FORSYTH BARR

WEALTH MANAGEMENT RESEARCH

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Wealth Management
Gaming — Promoting Connectivity

WEALTH MANAGEMENT RESEARCH
wmr@forsythbarr.co.nz
+64 4 499 7464

We believe the gaming sector offers attractive medium-term investment fundamentals given: (1) growing demand for gaming through creating new gaming segments and attracting new customers (females and older age groups); (2) gaining viewership market share from traditional TV-series and movie content. Contrary to an outdated perception gaming is "not" anti-social but rather promotes and encourages connectivity and communication. This new and expanding gaming content is session based, requires strategy & planning and invites gamers to create social groups to combat the gaming challenges. Those exposed to gaming find that the new content stimulates the brain and is typically inclusive across a diverse range of social groups, both locally and globally.

Gaming companies have the ability to sustain the COVID-19 benefit that has created a step-up in demand for gaming content over 2020. Whilst revenue growth may slow over 2021, we believe the leading gaming companies are well positioned to achieve enduring above-average earnings growth over the medium term. In this report we dispel the myth that gaming is anti-social, and demonstrate that gaming actually promotes social intercourse. We have reviewed the fundamentals of most of the leading gaming companies and categorised our preferences into two core groups (with three companies in each group):

- Group 1: Leading global technology companies with gaming exposure, Alphabet, Microsoft, and Tencent.
- Group 2: Leading gaming specialist companies, Activision Blizzard, NetEase, and Take-two Interactive.

Figure 1. Gaming stock top ideas

Group	Company	Ticker	Description
Large Tech Stocks	Alphabet	GOOGL	Alphabet is the world's leading information search and online advertising provider and a growing provider of cloud services and software. Google's strong position in digital advertising underpins the company's valuation and funds investment in the core business and in future growth "bets". The company is exposed to the gaming sector through its mobile application store, where it collects revenues from purchases made through Google Play, and Stadia, its subscription based video game streaming service.
	Microsoft	MSFT	Microsoft is one of the world's largest software companies, generating $100B+ in annual revenue. The company is a market leader across numerous IT categories, with core solutions including a broad array of cloud computing services, enterprise infrastructure software, business productivity applications, as well as personal computing/gaming devices.
	Tencent Holdings	700	Tencent Holdings is a Chinese multinational conglomerate company founded in 1998, whose subsidiaries specialise in various internet-related services and products, entertainment, artificial intelligence and technology both in China and globally. The company is one of, if not the largest gaming companies on the plant thanks to its strong portfolio of PC and mobile online games.
Pure-play gaming stocks	Activision Blizzard	ATVI	Activision Blizzard is an American video game company founded in July 2008 through the merger of Activision and Vivendi Games. Activision Blizzard currently includes five business units: Activision Publishing, Blizzard Entertainment, King, Major League Gaming, and Activision Blizzard Studios. It has a track record of developing some of the most popular game franchises globally, with hits including Call of Duty and World of Warcraft.
	NetEase	NTES	NetEase is a leading online games company founded and based in China, albeit listed in the US, and ranks second globally in terms of online games revenue. NTES was established in 1997 and is one of the leading internet technology companies globally, with other areas of business including E-commerce, audio streaming, and email. NetEase's gaming business is mobile and PC based, with major titles including Westwar Journey and Onmyoji.
	Take-Two Interactive	TTWO	Take-Two is a US company and one of the world's largest developers, publishers and marketers of interactive entertainment across all platforms. The company owns two major game development and publishing labels Rockstar Games (makers of the Grand Theft Auto and Red Dead Redemption Franchises) and 2K (makers of the 2k Basketball, 2k Golf and Borderland franchises). It also publishes and distributes games developed by third parties, as well as operating a significant mobile game developer, Social Point.

