

What Can Monty Hall's  
"Let's Make a Deal"  
TV Program  
Teach Us  
About  
Investing?



Investing and game theory have a lot in common, and one TV program that demonstrates the intersection between the two is "Let's Make a Deal."

## What Can Monty Hall’s “Let’s Make a Deal” TV Program Teach Us About Investing?

“Let’s Make a Deal” was a game show where contestants were presented with a series of closed doors, each hiding a prize of varying value. The contestants would choose a door without knowing what is behind it. They are then given the option to keep the prize or trade it for another unknown prize behind a different door. The game show is a classic example of game theory, and the Nash Equilibrium is a principle used to analyze the game. The Nash Equilibrium is a concept in game theory that describes a situation where every player in a game makes the best decision given the decisions of the other players. In “Let’s Make a Deal,” the Nash Equilibrium can be found by analyzing the options available to the contestant and the probability of winning a higher value prize.

In investing, the Nash Equilibrium can be used to determine the best strategies for different market conditions. The basic principle of the Nash Equilibrium is to consider the incentives of all parties involved in the game or market and to make decisions based on the expected behavior of others. For example, if an investor believes that the market is going to go up, they might choose to invest in stocks or risky assets that are likely to benefit from the market increase. However, if many investors have the same expectation, the prices of these assets may already be too high, making them less attractive. In this scenario, the Nash Equilibrium suggests that the best strategy for the investor may be to diversify their portfolio and look for undervalued assets. By doing this, they can still benefit from the market increase while reducing their exposure to overvalued assets.

Inevitably during each “Let’s Make a Deal” game show, Monty Hall, the host, would present a contestant with potential prizes behind three closed doors. Contestants who watched the show would understand that behind one of the doors was a valuable prize, such as a new car, and behind the other two doors were less valuable prizes, such as billy goats. The contestant would choose one of the three doors, but Monty would not open it. Monty knew what was behind each door. He would then open one of the two remaining doors to reveal a goat. At this point, he would offer the contestant the option to switch their choice to the other unopened door or stick with their original choice. The question posed by the Monty Hall problem is whether the contestant should switch their choice or stick with their original choice, and what is the probability of winning the valuable prize under each strategy. **The answer to this dilemma is that the contestant should always switch their choice.**

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Initially, the probability of choosing the door with the valuable prize is  $1/3$ . When the host opens one of the other doors to reveal a goat, this does not change the probability that the contestant's original choice is correct. Therefore, the probability that the valuable prize is behind the remaining unopened door is  $2/3$ . By switching their choice, the contestant increases their chances of winning the valuable prize from  $1/3$  to  $2/3$ . This result is counterintuitive to many people, and has been the subject of much debate and discussion in the field of probability theory. The Monty Hall problem is often used as an example of how probability theory sometimes contradicts our intuition, and how careful analysis is necessary to make accurate predictions and decisions in uncertain situations.

	DOOR 1	DOOR 2	DOOR 3	RESULT
<b>GAME 1</b>	CAR	GOAT	GOAT	Switch and you lose
<b>GAME 2</b>	GOAT	CAR	GOAT	Switch and you win
<b>GAME 3</b>	GOAT	GOAT	CAR	Switch and you win
<b>GAME 4</b>	CAR	GOAT	GOAT	Stay and you win
<b>GAME 5</b>	GOAT	CAR	GOAT	Stay and you lose
<b>GAME 6</b>	GOAT	GOAT	CAR	Stay and you lose

Source: Newstink

In conclusion, the Nash Equilibrium is a valuable concept that can be applied to both game theory and investing. By understanding the principles of the Nash Equilibrium and applying them to investing strategies inspired by "Let's Make a Deal," investors can make more informed decisions and maximize their potential returns.

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