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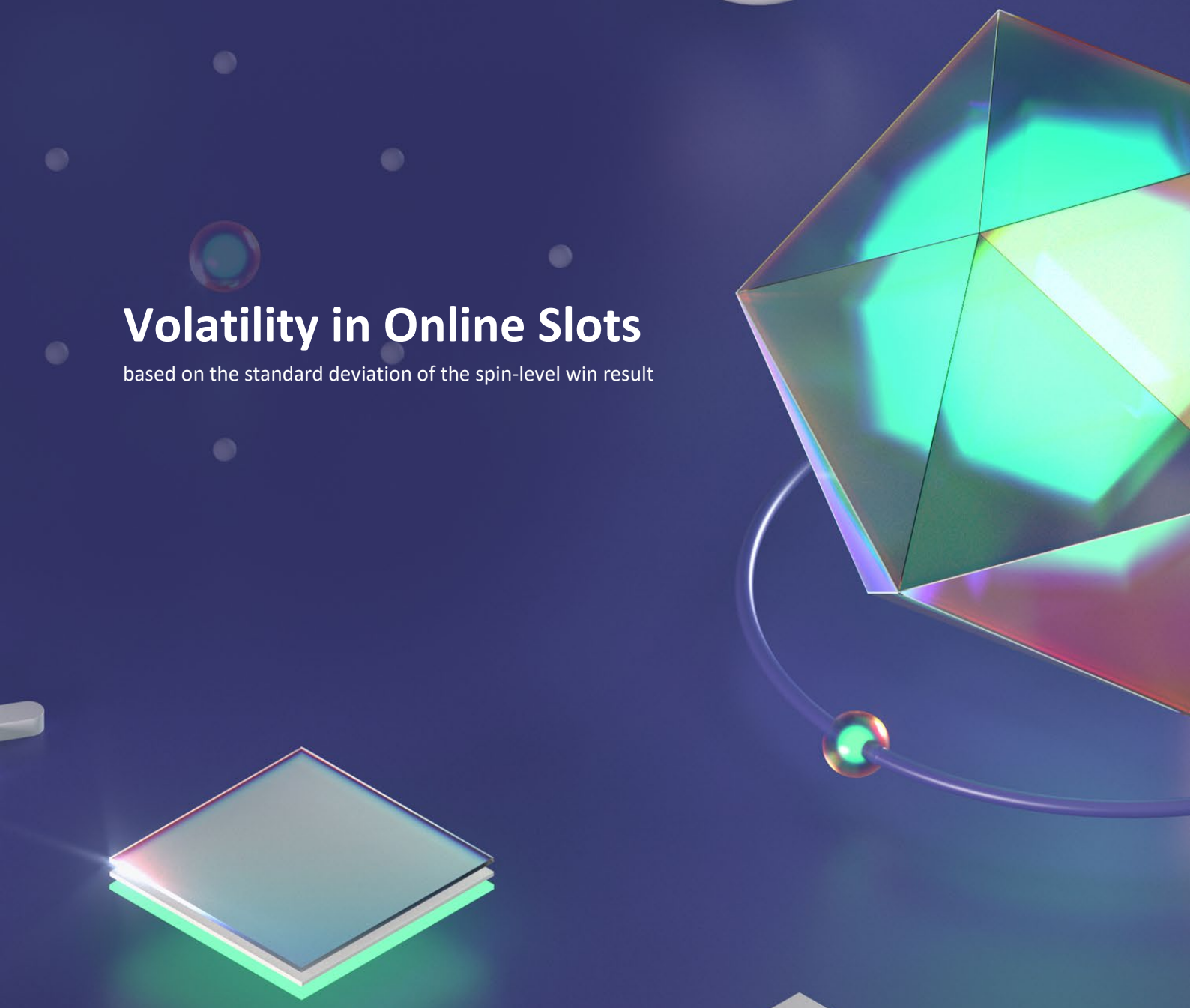
Volatility in Online Slots

based on the standard deviation of the spin-level win result



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Industry Research Briefing Vo1. (1) – Volatility in Online Slots
1st October 2020

Volatility in online slots

What is the topic?

