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Resale value of individual sets of Magic the Gathering

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RESALE VALUE OF

INDIVIDUAL SETS OF MAGIC THE GATHERING

A Thesis Submitted

in Partial Fulfillment

of the Requirements for the Designation

University Honors

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University of Northern Iowa

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This Study by: Nichole Mlodzik

Entitled: Resale Value of Individual Sets of Magic the Gathering

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University Honors

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Date Dr. Mark Ecker, Honors Thesis Advisor

_____ _____

Date Dr. Jessica Moon, Director, University Honors Program

Introduction

Two-thousand eight hundred and thirty-five dollars and seventy-six cents. Seven hundred and eighty-nine dollars and fifty cents. Forty-five dollars and twenty-nine cents. These values all correspond to retail values for several Magic the Gathering (MTG) decks that the individual conducting this research has used for the past two years. For many years, the lure of strategy card games has been appealing to gamers and non-gamers. With the rise and continued stronghold of the gaming market with powerhouse names like Pokémon, Yu-Gi-Oh, Force of Will, and even MTG, the investment in stockpiling valuable cards has been alluring to many, both young and old. Spending ten to fifteen dollars on a two-and-a-half by three-and-a-half piece of glorified paper may seem absurd, however one card can mean the difference between victory and defeat in playing the game. An MTG player can spend hundreds to thousands of dollars on cards each time a new set is released. With the fluctuating of the market values of cards, a player can buy and sell cards to build decks to compete against other players in local, regional, and international tournaments, while potentially making a significant profit selling any unneeded cards.

The allure of MTG card prices is similar to the appeal of playing the stock market, as some players will buy certain cards with the hope of selling them later at a higher price. However, purchasing packs of cards from a local card store is a random gamble, depending upon which cards appear in the pack. Moreover, each set has different retail values for each pack of fourteen cards, which makes the investment loss versus the potential gain vary per pack, much like playing the stock market to try to make a profit on an alluring stock. Given that the market for buying and selling individual cards can produce profits for an individual involved, there also is a risk for loss with each individual pack. In addition as individual types of cards with a

common theme age, the price of each card, pack, bundle, or box rises or falls according to economic principles of supply and demand. Older sets tend to be more aluring, containing single cards that may be worth as much as fifty dollars. However, older sets can also be a bust, as unwanted cards from older sets can fall to ten cents per card or less. When building decks for playing the game, players have the choice to buy the individual resold cards, or buy packs containing unknown cards. Having such a significant difference in the retail prices of the packs versus the potential value of individual cards inside, one wonders whether buying packs is truly the best option for making money in the game of Magic the Gathering.

Problem

A common misconception in the community of strategy gamers is that the more expensive the cards are, the more value in playing the game they offer. Players spend thousands of dollars on card collections, hoping to randomly get the cards they need. Each individual set is a collection of about three hundred cards released every six months. Each pack of cards has a retail price, which varies based on availability and how recent the set was published. Novice players mistakenly assume that the more exposure the pack has, the more value the cards inside have. However, value can be lost if no desired cards are found after opening the pack. A lack of research on MTG card values leads new players to mistakenly think that the more money one spends on packs, the more valuable individual cards are, either in playing the game or in their resale value.

Purpose

Magic: the Gathering is a strategy-based fantasy card game developed by Richard Garfield in 1993. The appeal of playing the game is found in using cardboard printed cards to cast spells to achieve a victory over one or more opponents. This thesis will provide an analysis

of six MTG sets, calculating the average value of one pack of fourteen cards. The relationships between the average resale value for each set will be evaluated using statistical graphical analysis. Conclusions will be drawn regarding the average resale value of a pack of fourteen cards in each of six sets.

This research can be valuable to MTG players to prevent overspending. To build a quality deck in Standard format, a format with cards pooled from the most recent five or six sets, a player expects to spend between one hundred and four hundred dollars. Moreover, a player can expect to spend nearly two hundred dollars, just to compete in the large-scale competitions (which does not even count the entry fees for the tournments themselves). That initial investment can double or even triple for the more competitive Modern format, with some decks costing thousands of dollars. The Commander format, where the deck has one hundred cards with a legendary general that the deck is built around, can cost as much as several thousand dollars.

