing bullshit, invented by consultants as a means to capture the wild, coveted beast that is videogames and to domesticate it for use in the grey, hopeless wasteland of big business, where bullshit already reigns anyway' (Bogost 2011). Another prevalent frame focuses specifically on gamification in finance and highlights the dangers of turning finance into a game. This pessimist frame, which seems prevalent among cultural critics (e.g. Woodcock and Johnson 2018), often leads to opposing the convergence between the domains of finance and play. A third frame, which predominates the writings included in our corpus, may be labeled as techno-optimist. This frame tends to celebrate the problem-solving potential of gamification and suggests that the power of games may be gainfully harnessed to improve society – and the business of those who embrace it.

Our position diverges from these frames and rather situates the discourse of finance gamification in the expectational dynamics (Borup *et al.* 2006, Beckert 2016) and performative struggles (Callon 2007, Muniesa 2014, Meyers and Van Hoyweghen 2018) that shape technological developments in finance and the FinTech industry. We investigate the narratives produced by tech journalists, consultants, and entrepreneurs who propagate the agenda of finance gamification. Our findings highlight how generational narratives about millennials as 'digital natives' who are 'fickle' and sceptical of big finance are used to construct expectations about the future that invite 'positional uncertainty' among finance incumbents. At the same time, however, these writers seek to manage uncertainty about the future of the finance industry by propagating models of financial subjectivity that seek to 'tap into' the animalistic urges of human beings and to harness their playful nature; such models, moreover, are an attempt to foster specific forms of financial behavior, which is presented as an attempt to democratize finance, and to allow outsiders to participate in financial markets, even if this participation is conditioned on highly stylized understanding of financial markets. Seen as such, the discourse of finance gamification goes beyond the convergence between the domains of finance and play (Goggin 2012) and propagates a model for financial subjectivity that harnesses humans' supposed animalistic drives in an attempt to foster rationalized investment behavior, thereby enabling increased participation in financial markets. To the extent that this participation consists of conditioned access of an increasingly large share of the population, this discourse reinforces the boundary between financial market insiders and outsiders, or between finance and society (Preda 2009).

The role of imagination in technological discourses

To understand what the discourse about gamification is and what it does, this paper draws on literature in economic sociology and science and technology studies which has sought to conceptualize the role of imaginaries and expectations in shaping technological trajectories, processes of innovation and of capitalist development more generally. Scholars have long had an interest in the role of seemingly irrational constructs such as myths and narratives in capitalist societies. Meyer and Rowan (1977), for instance, argued that for reasons of legitimacy organizations tend to adopt practices based on 'rationalised myths' rather than being driven by purely instrumentally rational concerns. Myths may thus become institutionalized and shape the structure of an organizational field (DiMaggio and Powell 1983, Carter 2019). More recently, scholars have increasingly focused on the role of *future-oriented* myths and narratives in the premediation of the future (De Goede 2008), and in shaping the trajectories of techno-scientific capitalism (Beckert and Bronk 2018, Birch and Muniesa 2020).

The turn towards futurity tends to be accompanied by the problematization of action under conditions of uncertainty (Beckert 1996, Callon 1998, Callon *et al.* 2009). Recently, Beckert (2016) argued that capitalist societies are characterized by a fundamental openness of the future, raising the question how individuals or organizations lacking the 'information or computational capacity' to 'know the future' can nonetheless behave rationally. To fill the informational void of this fundamental uncertainty, Beckert argues, actors create and adopt 'fictional expectations' that may facilitate the coordination of action in the present. These expectations are thus not purely illusory constructions of the future but are 'present futures,' or images of the future that shape actors' behavior in the present and thereby 'provoke' the 'future present' to come into being (Esposito 2011, Muniesa 2014, Beckert 2016, Meyers and Van Hoyweghen 2018). Such fictional expectations seem to have become especially pertinent under finance capitalism, in which the flow of capital depends on the salience of particular fictional expectations, which need to be sufficiently plausible or credible (Beckert 2016, Beckert and Bronk 2018). Indeed, whether actors adopt specific fictional expectations is a matter of 'conviction' that 'may be the result of deliberation and calculations, but also of habit, assumption, ignorance, prejudice, and so forth' (Beckert 2016, p. 71).

A similar line of argument can be found in science and technology studies, where scholars explored how imaginaries and expectations about the future shape technological development (Borup *et al.* 2006). Crucial here is the argument that the relative prevalence of particular imaginaries may influence how economic and organizational resources are distributed across actors and technological projects and hence lock-in some research and development agendas rather than others (van Lente and Rip 1998, Rip 2009, p. 2009). There is, in other words, a 'performative' link between how the future is imagined in the present and what future will crystallize – a link that is mediated by the distribution of economic and organizational resources (van Lente and Rip 1998, Miller and O'Leary 2007) – although it is important to note that this link needs not (and often does not) resemble a self-fulfilling prophecy (Borup *et al.* 2006). Technological projects, after all, are unruly and will often have many unintended consequences (Callon *et al.* 2009). Nevertheless, competing research and development agendas struggle over resources by concocting narratives about how the future will likely unfold.