Volatility in online slots, based on the standard deviation of the spin-level win result. Specifically: How does player behaviour vary as they switch to online slots with higher volatility, in terms of session length, rate of loss, daily loss, declined deposits and similarity to regular players who eventually self-exclude.

Why is it important?

All else equal, higher volatility games are linked mathematically to longer losing streaks (ignoring possible small wins or wins below stake) and punctuated by larger wins. The length of losing streaks and win pattern is a key feature of gameplay experience for players, often felt more immediately and viscerally than the RTP percentage, where it may take a very long time for the average to play out. Short sessions typically cost more on high volatility games. As such, volatility may be a relevant factor in understanding the riskiness of gambling product.

What did the research do?

The online slots play and financial transaction data of ~4k players from two UK operators in 2018/19 was analysed to compare how players behaviour typically changed when they started playing games with either higher or lower volatility than they were used to. This is a powerful technique ("panel regression") which accounts for players' different starting points and preferences and better identifies the causal effect of shifting the mix of games being played. The results are robust to i) whether the games launched recently (and might attract marketing investment), ii) periods of the year, and iii) how much players gamble using bonus money as opposed to cash spend.

The large-scale of the sample on real-world gamblers lends this research more credibility than some other studies, but it also has important limitations. It focuses mainly on regular slots gamblers, so tells us little about beginner gamblers, account churners, infrequent gamblers, or gamblers on other verticals. It analyses change over time within individual players, which means it does not explore how volatility might relate to players with higher base levels of harm experienced from gambling.

What did the research find?

When players switch to higher volatility games, they tend to spend money at a faster rate than usual. Lower spending players also tend to reduce the length of their sessions, resulting in negligible net effects on their overall spend per day, but this mitigating effect applies less to higher spending, more slots intense players. There are also important differences between types of player and different operators – see the appendix for example charts contrasting these differences.

There is some evidence of increased declined deposits and a self-exclusion pattern of behaviour when players shift to games with a moderately higher volatility than the player is used to. However, this relationship appears to vary by type of player and sometimes reverses at high levels of volatility.

The patterns that can be linked to volatility explain only a small proportion of players' overall variability in behaviour, suggesting that volatility is only one among many factors affecting play sessions, as well as reflecting the inherent unpredictability of gambling play.

How might the gambling industry interpret it?

Previous academic research has found a mixed picture regarding volatility. Where volatility is too high, it seems to be off-putting for players, particularly beginners, in a way that might reduce how much they gamble. The regular reinforcement of frequent wins, which can be more frequent and more material in low RTP games, has been identified as a risk factor. However, higher volatility games might inspire greater loss chasing (in the hope of the rarer but larger wins), resulting in larger net losses and greater post-gambling regret.

This ambiguity of previous research and the limitations of any individual study mean there are no simple statements to make regarding volatility in online slots. Nonetheless, it appears that volatility is an important factor that influences the play experience – typically resulting in faster rates of loss per session and shorter sessions – and should be considered in responsible gambling strategies.

What might the gambling industry do in response to this research?

It seems that, for some players at least, shifting to higher volatility games than they are used to can cause them to overspend or lose money at a faster rate than their usual average. This might be a subtle effect to observe, particularly among experienced players, as the issue may apply more for "moderate-high" volatility for that player rather than "high" or "very high" volatility. Since norms also vary by player, this points away from simplistic rules like ceasing to provide games with certain volatility levels.

Operators might wish to monitor the average volatility mix that players experience on the days they gamble, which could form the basis for understanding who might be at risk of responding badly to such games and triggering message-based interventions to educate these players about volatility and help them use their gambling budget in a more informed, more controlled manner.

Operators and game design studios may also look to their mix of slots games available to players, making sure there is a mixture of low, moderate and high volatility games available and ensuring that high volatility games are not excessively promoted over other games to players. If operators identify that that some volatile games appear to have particularly high risk for their particular customer base, such as having a greater ratio of self-exclusion or self-reported concerns among the regular players of those games, they may wish to limit the availability of those games or the spend permitted on those games to players that have passed a certain additional level of due diligence or affordability checking.