Players spend hundreds of dollars on individual packs to get the most valuable cards for their decks. Players can obtain their cards in packs sold at local game stores. These packs typically vary in retail price from three dollars and ninety-nine cents, to thirty dollars. Some packs can even sell for as much as three thousand dollars, and players buy multiple packs with the hope of getting a specific card to fill out their collection. Without proper research being presented to newer MTG players, they may spend significant amounts of money trying to get cards in a lottery system that is more designed to support Wizards of the Coast than getting MTG players the cards they need for powerful decks. This research hopes to reveal the best pack investments for new players to turn a profit, and which packs to buy to build their MTG collection.

Hypothesis

Buying MTG cards to construct high caliber decks and achieve victory in playing the game is the objective of every MTG player, from the novice just starting out, to the professional on the pro circuit. However, many question the proper strategy for building their collection. Many players feel that buying packs helps increase the value of their collection and obtain the most important cards. Other players argue that buying individual cards is the best way to improve their decks, and buying packs is nothing more than gambling away significant amounts of money in hope of a score that may never come. The question is whether buying packs can turn a profit, and if so, which packs can net a player the most profit.

For this thesis, I hypothesize that purchasing the older, more expensive card packs will result in a greater loss of money. To turn a profit by selling the cards, I hypothesize that a player should purchase more recent sets (which make more profit than retail value, on average, due to the more widespread use they can have and the increased demand for those cards in the Standard format).

Literature Review

Considering the available research associated with the strategy card game genre, specifically MTG, is a complicated task for several reasons. Much of the published works on MTG are limited to other student theses and personal blogs. While these do provide valuable information, they are not considered scholarly research in the grand scheme of things, because they have not been sufficiently peer reviewed. Nevertheless, this thesis will examine the ideas from these personal, though unscholarly works, to compensate for the lack of official scholarly research on the topic of MTG.

The available research regarding the MTG circuit focuses more on the composition of the initial starting set of cards or the "opening hand" and the resulting probabilities of success. Holt's (A New Statistic for Magic: the Gathering, 2013) discusses the finer points of the optimal opening hand, which balances out land cards, used to produce mana to cast spells, and spell cards. Holt (2013) details a designed statistic, the "Curve Efficiency Rating"which calculates the probability of winning the game based off the opening hand and the remaining cards in the deck. The Curve Efficency Rating can be applied to multiple types of decks to compare the metagame, or group of popular decks most of the players are currently playing professionally. However it does nothing for the betterment of resale value of individual cards because it addresses the decks as a whole and not individual cards themselves.

The Curve Efficiency Rating that Holt created is not the only statistical research into the makeup of MTG decks found through literary analysis. In The Mathematics of Magic: The Gathering (1999), author John Prywes takes a look at winning percentages of popular decks in the professional metagame. By combining the principles of two-person game theory, he draws comparisons between the simplicity of the game Rock, Paper, Scissors, and uses those basic

principles to analyze the more complex strategies of MTG. Prywes looks into the analysis of different cards and the structure, ability text, and power/toughness, which makes certain cards valuable. Prywes goes on to explain, in great detail, the characteristics that make a card playable in the game. Detailing that this type of card recognition may require more than a cursory knowledge of the game, Prywes explains how a certain card may appear to have more value to a novice player, while a veteran would not even consider playing it. This "mistaken value" leads novice players to believe that they might gain a significant amount of resale value in a card that seems to be powerful, when in reality the card may only resell for a few cents.

Proving that experience is key when dealing with MTG cards, either in playing decks or reselling cards, one can now analyze individual packs of cards for resale value. Trippe and Hasday (2012) (Average Value of MTG Packs, 2012) hypothesized that each pack has a mean value of four dollars or less when reselling the individual cards inside. This was the closest research that corresponded to the topic of this thesis, however their analysis only used fifty packs for analysis. To improve their study, a much larger sample of packs would have to be analyzed. Trippe and Hasday (2012) concluded, despite the lack of statistical significance to the data, that the best resale value regarding packs of MTG cards would be to leave them unopened and sell the entire pack.