Michel Callon (1998, 2007), whose work straddles science and technology studies and economic sociology, has conceptualized the feedback loops between representations of reality and reality itself in terms of 'performativity.' Focusing on the relation between 'economics' – broadly conceived – and economic reality, Callon argues that the anthropological model underpinning most of neoclassical economics – the model of the *homo economicus* – 'is not an a-historical reality' but 'is the result of a process of configuration' (Callon 1998, p. 22). Rational calculation is not an intrinsic human proclivity, but is a situated accomplishment that requires the active construction of a socio-material arrangement enabling it. Seen in this light, economics plays an active part in the enactment of economic reality, and, in so doing, may make humans behave in ways that conform to the anthropological models postulated or implied by it (Callon 1998, MacKenzie and Millo 2003, MacKenzie 2006). Similarly, we may argue that the convergence between the social domain of play and the economy may be conceived of as a convergence between the anthropological models of the *homo economicus*, or the calculating human, and the *homo ludens*, or the playing human, which both serve as 'blueprints' for innovation in the digital economy.

Shared imaginaries, whether of the future or of human nature, thus shape capitalist development by guiding present action and allowing actors to overcome the problem of the fundamental openness of the future. There is, however, another almost opposed sense in which expectations about the future are linked to the problem of uncertainty in capitalist societies. Indeed, the core institutions of capitalism require some degree of uncertainty about the future to yield continued capital accumulation because without it, there would be no room nor motivation for entrepreneurs to embark on creative and innovative projects (Beckert 2016, Hancock 2017). Moreover, narratives of 'disruption,' which are often rooted in Schumpeterian notions of 'creative destruction,' may contribute to actors' 'positional uncertainty' by undermining faith in the continuity of the present. 'Expectations … create uncertainty in addition to reducing it, because imaginations of the future are able to contribute to "creative destructions" of existing worlds to make way for new ones' (Beckert 2016, p. 59). The double-edged character of expectations with respect to uncertainty becomes apparent in the 'eschatological' narratives of high-tech disruption, which 'instead of emphasizing the openness of the future … exploit this openness to suggest the end of uncertainty' (Geiger 2020, p. 172). Pointing at the impending disruption of a given industry serves not so much as a neutral prediction but rather as a strategic intervention that may increase actors' felt uncertainty and open up an organizational field for the introduction of a novel set of practices.

The double-edged nature of the relation between imagined futures and the uncertainty experienced by actors also surfaces in the discourse around gamified investment. As we show below, this discourse contains competing notions that are well-calibrated simultaneously to reduce and enhance uncertainty of market actors by sketching deterministic imaginations of the future that threaten to undermine the dominant position of market actors today; it invites these actors to a fatalistic acceptance of the need to prepare for the future and adopt novel practices. To lend narratives about gamified investment some credibility, we show moreover, the 'promise builders' or 'promissory organisations' (Pollock and Williams 2010) that produce or promulgate them borrow from imaginaries and narratives about the emergence of the millennial generation, human nature, and the democratizing potential of financial education.

Method

Our paper addresses the meanings and narratives associated with gamification to make sense of the ongoing developments in the digital sphere and, especially, to laud the gamification's social and economic benefits. To explore these meanings, we opted for discourse analysis as our research method, as we find it to be the most appropriate strategy for investigating the dispersed symbolic structures that make up the digital environment in which, naturally, texts on gamification are the most abundant. As Wodak argues, discourse analysis 'provides a general framework to problem-oriented social research' (Wodak 2008, p. 2) and 'allows the integration of different dimensions of interdisciplinarity and multiple perspectives' (Wodak 2008) in exploring its fundamental object, 'a semiotic entity, embedded in an immediate, text-internal co-text and an intertextual and socio-political context' (Wodak 2008). It helps researchers to uncover regularities in '"naturally occurring" language' (Wodak 2008, p. 3) in order to understand its functions in wider social and political context and the patterns of social action and interaction.

We created a corpus of 83 newspaper articles, blog posts on tech-oriented websites as well as company websites, and consultancy materials collected from various tech writers, journalists, enthusiasts as well as professional consultants who specialize in advising companies about the future developments of the market. Collectively, we argue, these documents may function as 'expectation generating devices' (Meyers and Van Hoyweghen 2018, p. 127) and constitute the discourse on finance gamification. We collected our source material with keyword searches, which included combinations of terms like 'gamification,' 'games,' and 'serious games,' and 'financial services,' 'investment,' and 'wealth management' on both google and the LexisNexis database to get a mix of news articles, blog posts and consultancy reports. All our source material was published between 2010 and 2020, with the large majority (63) published in the last five years.[1] A complete list of the sources that were used in this study is included in the Appendix (see Supplemental data). We believe that this eclectic collection of textual data allows us to cut through various milieus and uncover general regularities of the gamification discourse.

