Assessing Risk-taking Behavior in Children's Investments

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Abstract

This study focuses on six, seven and eight-year-old children's preferences and reasoning when given investment opportunities. After receiving tokens that can be exchanged for stickers at the end of the study, subjects are presented with a high risk investment opportunity and a low risk investment opportunity, and the experimental group is walked through four periods of returns for those investments, allowing for the historical returns to be observed. They are then instructed to either choose an investment to place their tokens or to not invest at all. The reasons behind their choices are explored through debriefing questions and the main hypotheses are that children will choose to invest more often than not and will select the riskier investment more frequently. Additionally, we predict that younger children will select the riskier investment more frequently than older children. Thus far, preliminary results are in line with the idea that children will choose to invest more often than not and that younger children will select the riskier investment more often than older ones. However, based on the data collected across all age groups combined, children have selected the low-risk investment option the most, contradicting the second hypothesis mentioned.

1. Introduction

While taking risks may be extremely appealing to some, it sounds completely terrifying to others. Those who view it as a negative behavior tend to be called “risk-averse”, while those who do not view it in such a negative light are said to be “risk-tolerant”. This behavior can be analyzed from several angles: psychological, economic and decision theoretic. In order to make a *conscious decision* about risk, a situation should include criteria that enables the evaluation of possible outcomes and consequences (Schoemaker, 1993). Additionally, it has been observed that individual assessments of scenarios affect one’s actions due to perceptual bias in decision making, and this is influenced by emotional and cognitive processes (de-Juan-Ripoll et al., 2021). It is also worth mentioning the expanding field of behavioral economics, that aims to study the psychological factors that impact decision making and how these differ from the neoclassical economic theory that is based on the assumption that individuals have clear preferences and make well-informed decisions with those preferences in mind.

Economics and psychology have long been intertwined, but not always uniform in their beliefs. Choice theories in the behavioral sciences have held risk preference as a crucial field of study, but economics and psychology approach these preferences in differing ways. In economics, this area is usually explored as changes in monetary payoffs, while in psychology it is interpreted as likelihood to partake in potentially harmful or loss-filled behaviors (Hertwig et al., 2018). One prominent component of our society that encompasses both is investing (and consequently - its returns). In a 2010 study, data from the Health and Retirement Study from 1992 to 2006 were used to assess risk tolerance levels in response to such returns over time.

What they found was that risk tolerance would decrease when market returns decrease and increase when returns increased (Yao & Curl, 2010). From this, we can confirm this idea that perceptions of risk influences our decisions, but also that there is overlap between the psychological and economic approach to studying risk preference. This study aims to combine both approaches and apply it to children.

Before diving into how this can be applied to children, it is important to highlight the role of probability in risk taking behaviors. As previously stated, individuals can act differently based on their perceptions of likelihoods, with one person believing in a lower probability of success than the other, for example (Schoemaker, 1993). Since these perceptions ultimately affect actions, being able to grasp the concept of an event's probability *P(A)* is crucial, and the conclusions from the Yao and Curl study were only able to be drawn because subjects factored in history and likelihood when taking actions. But at what age do we start understanding probability? This question raises some disagreements. When children were faced with a task requiring them to select tokens with higher probability of resulting in a reward, it was found that individuals as young as five years old were capable of factoring in general and specific probabilities when making their choices (Girotto & Gonzalez, 2008). However, in "Win-Stay, Lose-Shift" algorithm tasks, the results were different. This task has at its core the idea that if you win, you remain where you are (since you had a positive outcome) and if you lose, you shift (in the hopes of having a positive outcome elsewhere). What they found is that children as old as six years of age were found completely ignoring given probabilistic information when deciding, indicating a possible inability to comprehend said probabilities (Lang & Betsch, 2018). These

inconsistencies in results could be attributed to the methods used to reach these conclusions, since they varied. Girotto and Gonzalez relied on simple probabilistic information, whereas Lang and Betsch included, in addition to simple probabilistic information, cues with differing validity. Given discrepancies between the results in these two (and other studies) on the subject, more research is needed to determine when specific aspects of probability comprehension develop, and if or how they vary across children. For now, we know that children around five or six years of age begin displaying the ability to understand and factor in probabilities when deciding. Once these individuals have grasped the concept of probability and begin implementing it to guide decisions, a pattern of choice emerges. Children tend to adopt a probability matching strategy, where the proportion of their choices mirror the probability of those choices resulting in a reward (Plate, Fulvio, Shutts, Green, & Pollak, 2018). As the trials progress, children switch towards the probability maximizing strategy, where they select the choice with highest probability for reward. This strategy can be observed in both children and adults, but adults are able to adopt this maximizing strategy faster.

