Chapter 1: Building Theoretical Tools for Games and Neoliberal Play

With this dissertation, I examine how computer game culture and contemporary economic practices interact throughout the various technical and cultural systems found in games. This project considers the changing notions of work and play, an inculcation of neoliberal attitudes with respect to human value and the self, and in particular, an increased emphasis on money, currency, and structures of labor within ludic activity. Notably, I seek to examine how play and work become complementary and intertwined activities, with play increasingly being marked by its potential profitability.

As this project progresses, it reconsiders a new relationship between work and play; while these have historically been seen as separate practices, this project considers how they are increasingly indistinguishable within the context of computer game culture. While many scholars have worked to erode play as an activity isolated from other practices, there still seems to be a lingering distinction. While this project considers the various economic and cultural systems found in computer game culture, it is at its core an exploration of the transformation of work into play as brought on by 21st century neoliberalism, which increasingly sees play increasingly orient itself around markets and profit. The project will highlight how play reinforces productivity for a variety of agents including players, developers, and investors. At perhaps its most provocative point (Chapter 4), this study will suggest that all game play mediated by information technologies is rapidly becoming professional labor.

This project constructs narratives that help account for how games and financialization intertwine. In essence, two shifts in economic practice and ideological tendencies provide potential answers for understanding how games relate to economic thought. The first account is to consider how economics, and in particular finance, has become increasingly reliant on

computers and networked technologies. Philip Mirowski shows the historical transformation of economic practice via technology. Since World War II, Mirowksi argues, economics has transformed into a "cyborg science" (6). There are six qualities defining the cyborg sciences: a reliance on the computer as a paradigm "for everything from metaphor to practicality;" breaking down the separation between human and inhuman; ending the "distinction between reality and simulacra;" importing the concepts of disorder and order from thermodynamics, information, memory, and computer as explanatory tools; and finally, intentional design: "the cyborg sciences did not simply spontaneously arise; they were consciously made" (Mirowski 17). With transformation of economics into a cyborg science, Mirowski suggests "the economic agent [is now] a processor of information" (7). For Mirowski, economics increasingly concerns the trading and manipulation of information about commodities rather than the physical commodities themselves.

In other words, over the past sixty years, economics has increasingly become reliant on the technological affordance of computers, making economic activity more engrained in informational and virtual settings, and less aware of or interested in material conditions. The move toward derivatives as a prevalent commodity of 21st century finance represents this transformation of economic activity as the manipulation of information. Max Haiven defines derivatives as "intricate commodifications of risk made up of 'securitized' fragments of potentially tens of thousands of separate speculative investments and bets" (*Finance as Capital's Imagination* 108). Derivatives are commodities of information and risk. Derivatives distance themselves from the physical commodity they may represent via fragmentation. As Donald MacKenzie notes, derivatives have been traded since the 1970s but saw their peak in 2006 with a market value of $84.4 trillion. Many scholars argue about what derivatives represent, or perhaps

more importantly, what they do not represent. Randy Martin suggests "derivatives remove reference from the commodity. They allow debt to serve as a productive medium from which countless commodities can be spawned" (*An Empire of Indifference* 25). Martin explicitly ties derivatives to debt and recognizes the distance derivatives provide from material commodities. Here, debt becomes synonymous for the risk found in Haiven's definition. In *Capitalism with Derivatives*, Dick Bryan and Michael Rafferty suggests derivatives represent "a commodification of risk [and] are a form of calculation and market logic that is intrinsic to the logic of a capitalist economy" (8). For them, derivatives reformulate consumption, concepts of ownership, nature of money, in the process augmenting our exposure to crisis. While derivatives fundamentally alter capitalism, they do not reference the commodity; instead they seek to make risk and the chaos of markets a or perhaps the commodity of 21st century finance capitalism. Martin and Bryan and Rafferty ultimately argue that derivatives reference something other than material commodities, and in many ways, rather than being virtual commodities, derivatives are informational ones.

In contrast, Donald Mackenzie suggests, rather than simply rejecting the immaterial nature of derivatives, financial derivatives "abstract as though they appear, are particular material configurations" (357). He argues "one should not reduce materiality to physicality alone," and financial markets "involve physical objects, technological systems and human bodies, but also the legal systems, cultures, procedures, beliefs and social relations" (357). It is not that derivatives reference a physical commodity; instead, derivatives reference the material conditions of financial markets. Derivatives connect to the larger array of systems intersecting economic activity. Derivatives commodify information in a way that is integral to financialization. With their particular relationship to information, I see derivatives indicative of the action found in contemporary computer games. Ultimately, these conditions concern the

trading and manipulation of information. In essence, computer games have always invited us to play with information. "Play" is a word with many meanings.