Finally, in terms of support for all players, volatility might be prioritised in efforts to inform players about the games available. William Hill recently worked with Playtech Protect to implement a volatility labelling system for their slots, supported by Q&A data about volatility.

Who did the research?

The BetBuddy Team at Playtech: Simo Dragicevic, Chris Percy and Kiril Tsarvenkov.

How can I find out more?

The research is currently undergoing peer review with an academic journal. To find out more please contact the research team via protect@playtech.com.

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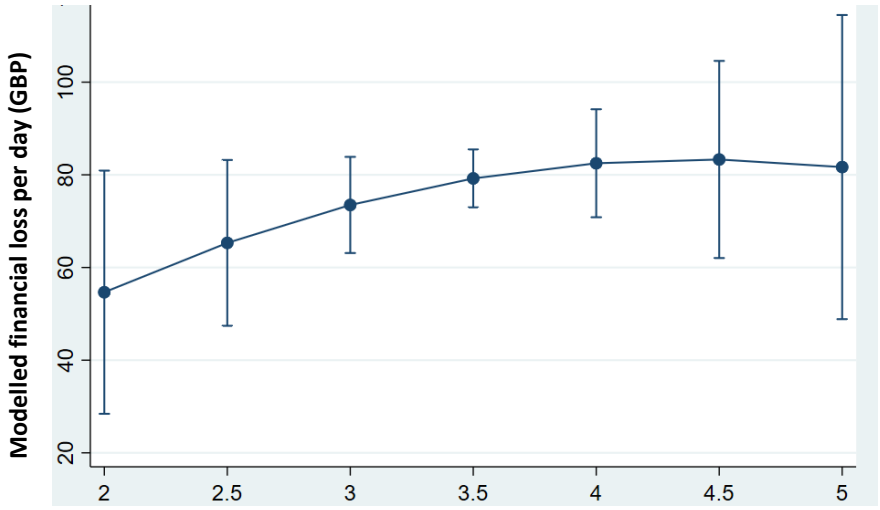
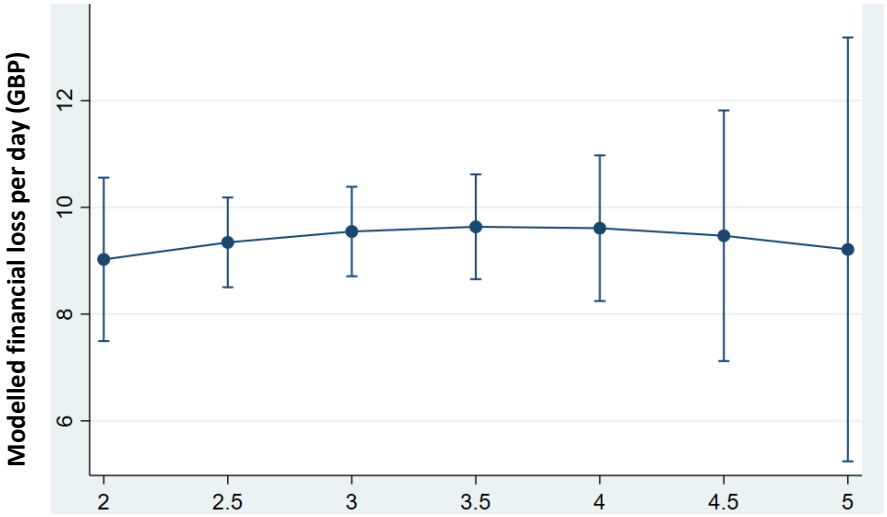
Appendix: Regression model output for financial loss per day vs changing volatility

Operator 1: Volatility vs. loss per day (panel regression; n=2,622 players)
(vertical bars mark 95% confidence intervals for the point estimate as an average)



Stake-weighted average volatility per day
(anchoring a player's personal average to the overall average of 3.3)

Operator 2: Volatility vs. loss per day (panel regression; n=1,659 players)
(vertical bars mark 95% confidence intervals for the point estimate as an average)



Stake-weighted average volatility per day
(anchoring a player's personal average to the overall average of 2.9)

Daily volatility per player is weighted by the cash stake wagered on that game, adjusted by the recency of game launch.