

13th Annual Slot Market Survey

Impact clearer as regulation gains greater attention

2022 has been a year dominated by two topics in the gaming sector: **1)** the resilience of gambling spend in an economic downturn; and, **2)** concern over the impact of increased regulation. In this year's 13th Annual J.P. Morgan Slot Survey, we investigate these issues with regard to electronic gaming machines and assess the implications for industry participants moving forward. In short, our key findings include: **1)** For **ALL**: the replacement cycle remains healthy; **2)** For **SGR**: per-customer spend has increased significantly but is also expected to continue growing over the next 12 months; **3)** purchasing prices are expected to increase; and **4)** **ALL & SGR**: regulatory changes are certain, well-known, and are going to impact the industry negatively. Key observations, charts & details overleaf.

- Replacement & conversion cycle:** Despite concerns as to the health of consumers, the proportion of venues increasing spend on replacements has increased to 71%, versus 36% in 2021. Growth expectations have moderated slightly; however, this appears to be a shift in allocation towards conversion expenditure expectations; 50% of respondents (representing 73% of machines) are expecting growth in conversion spend over the next 12 months, versus 45% of respondents in 2021 (representing 62% of machines).
- Cabinet inflation and per player spend:** Inflationary pressures and expectations are high. This year's survey revealed the highest level of machine price growth expectations since 2018. 88% of respondents expect at least some increase in price over the next 12 months. In addition, the ~6% growth run-rate in spend per customer is expected to persist into 2023. 46% of respondents expect an increase in per customer spend over the next 12 months, representing 70% of machines. Only 8% of respondents are anticipating any fall in per customer expenditure, representing only 1% of machines surveyed.
- Regulatory concerns rising:** Given scrutiny on the gambling industry throughout the various casino investigations, it is unsurprising to see regulatory concerns elevated in this year's survey. The Tasmanian State Government announcement that mandatory pre-commitment and spending caps will apply from 2024 is only partially reflected in responses given its timing. Only 12% of respondents expect no impact from tightening regulations moving forward. 42% of respondents consider additional regulation their number one concern in 2023.
- Aristocrat remains the dominant player:** This year's survey did not reveal any shift in sentiment towards Aristocrat's performance or games library: **1)** 88% of respondents (representing 98% of machines) rate Aristocrat as the top performing manufacturer; **2)** For purchasing intentions, operators would allocate an average of 57% of a new floor to Aristocrat in 2022, up from 53% in 2021; **3)** Only 8% of responses (representing ~1% of surveyed slot machines) indicated a deterioration in Aristocrat's game library over the last 12 months, consistent with 2021 levels.; and **4)** A much higher proportion saw a "significant improvement" in 2022 (~17%) versus 2021 (~6%).

Australia Australian Gaming & Internet/Media

Don Carducci ^{AC}

(61-2) 9003-8379
donald.n.carducci@jpmorgan.com

Bloomberg JPMA CARDUCCI <GO>

Michael James

(61-2) 9003-8435
michael.james@jpmorgan.com

Bryan Raymond

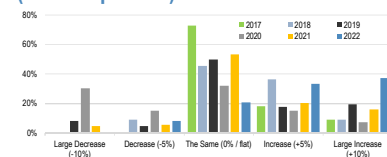
(61-2) 9003-6750
bryan.raymond@jpmorgan.com

Chris McKegg, CFA

(61-2) 9003-6683
chris.mckegg@jpmorgan.com

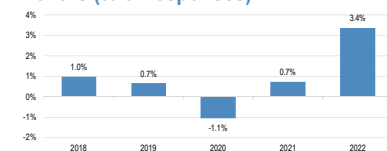
J.P. Morgan Securities Australia Limited

Figure 1: Intention to change replacement spend over next 12 months (% of responses)



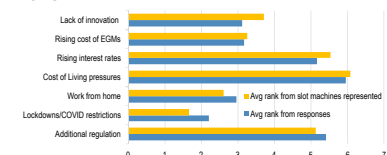
Source: J.P. Morgan estimates.

Figure 2: Weighted expected average machine price increase over next 12 months (% of responses)



Source: J.P. Morgan estimates.

Figure 3: Biggest concern heading into 2023



Source: J.P. Morgan estimates.

See page 22 for analyst certification and important disclosures, including non-US analyst disclosures.

J.P. Morgan does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Table of Contents

Executive Summary	3
Size of the market	6
Do you intend on changing your spend for replacements over the next 12 months?...6	
Do you intend on changing your spend for game conversions over the next 12 months?	6
Unit pricing	8
Do you expect pricing of machines will change over the next 12 months?	8
The customer	9
How much do you estimate spend per customer has changed compared to last year? 9	
How much do you estimate spend per customer to change over the next 12 months?	10
Operator concerns	11
What is your biggest concern for next year?.....	11
How do you view the potential changes to the regulatory outlook for venues following the casino inquiries?	12
Competitive landscape	13
Which manufacturer is performing the best?	13
Which manufacturer is gaining the most floor share at present?.....	13
If you were starting your floor today, what percentage of your floor would you devote to the following manufacturers?.....	14
What allocation of your wallet are you spending on manufacturers outside of the top 5? How has this changed over the past 3 years?	15
Aristocrat	17
What proportion of your floor is Aristocrat at present?.....	17
Do you intend to change the proportion of Aristocrat on your floor in the next year?	17
How has Aristocrat’s game library changed in the past year?	18
Will you be buying more of Aristocrat’s Dragon Link product?	18
IGT	19
What proportion of your floor is IGT at present?.....	19
Do you intend to change the proportion of IGT on your floor in the next year?	19
Light & Wonder	20
What proportion of your floor is Light & Wonder at present?.....	20
Do you intend to change the proportion of Light & Wonder on your floor in the next year?	20
Konami	21
What proportion of your floor is Konami at present?.....	21
Do you intend to change the proportion of Konami on your floor in the next year?	21

Executive Summary

The report details the results of our 13th Annual J.P. Morgan Slot survey, split into three main categories: **1)** slot market trends; **2)** competitor landscape; and **3)** Aristocrat-specific analysis and takeaways.

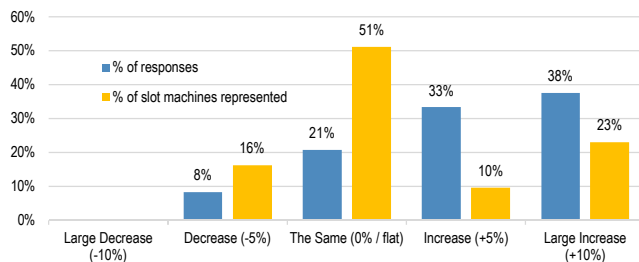
Slot Market Trends

71% of respondents expect their replacement spend to increase over the next 12 months, versus 36% of respondents in the 2021 survey.

- Replacement spend still expected to increase.** 71% of respondents expect their replacement spend to increase over the next 12 months, versus 36% of respondents in the 2021 survey. Of note however is a decrease in increased spending expectations when responses are weighted by slot machines represented (see figure 4 below). Nonetheless, expectations are still skewed away from any decrease in the level of replacement spend.
- Unit pricing expected to rise.** Inflationary expectations are clearly high. 88% of respondents expect at least some increase in machine price over the next 12 months. This is the highest level of price growth expectation since 2018 – where ~55% of respondents expected prices to increase in the following 12 months. The weighted average 12-month price change (based on percentage of respondents) is expected to be +3.4%, up from +0.7% in 2021 and the highest since 2018.
- Per-customer expenditure to remain elevated.** In addition to the above, inflation in per-customer expenditure has increased significantly in the last 12 months and this trend is expected to persist. 92% of respondents (representing 98% of machines) estimate an increase in per-customer expenditure over the last 12 months, with the weighted average increase in per-customer spend estimated to be +7.5%. Looking forward, 46% of respondents expect an increase in per customer spend over the next 12 months. Only 8% of respondents are anticipating any fall in per-customer expenditure (representing only 1% of machines).
- Regulatory fears have increased.** Unsurprisingly, rising interest rates, cost of living pressures and additional regulation represent the largest concerns for operators heading into 2023. Concerns around the health of the consumer may be somewhat at odds with the expectation for increasing per-player expenditure; however, we believe this likely represents fears over the marginal player (as opposed to a regular player). Given the regulatory scrutiny across the wider gambling industry, it is no surprise to also see consensus expectations for some regulatory changes moving forward. Only 8% of respondents representing 1% of machines expect no change in regulations moving forward.

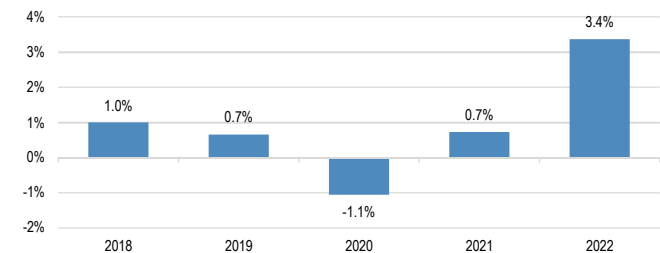
Rising interest rates, cost of living pressures and additional regulation represent the largest concerns for operators heading into 2023.

Figure 4: Do you intend to change your spend for replacements over the next 12 months?



Source: J.P. Morgan estimates.

Figure 5: Twelve-month weighted average machine price change expectations (%)



Source: J.P. Morgan estimates.

88% of respondents representing 98% of machines rate Aristocrat as the top performing manufacturer.

Operators would allocate 57% of a new floor to Aristocrat in 2022, up from 53% in 2021. The next highest competitor by intended share is Light & Wonder with 12% of potential green-field share.