In computer games, players manipulate information; and while not explicitly tied to markets, play within games recreates interactions with information that invoke the same conceptual basis as derivatives. Recognizing "derivatives [as] financial instruments that derive their monetary value from other assets" offers a parallel logic for how players conceptualize play as profitable (Lee and LiPuma 204). For instance, daily play in *World of Warcraft* is increasingly designed to reward players with assets perceived as useful and valuable. The value of play is related to the value of items gained through players' engagement on the system. Potentially, this practice reflects compensated labor, but it also ties the value generated through play to other assets. While not formally identical with derivatives, computer games create a culture of understanding value in relation to other assets similar to the logic of derivatives.

The other narrative this project formulates is ideological. I examine how neoliberalism changes and potentially manifests in contemporary computer game culture. Haiven defines neoliberalism as "a meta-ideological project…that represents the frantic combustion of social values into economic value, the pathological digestion of spheres of 'relative autonomy,' and the subordination of ever more aspects of social life to the dictates of the market" ("Finance as Capital's Imagination" 100-101). For Haiven and others, neoliberalism represents the transformation of all human activity into economic activity. Ultimately, neoliberalism seeks to reconfigure all aspects of life in relation to the market or capital. Viewing computer games though this framework allows computer gameplay to be interpreted and understood in relation to the market. Seen through neoliberalism, computer games, these supposedly innocent

entertainments, reveal themselves to be agents for advancing the neoliberal goal of sublimating all aspects of human life - even play - to the logic of markets.

Reconciling the relationship between between play and work is essential for the theoretical contributions of this project. Viewing computer game play as work recalls the postmodernization of the economy suggested by Michael Hardt. This transformation entails a shift toward informatization, which makes immaterial and affective labors the "very pinnacle of the hierarchy of laboring forms" shifting from industry to service jobs (90). Hardt defines "immaterial labor" as any form of labor that produces an immaterial good like information, services, knowledge and communication (94). He suggests affective labor produces "social networks, forms of community, [and] biopower" (96). Hardt's definitions clarify what these affective and immaterial activities produce, and while he provides some examples of various acts producing capital, he does not provide much insight into rethinking what is now work. Writing on the rise of immaterial labor, Maurizio Lazzarato identifies the transformation of the labor market. Similar to Hardt, Lazzarato defines immaterial labor as "the labor that produces the informational and cultural content of the commodity," but he places emphasis on the two types of content in his definition (132). First, informational content of the commodity "refers directly to the changes taking place in workers' labor processes in big companies in the industrial and tertiary sectors, where the skills involved in direct labor are increasingly skills involving cybernetics and computer control" (132). Second, the production of "'cultural content' of the commodity involves a series of activities that are not normally recognized as "work" — in other words, the kinds of activities involved in defining and fixing cultural and artistic standards, fashions, tastes…public opinion" (132). For Lazzarato, immaterial labor transforms both the kinds of activities done and the kinds of commodities produced. With Hardt and Lazzarato in

mind, this project can more readily understand the potential interactions that exist between work and play.

Playing with Marx

A critique of the political economy of game culture requires interacting with Marxist thought. Graeme Kirkpatrick, Ewa Mazierska, and Lars Kristensen suggest Marxist ideals struggle with digital games because games participate in a "new form of capitalism in which digital technologies form the dominant infrastructure" (118). Their observation indeed provides a major tenet of this project. For these writers, digital games are aesthetic objects to be seen through Marx's interpretation of alienation. They suggest games appear "ambivalent between authentic art and manipulative commodities" (119). Their perspective on Marxian theory and games sees games as instances of technology that bring about change, but they do not see concerned with the possibility that games represent a space where players perform labor. Games no longer simply remake play to look more like work, but increasingly, games are a site where labor occurs.

Multiple examples can be offered by way of illustration. The most prolific is the practice of *gold farming* in massively multiplayer online roleplaying games. Gold farming operates as an umbrella term for gamic labor where players illicitly sell virtual goods for real-world currency; predominantly, players convert real-world into the virtual currency of their chosen game. The labor of "farmers" produces and sells "virtual goods such as weapons, garments, animals, and even their own leveled-up avatars or virtual bodies to other players for real-world money" (Nakamura 188). Lisa Nakamura examines the racialized implications of gold farming practices in "Don't Hate the Player, Hate the Game" and critiques game studies misunderstanding of labor (Nakamura). She contends that current work on digital games has not adequately characterized

the labor being performed by gold farmers because "the economics of gold farming are usually discussed in the scholarly literature of their negative impact on the world of leisure players" (189). Nakamura aims for a more complete understanding of the "political economy" of computer games by "following the money" (190).

