



LIQUID AND GRIT

SOCIAL CASINO REPORT

Competitive research and actionable recommendations for
product owners on innovations in social casino

JUNE 2016

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KEY FEATURES AND RECOMMENDATIONS

- Primary coin bonuses
- Subscriptions
- Welcome back bonuses
- One-click purchases
- Cash-back mechanics

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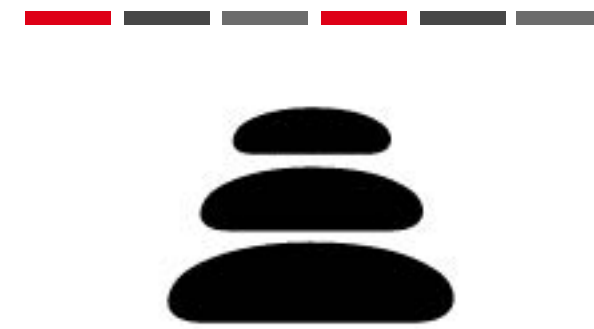
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INTRODUCTION



Dear Product Owner,

Steve Jobs believed that “Quality is more important than quantity. . . . One home run is much better than two doubles.” In today's competitive market, quality products are imperative to impress customers while fending off fast followers.

The Japanese define quality with two distinct components: *atarimae hinshitsu* (当たり前品質), meaning things work well, and *miryokuteki hinshitsu* (魅力的品質), meaning things are enchanting. To release a home-run product, you need both components.

Therefore, this month's report goes deeper to include aesthetic details in addition to functional information. Our first recommendation involves the primary coin bonus, one of the most important yet least innovative features in social casino. We break down several social casino and non-casino games to analyze the full potential of this significant feature.

Apple just announced that the App Store will offer subscriptions to all developers. To incentivize developers to adopt subscriptions, Apple will give developers an 85% revenue share for all players who subscribe for a year. In light of this, we have researched the top-grossing entertainment and information apps to recommend subscription best practices.

This month, we expanded the Quick Wins section to help fill your roadmap with features that are easy to implement and deliver high-ROI. These will keep your development team busy improving the aesthetic quality of your game while you spec the next home run.

The Economy Deep Dive section breaks down Infinity Slots, a game that was first released February 25, 2016, and is now the 25th highest grossing social casino game on iOS. Murka's success, both with Infinity Slots and Scatter Slots, demonstrates the value of quality and innovation in social casino.

All the best,

Brett Nowak
Editor-in-Chief

KEY FEATURES AND RECOMMENDATIONS

FEATURE RECOMMENDATIONS SUMMARY

Invest in the primary coin bonus—one of the most important features. Test the unknowns in the subscription funnel and adopt quick wins to fill the roadmap with small but high-ROI features

Feature	Impact	Recommendations
Primary coin bonuses	<ul style="list-style-type: none">• Increase retention• Increase revenue	<ul style="list-style-type: none">• Add play-based appointment bonuses. Make the time between bonuses variable and based on player engagement• Monetize with secondary currency or direct purchases
Subscriptions	<ul style="list-style-type: none">• Drive revenue• Increase long-term retention	<ul style="list-style-type: none">• Test conversion and price assumptions• Add a retention mechanic to subscription offer and stack rewards toward the end of the year
Welcome back bonuses	<ul style="list-style-type: none">• Decrease churn	<ul style="list-style-type: none">• Add a welcome back bonus of chips or free spins to likely to lapse (not already lapsed), non-paying players• Offer larger discounted packages to likely to lapse payers
One-click purchases	<ul style="list-style-type: none">• Increase transactions	<ul style="list-style-type: none">• Add a one-click purchase flow to tournaments, or another highly used feature, with an appropriately-sized package
Cash-back mechanics	<ul style="list-style-type: none">• Increase transactions per spender	<ul style="list-style-type: none">• Adopt familiar, real-world purchasing mechanics, such as the sandwich card and cash-back features, to retain spenders

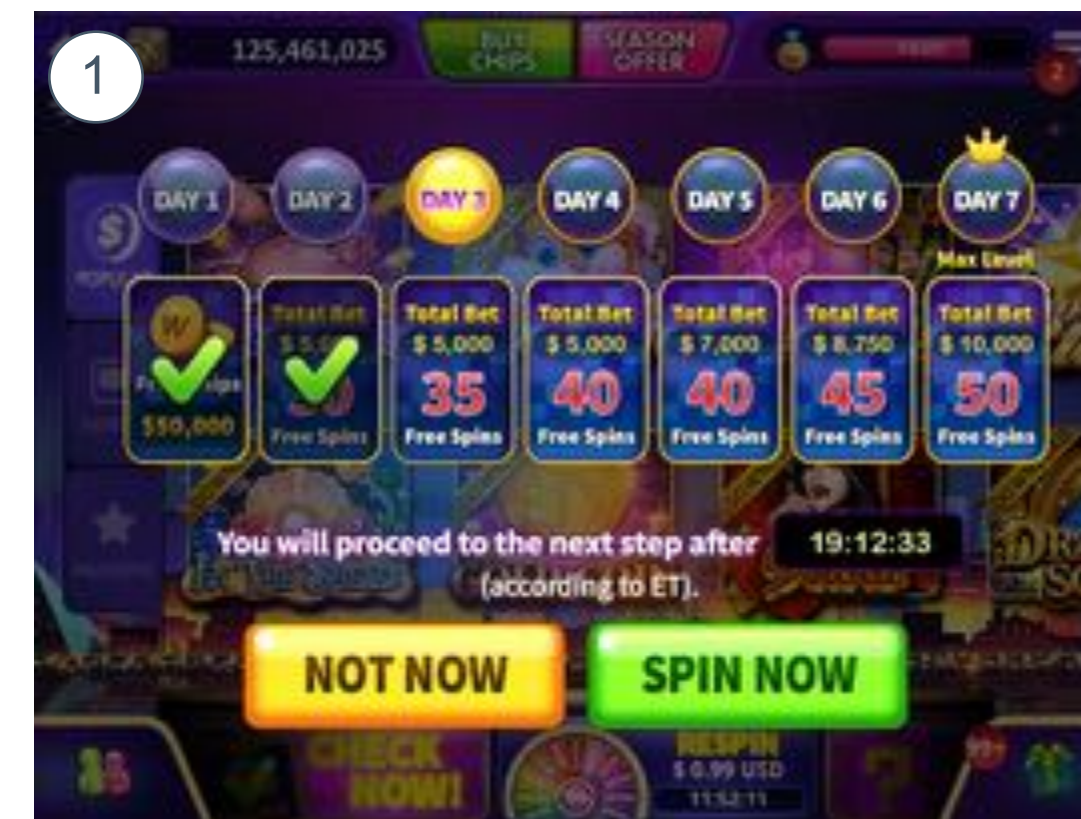
PRIMARY COIN BONUSES

DOUBLEU CASINO

To incentivize sharing, DoubleU Casino gives players free daily spins and a X2 mechanic to a daily wheel

Details

- The number of free daily spins and the bet amount per spin increases as players return on consecutive days (image 1).
- Super free spins rewards 30 free spins with a bet amount of 6,000 chips, which is \$0.60 total value (image 2).
- The super free spins mechanic incentivizes players to download the newest slot machine (image 3). In the machine, players see a countdown of their spins. After completing the 30 spins, players are notified of their total winnings.
- Players also receive a daily mystery gift, which is simply free coins (image 4).
- DoubleU Casino also offers players a daily wheel bonus with a level bonus, friends bonus, and active friends bonus (image 5).
- The X2 chance mechanic allows players to send 1/5th of their daily bonus to five of their friends. If five friends click on the link, the sending player receives X2 their original daily bonus (image 6).

