The impact of Covid-19 on Esports

Analysis of stock market and corporate governance

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Abstract

Along with the multibillion video game industry, the burgeoning phenomenon of electronic sports aka Esports has been drawing attention from investors, sports organizations, and enthusiasts worldwide. Besides its vibrant online communities, Esports' rapidly growing revenue and audience have also been pulling in crowds to onsite tournaments hosted in custom-made Esports arenas until Covid-19 outbreak halted the scene in 2020.

Socioeconomic repercussions were felt globally raising investors' apprehension. Unprecedented stock market reaction caused an overall stock market plunge. The study proceeds with a brief literature review on the stock market dynamics, stocks performance during Covid-19 and the video gaming industry's evolution aiming for theoretical grounding on the Esports' ecosystem. The review is followed by stock market data gathering of the Astralis, OverActive media and Guild Esports, the sole business of which is owning and managing Esports teams during the Covid-19 period up to present time (January 2020 – April 2023).

Quantitively, daily stock market performance was examined and for each Esports' stock were calculated five stock indicators such as Return, Risk, Beta, systematic and unsystematic. The Capital Asset Pricing Model (CAPM) was used to determine the behavior of the assets based on their risk and return. According to the analysis, the rate of return indices for the chosen Esports stocks over the Covid-19 period were not uniform and there are dissimilarities between their realized average rate of return though the organizations belong to the same industry and share similarities.

Despite the downward of their stocks and revenue loss, their betas coefficient was in the risk-averse zone and new sponsoring agreements, business expansion and new revenue sources took place. A few changes in the management have occurred in the past three years, though only OverActive experienced abrupt change in the CEO, no other significant actions from the board of directors of the investigated firms were observed. Certain level of realistic optimism amid Covid-19 in their annual reports as well as overall good level of transparency in the governance and their relationship with stakeholders is noticeable.

Keywords/tags (subjects)

Esports, Stock market, corporate governance, Video Game industry, Covid-19, Risk management.

Miscellaneous (Confidential information)

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1 Introduction

Since the novel virus outbreak Covid-19 was first recorded in the late 2019 (Synowiec et al., 2021), its highly contagious pathogen has up to the present time affected 231 countries and territories, with roughly 677 million cases reported across the globe (Worldometer, 2023). A global alert with science-based recommendations was issued by The World Health Organization (WHO) on 30 January 2020 (WHO, 2020), as well as preventative and public health policy containment measures from governments worldwide to slow down the virus's spread (Which countries have made wearing face masks compulsory? 2020).

As the ever-mutating virus rapidly emerged (Coronavirus disease 2019, 2021), and its new variants kept on circulating globally (Velázquez, 2021), social distancing and lockdown brought upon a global change in lifestyles, with strong socioeconomic consequences (Di Renzo et al., 2020, 1). Covid uncovered structural gender bias generating deleterious effect on women all over the world (COVID-19 has exposed endemic gender inequality, 2021), additionally, growing proof of Covid-19's detrimental effects on mental health (Singh et al., 2020), specially of young people (Coronavirus crisis: Children suffer, 2020), and of those from more socially disadvantaged backgrounds (Collinson, 2020).

Under these circumstances, nations significantly increased their health expenditure, including income transfer programs (Makin & Layton, 2021), and other social insurance and fiscal support measures for pandemic effect mitigation (Alberola et al., 2021; Chudik et al., 2021). Amid this global turmoil in which major sports, festivals and business events were postponed (Swift, 2021; Every 2021 concert & festival cancelled, 2021; Powell, 2022), digital applications, online services and a thriving video game industry helped alleviate the social distancing (Koeze & Popper, 2020; Levy, 2020; Wilhelm, 2020; 3, 2, 1 Go! Video Gaming is at All-time high during Covid-19, 2020).

Covid-19 not only renewed global attention to the gaming industry but also put the phenomenon of electronic sports on the spotlight. Esports promotion was boosted by a confined audience restricted by the pandemic (Research, 2020) and traditional sports organizations allowed their athletes to engage online with their audience and in video games competitions to create content and make up for cancelled sporting events (Ke & Wagner, 2020).

On the equities side, Covid-19 impact was evident on the financial markets whereas systematic risk and individual stock market reactions rose considerably (Zhang et al., 2020). Moreover, the overall stock exchange' absorption of the Covid-19 effects was not uniform (Ngwakwe 2020; Topcu & Gulal, 2020), and it also performed unexpectedly positively in the first year right after the 2020 first quarter sharp drop in overall market stocks (Richter, 2021).

In López-Cabarcos et al., (2020) gaming and Esports were one of the least affected industries by the market crash, one of which does not mean both were immune to the economy plummeting companies experienced internationally (Seck, 2020). Unquestionably, sports are socioeconomically relevant worldwide (Smith et al., 2022), and so are gaming and Esports industries. Besides, the implications for the Esports industry have generally been studied from the users' and investors' perspectives than from organizations' viewpoint (López-Cabarcos et al., 2020).

For this purpose, this study's primary objective is to contrast and highlight how Esports team stock indices reacted over the chosen period immediately following Covid-19, which spans from January 2, 2020, to April 21, 2023. The analysis focuses on listed Esports team stocks while looking at variables like beta coefficient, total risk, systematic risk, and unsystematic risk that enable the application of the capital asset pricing model.

Astralis, OverActive media and Guild Esports are investigated, the sole purpose of which is to manage Esports teams. Despite the scarcity of data as most Esports Teams have gone public recently, the research is practical following a quantitative method of research combined with qualitative analysis of annual reports and their corporate governance response amid the pandemic.

The thesis has been divided into five chapters. The introduction is established in chapter one, and the theoretical background and research hypotheses are introduced in chapter two. For a proper understanding of the topic, historical and theoretical information about the video game and Esports businesses as well as other important findings about the evolution of Esports and its governance are combined with essential concepts from stock market dynamics, portfolio investments, Esports equities, and overall market during Covid-19.

Chapter three highlights the design, purpose, and structure of the research, while chapter four underlines the study's findings, shortcomings and makes recommendations for further research. Finally, the investigation's conclusions are presented in chapter five. A scrutiny on the stock performance of the Esports teams and its effect on their corporate governance and vice versa under the Covid-19 circumstances gives this investigation its scientific worth. Additionally, the new study offers a previously unattainable perspective on pure-play only teams in Esports. The development of this scholarly effort has uncovered that there are still several areas in the Esports industry that need to be expanded, particularly related to management, corporate governance, and other important and practical concerns affecting the ecosystem.

2 Literature review

This chapter approaches playing and games in human culture and presents a summary on the Video Games industry evolution including its relevance to the global digital economy. Aiming to briefly differentiate Esports and gaming as well as the evolution of both as a socioeconomic phenomenon, there will also be the opportunity for elucidating Esports governance, overall stock market dynamics and ultimately focusing on the publicly listed Esports teams, their governance, risk and return performance and vice versa.

2.1 The evolution of video game industry

Playing and gaming have been intrinsic to human culture since the dawn of civilization. It is argued that one could hear a pristine melody of a bone flute in the southern Germany 35,000 years ago (Conard et al., 2009) or play a Mesopotamian board game around 2,400BC (Series: The Royal Game of Ur, n.d.).

In the classic Homo Ludens (1949), the Dutch historian and linguist Johan Huizinga affirms that it is in the game and through the game that civilization develops, and that games are part of the way humans reason as individuals and society. That leads to the conclusion that playing is older than culture, playing is the culture and vice versa. Culture is the game itself.

Having similar versions played in the ancient Iraq, ancient Egypt, even referenced in the legendary works of the Greek author Homer and philosopher Plato as well (Checkers, n.d.), “checkers” or "draughts" (pronounced as "drafts"), is for instance an example of game transformation throughout time. Throughout millennia games are ever evolving at their own pace. Resiliently, games have been rooted in historical context, places, communities, and beliefs. The same is true for technology. Technological innovations became continuous in a globalized world touching people’s living. In a sense, humans live in a global village in which information technologies have shortened distances and tackled remoteness (Definition of global village, n.d).

Rushkoff (1999, p.5) asserts that “whether or not we choose to get online or use an ATM, we are living in a world where the people and territory are under constant and accelerating renovation”. The same author has developed the term “digital natives” for those who grew up playing and interacting with digital technology.

The blossoming of new processors and information technology impacted on the entertainment industry and ushered in video games as an offspring of such industry transformation. Solving visual puzzles and brain teasers, being defied by logical thinking challenges as well as other stimuli and making one’s personal journeys has made video games stand out compared to other pastimes such as movies and TV series (Lima, 2012).

From their modest genesis in research centers, evolving into arcade games and home consoles, video games have had great social and economic impacts and have more than ever strengthened their appeal at a global level, even being claimed by scholars as the 21st century's most notable upcoming art form (Schofield, 2002). In truth, the earliest game developers were not developers per se, but scientists and professors rather concerned about proving multiple theories unrelated to an industry which was unimaginable at that time. However, the actual first computer game and its origin are disputed.

Affirmed as the true genesis of video games, Turochamp was originally a computer's behaviour experiment conceived in the late 1940s by the British computer scientist Alan Turing and its project partner David Champernowne (Copeland & Proudfoot, n.d.). Nevertheless, the chess game

was never fully achieved back then as its algorithm was too complex to be run by the early computers (Stezano, 2017).

Dillon (2011) asserts that Goldsmith Jr. and Estle Ray Man patented in 1947 the cathode-ray tube amusement device (CRT), which would be considered the first amusement device of its kind displayed on TV. Donovan (2010) argues that Cambridge University researcher Alexander Douglas developed the first video game in 1952. In fact, his computer game OXO was designed for his PhD thesis to demonstrate human-computer interaction (Cohen, 2019).

According to Amorin (2006), the actual birth year of the first ever computer game to show motion played through an oscilloscope was in 1958, conceived by the North American physicist William Alfred Higinbotham. Higinbotham's intention was to make the exhibits in the Brookhaven National Laboratory's instrumentation group a more engaging attraction for all the visitors, and it is claimed that the physicist successfully reached his goal (October 1958: Physicist invents first video game, 2008). Visitors were delighted by his creation, lining up waiting for their turn to play what was back then named Tennis Programming, popularly known as "Tennis for Two".

In 1962, researchers created the groundbreaking Spacewar! (Smith, 2018). Programmed in Assembly and executed on a DEC-PDP1 computer (Souza & Rocha, 2005), coding algorithms made a physics-based emulator possible, which in its turn made a spaceship fighting enemies in outer space fun (Batista, 2007). The poor graphics and playability did not stop Spacewar!'s charisma from encouraging Ralph Baer to design a machine for playing games on a TV display in 1966, leading to what is now considered the first home console: the Magnavox Odyssey (Thompson, 2015).

Then, Nolan Bushnell (1971), the co-founder of the Atari, Inc, which later would become a legend of the video game industry, saw market potential, and developed a new version of Spacewar! not designed to run on a home console, but rather on a machine known as the industry's first arcade: the Computer Space (Batista, 2007). Bushnell's own high-end version had only 1,500 units sold in the whole United States (Souza & Rocha, 2005).

Whether Bushnell is the pioneer of the game industry as claimed (Rue, 2005), or would be the engineer Ralph Baer (Mullis, 2014) or should the New York born engineer Gerald Anderson Lawson

be regarded as such for leading the prototyping of the first commercial cartridge-based console (Griffin, 2021), undeniably many were the innovative minds who directly or indirectly shaped and reshaped the current multibillion juggernaut industry.

Presenting simple graphics and uncomplicated gameplay the earliest commercial home consoles such as Pong, Odyssey 100, Coleco Telstar and Color TV Game reached the market in the 1970s enthralling people worldwide (Thompson, 2015). However, due to the average graphic quality, the scarce portfolio of games and the inability to align consumers' expectations with reality, the industry at that point had its sales negatively affected followed by a business traction loss (Clua & Bittencourt, 2005).

Of these two consoles, Atari 2600 and Odyssey 2, the latter introduced the voice module that allowed the use of a synthetic human voice in games and made it to the second generation of home consoles (Souza & Rocha, 2005). On its turn, the generation which thrived between 1976 and 1984, brought in artificial intelligence thus improving gameplay (Thompson, 2015).

Despite the updates, however, outmoded home consoles makers sold their goods with an intent to stock clearance, which caused market surplus at that point (Whittaker, 2004). Notwithstanding their losses in 1977 and 1978, only Atari and Magnavox lived through the console supply shock (Montfort & Bogost, 2009), while the video game market became supersaturated with a plethora of copies of "Pong" leading to the industry's downfall.

Eventually, Taito's game named Space Invaders invigorated the industry in 1978, taking the era of arcade gaming further (Whittaker, 2004). Atari 2600 got Space Invaders licensed afterwards, which helped boom their console sales (Kent, 2001), also assisting Atari’s recovery from their foregoing financial loss (Montfort & Bogost, 2009). Atari’s success backed the console video game market for a period, but it could not stop it from marching on to the next crisis in 1983 (Whittaker, 2004).

The successful Space Invaders by Taito back in the arcade games glory days in 1978 encouraged dozens of other companies to venture into the market (Whittaker, 2004). The game also became popular due to countless articles in the media promoting electronic arcading as a hobby (Players Guide to Electronic Science Fiction Games, 1982 p.36). Space Invaders achieved over 360,000 ar-

cade machines sold globally (Asia-Pacific perspectives, Japan+., 2003), and by 1982 it grossed the 2-billion-dollar revenue (Making millions, 25 cents at a time, 1982).

Early in 1980s, color arcade games gained momentum as well due to game releases such as Namco's Pac-Man, which sold over 100,000 arcade units (Loguidice & Barton, 2009 p.181), generating beyond a billion dollars in profit within a one-year period (Wolf, 2008 p.73). According to Rogers and Larsen (1984), the arcade industry reached its peak in 1982 generating around $8 billion dollars**,** which converts to over $25.3 billion dollars buying power in 2023 (CPI inflation calculator, n.d.). Notwithstanding the superb growth, the industry went through a weighty downturn before establishing its third generation. Infamously known in Japan as "the Atari shock", the video game crash of 1983 was a major recession which affected predominantly the North American video game market (Ernkvist, 2008).