Competitive landscape

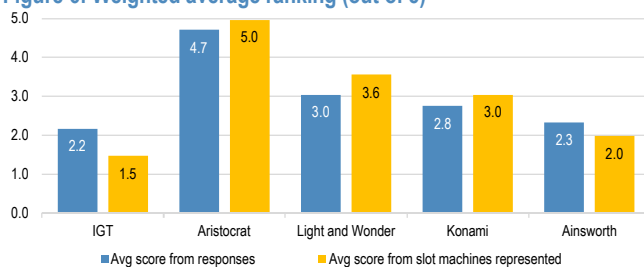
- **Aristocrat remains the market leader.** 88% of respondents representing 98% of machines rate Aristocrat as the top performing manufacturer. This is consistent with historical outcomes as Aristocrat has been rated the top performer in each of the last 4 surveys. For purchasing intentions, operators would allocate 57% of a new floor to Aristocrat in 2022, up from 53% in 2021. The next highest competitor by intended share is Light & Wonder with 12% of potential green-field share.
- **Light & Wonder retains second ranking in 2022.** Light & Wonder has retained its second placed ranking in terms of performance rating, with 8% of respondents (representing ~1% of slot machines) rating the company as the best manufacturer.
- **However, competition remains tight behind Aristocrat.** While Light & Wonder did come in second in terms of average ranking the difference between itself and other operators Konami, IGT and Ainsworth was negligible.
- **Allocation to operators outside the top-5 increasing.** There continues to be an increase in the percentage of wallet allocated to operators outside the top-5. Respondents on average allocated 12% of their wallet to these manufacturers in 2022, up ~380bps y/y.

Table 1: Shift in theoretical new floor allocation over time (% of respondents)

	2017	2018	2019	2020	2021	2022
IGT	8%	12%	14%	12%	13%	9%
Aristocrat	63%	59%	53%	56%	53%	57%
Light & Wonder	12%	12%	12%	11%	15%	12%
Konami	5%	5%	8%	10%	9%	9%
Ainsworth	11%	14%	9%	9%	8%	8%
Other	2%	5%	5%	6%	8%	6%

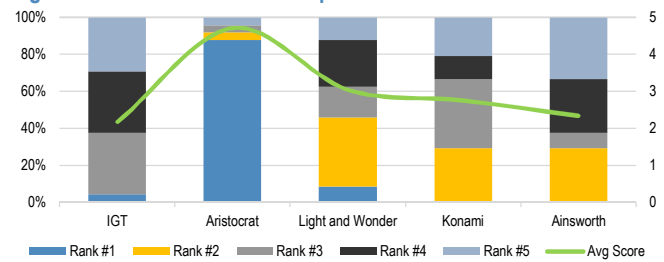
Source: J.P. Morgan estimates.

Figure 6: Weighted average ranking (out of 5)



Source: J.P. Morgan estimates. Average score (#1=5, #2=4, #3=3, #4=2, #5=1).

Figure 7: Distribution of 2022 responses.



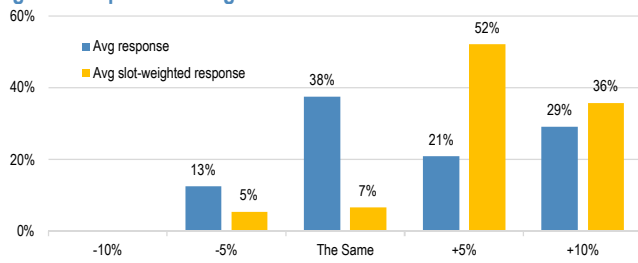
Source: J.P. Morgan estimates. Average score (#1=5, #2=4, #3=3, #4=2, #5=1).

Aristocrat-specific observations

- **Dominant and still gaining the most share.** In addition to being ranked the highest in terms of manufacturer performance, Aristocrat is still gaining the most floor share in 2022. 75% of survey respondents (representing 95% of machines) see Aristocrat gaining the most floor share currently, followed by Konami (13% of survey respondents), Light & Wonder, Ainsworth and IGT (all ~4% of survey respondents).

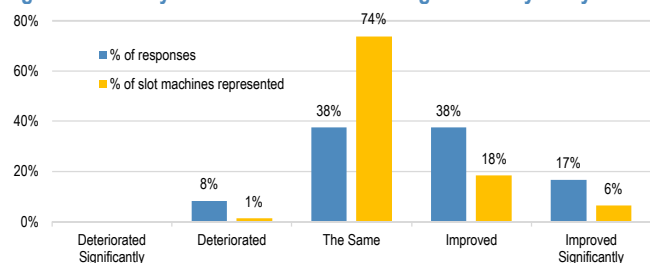
- **Expansion share far beyond competitors.** As an indication as to the health of the current game library and pipeline to come, Aristocrat would make up 57% of new floor share based on survey respondent (see table 1 above).
- **Response to supply chain difficulties generally favorable.** Aristocrat has generally received favorable responses to its handling of the covid induced supply chain issues: 45% of respondents cited Aristocrat as dealing with issues the best, followed by Light & Wonder with 20% of respondents and IGT with 15% of respondents.
- **Library performance tracking well.** Only 8% of responses (representing ~1% of surveyed slot machines) indicated saw a deterioration in Aristocrat’s game library, consistent with 2021 levels. 54% of respondents saw an improvement year on year, down slightly (~200bps) versus 56% of respondents in 2021. Of note however is the mix shift of these respondents. A much higher proportion saw a "significant improvement" in 2022 (~17%) versus 2021 (~6%).

Figure 8: Expected change in Aristocrat floor share



Source: J.P. Morgan estimates.

Figure 9: Industry sentiment on Aristocrat’s game library this year



Source: J.P. Morgan estimates.

Size of the market

Do you intend to change your spend for replacements over the next 12 months?

Higher expectations for increased replacement spend.

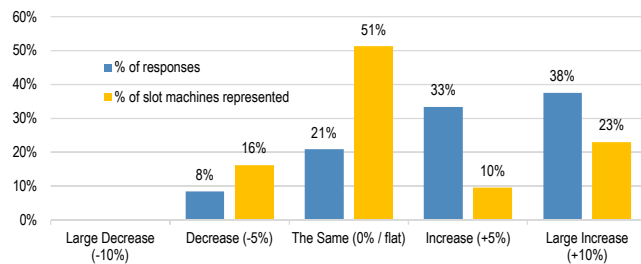
71% of respondents expect their replacement spend to increase in the next 12 months, versus 36% of respondents in 2021.

71% of respondents expect their replacement spend to increase in the next 12 months, versus 36% of respondents in 2021. This is a function of a significant drop in expectations for “the same” replacement spend (21% in 2022, 53% in 2021) and lower expectations for a year over year decrease in replacement spend (from ~11% in 2021 to ~8% in 2022).

Based on slot representation expectations have moderated slightly.

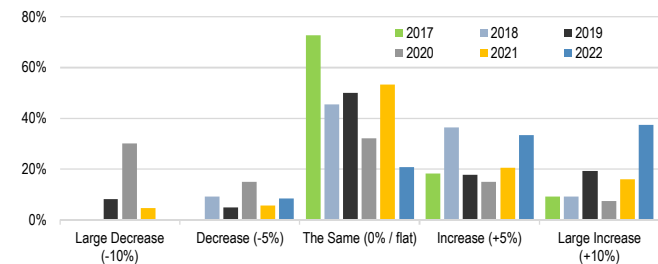
A key caveat to the above is that based on the proportion of slot machines represented there was a slight decrease in increased spending expectations. Weighted by slots managed, ~33% of respondents expect to increase replacement spend in the next 12 months versus 41% in 2021.

Figure 10: Do you intend to change your spend for replacements over the next 12 months?



Source: J.P. Morgan estimates.

Figure 11: Do you intend to change your spend for replacements over the next 12 months? (% of responses)



Source: J.P. Morgan estimates.

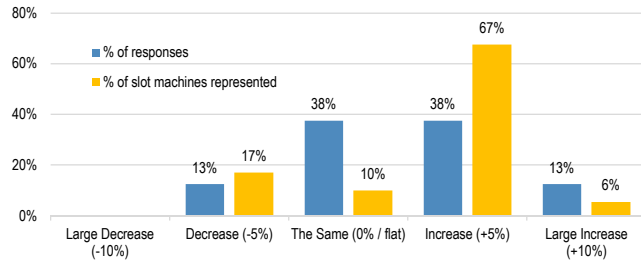
Do you intend to change your spend for game conversions over the next 12 months?

Greater change in conversion spend expectations.

50% of respondents expect to increase their conversion spend in the next 12 months, versus ~45% in 2021.

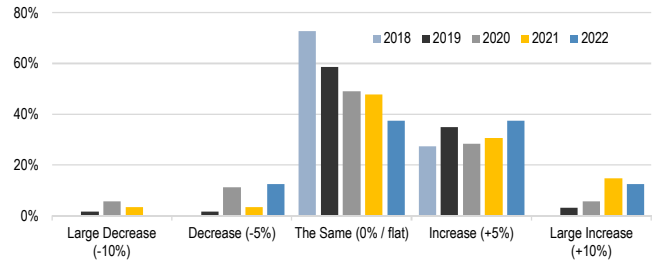
A higher proportion of respondents will increase their spend on conversions in the next 12 months – with the % of respondents signaling an expectation of an increase rising from ~45% in 2021 to ~50% in 2022. There was also a small increase in lower conversion spend expectations (~13% of respondents in 2022 versus ~6% in 2021) as venues anticipating the same level of expenditure reduced from ~48% in 2021 to 38% in 2022.

Figure 12: Do you intend to change your spend for game conversions over the next 12 months?



Source: J.P. Morgan estimates.

Figure 13: Do you intend to change your spend for game conversions over the next 12 months? (% of responses)



Source: J.P. Morgan estimates.

Unit pricing

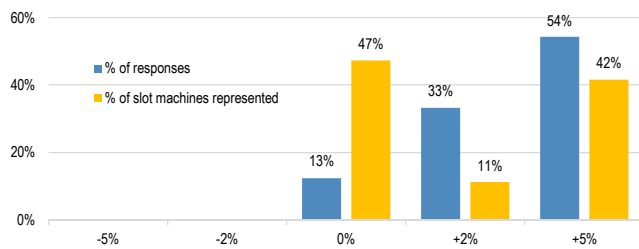
Do you expect pricing of machines will change over the next 12 months?

Overall, the market expects pricing of machines to increase in the next 12 months.

This is a significant change versus our historical results, with 88% of respondents indicating at least some increase in price is expected over the next 12 months. This is the highest level of price growth expectation since 2018 – where ~55% of respondents expected prices to increase in the following 12 months.