Many studies of this sort in children revolve around the Iowa Gambling Task (IGT). In the IGT, decision making is analyzed by researchers based on card decks (A, B, C and D), where the subject can gain or lose money depending on the cards. The main objective is to make a profit, and subjects were shown one hundred cards individually, with information on their gains and losses after every draw. Overall, the disadvantageous decks oscillated between large gains and larger losses and it has been found that children usually favor disadvantageous decks (Cassotti, Aite, Osmont, Houde, & Borst, 2014; Cassotti et al., 2011; Paulsen, Platt, Huettel, &

Brannon, 2012). The aversion to loss has been coined as the key influence for children to take risks mainly to avoid such losses, as opposed to focusing on the potential gains (Levin & Hart 2002). This is because younger children cannot easily comprehend the amount of loss in addition to frequency and so frequency of loss/gains tend to dictate their decisions more than the outcome amount (Cassotti et al., 2011). However, as people grow older, this pattern is no longer observed. Individuals aged 15 to 17 used the three-dimensional-rule (of considering amount of loss, frequency of loss and gains) significantly more than those aged 8 to 11 (Jansen, van Duijenvoorde, & Huizenga, 2012).

Furthering this idea of how risk attitudes vary with age, studies show children place disproportionally more weight in high-probability events and less weight in low-probability events. This tendency decreases with age, and adults tend to objectively analyze probability when making a risky decision (Harbaugh, Krause, & Vesterlund, 2002). As a whole, children also tend to be more risk-taking than adults (Crone, Bullens, Van der Plas, Kijkuit, & Zelazo, 2008). Countering the findings of Levin and Hart (2002) mentioned earlier, Paulsen et al. (2012) claims that a possible reason why children are more risk-taking is because they focus on the possibility of a jackpot, instead of losses. Advantageous decks tend to have smaller, progressive gains over time, while the disadvantageous decks could seem more appealing to children due to their large gains. If children favor the possibility of a jackpot or prefer avoiding loss more is still debated, and this study's results will hopefully contribute to such debate.

It is crucial to determine what factors lead to risk-taking behaviors in children. Loss aversion as well as attraction to high rewards seem to be driving factors in risky decisions

making, but there are other factors one must take into consideration. Sex has been found to play a role in it, with boys engaging in greater frequency of risk-taking behaviors than girls (Morrongiello & Lasenby-Lessard, 2007). In this study there is room for future analysis of gender patterns.

It is also important to note that the majority of studies listed above that determine child decision making and risk-taking behaviors fall under one modality. Risk-taking behavior is extremely context specific, so traits that lead to risky behaviors in children in one modality may not result in the same level of risk in others (Paulsen et al., 2012).

So far, a solid foundational base for child decision-making has been established based on probability comprehension. We know that depending on the methodologies used, children around the ages of five or six begin to have some ability to understand probability, and use given information to update their choices. However, whether they rely more heavily on frequency of loss or potential for gain is still up for debate and this study aims to explore this when assessing risk-taking behaviors in children's investments. More broadly, this study aims to answer the question: are children more risk averse or risk tolerant when it comes to investing?

Once this research question was established, there were several decisions that had to be made to answer this question. We had to set up an experiment where children had control over an asset belonging to them, as opposed to just being told hypothetical situations, since it has been found that the latter is inefficient in shaping children’s behavior (Whitebread & Bingham, 2013). This study consists of two conditions, the control and the experimental. The control group will be presented with two investment opportunities with no information on the history

of returns. The experimental group, however, will be walked through four periods of returns on investment. Both groups will then be asked to choose if they wish to invest or not, and if so, are instructed to pick one investment. They will be asked debriefing questions afterwards to understand the reasoning behind their choices. Taking into consideration the debate surrounding the age children start to comprehend probability, it was determined the subjects of this study would be children aged six to eight.

This study has directional hypotheses, and we predict that 1) more children will make an investment as opposed to not making an investment regardless of the condition they are randomly placed in, 2) children in the experimental group with known outcomes will be more likely to invest than children in the control group who have no historical information and 3) for those subjects placed in the experimental group, more will choose to invest in the riskier investment than the less risky one. So far, data has only been collected under the experimental condition, so the main hypotheses focused in this paper are 1, 3 and an additional one. The final hypothesis is that when comparing age groups, we predict the younger children will choose to invest and select the riskier investment more frequently than the older age group. This is because, as previously stated, individuals tend to become more risk averse and aware of consequences as they grow older.