To explore these regularities, we analysed the corpus using an inductively designed coding frame, seeking to 'let the categories emerge from the data' (Schreier 2012, p. 25). Through close reading of collected materials, we first identified a collection of themes and topics from which we eventually selected three master categories that were most salient. These master categories now form the key sub-sections of this paper's empirical section. Within each master category, we also identified further subcategories and minor themes which helped us to understand the dynamics behind these master categories and further explore the structure of the gamification discourse. All of the research process and coding was done in the Atlas.ti Cloud digital environment.

Imagining generational change

The first set of imaginaries from which narratives about finance gamification borrow is generational discourse, especially narratives about the 'millennial' generation, whose increased wealth (as its members mature) will have important implications for the finance industry. Generational thinking has become a pervasive phenomenon in modern societies, especially among the urban middle-classes, and offers a 'metric of social change' that is more precise than the century or epoch and more inclusive than the royal dynasty (White 2013, p. 218). Political observers note that generational concepts have become an increasingly prevalent feature in political discourses (Bristow 2015). According to White, one of the factors fostering contemporary 'generationalism' – or 'the systematic appeal to the concept of generation in narrating the social and political' – is that it is cultivated by commercial trends that seek to create and target niche markets (White 2013, pp. 216 and 229). Indeed, a commercial logic can be observed in the gamification discourse too, where authors frequently narrate the emergence of the 'millennial generation' as 'an historic change, bringing new strong and powerful habits to the market that even change the attitude of this sector' ('Gamification for financial services: the new frontier with millennials,' 2019).

For financial services providers, this change does not just mean a commercial opportunity; instead, it is often tied to their survival. A key theme within the generational narratives tends to be the impending 'multigenerational wealth transfer,' often accompanied by apocalyptic undertones. 'Those born between 1980 and 2000 are likely to fall under the category of "not rich yet,"' the *Financial Times* reports, 'but managers recognise that if they are going to attract these clients in the future, they will need to up their game' (Williams 2016). Even if some argue that 'Millennials are statistically the least-invested generation in history' (Takahashi 2020), others prognosticate that 'the young and wealthy are here, ready to take over the market' (Mookerjee 2018), rendering the 'future implications of gamification of financial services to be structurally disruptive' (Stefanel and Goyal 2014). This narrative of the impending wealth transfer provides the strategic means for commentators to heighten uncertainty about the future and thereby to unsettle the current state of affairs in the world of financial services. The broader appeal of the concept of generations to narrate social change thus chimes well with the apocalyptic undertones of Silicon Valley style narratives of disruption (Geiger 2020).

How, then, do the articles in our sample imagine millennials? Four themes stand out. A first theme addresses the socioeconomic circumstances of the (primarily middle-class sections) of the millennial generation. Key in this narrative is the traumatic experience of the 2008 financial crisis, which some argue was a defining moment in shaping millennials' financial consciousness. In a report by WillisTowersWatson, for instance, we can read:

> Many grew up during the financial crisis of 2007–2008 and saw their parents suffer as a result; this has engendered distrust in investments and a risk-averse attitude. … This wariness of investing is compounded by high student debt, house price rises and the fact that young adults today earn 20% less than their counterparts did in 1989. (Bird 2017)

The financial crisis not only gave millennials a negative perception of the world of finance, or so the narrative goes, but the years of austerity that followed also affected their socio-economic position, leading to high indebtedness, surging house prices and low wages. In the American context, Takahashi (2020) notes, millennials are 'the first generation of Americans to believe they won't be better off financially than their parents are,' a narrative that also features prominently in the type of political generationalism that blames boomers for millennials' economic gloom (Bristow 2015).

Distrust of financial institutions also features as an important narrative strand. Based on survey research, which serves as an important 'device' (Meyers and Van Hoyweghen 2018) for generating narratives and expectations about generational dynamics, Accenture's consultants conclude, for instance, that 'more than half (57 percent) of Millennials feel their advisor is only motivated to make money for themselves and their employer, and less than a third feel their advisor takes the time to get to know them' (Thompson and Blomquist 2017). This, as shown above, is partly informed by the financial crisis narrative, but is also influenced by other imaginaries. The Accenture report, for instance, also suggests that millennials (more than other generations) see 'traditional wealth management as a bureaucracy' (Thompson and Blomquist 2017), a sentiment that is compounded by issues of 'relatability': 'the average age of a financial adviser is 50 years old and there are more financial advisers over 70 than there are under 30. 60% of millennial women equate a typical investor to an old, white man' (Bird 2017).