Gold farming represents the equation of play with labor in an early and fairly stark form. Following the money into more subtle forms and practices, this project takes on an expanding political economy with an increasing number of practices that exploit game-based labor. Later discussion will consider professional competitors in *esports* and amateurs who broadcast their play on services like Twitch and YouTube. Attention will also be given to structures within multiplayer games that configure play as the manipulation of in-game markets and currencies. In all these examples, computer games simultaneously operate as tools to perform labor and sites where labor occurs. Understanding these intertwined possibilities is key to critique made through this project.

In the transformation of materials into the commodity form, Marx suggests the commodity "transcends sensuousness," or in other words, it ceases to simply be representative of the materials contained within (*Capital Volume I* 163). The commodity "evolves out of its wooden brain grotesque ideas, far more wonderful than if it were to begin dancing of its own free will" (Marx *Capital Volume I* 163-164). In this metaphor, Marx shows how commodities reflect aspects other than their physical qualities. I want to understand games through a similar lens of transformation. In other words, games have stopped simply being games; games do not simply exist on a spectrum between art and commodity. As games increasingly transform into services and spaces, their scope and function – we might say, their *lifespan* as commodities – changes. Just as Marx's table may have danced, 21st century computer games also take on an uncanny

purposiveness, ensnaring players in systems designed to prolong engagement. Commercial games are no longer bound by simple narrative closure; they are meant to lumber on in endless consumption, perpetually sustaining the attention and effort of players. In other words, games as spaces can be seen as a 21st century factory as well as a commodity.

Computer games become instruments, machines, and spaces that allows players to inhabit and perform continuous labor. Writing about the labor process and machines, Marx suggest machines offer "objectified labor [confronting] living labor within the labor process" and make living labor a "living accessory" to machines (*Grundrisse* 693). The idea of the machine feels more tangible when considering the factories of industrialization and not 21st century computer games. However, this project understands games as partially fulfilling the role played by material mechanisms (machines) in the industrial labor process. In this view players become a living accessory in the labor process that is presented as play. Games, using systems of articulated reward called *gamification*[1], mask the labor being performed, making it appear as entertainment or leisure. This project attempts to disrupt this pretense, understanding a wide range of playful practices that constitute labor.

Rethinking "fun"

As this project builds a theoretical apparatus to understand the relationship between financialization, play-as-work, and computer games, framing this analysis in relation to previous work on play will help understand the transformations made to play through financialization, neoliberalism, and gamification. For Alexander R. Galloway, video games are "cultural

[1] Gamification has an "arguable blueprint" in the social and mobile source foursquare, which implemented a series a "game-like design elements" to motivate users (Walz and Deterding 3). These elements include points, badges, leaderboards, and rewards. Gamification exists as a means to motivate and encourage use of a platform or system by making it appear more like a game.

object(s), bound by history and materiality, consisting of an electronic computational device and a game simulated in software" (1). They are also actions and only "exist when enacted" (Galloway 2). The act of playing games is this action, and Galloway defines games as "a massive cultural medium involving large number of organic machines and inorganic machines" (2). Games and play are intertwined in larger forces shaping the understanding of each other. Without actions or play, video games are inoperable software, because at some point, the organic machine known as the player must enact the action of the video game. For Galloway, the implication of these actions and interactions between player and machine bring them closer together. He suggests "time spent playing games trains the gamer to be close to the machine, to be quick and responsive, to understand interfaces, to be familiar with virtual worlds" (70-71). Gaming as a practice unites players and games through play; it creates a fluid relationship where they can both influence each other.

As will be discussed in greater detail below, considering a characteristically financialized game, *Offworld Trading Company*, illuminates how players gain some rudimentary understanding of functions and interfaces of finance. The constant engagement with stock and commodity prices in that game represents some degree of training in the game's internal economics. As players gain a better understanding of how the market of *Offworld Trading Company* operates, they slowly acquire potential knowledge about finance and investments generally. The gameplay of *Offworld Trading Company* delivers what Galloway, writing about earlier games, calls "contemporary political realities in relatively unmediated form" (Galloway 92). For Galloway, video games "solve the problem of political control…by making it coterminous with the entire game, and in this way video games achieve a unique type of political transparency" (Galloway 92). As *Offworld Trading Company* displays economic play, it also

seeks to represent the economic control enacted by mechanisms of finance. Gameplay in *Offworld Trading Company* consists primarily of manipulating commodity markets with goal of lowering stock prices of opposing companies; lower stock prices allow for hostile takeovers of opponent companies. The game does not appear interested in nuance or subtlety when it concerns economic systems. *Offworld Trading Company*'s obviousness and blunt gameplay of manipulating commodity markets reaffirms the transparent approach video games deploy when rendering political control as economic control.