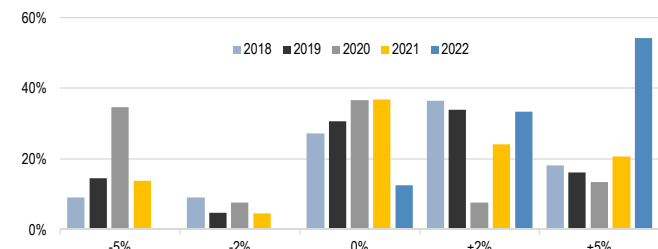
In addition, no respondents expect prices to fall moving forward.

Figure 14: Do you expect pricing of machines will change over the next 12 months?



Source: J.P. Morgan estimates.

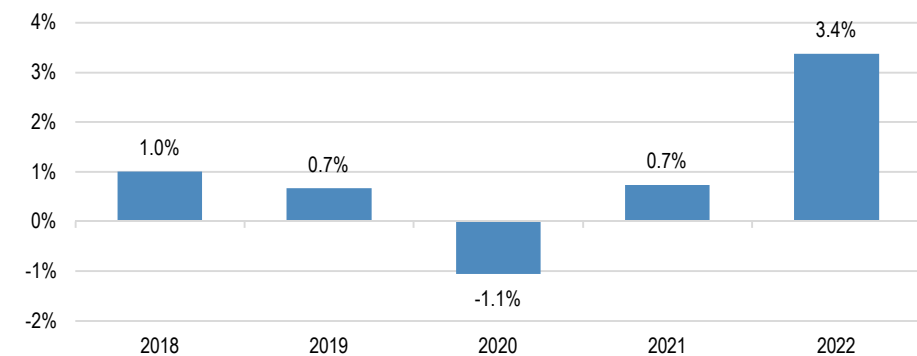
Figure 15: Do you expect pricing of machines will change over the next 12 months? (% of responses)



Source: J.P. Morgan estimates.

In total, the weighted average 12-month price change (based on percentage of respondents) is expected to be +3.4%, up from +0.7% in 2021 and the highest since 2018.

Figure 16: 12-month weighted average price change expectations (%)



Source: J.P. Morgan estimates.

The customer

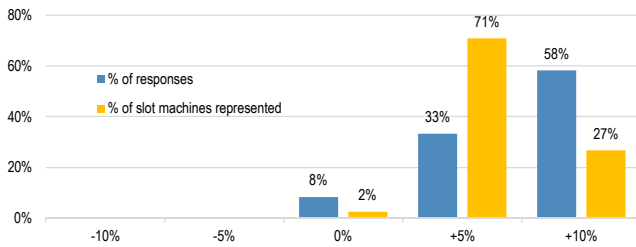
How much do you estimate spend per customer has changed compared to last year?

Consistent with feedback across the market (in both Australia and in the US) per customer expenditure has risen significantly in 2022.

Based on our survey larger venues saw less of an increase given 58% of respondents estimating a +10% increase in per customer spend represented ~27% of machines; versus 33% of respondents representing 71% of machines anticipating a 5% increase in per customer expenditure.

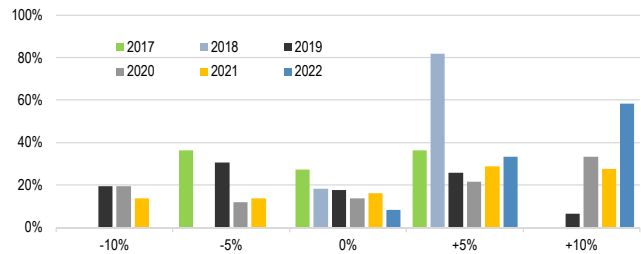
Nevertheless, 92% of respondents (98% of machines) estimate an increase in player expenditure.

Figure 17: How much do you estimate spend per customer has changed compared to last year?



Source: J.P. Morgan estimates.

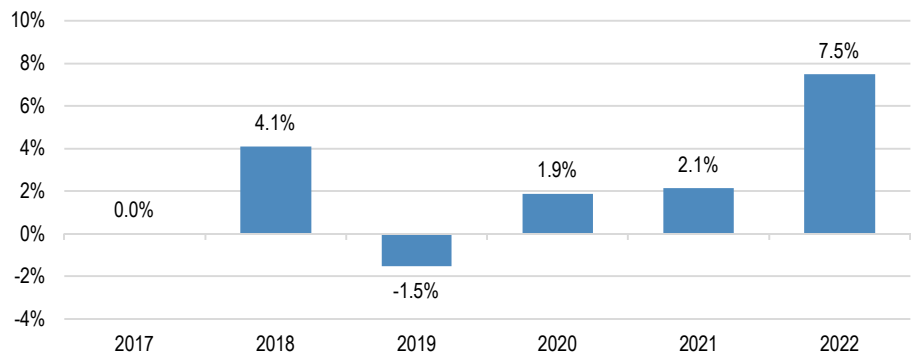
Figure 18: How much do you estimate spend per customer has changed compared to last year? (% of responses)



Source: J.P. Morgan estimates.

The weighted average increase in per-customer spend is estimated to be +7.5%, the highest level of estimated growth since +4.1% in 2018.

Figure 19: Estimated change in per customer expenditure (%)



Source: J.P. Morgan estimates.

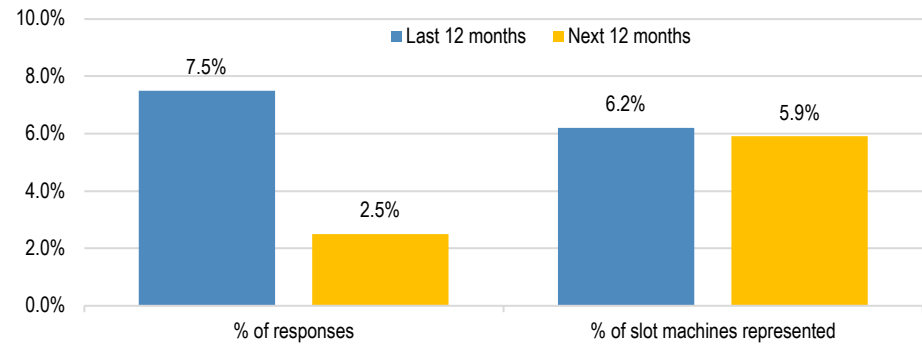
How much do you estimate spend per customer to change over the next 12 months?

46% of respondents expect an increase in per-customer spend, representing 70% of machines.

Only 8% of respondents are anticipating any fall in per-customer expenditure, representing only 1% of machines surveyed.

Looking forward, we can see broad expectations for a continued increase in per customer expenditure. Despite cycling strong growth over the past 12 months, solid growth is expected to continue. When weighted by slots, a ~6% growth run-rate is expected to persist into the next 12 months. When weighted by the number of respondents, there is a more pronounced slowdown, from +7.5% over the last 12 months to +2.5% expected over the next 12 months.

Figure 20: Strong growth in spend per customer expected to continue over the next 12 months

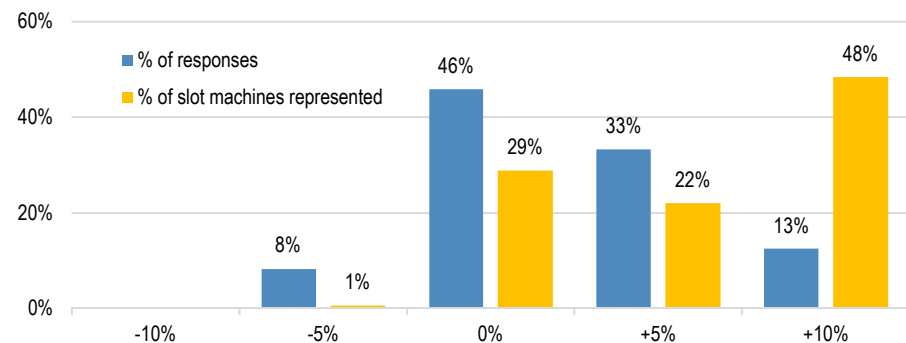


Source: J.P. Morgan estimates.

46% of respondents expect an increase in per customer spend, representing 70% of machines. Only 8% of respondents are anticipating any fall in per customer expenditure, representing only 1% of machines surveyed.

In contrast with estimated changes to current player expenditure, by slot representation we can see a significantly higher weighting to at least 10% growth in per customer expenditure for the next 12 months.

Figure 21: How much do you estimate spend per customer to change over the next 12 months?



Source: J.P. Morgan estimates.

Operator concerns

What is your biggest concern for next year?

Rising interest rates, cost of living pressures and additional regulation represent the largest concerns for survey respondents heading into 2023.

Rising interest rates, cost of living pressure and additional regulation represent the largest concerns for survey respondents heading into 2023.

By slot representation, **concerns around the health of the consumer are the highest.** This is somewhat at odds with the expectations for growth in per-customer expenditure, albeit this likely represents concerns around the "marginal" dollar from slot players. Phrased another way, the market expects growth, but this may moderate.

It is also likely a committed player is unlikely to change his/her habits; however, a more recreational player may think twice if cost of living pressures did start to grow moving forward.

Concerns around regulatory changes

The other significant concern is around regulatory changes.

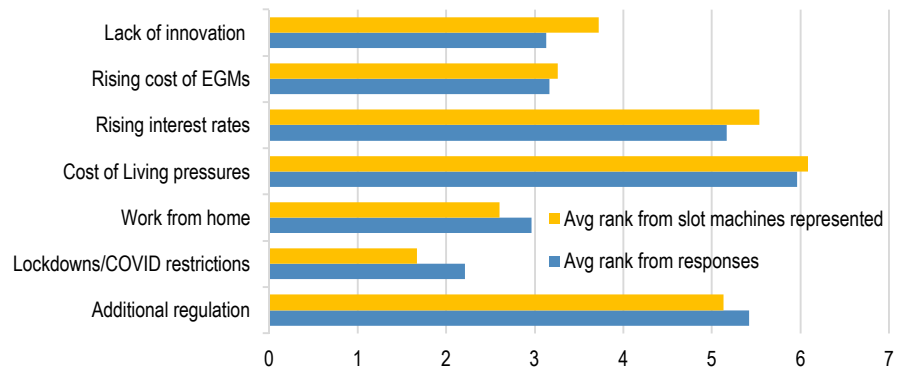
This is topical given the recent change in regulations in Tasmania, set to be implemented by the end of 2024.

