

The Global Gaming Industry Takes Center Stage

ACTIVE FUNDAMENTAL EQUITY | GLOBAL EMERGING MARKETS TEAM | MACRO INSIGHT | JUNE 2020

Advances in technology, new social formats and monetization methods are bringing an activity once considered fringe more deeply into the mainstream. Video gaming is now arguably on its way to becoming the world's new favorite pastime, creating a new realm of virtual property, currency and entertainment. Like the early days of Internet advertising, the attention shift towards gaming has yet to be fully monetized, and many AAA games earn only a fraction of what cable TV and live sports earn on a per hour basis.¹

1. Why We Take Video Games Seriously

Over the last 20 years, the gaming industry has evolved from a crude arcade style into graphically gorgeous 3D mobile entertainment featuring live video streaming and supported by cloud-based infrastructure. Newzoo's 2019 Global Games Market Report estimated that there are currently 2.6 billion gamers across the globe, a roughly twofold increase in just five years. Add in another couple hundred million people who watch gaming clips or competitions, and roughly one out of every three people worldwide say they play or watch video games.²

With \$135 billion in annual revenue in 2019, gaming is already bigger than the music and film industries combined

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This paper is a collaborative effort by the Morgan Stanley Investment Management (MSIM) Active International Allocation, Emerging Markets and Frontier Equity investment teams

¹ ClearVoice Research – August 2019

² Newzoo Global Games Market Report – December 2019

(Display 1) with much faster growth.³ We estimate that more people played video games in 2019 than those who played any other sport, with the exception of soccer (Display 2). In short, we see the rise of gaming as a structural shift in the entertainment industry, which is getting an added boost from the lockdowns.

Our investment approach seeks to identify global trends that are investible across the developed, emerging and frontier markets, and we see gaming as a tremendous growth opportunity in every region, driven by new ways to play, pay and engage; new mobile and networking technologies that are expanding gaming markets in the emerging world; the rise of a passionate younger generation, who we expect to increasingly shape global consumption patterns; and the emergence of new players, including older generations and a growing group of women who game. We see an industry with an abundance of long-term, secular growth drivers.

As video games grow in popularity and shift from home consoles to mobile devices,⁴ the industry has attracted increased scrutiny from government authorities, and we are closely tracking the regulatory risks and opportunities in both developed and emerging markets. What follows is our base case for digital games as a sector worth holding.

2. A Growing Industry: New Ways to Pay, Play and Engage

While most investors dismiss the industry as “hit-driven,” our global team evaluates gaming publishers with durable franchises and predictable streams of free cash flow; Notably, the global games market generated over \$150 billion in sales in 2019, eclipsing a record year at the movie theater box office for the second consecutive year and further demonstrating the staying power of publisher franchises.⁵ Our

global investment team focuses on what we consider two of the most promising subsectors: 1) studios building mobile and cross-platform experiences, and 2) video game publishers.

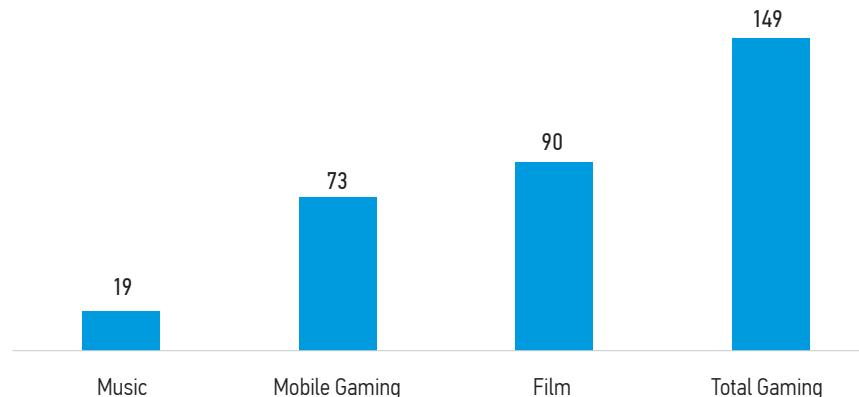
Current and future growth drivers include new ways to play (multi/cross

platform, streaming), pay (full price, free-to-play, and subscription) and engage (esports and live streaming), which MSIM estimates will result in double-digit industry sales growth globally through 2025. Furthermore, high levels of player engagement within global gaming franchises, the