Dispelling the myths around gaming

Gaming is NOT antisocial

Historically people have been reluctant to invest in the gaming industry due to the perception that it is damaging for children because it is considered anti-social, encourages laziness, promotes violence, is highly addictive and isn't good for brain development. However, in our view, this perception is somewhat outdated and gaming is less damaging than people tend to think. At the end of the day, video games are digital entertainment and are competing against streaming platforms, traditional TV, and social media. Streaming companies such as Netflix (NFLX.O) and Walt Disney (DIS) have both admitted that they consider video games as competitors to the content they create. Whilst gaming can still be addictive for younger players, recent trends suggest that the average person still spends significantly more time watching TV shows (whether on traditional TV or streaming platforms) than gaming in a week. Gaming can also be far more social given the rise in popularity of online multiplayer games, which allows gamers to connect and play with friends from around the globe.

In July 2020 the Entertainment Software Association (ESA) released some interesting facts about the US video game industry:

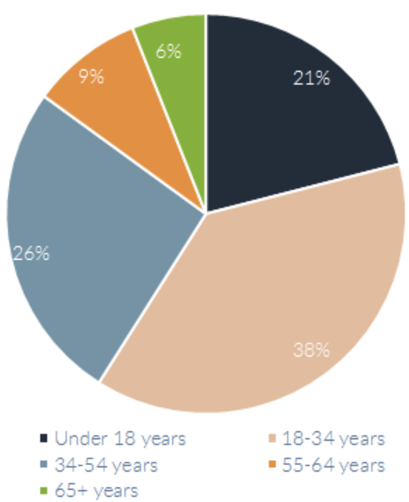
- 65% of American adults play video games daily
- The average US gamer is 34 years old, owns a house and has children
- 70% of parents say video games have a positive influence on their child's life
- 67% of parents play video games with their child at least once a week
- 56% of the most frequent gamers play multiplayer games
- People with high school diplomas or higher are more likely to make a video game purchase
- 79% of game purchases are in digital format versus 31% in 2010

There is a new-generation of gamers who are inclusive, not reclusive

When you picture the stereotypical video-game player, your mind typically takes you to a lonely teenage boy, playing for hours on end through the night, looking rather unhealthy with greasy and sugary snacks aplenty. However, as video games have become more popularised and the younger generation that grew up playing has aged, this stereotype looks to be played out. In 2020, the global games market grew almost +10% versus the prior year, with US$159bn in revenue helped by a +5% increase in total players to 2.7bn. This suggests that almost 35% of the global population played video games in 2020, which is more than double 2013 when there were ~1.2bn players. In 2020, a survey of regular video-game players found that roughly 25% of people who responded were aged 34–54 years old, while almost 10% were 55–64. This is a significant change from age demographics 10 years ago and can be attributed to two key factors:

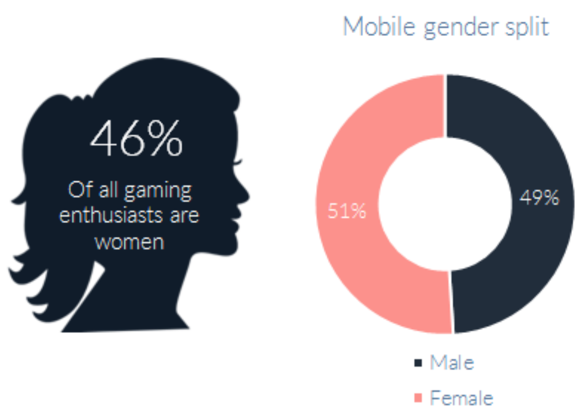
- First, those who grew up when video games first took the world by storm in the late 80s with the release of the Nintendo Gaming System have since grown up, but they continue to play video games as game complexity and accessibility improves.
- Secondly, mobile gaming has been a massive tailwind for the gaming sector over the last 15 years and its popularity among older demographics as a form of easy to access entertainment is evident with one-third of mobile game users above the age of 45.

Figure 2. Age breakdown of US gamers in 2020



Source: Forsyth Barr analysis, Statista

Figure 3. Mobile gamer gender split



Source: Forsyth Barr analysis, Mopub

One key benefit of an aging gaming demographic is the ability and willingness to spend money. The youthful video-game player is bound by little-to-no income, and is typically reliant on their parents to buy them consoles, games and in-game add-ons. This is not an issue for older demographics, who have the income and freedom to make purchases for themselves, leading to higher levels of spending on average. Some might also be surprised to learn that 45% of females in the US said they had played video games during 2020, and that for the last 10 years females have represented between 41–48% of total US players.

