

# World Currency Exchange

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Mathematical Modelling and Decision Analysis Assignment 4

# Introduction

Australian Dollar (AUD) is keeping the ratio with Canadian Dollar (CAD) and United States Dollar (USD). But recently, Australian government have made changes in their policy and Australian Dollar is significantly changing over time.

I personally purchase a lot from overseas and chose this topic to make better decisions in order to save my expenses in currency exchanges. We would like to analyze the possibilities belong to the currency exchange and getting advices from others.

## Methodology

We assume I exchange \$1000 AUD each to Japanese Yen when the market is closed, so the currency does not change during I purchase.

I have friends who work at global consulting firm related to currencies but not expert. He can predict future currency changes at 60% rate, and saying that I can save \$20 AUD in future if I listen to his advice. He guides the time for buying and selling Japanese Yen. But he also commented that at 40% rate, Japanese Yen drops and I will be losing \$10 AUD. I will be hearing the advice at Starbucks – consulting fee of 1 cup of coffee, which cost \$5.

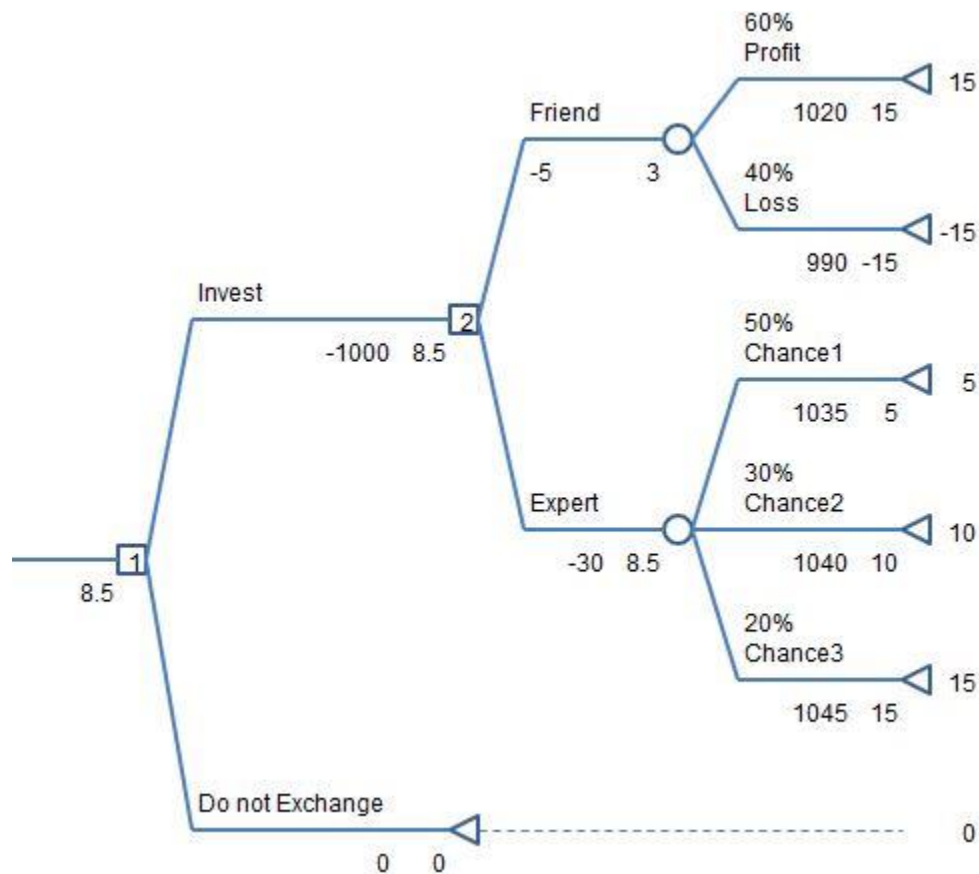
- \$20 return at 60% chance
- \$10 loss at 40% chance

On the other hand, I can have consultation from an expert at currency rates. The expert says that he can guarantee to make profit in the way of saving future expenses. Consulting fee will be \$30 AUD. Expert can guarantee the profit, but the rate of profit I can make changes. He further explained that I can make

- \$35 AUD return at 50% chance
- \$40 AUD return at 30% chance
- \$45 AUD return at 20% chance

Last option is, purely not exchanging any money and exchange whenever I need it.

## Results



We obtained decision tree for our case. An optimal decision is to have consultation with Expert. The expected return, in other words expected monetary values (EMV) of each decisions are:

- Friend's Opinion: \$3 AUD
- Expert's Opinion: \$8.5 AUD

Expected Monetary value is \$8.5 for our case.

Therefore, having consultation with Expert is better decision in this case.