Under the newly introduced pre-commitment scheme, gamblers in Tasmania will be limited to an annual spending limit of A\$5,000 unless they are successful in applying for an increased limit and meet certain financial means.

While Tasmania represents a very small number of machines in the context of Australia as a whole (~3,400 Tasmanian machines versus ~30,000 in Victoria, ~40,000 in Queensland and ~80,000 in NSW) the direction of travel appears clear. This is especially so following the various state-based casino reviews and calls from politicians for greater regulation.

This is reflected in the average rank of highest concerns from survey respondents below. The risk of additional regulation is the largest non-macroeconomic concern for the industry.

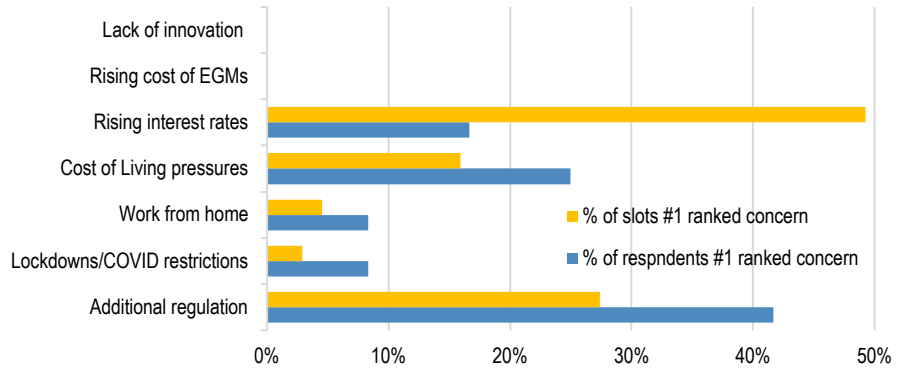
Figure 22: Key concerns heading into 2023



Source: J.P. Morgan estimates.

When considered through the lens of the #1 ranked concern for 2023, additional regulation is cited by 42% of respondents which account for 27% of machines. This indicates larger EGM operators are relatively less concerned (compared to macroeconomic risks) than smaller EGM operators.

Figure 23: Primary concern in 2023



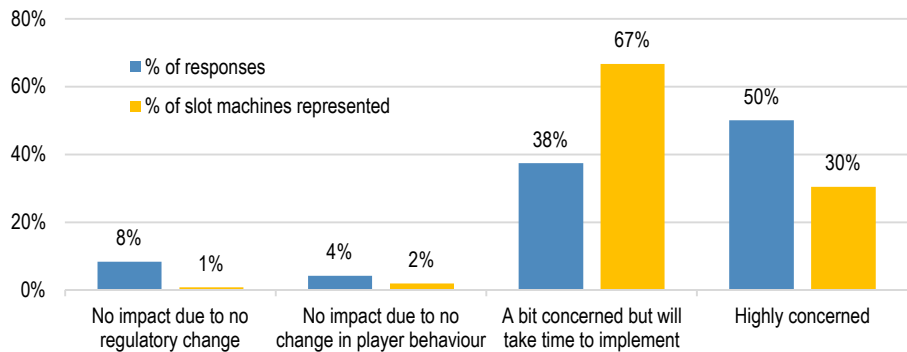
Source: J.P. Morgan estimates.

How do you view the potential changes to the regulatory outlook for venues following the casino inquiries?

Given the regulatory scrutiny across the wider gambling industry it is no surprise to see consensus expectations for some regulatory changes moving forward.

Only 8% of respondents representing 1% of machines expect no change in regulations moving forward.

Figure 24: View of changes in regulation following the casino enquiries



Source: J.P. Morgan estimates.

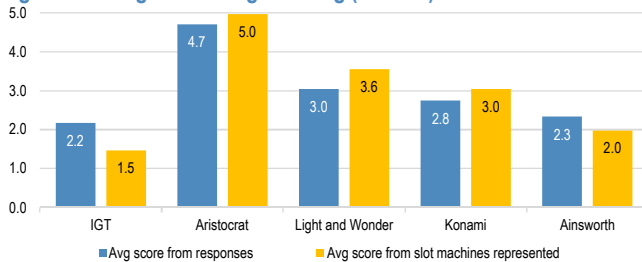
Competitive landscape

Which manufacturer is performing the best?

Aristocrat remains the top performing manufacturer, with 88% of respondents (representing 98% of machines) rating it as the best performer.

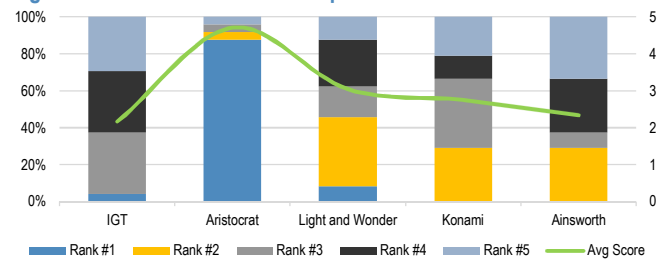
In terms of average ranking ALL is number 1 with an average score of 4.7, followed by Light & Wonder (3.0), Konami (2.8), Ainsworth (2.3) and IGT (2.2).

Figure 25: Weighted average ranking (out of 5)



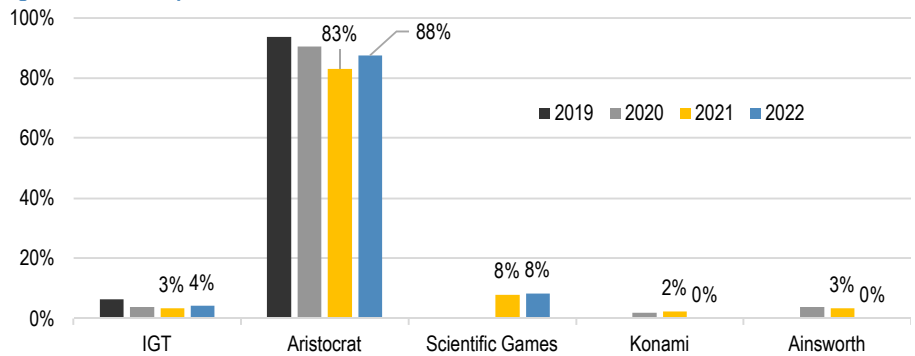
Source: J.P. Morgan estimates. Average score (#1=5, #2=4, #3=3, #4=2, #5=1).

Figure 26: Distribution of 2022 responses.



Source: J.P. Morgan estimates. Average score (#1=5, #2=4, #3=3, #4=2, #5=1).

Figure 27: % of responses ranked #1

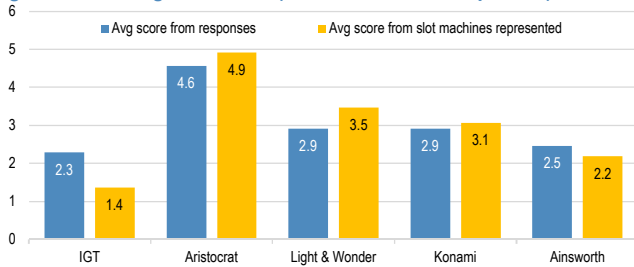


Source: J.P. Morgan estimates.

Which manufacturer is gaining the most floor share at present?

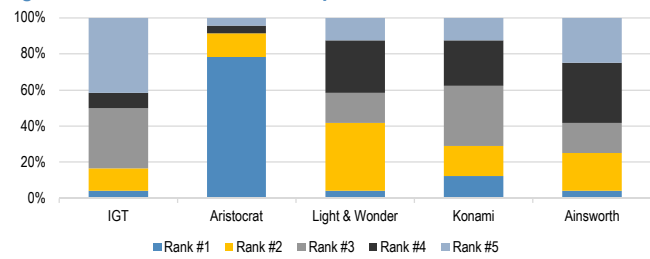
As we have seen historically, Aristocrat is still seen to be gaining the most floor share in 2022. 75% of survey respondents (representing 95% of machines) see Aristocrat gaining most floor share currently, followed by Konami (13% of survey respondents), Light & Wonder, Ainsworth and IGT (all ~4% of survey respondents).

Figure 28: Gaining floor share (% of number one responses)



Source: J.P. Morgan estimates. Average score (#1=5, #2=4, #3=3, #4=2, #5=1).

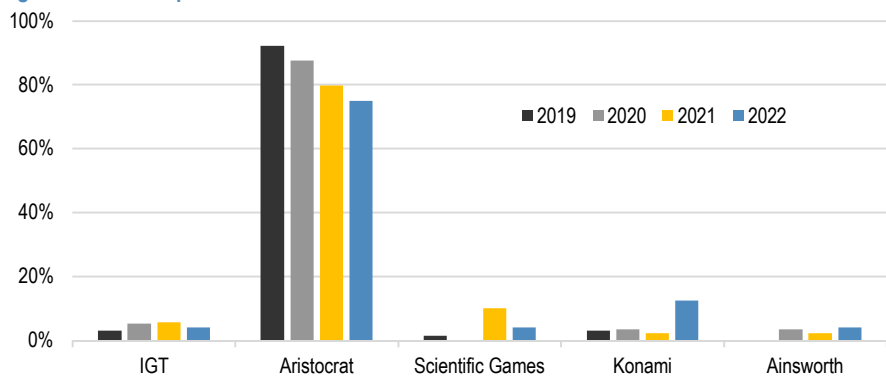
Figure 29: Distribution of 2021 responses.



Source: J.P. Morgan estimates. Average score (#1=5, #2=4, #3=3, #4=2, #5=1).

While Aristocrat commands a healthy lead in terms of floor share gain expectations it has been decreasing over time.

Figure 30: % of responses ranked #1



Source: J.P. Morgan estimates.