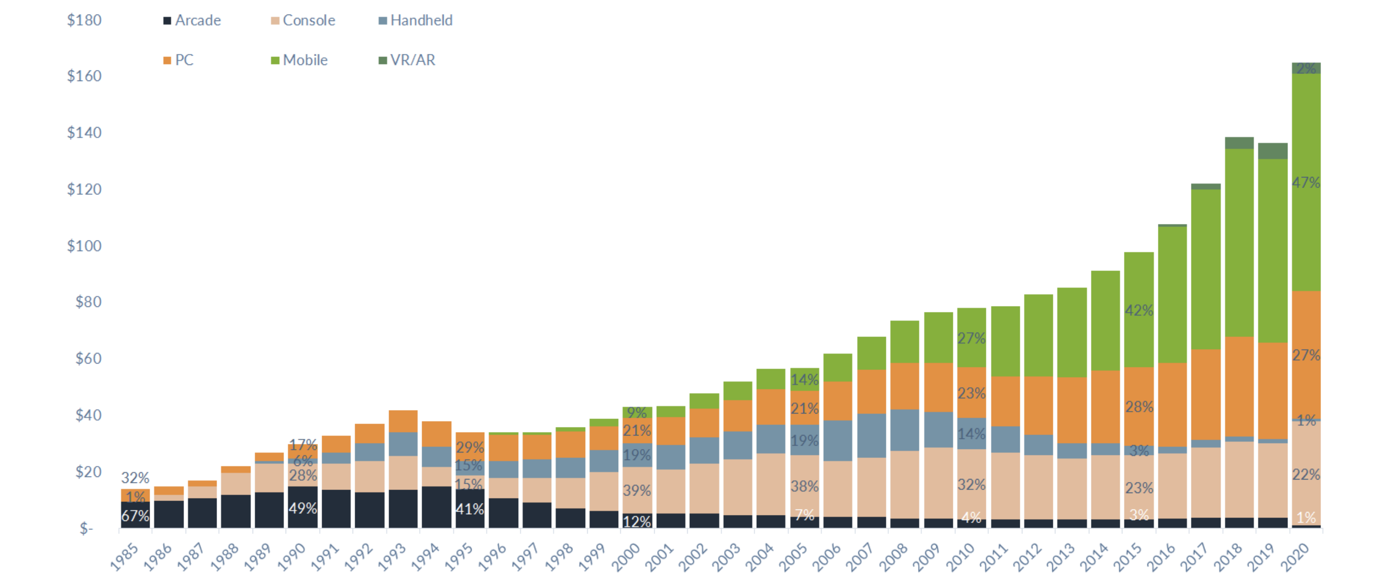
Gaming encourages connectivity and communication, anywhere & everywhere

The gaming landscape has evolved significantly over the last two decades. At the turn of the millennium, arcade gaming, which was extremely popular in 1972, had lost its cult following. At-home video gaming took its place as the most popular choice for players, dominated by PC and console platforms. PC and console gaming battled for popularity from the early-2000s, with consoles peaking in the mid-2000s before slowly being edged out by PC gaming. More recently, there have been two major innovations that revolutionised video gaming:

1. **Online gaming — allowing gaming between friends without having to be in the same room:** In 2001, Microsoft (MSFT.O) launched the Xbox Live online gaming platform for a monthly subscription fee, giving players access to multiplayer matchmaking and voice chat services that revolutionised the gaming experience. Some of the most successful games have relied on online multiplayer functionality, such as World of Warcraft (one of the early PC games to provide multi-player), Call of Duty, FIFA, League of Legends and Grand Theft Auto. From 2001–2007 online gaming was a significant driver of growth in console gaming and the broader industry, with global gaming revenues rising from US$43bn to US$68bn (a +50% increase).
2. **Smartphones and the rise of the mobile gaming sector:** Although online gaming has played its part, it was the release of the iPhone in 2007 and subsequent smartphones that sparked the major revolution in gaming. Previously restricted by small screens and difficult to play with keypads, smartphones enabled mobile games that were more complex and entertaining, thanks to greater computational power and the benefits of touch screens and accelerometers. Mobile games are more accessible than PC and console games, with more than 4.8bn people using mobile phones (3.5bn smartphones) globally, video gaming became available to the masses. The idea of portable consoles had been around since the early 90s, and despite gaining popularity, Nintendo Gameboys and PlayStation Portables (PSP) didn't have the added benefit of encompassing a plethora of other functionalities. In addition, games available on smartphones are typically cheap, and quick and easy to download and play. From 2007–2020 gaming industry revenues grew +134% to US$159bn. The video gaming industry is now heavily dependent on mobile games, which made up US$85bn or just over 50% of 2020 gaming revenues.