Another narrative strand places the millennial generation in the broader context of technological development and portrays them as 'digital natives.' Millennials, in this view, form the 'iPhone generation,' or the 'gamer generation,' who have an especially strong penchant for ludic interactions because they grew up with video games (cf. Beck and Wade 2006) and are 'by far the most digitally savvy investor group overall' (Thompson and Blomquist 2017); 'they're simply in love with everything digital' (Oleksyuk 2019) – 'almost 90 percent of millennials check their smartphone within 15 minutes of waking' (Williams 2016). In so doing, '[m]illennials use technology differently than older generations: they use mobile devices more than laptops, they communicate with chats more than emails, they play digital games' (Sironi 2016, p. 291) This predilection for the digital, some claim, also goes at the expense of traditional text-based forms of learning: 'Before turning 21,' Raghavan (2018) suggests for instance, 'the average American would have spent around 3000 hours of reading books[,] thrice less than the number of hours playing video games.'

The narrative of millennials as digital natives is often conjoined with the complaint that 'it's not easy to engage millennials, a distracted generation' (Takahashi 2020). Indeed, one of the main perceived challenges of wealth and investment managers is to 'retain the interest of the fickle millennial generation' (Williams 2016). While they have 'an affinity for technology and have grown up playing video games' and 'they show interest in becoming savvies with cash flow management and budgeting' (Thompson and Blomquist 2017), they also 'tend to be disinterested and unengaged when it comes to traditional learning' (Hatten 2019). The alleged 'fickle' character of the millennial generation also translates into a low tolerance for 'frictions' and short-termism. According to Accenture's report, for instance, they 'see anything other than a simple, straightforward customer experience as "friction"' and are keen on leveraging digital technologies to 'personalise' their investment experience – that is, to 'create their own frictionless experience' (Thompson and Blomquist 2017). Millennials, moreover, are seen as

> less interested in getting married and becoming parents than older generations, but more desirous of working their dream job and travelling the world. Millennial money is therefore more concerned with short term goals, which may explain why they are good at saving but not so interested in investing. (Thompson and Blomquist 2017)

In sum, generational narratives in the discourse on the gamification of investment, banking and wealth management frequently emphasize the challenges that come with the impending generational wealth transfer by pointing at millennials' skepticism towards financial institutions, their poor economic opportunities (which predisposes them towards short-termism *and* their willingness to learn more about finance), their digital savviness, and their 'fickleness.' These narratives tend to present 'millennials' as a homogeneous group, obscuring other axes of social differentiation and taking the experience of predominantly middle-class subjects as exemplary of the experience of the entire generation. In conflating narratives about the socio-economic situation of millennials with stories about their intrinsic proclivities, moreover, such generational narratives obscure the politico-institutional conditions that have turned millennial wealth into an object of concern for the investment and wealth management industry in the first place. Thus, we argue, such narratives serve primarily – though not exclusively – to foster uncertainty among incumbent financial services providers and to unsettle their dominant position.

Between rational actors and spirit animals

But how do tech writers, consultants and entrepreneurs narratively manage the uncertainty fostered by the impending wealth transfer and millennials' maturing? In this section, we argue that the finance gamification discourse manages uncertainty about the future by propagating a model of human nature that blends aspects of the *homo economicus* and the *homo ludens* (Callon 2007). Forming a strong and persuasive understanding of human behavior lies at the heart of any activity that claims knowledge of the future. Analysts and advisors need to possess an idea of why people act, what drives them, and how they make their choices. Are they individualistic or cooperative? The idea of the *homo economicus* – a rational and self-interested market actor which, despite being for long criticized as 'pure fiction' (Callon 1998, p. 51) – provided (and continues to provide) the dominant imagery for human behavior in economics. *Homo ludens*, on the other hand, is the idea, often associated with Johan Huizinga's (1955 [1938]) work, that play is an essential aspect of human culture and, deep down, all humans are playful. In joining together elements from these models, we argue, the discourse further borrows from imagery in evolutionary biology, behavioral economics, and psychology. The combination produces a model of humans as double-fold beings controlled by their drive for pleasure, which is imperfectly regulated by their bounded rationality. To foster the economically rational behavior presupposed by the model of the *homo economicus*, in other words, this discourse proposes to harness humans' playful and pleasure-driven urges.

The first crucial component in this set of imaginaries is the idea of humans as pleasure-seekers. This idea, made famous by Freud as the 'pleasure principle' (which Freud borrowed from Bentham's theory of the unconscious utilitarian drive), paints actors as motivated by pursuit of pleasure and avoidance of pain and discomfort. According to finance gamification narratives, humans have an intrinsic preference for entertainment and short-term gratification rather than work and abstract contemplation of long-term goals. In an interview for *Bankrate*, a coach and creator of the game *Money Habitudes* expresses the idea very clearly: 'when we experience something pleasurable, like winning a prize, our brains produce a chemical called dopamine. We're hard-wired to prefer pleasure over pain' (Dixon 2020).