Galloway offers one stance on how players relate to games through their play-as-work by rendering the game as a system of control. However, Galloway seems overly interested in the functions of the whole system. Ian Bogost offers another useful perspective, reframing what it means to study elements of play within a system, through his notion of *unit operations*. Bogost defines unit operations as "modes of meaning-making that privilege discrete, disconnected actions over deterministic, progressive system" (3). Introducing this concept allows Bogost to shift attention to minute, repetitive actions within expansive, densely articulated systems. While Bogost's approach represents a move away from systemic operations, neither can permanently escape the other. Ultimately it is impossible to fully disentangle the unit from the system in which it operates, but unit operations help narrow the scope of study for gameplay. Looking at units allows a Bogostian critic to understand the networks that operate within the system and recognize the relationships developed between the various nodes in the network.

Bogost suggests that many of the cultural and historical assumptions about games seem flawed. He argues contemporary culture views games as "amusements, distractions that have no place provoking thought" (*Unit Operations* 115). He identifies two forces working against games as a force for change. The history of "their separation from the material world" and that fact that

"videogames inherit a mass-market entertainment culture whose primary purpose is the production of low reflection, high-gloss entertainment" (117). Bogost wrote these remarks in 2006, and to some extent, his claims have been complicated, if not invalidated, in the intervening years. Yet Bogost's critique of video game perception remains relevant because it recognizes the problems that arise when play is equated with fun. He argues "the rhetoric of fun [is] the superficial conveyance of capital," and it implies "a kind of accounting, a return on investment for the player" (119 and 121). For Bogost, this alternate type of fun is to be called *fun'* or fun-prime, "which entails… social, political, and revolutionary critique" (119). For Bogost, games that help players gain "new knowledge about social structures through their representation as key unit operations in the game" produce fun-prime (127).

Bogost associates fun-prime with serious games, which is a genre that seeks to make social or political statements with games. He also uses Gonzalo Frasca's term "newsgaming" to explain the artifacts that produce fun-prime (119). Bogost examines Frasca's newsgame *September 12th*, in which players control crosshairs through which they see a village in the Mideast. Some of the inhabitants of this village are innocent civilians, while others are weapon-laden terrorists. Once the crosshairs are oriented, clicking the mouse button sends missiles toward the intended target. A terrorist can be killed with this action, but the missile may kill civilians as well. When this happens, villagers will mourn the death of their neighbors and become terrorists themselves. If the player does nothing, the terrorists will eventually transform into villagers. Bogost summarizes the games meaning as simply "bombing a town is not a viable response to the terrorist threat; it begets more violence" (119). For Bogost, Frasca's newsgame highlights the rhetorical potential of games to produce social and political critique. Bogost describes the impact of fun-prime on players as refining their understanding of the game's

presentations and "implicating themselves inside that experience" (119-120). Bogost believes the rhetorical potential of computer games has gone untapped because the market "has focused…on entertainment players rather than engaging them in important topics" (120). By tying fun-prime largely to marginal or non-commercial games, Bogost neglects the possible transformation of ordinary fun within mass-market or *Triple-A*[2] games. This project attempts to correct for this bias by examining the experience of economic play in *Offworld Trading Company* and other popular games.

While it is possible to recognize the structures of capital during play, the focus on economic action as a fun experience points toward a new form of fun as economic play, which I will call *fun subprime*, or **fun$**. The experience of fun$ represents a potential critique of fun'. Fun$ inculcates, trains, and indoctrinates players into a growing network of neoliberal practices. Fun$ cultivates an experience of playing with money that redesigns plays a productive activity. While fun-prime focuses purely on potential critique or social revolution made possible during unit operations, fun-subprime (fun$) surrounds the player with economic operations in computer games, making players potentially complicit in capitalist endeavors. While some of the economic actions that make up unit operations in games will represent fun', the operations that induce players to generate value for developers, publishers, or other players constitutes fun$. Fun$ is not interested in critiquing economic or neoliberal practices; it inculcates actions that make financialization second nature. The analysis throughout this project examines actions across game culture creating what I see as fun$. As the types of practices, actions, and play creating

[2] Triple-A, or AAA, reflects an informal classification of games with the highest marketing and production budgets. Its name is borrowed from the bond rating system, thus explicitly referencing risk. In more recent years, AAA+ games have appeared. To the high budgets of AAA games, AAA+ games come with additional revenue streams after initial purchase. New streams of revenue are examined in chapter 2.

fun$ diversify, a critique of the political economy of games is necessary to examine an expanding system of technology and users. This project represents a first stage of that critique.