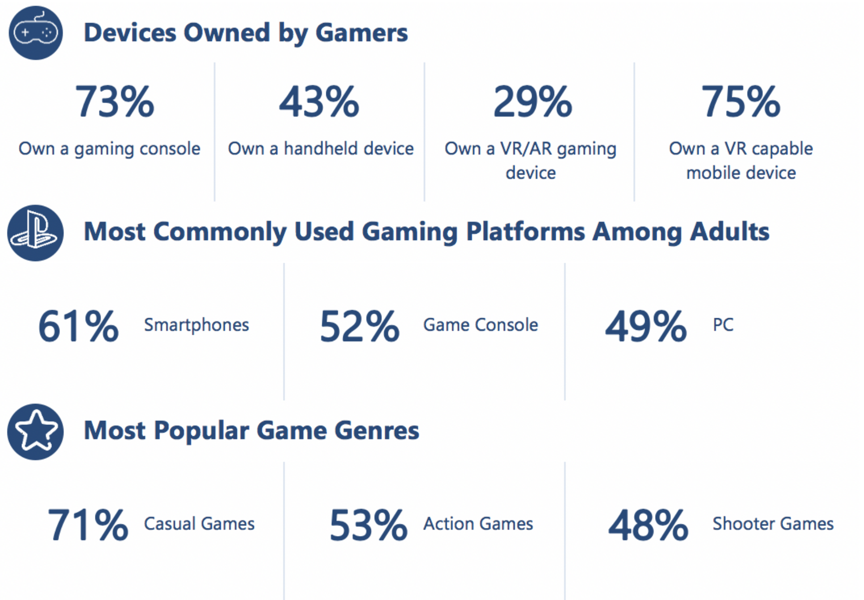
Looking forward, we expect to see growth in virtual reality gaming platforms such as Facebook's Oculus Rift or augmented reality games such as Nintendo's Pokemon Go! which can be played on any devices with a camera like a smartphone. This gaming technology is still early in its existence, but many of the top global game developers have expressed great interest in developing games in this space.

Figure 4. 35 years of gaming — gaming industry revenue broken down by gaming platform



Source: Forsyth Barr analysis, Bloomberg analysis, Pilham Smithers

Figure 5. Who's playing what



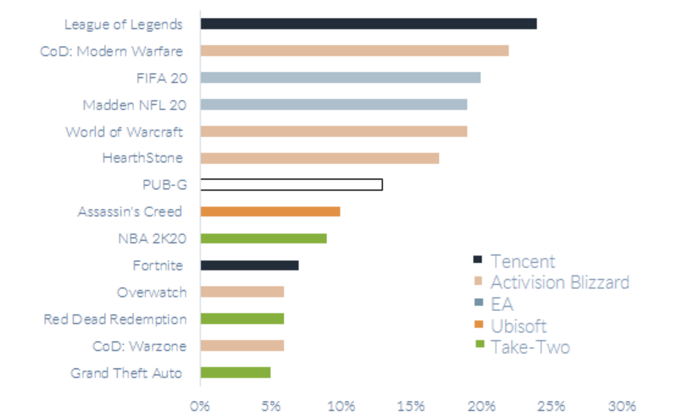
Source: Entertainment Software Association, Forsyth Barr analysis

What is driving the growth in gaming?