The idea of 'hard-wiring' is central to the discourse of gamification. Human behavior is seen as not merely a matter of satisfaction of some artificial needs but a fact of human nature that is governed by basic attributes of the fundamental anthropological constitution. Humans are seen as biologically conditioned in a way that dispositions them to enjoy pleasure – which, indeed, as *homo ludens*, they may achieve through games, as well as through other means. In other words, behavior is not explained on the level of culture, but with explicit references to the idea of inescapable biological programming that market actors need merely to 'tap into,' as one blogger discussing gamification in finance suggests ('Gamification Addiction – will banks get hooked on dopamine?,' 2013), to succeed.

The idea of biological programming is buttressed with references to the parlance of biological mechanisms and chemistry. One article on the online brokerage *Ally*, for example, notes that 'positive experiences can open up channels in the brain to improve learning and motivation' ('Have Fun with Finances: Level-Up Your Finances Using Gamification,' 2016). But the most popular signifier is that of 'dopamine.' Dopamine is often assumed to be an omnipotent substance that induces the pleasure that humans seek. Authors repeatedly refer to dopamine to substantiate the idea of biological conditioning. According to some, games are 'dopaminergic' (Koenig 2016) or 'trigger the release of dopamine in the brain' (Cutchin 2020). Another blogger notes that 'due to dopamine hormones release … , our "animal sides" find completing … games gratifying' ('Gamification Addiction – will banks get hooked on dopamine?,' 2013). The role of dopamine in the discourse is to endow lay parlance with an air of academic exactness and authority.

The idea of 'tapping into' human nature by designing products that align with humans' fundamental biological setup is often elaborated with the idea that the needs and drives are latent or unconscious or that they belong to some 'animal sides.' The consultant David Zemanek, for example, summarizes this thesis: 'appealing to people's intellectual brains is great in theory but the reality is that many of us are driven by impulsive behavior that tends to severely undermine attempts to foster healthier financial habits' (Zemanek no date). In line with discourses of psychology (Haidt 2013, Kahneman 2013) and behavioral economics, which emphasize the role of non-rational and non-calculative (often indeed erroneous) thinking in economic behavior, sources argue that humans are beings determined by irrational drives that are only imperfectly managed by reason. This imagined irrational side to human nature is regarded as both more powerful and enigmatic than intellect. That nebulousness is exactly why it can be rhetorically effective – it is a force that gamification enthusiasts and experts can propose that only they understand.

Importantly, the central claim proposed by finance gamification proponents is that gamification is a powerful strategy to shape this hidden, driving side of human nature, and facilitate self-improvement with carefully calibrated moments of pleasure. According to a blogpost of the online brokerage *Ally*, 'when we experience … any positive feeling, in relation to our finance – our psychology can change' ('Have Fun with Finances: Level-Up Your Finances Using Gamification,' 2016). Paolo Sironi, who according to his website is a 'FinTech thought leader' at IBM, argues that 'gamification … can provide a way for individuals to rewire their brains and bodies and achieve better investment behaviour against the imprints generated by financial events and the experience of their formative years' (Sironi 2016, p. 292). By connecting unconscious or latent drives with transformative capacity of game-induced pleasure, the advocates of finance gamification effectively signal that gamification is the key to producing market actors and market subjectivities (e.g. Langley 2008) through direct intervention into the human biological setup, eluding the fallible faculties of rational control. Education is thus refashioned into subliminal appeal to the playful, emotional, and competition-driven nature of human beings rather than argument, demonstration, or rational persuasion. Humans can be made into perfect subjects of market rationality – through harnessing their irrational drives.

But how does one 'tap' into human nature? Here, advocates of gamification often fall back on a neoliberal 'governmentality' and advocate incessant competition as the central principle guiding individual lives as well as underpinning the organization of society (Foucault 2010). According to *Bunchball*, a cloud-based gamification service, 'humans generally have a need for the esteem and respect of others, for status, recognition, fame, prestige and attention. Status and esteem present the normal human desire to be accepted and valued by others' (*Gamification 101: An Introduction to the Use of Game Dynamics to Influence Behavior*, 2010). Ben Brown, and editor of *Bitcatcha* online tech news, notes that 'humans are competitive by nature. Most of us want to push ourselves further and harder' (Brown 2016).[2] Understanding humans as naturally driven by competition has consequences for designing gamified apps. Some suggest, for instance, that 'when leaderboards are used, they can also add an element of competitiveness. People want to rise through the ranks and reach the top spot' ('What is gamification in fintech and does it work?,' 2019). Brown suggests that 'by using "personal bests" and previous records,' you can convince your users to come back and try again. Again, this is the driving factor behind the popularity of Nike+ app' (Brown 2016). In other words, there is an emerging link between how actors conceive of human nature and how they propose to build gamification apps.

