

Stock Markets and Slot Machines*

Wilson Mixon
Berry College

Occasionally, an unexpected departure from lesson plans couple with student input to allow the development of insights that were no part of an instructor's expectations for the day. They result from action and not design, to borrow a phrase. Sometimes such an opportunity allows the instructor and the students to explore a fundamentally important issue in a way that ensures that at least some of the students have "got it" in a way that would not have resulted from even a well-prepared and skillfully-delivered lecture on that material. That is, sometimes, we are given teachable moments.

One such opportunity afforded itself to me recently my labor economics class and I were engaging in a bit of banter regarding my upcoming trip to Las Vegas to attend the annual Association of Private Enterprise Education meeting. The students offered effusively insincere condolences on my having such an onerous duty; I accepted the condolences appropriately with some reference to "the leisure of the theory class."

At this point I digressed from the planned lecture to offer a small lesson in probability. I offered the class of ten students this opportunity: I would take with me any money they wished to collect, and I would share any winnings (or losses) with them. No one accepted my offer to serve as their agent. Since one student had recently been particularly intrigued by principal-agent issues in labor economics, I

*I thank two anonymous referees for valuable comments. I also thank John Hoftyzer for the initial insight regarding the implications of playing slot machines and roulette wheels.

digressed for a moment to consider whether they were risk averse or whether their trust in their potential agent was less than complete (offering obvious distress at the latter possibility).

Since no one was biting, I asked them to suppose that they had given me, say, \$2000 to use on their behalf. Would I serve them better by sitting at the slot machines throughout most of the conference or by walking up to the first roulette wheel I encountered and placing the entire \$2000. Most seemed to favor the former, or at least to fear the latter more than the former. At this point, my planned lesson was largely complete. It was a pretty straightforward exercise to show them that to follow the advice to sit at the slots was to ensure loss. In contrast, putting the money on the roulette wheel offered a positive probability (admittedly less than 0.5) of returning to Berry College with more than \$2000. So, in some sense at least, the high-roller strategy is the safer one.

Then one of the young women in the class, fresh out of a finance course, asked me how this could accord with the oft-repeated mantra that risk was reduced by diversifying. Wasn't I saying that diversifying (playing the slots) leads to sure loss? What a great question! First, she had clearly recognized that playing the slots is, indeed, analogous to diversification, a point that had not occurred to me. More importantly, however, she had opened a door onto the fundamental difference between investing and gambling, between positive-sum processes and negative-sum processes.

A proper and narrowly correct response, of course, is that playing the slots long enough removes all risk. Sure loss is not risky. In contrast, the roulette is the more "risky" alternative, only because it does offer a small chance of winning. The more important lesson, though, is economic, not statistical. The stock market, so often characterized as a crap shoot, is no such thing. It facilitates activity that creates wealth, the moving of financial capital to the highest (expected) return. As Gwartney, Stroup, Sobel, and Macpherson (*Economics: Private and Public Choice*, 10th edition, Special Topic 4, "The Stock Market: What

Does It Do and How Has It Performed?") shows, anyone who diversifies across assets (holding a portfolio of many stocks) or across time (holding the same set of stocks for many years) has a good chance of succeeding in the stock market. Anyone who does both is virtually assured of doing so. This is the strongest piece of evidence that the stock market is a wealth-generating institution and not a supersized version of Las Vegas.

This little bit of whimsy, in which I engaged in order to make a small point about statistics, provided the platform for considering the importance of principal-agent problems and for showing why capital markets are wealth creators and not just liars' poker. Sometimes we get lucky, even when Las Vegas is involved.