Companies within the video-game sector have performed strongly on the back of COVID-19 lockdowns, resulting in strong performance from the top two video game ETFs: **Global X Video Games & eSports ETF** (+85.26% in CY20), and **VanEck Vectors Video Gaming and eSports ETF** (+79.35% in CY20). The explanation for this is relatively straight forward — more time spent at home resulted in increased digital entertainment consumption, which includes video games. Players could turn to online multiplayer video games to communicate with friends in the absence of physical contact. Engagement in gaming in 2020 across some of the industry's biggest game titles surged, while sales of some of the most popular gaming consoles such as the Nintendo Switch, and the recently released Playstation 5 (Sony) and Xbox Series X (Microsoft) also saw large upswings.

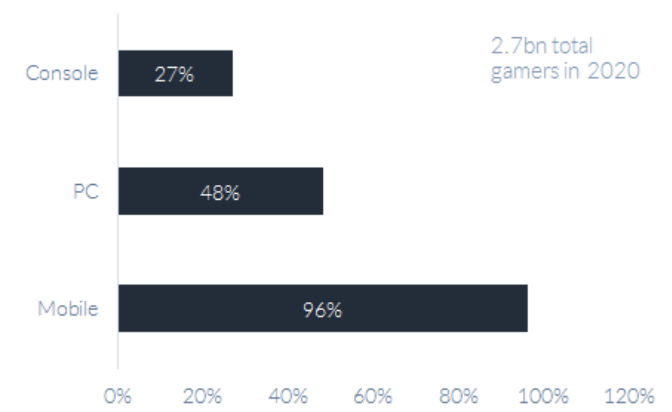
The global video gaming market produced revenues that tripled that of the global entertainment streaming sector in 2020, and looks on track to reach US$200bn in revenues by 2023. Video gaming has grown significantly since the mid 1980s, but the last ten years have seen the sector's greatest acceleration in revenue since arcades were first opened. COVID-19 and global lockdowns gave the gaming industry a significant boost in 2020, and while some demand may have been pulled forward we see a number of strong trends that should support long-term growth in the sector. Sector trends show continued strength in player demand and engagement, as it continues to transition from a hit driven business model where players make a one-off CD-ROM purchase to a subscription/pay-as-you-play model. This new environment provides gaming companies the opportunity to increase monetisation within games by offering additional downloadable content, character personalisation, and digital advertising within games. We see a significant runway for growth, particularly in mobile and multi-player games where players socialise within a game's ecosystem.

Figure 6. Playing time increase in 2020 per major game



Source: UBS, Forsyth Barr analysis

Figure 7. Percentage of gamers using each gaming device



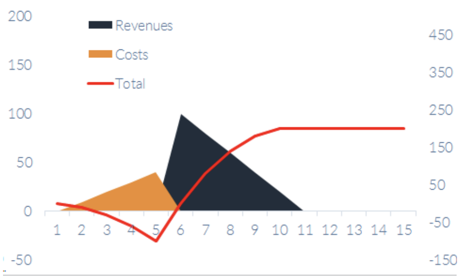
Source: Statista, Forsyth Barr analysis

The revenue timeline for games has changed with the rise of downloadable content and micro-purchases

Game development is a lengthy and costly process. After the idea for a game is established there are then at least three to five years spent developing the game from scratch, followed by rigorous testing and debugging. In the past, a game would then be released and bought for a relatively high one-off cost, with the developer receiving no extra revenue for time spent playing the game. This business model was revolutionised by online connectivity, allowing the addition of downloadable content (DLC). Developers could create new content for existing games and sell it to consumers to download. This changed the revenue timeline for gaming companies, and allowed companies to extend the revenue generating potential of video games.

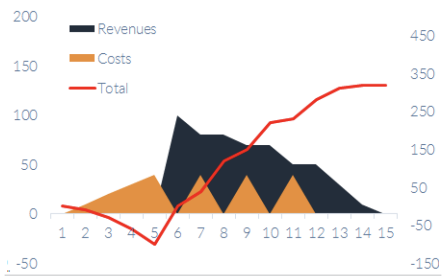
The next evolution was the micro-transaction business model, where players could make small purchases at any time to unlock an item or ability. The key driver behind this change was the growth of mobile games, these were often free to download and encouraged in-game purchases to either improve or personalise the gaming experience. This significantly improved the earning power of video games, allowing for recurring revenue streams that improved the lifetime earnings potential of video games compared to the old model. Having a portfolio of games that utilises this sort of model is a key for success in the gaming industry, as it provides companies a more stable revenue stream. The next phase of this trend is the game streaming platforms like Microsoft's Xbox online game pass.