To summarize, finance gamification advocates construct a double-fold imaginary of human nature assembled from aspects of *homo economicus*, *homo ludens*, and more recent conceptions appropriated from behavioral economics and psychology. Humans are symbolically constructed as consisting of an enigmatic animalistic side that seeks pleasure (often through competition) and an imperfect rational side that attempts to manage this inner animal. This imaginary is indeed well-calibrated to manage the uncertainty that is narratively constructed through the image of generational change. Although the impending wealth transfer means that wealth will be increasingly concentrated among millennials, who come with new propensities, urges and desires that present distinct challenges for incumbent financial services providers, this new generation can be tamed thanks to an understanding of the fundamentals of universal human biological programming –

and how it can be changed. The central idea is that transformation of human behavior may be achieved by harnessing the supposed irrational and emotional side of humans' make-up rather than by appealing to their rational faculties. In short, humans are seen as more effectively educated not through persuasion but through play. In the next section, we explore how such a conception sets the stage for gamification's promises to democratize finance and to empower small-time investors.

Gamification's promise to democratize finance

So far, we have argued that the discourse around the gamification of investment is an amalgamation of different imaginaries, including imagery about the nature of different generations (especially the millennial generation) and the animalistic and irrational nature of human beings. In this final section, we argue that narratives about finance gamification also emphasize its democratizing potential by claiming that it will make finance more accessible to a broader population of nonprofessional investors and will contribute to fostering 'financial literacy.' This promise to democratize, which perpetuates the antagonistic discourse of lay investment (Roscoe 2015), and is characteristic of Fintech's disruption narratives more generally (see, e.g.: Sironi 2016), does not just surface in the finance gamification discourse but is also reflected in the names ('Robinhood') and mission statements of some of the gamified financial services. Take the mission statement of Acorns, an app that rounds off digital payments and automatically invests the proceeds in the company's investment funds: 'Our mission is to look after the financial best interests of the up-and-coming, beginning with the empowering step of micro-investing.'

Historically, financial markets are not known for their openness and their democratic appeal. Writing in the late nineteenth century, for instance, Weber (2000) noted that financial markets tend to 'have the character of closed clubs of professional exchange-traders' (p. 326). The achievement of such closure by means of control mechanisms that determine membership,the terms of access to financial transactions and how these transactions can be perceived by the wider public, was crucial for the social legitimation of stock markets as a core institution of industrial capitalism (Preda 2009). Such control mechanisms, however, also created status hierarchies that define the relative position (and access to rewards) of 'different intra-institutional groups as well as between internal and external ones' (Preda 2012, p. 151). With the ongoing processes of automation, technicalisation and liberalization, the 'observational boundaries mediating the relationship between financial markets and society' have changed too (Preda 2009, p. 22). The ongoing technological transformation of financial markets since the 1960s has significantly altered how financial markets have become publicly 'observable.' As Preda (2009) notes, 'access is increasingly centred on computerized, real-time, continuous price observation' (p. 242), which has increased (often intermediated by electronic brokerages) access to financial markets by nonprofessional investors and the 'increased visibility of financial data in the electronic media, as well as in public spaces' (Preda 2009, p. 242; see also: Roscoe and Howorth 2009, Roscoe 2013). The fact that the stock market has 'become an object of intense mass appeal' cannot be explained by the profit motive alone, for

> even at the height of the market, most people lost money, and many lost badly. Thus, the popular interest in day trading seems to us to reflect less the promise of easy wealth than the cultural attraction of embracing risk. It represents the possibility of attaining autonomy, leaving behind the frustrations of working for someone else, by risking your own capital. (Baker and Simon 2002, pp. 5–6)

Financial markets, in other words, have become increasingly accessible to wider-audiences, even if these audiences are to join as subordinated groups whose conditions for access are set by financial market insiders, and in so doing exude the promise of financial independence.

The promise of financial independence surfaces in the gamification discourse too – in a striking contrast with previously discussed ideas of biological programming and the addictive nature of gaming. On the one hand, our sources suggest that the appeal of gamified investment will invite 'more individuals to take control of their investments' (Chalbaud 2016), extending financial market participation to those who formerly felt discouraged to interact with the complex bureaucracies of finance. On the other hand, some suggest that gamified investment may 'increase the feelings of empowerment' (Juliano 2018). 'People don't like to be forced or dragged to the destination. They like to be the masters of their own destiny. Most people like to feel in control.' By gamifying the interactions with wealth and investment managers, gamified investment will 'make it seem like [users] are in the driving seat' (Brown 2016). While some perceive gamification thus as a means to enhance individuals' control over their investments, taking away some of the power of financial market insiders, others see gamification primarily as a means to enhance the 'feeling' of control, which implies that the boundary between insiders and outsiders is maintained, even in the face of expanded access.