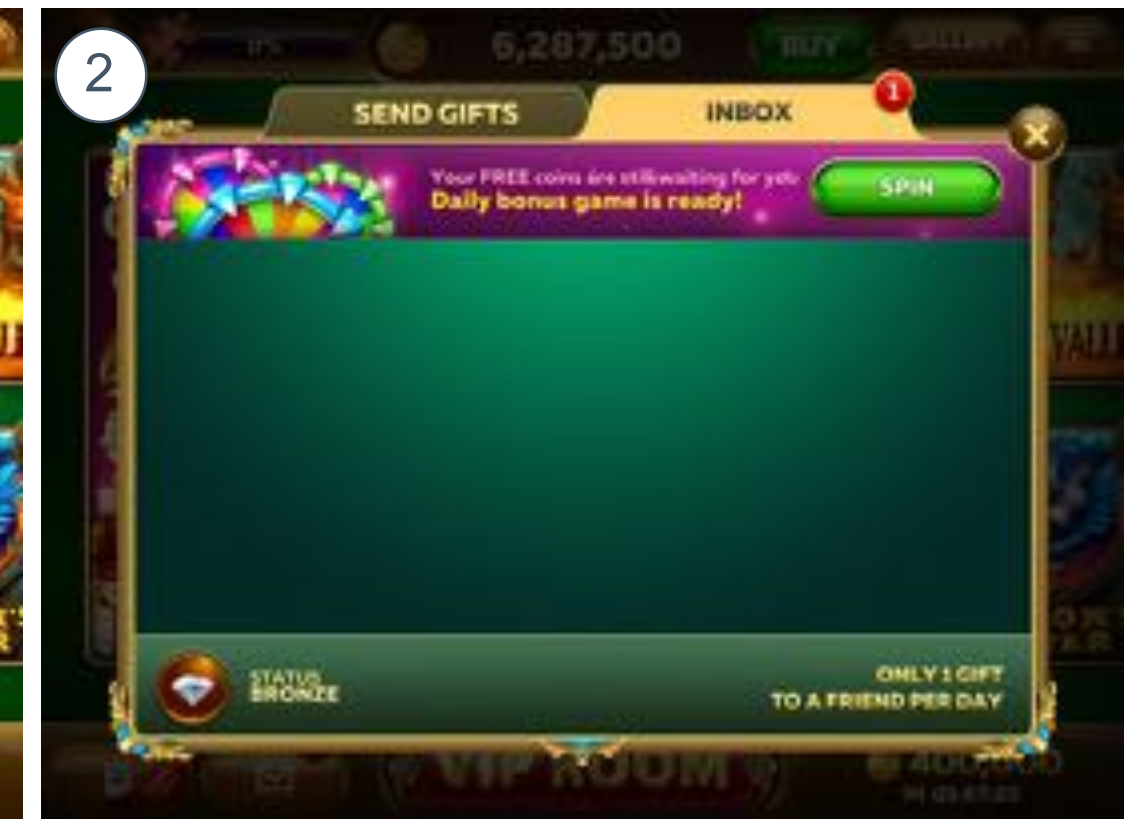


INFINITY SLOTS

Infinity Slots' daily bonus includes a pick 'em mechanic, multiple wheels, a consecutive-days progress bar, and status multipliers

Details

- Infinity Slots notifies players when they have a daily bonus to collect with a red token over the inbox icon in the bottom left corner of the lobby. Clicking the icon takes players to the inbox (images 1 & 2).
- To quickly build an inbox feature, see page 20 of the May Social Casino report, where we discuss Appoxee, a mobile marketing automation tool.
- The daily bonus has multiple components:
 1. A set of nine envelopes the player taps to open and find the colored diamond.
 2. One active and two darkened (locked) wheels on which the diamonds are placed. Players must collect puzzle pieces to unlock darkened wheels.
 3. A progress bar notifying players that each consecutive day played increases the number of envelope taps (image 3).
- After a player spins, the Status Bonus table appears, informing players of the bonus multiplier given based on their status. In this case, the bronze status receives a x1 bonus (image 4).
- A bar appears at the bottom to show players what they receive: the daily bonus times the status bonus (in this case 500,000 coins) (image 5).
- After a nice collecting coins animation feature, marketing dialogue appears promoting an extra spin for \$1.99 (image 6).



CLASH ROYALE

Clash Royale has a complex primary and secondary bonus system with both engagement and time-based bonus rewards

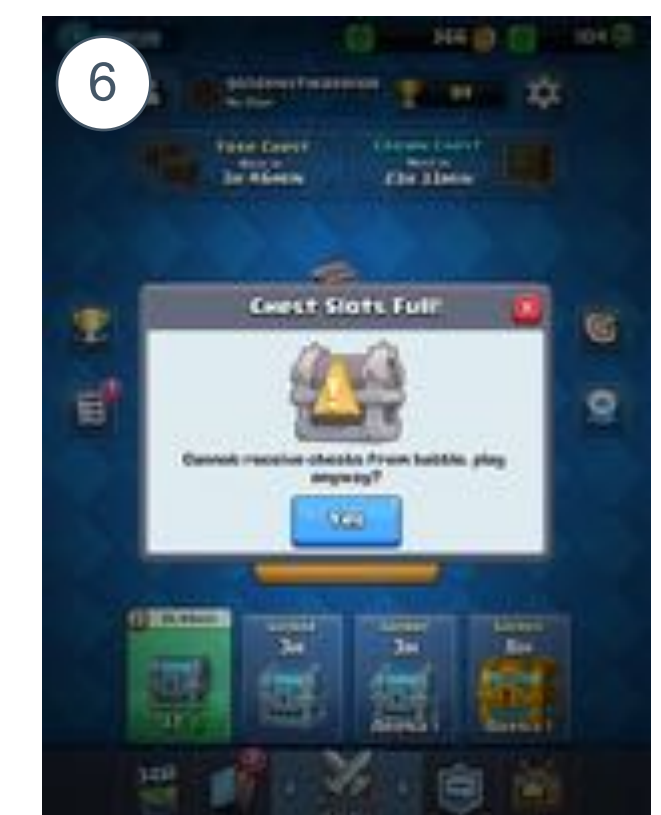
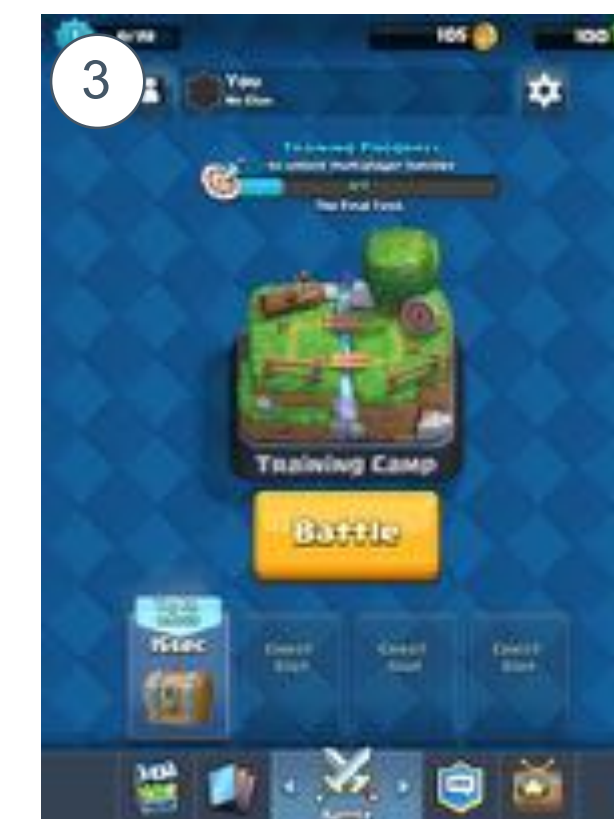
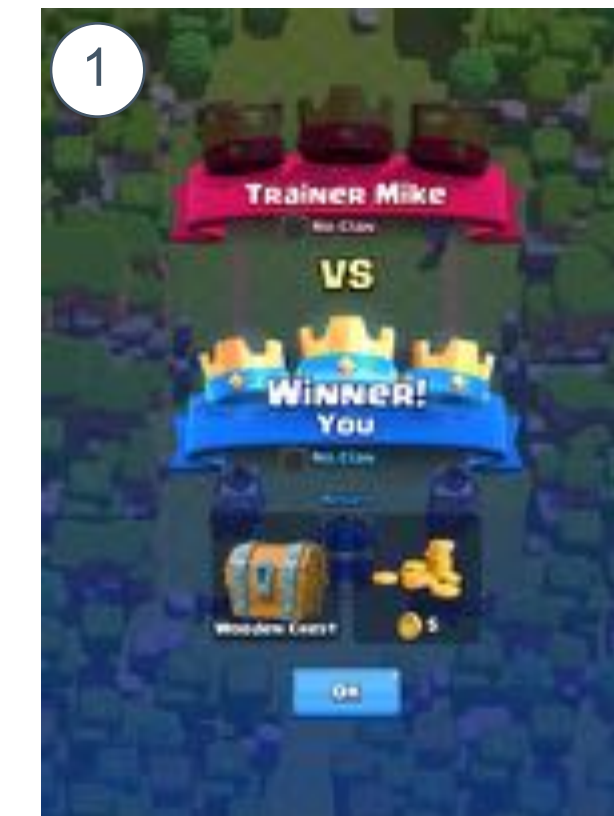
Details

Earned chests:

- Players earn chests after a victory in game play if a player has a chest slot open (image 1).
- To start, players are given wooden chests that are unlocked after 15 seconds (image 2). Once the player taps a chest to unlock it, the countdown timer begins.
- Chests can be unlocked with gems, the game's secondary currency, or by waiting. The reward in each chest (i.e., the number of coins and cards it contains) is shown to players but players can't tell which specific cards they will actually receive (image 3).