Figure 8. Traditional lifetime earnings



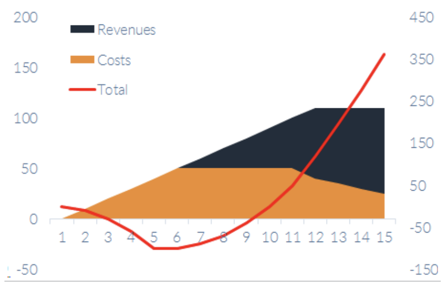
Source: Forsyth Barr analysis

Figure 9. DLC lifetime earnings



Source: Forsyth Barr analysis

Figure 10. Micro lifetime earnings



Source: Forsyth Barr analysis

The rise in popularity of mobile gaming is increasing the playing field

Almost half the global population (45%) currently own and use a smart phone. Roaming data in the last 10 years has also become faster and cheaper. Cheaper smartphones and improving data performance has combined to make mobile gaming more available to players. This has helped the mobile game industry rapidly overtake traditional gaming platforms such as PC and Console.

Most mobile games are typically free-to-play, or extremely low cost to buy compared to PC and console games, as companies now generate revenue through in-game purchases and advertising. The most popular mobile games can generate eye watering revenues every day just through in-game purchases. For example, the incredibly popular Clash of Clans, released in 2012, averaged US$2m of revenue a day in 2019 and has generated close to US$7bn of revenue since it was released, all driven by in-game purchases that helped players advance in the game. Clash of Clans also introduced a monthly season pass which costs US$5 a month, allowing players to unlock a number of items that both boost and personalise the gaming experience. Mobile games are also significantly cheaper to develop and update. The cost to develop a mobile game ranges from US$3,000 to US$150,000+ (based on 2018 figures) depending on the game's complexity, while console and PC games typically have development budgets north of US$1m.

The benefits of mobile games seem endless, but there are some issues. The sector has faced regulatory issues as well as bad press linked to its addictiveness and reckless spending by children. As a result, Apple and Google have implemented parental controls to protect children from spending excessive time and money on mobile games. However, these measures have not had much of an effect on the industry's revenue as the average age of mobile gamers is drastically different to PC and console. 16–24 year olds make up c. 14% of the mobile game players, while people aged 45 and older account for c.30%.

We expect mobile gaming will continue to be a key area of growth for the sector. Mobile games generated over half of the gaming industry's total revenue in 2020, and data suggests less than 5% of mobile gamers make in-game purchases, leaving a significant runway for growth.

Engagement and willingness to spend is increasing

Linked to the previous two trends, one of the key reasons the growth in gaming sector revenue has increased in the last ten years has been the increase in gamers' willingness to fully engage with games, and therefore spend more. In recent years surveys have shown that the average person is gaming more than ever, with or without the boost in time spent gaming during COVID-19 enforced lockdowns. In 2019 the average gamer in the US spent 1.1 more hours a week playing video games than in 2018, with particular growth in gamers aged 26–35 (+1.7 hours) and 36–45 (+1.6 hours). In 2020, COVID-19 lockdowns helped increase this trend with 82% of gamers playing 5+ hours a week, a 19% increase from the year before. Considering the average person in the US spent 15 hours a week watching streaming video content (such as Netflix and Disney+) in 2020 and still spent roughly 41 hours a week consuming some form of video content (TV, streaming, Youtube, etc...), there is plenty more market share in the entertainment industry up for grabs.

