



Title - investment simulation (investment game) "How to beat the stock market"

Problematic question - whether it is difficult to beat the stock market by investing in individual company shares under conditions of high uncertainty ?

Objective - the objective of this game to simulate the emotional highs and lows that come with trying to beat the market, especially as it pertains to making assumptions about how a piece of news will impact stock prices.

Target group – this game is for higher education students. It is recommended to play this game in the first semester.

Background - before playing the game, the students should familiarise themselves with the beginner's tips and basics of investing.

Data sources:

• Tips for beginner investors

https://wealth.visualcapitalist.com/tips-beginner-investors/

• How to start investing: a simple guide

https://wealth.visualcapitalist.com/how-to-start-investing/

• Investing basics: stocks

https://www.youtube.com/embed/hE2NsJGpEq4?start=31&end=259

• How to read a stock quote

https://medium.com/the-investors-handbook/how-to-read-a-stock-quote-with-cheat-sheet-fb2ca9ff5ac3

Methods – simulation.

The aim of the game - the aim of each player is to maximise their profit at the end of the game.

The game scenario:

A student was working over the summer to earn money to invest in the stock market. At the end of the summer, the student has 2400 USD to invest.

A restaurant called "**Ravioli King**" has just opened in the centre of the town where the student lives. "Ravioli King" is a chain of fast food restaurants specialising in ravioli. "Ravioli King", which opened a few weeks ago, has queues at the door all the time; everybody praises how good the food is and how many ravioli they offer. In this game, a student has to invest the 2400 USD he has earned in **Vilesa:** Development of a virtual learning learnin space as a tool for developing student's critical thinking, communication, collaboration and creativity skills in the context of COVID 19. No. 2021-1-LT01-KA220-HED-000023551.





"Ravioli King" shares.

The teacher will then show slides describing current events affecting the student's investment. The game consists of 10 rounds. In each round, the student will have the opportunity to buy or sell shares and then complete the following worksheet about his/her decisions and the value of the investment.

Here's the company profile from Google Finance:

Ravioli King

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Ravioli King owns, operates, and licenses Ravioli King restaurants in the United States. They sell 17 varieties of ravioli and 7 different sauce options. All meals are prepared fresh on-site. "Ravioli King" was founded in California and has expanded to 600 locations across the USA. Their initial growth strategy was to open "Ravioli King" adjacent to college campuses and give discounts to students, though they have substantially expanded into other locations due to their success.

Key statistics:

Table 1

IPO Date:	April 19, 2010	52-Week Change:	26,33 %
Full Time Employees:	62 000	S&P500 52-Week Change:	15,41 %
Market Cap:	\$ 6.08B	52-Week High:	\$ 116,45
Revenue:	\$ 3.51B	52-Week Low:	\$ 32,28
Most Recent Quarter:	September 30, 2022	200-Day Moving Average:	\$ 68.12

The game (investment) start:

The game consists of 10 rounds. At the beginning of each round, the teacher shows slides of certain events. After each slide shown by the teacher, the student has to fill in the table provided. After seeing the event on the slide, the student has to decide whether to buy, hold or sell Ravioli King shares. The student starts the game with 2400 USD in cash and uses it all to buy the shares at today's price. After the first round, the student updates the tables below using the current price and data. After some rounds, the teacher asks the student questions to which he/she has to give a short answer.

Round 1

Teacher shows a note on the slide:

You have \$ 2400. Shares of Ravioli King are currently trading at \$ 60.

Since you have been working all summer to save money specifically for investing, the first step is to buy shares for the full \$ 2400.

The student must complete the table:

Round 1 – BUY				
	of Shares	Price per share	Stock value	Cash

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I start with	0	60		2400
I buy	+40	\$60	2400	- \$
I sell	-	\$		+\$
I end with		\$	\$	\$





Round 1 question:

• Does Ravioli King seem like a good investment to you?

Round 2

Teacher shows a note on the slide:

You look at the closing prices for Ravioli King in the last week, and here's what you see:

Monday:	\$ 62,94	Thursday:	\$ 60,53
Tuesday:	\$ 61,20	Friday:	\$ 58,95
Wednesday:	\$ 60,64		

Will you sell shares or hold next Monday morning?