The concept of fun$'s diverges from earlier work on games and ideological indoctrination. In *Games of Empire*, Nick Dyer-Witheford and Greig de Peuter examine the role of computer games in spreading the ideologies of empire, which they define as "the global capitalist ascendancy of the early 21st century, a system administered by…competitively collaborative neoliberal states," where preeminence of the United States is defined by its military prowess (xxiii). Dyer-Witheford and de Peuter identify two subjective positions these games create in players, "worker-consumer and soldier-citizen" (xiv). These subjectivities are integral to their idea of empire, and the idea of the worker-consumer Is instructive when considering productive play. However, empire has its limits when considering games in conjunction with financialization and currency manipulation. Their notion of the worker-consumer is heavily rooted in an exploration of *Second Life* and Linden Lab; it concerns the way in which states and corporations purchase and manage virtual real estate. In general, Dyer-Witheford and de Peuter are not overly concerned with actions players take in games; their focus is on states and organization. Fun$ considers how player actions within games are fundamental to neoliberal indoctrination and how play becomes a personally profitable practice.

The term *fun-subprime* has a specific meaning and derivation. Referring in some measure to the subprime mortgage crisis of 2008, fun$ identifies moments in play that raise fundamental questions of value in a context of uncertainty and exploitation. Subprime mortgages were taken out by borrowers who were "often first-time homeowners with spotty credit histories and modest if any down payments" (Kindleberger and Aliber 261). As the housing markets declined, the national housing market began to collapse when these borrowers' debts exceeded the value of

their homes. The investors and banks who held these defaulting loans suffered losses and some eventually failed. I invoke this scenario explicitly to indicate that the political (and actual) economy of digital play may be heading toward a similar crisis. Indeed, in at least one of my examples, the collapsing auction house of *Diablo III*, described in the next chapter, these dark possibilities become reality. Fun becomes fun$ in a context of unregulated growth, in virtual markets that perhaps inevitably escape their designers' control. Fun$ references economic actions and experiences that rewrite players as financial agents caught up in chaotic and ultimately self-destructive systems.

Fun$ mediates a neoliberal experience to players. Writing about digital currency and cyrptocurrency, David Golumbia calls out "the way that a set of…beliefs associated with the spread of technology incorporate critical parts of a right-wing world view…do not immediately appear to come from the right." Likewise, fun$ ingrains neoliberal perspectives through systematic and constant engagement with technologies and media systems. While the name of fun$ has its roots in a financial crisis, its logic replicates the obfuscation imbedded in credit scores to cultivate neoliberal ideologies. Frank Pasquale considers credit scores indicative of a "black box", or "systems whose working are mysterious; we can observe its inputs and outputs by we cannot tell how one becomes the other" (3). Pasquale describes the "uncomfortable reality in a world where credit scores have escaped from their native financial context and established themselves as arbiters of general reliability in other areas" (23). Credit scores no longer limit themselves to loan rates; they function as barometers for multiple purposes.

As Pasquale considers the implications of credit scores and obfuscation, Safiya Umoja Noble examines the "power of algorithms in the age of neoliberalism and the ways those digital decisions reinforce oppressive social relationships and enact new modes of racial profiling" and

emphasizes the role of search engines in this process (1). She aims to "highlight cases of…algorithmically driven data failures that are specific to people of color and women and to underscore the structural ways that racism and sexism are fundamental to…*algorithmic oppression*" (4). While fun$ does not overtly enact the racial or sexist oppression described by Noble, it does perpetuate an economic oppression of players by obfuscating the cycles of endless consumption into which it seduces them. Fun$ reaffirms the obfuscation identified by Pasquale, and fun$ aims obscures a number of oppressive practices in game culture. As fun$ expands, it will no longer simply manifest through play; it will coopt other forms of consumption.

The term subprime is most readily associated with a crisis, and by associating the history of subprime with a feeling of fun, I recognize the potential for a crisis in contemporary computer game culture. While the game industry has never been immune to economic crises, both within its industry and in larger circles, the 21st century brings new dimensions of exposure. The potential for crisis persists in various aspects of game culture examined throughout this project. Chapter 2 examines the role of real-money transactions in computer games. These transactions invite increasing scrutiny from outside observers as players spend large sums of money on randomized digital goods. Government oversight and legislations is being threatened as these transactions become more common. In these transactions, the potential for overconsumption exists, and it will become imperative to understand the role fun$ takes in manufacturing the conditions making these transactions a potential crisis for computer game culture. In Chapters 3 and 4, I examine how fun$ portends a tenuous labor market for professional players and for amateur player-performers or *streamers*. Before proceeding to those discussions, I want to focus discussion on a key example in order to further establish the aims and methods of this project.

In *Offworld Trading Company*, gameplay reveals how economic relations exists between companies, commodities, and markets. As players recognize these relations, Bogost's fun' emerges, but the constant economic interactivity of may lead to greater participation in other markets which becomes fun$. These markets do not necessarily have to be in-game stock or commodities markets, but may also be Valve's Steam Marketplace, an online service where players can buy and sell in-game objects. Through a process of economic engagement, fun$ shows players the value and potential enjoyment of economic and financial activity. While value may appear to be for the player, often other entities like game developers or publishers generate value through player action. Fun$ offers another tool to understand how capital flows in computer games and shows how players participate in in the generation of value.