The ambiguity of gamification's promise to democratize finance also surfaces in the efforts of governments and international organizations, who in recent decades have increasingly embarked on 'financial inclusion' and 'financial literacy' campaigns as a form of empowerment. The propagation of financial inclusion has mostly focused on the expansion of financial services to 'unbanked' communities in developing countries (Mader 2018). Financial literacy campaigns, in contrast, tend to focus predominantly on middle-class populations in rich democracies where processes of welfare state retrenchment, the privatization of pensions and the promulgation of 'pension freedoms' has increasingly pushed individuals to 'embrace' the risk of financial markets and to take responsibility for their own retirement financing (Baker and Simon 2002, Langley and Leaver 2012, Lazarus 2020, Maman and Rosenhek 2020). Indeed, since the late 1990s, a combination of state agents, international organizations (e.g. the OECD) and private actors have promoted the agenda of financial education, which aims to

> affect how the general population experiences the financial field … by inducing individuals to imagine it and to engage with it, not as a site of fundamental uncertainty, but mainly as a site of risk management in which informed decisions can be made. (Maman and Rosenhek 2020, p. 308)

In fostering 'financial literacy,' these campaigns tend to promote the (neo-)liberal emancipatory values of self-reliance and individual responsibility (Santos 2017).

The finance gamification discourse frequently uses the narratives of financial literacy, replicating the invocation of finance as a site of rationalized risk management (Maman and Rosenhek 2020). For example, in a blogpost by Mike Lee, wealth management consultant at EY, we can read that gamification 'could prove to be a great way to explain concepts such as risk and reward, or compounding, that firms often find so hard to communicate' (Lee 2018). 'The main benefit of gamification,' we can similarly read in a blogpost on the educational website IntelligentHQ,

> is that with proper implementation of market structures and trade mechanics, the platform provider can guide a new comer to the markets through all aspects of trading from analysis to trend identification to trade placement and finally onto risk management. ('The Future of Investing Begins With Trading Apps and Gamification!', 2016)

By educating clients, finance gamification thus envisions the creation of nonprofessional experts, whose highly stylized expertise is defined by financial market insiders in a way that reduces complexity and therefore makes finance more accessible. This view is most clearly expressed by the fintech entrepreneur Hart Lambur, who is reported claiming that 'much of this complexity can be cut away through the judicious application of the principles of gamification. "We want to create a new understanding of investing that complements technical expertise and avoids professional jargon"' (Ajayi 2015). Like financial education more broadly (Maman and Rosenhek 2020), the educative promise of gamification thus remains within the confines of a highly stylized understanding of financial markets that replicates the 'observational boundaries' of previous processes of automation and technicalisation and obscures some of the institutional complexity of financial markets (Preda 2009).

The educative promise of gamification comes in two main forms: one may be described as 'Duolingo-style' education, where reward loops entice users progressively to learn about specific concepts and terms, which is embraced not only by platforms but also by the incumbent online brokerages that became popular from the late 90s onwards such as TD Ameritrade; the other is a form of learning by simulation where users trade in highly stylized virtual stock market environments to gain 'familiarity' with the mechanics of finance. While the former focuses on key risk management concepts such as risk-reward, volatility and financial cycles, the latter prioritizes the emotional and experiential aspects of investing, drawing on the notion that humans learn through games, and is more geared to 'tapping into' what is seen as the irrational side of human nature. As Joachim Klement from Credit Suisse Wealth Management noted, 'one of the benefits of games, or experience-based tests, is that they have the power to elicit the same emotions as when you make an investment in real life' (Williams 2016). In his view, gamification offers an opportunity for wealth managers who try to gauge the 'risk appetite' of their customers. 'Filling in a paper-based questionnaire just uses the visual and logical parts of the brain, but it doesn't trigger emotional responses like anxiety and fear' (Williams 2016). In the context of day trading, stock market simulations promise to make newcomers familiar with the feel of financial markets. Explaining the idea behind the stock market simulator TradeOff, CEO Rob Kuck said:

> We thought, let's create a game that's engaging and social, is fun to play, and that … can earn prizes … while they are learning finance … We lower the fear factor. If we get a gamer engaged and playing, that's the first step that builds confidence and builds wanting to learn more. (Takahashi 2020)

The educative role of gamification, in other words, is envisioned not just as informative but also as a means to construct highly stylized understandings of finance that reduce the 'complexity' of the financial world. In line with Maman and Rosenhek (2020), we argue this understanding chimes well with self-representations of finance that portray it as a highly rationalized form of risk management, and, in so doing, tend to obscure the fundamental uncertainty and institutional nature of financial markets. It serves, in other words, as a control mechanism through which insiders shape outsider perceptions of financial markets and determine the conditions on which outsiders are permitted access (cf. Preda 2009). While claiming to democratize finance by undermining the institutional boundaries that keep a large share of the population from participating in financial markets, fostering the further financialization of everyday life (Martin 2002), the gamification of finance thus simultaneously reinforces the boundaries between insiders and outsiders by cultivating very specific forms of financial knowledge.