Free chests:

- Once players complete the tutorial, a free chest and crown chest box appears. The free chest is unlocked to players every four hours, much like a primary coin bonus in slots games, and the crown chest is unlocked to players every 24 hours. However, once a crown chest is unlocked, it must be opened within 10 plays (image 4).
- Chests increase in value and time to unlock: the wooden chest takes 15 seconds, the silver chest takes three hours and the gold chest takes eight hours to unlock (image 5).
- Only one chest can be counting down at a time, and there are four slots for chests. Once all the slots are full, a player receives a notification that all chest slots are full (image 6).



TOP 10 GROSSING

Daily bonus wheels with return and friend bonuses are most common.
Playtika games adopt a simple inbox daily bonus

Game	Strength	Notes
Big Fish Casino	●	Daily bonus wheel with return and friend bonus (image 1)
Slotomania Casino	●	Daily bonus in the inbox (image 2) and a free store bonus
DoubleDown Casino	●	Daily bonus wheel with return and friend bonus
Heart of Vegas	●	Daily bonus wheel with return and friend bonus
House of Fun	●	Daily bonus in the inbox
Jackpot Party Casino	●	Daily bonus wheel with return and friend bonus
Wizard of Oz Slots	●	Dialogue with daily bonus, return bonus, and VIP bonus (image 3)
World Series of Poker	●	Bonus given every four hours with a mega bonus wheel every fifth spin
myVegas	●	Daily bonus wheel with return multiplier and level bonus
Viva Slots Las Vegas	●	Dialogue with daily bonus and return multiplier



TOP 11 – 20 GROSSING

Scatter Slots uses a level multiplier. DoubleU Casino includes a daily bonus wheel, daily free spins, and mystery gifts

Game	Strength	Notes
DoubleU Casino	●	Daily bonus wheel, daily free spins, and mystery gifts
Scatter Slots	●	Daily bonus, level multiplier, return multiplier, and new review (image 1)
Quick Hit Slots	●	Lottery bonus, return bonus, and friend bonus (image 2)
Caesars Slots	●	Daily bonus wheel with return bonus
Gold Fish Casino Slots	●	Bonus every four hours
KONAMI Slots	●	Daily bonus wheel with return bonus
Hit it Rich!	●	Daily bonus, return bonus, and friend bonus with three wheels (image 3)
Zynga Poker	●	Daily coin bonus slot machine with multiplier
GSN Casino	●	Daily bonus wheel with return multiplier
DoubleUp Slots	●	Bonus wheel every four hours with VIP bonus



TOP 21 – 30 GROSSING

Black Diamond Slots has a magic spin gem in addition to the daily bonus. Infinity Slots has an innovative daily bonus. Jackpotjoy Slots gives a mystery gift

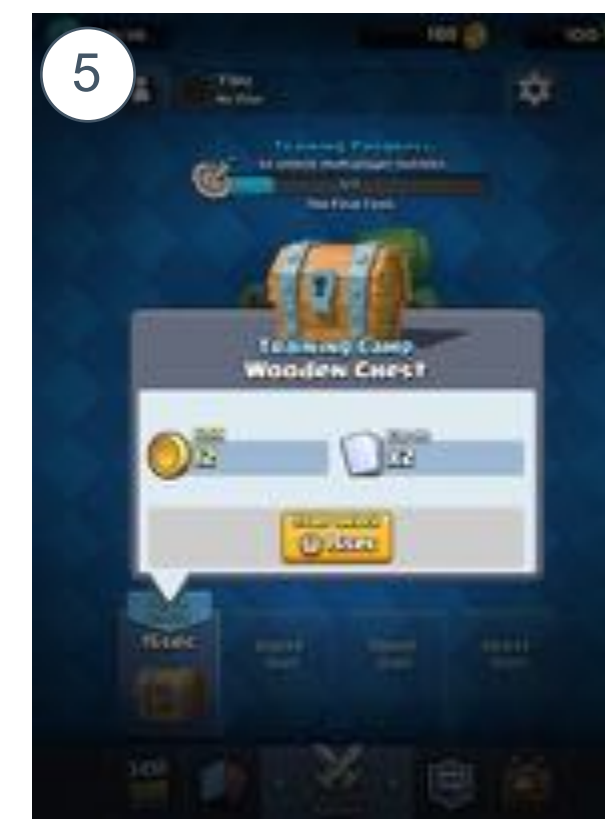
Game	Strength	Notes
Black Diamond Slots	●	Daily bonus with VIP, friend, and return bonus plus a magic spin gem, which leads to a mega-spin (image 1)
Old Vegas Slots	●	Daily and hourly bonus dialogue
Willy Wonka Slots	●	Daily bonus, streak bonus, and VIP bonus
Lucky Play Casino Slots	●	Free chips only
Infinity Slots	●	Daily bonus with multiple wheels, streak bonus, and status multipliers (image 2)
Texas Poker	●	Free chips only
GSN Grand Casino	●	Daily bonus wheel with streak bonus
Jackpotjoy Slots	●	Mystery coin gift, loyalty bonus, and friend bonus
Vegas Downtown Slots	●	Coin bonus given within gift dialogue (image 3)
Slots - Classic Vegas Casino	●	Daily bonus that increases seven days in a row with VIP bonus



RECOMMENDATIONS

Add play-based appointment bonuses. Make the time between bonuses variable and based on player engagement. Monetize with secondary currency or direct purchases

- **Add game-based, unlockable bonuses:** In addition to the primary and secondary coin bonuses, give out game-based bonuses, like Clash Royale (image 1).
- **Adjust time between bonuses based on an engagement score:** For less engaged players (i.e., new or recent returners), distribute bonuses within short time intervals. For example, the first dragon in DragonVale takes five seconds to incubate (image 2), and the first wooden chest in Clash Royale takes fifteen seconds to unlock.
- **Put a limit on the number of rewards with a countdown timer:** Like Clash Royale, only let one package count down at a time (image 3).
- **Test the crop mechanic:** Put a time limit on when players can collect the reward.
- **Test adding UGC:** Scatter Slots added new reviews and calls out the reviewer: “Thanks to Lee 79, everyone gets a surprise” (image 4).
- **Offer the ability to speed up the time-to-collect with either a secondary currency or direct purchase:** Add this functionality in a follow-up release (image 5).
- **Make the design unique:** Either make it simple, like Slotomania’s inbox, or complex, like Infinity Slots’ multiple wheel mechanic...but make it unique.
- **Consider adopting proven bonus-game mechanics:** Quick Hit Slots has some classic, fun bonus game mechanics that could be templates for a new daily bonus mechanic (image 6).
- **Monitor loading times and watch players interact with Appsee:** Appsee lets you watch players interact with your game, including where they click during the daily bonus.



ADDITIONAL CONSIDERATIONS

Decrease risk by releasing to >30 day-old, non-paying players. Decrease cost by adding the feature to an already-built notification center. Focus the test analysis on retention and wallet inflation

Details

- **Hypothesis:** If play-based bonuses are added to the game, player retention will increase.
- **Estimated impact:** Base estimate on previously released retention features, like the secondary coin bonus.
- **Metrics:** Engagement, retention, monetization (both directly from the feature and overall), and wallets for inflation.
- **Potential issues:** 1) wallet inflation, 2) reverting the feature if negative, and 3) development costs
- **Decreasing risk:**
 - Release test initially to >30 day-old, non-paying players to first test retention impact without risking monetization. Err on the side of small bonuses
 - Make the feature feel temporary at first (although this might skew numbers).
 - Keep the design simple with a timer that is messaged in the inbox or other notification center.
- **Test:** Release to a small percentage of users initially, then ramp up as you adjust the bonuses and metrics improve.
- **Marketing:** Initially release with the typical in-game marketing for new features. Add external marketing when the feature is released to 100% of users.