Central to this project is an attempt to understand the ways in which fun$ has begun to reframe the media ecology of computer game culture. In other words, I seek to understand to what extent this rethinking of fun has begun to spread through the forces and entities that produce and articulate digital play. In many ways, fun-prime's departure from games and into other works reaffirms the rejection of Huizinga's magic circle. The magic circle views games as a "safe place to play" offering "place of predictability and order in an otherwise chaotic world" (*Unit Operations* 134). Bogost rejects this concept by arguing "games provide a two-way street through which players and their ideas can enter and exit the game, taking and leaving their residue in both directions" and "if the magic circle were really some kind of isolate antithesis to the world, it would never be possible to access it at all" (135). Thomas Malaby offers a similar critique the magic circle and argues setting games apart as spaces and stories "is the largest roadblock to understanding what is powerful about them" ("Beyond Play" 96). Computer games never close themselves off from the forces that exist around them, and in many ways,

Galloway's notion of gamic actions suggest a mechanism by which games and players influence one another. Fun$ does not aim to critique the conditions of economic play; that experience exists in games pursuing fun'. For fun$, the goal is to extract value out of play; in this way it represents an end to the very possibility that games are isolated from external cultural forces.

Games and Economic Close Reading: *Offworld Trading Company*

Computer games often include simulated economic systems that invite player participation. These systems are frequently player-to-game, like buying items from a non-player character, or player-to-player, like the auction house or trade chat of most massively multiplayer games. Typically, this economic activity appears as secondary or supplementary to gameplay. *Offworld Trading Company* (2016; hereafter OTC) takes the opposite philosophy and shows how computer games can remake financial and economic systems as ludic ones. OTC is a science fiction strategy game where players lead corporations vying for control of global commodity and stock markets on a human-inhabited Mars. The game rethinks the conventional fourfold activities of strategy games - *explore, expand, exploit, and exterminate* - popularized by Sid Meier's *Civilization* franchise, replacing them with explicitly market-based or business functions. For instance, instead of running a nation state and developing an army as in *Civilization*, players of OTC manage corporations by raising capital, acquiring resources, and acquiring commodities. Resources are harvested and manufactured as the game progresses, and can be bought and sold at fluctuating prices. The game measures a player's success via the stock price of his or her company, and a major goal of the game is to perform hostile takeovers by acquiring a majority share of competing companies' stock. The stock price functions as the players score, rating their performance on the basis of value added to the company.

Gameplay in *Offworld Trading Company* favors interface management over the technical skill or fine-motor precision seen in other real-time strategy games. For instance, Blizzard's *Starcraft II* encourages kinetic skill and expertise by rewarding rapid mouse clicks and the management of hotkeys; mastery is often by measured by a player' APM, or actions per minute, during the course of a *Starcraft II* match. In OTC, gameplay requires the quick processing and interpretation of economic information like the prices of commodities and the availability of upgrades to necessary technology. Mirowski's idea of cyborg sciences underscores the value of information in economics, and OTC makes the management of information a core game mechanic. Informed economic action requires a particular interface to function, which is why the screen elements of OTC strongly resemble the Bloomberg Terminals of Wall Street and day trading platforms like E*Trade. Unpacking the various elements of the game's interface reveals how computational systems present financial and economic information for users and players.

During play, OTC's interface communicates economic information to guide player action and inform them of their opponents' productivity. The center of the screen displays the play area, which is a series of hexagonal spaces. Each hexagon represents a space where resources can be harvested or factories developed. The left side of the screen lists the current prices for all commodities on the market, and a green or red arrow indicates price trends. Above that, players see cash on hand and the amount of debt the company has. The stock prices of each company in a game are on the right side of the screen. All this data informs decision making and puts players in the role of futuristic day traders. In short, *Offworld Trading Company* provides the player with an array of economic information, the basis for and calculated choices with available information becomes central to play.

With this information in the interface (Figure 1), OTC encourages players to use the financial information on display and make decisions based on the position their opponents are taking in the market, rather than on the map. Moving the conflict of the strategy game from the map to an indication of market activity situates the main conflict of the game in the business arena. Most sessions and missions of OTC feature a similar pattern of resource collection, company development, and market manipulation. Players begin by acquiring natural resources from tiles near their headquarters, which they use to construct factories and produce commodities. Water, aluminum, iron, silicon, and carbon can be harvested, while power, chemicals, food, fuel, glass, oxygen, and steel must be produced. The game also allows players to buy and sell resources via the market accessed via the interface. As players engage in the market, it responds with fluctuating prices, which gives other players an opportunity to try to manipulate the prices of various resources.