At that time no one knew why the business started facing such a recession mid-1982 (Kent, 2001), as the crisis did not become noticeable to the consumer until a year later. Plenty are the theories that attempt to point out what caused that collapse. According to Cohen (1984), it culminated with the poor management of Atari, which back then was the industry's leading game publisher, while Campbell-Kelly (2003) states that the excessive production of games and consoles led to market supply-demand imbalance, stagnation, and costly disaster. In fact, a wide variety of new home consoles and video games were either sponsored or produced by a multitude of brands which lead to market surplus. Ranging from dog food manufacturers (Oxford, 2012) to food companies (The PM, 2020) and on top of that, PC gaming also enters the gaming market as another alternative for playing video games (Campbell-Kelly 2003, Herman 2001).

Ernkvist (2008) argued though that the industry's more immature period happened to face not just one, but four crashes. Despite the wide-reaching recession that plunged into the once booming US video game industry, the year 1985 brings in a whole new fresh air to the industry. The Nintendo Co., Ltd, a well-established Japanese multinational video game company with a consolidated consumer market in the far East Asia grasped the opportunity to expand overseas with its Famicon home console (Family Computer) and dared to enter the tempting US market (Souza & Rocha, 2005).

Prior to their endeavor though, Famicon went through some adjustments. After being redesigned and renamed, it joined the US market under the name Nintendo Entertainment System, popularly known as NES (Clua & Bittencourt, 2005). The 8-bit Japanese home console seized on the opportunity of expansion, thus achieving 90% of the electronic games market at the time, reaffirming its success at the North American market (Batista, 2007).

Figure 1 visualizes the design differences between the Japanese design and the US one. On the left is the Famicon, on the right is Nintendo Entertainment System aka NES.

Figure 1. Hardware: Famicon Classic and Nintendo Entertainment system (adapted from Nintendolife website)

Considering that attaining 90% of the market back then was no easy accomplishment, one could argue that the new fresh air turned out to be a typhoon in the gaming industry. Moreover, the stark contrast between the Japanese and American designs is fascinating hard evidence of Nintendo's market entry strategy and rebranding.

Consoles such as Nintendo Entertainment System (NES), Famicon Disk System, Sega Master System and Atari 7800 represented the 3rd generation and offered noteworthy audio-visual improve-

ments. The first game in the series “The Legend of Zelda” is one of the first open world games created for that generation of home consoles (Thompson, 2015), bringing innovation such as non-linear storylines which allowed players to accomplish missions as they please (Thompson, 2015).

Consoles and software continued relentlessly evolving. A step ahead of the previous 8-bit generation, consoles such as Sega Mega Drive, Sega CD, SNES, and Neo Geo CD were at the forefront of the 16-bit processors (Aranha, 2004), bringing better graphics and the dawn of CD-ROM (Thompson, 2015). The CD-ROM media represented a major leap in audiovisual enhancement, sparking in 1993 the birth of the fifth generation (Batista, 2007), bringing upon 3D modeling in video games (Thompson, 2015), and motion capture, meaning the process of recording actions of human actors for game development (Clua & Bittencourt, 2005). Such tools and graphic maturing ushered in third-person games and more immersive gaming experience.

The constant development of consoles and commercial games combined with the improvement of information technology infrastructure paved the way for multiplayer online gaming to take shape. The very first multiplayer games were rudimentary, however. Originally designed for computer-based education, the earliest online games date back in the late 1960s (Woolley, 1994). Multiplayer gaming became more apparent in the 70s with games such as Maze War (Olivetti, 2012) and the 3D multiplayer space simulation Spasim (Moss, 2016), eventually developing into something tangible in the 80s with the Snipes (Video game firsts: The first online game – Snipes, 2021).

Snipes is acknowledged as the main inspiration for the Netwars, a popular 90s multiplayer online game (Video game firsts: The first online game – Snipes, 2021), and the online gaming just blossomed, producing several titles since then. For instance, Ultima Online (1997), a massively multiplayer online role-playing game (MMORPG), that combined role-playing games elements with the gameplay of recently created multiplayer online worlds, achieving the milestone of 250,000 players in 6 years (Lesnieski, 2008).

The year of 1998 sees the first generation of consoles offer access to the World Wide Web. Despite Sega leading the way in online gaming, the Microsoft Corporation designed for its XBOX the first social media network for online gaming: The XBOX LIVE. This network aimed at allowing users’ community engagement, online chatting, and game tournaments (Souza & Rocha, 2005). Estab-

lished as the 7th generation of home consoles, Sony Playstation 3, XBOX 360 and Nintendo Wii offered a significant boost in processor speed, visuals, online gaming and integrated networks and other features such as digital game purchases online (Thompson, 2015).

The Playstation 4, WiiU and Xbox One consoles made it to the 8th generation, supporting 4K resolution, internal storage space up to 1 terabyte, purchasing, downloading, and watching movies, playing music, also downloading apps such as social networks and streaming, thus going beyond being mere home video game consoles (Thompson, 2015).

In such a fast-flowing scenario, video games have been louder than ever. An impactful presence in numerous fields, they have been applied in medicine (Golomb, 2011), and education (Mccoy, 2015), improving cognitive abilities for the aged (Basak et al., 2008; Anguera et al., 2013), and, developing and boosting psychomotor skills (Cardoso et al., 2017). A study in 2015 underscored that 150 million North Americans frequently played video games, of which 42% affirmed playing three hours weekly average for leisure and bonding with relatives and friends (2015 Annual report - A year of innovation and achievement, 2015).

Apart from its popularity and cognitive benefits, concerns on excessive gaming have had its share of attention. In mid-2018 the debate got a major highlight when the World Health Organization (WHO) recognized gaming disorder as an illness on its 11th revision of the International Classification of Diseases (ICD-11) (Addictive behaviours: Gaming disorder, 2020). Despite it been endorsed by the WHO and the classification taking effect worldwide on January 1, 2022 (ICD-11 implementation, n.d.) and drawing awareness about the matter, specialists have also been concerned about the moral panic around the subject which might potentially lead to overreacting, improper treatment, or flawed diagnosis, especially of underage individuals (Leonard, 2018).

Van Rooij et al., (2018) proposed to delay such categorization, affirming that thorough research efforts on this topic is lacking, and urges a more cautious evidence-based classification so to avoid misdiagnoses that can lead to serious socioeconomic consequences. Saunders et al., (2017) affirms that only a fraction of players engaged in video gaming show any kind of disorder due to addictive behavior and Stevens et al., (2021) argues that that percentage is about only 3.05%.

Notwithstanding its share of controversies, the video game industry has been prosperous. From $108.4 billion revenue in 2017 (Batchelor, 2018), profit reached US$ 152.1 billion in 2019 (Wijman, 2019), and the industry's yearly revenue is expected surpass 200 billion dollars by 2024, driven by its almost 3 billion global players (Wijman, 2021).

Figure 2 illustrates the Global Games Market growth trend from 2018 – 2022, as researched by Newzoo.

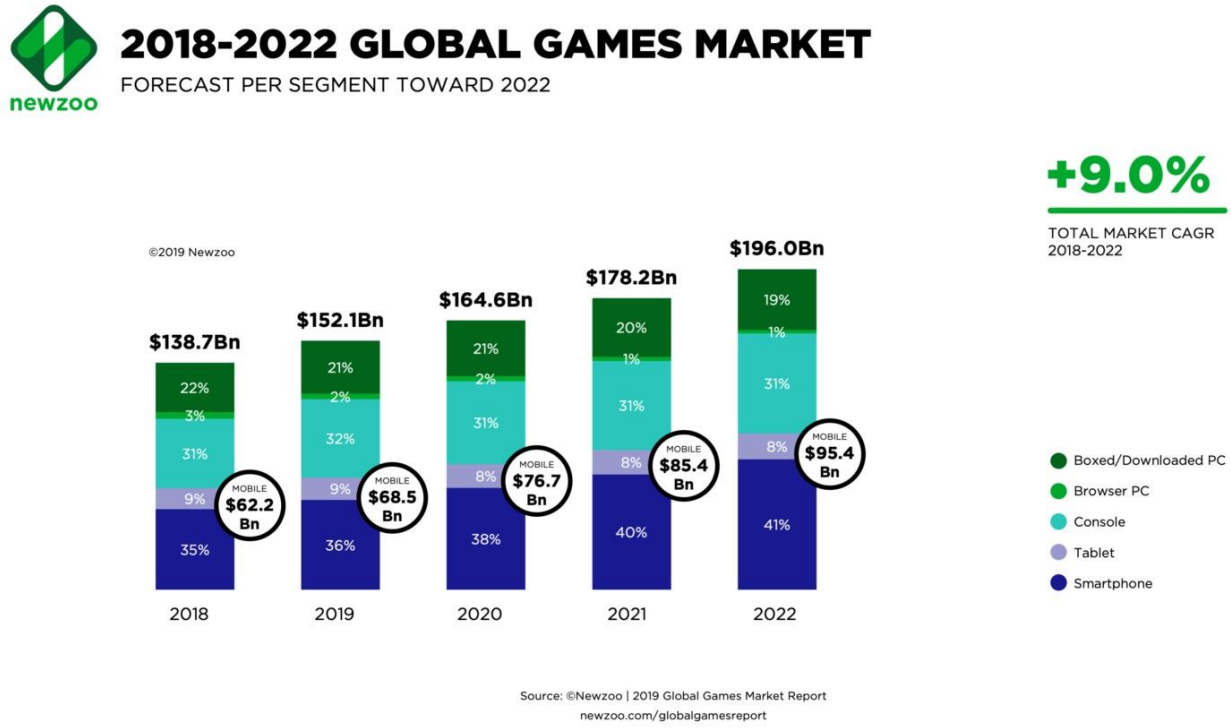

Figure 2. illustration of the Global Games Market growth trend from 2018 – 2022

Burdenko and Shchepetov (2021) 2019 and 2020 financial indicators showed that the video game industry grew roughly $10 billion American dollars amid Covid-19 pandemic. As the video game industry and information technology infrastructure develop so is the mobile app users growth rate. Kaplan (2019) asserts that 50% of mobile app users play any sort of game which make mobile gaming as popular as digital music services such as Spotify and Apple Music.

In Wijman (2020) because of the Covid-19 restrictions, all game segments increased engagement and revenue, but mobile gaming made the highest profit margin, reaching over $77 billion in 2020,

expanding +13.3% that year with in-game purchases as the main revenue booster. In NewZoo (2020), mobile gaming is the most accessible one for users: more than two-fifths of people worldwide are smartphone users and numerous game titles are free of charge which make this one of the primary reasons why mobile gaming is growing faster than computer and console gaming.

Burdenko & Shchepetov (2021) also highlights smartphones as the one sector with most significant growth amid pandemic, underscored the Latin American and the Asia-Pacific mobile markets as the most promising ones as well as bringing attention to the consumer behaviour of the generation Z and millennials as they were the most engaged audience of the gaming industry during the social distancing period.

In the US their video game industry surpassed both their film and the sports industries net worth combined (Kaldus, 2021), and proving the appeal of games are the related productions in pop culture worldwide. For instance, Super Mario in 1993 (Stuart, 2018), Street Fighter in 1994 (de Souza, 2022), and the “cult classic” Mortal Kombat of 1995 (which even warranted a 2021 remake) (Crow, 2021), made it to the theaters themselves.

The list of successful game-related media is extensive. Due to the popularity of its TV series, The Last of Us game sales have increased dramatically (Thomas, 2023), Sonic the Hedgehog 2 movie earned $331.64 million globally (Takahashi, 2022), and the latest record-breaking The super Mario Bros. movie making it the most successful game-based film adaptation so far (Kay, 2023).

Taking those numbers into consideration, it can easily be ascertained that video games currently is the most lucrative sector of the entertainment industry (Richter, 2020), and thus indisputably deserving of an in-depth look from a socioeconomic point of view.

2.2 The Esports overview

It would be just a matter of time until the rapid growth of video games market and its solidified social, economic, and cultural effervescence to produce new fruits as well as new phenomenon

and paradigm shift. It is therefore in this phenomenological context based on the evolution of information technologies that electronic sports manifest. Despite its fresh, bright, contemporary look, the Esports industry development and growth has been strengthened especially because Esports is a “child of the digital era” (“The Goldman Sachs Group,” 2018). However, nowadays competitive computer gaming itself is not unprecedented.

Larch (2022) claims the birth of Esports was congenital to the physicist Mr. Higinbotham’s creation of the first interactive computer game in the late nineteen-fifties as it already had an interface allowing two players to compete. Competitiveness have long since been a component of computer gaming, but it is affirmed that only in 1972 at the Stanford’s Artificial Intelligence Laboratory that the very first gaming tournament which involved the title Spacewar took place (Brand, 1972).

Turned 50 but looking much younger, the first known gaming tournament is a milestone. From then on, the frequency on the news media and official records of organized events involving competitive video gaming rose dramatically. To name a few, we can mention Atari's nationwide Space Invaders tournament in 1980 attracting over 10,000 players across the US (Players Guide to Electronic Science Fiction Games, 1982), the SEGA "Rock the Rock" held a $25,000 US dollars prize tournament broadcasted on MTV in 1994 with the final taking place in the infamous Alcatraz Island (Nirula, 1994), and the exotic Ferrari 328 GTS for the big winner in the Red Annihilation Quake competition back in 1997 (Kushner, 1997).

As popularity grows hence greater exposure, so were the controversies that came along. For instance, the controversial writing. For some it is Esports, for other E-Sports, or even eSports, regardless the way it supposed to be written, we are dealing with a term that has made it into the news and sports headlines.