2. Methods

2. 1 Subjects and Recruitment

Subjects are female and male children aged six to eight. These ages were selected due to previous research on probability comprehension, meaning we expect some six year olds to not factor previous returns when deciding on an investment, but most (if not all) eight year olds to do so. Subjects are selected on a voluntary basis and data is collected in person, in the San Diego region. Thus far, we have collected data on 31 subjects and all have been collected at Fleet Science Center in San Diego and participants are recorded for the duration of the study (if parental consent is granted). Additionally, an optional demographics questionnaire is given to parents to fill out, including questions such as, but not limited to: the child's number of years in preschool, number of siblings, languages understood, race and parental education. The children will receive six or seven stickers for their participation based on their choices during the experiment.

2. 2 Experiment Design and Procedure

Since we are running this study on young children, we had to find a way to present investments and returns in an interesting manner. A pilot study was conducted over Zoom, but we found that it was hard to keep children engaged online, and so we adapted to an in person experiment. It was also necessary to add a tangible reward in order for participants to really immerse themselves in the experiment and not only think of their choices as abstract hypotheticals. Our solution was giving them six tokens to invest with and informing them before the experiment that they will have a chance to exchange one token for one sticker by the end of the study, meaning that more tokens would equate to more stickers.

The overview of the experimental procedure is as follows: children are presented with two physical "magic" boxes (that are our investments) and six physical tokens. They are then shown a slideshow with the fictional character *Blee*, who has the exact same six tokens and boxes as the child. The slideshow contains pictures of the items and the researcher explains to the child that they are the exact same *(Figure 1)*. *Blee* then proceeds to invest their own six tokens in both boxes and the child observes what happens to the character's tokens after each "magic shake", which are the returns. The returns are shown side by side and the researcher counts them with the child for the first two shakes, to ensure comprehension (*Figure 2).* By the end of all shakes, the child is presented a slide with all the returns for both investments *(Figure 3).*

Figure 1

Figure 2

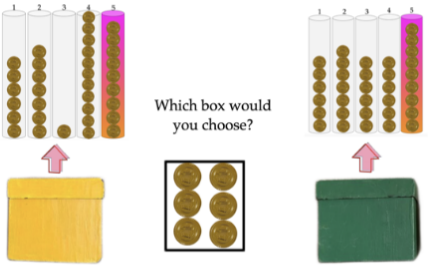

Figure 3

At the end, they are asked the following debriefing questions:

1) Would you like to play the game or keep the tokens you earned? Remember if you choose to play, you will have to put all of your tokens into only one pot.

If they choose to not play:

1) Why did you choose to not play?
2) What do you think would've happened if you played?
3) What do you think will happen to your tokens since you did not play?

If they choose to play:

1) What box do you want to put your tokens in?
2) Why did you choose that box to play with?
3) What do you think is going to happen when you play with that box?
4) What do you think would happen if you had played with the other box?

The debriefing questions serve for us to gain a better understanding of the child's reasoning and understanding of the task. For the control condition, the process is simpler. The child does not go through any of the shakes and instead is only presented with the boxes and tokens and told they can choose to play or not. This paper is focusing on the experimental condition, but it is worth outlining how the control condition will give us a better understanding of children's risk taking preferences at the fundamental level - without knowing if investments are profitable or not.

2. 2. 1 Manipulated Variables

This is a between-subjects design where subjects are assigned to conditions at random and each subject will only be assigned to a single condition. The main manipulation in this paradigm is whether a child is given the history of returns for both investment options. Half of the participants will be assigned to the control condition and be given the choice to invest (in either box) or not with no historical information, while the other half will be assigned to the experimental condition and be shown the returns on investment for the past four periods (or 'magic shakes') for both boxes. We will use random manual selection of conditions before live testing to assign children randomly to conditions and counterbalancing orders. The counterbalancing are as follows: green investment being high risk and presented first (GR-YL High), green investment being low risk and presented first (GR-YL Low), yellow investment

being high risk and presented first (YL-GR High) and yellow investment being low risk and presented first (YL-GR Low). This will eliminate the possibility that the order impacts investments chosen, and consequently, our results.