Figure 1 Offworld Trading Company

The interface and visual aesthetics of *Offworld Trading Company* are not completely identical to those of Bloomberg Terminals or E*trade's OptionsHouse Platform (Figure 2), but similarities are evident. E*Trade's OptionsHouse platform provides users with stock prices, price charting, and integrated trading. On the left side panels of the screen, users see their account value, positions, which indicates the user's commitment to a stock, and pending orders. On the right-have side, users see how the market as a whole performs and set a watch list to follow any stocks of potential interest. You can also see news as it relates to the market. In the center, users can find charts, quotes, and other tools for making trades. The center of the screen allows users to see trades, a more complete view of the market, and a detailed breakdown of their accounts. Using the trading screen of the center panel allows users to see information about a particular stock, which includes the stock's volatility, and pertinent news. OptionsHouse provides users with a web-based tool to understand and consume financial information on their own. It functions as a terminal to financial information for users lacking access to professional software. Randy Martin notes that E*Trade and other financial services have produced games with the goal of educating children on finance, and those games "maximize risk taking because that's what it takes to win (as opposed to gain with actual investments)" (*Financialization of Daily Life* 69). OptionsHouse shows how software communicates economic information to users and the kind of actions users take in financial software to make investments.

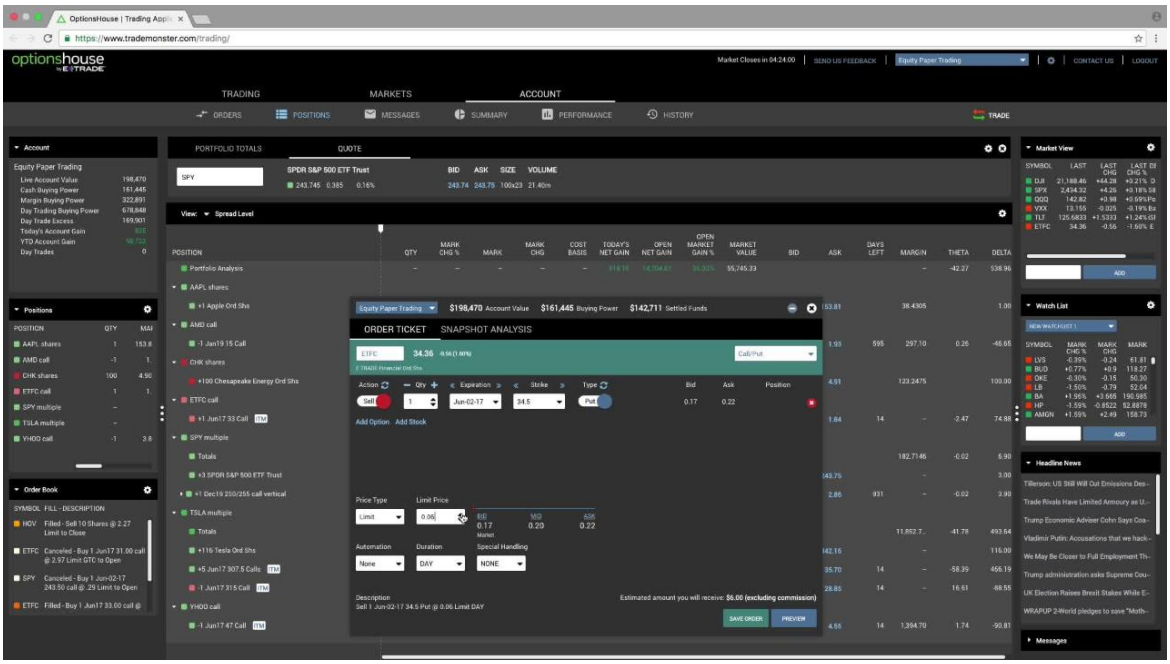

*Figure 2 E*Trades Options House Platform*

OptionsHouse conveys economic information similar to *Offworld Trading Company* with a parallel goal of encouraging constant and effective economic action. This description echoes the interface of *Offworld Trading Company*; economic actions seems to invite a particular interface capable of communicating information to users. While the interface outlines how OptionsHouse functions, the paratextual marketing material shows the playable nature of markets. In the OptionsHouse marketing material, E-Trade emphasizes the software's interactivity, speed, and the control found at the user's fingertips. E*Trade wants to make users feel empowered by their software, and like games, OptionsHouse provides agency to the users. *Offwarld Trading Company* and E*Trade are not identical in form or function, but the similarities in design show how economic information gets presented to users and reaffirms the role of speed in financial decision making.