Resale values of the individual cards is not a new concept, as it has been looked at since the beginnings of MTG. In 1999, David Lucking-Reiley looked at auctioning MTG cards on the Internet, focusing on the Dutch action field. While Internet auctions play very little role into the resale value of individual cards from MTG packs, and the data is very old, as the resale market for MTG cards is alive and well on the Internet. This data might provide some examples of how

to analyze card prices over an Internet, which may lead to further research beyond simple resale values of individual MTG packs.

While focusing on Internet sales, one must not discount the effect that the development of online MTG games from Wizards did tend to lead players to stray away from paper cards, thus potentially having some side effects on the resale value of certain cards. Aaron Trammell (MTG: The Gathering in material and virtual space: An ethnographic approach toward understanding players who dislike online play, n.d.), focuses on the community of gamers who feel that the community of online MTG takes away from the spirit of the game. Trading cards, comparing decks, playful banter between competitors, all seem to be lost when it comes to the online community. This also does have an effect on resale value of individual cards, given that popular cards online may sell for cheaper given the circumstances of their use in popular formats. However, this article does not go any further into the price, simply focusing on the community and the effects online MTG has on the players.

Research Methods

To conduct the statistical analysis, I used

- A summary of card prices on a given date for six Modern legal sets
- Excel spreadsheets with a summary of the resale value for each card within the set studied
- The retail costs of a pack for each set
- Resale values of simulated packs of cards

This information was compared using statistical plots of a random assortment of cards for each pack. I created a C++ program to simulate packs from each set analyzed, in order to generate statistics for camparison of the average resale profit earned per pack. I randomly generated one thousand packs to find the mean of my simulations. I then drew conclusions based on this data regarding which sets to avoid if a player wants to make money when purchasing packs, and which sets by comparison, have the greatest resale value in individual packs.

This thesis was the product of a personal passion for strategy card games and the unresolved opinions regarding the best way to make money by acting as a card broker (buying and selling MTG cards). Given a lack of significant funding to resolve my thesis premise of the price and resale value, I needed to find a way to summarize an entire collection of cards and randomly simulate the fourteen card packs into ten common, three uncommon, and one mythic/rare card (plus an arbitrary rules card that was not included in analysis due to its value being less than one cent). Next, I simulated this process a large number of times to ensure my sample is representative. I settled on one thousand being my simulation size value. This allowed me to summarize one thousand packs of cards, which are either sold indidivually or in bulk in the form of a thirty-six card box. My analysis was conducted on just over twenty-seven boxes of

MTG cards for each set, with total value just under two-thousand seven hundred dollars. Twenty-seven boxes are nearly three times what the average MTG pro tour team buys to build their initial standard decks (as these teams usually purchase about nine boxes for each set), so it gives a wide variety of potential card packs for analysis of their resale value. To accomplish this, I created a C++ algorithm that allowed me to input all the cards from each set and their respective values, then generate one thousand pack values for input into an S-Plus statistical analysis.

The next issue in this research was the selection of sets for analysis. MTG has ninety-five sets that have been released for the game, in addition to supplementary sets and challenge decks with limited cards. To choose the sets for analysis requires an understanding of what sets would make a good basis for analytical study. The oldest sets, named Alpha and Beta, would heavily skew the research, as individual cards from these sets sell for a minimum two hundred dollars. To analyze too many recent sets would give inadequate data. Therefore, I decided to limit my analysis to six Modern legal sets. "Modern" refers to a format of MTG where all cards from all sets from the Mirrodin Block (a three-set release including Mirrodin, Darksteel, and Fifth Dawn) and after are legal to use in decks, with the exception of a set banned list. I chose two recent sets, two of the early Modern sets, and two of the sets found in the middle, that were called a Core Set (a set outside the MTG storyline and more used to reprint popular cards). The two early Modern sets I analyzed were Darksteel and Fifth Dawn, the recent sets were Kaladesh and Ixalan, and the Core Sets I chose for analysis were Magic 2012 and Magic 2013. This allowed for a popular spread of sets, and Kaladesh and Ixalan were very popular at the time of data compilation, and Darksteel and Fifth Dawn include some very valuable cards that players like myself have been continuously seeking for years.

Definitions

Classes: Common, Uncommon, Rare, Mythic

Constructed: For Constructed events, you bring a deck of at least 60 cards from home. Examples: Standard, Modern, Legacy.

Format: The format of the game or tournament dictates which cards you can play with.