Electronic sports was the term most countries were most familiar with (Yong Jin, 2021), nevertheless, in February 2000 the term “Esports” was first time used by the South Korean minister of culture and tourism Ji-Won Park during inaugural meeting of the Esports governing body accredited by the local government, the Korea Esports Association (KeSPA) (Ministry of Culture, Sports, and Tourism, 2008; Samsung Economic Research Institute, 2005, as cited in Yong Jin, 2020).

Apart from the writing singularity, along came the critics regarding the sports nature or not of Esports, thus whether it should be recognized as a sport, nevertheless. Though an ultimate unambiguous definition of sport has not been yet determined (Perks, 1999, as cited in Kane & Spradley, 2017), thus we will be approaching concepts and contributions from multiple scholars on the subject to delineate and contextualize this almost existential questioning about Esports.

Starting from the influential French social theorist Pierre Bourdieu (1990; 1993), sport is defined as a place of social practices known as field, where the social agents are established in social structures from the perspective of competition and rivalry for objects and elements of noteworthiness and renown. The agents can be interpreted as the sports players and the competition for objects or distinction can be interpreted as prizes, trophies, status or simply acknowledgement for a positive outcome. All these features of competitive sports, both intrinsic and extrinsic sides also figure in the Esports and are also part of the whole Esports experience.

For Betti (2002, 29) sport is “an institutionalized action and consensus which is based in playful competition between two or more opponents or against the nature and by performance assessment benchmark the winner or the new record”. Betti’s view of sports is backed on the classic definition of sport in sociology, anchored in the idea of playfulness also aligned with Huizinga’s (1949) considerations on modern sport as a phenomenon that flourished from playing. Playing is undeniably a word that is intimately close with video gaming and Esports: it is familiar to itself.

In addition, also the contribution of Elias and Dunning can be highlighted (2008, 232) who explains sport as an organized group activity engaged on a confrontation between at least two parties. Oftentimes sport demands physical activities of any sort, and it is played by defined rules, including those which underscore the limits of physical strength. Parameters like endurance, reaction time and strength are often connected to the idea of sports what might be the main source of debate around Esports, in short, to the stereotype of athletes in traditional sports.

Furthermore, Elias and Dunning (2008) asserts that societies reveal compensatory means to relieve tensions coming from emotional self-control, thus sport would be one of these compensatory means: some sort of catharsis for one's tensions. What characterizes modern sport is therefore its civilising process and the sportification of recreational activities.

The sport and its players are organized in a way that each interaction is flexible and not entirely predictable. The random nature of sports as a crucial feature is therefore emphasized. Well, the Esports match results are as cathartic and unpredictable as in traditional sports matches.

Guttmann (2004) defined sports as a physical organized competition opposed to spontaneous and non-competitive play. His concept has great impact on the present-day concept of sports plus distinguishes what kind of activities should be regarded as such. Based on that, the phenomenon of Esports is in consonance with Guttmann's comprehension of sport, especially referring to the competitive and organized side of play which clearly is the case of Esports tournaments, in contrast to spontaneous playing or gaming. Playing and enjoying gaming does not make one an Esports athlete. Gaming is part of Esports, however Esports is essentially about professional competition using video games (Schwartz, 2019).

Hamari and Sjöblom (2017) shed some more light on our quest for legitimacy when argue Esports translates to sport in which the interface is the essential aspect in the competition involving teams or individual players. Popper (2013) argues that it is organized as a multiplayer video game tournament between professional players and teams, predominantly amateur until late 2000s, when professional leagues and federations were founded plus influenced by the popularity of Esports live streaming events gathering spectators and competitors worldwide.

The ideas above presented validate Guttmann's concept (2004) and in the light of his idea it also goes beyond the spontaneous play and corroborate Barbanti's (2006) definition of sport as a regulated activity whose individuals' employment of motor skills is motivated by intrinsically and extrinsically. It seems like the idea of sports involving vigorous physical effort and calories expenditure is deep-rooted. The physical side of it, sports as a "vigorous exercising" might be the main source of controversy concerning esports authority and its legitimacy to be categorized as sports.

However, pioneering research affirms that that Esports are physically demanding as traditional sports. Professor Ingo Froböse had proven that e-athletes showed high level motor skills and hand-eye coordination combined to tactical skills that he personally hasn't observed in any other sports, also level of cortisol (the stress hormone) like in racing drivers along with high heartbeat rate comparable to a sprinter (Schütz, 2016).

A year later Kane and Spradley (2017) study outcome showed evidence backing Froböse's research, revealing increased energy spending in players as consequence of Esports competition. Bickmann et al., (2021) compared the reaction time between professional, non-professional Esports players from different genres and non-professional traditional sportsmen and it turned out that there were no response time differences between those groups and both activities may boost reflex time on a same level.

Up to this point, it is possible to affirm that Esports satisfies many scholars' broad definition on sports. Furthermore, in the light of science-based references there should not be any ambiguity, confusion or hesitation left regarding Esports physical demand parallel to the sport one. One could ask, what has been left for the acceptance, perhaps the socio-political side.

The International Olympic Committee remains irresolute about Esports' Olympic legitimacy. The IOC's director, James Macleod, declares that only Esports that encourage physical effort shall be considered taking part in the Olympics (Silva, 2022), a statement that proved to be misconceived based on the studies and definitions earlier mentioned. Nevertheless, FIFA and IOC have strengthened ties with esports. Aiming to boost engagement with new audiences it has been moving towards an understanding between the parties, which generated some landmark moves into the realm of virtual sports. For example:

FIFA's gaming initiatives such as the FIFAe Nations Cup 2022 (Brazil crowned world's best FIFA esports nation, 2022), Esports gaining the spotlight at 2018 Asian Games (Booton, 2018), International Olympic Committee announcing their first head of virtual sport (Jones, 2022), what could be perceived as a major green flag from the IOC's governance viewpoint, also aligned with their own recommendations of the Olympic Agenda 2020+5 (Olympic Agenda 2020+5 15 Recommendations, n.d.), which also supports the development of virtual sports and engagement with gaming communities.

IOC also partnership with game publishers and sports federations managed their first Olympic-licensed Virtual Series (OVS), (IOC makes landmark move into virtual sports by announcing first-ever Olympic Virtual Series, 2021). In contrast, Esports experts affirm that government's support is

far more relevant for the ecosystem than Olympic legitimacy (Sood, 2018) and Kim et al (2020) strategic public-private teamwork is crucial for Esports sustainable development post- pandemic.

In fact, numerous Esports associations with government recognition have been on the rise. For instance, the Finnish government acknowledged professional Esports players as athletes (Massaad, 2017), Poland's recognition of Esports allows organizations to benefit from traditional sports perks like funding and tax exemptions for cyberathletes (Konarski, 2022). Meanwhile, previously only granted to traditional sports athletes, professional e-athletes can now also obtain P-1 visas in the USA (U.S. Citizenship and Immigration Services, n.d.), plus the Korea e-Sports Association (KeSPA) is accredited by the Korean Sport and Olympic Committee (KeSPA, n.d.).

Thus far, several other countries officially recognize esports, either recognizing professional gamers as athletes or joined the International Esports Federation (IESF). Founded in 2008 and headquartered in South Korea the federation has 128 members national federations at the moment and its core mission is to scale up Esports globally (Members, 2022). Initially 9 member nations only, the first event hosted by IESF, the "IeSF Challenge" was held in 2009 and since then it has hosted more than 13 World Esports Championships and December last year 2022 IESF will be hosting its 14th World Championships in Indonesia: over 120 National Federations, 300+ players and spectators (Everything you need to know about IESF, 2022).

Even issues such as performance-enhancing drugs in Esports are relatable to the traditional sports industry. Hence, the IeSF has been an official signatory of the World Anti-Doping Agency (WADA) since 2013 (Kamen, 2015), which can be considered as one step further Esports governance legitimacy.

The phenomenon keeps progressively attracting multiple other industries, sponsored by giant multinational corporations such as Intel, the car manufacturer BMW, Coca-Cola and even a military branch like the US Air Force (Ashley, 2021). Meantime, for some described as unsustainable due to the inability to scale or break-even of Esports start-ups launching products (Guest Author, 2020), corporations like Nike have also been investing in Esports in Europe (Murray, 2020), in South Korea (Lim, 2020), signed a multi-year partnership deal with the Brazilian Esports organization FURIA (Duran, 2019).

Event organizers have been benefiting from collaborations with game publishers (Kaldus, 2021), commonly managing most “Counter-Strike”, “Dota 2”, “League of Legends” tournaments, amongst others.

Figure 3 visualizes the Top Esports Games Worldwide in 2021, as measured by tournament prize pool (in million US dollars) by Statista.

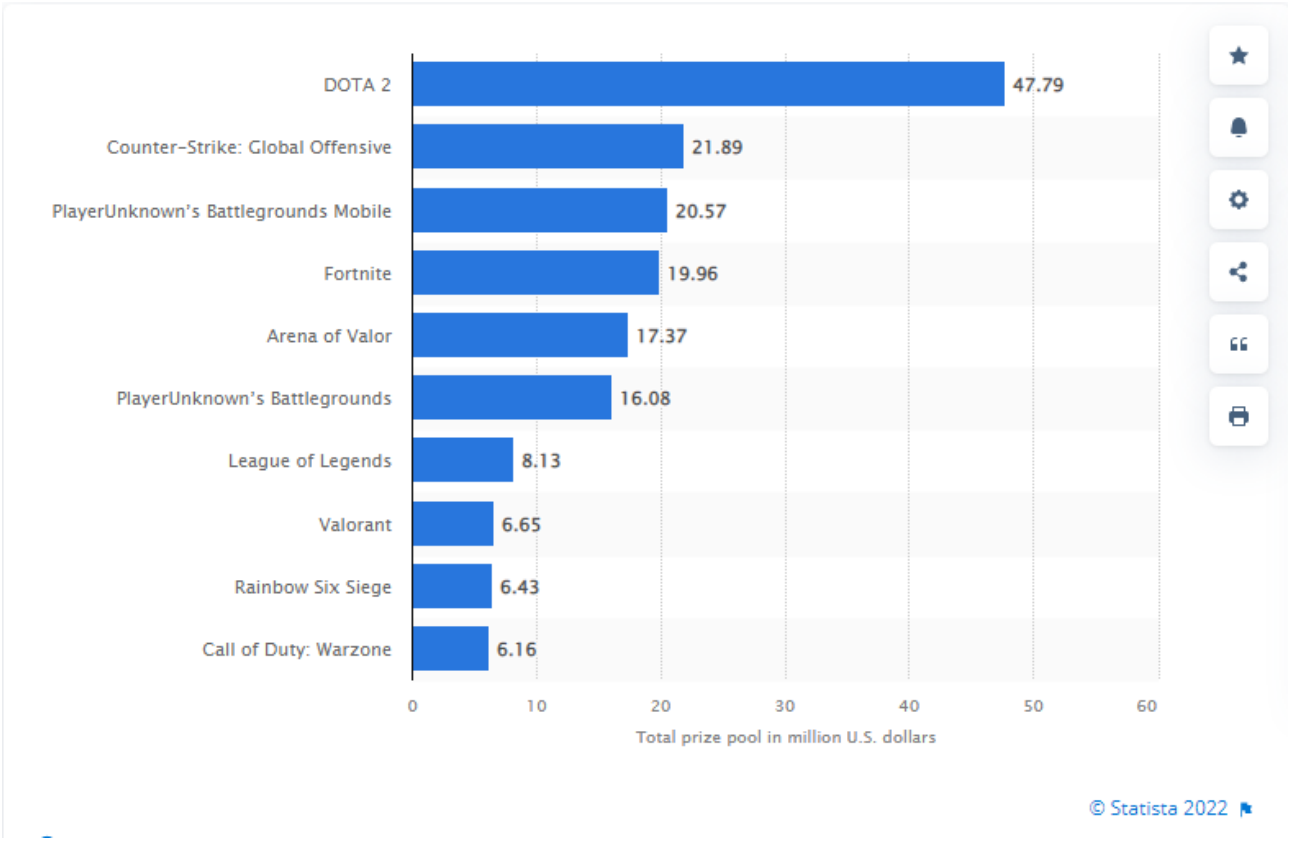

Figure 3. visualizes the Top Esports Games Worldwide in 2021, as measured by tournament prize pool

The top paying Esports tournament exceeding the forty-seven million U.S dollars mark was ‘Dota 2’, worth of more than double the amount of the cash prizes for the ‘Counter-Strike: Global Offensive’ which shows the second largest overall prize pool in Esports in 2021. ‘Dota 2’ is what is categorized as a multiplayer online battle arena (MOBA), in which two teams of five players each engage in competitions aiming to invade the opponent's map and destroy a symbolic structure named the "Ancient" as the major goal (Phillips, 2020).

There are also plenty of other similar games making it to tournaments and various other game genres paving their way to competitions as well. All things considered, as the Esports industry steadily gains ground one could argue that the Olympic movement could benefit a lot more from the Esports than Esports from Olympics, though cooperation can be mutually beneficial.

Siamese twins with the video game industry, the Esports growth potential exceeds that of considered “traditional sports” such as football, ice hockey, etc. The Goldman Sachs group (2018) asserts that the distribution of Esports is nearly 100% digital worldwide, while traditional sports leagues around the world are not just geographically split but also by TV rights, local policies and 20% digital only.

The Esports industry offers a wide range of investment opportunities in several subsectors. Some are specific to the sector, like team organizations, while others have characteristics with other well-established businesses, such consumer goods or event organizing, making them more approachable to new investors (Deloitte, 2019).

Before the Covid-19 outbreak and this whole situation promoting video games and Esports user acquisition and engagement (Hall, 2020), multiplayer video game tournaments were already on the rise on Esports live streaming events attracting a solid viewership globally (Popper, 2013). Its demographics are a strong trait of the industry. Investment provides exposure to this age group, which is progressively turning its attention away from traditional media and accounting for 37% of the Esports industry's 380 million global fans who are male and 16% of whom are female between the ages of 21 and 35 in 2018 (Deloitte, 2019).