As players acquire capital, they can also purchase corporate subterfuge via the game's officially designated Black Market. There are fifteen attacks or benefits potentially available to

players over the course of a game. For example, an electromagnetic pulse weapon (EMP) can be purchased, allowing a player to stop the production of all resources in a certain area. Players can acquire an item called Cook the Books, which allows them to raise the debt and credit rating without lowering their debt to asset ratio – in other words, to commit accounting fraud. The actions and items purchased from the Black Market provide the most direct forms of conflict associated with real-time strategy games, and while they offer obvious interaction, they replicate the necessity of managing the markets central to OTC's experience. When the market opens, it offers six items for purchase, and while the costs are individual and not impacted by other players' purchases, choosing one increases the price of others. The short-term advantage may not outweigh the possible impact of being unable to afford better advantages later in a game. Like buying resources, black market purchases encourage risk management on the part of the player.

Offworld Trading Company's gameplay and world building represent finance capital at its most extreme. It appears as both a parody of, and a love letter to, free markets. Frederic Jameson describes the transformation of parody into pastiche. He suggests "pastiche is, like parody, the imitation of a peculiar or unique, idiosyncratic style, the wearing of a linguistic mask" (17). In some sense, OTC is a pastiche of capitalism and markets, generating fun$ out of a collapse of opposition or parody into practices of complicity and replication. Fun$ ends the imitation of capitalism by making games and play about the production of value. It offers a potentially obvious description and answer for how computer games replicate the process of financialization and understand capital's functions. The tutorial missions are designed like business seminars and corporate onboarding sessions designed to teach new employees, as represented by the players, the functions and intricacies of capitalism.

While *Offworld Trading Company* offers a glimpse at the possibilities of fun$ as internal gameplay, the other examples in the dissertation refine its implications in other realms of game culture. OTC shows us how fun' can develop into fun$, and by recognizing the transformation, the implications of the latter concept can be seen. Chapter 2 examines how the game developer Blizzard Entertainment's move toward an interconnected game economy and unified vision for consumption remake play as the production of value. It offers an example of fun$ as a motiving force for the redesign of gameplay and game design. Chapters 3 and 4 examine the media ecologies of e-sports and gameplay streaming respectively. In them, I examine fun$'s influence on the action around games that extract value from play.

StockStream and "fun$" at Work

Part of what makes fun$ worthy of study is how it exploits the various systems tied into networks of game culture. Understanding fun$ necessitates recognizing how various systems work together to extract value. In May 2017, engineer Mike Roberts decided to let users on the internet invest $50,000 of his money in the stock market through a scheme he calls *StockStream*. Roberts develops software that integrates with Twitch (www.twitch.tv), a platform that primarily allows people to watch others play games (discussed in much greater detail in Chapter 4). Using this platform, *StockStream* invites the audience to vote on how to invest the money via inputs in the chatroom. On *StockStream*'s website, the title "World's First Multiplayer Stock Markey Game Using Real Money" appears at the top, using a pixelated font reminiscent of 16-bit video games. By positioning itself as a game (perhaps with self-conscious irony), *StockStream* makes the spectators into player-investors. Below the title lies the stream, which typically broadcasts Cheddar, a financial news network like CNBC, but broadcast only on the internet. The *StockStream* overlay frames Cheddar's broadcast and conveys information to the audience. This

overlay shows which stocks are currently receiving the most votes to buy or sell and displays financial information concerning the value of the portfolio. It compares the portfolio to NASDAQ and the DOW. The chaotic chatroom appears to the right of the streaming window, showing viewers how others are voting.

Bogost might see *StockStream* as a fun' understanding of games and finance. *StockSteam*'s integrated vote mechanics diminish the perceived impenetrability of financial markets. Anonymous voting users can have success in the marketplace without the requisite knowledge and ability to navigate financial markets. Bogost might understand this element of StockStream as critical or markets and finance. However, this approach ignores the fun$ experience of players who immerse themselves in the logic of the market by voting on investments. The consumption of the market's ideology by participating in the stream event functions as more than an introduction to financial structures; it is, rather, a seduction. Instead of offering a critique of the role of finance and the market, *StockStream* constructs a means to interact with market. *StockStream* has more in common with OptionsHouse than with a newsgame like Frasca's *September 12th*. Fun' struggles to appear when there is actual and immediate value to be made through games.

I believe *StockStream* offers an intersection between computer game culture and financial economies. *StockStream* suggests the cultural systems of contemporary game culture interact with financial systems. In this stream or game, fun$ remakes what it means to spectate in computer game culture. The passive act of watching someone play games on Twitch is redeployed to generate value. The coalescing of finance and play is a major concern of this project, and this foray in ludic investing set forth by Roberts recognizes that cultural practices around games and capital are more entwined than ever. At its core, this project shows what

forces and systems make *StockStream* possible – and what they represent for a world increasingly orientated to the subprime possibilities of fun.