Format-Defining: A card is format-defining if most or all of the popular decks in the format are warped around its existence.

High-Impact Card: As opposed to a "low-impact card." A card with a relatively large potential to influence the outcome of the game.

Investment: Spending resources now with the promise of a payoff later.

Limited: For Limited events, you open fresh packs of cards once the tournament begins and have to build your deck on the fly. Examples: Sealed Deck, Booster Draft.

Main Deck: Your primary deck (usually either 40, 60, or 100 cards), which will be the same for the start of every match.

Mana Base: A deck's lands and any supplemental ways to produce mana.

Metagame: The game outside the game. All of the decisions, resources, and information (but not the rules of the game) that are important to MTG.

Netdecking: Copying a decklist from the internet.

Pack: A random assortment of cards from a **set**, composed of 10 common class cards, 3 uncommon class cards, 1 rare or mythic class card, and a land or token

Predicting the Metagame: Thinking ahead about what decks your opponents are likely to bring to a tournament.

Set: The entire group of cards found within one single title of MTG

Sideboard: After the first game of a tournament match, players may swap in any number of cards from their sideboard in an effort to make their deck better suited to winning the next game. In **Constructed**, sideboards can never be more than fifteen cards.

Standard: a format of MTG that uses the last 6-8 sets of cards as the only legal pool for deck building

Synergy: Cards working especially well together.

Versatile: Having a range of uses for a range of possible scenarios.

Virtual Card Advantage: As opposed to "technical card advantage;" accounts for the fact that certain cards have a dramatically higher impact on the game than others.

Win Condition: A threat, combination, or situation intended to finish the game. Typically used in the context of **control** decks.

Results

C++ Analysis

After selecting the sets for analysis, I wrote a C++ program that simulate one thousand packs for each of these six sets. The C++ code, included in the added resources section of this thesis, used random number generators and floated variables to generate ten common cards and tally their prices, three uncommon cards and tally their prices, and one rare or mythic card and add its price to a total pack price, which is exported to an external notepad document.

This simulation process was repeated one thousand times to generate the values for each set, then the code was copied, and the card prices were changed for the next set. Using loops for each classification of card, the run process was simply: press enter and generate the values. This thesis code required consultation from Dale Hartz, my C++ professor here at the University of Northern Iowa, and Zachary Youmans, a student and friend from my C++ class. The simulation process could not have been completed without them.

The code itself started with calling the standard iostream and iomanip functions, as well as including ctime and cstdlib to generate random numbers. The system then generated ten random numbers from all the potential common cards, and then associated those random numbers with the price of the individual card, where they were added up into a variable titled commonsPrice. A similar process was repeated for the uncommon cards (uncommonPrice) and the mythic and rare cards (rarePrice) (1)*.

S-Plus Data Analysis.

Once the data was compiled from the C++ program, it was distilled into summary statistics and graphic charts for analysis using TIBCO Spotfire S-Plus software. In Table 1, the summary statistics for each set can be seen, including the mean and median, the first and third

quartiles, the standard deviation, and the maximum and minimum value for each data set. The results from this data show that the older sets, Darksteel and Fifth Dawn, contain the potential for the most value and confirming that the older sets do hold the promise of higher valued packs (prompting some to assume that as a justification for a higher price per pack). All of the sets had very similar minimum pack values, with Kaladesh containing the cheapest pack that the system generated. The retail pack price of the sets contained in this analysis are as follows: Ixalan $3.99, Kaladesh $3.95, Magic 2012 $4.70, Magic 2013 $4.19, Darksteel $18.74, and Fifth Dawn $13.75. This corresponded with the potential maximum resale values contained in the packs, given that the packs of most expense also were the packs of highest value.

Looking the individual graphs for each set, generated from the S-Plus software, some significant findings can be observed. Looking at the Ixalan scatterplot, Figure 1, the spread of all the data points can be found most heavily on the left side of the graph, with a majority of values below the mean. Looking at the histogram, it confirms the right skewed nature of the data. With the data being right skewed, the initial analysis conducted on the average values of each pack are more heavily influenced by the most expensive cards in each set. Figure 2 shows sixty-three point one packs generated had value at or around three dollars and twenty cents, which is slightly less than the retail value of the Ixalan packs.