Conclusion

Compared with domains like healthcare or education, finance gamification, arguably, is in its early days. There is, however, already a well-chiselled discourse that amplifies its importance for finance. In this paper, we unpicked this emerging discourse to understand its structure and function. We argued that the advocates of gamification usually build their narratives around the notion of an impending wealth transfer and the increasing dominance of the millennial generation. This imaginary of the social change portends the coming of new customers for financial services providers who are perceived as spoiled and digitally addicted but also poorer and reluctant to engage in wealth-building practices. The uncertain vista of the future is managed with an understanding of human nature that goes beyond the convergence of *homo economicus* and *homo ludens* (Goggin 2012) by borrowing from fields of behavioral economics and psychology. According to our research, the advocates of gamification develop an anthropological model that fashions humans as driven by pleasure-seeking and emotions which are only imperfectly governed by reason. Gamification, which often comes in the form of introducing elements of competition into everyday processes, is seen as a way of 'tapping into' the 'animal side' of human beings and leading it in ways that are seen as profitable for both clients and the industry. This concept of human nature sets the stage for gamification's promise to democratize finance and to empower small-time investors. As we argued, however, the claim to democratize finance is accompanied by the promulgation of highly stylized forms of understanding and experiencing financial markets that at the same time seem to reinforce the boundaries between financial market insiders and outsiders by setting the conditions under which newcomers can observe and participate in finance (cf. Preda 2009).

While the goal of liberalizing finance and unlocking financial institutions, especially, the stock and commodities trading to individual investors with minimal capital may sound laudable to some, this expansion of the 'mass investment culture' (Harmes 2001) has been the object of much criticism. This was particularly true during the recent coronavirus pandemic, when 'with professional sports largely on pause and group gatherings discouraged, users have flocked to day-trading apps to cure isolation and boredom from lockdown' (Wursthorn *et al.* 2020) . Numbers seem to confirm this trend. At E*Trade, for example, 'investors opened roughly 260,500 retail accounts just in March' (Wursthorn *et al.* 2020); Robinhood similarly added 'net three million funded accounts from January through April' (Demos 2020). The question being raised, however, is whether apps such as these do not make it 'too easy to trade,' encouraging 'novice investors to take bigger risks' (Wursthorn and Choi 2020) than necessary. The gamification of finance, in other words, does not just lead to the question of whether the neoliberal push towards creating market subjects 'who self-consciously and responsibly, further their own freedom and security through the market in general and the financial market in particular' (Langley 2007, p. 74) is desirable, but also whether it is actually feasible in a world marked by privileged access to financial markets for some and conditioned access to others. With millions of unskilled investors flocking to easy-access smartphone-based brokerages with in-built gamified features, it is perhaps reasonable to be sceptical.

Notes

1. We were unable to identify the date of five sources.
2. It is important to note that notions of risk-taking and competitiveness as a natural human attribute are heavily gendered (Maxfield et al., 2010). The analysis of this issue, however, is beyond the scope of this paper.

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No potential conflict of interest was reported by the author(s).

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Appendix: List of sources

Author	Year	Title	Source name	Source type	URL
Adams, R.	2020	When Online Investing Turns Deadly: Lessons from a Robinhood Trader's Suicide	Kiplinger	(Online) magazine article	https://www.kiplinger.com/investing/601021/when-online-investing-turns-deadly-lessons-from-a-robinhood-traders-suicide
Ajayi, A.	2015	Can we make a game of investing?	Credit Suisse	Blogpost	Retrieved from LexisNexis
Ali, H.	2018	Can wealth firms learn from Donkey Kong?	Wealth Manager	(Online) magazine article	https://citywire.co.uk/wealth-manager/news/can-wealth-firms-learn-from-donkey-kong/a1101329

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Author	Year	Title	Source name	Source type	URL
Bhanot, C., & Ghosh, D.	2017	Emerging Trends in Automated Wealth Management Advice	Cognizant	Report	https://www.slideshare.net/cognizant/emerging-trends-in-automated-wealth-management-advice
Bird, D.	2017	Game on: the potential for gamification in asset management	Willis Towers Watson	Report	https://www.willistowerswatson.com/-/media/WTW/Insights/Trending-Topics/future-of-financial-services-interactive.pdf?modified=20190508135453
Bogost, I.	2011	Gamification is Bullshit: My position statement at the Wharton Gamification Symposium	Georgia Technology Institute	Blogpost	http://bogost.com/writing/blog/gamification_is_bullshit/
Borzykowski, B.	2015	Should we really be turning investing into a video game?	Canadian Business	News article	https://www.canadianbusiness.com/author/bryan_borzykowski/
Brown, B.	2020	The Psychology of Gamification: Why It Works (& How To Do It!)	Bitcatcha	Blogpost	https://www.bitcatcha.com/blog/gamify-website-increase-engagement/
Bruno, D.	2017	Gamifying Client Experience and Bank Processes … Meet a Silicon Valley CEO who Can	LinkedIN	Blogpost	https://www.linkedin.com/pulse/gamifying-banks-david-bruno/
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