

# Magic the Gathering for Fun and Profit

Or, are chase cards really better than other cards?



# Background

- Magic the Gathering is a Trading Card Game invented by Dr. Richard Garfield in 1993, and is printed by Wizards of the Coast.
- Players and collectors open booster packs of randomly seeded cards with different rarities: Mythic Rare, Rare, Uncommon, and Common





# Background

- The game follows fantasy storylines of Planeswalkers, who are powerful beings able to move from one fantasy plane to another
- WotC prints certain 'chase' cards in every new set that are used to entice players to buy more sealed product (The chances of pulling a Mythic Rare Foil card is about 1 in 3,200 booster packs!)

# Purpose of this Project

Can a reseller really make more money buying and reselling 'chase' cards vs other Magic cards? Do 'chase' cards hold their value better than other cards?

## The Null Hypothesis:

**Magic the Gathering 'chase' cards do not go up in value more than other Magic cards. A reseller cannot make more profit selling 'chase' cards than other Magic cards.**

## The Alternative Hypothesis:

**Magic the Gathering 'chase' cards are in high demand, they consistently go up in value more than other Magic cards, and a reseller can make more money buying and selling them.**

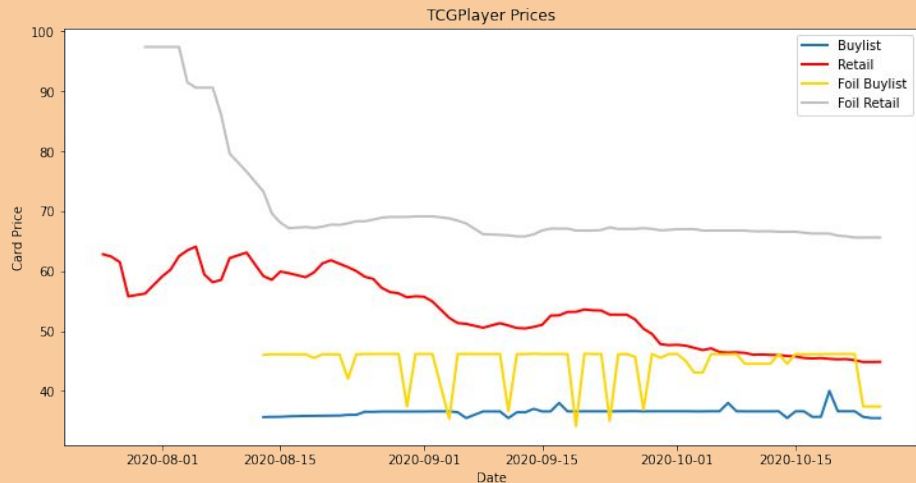
# The Data

- MTGJson project has up to date information and prices for the last 90 days for all 47,354 different Magic cards. The dataset contained 79 columns of different attributes of the cards.
- TCGPlayer is currently the largest Magic the Gathering marketplace for buyers and sellers. They update their card prices every 5 minutes.

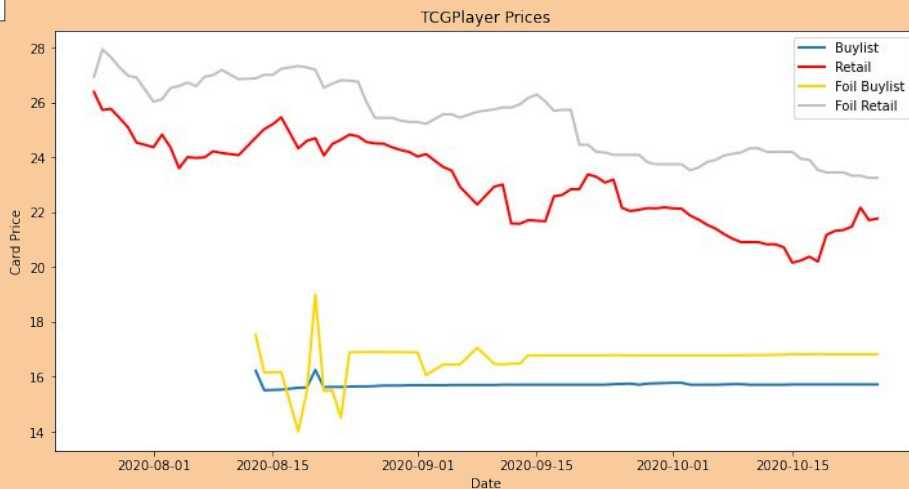




# The Pricing Data



- Buylist is the price that resellers on TCGPlayer are willing to pay collectors for a card.
- Retail, or Market price is the actual price that cards have recently sold for.
- Potental Profit = Retail - Buylist - Fees