2. 2. 2 Measured Variables

We will measure how frequently children choose to invest their money in one of the boxes (as opposed to not doing so) and if assigned to the experimental condition, which investment they chose more often (high or low risk). These choices will be assigned the values of 0, 1 or 2. If they decide to not invest, their choice will be assigned a 0. If they do decide to invest (in the experimental condition) and they opt for the low risk investment, that will be a value of 1 and if they opt for the high risk investment, that is a value of 2. Additionally, for the experimental group, we will gather data on their motivations for choosing a specific box/investment, categorizing their reasons into "historical returns", "no historical returns" or "unknown". An example of a justification with "no historical returns" would be a child saying they picked that investment because they liked the color of the box and "unknown" is assigned to those who answer not knowing why they chose what they chose. Furthermore, after looking at the responses to the debriefing question *"What do you think would happen if you had played with the other box?"*, we will separate answers into two categories: "with reason" and "unknown". This will hopefully provide an additional indication of whether or not children are thinking in depth about their decision, also factoring in what they are giving up when selecting an investment (opportunity cost).

2. 2. 3 Data Exclusion

A data point will be excluded if a participant is unable to conclude the study. This happens with more frequency in younger children, with their attention diverting elsewhere. A data point will also be excluded if there is significant parental intervention, usually in the form of help to the child. This could bias the results and make children's answers more advanced than what they would have come up with on their own. We currently have excluded six subjects for logistical reasons, such as lack of age included in the consent form, or age outside our investigated range

3. Preliminary Results

3. 1 Investment Option Selected

As previously mentioned, we currently have data on 31 subjects (12 six-year-olds, 6 seven-year-olds and 13 eight-year-olds). Additionally, they were all assigned to the experimental group and only the (GR-YL High) and (GR-YL Low) counterbalancing conditions have been tested. Currently, 11 children were assigned to the (GR-YL Low) and 20 were assigned to the (GR-YL High). These quantities are simply due to how many subjects were available when each counterbalancing was being tested. The two main hypotheses tested in this paper are that 1) more children will make an investment as opposed to not making an investment and 2) for those subjects placed in the experimental group, more will choose to invest in the riskier investment than the less risky one. Furthermore, the expectation of younger children being more risk loving than older children was also outlined. Below are descriptive statistics of our findings thus far:

	High Risk	Low Risk	No Investment
6-year-olds	6	4	2
7-year-olds	2	3	1
8-year-olds	3	7	3
Total	11	14	6

Table 1. Investment choices for different age groups and total

By looking at *Table 1*, we can see the choice breakdown for our 12 six-year-olds, 6 seven-year-olds and 13 eight-year-olds. *Figure 4* displayed below shows that across all age groups, 80.6% of subjects chose to place their tokens in one of the boxes, while only 19.4% chose to not do so. Focusing on those 80.6% who chose to invest, 56% of them selected the low risk investment, while only 44% opted for the riskier one.