Note: Beginning in Round 2, each student decides to sell, or hold all or part of the shares. On the student worksheet, they copy Round 1 "I end with..." **of Shares** and **Cash** into Round 2 "I start with..." row. The student must record his/her choice in a table. They do not know the new share price yet. Students have to commit to buying, holding, or selling before they know the share price in order to simulate how difficult it is to truly time the market. When the student has made his/her choice the teacher flip to Round 2 price slide (shows the change in the price of the Ravioli King share). The student completes the table in Round 2 (calculates the value of the investment portfolio and the cash based on the change in the share price). The student cannot change his/her mind after the share price is announced.

Round 2 Ravioli King share price: \$45.

The student must complete the table:

Round 2 - SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with	40	60	2400	\$
I buy	+	\$		- \$
I sell	-	\$		+\$
I end with	40	45	\$1800	\$

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Round 2 questions:

- Does the steadily decreasing price throughout the week mean the stock will continue decreasing? Gali, indeksą įvertina
- If the stock decreases again on Monday, is it a good idea to buy, hold, or sell? Why?

Round 3

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Teacher shows a note on the slide:

One of your friends missed lectures yesterday. When you ask why, he says he ate at Ravioli King the previous night and got food poisoning. Two girls from your group say the same thing and your friend's father also got sick after eating there last week. You check online to see if it's a reported problem, but you don't find anything to support that.

Will you sell shares, buy shares, or hold?

Note: Beginning in Round 3, each student decides to buy, sell, or hold all or part of the shares. On the student worksheet, they copy Round 2 "I end with..." of Shares and Cash into Round 3 "I start with..." row. The student must record his/her choice in a table. They do not know the new share price yet. When the student has made his/her choice the teacher flip to Round 3 price slide (shows the change in the price of the Ravioli King share). The student completes the table in Round 2 (calculates the value of the investment portfolio and the cash based on the change in the share price). The student cannot change his/her mind after the share price is announced.

This game algorithm will be repeated in all subsequent rounds.

Round 3 Ravioli King share price: \$ 50.

The student must complete the table:

Round 3 – BUY, SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with				\$
I buy	+	\$		- \$
I sell	40	\$50	2000	+\$
I end with		\$	\$	\$-400

Round 3 question:

• At what point do local events impact stock prices?

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Round 4

Teacher shows a note on the slide:

Analyst insights (video):

https://youtu.be/giq35E7i8sw

Will you sell shares, buy shares, or hold?

Round 4 Ravioli King share price: \$ 55

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The student must complete the table:

Round 4 – BUY, SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with				\$
I buy	+	\$		- \$
I sell	-	\$		+ \$
I end with		\$	\$	\$

Round 4 question:

• How do analysts' opinions impact your decisions?

Round 5

Teacher shows a note on the slide:

From a national newspaper...

Ravioli King voted Top-5 favorite fast food.

According to the latest American Customer Satisfaction Index Restaurant Report, Ravioli King is the third highest ranked fast food chain after Panera Bread and Chipotle. Consumers, who report dining out an average of 4 times per month, love Ravioli King clean, well-decorated restaurants and the large selection of customizable.

Will you sell shares, buy shares, or hold?

Round 5 Ravioli King share price: \$65

The student must complete the table:

Round 5 – BUY, SELL or HOLD

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	of Shares	Price per share	Stock value	Cash
I start with				\$
I buy	+	\$		- \$
I sell	-	\$		+\$
I end with		\$	\$	\$





Round 5 questions:

- Do you think the news article impacts the stock price?
- Do you think the impact of the news article will be short-lived or long-lasting?

Round 6

Teacher shows a note on the slide:

Ravioli King's most popular menu item is also its most expensive. This is the ravioli with crabs. The dish is \$14,50, while most of the other ravioli sells for \$ 9,50 to \$12,50. Rumor has it their crab supplier has a bad fishing season, and the Ravioli King is going to raise prices on the ravioli with crabs to \$16,45. Analysts are suspecting the Ravioli King share price is about to plummet. Will you sell shares, buy shares, or hold?