Consumers also appear to be willing to spend more money on video games than ever before, which can be linked to a number of factors. Firstly, there are more things available for purchase in the industry than ever before, not just in the form of in-game purchases but also donations to people who stream themselves playing games. Secondly, as the average age of gamers increase, so does the purchasing power of the average gamer. A younger games has far less purchasing power than an adult gamer considering they don't typically earn a steady income and can often have their spending habits restricted by the increasing amount of parental controls on online spending. Finally, the rise of digital video game subscription services and owning virtual currencies to use in certain gaming circles has made it far easier for consumers to regularly spend money. Rather than having to make purchasing decisions for every game, or going to physical stores to buy physical copies, consumers can just make regular payments to have access to a certain platform's digital content.

Video game investment options

After navigating the broad world of gaming and the investment opportunities linked to the sector, we discovered a broad list of gaming stocks that seem appropriate for investment based on criteria below:

- Revenue streams coming from in-game monetisation — as discussed previously, in-game purchases extend the revenue generating lifetime of games as well as the overall time spent playing.
- A strong mobile multiplayer game offering — mobile games provide a company with exposure to a much broader target audience, multiple revenue streams and are typically cheaper to develop.
- Game portfolios mostly built of games either self-developed or purchased through acquisitions — it is important for companies to own the games they are publishing to maximise the margins made on sales (explained further below).

Self-development and owning the intellectual property: Developing your own games or owning the intellectual property of the games you develop is an important characteristic of a successful gaming company. Traditionally, the relationship between video game publishers and developers was clear, developers drove the creation of the game and were paid to do so, and publishers paid the developers to take that product and bring it to market, profiting from whatever sales it made. Now the line is blurred, the traditional publishers such as Activision Blizzard, Electronic Arts and Ubisoft becoming increasingly involved in game development while also showing plenty of interest in acquiring developers for access to their games.

As the number of gaming devices available increases so does the demand from gamers for cross-platform games that can be played on multiple different devices. However, certain devices have different mechanics and completely different performance capabilities, so a game developed specifically for use on a PC won't work on a mobile device without redevelopment. Developers are typically specialised in producing games for specific platforms, so it isn't always as easy to transfer games for use on other device. This has brought about the rise in companies that specialise in re-developing another company's existing games for use on a new device, most commonly for mobile devices, and then publishing it themselves. This practice has highlighted the importance of owning the IP of the games you publish as companies that specialise in game redevelopment have to pay royalties. These royalties eat away at the margins earned on games and drastically hinder the amount of revenue you can generate, even if games are extremely successful.

Splitting the investment options into groups

The number of companies exposed to the gaming sector goes beyond just game developers and publishers. When looking at the investment options we focussed on large cap tech stocks that are exposed to the gaming sector that represents a small portion of its business, traditional and well-known gaming companies and pure-play game developers. The below matrix highlights companies that sit in each of these groups that have exposure to the gaming sector and assesses how well they fit in each of our investment criteria.