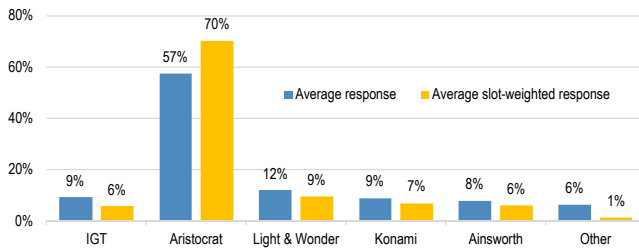
If you were starting your floor today, what percentage of your floor would you devote to the following manufacturers?

We believe this question can be a good proxy for long-term floor share estimates as casino and pubs shift the composition of the gaming floor with replacements.

In parallel with the previous two questions, **Aristocrat holds a commanding lead in terms of share, and therefore product approval.**

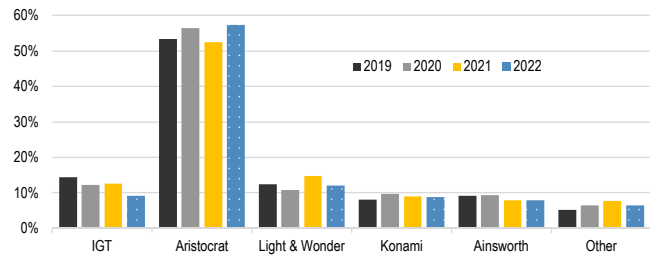
If starting a new floor today, ALL would represent 57% of the floor by respondent. In terms of slots represented in the survey ALL would take closer to 70% of a new floor if started today.

Figure 31: Allocation of new floor across manufacturers?



Source: J.P. Morgan estimates.

Figure 32: Shift in new floor allocation over time



Source: J.P. Morgan estimates.

Table 2: Shift in new floor allocation over time (% of respondents)

	2017	2018	2019	2020	2021	2022
IGT	8%	12%	14%	12%	13%	9%
Aristocrat	63%	59%	53%	56%	53%	57%
Light & Wonder	12%	12%	12%	11%	15%	12%
Konami	5%	5%	8%	10%	9%	9%
Ainsworth	11%	14%	9%	9%	8%	8%
Other	2%	5%	5%	6%	8%	6%

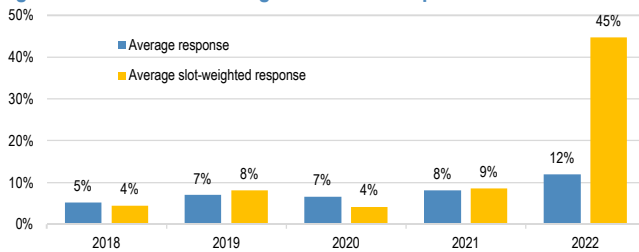
Source: J.P. Morgan estimates.

What allocation of your wallet are you spending on manufacturers outside of the top 5? How has this changed over the past 3 years?

Survey respondents are allocating an average of 12% of annual budgets to manufacturers outside the top-5. This has increased ~380bps y/y and has been a fairly persistent trend over time.

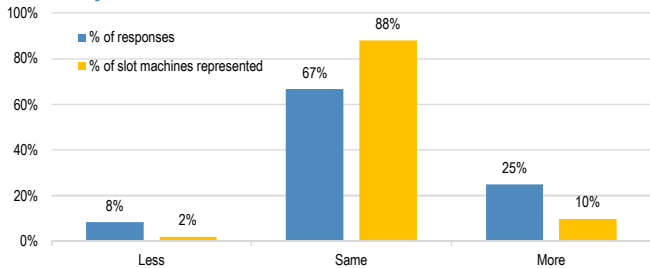
Weighted by slot representation this allocation is much higher – likely due to a higher allocation from larger venues, or an error in reading the question!

Figure 33: Allocation of budget outside the top 5



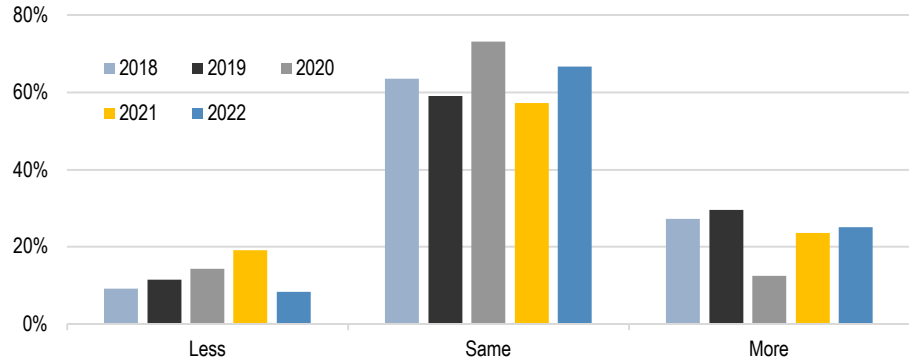
Source: J.P. Morgan estimates.

Figure 34: Change in spend on manufacturers outside the top 5 over the last 3 years.



Source: J.P. Morgan estimates.

Figure 35: Change in spend on manufacturers outside the top 5 (based on respondents).



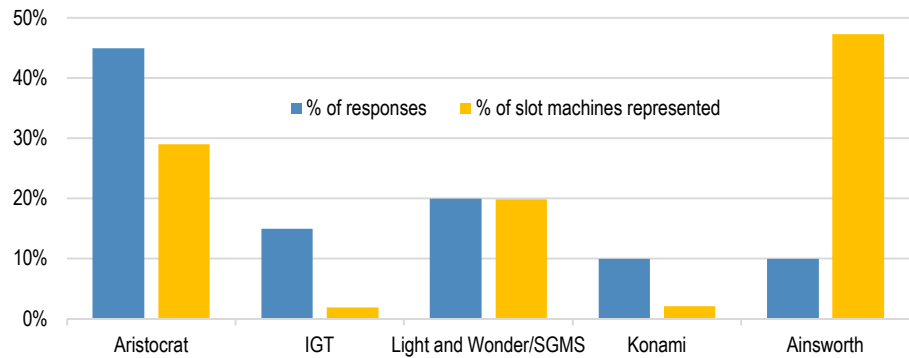
Source: J.P. Morgan estimates.

If impacted by supply chain issues which manufacturer has dealt with the issues the best?

Aristocrat generally received favorable responses to its handling of the covid-induced supply chain issues: 45% of respondents cited Aristocrat as dealing with issues the best, followed by L&W with 20% of respondents and IGT with 15% of respondents.

Interestingly, by weighted number of slots represented Ainsworth was the highest ranked.

Figure 36: Which manufacturer dealt with supply chain issues the best?



Source: J.P. Morgan estimates.

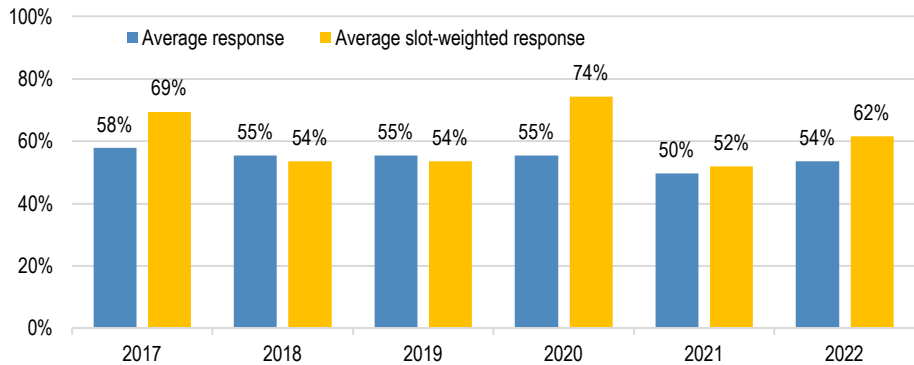
Aristocrat

We asked participants a few questions to gauge Aristocrat’s current and 1-year forward performance.

What proportion of your floor is Aristocrat at present?

Based on average response data, Aristocrat commands 54% of gaming machine floor share in 2022. Weighted by slots represented, Aristocrat has ~62% of floor share in 2022. This is a slight increase y/y for both average response and weighted slot representation.

Figure 37: Aristocrat share of casino floor over time



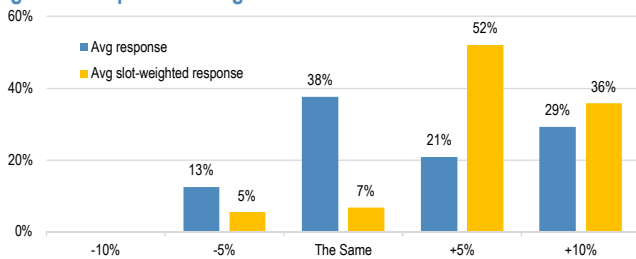
Source: J.P. Morgan estimates.

Do you intend to change the proportion of Aristocrat on your floor in the next year?

50% of respondents (representing 88% of slot machines) intend to increase their allocation to Aristocrat in the next 12 months versus 45% in 2021 (representing 69% of slot machines).

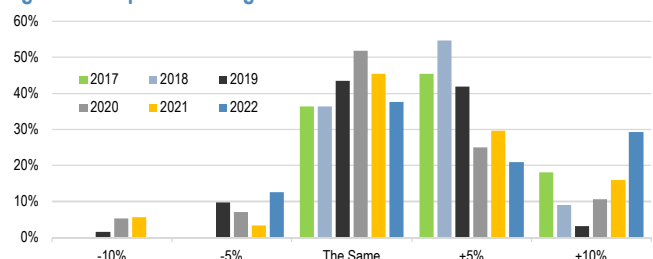
In terms of the magnitude of expected increase, the weighted average expected increase in allocation is 3.3% in 2022, versus 2.3% expected growth in 2021. This is a function of the above but also higher expectations for a decline (~9% in 2021 versus 13% in 2022).

Figure 38: Expected change in Aristocrat floor share



Source: J.P. Morgan estimates.

Figure 39: Expected change in Aristocrat floor share over time



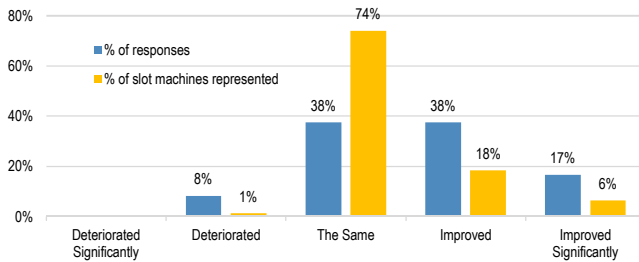
Source: J.P. Morgan estimates.