DISPLAY 1

Global Gaming Is Larger Than the Global Film and Music Industries Combined

2019 Revenue (\$B)

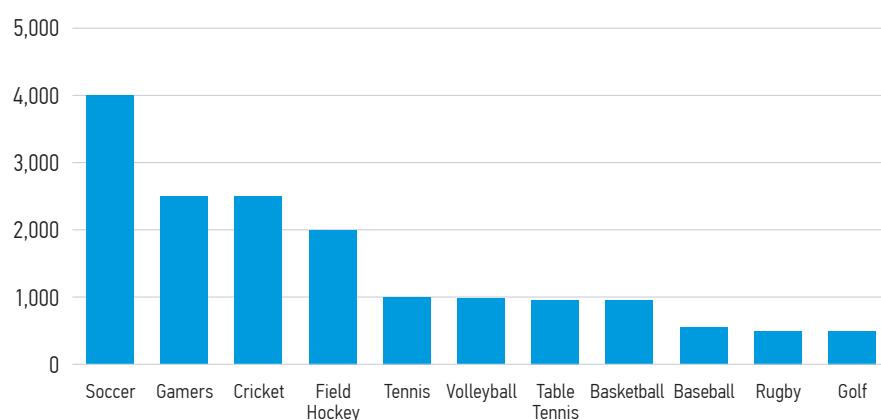


Source: Newzoo, IBISWorld, Musically 2019

DISPLAY 2

Esports Are More Popular Than Many Traditional Sports

Estimated Global Following 2019 (in millions)



Source: IBISWorld – June 2019; Newzoo – December 2019

³ MatthewBall.vc – January 2020

⁴ App Annie State of Mobile – February 2020

⁵ Alliance Bernstein – March 2020

opportunity for operating leverage as businesses increasingly transition to a recurring-revenue subscription offering, and the vast opportunities in mobile gaming, particularly in the emerging world, only enhances the industry's appeal.

Despite this appeal, the most well-known (AAA) titles still only monetize at a rate of 65% of the average cable channel and roughly 25% of live sports on a per hour basis.⁶ For example, Fortnite (developed by Epic Games, a privately-held company) likely represents the largest persistent media event in the industry's history; As of today, the game has likely had more than six consecutive months with at least one million concurrent active users, all of whom are participating in a largely shared and consistent experience that spanned multiple "seasons," storylines, and events. Fortnite began as a game, but has evolved into a social network and medium through which brands, intellectual property, and stories express themselves. As Matthew Ball has argued, the ultimate ambition of game-makers is to rule the metaverse—a vision of the internet future, in which people will work, play, shop and conduct business simultaneously in the physical and digital worlds.⁷ The online stores and live concerts held inside games like this are early prototypes of what the metaverse could be: a new virtual economy.

3. New Technology Is Making a Significant Difference

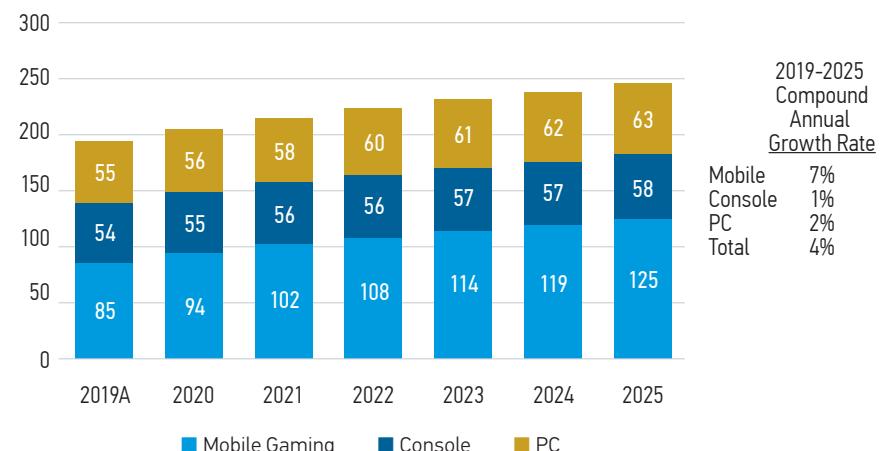
The global adoption of smartphones, coupled with increasingly powerful 5G networks and cloud-based infrastructure, has fueled rapid growth in mobile gaming, allowing the industry to scale rapidly at a low marginal cost.