For Kaladesh, Figure 3 shows a very interesting relationship with the values of the packs. While the Ixalan packs were spread in a wave-like pattern, the Kaladesh scatterplot showed a majority of packs valued under five dollars and then a “line” of pack values at eleven dollars, twenty dollars, and thirty-nine dollars. These lines in Table 3 seem to correspond with the two most expensive rare cards, namely Torrential Gearhulk, valued at eighteen-dollars and five cents, and Chandra, Torch of Defiance, valued at thirty-five dollars and eighty-three cents. These rare

packs are outliers in the total sum of the data but can show how one pack with high value can prompt a player to think that they can make a significant amount of money buying more packs from this particular set. Figure 4 shows significantly right skewed Kaladesh data, even more so than the Ixalan data, with a majority of packs actually valuing at or around two dollars and fifty-one cents.

Moving on to the Core sets, Figure 5 shows more of the wave like pattern demonstrated in the Ixalan data. Figure 6 for Magic 2012 confirms the data is still right skewed, however the level of the skew is significantly less than the level found in the Kaladesh and Ixalan data. Also something to note with this data, the outliers and overall spread of the maximum and minimum values is significantly less than that found in both the Kaladesh/Ixalan data and the Darksteel/Fifth Dawn data. Therefore, a pack from the Magic 2012 core set has a better chance of having profitable resale value for the price, as opposed to the high-risk/high-reward nature of other sets.

Magic 2013, in Figure 7, demonstrates a similar spread focused around certain high valued cards found in the Ixalan data. The figure shows resale values focused around fifteen, twenty, and twenty-five dollars. The two cards identified from the data that lead to these high resale values, found in Table 5, were Akroma's Memorial, valued at sixteen dollars and ninety-eight cents, and Omniscience, valued at twenty-two dollars and eight cents. Figure 8 paints a very similar picture to Figure 7 and the slightly less right skewed data found in the core set analysis. While Magic 2013 did have more packs clustered close to the minimum value, it was still under half of the total packs generated, which differed from the Kaladesh/Ixalan data.

The final analysis conducted on the Darksteel and Fifth Dawn data proved the most surprising. The Darksteel scatterplot, Figure 9, again showed a significant cluster of data below

a ten-dollar pack value, and a significant cluster of outliers around a fifty-dollar valued pack. In Table 6, a significant cluster around the fifty-dollar value is found in a fourty-four dollars and ninety-nine cents valued uncommon card. Given that uncommons are more often found in packs than rare cards, the cluster of fifty-dollar packs is more likely since this card is more likely to appear than the forty-one dollars and ninety-five cents valued Arcbound Ravager rare and the forty dollars and forty-nine cents valued Sword of Fire and Ice rare. High value uncommons make the set more appealing when buying packs, however the higher reward comes with a higher risk for a bust. Referring to Table 1, the mean for the Darksteel set was outside the third quartile, making the mean value for the data set close to being an outlier itself. Figure 10, the Darksteel histogram, shows extremely right skewed data, with the sizable majority of pack values being under the retail pack value for the data set. This means that the purchase of a pack from this set demonstrates a sizable chance of incurring a loss, with only a very small minority of packs having the potential for making profit. Darksteel would be a very risky investment, which is also seen in the data compiled from Fifth Dawn.

Figure 11 tells a similar story to Figure 9, with a significant majority of packs valuing under ten-dollars. The data also demonstrated the wave like spread similar to Ixalan, without a centralized card focus in an uncommon or rare card to have the data in a pattern. The right skew of the data, shown in Figure 12, is less than Darksteel's, however, like Darksteel, a significant number of the pack values fall under the retail price, showing the Fifth Dawn is also a risky pack to purchase and expect to make a profit.

Discussion

In this thesis, I hypothesized that purchasing the older, more expensive card packs would result in a greater loss of money. To turn a profit selling the cards, a player should purchase more recent sets, which should make more profit than retail value due to their widespread use and increased demand. After conducting a statistical analysis, the resale value of MTG the Gathering packs is heavily right skewed. As a result, the resale value of the packs will have a tendancy to be at or below the retail price for the set, and in some cases, as demonstrated with Darksteel and Fifth Dawn, the resale value is significantly below the retail price.