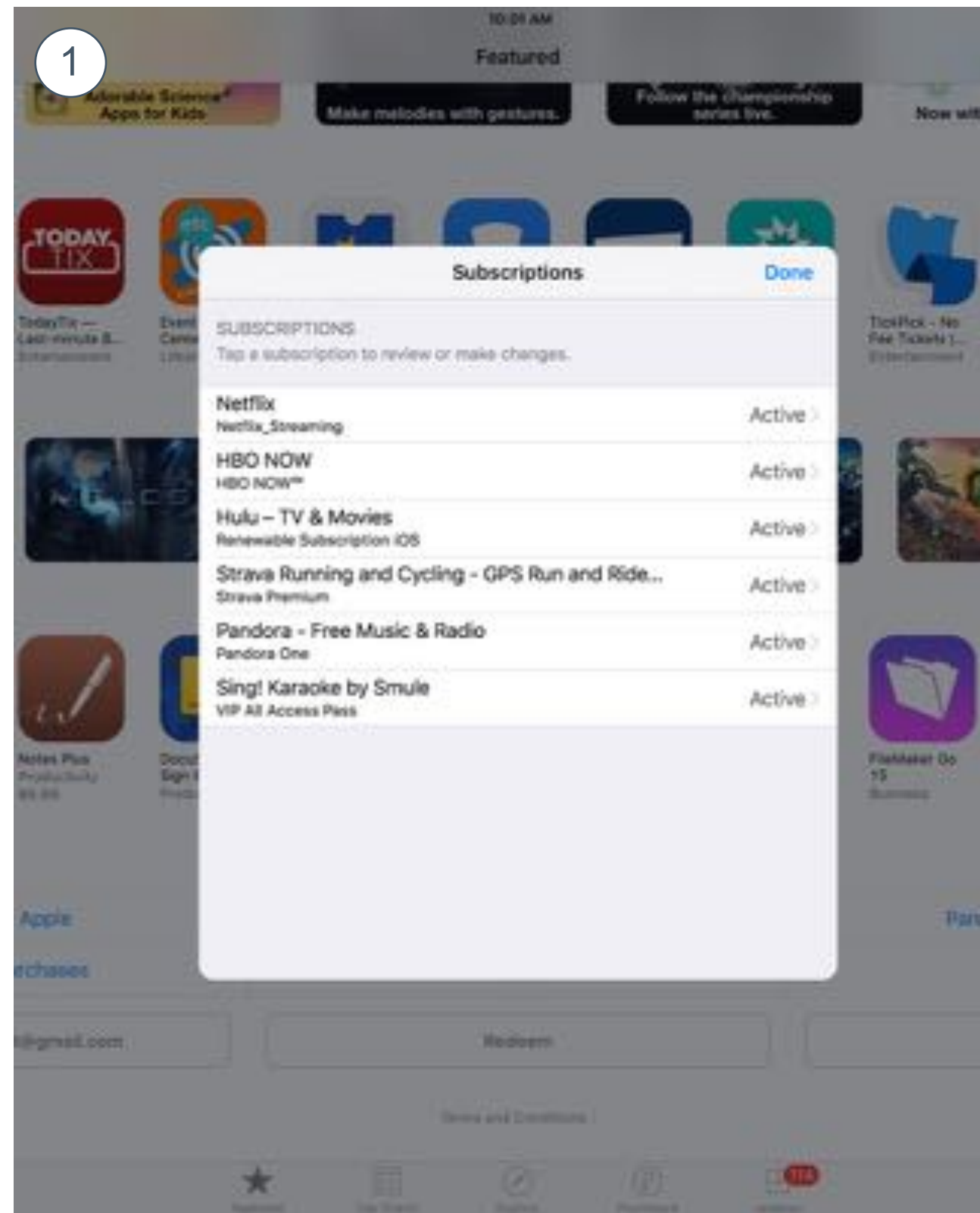
SUBSCRIPTIONS

SUBSCRIPTIONS

Apple's App Store will turn on subscriptions for all app developers. Developers' revenue shares on subscriptions will move to 85% for players who maintain a subscription longer than a year

Details

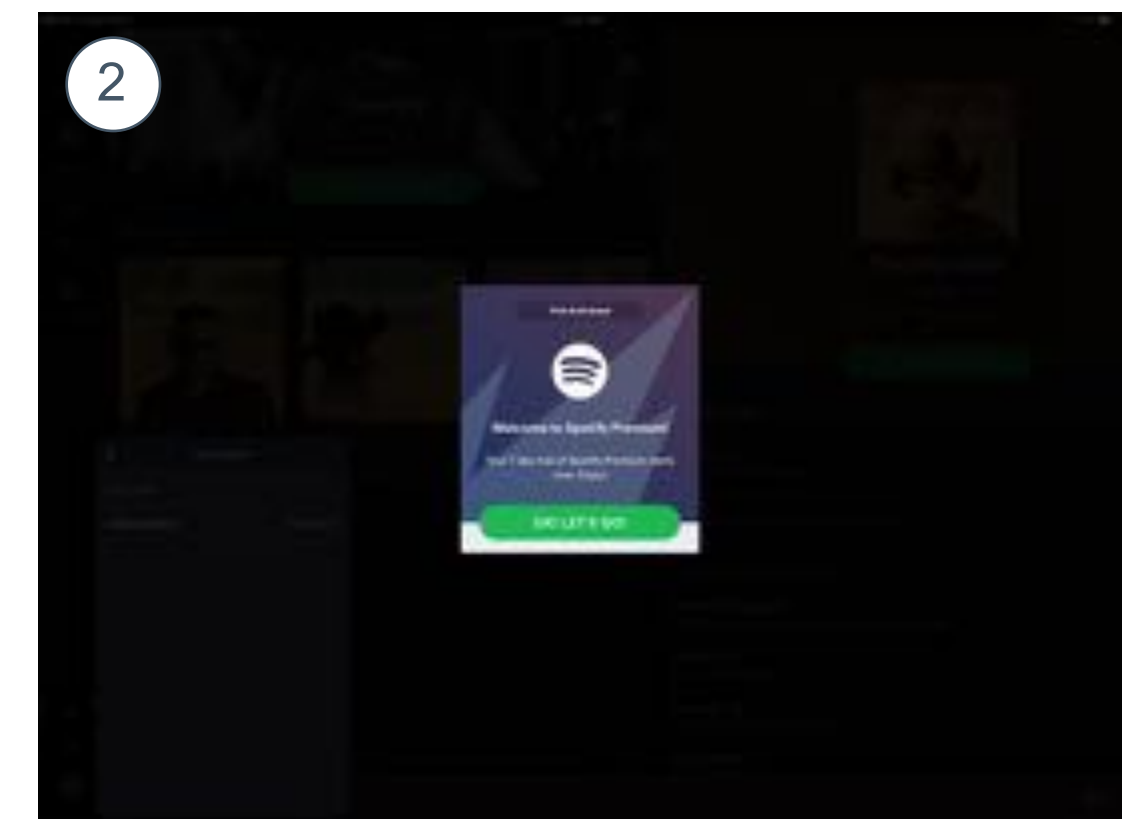
- Players can manage their subscriptions in the App Store by going to Account Details, then Manage Subscriptions (image 1).
- Subscription price changes are sent to players via push notification and enhanced email. In both, players are prompted with a button that leads them to the App Store, where they can agree to the new price (image 2). Prices may be increased for new customers while maintaining old prices for existing customers.
- The subscriptions are auto-renewable.
- Changes within subscription groups—for example, going from a weekly subscription to a monthly subscription—will not impact the 85% revenue share for annual subscriptions.
- Locale-based prices can be manually adjusted (e.g., prices in the UK can be manually adjusted up or down).
- Free subscriptions end in fall 2016 and new ones cannot be created.



MARKET INFO: TOP 10 GROSSING

Most subscriptions offer a free trial period ranging from a week to a month. Subscription flows differ from no-payment confirmation to direct-to-Apple payment confirmation

App	Strength	Notes
Netflix	●	Free first month, then three different plans ranging from \$7.99 to \$11.99 per month (image 1)
HBO NOW	●	Free first month, then one plan choice
ABCmouse.com	●	Web-based email form to sign up for monthly or yearly plan
Hulu	●	Free first week, then two monthly plans: no commercials (\$13.99) and commercials (\$7.99)
Pandora	●	Free first week, then \$4.99 per month. Clicking subscription button takes users directly to the Apple purchase flow
Spotify	●	Free trial is seven days of Premium. There is no Apple purchase confirmation in this free subscription (image 2)
Forelight	●	Options include: three months, one year Basic, and one year Pro (image 3)
WSJ	●	Free first month, then monthly subscription. Clicking a “Start Free Trial” button takes users directly to the Apple purchase flow
NYTimes	●	Three subscription options: digital access monthly, digital access monthly + one digital subscription to share, and annual digital access
Sing! Karaoke by Smule	●	Free first week, then \$2.99 per week for no ads and unlimited access



POTENTIAL OPPORTUNITY

Depending on the price (monthly) and conversion of MAU, subscriptions could have a decent impact on overall revenue. Conversion, price, and cannibalization are all large unknowns

Category	Numbers	Notes
MAU	1,000,000	Adjust based on your game
Conversion of MAU	y%	See sensitivity table
Subscribers	20,000	MAU * Conversion
Price (monthly)	\$x	See sensitivity table
Monthly revenue	\$40,000	Subscribers * Price (monthly)
Daily revenue	\$1,333	Monthly revenue / 30 days in a month
Apple's boost	15%	Apple's rev split for annual subscribers
Potential cannibalization	15%	Cannibalization likely dependent on reliance on coin-based benefits