In 2019, consumers spent \$135 billion on video games (excluding hardware), up from \$35 billion 15 years ago, making the spending category more

DISPLAY 3

Video Game Spending Continues to Grow

Global Video Game Spending (US \$bn)



Source: IBISWorld, MSIM Estimates – June 2020 - Forecasts/estimates are based on current market conditions, are subject to change, and may not necessarily come to pass.

than three times larger than the global box office and four times larger than the recorded music industry.⁸ In recent years, video game companies have significantly expanded their reach and enhanced their technology infrastructure, implementing internet capability in traditional consoles and introducing games onto modern mediums, such as smartphones (*Display 3*). Incumbent platform companies in the United States and Japan have launched online gaming services, opened digital stores for distribution of games, and broadened their devices' access to the array of digital content available. While their sizeable bases of serious gamers and longstanding relationships with top publishers and developers give them substantial momentum, we expect global Internet platforms to leverage their scale, reach, technical prowess and financial resources into viable game-streaming businesses.

Lacking the legacy infrastructure of landlines and cables, many emerging markets moved straight to building

mobile networks as the digital age dawned. Led by China, many are mobile-first societies, skipping past the desktop computer and landline phone and adopting mobile communications; we expect a similar pattern in gaming, with users forgoing single-purpose consoles in favor of smartphone devices which can play mobile games. With smartphone penetration rates climbing across emerging markets, mobile gaming was ranked the largest entertainment segment in 2019, per App Annie, reaching 45% of the global games market at \$68 billion, a 10% increase from 2018.

Mobility represents the key driver for growth in the emerging and frontier markets. As connectivity improves in Latin America, Emerging Europe, the Middle East and Africa, and Asia-Pacific, new and traditional industries are experiencing rapid growth (*Display 4*). Consumer spending on games is expected to grow to \$196 billion by 2022 (a 9% compounded annual growth rate), and mobile gaming will grow to represent almost

⁶ ClearVoice Research – August 2019

⁷ MatthewBall.vc – January 2020

⁸ MatthewBall.vc – December 2019

half of the entire games market by 2020 (*Display 5*).⁹ As user growth slows in developed markets, the industry will shift focus to the developing world, driven by increasing levels of smartphone penetration, 5G network connectivity, and rising income levels.

4. Global Gaming Is Attracting New Players

While younger users still comprise the majority of gamers today, there are indications that older generations and past gamers have re-engaged with video games during the pandemic and will likely continue gaming as the world normalizes. As noted, while one-third of the global population plays or watches video games already, we see room for this to increase in the medium-term on par with the global consumption of film and music. This represents a significant structural change which we expect to yield an increased customer lifetime value for publishers, along with incentives to create long-lasting global franchises marketed across the developed, emerging and frontier markets.

Furthermore, the proliferation of mobile options is helping to bring more women into gaming, a trend we expect to accelerate meaningfully over the coming years. Over the past two decades, the number of female gamers has increased steadily and as of January 2020 make up half of the gaming population according to both the Entertainment Software Association (ESA) and the Interactive Software Federation of Europe (ISFE).