Figure 11. Investment criteria matrix

	Micro-Purchases in Game	Mobile Games	Development/Proprietary Rights
Large Caps			
Alphabet	Operates a game streaming platform called Stadia, generates US$130/m a customer	Stadia is available on mobile devices, and the company generated US$8bn in revenue through taking a cut out of sales made on its mobile app store Google Play	none
Apple	All revenues generated come from taking a portion of any sales made using Apple App store, including in-game purchases	All gaming profits come through mobile and tablet devices, taking a cut from purchases made through the Apple App store	none
Microsoft	Some games benefit from micro-purchases, as well as Xbox game pass which provides recurring revenue stream	Mostly focussed on console and PC games	Subsidiary 'Xbox game studios' develops games for use strictly on Microsoft affiliated devices
Nintendo	Mobile games provide micro-transactions, and operates a subscription based game service. Still not a massive portion of revenues	Impressive Mobile game offerings. 'Pokémon Go' a revolutionary game format with more games in development	Over 50% of gaming revenue comes from sales of self developed games
Sony	Micro transactions attributed to 41% of Sony's total game segment revenue in its most recent quarter, with subscription fees making up a further 16%	Recently start working on developing Play Station games for mobile, but currently has very few offerings	Subsidiary 'Sony Interactive Entertainment Studio' develops specialty games for its game devices
Traditionals			
Activision Blizzard	In-game net bookings made up US$1.2bn of revenue in 3Q20, a 70% increase from the previous quarter and becoming the dominate revenue source for the company (over 60%)	Mobile games make up 35% of total revenues, and the company has developed popular mobile games such as Candy Cursh through developer King.	One of the premier game developers globally, responsible for developing successful franchises World of Warcraft, Call of Duty and Diablo
Netease	Most of Netease's mobile games are free to play (F2P) but pay to win (P2W), so relies on generating revenue through in game purchases	Mobile game development is a core strength of the company, it accounts for over 70% of total revenues and it helps others develop mobile games for the Chinese market	Most of the games published by Netease are self-developed, with popular titles including Fantasy Westward Journey and Identity V
Take-Two Interactive	51% of the company's total sales were made up of "recurrent consumer spending"	Becoming a larger portion of the company through acquisition, spending ~US$500m on mobile game developers since 2017	Develops a number of games through its game developer subsidiaries such as 2K and Rockstar Games
Tencent	Has significant gaming revenues, which are mostly driven by revenues from in game purchases as its most popular games follow the F2P format	Mobile games have been the historic driver of growth for Tencent's game division, currently accounting for 57% of total online game revenue	Has been an aggressive investor in game development over the years, currently operating four major game developers; TiMi Studios, Lightspeed & Quantum, Aurora and Morefun
Developers			
NC Soft	All games include in game purchases, either to improve performance or personalise the gaming experience. Created an in game currency Ncoin which can be used across all of its games	Have spent a lot of time transferring PC games to mobile, mobile games revenue now makes up 59% of total revenues	Considered one of the top global mobile game developers, almost all current games are developed by NC Soft or a subsidiary
Nexon	One of the first company's to incorporate micro-transactions with out it being pay-to-win. Now most if its games follow this model with revenues driven by micro transactions	Has been slower than its peers in adapting to mobile games, but currently represents 42% of revenues and is one of Nexon's four focus strategies	Strong history of developing popular MMORPG's, also recently committed spending US$1.5bn on expanding its development subsidiaries
Sea Group	Garena+ gaming platform fuelled by in game purchases and exchange money for 'shells', the platforms inter-game currency	Garena Free Fire was the most downloaded mobile game in 2020 and mobile revenues remain a key driver of its gaming business	Garena has one hugely successful self-developed game that has helped drive success, but most of its published games are not self-developed

Key: Green = fits the thematic, white = partially fits the thematic, Red = doesn't fit the thematic

Source: Forsyth Barr analysis

Figure 11 highlights the initial list of 12 stocks that were of a sufficient market size and well liked enough among our research partners to warrant looking deeper. After reviewing how each stock meets the investment criteria, combined with an analysis of each stocks fundamentals and how it compares to our typical preferences, we have chosen to highlight six companies. In our opinion these companies offer a good value base and a solid exposure to the gaming sector. Of these companies three are mainstream large-cap technology conglomerates, while the other three offer a more pure-play exposure to the video game sector.

Figure 12. Gaming stock short list fundamentals table

Company Name	Code	Price (local)	12-mth Chg	Fcst 1 PE	Fcst 2 PE	PEG	ROE	Div yld	EPS 3yr CAGR
Alphabet	GOOGL	2,058.00	+53.6%	30.0x	25.7x	1.9x	16%	0.0%	+15.9%
Microsoft	MSFT	236.95	+46.2%	32.0x	28.4x	2.3x	43%	1.0%	+14.1%
Tencent	700.00	697.00	+78.9%	44.8x	35.3x	2.1x	29%	0.2%	+21.7%
Activision Blizzard	ATVI	98.49	+69.4%	27.0x	23.1x	2.9x	16%	0.5%	+9.3%
Netease	NTES	109.96	+72.5%	26.4x	21.2x	1.3x	17%	7.0%	+19.9%
Take-Two Interactive Software	TTWO	186.84	+73.8%	30.7x	30.3x	1.9x	7%	0.0%	+16.3%
Median			**+69.4%**	**30.0x**	**25.7x**	**2.1x**	**+16.6%**	**+0.5%**	**+15.9%**

Source: Bloomberg, Forsyth Barr analysis

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