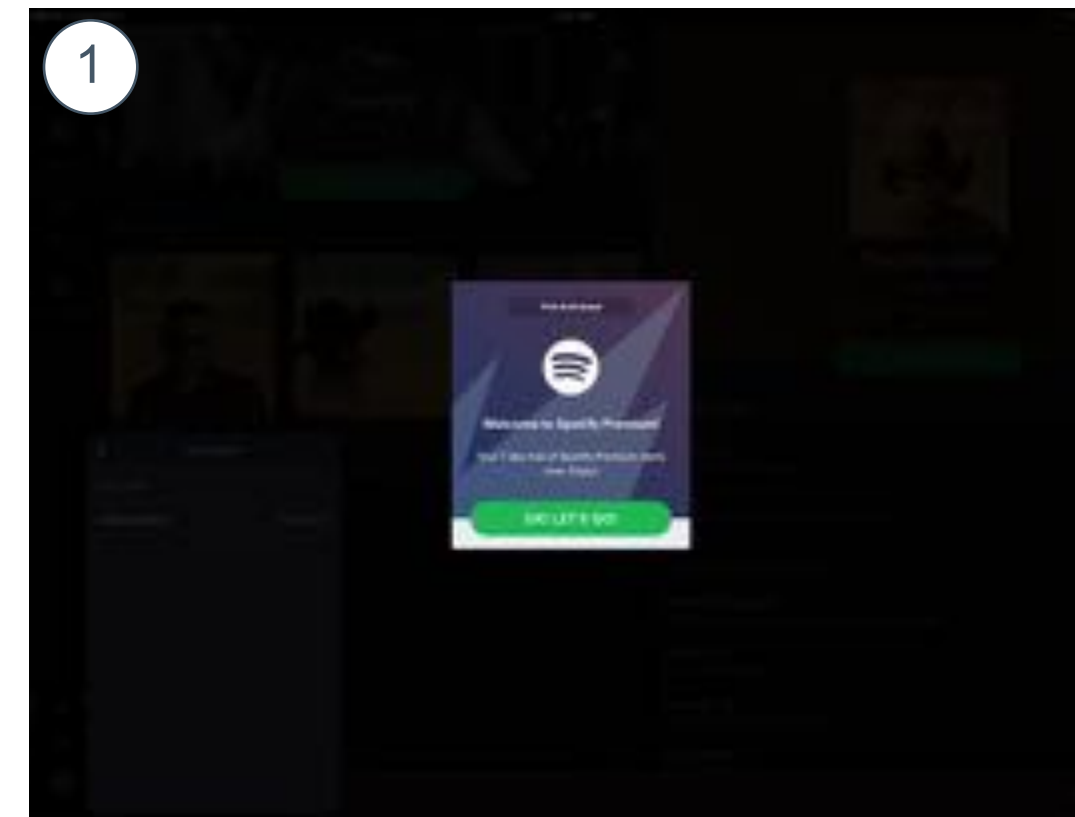
Current DAU/MAU ratio	30%	Adjust this number based on your game
Current DAU	300,000	MAU * DAU/MAU ratio
Current ARPDAU	\$0.20	Adjust this number based on your game
Current daily revenue	\$60,000	DAU * ARPDAU
Increase in revenue	(x, y)%	See sensitivity table for all outcomes

		Sensitivity table: estimated impact on revenue					
		Price (monthly)					
		\$2.99	\$4.99	\$9.99	\$19.99	\$49.99	\$99.99
Conversion of MAU	0.5%	1%	1%	3%	6%	14%	28%
	0.8%	1%	2%	4%	9%	22%	43%
	1.1%	2%	3%	6%	12%	29%	59%
	1.3%	2%	4%	7%	15%	37%	74%
	1.6%	3%	4%	9%	18%	45%	89%
	1.9%	3%	5%	10%	21%	52%	105%
	2.2%	4%	6%	12%	24%	60%	120%
	2.4%	4%	7%	14%	27%	68%	136%
	2.7%	5%	8%	15%	30%	76%	151%
	3.0%	5%	8%	17%	33%	83%	167%

RECOMMENDATIONS

Test conversion and price assumptions. Add a retention mechanic to subscription offer and stack rewards toward the end of the year

- **Use a ghetto test to understand conversion and price points:** Although free subscriptions are no longer available, adopt the Spotify subscription flow to test conversion and price (image 1).
- **Offer one free month:** Netflix invites, “Join Free for a Month” (image 2).
- **Use the three-price point mechanic:** Like the NYTimes, offer a small, slightly larger, and really large package (image 3).
- **Offer three-month or annual subscriptions:** To receive the Apple 85% benefit, users have to subscribe for a year. Initially, only offer three-month and yearly subscriptions, like Forelight (image 4).
- **Use the VIP-for-a-month mechanic to drive retention and limit inflation:** Sell a subscription that is a big benefit if players retain but a moderate benefit if they do not (image 5).
- **Consider loading the benefit toward the later half of the annual subscription.**
- **Start prices low and increase later:** Apple makes it fairly easy to increase prices on players. Increasing prices will not reset the annual-subscription clock.
- **Make it easy to unsubscribe:** For the first version, use the App Store to cut development cost (image 6). But as subscriptions grow, do not be cable TV—make it easy to cancel the subscription.



QUICK WINS

WELCOME BACK BONUS

Add a welcome back bonus of chips or free spins to likely to lapse (not already lapsed), non-paying players. Offer larger discounted packages to likely to lapse payers

Details

- Add a welcome back dialogue upon app entry (image 1).
- **Reward players generously:** In DoubleU Casino, a player who has lapsed 14 days, as shown by the calendar in the bottom left corner, receives 20M coins, which is ~\$30 (image 1).
- **Reward players who are likely to lapse (instead of already lapsed):** Dead players are hard to resurrect. Therefore, find out when players have a high probability of lapsing and give a medium-sized bonus. This could be as short as three days since last play.
- **Limit the number of welcome back bonuses per month so players do not learn to wait three days to get paid.**
- **Consider giving away free spins as an alternative to free coins.** See DoubleU Casino feature summary in the Primary Coin Bonuses section of this report.
- Pharaoh's Way converts the welcome back bonus into a discounted purchase. Upon app entry, a returning player receives a 50% off discount (image 2). **Consider a similar welcome back discount for lapsed payers.**
- **Consider including all bonuses missed:** Star Spins Slots clearly shows all the welcome bonuses players received while gone (image 3). Jackpotjoy Slots shows a similar dialogue that includes all bonuses missed (image 4).

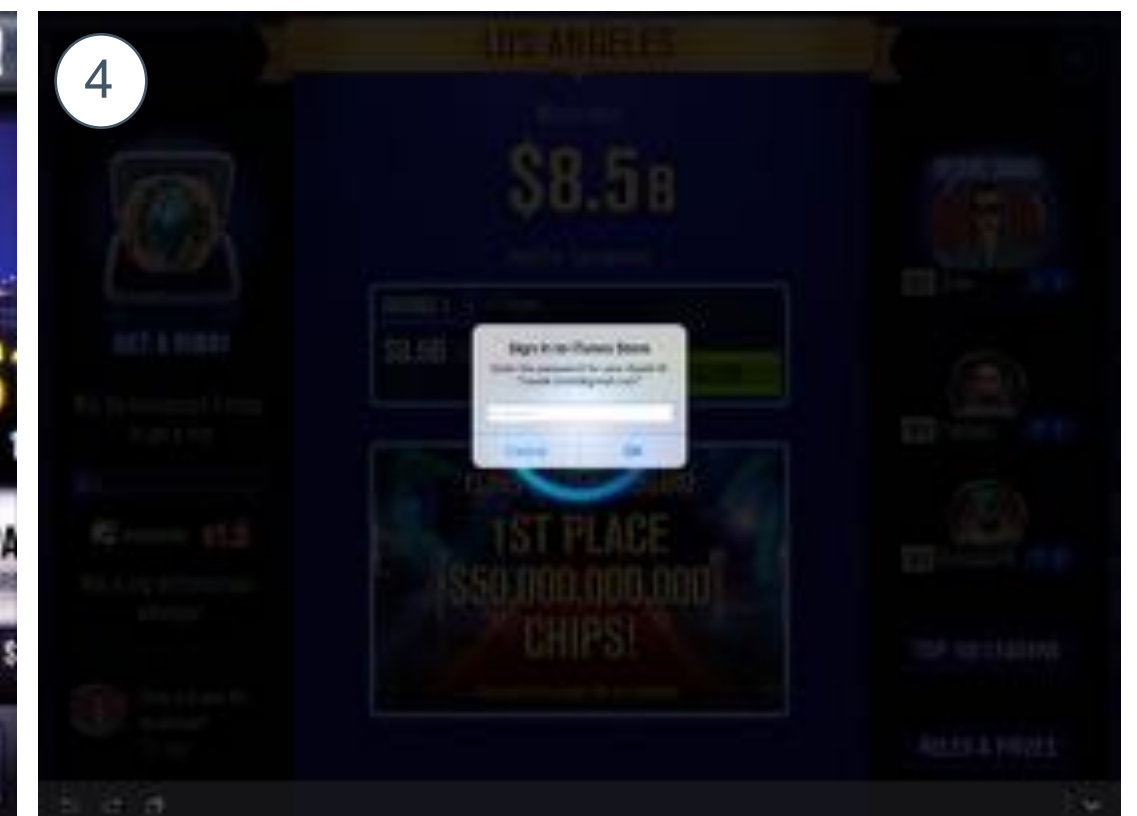


ONE-CLICK PURCHASES

Add a one-click purchase flow to tournaments, or another highly used feature, with an appropriately-sized package

Details

- WSOP has a few one-click purchase flows that take players to a buy-in page with a \$100 purchase. This high price may be offensive to players. **Test this mechanic with an appropriate package.**
- In the first flow, a 50B chip prize (approximately \$8,000 worth of chips) is marketed upon app entry (image 1). Clicking “PLAY NOW” takes players to the city of Los Angeles, where the buy-in for this prize is 2.5B (almost \$400 worth of chips) (image 2).
- In the second flow, WSOP takes players to a Texas Hold'em cash game with a 2.5B buy-in (image 3).
- **When players click ‘Buy In’ on either flow and do not have enough chips, they are automatically taken to the Apple purchase flow (image 4).**
- When players input their information, they are notified of a \$99.99 purchase (image 5).
- **Test this mechanic with appropriately-sized packages. Adjust the size of packages based on a player’s spending history.**
- Players are clearly notified when they choose to cancel their purchase (image 6).