Encouraged by such demographics sports organizations such as the National Basketball Association (NBA), they also noticed business opportunities in Esports (Droesch, 2019), as well as traditional investors saw a chance for diversifying their investment portfolios (Deloitte, 2019). Although most Esports events in 2020 were either postponed or went online, it is affirmed that the investors’ attentiveness on Esports organizations remained high (Schönknech, 2021).

The rise in the industry's overall perceived attractiveness among traditional investors suggests a maturing industry (Deloitte, 2019). Esports’ growing appeal from the investor’s standpoint in-

creased due to media exposure gaming and Esports have been receiving especially during the pandemic (Schönknech, 2021).

It can be challenging to determine where an investor's capital may be properly allocated given the variety of possibilities to engage in the Esports industry. According to Deloitte (2019), the following are the top five Esports investment opportunity categories: game developers, event planners, team organizations, media platforms, and consumer goods.

The industry's infrastructure is being largely built by companies like game developers, live streaming services, and ancillary services (for in-game communication, player data, etc.), which are by far the most capital-intensive businesses (Deloitte, 2019), while sponsorships made up the largest percentage at 40% of the total revenue.

Besides, not coincidentally many game developers and publishers are parenting companies to Esports organizations and teams. In Hayes (2020) a parent company is a business that controls a significant portion of another business, giving it operational authority over that business. However, the current coronavirus situation is likely to bring change to investment strategies as experts affirm that investors are more concerned in how external problems like pandemics and climate change will affect businesses than in how those businesses plan to tackle those challenges (ESG consortium, 2020).

Despite all the investments which the industry has been benefiting from, the portfolio of listed esports organizations is still limited. Not considering publishers and game developers, parent companies, traditional sports clubs and non-endemic brands that have been sponsoring Esports, up to this point there are about 24 organizations directly involved with Esports teams that have gone public or are listed in more than one stock (Usinger, 2021; Fitch, 2022).

As expected in developing industries, venture capital has driven most of the investments into the Esports sector (Deloitte, 2019). Esports organizations, especially the major ones, are notably venture capital backed. According to Forbes latest list (2022) the ten most valuable Esports organizations worth now an average of $353 million, combined they are worth $3.5 billion which means 46% increase compared to their 2020 list (Knight, 2022).

Notwithstanding that list and its outstanding numbers, in fact, and perhaps intriguingly, ranked as the fourth most valuable company FaZe Clan is the only one that have gone public from that list (Takahashi, 2022). Much of what of have been developed in the ecosystem is novel. Such freshness brings along risks and uncertainties but also fosters innovation and testing while keeping operations running. Esports organizations are slow but steady, taking their initial public offering for raising funding for operations and sustainable growth.

Despite the halted onsite events sparked by the pandemic, its financial stress and the ongoing Russo-Ukrainian war likely plunging the world into a new layer of downturn (Takahashi, 2022), yet the Faze Clan Esports rising online audience, gaming and media brand sees itself as a forerunner of mainstream streaming youth culture.

Following that trend, most listed Esports organizations have either diversified their business into other than Esports teams only or in fact already were diverse, ranging from venues and tournament operations, media, even gambling operators, or just went public very recently (less than a year) during the pandemic, what offers limited amount of stock market data to be analysed.

Nevertheless, certainly there are exceptions in the stock scenario. With that in mind, we have decided to go on with our investigation and focus on those pure-play Esports teams only, which means those that have not diversified their business yet or at least have not managed anything else other than Esports teams during the period which we are gathering their data.

For instance, the Danish organization Astralis is the pioneering Esports team to go public. The Esports company was set to go public on December 9th, 2019, on Nasdaq OMX Copenhagen for small companies (Handrahan, 2019). It marked the world's first initial public offering (IPO) for a company which exclusively relied on Esports team business development.

Guild Esports is one more team that became public. Listed on the London Stock Exchange with a valuation back then of around £40 million ($52 million), the start-up backed by the former English footballer David Beckham is the first Esports franchise to be publicly traded in the London stock (Shead, 2020). Headquartered in London Guild was founded in 2019, announced it intends to create a global sports brand inspired by the English Premier League. It raised £20 million through the

initial public offering (Ziady, 2020). Another one that joined the team of publicly traded Esports-focused company is the OverActive Media. The Canada based went public on the Toronto Venture Exchange (TSXV) in July 2021 and begun trading on the OTCQB Venture Market November 10 same year (Šimić, 2021).

Meanwhile companies such as Team Liquid are still raising their capital privately (Seck, 2022), Astralis, OverActive media and Guild chose to go public instead, which illustrates that different paths are feasible.

2.3 The Esports governance

While an understanding on corporate governance is necessary for guiding this investigation, an ultimate definition to delineate the term corporate governance is just not feasible. Defined as undefinable, even comparable to love and happiness due to its subjectivity, scholars suggest it holds no specific interpretation rather a broad connotation (Sonnefeld, 2004; Plessis et al., 2011).

Despite its philosophical nature, a definition has been pursued though. For instance, Monks & Minow (1995) argues corporate governance regards engagement of the interested parties in the corporation decision making and performance. In Foreman (2001) the primary forces underlying corporate governance are expressed in a range of globalized ideals that aim to go beyond local and national regulations, influenced by stakeholder's need of accountability, transparency and return on investment meanwhile Bonn and Fisher (2005) summarize it as a search for equilibrium between corporations and social interests.

The overarching objectives of most perspectives on corporate governance are supported by or seek the best methods for ensuring profitability through accountability and transparency for all interested parties, hence fostering procedures for risk avoidance and mitigation.

According to Plessis et al. (2011), corporate governance could be defined as "the system of managing and supervising corporate conduct and of balancing the interests of stakeholders and other interested parties who can be influenced by the corporation's conduct, in order to ensure corporate accountability aiming the best efficiency and profitability ratio.

Diverse are the definitions around what corporate governance means. To some extent each definition favours some aspects over others, thus the focus on the domain of the board of directors. As in King Report, (2009), as cited in Plessis et al. (2011, p.12) “leaders should rise to the challenges of modern governance, characterised by the ethical values of responsibly, accountability, fairness, and transparency”.

Grounded on those pillars of good governance, good corporate governance flags security for their current and potential investors as well as their stakeholders, allows investors transparency on company's strategies and outcomes before any investments. Publicly traded companies that have good levels of corporate governance are better seen by the market as it tends to better assess companies that comply with corporate governance best practices. Hendriks (2020) affirms that without sacrificing the moral norm, the socio-political side must promote development and financial benefits for external stakeholders.

To boost visibility thus attract investors Esports organizations going public is rather another way to charm new investors than just trendy. Therefore, providing more financial information, transparency are ways for leveraging the Esports industry’s legitimacy, as legitimacy level directly affects the perceived investment risk. As in Hendriks’ research (2020) indicates that perceived investment risk decreases as legitimacy increases.

Most literature on corporate governance underlines traditional corporate world cases (Foreman, 2001), yet the acquired knowledge in the non-sports scenario can be insightful for the Esports ecosystem. As the industry reaches higher standards of business maturity, corporate governance best practices could be translated to Esports organizations as much as to other industries.

Esports organizations have been increasing focus on financial competitiveness and other business strategies such as, for instance, branding and annual reports, hence similar matters also addressed in the traditional corporate world. It is no coincidence Peng et al. (2020) highlights that due to the profit-seeking governing style the societal impact of Esports is frequently overlooked.

A 21.9% compound annual growth rate (CAGR) is projected for the global Esports industry from 2022 to 2030, bringing the estimated market size to USD 12,494.3 million. During the forecast pe-

riod, the market growth is anticipated to be driven by rising Esports awareness, rising mobile usage in developing nations and video game popularity (Global Esports market size, share & trends analysis report by revenue source (Sponsorship, advertising, merchandise & tickets, media rights), by region, and segment forecasts, 2022-2030, 2022).

Not to add, streaming services like Twitch TV have drawn viewers by broadcasting video games and Esports competitions enthralling a wide audience as well as athletes and celebrities (Global Esports market size, share & trends analysis report by revenue source (Sponsorship, advertising, merchandise & tickets, media rights), by region, and segment forecasts, 2022-2030, 2022).

This rapidly evolving market seems to affect the governance side of this emerging sector. For Bouet and Rønn (2018) it is lucid that the fast-moving industry had no room for its codification phase at first and only later begun to mind those neglected aspects. Hernández (2002) affirms that while caring for the sports performance side, traditional sport producers often didn't cover the governance and managerial end, as if those belonged to any other industries but the sports one. It seems to have been the case with Esports as well.

Then at some point entities began promoting guidelines and seeking worldwide standardization of Esports such as International Esports Federation (IESF) since 2008 (Everything you need to know about IESF, 2022), World Esports Association (WESA) (Wesa, n.d.), and Professional Esports Association (PEA) (PEA, n.d.), in fact it all has exposed how vulnerable and fragmented the industry is.

Koot (2017) and Peng et al. (2020) argue that the current Esports governance model is not unified, with a conflict between its stakeholders and game publishers' interests and authority primarily held by the latter which hold intellectual property legitimacy. Parry (2019) affirms that traditional sports are governed rather than owned, whereas Esports are in essence owned by profit-oriented businesses. This affirmation plainly unfolds a very distinctive situation from the bodies that govern traditional sports and Koot (2017) adds up crucial information when he mentions that the costs associated with Esports are frequently part of game publishers' marketing strategies.

These considerations do not necessarily mean publishers would perform worse than traditional governing bodies, rather publishers and traditional sports governance have contrasting interests.

Although a central authority comparable to those in traditional sports is still not part of Esports reality, that does not mean that no one is filling up this gap.

In Bouet and Rønn (2018) as game publishers own and update their game titles, they have a key role in the Esports industry, yet many of them do not actively engage in Esports governance which often leaves to organizers all responsibility to ensure any sort of governance. Despite certain aspects of governance performed better than Olympic standards, Bouet and Rønn (2018) affirmed Esports overall level of good governance was poor, with low transparency level, very low for democratic processes and other inconsistent indicators.

Evidence brings out the lack of a clear and unifying answer regarding who oversees governing Esports, highlights unclear governance and conflict of interest between game publishers' ownership power and stakeholders which may undermine its scalability and ability to partnership despite its business momentum, plus current Esports governance does not enable fast and steady response to the issues it encounters (Peng et al., 2020).

Based on Sørensen (1997) that outlined the relation between governance and technologies as an intricate process shaped and played by a multitude of actors, we could argue that it applies to the Esports ecosystem, where game designers and publishers, players, users, as well as the ever-evolving technologies have had consequences for its blurry governance.

While some advocate industry self-regulation (ISR) can be an efficient way to achieve legit governance (Coglianese & Mendelson, 2010), and others affirm that self-regulated industries often do not properly address the issues it supposed to (King et al., 2012), Koot (2017) suggests Esports should foster a more stable global organization aiming more effective reporting mechanisms that would allow each Esports to live up to their own potential and needs.

An adequate solution to address the ecosystem's apparent fragmentation without losing itself and perhaps even its own identity could also be perceived positively by current investors as well as attracting more investments, as in Hendriks (2020) leverage over prospective investors is obtained by the industry's collective course of action. Consequently, individual organizations face greater risks than a group of organizations.

Due to the perceived lack of unity in governance model, the Esports team's stock performance and their annual reports on corporate governance, board of directors and managers, and their accountability during pandemic will be addressed.

2.4 Stock market dynamics

For a long time, academics have debated on the place and conditions that sparked the first publicly traded company shares through a stock exchange. The east and west India companies, which first appeared in the early 1600s, are generally acknowledged as the world's milestone of corporate stock first trade (Petram, 2011; The Editors of Encyclopaedia Britannica, n.d.), though the concept of providing shares in businesses may be older, dating back in the Middle Ages (Mueller, 2019) or even as far back as ancient Rome (Malmendier, 2009).

Nonetheless, stock trading with its current characteristics would only appear in the 19th century, while some stock exchanges kept trading commodities others turned to securities trading (Gomes, 1997). From the earliest stage of stock market history, it is already possible to depict of what centuries later would solidify as the core and the leading index of global modern economies (He et al., 2020; He et al., 2020).

Diligence and mitigating investment risks has ever since formative times been a common ground in the corporation market (Petram, 2011; Taylor, 2013; Gelderblom et al., 2013; Mays & Shea, 2011). In addition, researchers have been creating and testing models of stock price behaviour analysis. Important theories, including the modern portfolio theory, have served as the foundation for tackling stock market investments.

The best risk to reward ratio investment is one of the main reasonings in which finance is underpinned. Markowitz's Portfolio Selection (1952) and Portfolio Selection: Efficient Diversification (1959) won him a Nobel prize for his theoretical framework to corporate finance which set the basis for the modern portfolio theory and risk and return rational: investment framework supporting diversification and efficient asset allocation aiming overall risk mitigation.

Mid-1960s witnessed the birth of the Capital Asset Pricing Model (CAPM). Developed from modern portfolio theory (Sharpe, 1964; Lintner, 1965; Mossin, 1966), the model considers the expected value of an investment return obtained through the sum of two factors: profitability of risk-free assets plus the risk premium, which is the compensatory bonus that the investor expects to obtain for the investment risk (Megginson, 1996).

Sharpe (1964) affirms that in CAPM the risk of portfolios not only depends on the covariances between assets, but on the systematic risk. Also referred to as undiversifiable risk, diversification of systematic risk will not lessen its effects since it derives from external factors such as recessions and wars, which affect the overall market (Frantz & Payne, 2009). This risk cannot be reduced by portfolio diversification and is represented by the variable β (beta), which measures asset volatility to the market. The general formula is:

$$Ri - Rf = \alpha i + \beta i(Rm - Rf) + \varepsilon i$$

Ri stands for return required on financial asset, Rf the risk-free rate of return and Rm the expected return on the market portfolio. Still regarding CAPM, the part of the return not explained by the model is called α (alpha), also referred to as abnormal rate of return. The return produced by a certain stock over a period that is larger than the return produced by its benchmark or the projected rate of return. In other words: greater return than what the model predicts.