We see an exciting opportunity for a more equitable and inclusive games industry, as despite the growth of the video game industry over the last several decades, there remains a lack of both diversity and inclusion in video game content and studio cultures. From virtual dating to playing strategy games, women now account for nearly half

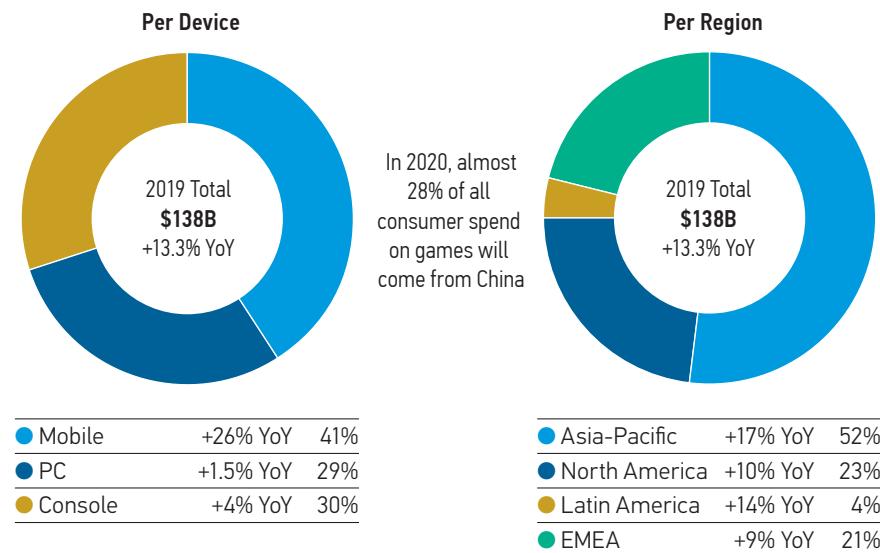
of all players in China's \$16.4 billion mobile gaming industry, which has been proactive in gender inclusivity across areas such as game design, storylines, and social media advertising.¹⁰ However, only 28% of the gaming employees are female, transgender, or another gender identity, according to the International

Game Developers Association; this lack of diversity and inclusivity has trickle-down effects, from the way women are depicted within games to the number of jobs offered to female developers in an industry dominated by men. Gender equality has been the focus of much inquiry and consideration in the gaming

DISPLAY 4

Mobile Gaming Is Big and Growing, Especially in the APAC Region

2019 Industry Revenues (\$B)

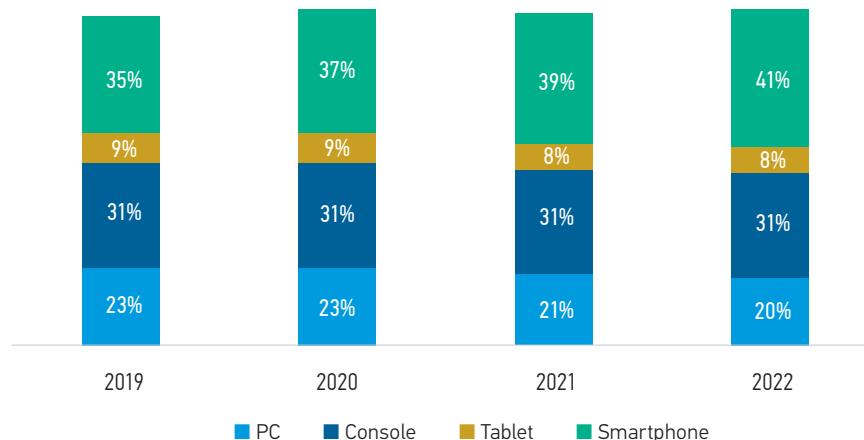


Source: IDC, MSIM estimates – June 2020 - Forecasts/estimates are based on current market conditions, are subject to change, and may not necessarily come to pass.

DISPLAY 5

Smartphone Gaming Is on the Rise

Gaming Market Segment Breakdown by Device



⁹ Morgan Stanley Research – January 2020

¹⁰ Quartz – “Chinese Gamers are a Dominant Force in the Country's Gaming Market” – May 2018

Source: IBISWorld, MSIM estimates – June 2020 - Forecasts/estimates are based on current market conditions, are subject to change, and may not necessarily come to pass.

community, though we nevertheless see room for improvement. Although our data shows gaming is more prominent in fast-growing markets in Asia Pacific, Latin America, and the Middle East and Africa, the gender ethnicity gap between creators and players remains unaddressed. As stakeholders, we remain excited about the opportunities for traditionally underrepresented gamers creating communities of budding digital creatives, whose imaginations are waiting to explode into the digital arena. A closer understanding of diverse player motivations, as well as perspectives and preferences toward game content, allows stakeholders to make more informed, culturally-sensitive decisions in the development, marketing, and management of their games, will ultimately benefit shareholders in the long-run.