CASH-BACK MECHANICS

Adopt familiar, real-world purchasing mechanics, such as the sandwich card and cash-back features, to retain spenders

Details

Sandwich card mechanic:

- Infinity Slots utilizes the sandwich card mechanic in the Memorial Day Sale dialogue; discounts increase with each purchase, up to five purchases (image 1).
- This is similar to real-world punch cards where you buy four items and receive the fifth for free.
- **Test some version of this familiar mechanic either by increasing discounts with each purchase or adding bonus chips on the fifth purchase.**
- Surprisingly, Infinity Slots does not include this mechanic on all purchase dialogues. **Make this mechanic universal to all purchases and add the marketing to all purchase dialogues.**

Cash-back mechanic:

- Cash-back mechanics are widely used in the real world, most notably by the credit card industry, not only to convert new customers but also to retain existing ones.
- Scatter Slots' Status System provides cash-back rewards (image 2).
- **Consider building a true cash-back reward system using Apple refunds, crediting players' accounts, or sending cash-back via email.**



MARKET WATCH AS OF 6/18/16

TOP 10 GROSSING

DoubleDown Casino released a strong IP machine. Wizard of Oz Slots and Viva Slots Las Vegas both released challenges

Game	Strength	Date	Notes
Big Fish Casino	●	6/8/16	New slot machine released
Slotomania Casino	●	6/6/16	Bug fixes released
DoubleDown Casino	●	5/23/16	Ellen DeGeneres Show slot machine released (image 1)
Heart of Vegas	●	6/6/16	New slot machine released
House of Fun	●	6/13/16	Four new slots machines released
Jackpot Party Casino	●	6/13/16	New Star Trek slot machine released
Wizard of Oz Slots	●	5/23/16	The Wizard's Challenge released (image 2)
World Series of Poker	●	11/23/15	No new release
myVegas	●	4/20/16	No new release
Viva Slots Las Vegas	●	6/13/16	No major changes on 6/13. Timed Challenge released on 5/16 (image 3)



TOP 11 – 20 GROSSING

Scatter Slots released twice, with new machines in both releases. Caesars Slots released a piggy bank-like feature and tournaments. KONAMI Slots released two machines and daily bonus improvements

Game	Strength	Date	Notes
DoubleU Casino	●	6/2/16	Three new classic slots machines
Scatter Slots	●	6/14/16	New machines released 6/14 and 5/20. Both machines cost players \$100 to unlock if not at extremely high levels (image 1)
Quick Hit Slots	●	6/16/16	Two new slots machines released 5/30, and one new machine released 6/16
Caesars Slots	●	6/14/16	New game released 6/14. Caesars Contests and Caesars Vault, a piggy bank-like feature, released 5/24 (image 2)
Gold Fish Casino Slots	●	5/23/16	Memory and stability improvements, bug fixes
KONAMI Slots	●	5/23/16	Two new slots machines, an update to the Mega Lucky Machine and a daily bonus-like slot machine
Hit it Rich!	●	6/15/16	Three new machines and Path to Riches dynamite game released (image 3)
Zynga Poker	●	6/8/16	Increased payouts and frequency of Lucky bonus
GSN Casino	●	5/31/16	Two new slots machines, one with a jackpot
DoubleUp Slots	●	5/17/16	Two new machines on 6/13, and two new slots machines on 5/17



TOP 21 – 30 GROSSING

Lucky Play Casino Slots, a newcomer to the top 30 list, added a themed machine. Infinity Slots, also a newcomer, released a VIP room. Vegas Downtown Slots released a new casino with progressive jackpots

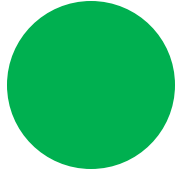
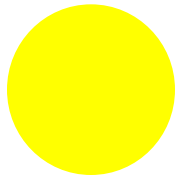
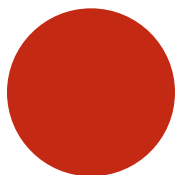
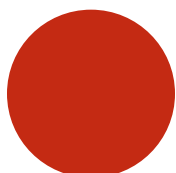
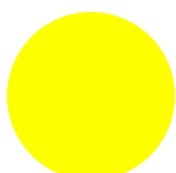
Game	Strength	Date	Notes
Free Slots!- Black Diamond	●	6/17/16	New machine released
Old Vegas Slots	●	6/15/16	New machines, feature improvements, bug fixes
Willy Wonka Slots	●	5/31/16	Two new rooms (or machines) released
Lucky Play Casino Slots	●	5/23/16	New Memorial Day themed slot machine
Infinity Slots	●	6/15/16	Released a VIP room (image 1) on 5/17. New machine for the VIP room released on 6/15
Texas Poker	●	6/10/16	Three releases in June included quests, daily bonus improvements, and lottery cards (image 2)
GSN Grand Casino	●	6/6/16	Bug fixes
Jackpotjoy Slots	●	6/13/16	Small product enhancements and bug improvements
Vegas Downtown Slots	●	6/7/16	New Horseshoe Casino with Jackpot Party released 5/20. Live ops and two more jackpots released 6/7 (image 3)
Slots - Classic Vegas Casino	●	5/26/16	Game optimizations



ECONOMY DEEP DIVE: INFINITY SLOTS

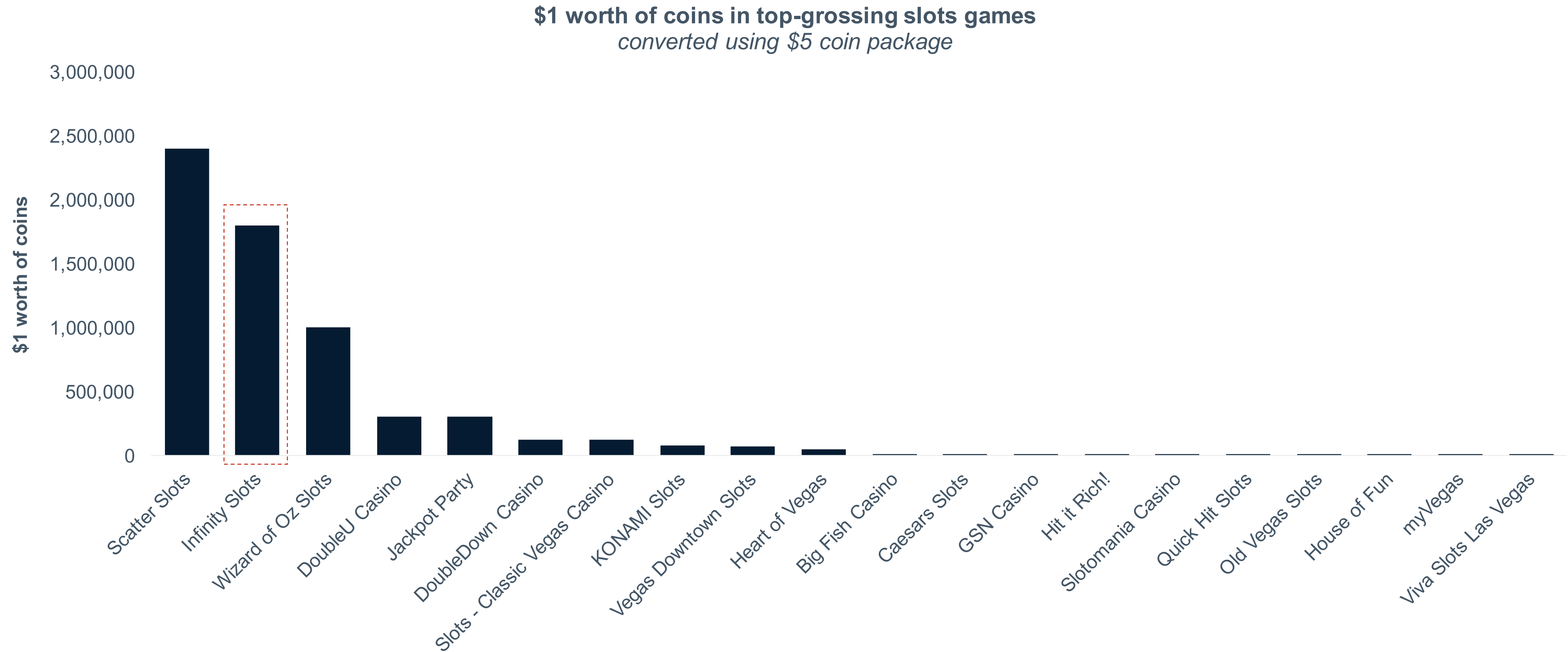
ECONOMY SUMMARY

Infinity Slots has a very inflated economy for purchasers—the third largest when including DoubleUp Slots. However, the new user tuning is tight, with 20 default bet spins and 50 minimum bet spins