How has Aristocrat's game library changed in the past year?

Unsurprisingly, sentiment towards Aristocrat's game library is extremely favorable. Only 8% of responses (representing ~1% of surveyed slot machines) indicated saw a deterioration in Aristocrat's game library, consistent with 2021 levels.

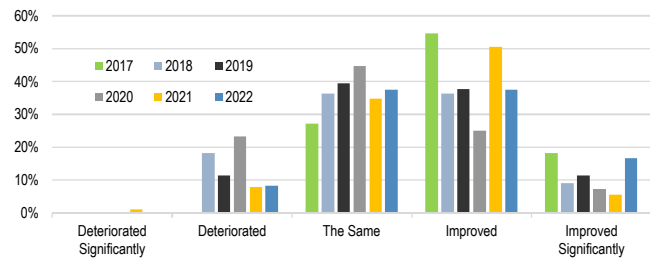
54% of respondents saw an improvement year on year, down slightly (~200bps) versus 56% of respondents in 2021. Of note however is the mix shift of these respondents. A much higher proportion saw a "significant improvement" in 2022 (~17%) versus 2021 (~6%).

Figure 40: Industry sentiment on Aristocrat's game library this year



Source: J.P. Morgan estimates.

Figure 41: Sentiment towards Aristocrat's game library over time

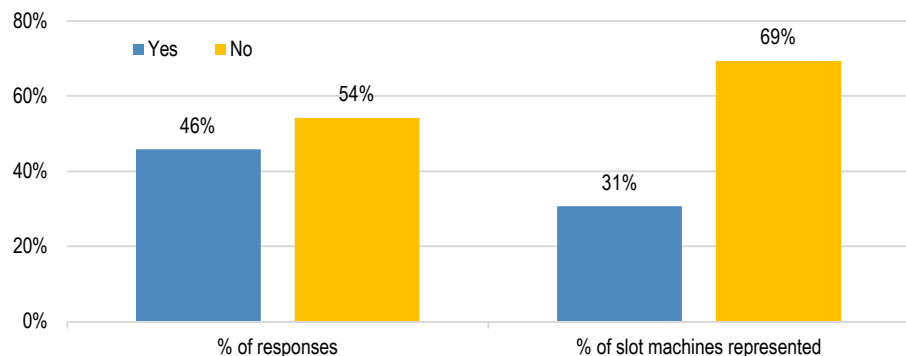


Source: J.P. Morgan estimates.

Will you be buying more of Aristocrat's Dragon Link product?

46% of respondents (representing 31% of survey slot machines) will be buying more of Aristocrat's Dragon Link product.

Figure 42: Aristocrat Dragon Link demand



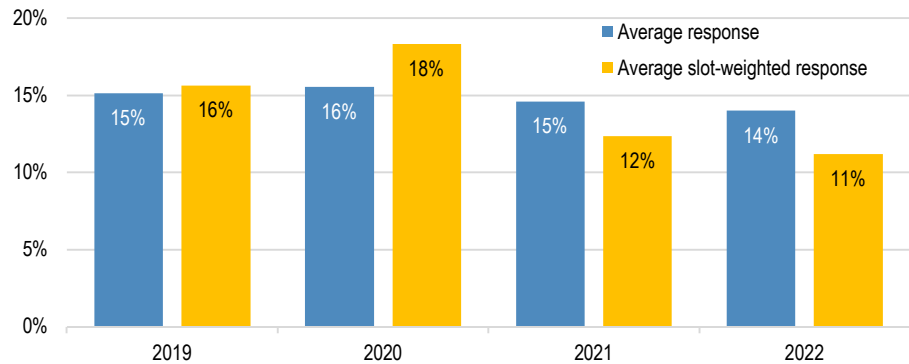
Source: J.P. Morgan estimates.

IGT

What proportion of your floor is IGT at present?

Survey participants indicated IGT obtained 14% share of the machines on their gaming floor on average in 2022 (versus 15% in 2021 and 16% in 2020).

Figure 43: IGT floor share over time

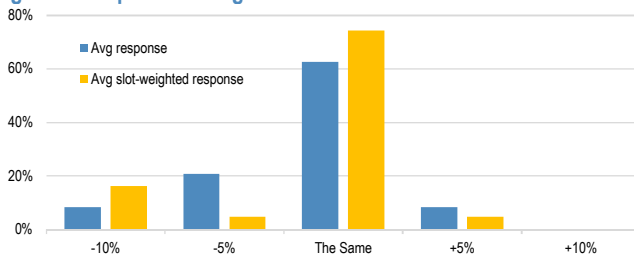


Source: J.P. Morgan estimates.

Do you intend to change the proportion of IGT on your floor in the next year?

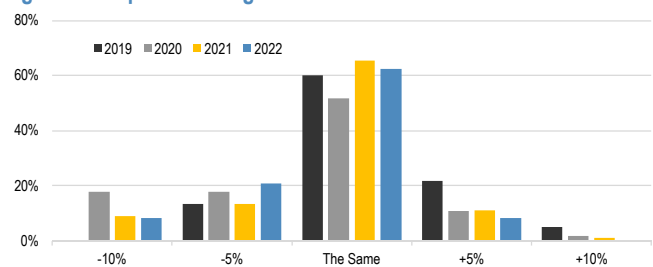
Expectations for shifts in share into the next 12 months are largely unchanged, with ~63% of respondents (representing 74% of slot machines) expecting no change in IGT floor share over the next 12 months. This is fairly consistent with the historical range of responses.

Figure 44: Expected change in IGT floor share



Source: J.P. Morgan estimates.

Figure 45: Expected change in IGT floor share over time



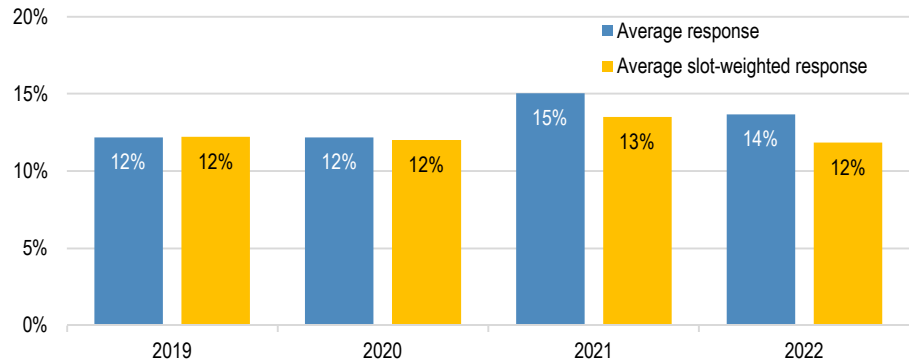
Source: J.P. Morgan estimates.

Light & Wonder

What proportion of your floor is Light & Wonder at present?

Survey participants indicated Light & Wonder obtained 14% share of the machines on their gaming floor on average in 2022 (versus 15% in 2021 and 12% in 2020).

Figure 46: Light & Wonder floor share over time

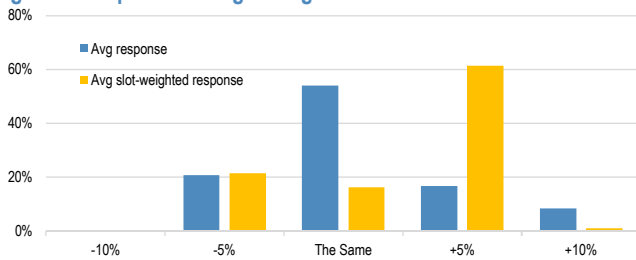


Source: J.P. Morgan estimates.

Do you intend to change the proportion of Light & Wonder on your floor in the next year?

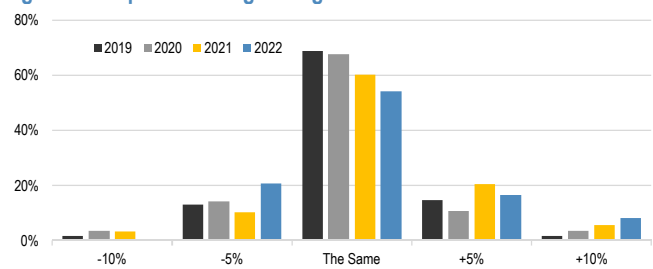
54% of respondents expect no change in Light & Wonder floor share over the next 12 months. However, when looking at the proportion of slots represented, we can see a higher weighting to growth expectations.

Figure 47: Expected change in Light & Wonder floor share



Source: J.P. Morgan estimates.

Figure 48: Expected change in Light & Wonder floor share over time



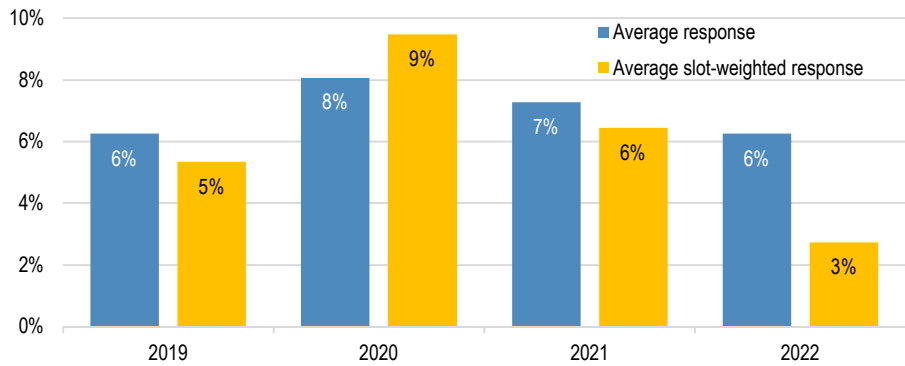
Source: J.P. Morgan estimates.

Konami

What proportion of your floor is Konami at present?

Survey participants indicated Konami obtained 6% share of the machines on their gaming floor on average in 2022 (versus 7% in 2021 and 8% in 2020).