My thesis shows that the best choice for making profit from individual MTG packs can be found in the core sets, namely sets like Magic 2012 and Magic 2013, because the cards contained in the core sets are in higher demand, but do not contain the expensive cards that are found in the order sets. By not reprinting high-profile cards, Wizards of the Coast, the company who owns and creates MTG sets, both preserves the scarcity of the older sets and maintains the impression that players can make a large profit by buying older sets. Buying newer sets, such as Kaladesh and Ixalan, would allow a player to acquire more popular cards at the cost of incurring a greater chance for losing money. Therefore, buying the Standard legal sets has less risk for loss, and would be a smarter investment over older sets. One point to note was that the Ixalan data was taken immediately following the set's release, and therefore had higher value over the Kaladesh due to the frenzy for the newest cards in the Standard metagame. To make money in the Standard area, one would have to buy and sell packs immediately after the set's release or be adept at predicting which cards will become more valuable in the metagame found within the professional tours hosted by Wizards.

Lastly, there is not a guaranteed way to make money by buying and selling MTG packs. Due to the heavily right skewed nature of all the resale values of the packs, valuing a set based on its mean gives an incorrect approximation of retail price per pack. Older sets expecially are affected by this skew, demonstrating that one can lose a significant amount of money buying older packs. The only packs that have the best chance of returning a profit were the core sets, Magic 2012 and Magic 2013.

In looking at the data generated through the S-Plus analysis, and taking into account the retail value of each individual pack, one can look at the mean resale value generated through the C++ simulations. Looking at the Ixalan data, with a retail value of $3.99 per pack, the data simulated showed a mean pack resale value of $5.01 per pack. However, the heavily right skewed nature of the data showed the majority of packs valued below the retail value. And yet, this mean value associated with the simulations for resale value shows that, if an individual was to theoretically buy every pack combination, which each pack they buy they would actually be making $1.02 per pack overall. That being said, the overall loses are pack to pack, and there still is a very high chance that buying an Ixalan pack will result in a loss of money. And yet, if one had the funds capable to purchase the majority of the packs, take over the market, in a large-scale bulk purchase, that individual could make nearly $1.02 per pack reselling at these prices. Given the volatility of the resale market, this value may not hold true and might significantly fluctuate, however given the data used for this thesis, the purchase of bulk Ixalan packs will result in the gaining of value from reselling the cards inside.

The same can be said looking at the Kaladesh data, comparing the $3.95 retail value to the mean resale value of $4.10. Only making about fifteen cents per pack resold is miniscule profit, however it is a means to make money, but only if one is able to significantly corner the

market and purchase a large number of packs. This difference between the Kaladesh and Ixalan values may also be explainable due to the release date of the Ixalan cards being a week after this data was pulled for this study. As a result, the cards might be more valuable in the open market, and therefore give the pack higher resale value. One should expect that the resale value of the Ixalan packs will settle closer to the resale value of the Kaladesh packs in the coming months.

The same comparison of retail versus resale value, applied to the data from the Core sets, shows that, on average, with a large amount of packs purchased, the Core sets make money per pack purchased. Magic 2012, with a retail value of $4.70 per pack has a mean value from the simulations of $6.10, meaning that with each pack purchased an individual is theoretically gaining $1.40 in resale value. Magic 2013, retailing for $4.19, has a simulated mean resale value of $5.92. The largest disparity of retail value and resale value, a pack from Magic 2013 can, again theoretically, net a purchaser a resale profit of $1.73 per pack.

As expected, the older analyzed sets did not post a profit in resale value, and even if one were to corner the market and purchase large quantities of packs, sets like Darksteel and Fifth Dawn would not yield profit. The retail value of Darksteel, $18.74, compared with its mean resale value from the simulations, $11.90, results in an average $6.84 loss per pack purchased, meaning that no profit expected when reselling these packs. Fifth Dawn retails for $13.75 and has a simulated resale value of $11.46. This loss of $2.29 per pack demonstrates the reality that these older sets are unviable options for making money reselling cards found within the packs.

Opening packs holds allue for MTG players, young and old. However opening packs for potential resale value is not a viable MTG investment and should not be persued as an option for making a realistic profit, unless one is able to purchase the packs in bulk. Ultimately, purchasing individual high-value cards and selling them to players is a better way to turn a profit. But if one

wants to play the MTG “stock market”, the best way to do so is to buy and sell the core sets in large pack amounts. This news is celebrated by the return of the core sets this year, in the brand new, just revealed Magic 2019. I, myself, will be buying a box, looking to turn a small profit by selling the high-profile cards from the Magic 2019 set.