	Value	Tightness	Notes
Coins-to-dollar ratio	1.8M		<ul style="list-style-type: none"> The economy is inflated compared to top-grossing slots games
Initial coin balance	\$1.67		<ul style="list-style-type: none"> The initial value players receive is average
New user bet values	\$0.08 default \$0.03 minimum		<ul style="list-style-type: none"> The initial default bet is expensive compared to top-grossing slots games The minimum bet is average
New user tuning	20 default bet spins 50 minimum bet spins		<ul style="list-style-type: none"> Players receive a small number of spins at the default bet level Players receive a small number of spins at the minimum bet level
Total daily coin bonuses	\$1.24 primary \$2.93 secondary \$4.17 total		<ul style="list-style-type: none"> Players collect a slightly above-average number of coins daily compared to top-grossing slots games in the primary, secondary, and total coin bonuses

COINS-TO-DOLLAR RATIO

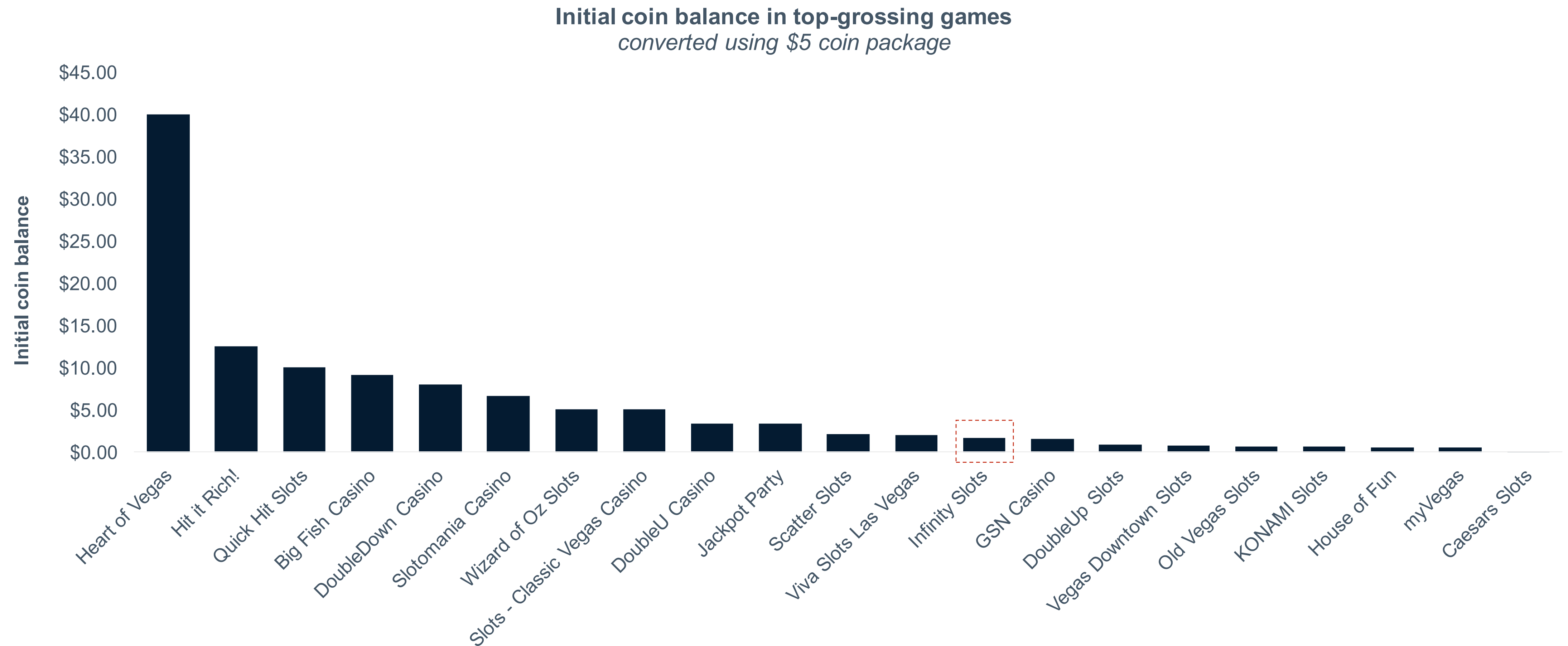
Infinity Slots' economy is inflated compared to other top-grossing games



DoubleUp Slots, at 11M coins per dollar, was removed from this graph

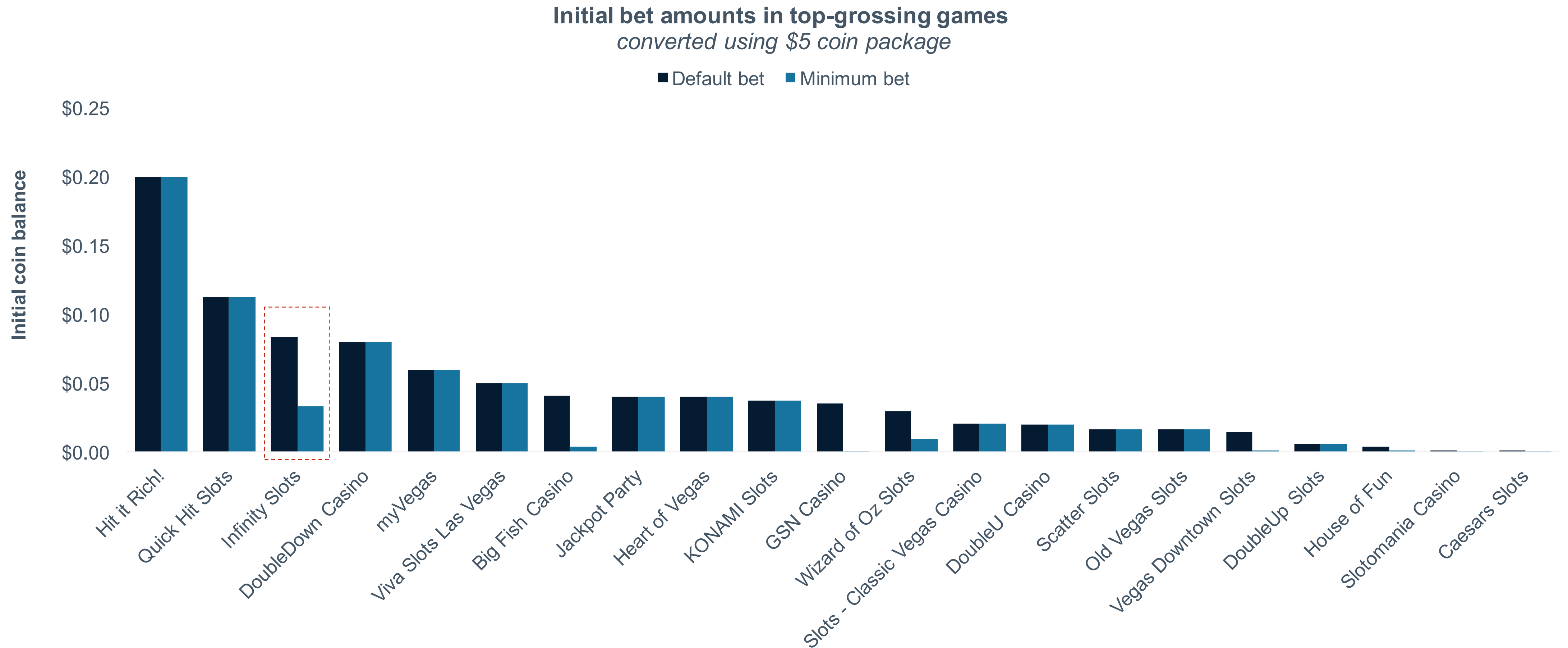
INITIAL COIN BALANCE

Infinity Slots has a relatively tight initial coin balance, but players can choose to play a long time if they adjust down to the minimum bet