One could argue that modern portfolio theory basically consists of Sharpe's contributions to the theory of CAPM and Markowitz's portfolio theory. In Markowitz (1952), unsystematic risks can be reduced by portfolio diversification. In this sense an efficient portfolio would be one that optimizes the best expected return on a certain level of risk or entails the lowest risk for specified expected return.

Systematic and unsystematic risk are commonly the two main types of risks faced by investors. Also known as ‘diversifiable risk’, scholars argue that unsystematic risk is diminishable by diversifying one's investments, often linked to a specific firm (Frantz & Payne, 2009). Although diversification can significantly increase returns and lower unsystematic risk, Markowitz (1952) asserts that

no amount of portfolio diversification can eliminate all the risk because of the fluctuating diversity of variables.

Maximizing returns and reducing risk are the main goal of asset diversification so that each asset would react differently to the same occurrence. Aiming to anticipate future stock prices, technical analysis was set. In Kirkpatrick and Dahlquist (2007) technical analysis is an attempt to predict equities volatility by studying stock prices performance throughout the years for pursuing optimal portfolio management and asset allocation.

By examining stock price performance to determine what or if any sort of pattern is prevailing, one could affirm that technical analysis bottom lines three basic questions: (1) What's the current price? (2) Where has it been? (3) Where is it heading to?

In contrast, Malkiel (2003) affirms it would not help in fact investors to get more significant returns than what they could get by having a portfolio of randomly chosen individual stocks with comparable risk levels as today's asset prices are independent from yesterday's consequently not reflecting on tomorrow's price volatility. The random walk hypothesis holds that volatility in stock prices are statistically independent across time and may be accounted for by random factors (Fama, 1965; Van Horne & Parker, 1967). To rephrase it: the market price of a particular stock today would be autonomous of yesterday's market trends.

As much as we seek to identify patterns and invest objectively, the random aspect is inherent to every investment. Malkiel (2003) stated that although unusual stock price behaviour may occur, stock markets are way more efficient and unpredictable than anticipated, hence they do not provide trading opportunities that would enable investors to get outstanding risk-adjusted gains.

Aware of the random aspects of investments and market dynamics that Investors have no reliable way to take advantage of potential patterns or fluctuation. Therefore, a practical analysis will be underpinned on risk and return, CAPM and beta of Esports teams during the period of Covid-19. What's more, which sort of decision making took place regarding governance, asset allocation taking in consideration stakeholders and other interested parties.

Models such CAPM and Markowitz's theories make it possible to estimate how much return on an investment associated with its risk can influence a cost of capital. Investors seek optimal return on investment (ROI) on stock purchasing (Neto et al., 2008). Markowitz (1952), CAPM (1964) and Random Walk (2003) are advocated in this investigation because they allow an analysis of an investment portfolio considering its risk and return.

Despite being classics, those theories application are still perpetuated in the present-day markets as an asset allocation tool for investors. Academically this study can serve as new source of data and theoretical review that can support further studies on the Esports industry. Additionally, it offers new insights on Esports stock performance, risk and return based on idiosyncrasies of variables involving governance, investment, and equities in the Esports.

2.5 The Covid-19 effect on the overall stock market

Unmatched by any pandemic-related stock market scenario in the previous 120 years was the high frequency of significant daily stock market movements in the US, brought on by the early 2020 Covid-19 shock (Baker et al., 2020). This US stock market downturn as well increased volatility expectations Onali and Mascia (2020), Hong et al. (2021), and Hong et al. (2021) affirmed that this crisis was linked to market inefficiencies while speculation and traders' attention ramped up for profit-making opportunities.

Whereas several studies attest the damaging consequences of pandemic on the stocks (Akhtaruzzaman et al., 2021; Smales, 2021; Baker et al., 2020; Ashraf, 2020), findings on daily return data from stocks in China, France, Germany, Italy, Japan, South Korea, Spain, and the US also showed pandemic's harmful but short-term effect on their equities with no evidence of deeper impact more than the global average (He et al., 2020).

Conversely, Ngwakwe (2020) indicates Covid−19's different effect on the stock prices across different global stocks. Data of 50 days prior to and 50 days following the pandemic was gathered from the SSE Composite Index (China), Euronext 100 (Europe), and Dow Jones (US) stock indexes

and showed that while SSE experienced growth and Dow Jones stock returns declined, the S&P 500 and the Euronext 100 indexes performed unimportant changes.

Confirmed as the deepest economic recession since World War Two by the World Bank (World Bank press release, 2020) and Huet and Whitfield-Miocic (2020) stated that 1.25 billion workers faced major hit from pandemic, Richter (2021) affirms all three major US stock market indices had in fact one of the best yearly performances ever since WWII.

Figure 4 visualizes the performance of the main US stock market indices since January 2020, as measured closing prices on March 23, 2021. (Adapted from Statista website)

Figure 4. visualizes the performance of the main US stock market indices since January 2020, as measured closing prices on March 23, 2021.

Although the three main U.S. stock indices reached their lowest on March 23, 2020, a year from that point turned out to be a major turning point for the Dow Jones, S&P 500, and Nasdaq, that observed increase by 76.05%, 76.12%, and 94.99% percent, respectively. The chart above is highlighted as a combo of big cap companies not directly affected by the pandemic such as Amazon

and Microsoft, government fiscal stimulus that prevented sharp decline in consumers buying and stock investments, plus investors' confidence was boosted as the Covid-19 vaccine rollout timeline became more evident (Richter, 2021). Evidence in Topcu and Gulal (2020) concerning emerging stock markets supports the findings in He et al. (2020) and Richter (2021), regarding the plunge yet brief impact of the outbreak. Topcu and Gulal (2020) affirmed the impact was more acute in the Asian and European emerging markets, though the Asian faced the most severe one if compared to the European one.

As in the early 2020 the stocks worldwide collapsed by a third in response to the shock (Baker et al., 2020; Rameli & Wagner, 2020; Ding et al., 2021), such disruption forced markets to adjust and so did the Esports. Despite the cutbacks, some sectors of the industry outperformed the overall stock market and numerous actors in the Esports ecosystem demonstrated their ability to adapt their operations to the crisis (Seck, 2020). General market is represented by the dashed line in the chart below.

Figure 5 visualizes the performance of the Esports industry's niches since January 27th, 2020, indexed closing prices on April 06, 2020 by The Esports Observer (Adapted from TEO website)

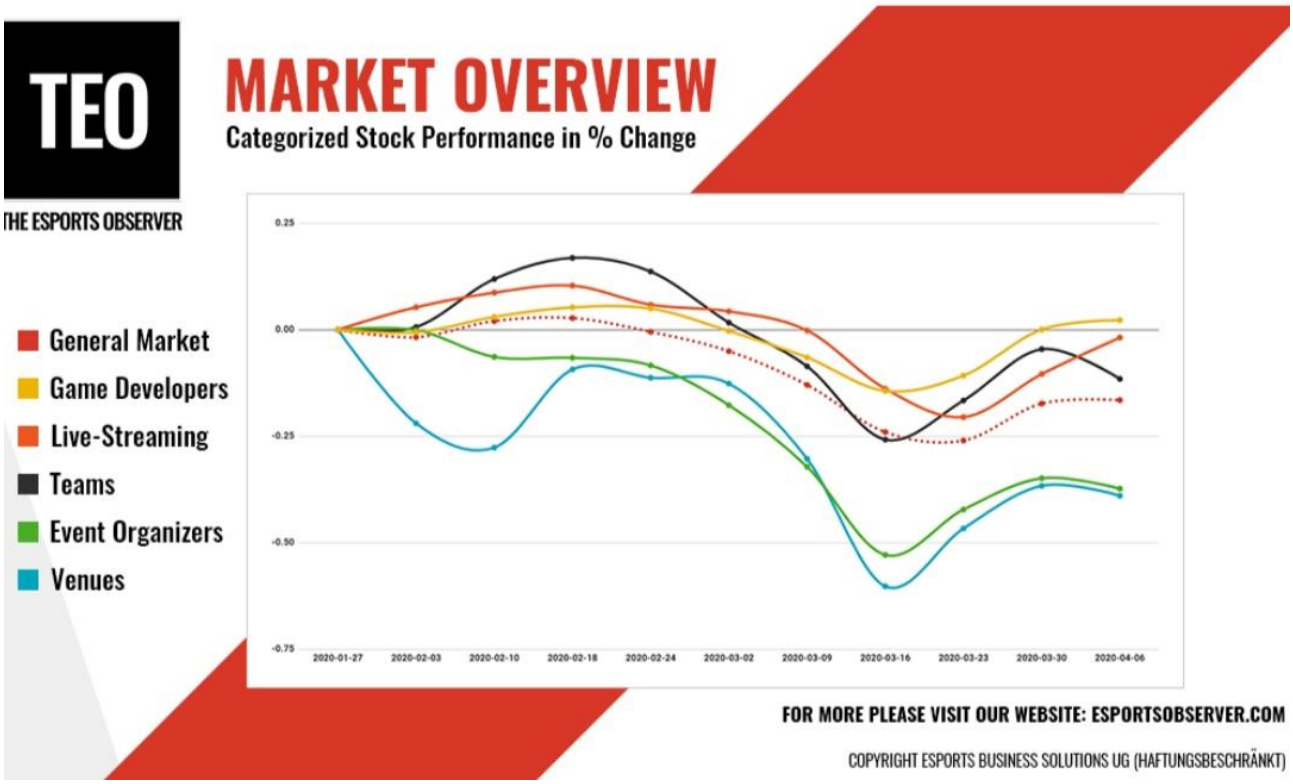

Figure 5 visualizes the performance of the Esports industry's niches since January 27th, 2020, indexed closing prices on April 06, 2020, by The Esports Observer

Visibly some sectors within the sports ecosystem, such as sports event organizers and sports facility operators, faced enormous challenges as they performed worse than everyone else during that initial stock shock period. Esports had shown to be dependent on physical space as well since ticket selling and merchandise are not just a relevant source of revenue for esports but are also a way for legitimacy and to remain faithful to the spirit of traditional sports which capitalize and don't compromise in-person events (Macedo & Fragoso, 2021).

Esports teams' stock (in black) performed better than General market (dashed line) but worse than Live streaming (orange) and Game Developers which had the best performance of all. Though recovery times are extended, and Covid-19 restrictions effects are still being felt, the Esports was a good investment in 2020 and 2021 and may continue due to its growth potential (Esports Guides, 2022). Despite the positive prospect, Esports teams' valuations stagnated due to the social distancing hence disruption of on-site events which were an important revenue stream for the ecosystem (Esports Guides, 2022), what led to profit loss for the Esports sector (Fakazli, 2020).

As the pandemic scenario has been developing in the past three years increasing markets uncertainty thus affecting investors' confidence in equities especially during first quarter of 2020, hence an updated analysis on Esports stocks over the past years of pandemic is relevant not only to observe the indices that allow calculating risks and expected returns of Esports teams but also on how stakeholders' mood affects Esports stock behavior, governance and asset pricing.

Broad portfolio firms like Tencent, which has diversified investments in game developers, events organizing and Esports live streaming, are among of the most notable players in the esports market Seck (2020). In light of this, we will focus on the market's "underdog" which in Seck (2020) are those publicly traded Esports companies whose sole line of business is the ownership and management of Esports teams.

The scarce studies retrieved provide short-term analysis only, highlighting Esports stocks during the first quarter of the pandemic in 2020 mostly. Hence, the author proposes longer term analysis

of the Esports listed companies whose sole line of business is Esports and their stock performance in the past three years of coronavirus, since it may provide the opportunity to gather more data and considerations about their annual report and corporate governance during the same period.

For instance, in Seck (2020), highlighted that Astralis differs from the other two firms evaluated for the examination of teams because its sole line of business is owning and managing Esports clubs. Instead, aside from the teams they own, Enthusiast Gaming, Simplicity Esports and Gaming offer a variety of products. As a result, Astralis' stock performance was the weakest of the three firms.

Figure 6 Adapted from TEO website visualizes the performance of the three Esports teams, Astralis, Simplicity and Enthusiast since January 27, 2020, indexed closing prices on April 06, 2020 (The Esports Observer, Adapted from TEO website)

	2020-01-27	2020-02-03	2020-02-10	2020-02-18	2020-02-24	2020-03-02	2020-03-09	2020-03-16	2020-03-23	2020-03-30	2020-04-06		Max
Teams	**0.00%**	**0.61%**	**11.89%**	**16.85%**	**13.63%**	**1.65%**	**-8.61%**	**-25.82%**	**-16.64%**	**-4.59%**	**-11.58%**		**-30.46%**
Astralis	0.00%	0.70%	-5.13%	-9.09%	-16.08%	-21.91%	-34.03%	-52.68%	-51.52%	-43.24%	-39.63%		-52.68%
Simplicity	0.00%	5.76%	38.22%	56.02%	51.83%	36.13%	30.89%	-2.09%	37.17%	39.27%	15.18%		-3.14%
Enthusiast	0.00%	-4.64%	2.58%	3.61%	5.15%	-9.28%	-22.68%	-22.68%	-35.57%	-9.79%	-10.31%		-35.57%

Figure 6 visualizes the performance of the three Esports teams, Astralis, Simplicity and Enthusiast since January 27 2020 indexed closing prices on April 06, 2020.

2.6 Research hypothesis

Based on the extensive literature review the following hypothesis have been developed: publicly traded Esports team stocks which relies on sole Esports business had similar stock performance despite being in different countries. Also, they had followed the overall market sharp drop trend in the first quarter. Additionally, their governance response was not significantly different from one another since the official global alert issued by WHO on January 30 2020 up to April 21, 2023.