Figure 49: Konami floor share over time

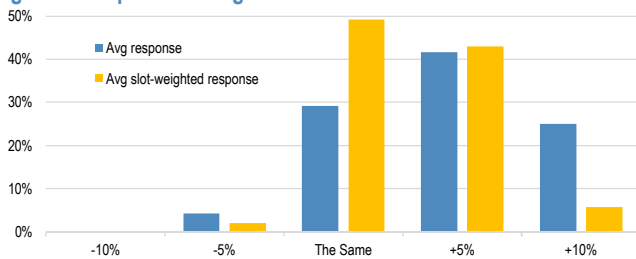


Source: J.P. Morgan estimates.

Do you intend to change the proportion of Konami on your floor in the next year?

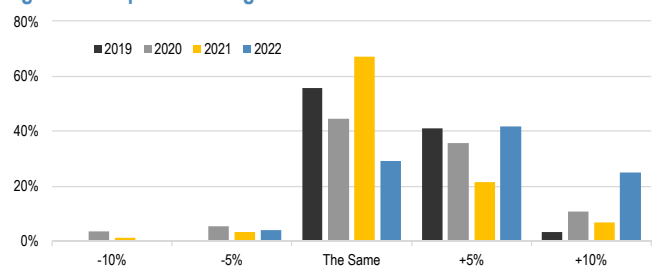
67% of respondents expect to increase Konami floor share over the next 12 months, versus ~28% in 2021.

Figure 50: Expected change in Konami floor share



Source: J.P. Morgan estimates.

Figure 51: Expected change in Konami floor share over time



Source: J.P. Morgan estimates.

Analyst Certification: The Research Analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple Research Analysts are primarily responsible for this report, the Research Analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to each security or issuer that the Research Analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect the Research Analyst’s personal views about any and all of the subject securities or issuers; and (2) no part of any of the Research Analyst’s compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the Research Analyst(s) in this report. For all Korea-based Research Analysts listed on the front cover, if applicable, they also certify, as per KOFIA requirements, that the Research Analyst’s analysis was made in good faith and that the views reflect the Research Analyst’s own opinion, without undue influence or intervention.

All authors named within this report are Research Analysts who produce independent research unless otherwise specified. In Europe, Sector Specialists (Sales and Trading) may be shown on this report as contacts but are not authors of the report or part of the Research Department.

Important Disclosures

Company-Specific Disclosures: Important disclosures, including price charts and credit opinion history tables, are available for compendium reports and all J.P. Morgan–covered companies, and certain non-covered companies, by visiting <https://www.jpmm.com/research/disclosures>, calling 1-800-477-0406, or e-mailing research.disclosure.inquiries@jpmorgan.com with your request.

Explanation of Equity Research Ratings, Designations and Analyst(s) Coverage Universe:

J.P. Morgan uses the following rating system: Overweight [Over the next six to twelve months, we expect this stock will outperform the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] Neutral [Over the next six to twelve months, we expect this stock will perform in line with the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] Underweight [Over the next six to twelve months, we expect this stock will underperform the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] Not Rated (NR): J.P. Morgan has removed the rating and, if applicable, the price target, for this stock because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating and, if applicable, the price target, no longer should be relied upon. An NR designation is not a recommendation or a rating. In our Asia (ex-Australia and ex-India) and U.K. small- and mid-cap equity research, each stock’s expected total return is compared to the expected total return of a benchmark country market index, not to those analysts’ coverage universe. If it does not appear in the Important Disclosures section of this report, the certifying analyst’s coverage universe can be found on J.P. Morgan’s research website, <https://www.jpmm.com>.

Coverage Universe: Carducci, Donald N: Aristocrat Leisure LTD (ALL.AX), Carsales.com Ltd (CAR.AX), Domain (DHG.AX), IDP Education Ltd (IEL.AX), News Corp (AU) (NWS.AX), Nine Entertainment (NEC.AX), PlaySide Studios (PLY.AX), PointsBet (PBH.AX), REA Group Ltd (REA.AX), Seek Ltd (SEK.AX), Seven West Media (SWM.AX), Star Entertainment Group Limited (SGR.AX), Tabcorp Holdings (TAH.AX), The Lottery Corporation (TLC.AX), oOh!media Limited (OML.AX)

J.P. Morgan Equity Research Ratings Distribution, as of July 02, 2022

	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage*	52%	37%	12%
IB clients**	50%	44%	34%
JPMS Equity Research Coverage*	51%	37%	12%
IB clients**	72%	65%	52%

*Please note that the percentages might not add to 100% because of rounding.

**Percentage of subject companies within each of the "buy," "hold" and "sell" categories for which J.P. Morgan has provided investment banking services within the previous 12 months.

For purposes only of FINRA ratings distribution rules, our Overweight rating falls into a buy rating category; our Neutral rating falls into a hold rating category; and our Underweight rating falls into a sell rating category. Please note that stocks with an NR designation are not included in the table above. This information is current as of the end of the most recent calendar quarter.

Equity Valuation and Risks: For valuation methodology and risks associated with covered companies or price targets for covered companies, please see the most recent company-specific research report at <http://www.jpmm.com>, contact the primary analyst or your J.P. Morgan representative, or email research.disclosure.inquiries@jpmorgan.com. For material information about the proprietary models used, please see the Summary of Financials in company-specific research reports and the Company Tearsheets, which are available to download on the company pages of our client website, <http://www.jpmm.com>. This report also sets out within it the material underlying assumptions used.

A history of J.P. Morgan investment recommendations disseminated during the preceding 12 months can be accessed on the Research & Commentary page of <http://www.jpmorganmarkets.com> where you can also search by analyst name, sector or financial instrument.

Analysts' Compensation: The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

Registration of non-US Analysts: Unless otherwise noted, the non-US analysts listed on the front of this report are employees of non-US affiliates of J.P. Morgan Securities LLC, may not be registered as research analysts under FINRA rules, may not be associated persons of J.P. Morgan Securities LLC, and may not be subject to FINRA Rule 2241 or 2242 restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

Other Disclosures

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.

UK MIFID FICC research unbundling exemption: UK clients should refer to [UK MIFID Research Unbundling exemption](#) for details of JPMorgan's implementation of the FICC research exemption and guidance on relevant FICC research categorisation.

All research material made available to clients are simultaneously available on our client website, J.P. Morgan Markets, unless specifically permitted by relevant laws. Not all research content is redistributed, e-mailed or made available to third-party aggregators. For all research material available on a particular stock, please contact your sales representative.

Any long form nomenclature for references to China; Hong Kong; Taiwan; and Macau within this research material are Mainland China; Hong Kong SAR (China); Taiwan (China); and Macau SAR (China).

J.P. Morgan Research may, from time to time, write on issuers or securities targeted by economic or financial sanctions imposed or administered by the governmental authorities of the U.S., EU, UK or other relevant jurisdictions (Sanctioned Securities). Nothing in this report is intended to be read or construed as encouraging, facilitating, promoting or otherwise approving investment or dealing in such Sanctioned Securities. Clients should be aware of their own legal and compliance obligations when making investment decisions.

Any digital or crypto assets discussed in this research report are subject to a rapidly changing regulatory landscape. For relevant regulatory advisories on crypto assets, including bitcoin and ether, please see <https://www.jpmorgan.com/disclosures/cryptoasset-disclosure>.

Exchange-Traded Funds (ETFs): J.P. Morgan Securities LLC ("JPMS") acts as authorized participant for substantially all U.S.-listed ETFs. To the extent that any ETFs are mentioned in this report, JPMS may earn commissions and transaction-based compensation in connection with the distribution of those ETF shares and may earn fees for performing other trade-related services, such as securities lending to short sellers of the ETF shares. JPMS may also perform services for the ETFs themselves, including acting as a broker or dealer to the ETFs. In addition, affiliates of JPMS may perform services for the ETFs, including trust, custodial, administration, lending, index calculation and/or maintenance and other services.

Options and Futures related research: If the information contained herein regards options- or futures-related research, such information is available only to persons who have received the proper options or futures risk disclosure documents. Please contact your J.P. Morgan Representative or visit <https://www.theocc.com/components/docs/riskstoc.pdf> for a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options or http://www.finra.org/sites/default/files/Security_Futures_Risk_Disclosure_Statement_2018.pdf for a copy of the Security Futures Risk Disclosure Statement.

Changes to Interbank Offered Rates (IBORs) and other benchmark rates: Certain interest rate benchmarks are, or may in the future become, subject to ongoing international, national and other regulatory guidance, reform and proposals for reform. For more information, please consult: https://www.jpmorgan.com/global/disclosures/interbank_offered_rates

Private Bank Clients: Where you are receiving research as a client of the private banking businesses offered by JPMorgan Chase & Co. and its subsidiaries ("J.P. Morgan Private Bank"), research is provided to you by J.P. Morgan Private Bank and not by any other division of J.P. Morgan, including, but not limited to, the J.P. Morgan Corporate and Investment Bank and its Global Research division.

Legal entity responsible for the production and distribution of research: The legal entity identified below the name of the Reg AC Research Analyst who authored this material is the legal entity responsible for the production of this research. Where multiple Reg AC Research Analysts authored this material with different legal entities identified below their names, these legal entities are jointly

responsible for the production of this research. Research Analysts from various J.P. Morgan affiliates may have contributed to the production of this material but may not be licensed to carry out regulated activities in your jurisdiction (and do not hold themselves out as being able to do so). Unless otherwise stated below, this material has been distributed by the legal entity responsible for production. If you have any queries, please contact the relevant Research Analyst in your jurisdiction or the entity in your jurisdiction that has distributed this research material.