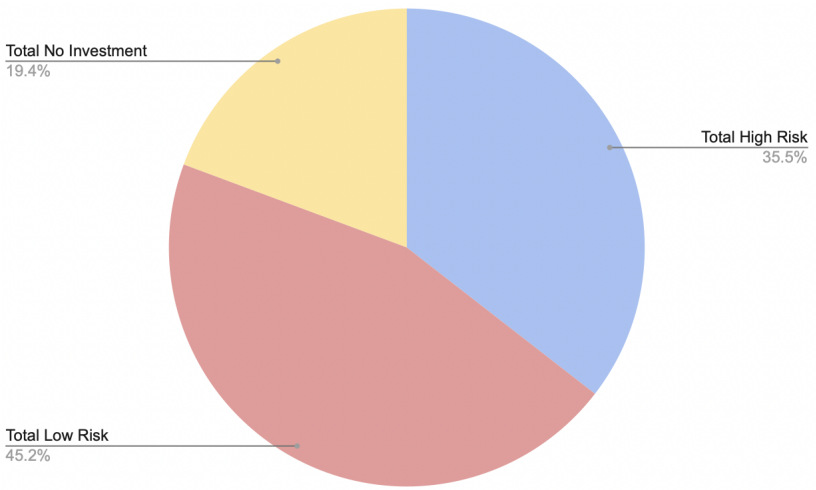

Figure 4. Total investment choices

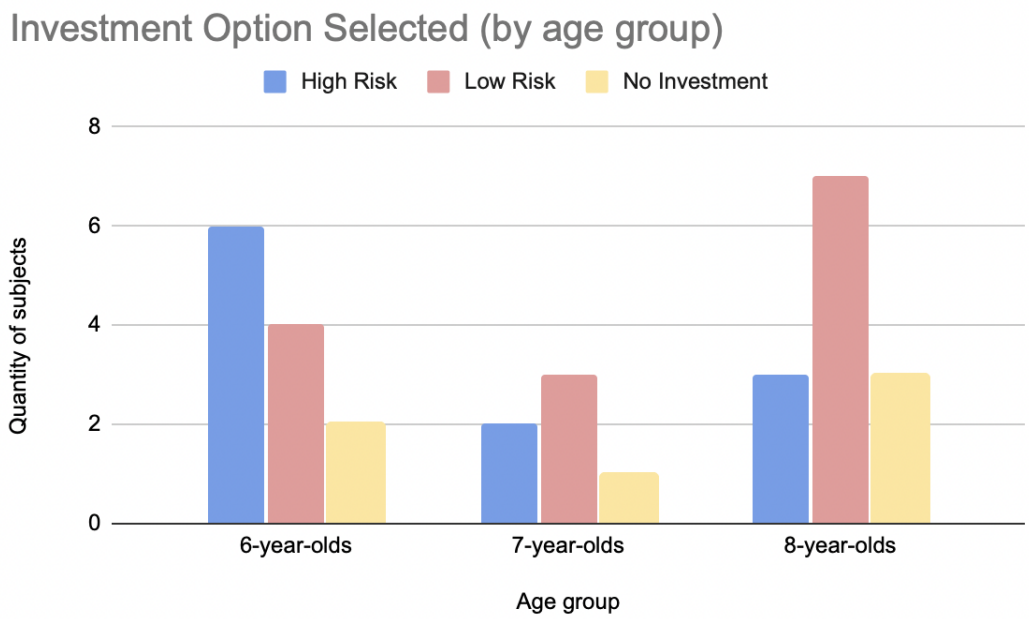

Figure 5. Investment choices by age group

Figure 5 displays investment option selection by age group and we can observe that 6-year-olds were the only age-group where the high risk investment was the most popular option. The sample size for 7-year-olds is still very small, but the response patterns are similar to the 8-year-olds, where the low risk investment was the favorite.

Additionally, we can objectively compare the risk preference across age groups by calculating their mean scores. As previously mentioned, the value of 2 is assigned when the riskier investment (HR) is selected, the value of 1 is assigned when the less risky investment (LR) is selected and 0 when the subject decides to not invest at all (N/A). We can then compute the averages for each age group and the total subject pool:

$$\textit{Average score total} = \frac{(11 \cdot 2 + 14 \cdot 1 + 6 \cdot 0)}{31} = 1.161290323$$

$$\textit{Average score } 6 \textit{ yo} = \frac{(6 \cdot 2 + 4 \cdot 1 + 2 \cdot 0)}{12} = 1.3333333$$

$$\textit{Average score } 7 \textit{ yo} = \frac{(2 \cdot 2 + 3 \cdot 1 + 1 \cdot 0)}{6} = 1.166666667$$

$$\textit{Average score } 8 \textit{ yo} = \frac{(3 \cdot 2 + 7 \cdot 1 + 3 \cdot 0)}{13} = 1$$

3. 2 Reasoning

In addition to investment choices, we can also observe the data on the reasoning behind said choices. When a subject did decide to invest their tokens, the justifications for selecting one investment over another can be analyzed and categorized into "historical returns", "no historical returns" or "unknown".

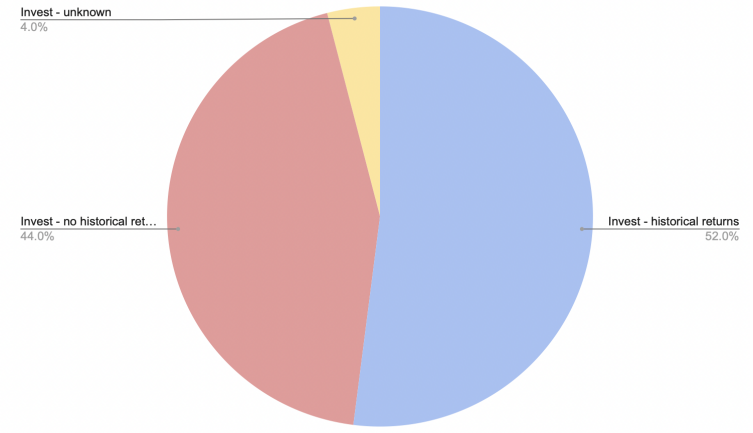

Figure 6. Justifications for investment decision (investing only)

Also included is the data from when they decided to not invest at all, in order to get a more general understanding of children's reasoning behind investment selection. Interestingly, all six subjects who chose to not invest provided justifications that factored in historical returns.