3 Research design

The study mostly relies on secondary data. It falls under the category of data that has already been gathered. The primary justification for this source of information is its freshness and relevancy since video game industry has shown to be ever-expanding and changing quickly, which leads us to

seek out the most recent information. Primary data such as books, journals, government data, company records and annual reports are the sources of secondary data explored. Statistical data and in-depth papers were prioritized though. A few attentively chosen relevant websites are also part of this investigation.

The data prospected is Esports organizations' annual reports and any other relevant information that is publicly available to support our observation on their operations and governance. The data analysis of their stock performance during the period between 2020 and 2023 first quarter is pivotal to backing up our study. Furthermore, accessing publicly stated data will not violate or break the terms of law, rights to privacy or any regulations regarding ethical data usage.

3.1 Research motivation

The study's scientific value mainly comes from the Esports Stock and governance not being extensively investigated under the circumstances of Covid-19 pandemic. To comprehend, analyse, and contrast the Esports teams' equities behaviour during the pandemic so far is the main goal, as well as over a longer period when compared to the limited amount of Esports stocks analysis carried out up to this point.

Moreover, with the digital economy steadily creating widespread opportunities despite the crisis, the phenomenon of electronic sports aka Esports have proved that it is here to stay not just as a past time for covid-19 times (Needleman, 2020), but also as a socioeconomic driving force as the International Federation of Association Football (FIFA), the global regulatory body of football made more profit from video gaming and licensing rights than real-life football during the pandemic disruption (Walker, 2021).

3.2 Research structure

The introduction offers an overview on the virus outbreak and its relevant link with the video game industry leading therefore to the Esports industry. The literature review aims a general understanding about the Esports ecosystem and its evolution, the Esports teams and organizations that have gone public.

The research methodology chapter observes aspects such as the quality of data, research methods, variables, and the mixing of quantitative to qualitative method. Thus, mixing quantitative and qualitative data analysis triangulation at work (Jick, 1979), the findings chapter discloses their combined interpretation.

Furthermore, the lack of prior research studies on the topic especially focused on management and governance ushered this investigative effort towards alternative dependable sources such as online news and magazines, research papers, statistical analysis from different sources to gain a broader view and different perspectives on the video gaming and Esports industry. The gathering, arranging and the data further analysis allow us a thorough elucidation of the Esports teams scenario, as well as its history, governance, and future perspectives. The section titled "considerations, constraints, and conclusions" summarizes the results and examines how they relate to the study questions. This part also offers practical suggestions for the result, frames the constraints, as well as suggests potential directions for future research.

3.3 Research questions

It is argued that the Covid-19 pandemic amplified Esports industry growth in 2020 (Haider, 2021), and beyond that the interest in Esports was continuously booming as well as thriving amid the sanitary crisis (Globaldata, 2020). However, the extend of Covid-19 effects on the industry, specifically on the Esports organizations that have gone public are yet uncertain.

Hence, it would be noteworthy to gather evidence not only concerned about those organizations stock market performance but also to provide a thorough and comprehensive study on how it might have had affected their corporate governance and consequently their operational capability comparing their stock market performance during the period of three years of pandemic (January 2020 – April 2023).

Focusing on the few Esports organizations that have gone publicly so far, the following questions will be addressed:

- What was the Esports teams' daily stocks performance like during the chosen period of Covid-19?

- Have the three investigated Esports firms shared similar stock performance during the chosen period?
- Were there any major changes in their board of directors and governance during the Covid time?

4 Research findings

Though Astralis (CPH:ASTRLS), OverActive (CVE:OAM), and Guild Esports (LON:GILD) had their initial public offer (IPO) in distinct periods (09/12/2019, 16/07/2021, 13/10/2020, respectively), their stock data was analyzed up to April 21st 2023, with Astralis' analysis initiation from January 2020 which is the period of pandemic outbreak. The core findings highlight a trendy downturn in each firm's closing prices as well as in their average daily return.

Figure 7 visualizes the stock performance of Astralis, OverActive and Guild Esports indexed closing prices on April 21, 2023.

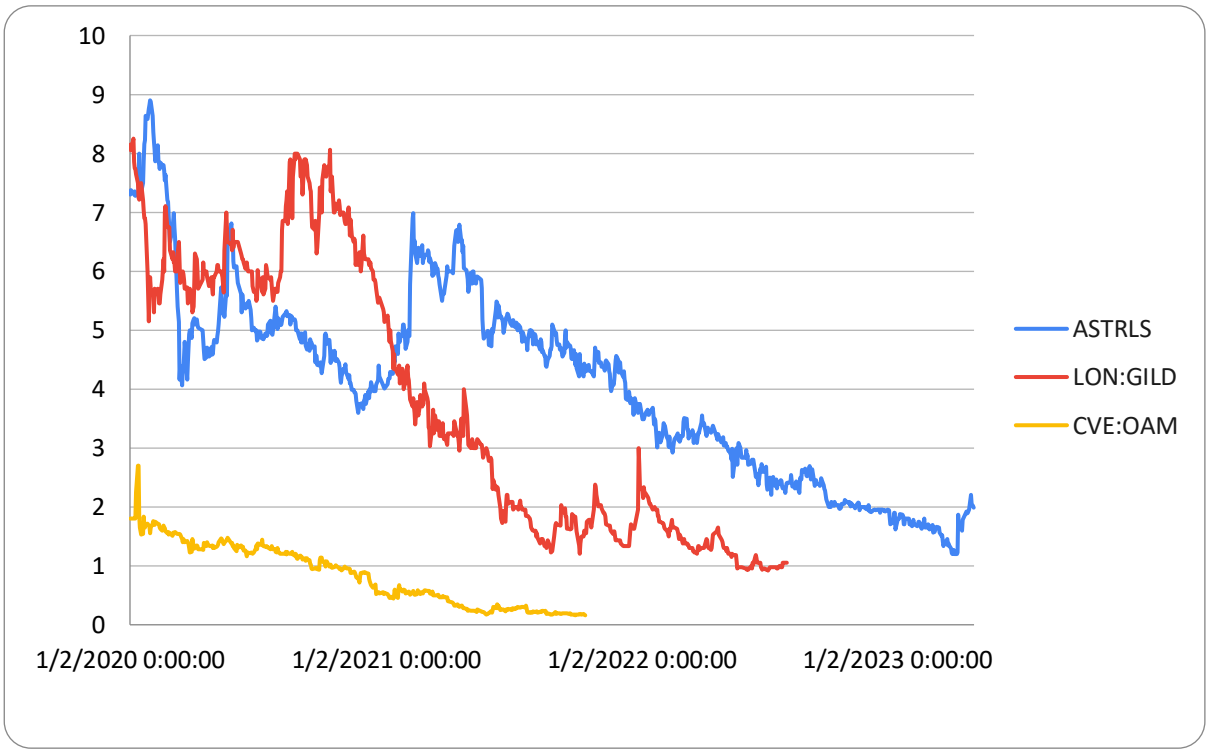

Figure 7 visualizes the stock performance of Astralis, OverActive and Guild Esports indexed closing prices on April 21, 2023.

Despite their presence in different stock markets and headquartered in different countries, for the time being the firms' shared similarities in their graphical representation of their asset's price. Noticeably Astralis, which offered the longer period for data analysis, their chart follows the overall market trend underscored by Richter (2021) during 2020 first quarter of Covid-19 outbreak and confirmed in Seck (2020) Astralis' weak stock performance analysis during the same first quarter which followed the overall market stock crash in 2020 adding a brief recovery right after.

Figure 8 visualizes the performance of Astralis (CPH:ASTRLS) stock market indexes since January 2020 indexed closing prices on April 21, 2023.

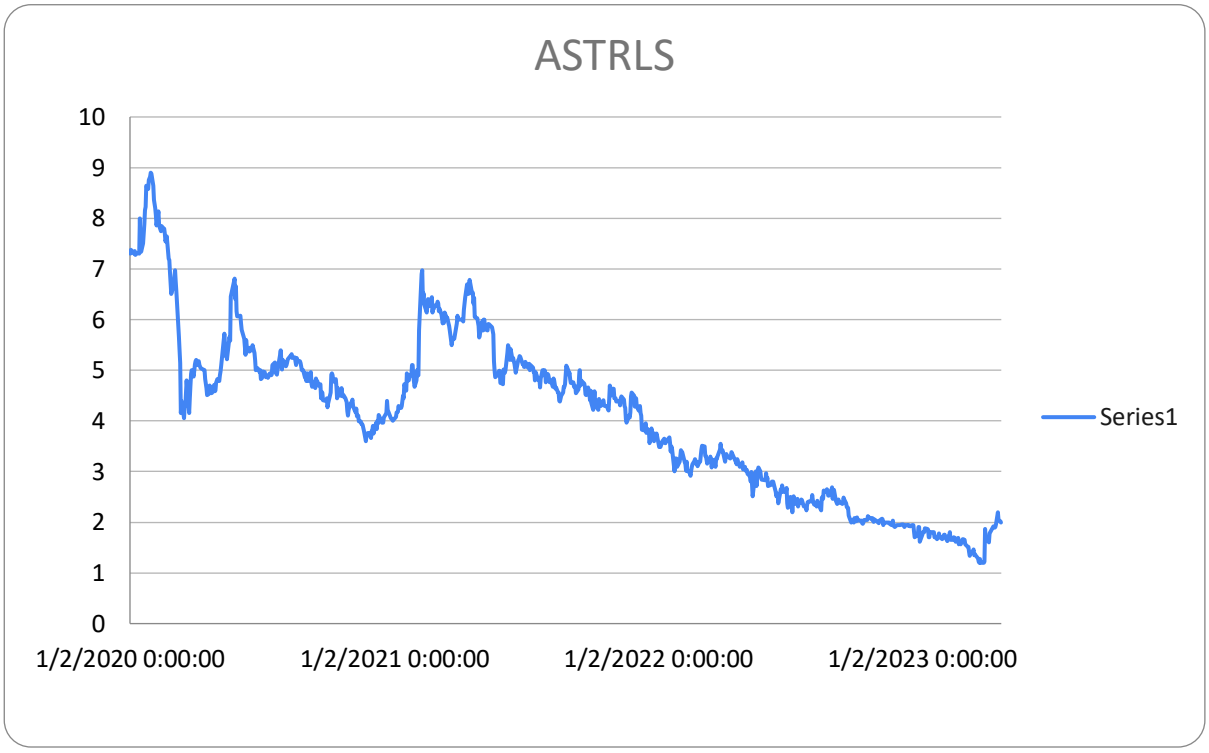

Figure 8 visualizes the performance of Astralis (CPH:ASTRLS) stock market indexes since January 2020 indexed closing prices on April 21, 2023.

Differently from Astralis which went public in December 09th 2019, shortly before WHO's first Covid-19 global alert on 30th January 2020 (WHO, 2020), the other Esports firms, OverActive media and Guild Esports (Canadian and British, respectively), had their first IPO during the ongoing Covid-19 pandemic, which consequently offered shorther period of stock data to be analized. Yet,

their charts showed similar downward movements comparable to the pioneering Danish Esports organization Astralis.

Figure 9 visualizes the performance of OverActive media (CVE:OAM) stock market indexes since July 2021 indexed closing prices on April 21, 2023.

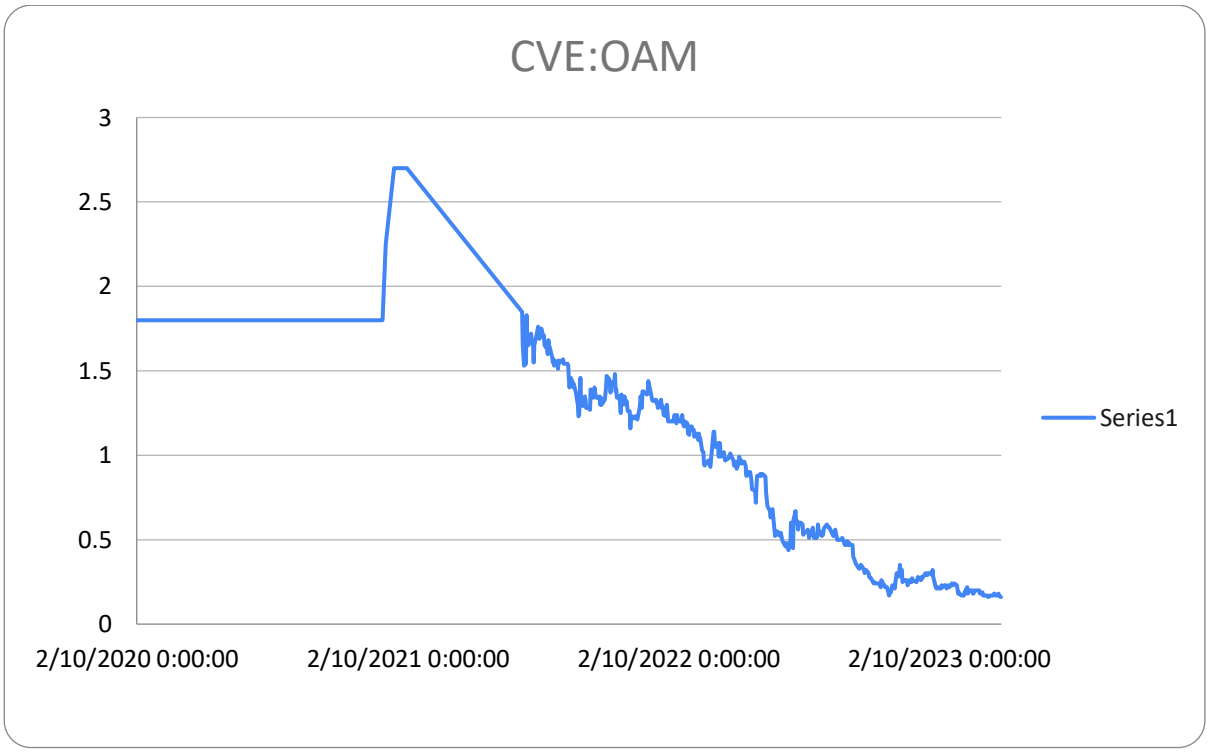

Figure 9 visualizes the performance of OverActive media (CVE:OAM) stock market indexes since July 2021 indexed closing prices on April 21, 2023.