Legal Entities Disclosures and Country-/Region-Specific Disclosures:

Argentina: JPMorgan Chase Bank N.A Sucursal Buenos Aires is regulated by Banco Central de la República Argentina (“BCRA”- Central Bank of Argentina) and Comisión Nacional de Valores (“CNV”- Argentinian Securities Commission) - ALYC y AN Integral N°51). **Australia:** J.P. Morgan Securities Australia Limited (“JPMSAL”) (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by the Australian Securities and Investments Commission and is a Market, Clearing and Settlement Participant of ASX Limited and CHIX. This material is issued and distributed in Australia by or on behalf of JPMSAL only to "wholesale clients" (as defined in section 761G of the Corporations Act 2001). A list of all financial products covered can be found by visiting <https://www.jpmm.com/research/disclosures>. J.P. Morgan seeks to cover companies of relevance to the domestic and international investor base across all Global Industry Classification Standard (GICS) sectors, as well as across a range of market capitalisation sizes. If applicable, in the course of conducting public side due diligence on the subject company(ies), the Research Analyst team may at times perform such diligence through corporate engagements such as site visits, discussions with company representatives, management presentations, etc. Research issued by JPMSAL has been prepared in accordance with J.P. Morgan Australia’s Research Independence Policy which can be found at the following link: [J.P. Morgan Australia - Research Independence Policy](#). **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissao de Valores Mobiliarios (CVM) and by the Central Bank of Brazil. Ombudsman J.P. Morgan: 0800-7700847 / ouvidoria.jp.morgan@jpmorgan.com. **Canada:** J.P. Morgan Securities Canada Inc. is a registered investment dealer, regulated by the Investment Industry Regulatory Organization of Canada and the Ontario Securities Commission and is the participating member on Canadian exchanges. This material is distributed in Canada by or on behalf of J.P.Morgan Securities Canada Inc. **Chile:** Inversiones J.P. Morgan Limitada is an unregulated entity incorporated in Chile. **China:** J.P. Morgan Securities (China) Company Limited has been approved by CSRC to conduct the securities investment consultancy business. **Dubai International Financial Centre (DIFC):** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - The Gate, West Wing, Level 3 and 9 PO Box 506551, Dubai, UAE. This material has been distributed by JP Morgan Chase Bank, N.A., Dubai Branch to persons regarded as professional clients or market counterparties as defined under the DFSA rules. **European Economic Area (EEA):** Unless specified to the contrary, research is distributed in the EEA by J.P. Morgan SE (“JPM SE”), which is subject to prudential supervision by the European Central Bank (“ECB”) in cooperation with BaFin and Deutsche Bundesbank in Germany. JPM SE is a company headquartered in Frankfurt with registered address at TaunusTurm, Taunustor 1, Frankfurt am Main, 60310, Germany. The material has been distributed in the EEA to persons regarded as professional investors (or equivalent) pursuant to Art. 4 para. 1 no. 10 and Annex II of MiFID II and its respective implementation in their home jurisdictions (“EEA professional investors”). This material must not be acted on or relied on by persons who are not EEA professional investors. Any investment or investment activity to which this material relates is only available to EEA relevant persons and will be engaged in only with EEA relevant persons. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong, and J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. JP Morgan Chase Bank, N.A., Hong Kong (CE Number AAL996) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission, is organized under the laws of the United States with limited liability. Where the distribution of this material is a regulated activity in Hong Kong, the material is distributed in Hong Kong by or through J.P. Morgan Securities (Asia Pacific) Limited and/or J.P. Morgan Broking (Hong Kong) Limited. **India:** J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai – 400098, is registered with the Securities and Exchange Board of India (SEBI) as a ‘Research Analyst’ having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited and the Bombay Stock Exchange Limited (SEBI Registration Number – INZ000239730) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: <http://www.jpmpi.com>. JPMorgan Chase Bank, N.A. - Mumbai Branch is licensed by the Reserve Bank of India (RBI) (Licence No. 53/ Licence No. BY.4/94; SEBI - IN/CUS/014/ CDSL : IN-DP-CDSL-444-2008/ IN-DP-NSDL-285-2008/ INBI00000984/ INE231311239) as a Scheduled Commercial Bank in India, which is its primary license allowing it to carry on Banking business in India and other activities, which a Bank branch in India are permitted to undertake. For non-local research material, this material is not distributed in India by J.P. Morgan India Private Limited. **Indonesia:** PT J.P. Morgan Sekuritas Indonesia is a member of the Indonesia Stock Exchange and is registered and supervised by the Otoritas Jasa Keuangan (OJK). **Korea:** J.P. Morgan Securities (Far East) Limited, Seoul Branch, is a member of the Korea Exchange (KRX). JPMorgan Chase Bank, N.A., Seoul Branch, is licensed as a branch office of foreign bank (JPMorgan Chase Bank, N.A.) in Korea. Both entities are regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). For non-macro research material, the material is distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch. **Japan:** JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X), which is a Participating Organization of Bursa Malaysia Berhad and holds a Capital Markets Services License issued by the Securities Commission in Malaysia. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V. and J.P. Morgan Grupo Financiero are members of the Mexican Stock Exchange and are authorized to act as a broker dealer by the

National Banking and Securities Exchange Commission. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to "wholesale clients" (as defined in the Financial Markets Conduct Act 2013). JPMSAL is registered as a Financial Service Provider under the Financial Service providers (Registration and Dispute Resolution) Act of 2008. **Pakistan:** J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. **Philippines:** J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Russia:** CB J.P. Morgan Bank International LLC is regulated by the Central Bank of Russia. **Singapore:** This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMSS) [MCI (P) 060/08/2022 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited, and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore), both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of "accredited investors," "expert investors" or "institutional investors," as defined under Section 4A of the SFA. Recipients of this material in Singapore are to contact JPMSS or JPMCB Singapore in respect of any matters arising from, or in connection with, the material. As at the date of this material, JPMSS is a designated market maker for certain structured warrants listed on the Singapore Exchange where the underlying securities may be the securities discussed in this material. Arising from its role as a designated market maker for such structured warrants, JPMSS may conduct hedging activities in respect of such underlying securities and hold or have an interest in such underlying securities as a result. The updated list of structured warrants for which JPMSS acts as designated market maker may be found on the website of the Singapore Exchange Limited: <http://www.sgx.com>. **South Africa:** J.P. Morgan Equities South Africa Proprietary Limited and JPMorgan Chase Bank, N.A., Johannesburg Branch are members of the Johannesburg Securities Exchange and are regulated by the Financial Services Board. **Taiwan:** J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. Material relating to equity securities is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited, subject to the license scope and the applicable laws and the regulations in Taiwan. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material that may give rise to conflicts of interests, unless otherwise disclosed in the "Important Disclosures" in this material. **Thailand:** This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission, and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500. **UK:** Unless specified to the contrary, research is distributed in the UK by J.P. Morgan Securities plc ("JPMS plc") which is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. JPMS plc is registered in England & Wales No. 2711006, Registered Office 25 Bank Street, London, E14 5JP. This material is directed in the UK only to: (a) persons having professional experience in matters relating to investments falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) (Order) 2005 ("the FPO"); (b) persons outlined in article 49 of the FPO (high net worth companies, unincorporated associations or partnerships, the trustees of high value trusts, etc.); or (c) any persons to whom this communication may otherwise lawfully be made; all such persons being referred to as "UK relevant persons". This material must not be acted on or relied on by persons who are not UK relevant persons. Any investment or investment activity to which this material relates is only available to UK relevant persons and will be engaged in only with UK relevant persons. Research issued by JPMS plc has been prepared in accordance with JPMS plc's policy for prevention and avoidance of conflicts of interest related to the production of Research which can be found at the following link: [J.P. Morgan EMEA - Research Independence Policy](#). **U.S.:** J.P. Morgan Securities LLC ("JPMS") is a member of the NYSE, FINRA, SIPC, and the NFA. JPMorgan Chase Bank, N.A. is a member of the FDIC. Material published by non-U.S. affiliates is distributed in the U.S. by JPMS who accepts responsibility for its content.

General: Additional information is available upon request. The information in this material has been obtained from sources believed to be reliable. While all reasonable care has been taken to ensure that the facts stated in this material are accurate and that the forecasts, opinions and expectations contained herein are fair and reasonable, JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) make no representations or warranties whatsoever to the completeness or accuracy of the material provided, except with respect to any disclosures relative to J.P. Morgan and the Research Analyst's involvement with the issuer that is the subject of the material. Accordingly, no reliance should be placed on the accuracy, fairness or completeness of the information contained in this material. Any data discrepancies in this material could be the result of different calculations and/or adjustments. J.P. Morgan accepts no liability whatsoever for any loss arising from any use of this material or its contents, and neither J.P. Morgan nor any of its respective directors, officers or employees, shall be in any way responsible for the contents hereof, apart from the liabilities and responsibilities that may be imposed on them by the relevant regulatory authority in the jurisdiction in question, or the regulatory regime thereunder. Opinions, forecasts or projections contained in this material represent J.P. Morgan's current opinions or judgment as of the date of the material only and are therefore subject to change without notice. Periodic updates may be provided on companies/industries based on company-specific developments or announcements, market conditions or any other publicly available information. There can be no assurance that future results or events will be consistent with any such opinions, forecasts or projections, which represent only one possible outcome. Furthermore, such opinions, forecasts or projections are subject to certain risks, uncertainties and assumptions that have not been verified, and future actual results or events could differ materially. The value of, or income from, any investments referred to in

this material may fluctuate and/or be affected by changes in exchange rates. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Past performance is not indicative of future results. Accordingly, investors may receive back less than originally invested. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. The recipients of this material must make their own independent decisions regarding any securities or financial instruments mentioned herein and should seek advice from such independent financial, legal, tax or other adviser as they deem necessary. J.P. Morgan may trade as a principal on the basis of the Research Analysts' views and research, and it may also engage in transactions for its own account or for its clients' accounts in a manner inconsistent with the views taken in this material, and J.P. Morgan is under no obligation to ensure that such other communication is brought to the attention of any recipient of this material. Others within J.P. Morgan, including Strategists, Sales staff and other Research Analysts, may take views that are inconsistent with those taken in this material. Employees of J.P. Morgan not involved in the preparation of this material may have investments in the securities (or derivatives of such securities) mentioned in this material and may trade them in ways different from those discussed in this material. This material is not an advertisement for or marketing of any issuer, its products or services, or its securities in any jurisdiction.

"Other Disclosures" last revised August 27, 2022.

Copyright 2022 JPMorgan Chase & Co. All rights reserved. This material or any portion hereof may not be reprinted, sold or redistributed without the written consent of J.P. Morgan.