Conclusion

Due to the right skewed nature of the data from the simulations, there is greater risk buying individual packs of MTG the Gathering cards simply to turn a profit. There is higher risk of losing money with the purchase of the older, more expensive sets, with the exception of the core sets. In order to minimize the losses, one should stick to buying these core sets or Standard legal sets in large quantity, bulk pack purchases. Buying these sets allows one the greatest change to break even on a pack investment and promises enough potential of a big payoff to make the investment worth risking. Buying older, more expensive sets like Darksteel promises greater reward, but with a chance for significant losses, whether buying single backs or in bulk order. It is in my expert opinion that, in order to have the best chance of making money reselling the cards from packs of MTG the Gathering, one should purchase core sets in bulk.

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Footnotes

[1] The reason the variable is entitled rarePrice and not mythic_rarePrice is actually due to the fact that the mythic card, or mythic rare, was not incorporated into the MTG card game until the Alara Block in October 2008. The three-set block, consisting of the sets Shards of Alara, Conflux, and Alara Reborn, was the first set to have mythic rare cards, and therefore opened a new classification of card into the game. In the confines of this study, some sets before the Alara Block are considered, therefore it seemed simpler just to title the variable rarePrice, given that some sets included for analysis only had three classifications of cards, common, uncommon, and rare, and did not include mythic rare cards.

Nichole's MTG Accomplishments

Managed the MTG portion of Panther Tabletop Gaming (PTG) as Magistrate of the Gathering

Managed a successful MTG business buying and selling cards for profit

Ran several PTG drafts and competitions

Averaged a 3-1 record on FNM Commander events

Top-5 finisher in Standard Showdown Kaladesh and Aether Revolt (Boros Vehicles)

Built 10+ competitive caliber EDH decks

(including a 2,500-dollar Simic Combo deck featured at Pan-Con Gaming Convention)

Tables

Set	Min	1st Qu.	Mean	Median	3rd Qu.	Max	Std Dev.
Ixalan	2.70	3.22	5.00795	3.895	5.65	18.85	2.916767
Kaladesh	2.01	2.2675	4.10183	2.81	4.5025	39.44	4.207004
Magic 2012	2.75	3.44	6.10394	5.08	7.63	22.78	3.457108
Magic 2013	2.72	3.1975	5.91597	4.48	7.32	28.55	4.035499
Darksteel	2.78	3.77	11.90243	5.56	8.97	95.69	15.81346
Fifth Dawn	2.78	5.38	11.45738	8.435	12.8525	84.39	11.65111

Table 1 Summary Statistics for Set Data

Card Name		*Rarity & Price*				
		Common	Uncommon	Rare	Mythic	
Adanto Vanguard			0.43			
Adanto, the First Fort				3.15		
Admiral Beckett Brass					2.81	
Air Elemental			0.15			
Ancient Brontodon		0.46				
Angrath's Marauders				0.44		
Anointed Deacon		0.5				
Arcane Adaptation				1.42		
Arguel's Blood Fast				1.92		
Ashes of the Abhorrent				1.49		
Atzocan Archer			0.15			
Axis of Mortality					3.22	
Azcanta, the Sunken Ruin				6.49		
Belligerent Brontodon			0.21			
Bellowing Aegisaur			0.24			
Bishop of Rebirth				0.74		
Bishop of the Bloodstained			0.25			
Bishop's Soldier		0.29				
Blight Keeper		0.32				
Blinding Fog		0.3				
Bloodcrazed Paladin				1.7		
Blossom Dryad		0.44				
Bonded Horncrest			0.6			
Boneyard Parley					1.33	
Brazen Buccaneers		0.49				
Bright Reprisal			0.15			
Burning Sun's Avatar				0.89		
Call to the Feast			0.25			