Figure 10 visualizes the performance of Guild Esports (LON:GILD) stock market indexes since October 2020 indexed closing prices on April 21, 2023.

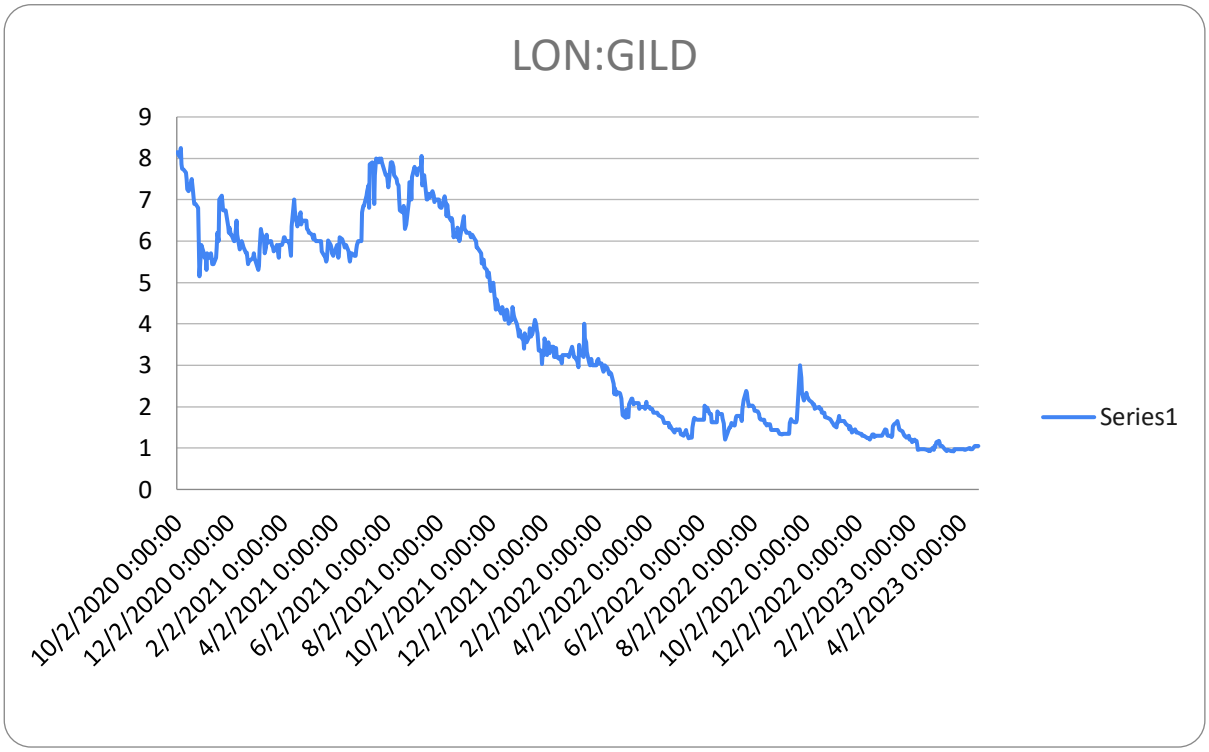

Figure 10 visualizes the performance of Guild Esports (LON:GILD) stock market indexes since October 2020 indexed closing prices on April 21, 2023.

The stock analysis was divided into two stages. The first one was based on the gathering of stock market data needed from Yahoo finance (Yahoo Finance, n.d.) during the period between January 2020 and April 2023,

Thus, the second stage consisted in the calculation of those indices, so we could highlight their performance and get the following coefficients: the average daily and average annual rate of return, the average daily total risk and annual total risk, the systematic and unsystematic risks, the beta coefficient, as well as the average annual total risk and average daily total risk of the market and average daily market rate of return of each selected stock.

Astralis' which offered the longest stock data to be analysed performed 0.25% average daily and 86.96% average annual rate of return, 4.00% of average daily total risk and 63.46% annual total risk, the systematic is 43.15% and unsystematic risk 20.31%, 0.68 beta, 21.31% as the average annual total risk and 1.34% average daily total risk of the market and -0.04% average daily market rate of return.

OverActive' the average daily and average annual rate of return were respectively 0.76% and 577.63%, the average daily total risk 6.72% and annual total risk 106.75%, 39.50% systematic and 67.25% unsystematic risks, 0.37 beta coefficient, 21.74% as the average annual total risk, 1.37% the average daily total risk of the market and -0.01% the average daily market return.

Guild's average daily and average annual return were 0.45% and 208.19%, the average daily total risk and annual total risk 4.96% and 78.72% respectively, 41.72% systematic and unsystematic 37.00%, beta coefficient as 0.530, average annual total risk of the market 30.68% and average daily total risk of the market 1.93%, and 0.01% as the average daily market rate of return.

It's important to note that all data were calculated using Python programming language and stored on microsoft Excel worksheets. Moreover, different formulas were applied depending on the calculations. Overall, the three Esports firms investigated hereto offered a comprehensive and descriptive annual report with truly pertinent information to current and future investors, as well as stakeholders and other interested parties.

It is worth mentioning that Astralis' annual reports were the most visual and accessible one of the three, though OverActive's and Guild's reports also seek transparency and clarity of their finances, stakeholder relationships, investment risks, revenue, sponsorship, changes in management and governance. The uncertainties of the pandemic outbreak in 2020 made it to each one of the groups' annual reports, nevertheless it is also noticeable the level of optimism gradually improving from the 2020 reports up to the latest reports in 2022 and first quarter of 2023.

Astralis

Astralis Group was listed on Nasdaq First North Growth Market in 2019, raising DKK 150 million before costs, with a market value of DKK 173,392,770 as of 11th May 2022. The company has multiple revenue streams, including sponsorships, commercial partnerships, prize money, league revenue, digital item sales, Astralis Nexus, and merchandise (Investor relations, 2023).

Astralis' initial projection from its 2019 IPO strategy was to generate a positive EBITDA by 2021. However, the group faced challenges due to Covid-19 lockdowns, which affected its operations,

IPO growth plan, and share price development, putting the company approximately 12 months behind its original strategy. Annual loss of $2.3 million was reported for 2020, largely linked to the socioeconomic impact of the pandemic. Despite this, the group experienced revenue increase from $7.8 million in 2019 to $8.3 million in 2020. The revenue included $5.9 million from the company's Counter-Strike team, $1.3 million from its LEC franchise, and $240,000 from its FIFA team.

CEO Anders Hørsholt considered the results adequate considering the pandemic challenges faced. By investing in key areas, they could enhance their operating profit and express optimism for 2021 as they anticipate the reopening of communities, live events returning, and the opening of their new facilities in Copenhagen (Field Level Media, 2021).

Compared to 2020 Astralis' financials were solid in 2021, revenue grew by 46% to DKK 75 million, driven by new commercial partnership agreements, league revenues, and the opening of Astralis Nexus (their facility). In Li et al (2021) it is worth it to add an interesting regression-based event analysis that showed how Astralis' stock gains were impacted by wins in championship games, proving investors' confidence was boosted by championship victories as a sign of the Astralis' reliability in future earnings growth**.**

For 2022, the company expected revenue increase by 13-20%, to grow alongside the market due to its valuable franchise rights in Counter-Strike and League of Legends leagues, which are valued at around DKK 275 million. According to Astralis, their key investment risks include potential risks due to mergers and acquisitions, the possibility of a capital increase for investments, the risk of declining fan base, audience, new legislation, and global pandemics and brand value if the teams perform poorly over longer periods. Selected risk factors potentially affecting the investment case include the risks associated with investing in companies listed on Nasdaq First North Growth Market, share price development, sponsorships and commercial agreements, brand and reputation, performance, and audience.

The management team, board of directors, and major shareholders include CEO Anders Hørsholt (20 years of experience in the entertainment industry, owns 1,314,156 shares in Astralis, which corresponds to 2.27% of the share capital). CRO Jakob Lund (co-founder of Astralis, +10 years in the Esports industry, owns 8,013,989 shares, which is 13.8% of the share capital). CFO Jakob Han-

sen' financial background gave him +10 years' experiences in management positions, he owns 0.4% of the share capital.

Director of Communications Steen Laursen, Director of Sports Kasper Hvidt, Commercial Director Kasper Sindt, Marketing Director Benjamin Boraghi, Co-founder and Chairman Nikolaj Nyholm, board members Christian Mourier, Claus Zibrandtsen, and Pernille Nørkær (the only woman in the board). The executive management team implements risk management, the board evaluates risks, and each employee oversees risks in their respective areas.

The Astralis board oversees strategic management. The audit committee of the board is responsible for examining internal controls, financial reporting, and risk management protocols. The executive management team and board evaluate risks and create management strategies. Subject to agreements on commercial rights, the group's players are eligible to compete for official national teams (Investor relations, 2023).

In the meanwhile, there were changes in Astralis' leadership as well as new products and partnership amid pandemic. As the organization's Commercial Director Kasper Sindt leaves the company to pursue other opportunities, Sindt's role will be filled by Niclas Nybjerg and Mads Rasmussen, two existing executives at Astralis (Šimić, 2023). The organizational changes aimed to increase transparency and improve internal processes. Intriguing, Astralis decided not to hire a new commercial director but rather fill the role with two existing employees.

Besides, they launched a new media company, Blackbox Media (Astralis launches media company, 2022), and have also acquired a majority stake in a Danish broadcaster called PIXEL.TV, so to keep expanding its presence in the gaming entertainment industry (Astralis acquires majority stake in PIXEL.TV, 2022). Astralis will be the majority owner of the company, with co-ownership by Jakob Kristensen, Keld Reinicke and Henrik Juul. Resigned from his role as CRO in Astralis, Jakob will serve as the CEO of Blackbox Media.

CEO Anders Hørsholt states that the changes will sharpen the focus on sales and commercial deliveries, and the company aims to become more relevant as a team brand and commercial partner in Esports and the wider gaming scene (Šimić, 2023).

OverActive Media

In 2021, OverActive Media raised funds through Brokered Financing and Non-Brokered Financing, issuing a total of 10,237 Subscription Receipts and 7,493 common shares, raising gross proceeds of $39,892. Their performance was impacted by the pandemic, with negative effects on revenues due to live events cancellation in Toronto. However, videogaming experienced increased viewership and player engagement during this period so the company continued to promote and deliver online and virtual events. Payroll subsidies and assistance payments from Franchise Leagues were also received, amounting to $3,429.

OverActive is exposed to risks that can affect its operating performance, such as foreign currency risk and has experienced a foreign exchange loss of $285. The business doesn't employ derivatives to lessen its exposure to currency risk. The uncertainty surrounding the pandemic and related government responses has led to more uncertainty in the company's estimates (financials, 2020).

Performance Venue: The Company received approval for the lease terms of a Performance Venue in Toronto in December 2021, with construction expected to be completed in 2025. The venue is expected to host 180-200 events yearly, including entertainment, conventions, corporate events, and Esports events. OverActive expects the Performance Venue construction to be privately financed, with the company holding a minority ownership interest.

Subsequent events: In February 2022, the Company sold a portion of its construction in progress asset to Harlo Capital for $505. In March 2022, Rizwan Jamal resigned as a director, and Stewart Johnston was appointed to fill the vacancy. In April 2022, the Company received confirmation to defer each of its remaining entry fee payments by 12 months.

Risks and uncertainties: The Company faces several risks, including its limited operating history, uncertain future revenues, historical losses and negative cash flows, dependence on Esports' continued popularity, reliance on publishers, leagues, sponsors, and corporate partners, and potential future acquisitions. Other risks include international expansion, compliance with business regulations, managing a public company, protecting intellectual property, and developing its proposed entertainment facility in Toronto. Due to the great number of existing common shares qualified

for future trading, the Company does not intend to pay dividends for the foreseeable future, and as a result, the market price of its shares may decrease (financials, 2021).

The financial data presented herein is derived from the Corporation's unaudited abridged consolidated interim financial statements for the nine-month period ending September 30, 2022, and 2021. This management discussion and analysis (MD&A) is dated April 24, 2023, and was prepared using information available on that date. In this MD&A, fiscal 2022 refers to the fiscal year ending December 31, 2022, while fiscal 2021 refers to the fiscal year ending December 31, 2021.

The group recognizes that there may be factors leading to discrepancies between the provided forward-looking information and actual actions, events, or results. As for the date of this MD&A, they are under no obligation to update any new information, except as mandated by relevant securities laws. The accuracy of the predictive data may not be guaranteed, as actual results and future events could significantly deviate from those anticipated in such statements. Consequently, analysts should be cautious when relying on predictive information.

Key financial information extracted from the organization's unaudited abridged consolidated interim financial statements for the nine-month period ending September 30, 2022, and 2021 includes:

Quarterly Highlights:

• Revenue rose to $5,809 for Q3 2022, in comparison to $5,476 in Q3 2021.

• Net income amounted to $456 for Q3 2022, as opposed to a net loss of $6,418 in Q3 2021.

• Adjusted EBITDA loss was ($424) for Q3 2022, in contrast to ($268) in Q3 2021 (financials, 2023).

OverActive Media, the holding company behind Esports brands MAD Lions, Toronto Ultra, and Toronto Defiant, has reported financial results for both the fourth quarter of 2021 and the entire fiscal year. They experienced increase in revenue and higher net loss compared to 2020 and has made notable partnerships, such as the one between MAD Lions and Warner Music (Šimić, 2023).

In 2021, OverActive Media's net loss rose to CAD $19.4m (£11.8m) from CAD $6.3m (£3.8m) in 2020. The company attributes the increased loss to modifications of certain payments related to franchise obligations. However, OverActive Media's revenue increased to CAD $14.2m (£8.6m) in 2021, up from CAD $8.4m (£5.1m) in 2020, with partnership revenue cited as the primary reason for the growth (Šimić, 2022).