5. ESG Considerations: Cybersecurity and Government Regulation

Following an era of unprecedented growth, the video game industry faces a number of challenges. In an environment where maintaining trust is business critical, we expect the costs of enhancing cybersecurity and regulatory compliance to grow over the coming years. Given that use of video games has been considered problematic by some and a growing public health issue, it raises the possibility of introducing and/or strengthening governmental regulation, similar to other addictive behaviors (e.g., alcohol consumption and gambling). At present, policies regarding gaming mostly exist in Asian countries such as South Korea and China. In-game purchasing systems have also generated a great deal of debate on the need for gaming-specific regulation and consumer protection across many jurisdictions. The use of parental controls is largely up to the parents or guardians themselves. Government regulation could influence the availability of such control, and state-financed campaigns could raise

"As stakeholders, we remain excited about the opportunities for traditionally underrepresented gamers creating communities of budding digital creatives, whose imaginations are waiting to explode into the digital arena. "

awareness among parents regarding the usefulness of such features. However, there is currently no evidence on the efficacy of such measures in helping keep gaming behavior within limits and under control.

PURCHASING BEHAVIOR: A LOOK AT "LOOT BOXES:" With the shift to digital media and micro-transactions available on internet-enabled devices, app-store purchases are constrained only by credit card limits and self-restraint. Following the introduction of the mobile app store in 2008, a substantial selection of games were released for mobile devices, and anyone could develop game applications relatively cheaply and market them online for a profit; A previously untapped market, the mobile sector now accounts for 51% of the global games market.¹¹ The payment model for gaming has transformed as consumers have transitioned from purchasing consoles and titles in-person to downloading free mobile apps that earn revenue through advertisements and in-game purchases.

This introduction of loot boxes in games has been controversial. A loot box is a virtual item which can be redeemed to receive a randomized selection of virtual items, or loot, like a player's avatar or weapons and armor. Similar to gambling, gamers *pay real money* for a randomized micro-transaction that gives users a chance to win a random virtual prize of *perceived value*. The Federal Trade Commission's decision to consider

potential regulation of loot boxes in the United States is one of many reactions to this growing trend in the video game industry globally. To date, while most attempts to ban or regulate in-game loot-box mechanisms have been unsuccessful, the growing scrutiny of such practices by government officials globally deserves the attention of investors in the video game industry. In our opinion mobile gaming publishers in the emerging markets, for example, can generate more than half their yearly sales from loot boxes and in-app purchases, where over 45% of gamers purchase in-game items.¹² Given that the marginal cost to deliver a virtual good is zero, loot boxes are enormously profitable—and controversial—for the industry.

"NOT ALL SCREEN TIME IS EQUAL": Children and minors globally are spending significant amounts of time on smartphones and digital content, yet studies show that certain forms of gameplay not only improve hand-eye coordination and problem-solving skills, but also the mind's ability to process information.¹³ The proliferation of screens and their potential impact among children and young adults, however, has sparked concerns including the consequences of screens on actual brain development, though research on this topic remains in its infancy. A recent paper found video gaming to be the one form of entertainment neutral in its effects on teen depression, in contrast to social media applications.¹⁴

¹¹ BOND Internet Trends – May 2019

¹² University of York – November 2019

¹³ JAMA Network – November 2019

¹⁴ IBISWorld – Video Gaming – December 2019

6. Our Outlook on Gaming

As traditional social media user growth slows, we expect the next major social network to exist inside virtual gameplay. The viewing audience for online video game broadcasts is estimated at about 380 million worldwide,¹⁵ with almost half of those considered enthusiasts, and we expect lucrative branding opportunities within forms of gaming-focused social networking. As gaming capabilities expand into new form factors and devices (such as Virtual Reality and Augmented Reality) new experiences evolve and monetization models are unlocked, such as