# My Findings

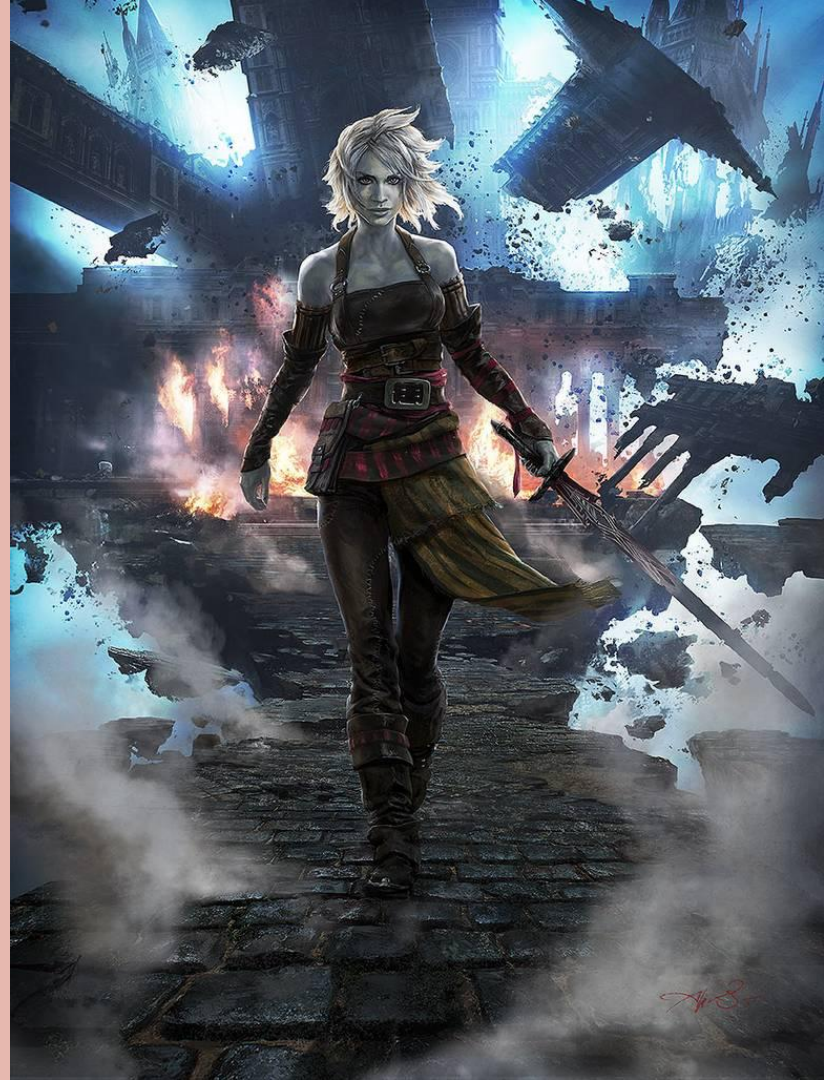
- I looked at Foil cards and Normal cards separately
- Some cards were actually negative profit!
- Set my alpha = .05
- T-Test on 'chase' cards vs other cards for potential profit, and price percentage change over 90 days

**Foil Profit** **pvalue=1.648166059851758e-18**

**Normal Card Profit**  
**pvalue=1.3572386834784576e-57**

**Foil Price Change %**  
**pvalue=0.0002733132243749644**

**Normal Card Price Change %**  
**pvalue=0.027524930076921545**







I can safely reject the null hypothesis and say that 'chase' cards are in fact better for buying and reselling!

Where can I go from Here?

- Other card attributes that can lead to more profit buying and selling cards
- Attributes that make a card retain value or go up in value
- Machine learning to try and predict when cards are going to go up or down in value