Round 6 Ravioli King share price: \$ 55.

The student must complete the table:

Round 6 – BUY, SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with				\$
I buy	+	\$		- \$
I sell	-	\$		+ \$
I end with		\$	\$	\$

Round 6 questions:

- If they're going to start charging more, doesn't that mean they'll start generating more revenue? Why is this a concern?
- Should supply chain issues impact share price?

Round 7

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Teacher shows a note on the slide:



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Will you sell shares, buy shares, or hold?

Round 7 Ravioli King share price: \$ 60.

The student must complete the table:

Round 7 – BUY, SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with				\$
I buy	+	\$		- \$
I sell	-	\$		+ \$
I end with		\$	\$	\$

Round 7 questions:

- What is the role of social media in the stock market? Is it more or less impactful than analysts' statements?
- What are the short-term implications of expansion? What about the long-term?

Round 8

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Teacher shows a note on the slide:

Italian restaurant "Pasta World" opens in your neighbourhood. "Pasta World" sells ravioli and tortellini. There are huge crowds and the lines at Ravioli King decrease except on Discount Tuesdays. Food reviewers say that "Pasta World's" ravioli aren't as good, but they offer much more variety. "Pasta World" has 190 locations nationwide.

Will you sell shares, buy shares, or hold?

Round 8 Ravioli King share price: \$ 65.

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The student must complete the table:

Round 8 – BUY, SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with				\$
I buy	+	\$		- \$
I sell	-	\$		+\$
I end with		\$	\$	\$

Round 8 question:

• If you had the option to invest in "Pasta World" right now, would you? Why?

Round 9

Teacher shows a note on the slide:

Ravioli King signs an endorsement deal with NBA star LeBron James, who will appear in their print ads and in TV and online commercials.

Will you sell shares, buy shares, or hold?

Round 9 Ravioli King share price: \$ 70.

The student must complete the table:

Round 9 – BUY, SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with				\$

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I buy	+	\$	- \$
I sell	-	\$	+ \$
I end with		\$ \$	\$





Round 9 questions:

- Are advertising contracts with celebrities a good strategy?
- Do you think LeBron James fame will make up for the cost of paying him?

Round 10

Teacher shows a note on the slide:

The founding CEO of Ravioli King announces she is stepping down at the end of the week, without explaining why. The current Vice-President will hold the interim CEO position until Ravioli King can find a permanent replacement.

Will you sell shares, buy shares, or hold?

Round 10 Ravioli King share price: \$ 55.

The student must complete the table:

Round 10 – BUY, SELL or HOLD				
	of Shares	Price per share	Stock value	Cash
I start with				\$
I buy	+	\$		- \$
I sell	-	\$		+\$
I end with		\$	\$	\$

Round 10 questions:

- In a real investment, when such a notice is published, you wouldn't have a chance to sell before the share price plummets. Why not?
- In what circumstances do you think would the announcement of a new CEO not have such a drastic impact on share price?

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End of the game:

I end with a total value of...

The results of the game are discussed in class.

Reflect:

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At the end of the game, the teacher provides students with reflection questions to answer. The reflection questions are on the student's worksheet.

Answer the reflection questions:

- Why do you think you succeeded (or failed) at making money in the stock market?
- If you could take back one decision you made in one round, which would it be? Why?
- How did the social media impact your decision-making process?

Algorithm of the game:

The game consists of 10 rounds. At the start of each round, the teacher shows a slide describing current events that affect the student's investments. During each round the student will have the opportunity to buy, sell or hold shares. Once the student has made a decision, he/she will be asked to fill in a worksheet about his/her decisions and the value of the investment. The student must record his/her choice in a table. They do not know the new share price yet. Once the student has decided to buy, sell or hold a share, the teacher will show the price of the share for that round. The student calculates the value of the investment portfolio and the cash based on the change in the share price. The student cannot change his/her mind after the share price is announced. At the end of each round, the student has to answer the questions given by the teacher. At the end of the game, the student calculates the value of his/her investment portfolio and the amount of cash.