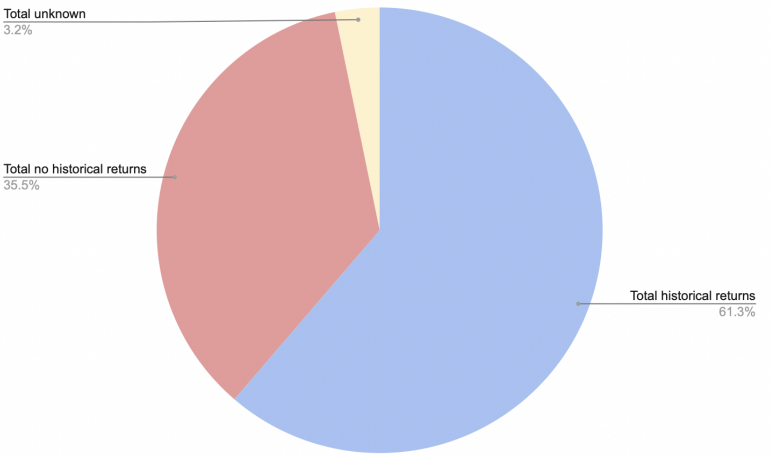

Figure 7. Justifications for investment decision (total)

When those who invested were asked the debriefing question: *"What do you think would happen if you had played with the other box?,"* the answers either contained a specified reason or were unknown to the subject.

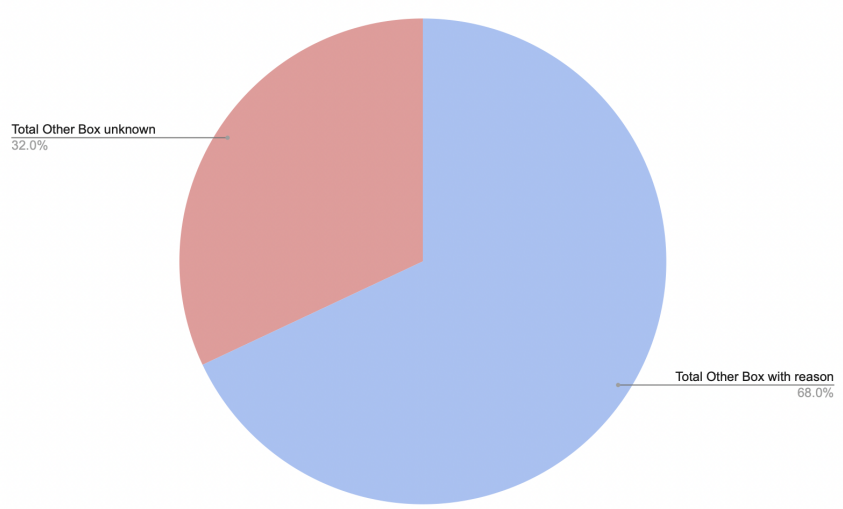

Figure 8. Justifications for not selecting other option (investing only)

Lastly, including the answers for those who did not play and were asked *"What do you think would've happened if you played?"* to the previous chart, we get the following:

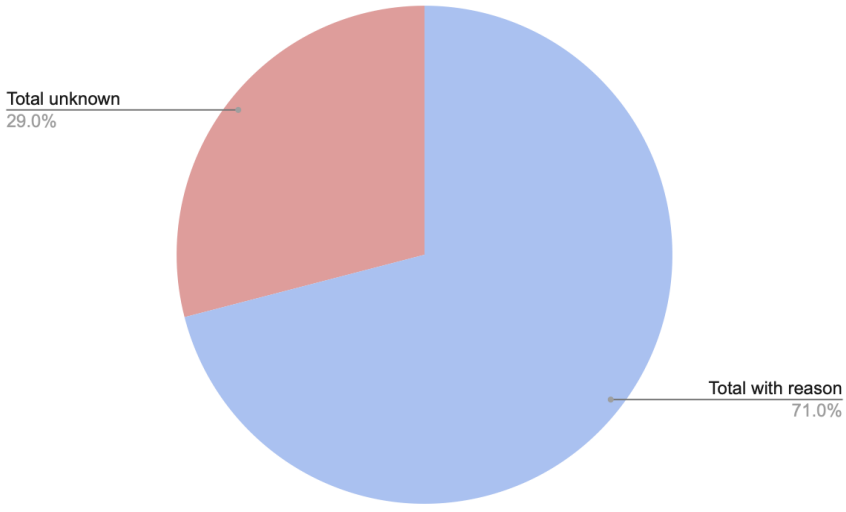

Figure 9. Justifications for not selecting other option (total)

4. Discussion

The purpose of this study is to assess risk-taking behavior in children's investments and explore the question of "Are children more risk averse or risk tolerant when it comes to investing?" Introducing children aged six, seven and eight to financial investments may sound too early, but past studies on children of a similar age range (six to nine) and their understanding of basic economic concepts (such as price, monetary value and scarcity) have been carried out and it was found that these young children could understand some concepts, in addition to having their reasoning shift from simple at younger age groups to more complex later on (Schug and Birkey, 1985). Furthermore, the results are a positive indication that children are able to successfully understand the task at hand. Before discussing the descriptive statistics presented, it is important to remember our main hypotheses, which were that more children will make an investment as opposed to not making an investment regardless of the condition they are randomly placed in and that for those subjects in the experimental group (the focus of this paper), more will opt to invest in the riskier investment. There was an additional prediction that younger children will select the riskier investment more frequently than older children, due to increased risk-aversion observed as an individual ages.

Figure 4 shows that the results thus far agree with our first hypothesis that children will prefer to invest over not investing, since across all age groups, 80.6% of subjects chose to place their tokens in one of the boxes, while only 19.4% chose the other option. However, the data collected disagrees with what we predicted regarding the investment preference - where we believed children would select the high risk investment more frequently. Instead, 56% of subjects selected the low risk investment, while only 44% went for the riskier one. It is still too soon to draw any conclusions, since the sample size is not large enough to be statistically

significant, but it is interesting to see the patterns that arise. Continuing onto our last hypothesis (that younger children will select the riskier option more frequently than older children), this is supported by the results displayed in *Figure 5*. We can observe that 6-year-olds were the only age-group where the high risk investment was the most popular option. The sample size for 7-year-olds is still very small, but the response patterns are similar to the 8-year-olds, where the low risk investment was the favorite. Finally, we can objectively compare the risk preference across age groups by calculating their mean score (remembering HR = 2, LR = 1 and N/A = 0). The mean score for six-year olds was the highest at 1.333, followed by the mean of 1.16667 for seven-year olds and finally the average score of 1 for eight-year-olds. In general we can see the inverse relationship between age and average score, agreeing with our final hypothesis. The total average score is 1.161290323, in agreement with our first hypothesis that children will choose to invest more often than not.

It is worth remembering that simply looking at their choices of investment does not necessarily mean they are risk taking or not. This is because external reasons (that are not related to probability and risk) can influence their decisions. Debriefing questions were therefore asked to try and understand their reasoning better. *Figure 6* displays the reasoning categories more frequently selected when a subject did decide to invest (eliminating all those that did not invest) and the majority provided substantial reasons factoring in historical information of investments. Utilizing real answers to illustrate what each category means might aid in understanding their differences. “Unknown” simply means the subject answered that they do not know why they chose a certain investment. “No historical returns” are reasons such as “Green is my favorite color” *(Subject 8, 7-years-old)*. “Historical returns” are reasons such as “This one went from 6 to 7 and the other had 6 and went to 9, green box will have big change”

(Subject 29, 8-years-old). It may be tempting to assume that the older the child, the higher likelihood of them providing answers that factor in historical returns, but so far this has not been observed. In fact, 50% of 6-year-olds provided answers accounting for investment history, while only 40% of 7-year-olds did the same. It is still too early to conclude anything, but it is encouraging to see 6-year-olds giving answers for choosing one investment such as "Because there is a 1 and 1 would make me only get 1 sticker" *(Subject 35, 6-years-old)*. This "1" is referring to the other investment and how, because it gives a return of "1" in one of the periods, the child chose the other investment.