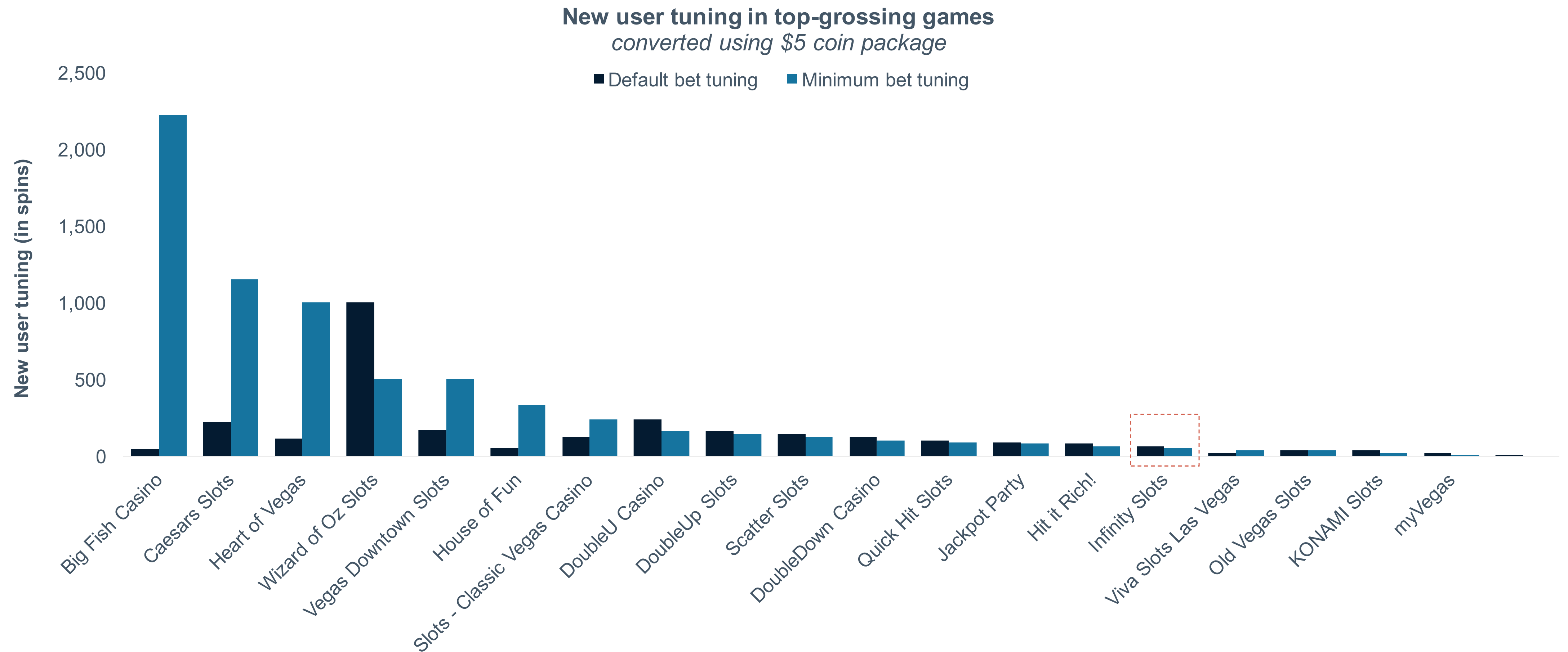
NEW USER MINIMUM AND DEFAULT BET

Infinity Slots has expensive default bets but moderate minimum bets for new players



NEW USER TUNING

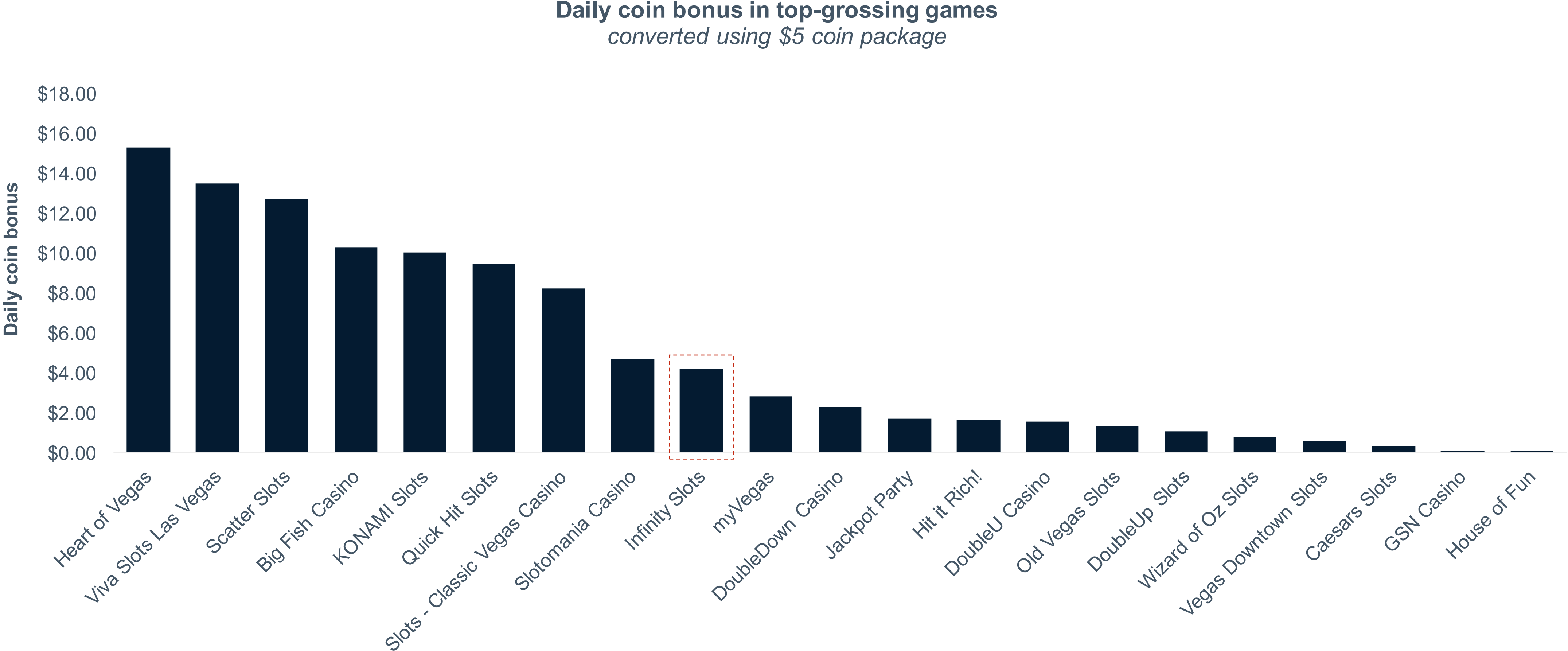
Infinity Slots' new user tuning is loose, with 20 spins for the default bet and 50 spins for the minimum bet



Slotomania Casino and GSN Casino were removed as outliers

TOTAL VALUE OF COIN BONUSES

Infinity Slots provides an average amount of free coin value daily. The secondary coin bonus increases the payout every five collections



APPENDIX

DATA COLLECTION PROCESS

Data is collected from market research, app intelligence tools, and a deep analysis of the game

Market research

- Transaction information comes from the iOS App Store's In-App Purchases tab. These packages are ranked based on number of transactions
- Las Vegas player insights come from online sources like the Las Vegas Convention and Visitors Authority and the UNLV Center for Gaming Research
- Progressive jackpot information comes from online research, specifically from Wizardofodds.com
- Trending revenue, downloads, and package-rank data comes from Priori Data, a Liquid and Grit partner

Analysis of competing hypotheses

- *“Analysis of competing hypotheses (ACH) requires an analyst to explicitly identify all the reasonable alternatives and have them compete against each other for the analyst's favor, rather than evaluating their plausibility one at a time.” – CIA.gov*
- For example, in our analysis of Vegas Downtown Slots, all the components of the game (e.g., features, economy, theme) compete against each other to determine the most impactful features
- We illustrate how these components compete against each other to determine the most valuable features
- We also incorporate the uniqueness of a feature in the market, comparing the feature across the top-grossing social casino games on iOS

Game information

- Game information comes from a deep-dive analysis of each game
- Return-to-player (RTP) and win percentage are found by tracking over 500 spins from a machine at a certain bet amount
- In the economy section and economy-related slides, the coin value is determined by converting coins into money using \$5.00 worth of non-sale purchasable coins in each game. For example, if the minimum bet is 1,000 coins and players can purchase 500 coins for \$5.00, the value of the minimum bet is \$10.00. For games without a \$5.00 package, the next closest package is used

The quality of decision is like the well-timed swoop of a falcon which enables it to strike and destroy its victim.

– Sun Tzu, *The Art of War*

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