Table "Algorithm of the game"

Students are given a student worksheet in which they first read the case scenario.

	System action	Player (student) action	Lecturer action
1.	START		
2.		Students data is filled into the	
		system	
3.	Provide financial data on the	Student learns about the	
	company Ravioli King	company's financial data	
4.	Game begins (Round 1)		

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10000			
5.	Shows the first event: You have \$ 2400. Shares of Ravioli King are currently trading at \$ 60. Since you have been working all summer to save money specifically for investing, the first step is to buy shares for the full \$ 2400.		
6.		Students complete the table for Round 1	
7.	shows the Round 1 question		
8.	Round 2	-//-	
9.	shows the second event: information on slide 2		
10.		Students complete rows 1-3 of the table in Round 2	
11.	shows the share price for round 2		
12.		Students complete rows 4 of the table in Round 2 (I end with)	





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13.	shows the Round 2 questions		
14.	Round 3		
15.	shows the third event:		
	information on slide 3		
16.		Students complete rows 1-3 of the	
		table in Round 3	
17.	shows the share price for round		
	3		
18.		Students complete rows 4 of the	
		table in Round 3 (I end with)	
19.	shows the Round 3 question		
20.	Round 4		
21.	shows the fourth event:		
	information on slide 4 (video)		
22.		Students complete rows 1-3 of the	
		table in Round 4	
23.	shows the share price for round		
	4		
24.		Students complete rows 4 of the	
		table in Round 4 (I end with)	
25.	shows the Round 4 question		
26.	Round 5		
27.	shows the fifth event:		
	information on slide 5		
28.		Students complete rows 1-3 of the	
-		table in Round 5	
29.	shows the share price for round		
20	5	Students complete norma 4 of the	
30.		Students complete rows 4 of the table in Pound 5 (Lond with	
31.	shows the Round 5 questions	table in Round 5 (I end with)	
32.	Round 6		
33.	shows the sixth event:		
55.	information on slide 6		
34.	Information on side o	Students complete rows 1-3 of the	
54.		table in Round 6	
35.	shows the share price for round		
55.	6		
36.	· ·	Students complete rows 4 of the	
20.		table in Round 6 (I end with)	
37.	shows the Round 6 questions		
38.	Round 7		
39.	shows the seventh event:		
	information on slide 7		
40.		Students complete rows 1-3 of the	
		table in Round 7	
41.	shows the share price for round		
	7		
42.		Students complete rows 4 of the	
		table in Round 7 (I end with)	
43.	shows the Round 7 questions	· · · · · · · · · · · · · · · · · · ·	





44.	Round 8		
45.	shows the eighth event: information on slide 8		
46.		Students complete rows 1-3 of the table in Round 8	
47.	shows the share price for round 8		
48.		Students complete rows 4 of the table in Round 8 (I end with)	
49.	shows the Round 8 question		
50.	Round 9		
51.	shows the ninth event:		





1000			
	information on slide 9		
52.		Students complete rows 1-3 of the	
		table in Round 9	
53.	shows the share price for round		
	9		
54.		Students complete rows 4 of the	
		table in Round 9 (I end with)	
55.	shows the Round 9 questions		
56.	Round 10		
57.	shows the tenth event:		
	information on slide 10		
58.		Students complete rows 1-3 of the	
		table in Round 10	
59.	shows the share price for round		
	10		
60.		Students complete rows 4 of the	
		table in Round 10 (I end with)	
61.	shows the Round 10 questions		
62.	End of the game		
63.	The system shows the financial		The teacher sees the
	result of each player at the end		financial result for
	of the game to the teacher and		each player, if
	to each student (the student		possible so that the
	should be shown individually),		players can do the
	if it is possible for the players		calculations in the
	to do all the calculations in the		system. Or maybe it
	system		is possible for each
			player to enter the
			final financial result
			of the game into the
			system at the end of
			the game, if the
			players can only do
			the calculations on
			their worksheet

The results of the game are discussed in class.

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