The company secured several partnerships in 2021 and plans to construct a dedicated esports venue in Toronto, which received approval in late 2021. Additionally, OverActive Media partnered with esports organization Team Singularity and streetwear brand Nobis. The company reported a 49% increase in revenue for the fourth quarter of 2021 in contrast to the same period in 2020.

Despite recorded loss in 2021, OverActive Media's performance aligns with other esports holding companies. It remains to be seen how the company will perform in 2022 as it continues to invest in its esports division and upcoming projects like the Toronto venue (Šimić, 2022). North American Esports and gaming company OverActive Media has announced that its CEO Chris Overholt will step down from his position. Overholt will serve as a Strategic Advisor for 30 days before leaving to pursue other opportunities. Co-founder and current Chief Strategy Officer of OverActive Media, Adam Adamou, will act as interim CEO.

Before joining OverActive, Overholt worked for the Canadian Olympic Committee for nearly a decade. Appointed in 2018, in 2021 he guided the business to a listing on the Toronto Venture Exchange and established partnerships with Bell and TD Bank (Šimić, 2023). Now in his first tenure as CEO of the company, the Interim Adam Adamou also co-founded Over the company in 2018 and served as the company's Chief Strategy Officer. OverActive Media has not provided details on the search for a new CEO or the expected duration of the search process (Šimić, 2023).

Guild Esports

Guild Esports is a worldwide fan-focused organization that fields athletes in competitive video game events. Revenues from sponsorships and viewership statistics are the company's primary KPIs. No revenue generated and a loss before tax of £2.7m marked Guild Esports initial results report. For the period from incorporation on September 3, 2019, to September 30, 2020 those results reflected start-up costs, professional fees, and other expenses related to equity funding and

the company's IPO. The goal in 2020 was to improve their business strategy, raise capital, and build a leading Esports brand with strong fanbase worldwide (Investors — Guild Esports, n.d.).

Securing David Beckham's long-term backing as their global brand ambassador, principal influencer, and co-owner of the company was a significant milestone. Beckham's involvement provides Guild access to potential sponsors and a global audience. Significant shareholders in the company include Toro Consulting Ltd (9.26% share capital), Pioneer Media Holdings Inc (5.98% share capital), David Beckham (4.74% share capital), and Schroders Investment Management Ltd (4.64% share capital) (Investors — Guild Esports, n.d.).

On the management side, Jasmine Skee currently is the CEO of Guild Esports. She has extensive experience in marketing across various industries, such as sports, music, tech, gaming, and entertainment. Jasmine has held key positions at Snapchat, Three UK, Live Nation, and O2 (Investors — Guild Esports, n.d.).

Franklin Derek Lew is the Non-Executive Chairman of Guild Esports. He is an Esports investor, and the Chairman of Blue Star Capital PLC. Derek has experience in venture capital, corporate, commercial, real estate law, and angel investments. Co-founder of Guild Esports and formerly served as COO, Jocelin Caldwell has experience in managing large contracts, supervising staff, and nurturing relationships with stakeholders.

CEO of First Sentinel Corporate Finance Limited and Senior Independent director, Brian Stockbridge has held board positions on several public and private companies throughout his 20 years in corporate finance. (Investors — Guild Esports, n.d.).

As a corporation with a Standard Listing, Guild Esports is exempt from the FRC Corporate Governance Code's rules. However, the company aspires to abide by the QCA Corporate Governance Code as appropriate given its size and character to uphold best practices in corporate governance. The business has appointed non-executive directors to its audit and compensation committees. More independent non-executive directors will be appointed by the board so to bring it into compliance with the FRC Corporate Governance Code, even though it does not yet adhere to certain requirements, such as having half of the Board as independent non-executive directors.

Guild Esports is also dedicated to fostering a friendly atmosphere for all guests, participants, and employees. Their socially responsible side is distinctive among the investigated firms. They aim to make socially endangered people to participate in any activity in a safe environment by adhering to Guild's policies, processes, and best practices regardless of age, gender, color, handicap, sexual orientation, religion, or belief (Safeguarding — Guild Esports, n.d.).

Guild has secured sponsorship deals with a fintech company (£3.6m over three years) and HyperX, a leading gaming peripherals brand (Investors — Guild Esports, n.d.). Through the agreement, the sponsor can market its name and logo on team jerseys, get exposure while Guild's players stream gameplay, as well as through other marketing strategies. Despite Covid-19 and delay in their sponsor's intentions to launch their brand, their agreements remained unaltered. These agreements have helped Guild get closer to achieving its aim of £5 million in sponsorship income in the first year following its IPO. The company's pipeline for new business from additional prospective sponsors and advertisements has also been greatly improved.

Guild's key risks and uncertainties include attracting fans, securing sponsors, player performance, and industry competition. Guild reduces the risks associated with low fan interaction by diversifying and appealing to a wide market. The CEO is in charge of its partnerships team, which consists of seasoned individuals and industry experts (Investors — Guild Esports, n.d.).

Risks related to Guild's business strategy include its start-up status, recruiting and retaining top-tier Esports talent, player performance, and attracting sponsors. Risks related to the Esports industry include sector growth, competition, and reliance on third-party services such as Twitch and YouTube. To overcome these challenges, Guild leverages the expertise and connections of its management team and co-owner David Beckham. However, the organization underlines that there is no guarantee that they will able to compete with established rivals, win tournaments, or secure lucrative sponsorship deals in the competitive Esports market.

Driven by sponsorship agreements signed earlier this year, Guild Esports reported its first full-year results since its flotation on the London Stock Exchange, generating revenues of £1.9m. The loss before tax increased by £8.8m pounds sterling, reflecting investments in infrastructure, teams, the Guild Academy, merchandise and content creation. This investment allowed Guild to achieve rapid

audience growth, becoming the fastest growing Esports team organization in Europe (Investors — Guild Esports, n.d.).

Despite challenges due to the global pandemic, Guild has attracted high-profile brands like Subway, Samsung, and Hyper X as sponsorship partners. The esports market's size and rapid growth offer long-term potential for the company, with a solid platform for growth in place.

Staff numbers have increased to over 35 full-time employees, and the company's focus on communication with shareholders remains top priority. Guild acknowledges potential adverse effects from the Covid-19 pandemic and economic downturn, as well as financial risks associated with its international operations. However, the company remains confident in its growth strategy and long-term shareholder value creation (Investors — Guild Esports, n.d.).

Guild Esports reported significant progress in the year ending 30 September 2022, with revenues increasing by 132% to £4.4m, driven by new sponsorship deals and prize money. Sponsorship revenue grew by 168% to £3.1m, and prize money increased by 81% to £1.3m. Major sponsorship deals included a £4.5m three-year agreement with Bitstamp and a larger deal with Sky UK. The company signed five new sponsorship deals worth £10.7m, partnering with global brands like Coca-Cola, Subway, and Samsung (Investors — Guild Esports, n.d.).

Loss before tax slightly decreased to £8.75m from £8.82m in the previous year, but administration costs are expected to decline after a rationalization program implemented by new CEO Jasmine Skee. The program aims to reduce the annual cost base by around £2.5m to £5.3m. With new executive leadership in place, the company is well-positioned to enter the next phase of development and deliver value to shareholders (Investors — Guild Esports, n.d.).

Kal Hourd, co-founder and CEO of Guild Esports since 2019, has decided to step down from his position by the end of the year. Former Chief Marketing Officer since March 2022, Jasmine Skee took over as the new CEO. Jocelin Caldwell has been appointed as non-executive director, replacing Mike Edwards. Guild Esports, co-owned by David Beckham, has experienced a decrease in stock price from $3.65 to $1.45 in the past 12 months. Despite challenges, the company has estab-

lished partnerships with major brands like Samsung, Subway, Coca-Cola, and Sky under Hourd's leadership (Gideon, 2022).

It's not unusual for businesses to dismiss a founder in favor of a more seasoned manager. Given that Guild has been struggling for some time, the timing of this situation is puzzling. They may have chosen the CMO because they wish to emphasize more on the marketing side. Or perhaps they are just underperforming financially.

Despite revenue losses during the analyzed period 2020 – and 2023 first quarter all companies maintained their private partnerships and sponsorships. Although they started as sole purpose Esports firms, diversification of portfolio and revenue streams were also observed. It is worth it to recall Markowitz's statement (1952) regarding diversified portfolio and that no level of diversification can fully remove risks due to the volatile diversity of variables. Despite each one of their firm's stock charts showing overall low performance in the past three years, their betas remained in the risk-averse zone of investments.

Regarding their board of directors and management team, curiously Astralis is a male dominated firm with only one lady in the board of directors. On the contrary, Overactive and Guild esports are visibly more gender balanced and diverse with professionals from different countries and background. The current Guild Esports CEO is a woman. New partnerships as well as changes in their management are also noticeable over the past three years.

Research limitations and recommendations for future research

The constraints of this study will be approached. It does have certain limitations, and they are related to how research's objectives were developed, the data collection method, the sample size, the range of the discussions and analysis, etc. Most likely, this investigation was discussed in terms of a particular environment, region, and/or culture. Thus, it is suggested that a wider and more diverse scope, different locations, and cultures, should be addressed further in future investigations.

Another option is to re-evaluate and broaden up data gathering, frameworks and theories discussed to address the effects of specific events. The rise of new theories or the unfolding of disruptive phenomenon in the time to come can also serve as extra motivation for new studies. The current study limitations are discussed in this section, along with suggestions for future investigation. The data sample is the first drawback. The data sample applied are three Esports teams publicly traded initially focused on Teams only: Guild from UK, Astralis from Denmark and the Canadian OverActive, their market stock data and their corporate governance annual report, despite all the game publishers and developers, parent companies, traditional sports clubs and other non-endemic brands connected with the Esports industry.

Up to this point there are about 24 organizations directly involved with Esports teams that have gone public or are publicly listed in more than one market stock, companies that have diversified their businesses going beyond Esports business only. Esports organizations, especially the major ones, are notably venture capital backed. It would be convenient to (1) broaden the scope of Esports organizations by including those parent companies, traditional sport clubs and other Esports organizations that have been directly or indirectly involved or diversified their portfolio (2) As the companies go public, observe their market performance over a longer time period, including the current Russia-Ukraine conflict impact on their stocks (3) observe the overall change of corporate governance while the industry matures, likely cross-cultural differences and regulations (4) A wider scope of companies from other parts of the world, not only westerners and the North hemisphere which is our case.

The current sample covers only 3 out of 180 countries that are part of the International Esports Federation. Listed Esports companies is the primary disadvantage of our sample. It is a new phenomenon, therefore a limited number of organizations. The second limitation is that there are more public listed Esports in Europe and North America than in the other parts of the world; thus, increasing the number of organizations and geographical locations observed would increase the statistical relevance of analysis' results.

The lack of accumulated knowledge about Esports business management, structure and business model, stock market and governance are the third limitation. More qualitative and further theo-

retical studies on Esports business best practices and governance are of the utmost importance to solidify the industry's practices and sustainability.

Finally, this study emphasizes the necessity for further debates on the socially responsible side as the social impact of Esports and the social responsibility of new digital businesses are frequently disregarded due to a profit-seeking governance paradigm. By no means did this thesis address all the issues, particularly those relating to lower levels of Esports play, the talent pipeline, gender diversity on corporate boards, and other challenges pertaining to Esports tournaments that many at the professional level are unfamiliar with.

Therefore, the research limitations are also studies suggestions so that we can further the development of the Esports ecosystem. It's also critical to draw attention to the methodological constraints on both theses and research papers used in this dissertation. This study's dependence on a small, almost nonexistent stock data and body of research on Esports corporate governance, particularly during a disruptive time, is a significant research drawback.

5 Conclusions

The scientific merit of this investigation derives from the analysis of the Esports team’s stock performance and corporate governance during the pandemic scenario. Moreover, it was observed that Esports pure to play organizations’ stocks followed the overall stock performance during Covid-19 especially in 2020 first quarter.

Despite the limited amount of data, the research provided an unprecedent look on Esports pure to play only teams focusing on the three listed Esports Teams. The analysis showed their financial competitiveness was affected by the overall market downturn during the 2020 first quarter as well as their stock performance and corporate governance responses. Despite the economic downturn, the increase in systematic risk during the stock period analyzed and further management changes experienced by the organizations, yet sponsorship agreements, portfolio expansion and revenue diversification in the realm of Esports took place.

The development of this academic effort showed that there is still plethora to be developed and explored in the Esports ecosystem especially regarding management, corporate governance, and other critical and practical strategies so to drive adjustments and the development of business models that suits this unique industry thus paving their way to fresh possibilities to underpin a more stable and sustainable ecosystem.

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Appendices

Appendix 1. Organizations stock selection

OMX Copenhagen 25	**Sector**
Astralis (CPH:ASTRLS)	Communication Services
INDEXTSI:OSPTX	**Sector**
OverActive Media (CVE:OAM)	Communication Services
London Stock Exchange Group plc	**Sector**
Guild Esports (LON:GILD)	Communication Services

Appendix 2. Covid-19 2020 - April 2023 period calculations

OMX Copenha-gen 25	**Avg Daily Market Ret**	**Avg Daily Total Risk of market**	**Avg Annual Total Risk of market**	**Unsystematic Risk**	**Systematic Risk**	**Avg annual return**	**Avg Daily Ret**	**Avg Annual Total Risk**	**Avg Daily Total Risk**	**Beta**
Astralis (CPH:ASTRLS)	-0.04%	1.34%	21.31%	20.31%	43.15%	86.96%	0.25%	63.46%	4.00%	0.68
INDEXTSI:OSPTX										
OverActive Media (CVE:OAM)	-0.01%	1.37%	27.74%	67.25%	39.50%	577.63%	0.76%	106.75%	6.72%	0.37
London Stock Exchange Group plc										
Guild Esports (LON:GILD)	0.01%	1.93%	30.68%	37.00%	41.72%	208.19%	0.45%	78.72%	4.96%	0.530