subscriptions, audience/spectator micro-transactions, and cloud-gaming. Today's fans can transport their imagination into a virtual space and share their creativity with friends and the world. Many companies are facilitating, promoting and financially rewarding the ongoing generational change in which younger audiences don't merely "consume" content, they "create" and "remix" it. Driven by seismic changes in consumer behavior and preferences following the COVID-19 pandemic, we expect gaming activities to establish a new long-term growth trajectory, steeper than the one evinced pre-pandemic. While younger users still comprise the

majority of gamers, we expect that as they age, an increased proportion of the global population will want to play video games. This structural change will allow for increased advertising attention to new forms of media, including esports, video streams, and the games themselves. The global buildout of 5G infrastructure (particularly in China, Korea and Japan) and the resolution of technical hurdles to high performance game streaming remain mid-term growth catalysts for cloud gaming, which allows gamers to compete across both platforms and geographies and will be the next phase in the industry's evolution.

DISPLAY 6

A Summary of Global Industry Regulatory Changes¹⁶

CHINA	The implicit ban on the sale of loot boxes demonstrates the Chinese government's willingness to respond to the loot box issue. In addition to pursuing compliance with its existing laws, the Ministry of Culture released a new regulation that required all online game operators to "disclose the name, property, content, quantity, and draw/forge probability of all virtual items and services that can be drawn/forged on the official game website or a dedicated draw probability webpage of the game."
JAPAN	As one of the world's leaders when it comes to video games, Japan was the first region to regulate microtransactions; game production companies formed a self-regulation council to regulate monetization. Starting July 1, 2012, any developers utilizing loot box mechanics would be subject to fines under Japan's Act against Unjustifiable Premiums and Misleading Representations and the Law for Preventing Unjustifiable Extra or Unexpected Benefit and Misleading Representation.
SOUTH KOREA	While there are no laws specifically targeting loot boxes, the South Korean Game Rating Board has taken the role of a regulator, preventing some games from being approved in the past due to "potential line-blurring ethics of online gambling." For video games, South Korea has opted to place authority in the parents' hands to regulate their children's play time and to have their Game Rating Board appropriately place age restrictions on games that are not appropriate for children or would induce addictive behavior. Even offline, South Korea strictly regulates all forms of gambling and only allows legal gambling in one establishment.
UNITED STATES	In addition to state senators and other advocates, the Federal Trade Commission has also committed to independently investigating loot boxes with the public. Historically, the United States has implemented policies to best protect the interests of the people, especially those that are vulnerable. Gambling—known for its addictive and life-breaking abilities—has continuously been under the government's control even when it has taken different forms.
UNITED KINGDOM	The United Kingdom's approach to the regulation of loot boxes is hesitant only in that there has been a lack of legislative action. The Gambling Commission of the United Kingdom has actually been very proactive in engaging with new gambling issues as they arose, as evinced by the publication in August 2016 of their discussion paper on virtual currencies, eSports and social to generate debate on these issues.
BELGIUM	The Belgian Gambling Commission and the Belgian Minister of Justice set the tone in the European Union by pushing for the ban of all loot box monetization schemes in the entirety of Europe in mid-November 2017. As opposed to scrutinizing loot boxes using antiquated criteria set forth in the era of traditional gambling, the Belgian Gambling Commission focused more heavily on the similar addictive aftereffects caused by loot boxes.
NETHERLANDS	The Dutch found that only loot boxes that had virtual prizes that could be traded outside of the game for real-world market value were prohibited without a proper gambling license. The report acknowledges that loot boxes were addictive in a way similar to slot machines in terms of design and mechanisms, encouraging socially vulnerable groups, such as minors, to play games of chance. As a preventative measure, the Gaming Authority demanded that games that use loot boxes to remove "addiction-sensitive" elements such as flashy animations made to induce thrill.
AUSTRALIA	Two months after Belgium and the Netherlands banned loot boxes, Australia's Senate decided to join in and passed a motion to investigate loot boxes. The results of this study support claims that loot boxes are psychologically akin to gambling, and suggest that loot boxes could be a gateway to gambling, exploiting gambling disorders without regulation.

¹⁵ Goldman Sachs Research – November 2019

¹⁶ Jefferies Research / PwC – Video Game Regulation – November 2019

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