One interesting result worth mentioning is that all subjects who decided to not invest provided answers regarding why they chose to not invest that factored in historical returns. This shifted the total percentage of answers with historical returns up to 61.3% *(Figure 7)*. The exact reason is unknown, but wanting to "play the game" and place their tokens in a "magic box" might seem more appealing to children, meaning that if they choose to not do so, it is because of a thought out reason.

To further ensure that subjects are thinking through their decisions, one of the debriefing questions asked for their opinion on what would have happened had they chosen differently. For those that chose to invest, we asked about their predictions for what would have happened if they chose the other investment and for those who did not invest, what they think would have happened if they did. Their answers were then categorized into their providing a "reason" or "unknown". *Figure 8* accounts for only those who did invest and shows that 68% of subjects had a solid prediction of what would have happened if they chose another investment. When we include data on those who chose to not invest, the percentage increases to 71% of subjects having a reason *(Figure 9)*. One example of an answer categorized as "reason" for subjects that

did invest is “It would be more chances of me losing coins” *(Subject 30, 8-years-old)*. One example of an answer categorized as “reason” for subjects that did not invest is “It would disappear” *(Subject 19, 6-years-old)*. In this answer the child was referring to the tokens and explaining they chose to not play because the tokens would have disappeared if they played.

4. 1 Limitations

This study does have some limitations. Firstly, there is not much at stake for the child. The worst that could happen is them losing all their tokens and getting no stickers, but no real harm would be done. That may be a reason why children could potentially not put too much thought into their decisions, but it was the best we could do without involving real money or real loss. Subjects did seem interested in getting more stickers and paid more attention because of it, but of course there was no real financial risk.

Additionally, fully comprehending their understanding and consideration of risk when making a decision is challenging. The debriefing questions exposed interesting thought processes, such as “I saw that at the end both of them got 9 so I could choose any of them, but I just picked yellow because I like yellow” *(Subject 22, 8-years-old)*. This child clearly factored in historical returns, by mentioning that both investments have a final return of nine tokens, but failed to consider all other returns (from what we can conclude from their answer). This subject ended up selecting the low risk investment, but by mentioning that they could have picked any investment since they both end with the same amount, it leaves room for doubt regarding the child's risk preference. On the data however, this child will be included as having a preference for low-risk, and that is a limitation. These cases are not very frequent (based on the data collected thus far), but it is worth mentioning.

Another similar scenario are those individuals who end up responding that they do not know why they chose a certain investment, but then explain with reason what they expect to happen if they had invested in the other box (displaying understanding of historical returns). One example is Subject 14 (8-years-old) who said they chose the yellow box because “Yellow is my favorite color,” meaning that they did not factor historical returns, but then said they would “Lose tokens” if invested in the green box. This shows that they may be aware of historical returns, but did not mention that when explaining their choice of box. This would lead them to be included in the group of not factoring in historical returns, even if it seems like they are aware of such. Once again, based on the data collected so far, this is a rare occurrence, but was worth mentioning.

A final limitation is regarding the location where the study has been conducted. All the subjects so far were collected at the Fleet Science Center in San Diego. This could impact our data because it can be argued that individuals attending the Science Center possess a higher intellectual curiosity and might have a higher level of education. Furthermore, having data collection only in San Diego allows for cultural biases. This can be controlled by collecting data in other locations in the future and looking over the demographic questionnaire to ensure the subjects are as representative of the general child population as possible.

5. Conclusion

In conclusion, this study aimed to assess risk-taking behavior and had as its main hypotheses (for the experimental group) that children would invest more frequently than not, that those who did choose to invest would do so in the riskier investment and that older children would be less risk loving than younger children. While nothing can be concluded yet due to the relatively small sample size, the data agrees with our expectations for the first and final hypothesis (that children will invest more often than not and that younger children will select the riskier box more often), but disagrees with the third hypothesis (that children, factoring in all age groups, will select the riskier investment more often). The next steps for this study are to collect more data in varied locations and begin testing the control group. The control group will allow us to truly understand the impact history of returns has on children's investment choices - even more than the debriefing questions. Also, this study can be used to see risk-taking trends among females and males, in addition to the relationship between risk-taking behaviors and impulsivity. The pre-test of this study is an impulsivity task, but this is not the focus of this paper.

By the end of this study we will gain more insights regarding risk-taking behaviors in children's investments. This knowledge could open doors for potential early exposure to financial education (both in schools and at home) and this could lead to good habit formation and greater awareness of financial risk, positively impacting children as they grow older.

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