Cancel		0.5				
Captain Lannery Storm				1.78		
Captivating Crew				1.26		
Carnage Tyrant					21.35	
Castaway's Despair		0.25				
Charging Monstrosaur			0.47			
Chart a Course			0.43			
Cobbled Wings		0.5				
Colossal Dreadmaw		0.39				
Commune with Dinosaurs		0.24				
Conqueror's Foothold		1.09				
Conqueror's Galleon				0.75		
Contract Killing		0.5				
Costly Plunder		0.39				
Crash the Ramparts		0.42				
Crushing Canopy		0.42				
Daring Saboteur				0.55		
Dark Nourishment			0.15			
Deadeye Plunderers			0.22			
Deadeye Quartermaster			0.24			
Deadeye Tormentor		0.17				
Deadeye Tracker				1.77		
Deathgorge Scavenger				3.22		
Deathless Ancient			0.2			
Deeproot Champion				1.11		
Deeproot Warrior		0.42				
Deeproot Waters			0.26			
Demolish		0.25				
Demystify		0.5				
Depths of Desire		0.3				
Desperate Castaways		0.5				
Dinosaur Stampede			0.28			
Dire Fleet Captain			0.25			
Dire Fleet Hoarder		0.25				
Dire Fleet Interloper		0.25				
Dire Fleet Ravager					5.99	
Dive Down		0.45				
Dowsing Dagger				5.39		
Dragonskull Summit				2.69		
Dreamcaller Siren				0.7		
Drover of the Mighty			0.45			

Drowned Catacomb				3.21		
Dual Shot		0.5				
Duress		0.31				
Dusk Legion Dreadnought			0.24			
Duskborne Skymarcher			0.25			
Elaborate Firecannon			0.5			
Emergent Growth			0.18			
Emissary of Sunrise			0.45			
Emperor's Vanguard				0.4		
Encampment Keeper		0.5				
Entrancing Melody				1.02		
Fathom Fleet Captain				1.41		
Fathom Fleet Cutthroat		0.5				
Fathom Fleet Firebrand		0.5				
Favorable Winds			0.24			
Fell Flagship				0.99		
Field of Ruin			1.96			
Fiery Cannonade			0.64			
Fire Shrine Keeper		0.5				
Firecannon Blast		0.5				
Fleet Swallower				3.95		
Frenzied Raptor		0.43				
Gilded Sentinel		0.25				
Gishath, Sun's Avatar					5.99	
Glacial Fortress				3.11		
Glorifier of Dusk			0.5			
Goring Ceratops				0.53		
Grasping Current				0.95		
Grazing Whiptail		0.25				
Grim Captain's Call			0.25			
Growing Rites of Itlimoc				18.08		
Headstrong Brute		0.5				
Headwater Sentries		0.15				
Heartless Pillage			0.58			
Herald of Secret Streams				1.16		
Hierophant's Chalice		0.25				
Hijack		0.5				
Hostage Taker				3.4		
Huatli, Dinosaur Knight					9.53	
Huatli, Warrior Poet					14.01	
Huatli's Snubhorn		0.24				

Huatli's Spurring			0.41			
Imperial Aerosaur			0.39			
Imperial Lancer			0.35			
Inspiring Cleric			0.49			
Itlimoc, Cradle of the Sun				17.99		
Ixalan's Binding			0.69			
Ixalli's Diviner		0.5				
Ixalli's Keeper		0.5				
Jace, Cunning Castaway					16.01	
Jace, Ingenious Mind-Mage					9.53	
Jace's Sentinel			0.39			
Jade Guardian		0.5				
Jungle Delver		0.5				
Kinjalli's Caller		0.75				
Kinjalli's Sunwing				1.25		
Kitesail Freebooter			0.35			
Kopala, Warden of Waves				2.81		
Kumena's Speaker			0.49			
Legion Conquistador		0.25				
Legion's Judgment		0.75				
Legion's Landing				2.86		
Lightning Strike			0.27			
Lightning-Rig Crew			0.49			
Lookout's Dispersal			0.63			
Looming Altisaur		0.2				
Lost Vale				4.34		
Lurking Chupacabra			0.32			
Makeshift Munitions			0.54			
Marauding Looter			0.24			
March of the Drowned		0.96				
Mark of the Vampire		0.64				
Mavren Fein, Dusk Apostle				1.53		
Merfolk Branchwalker			0.75			
Navigator's Ruin			0.34			
Nest Robber		0.25				
New Horizons		0.5				
Old-Growth Dryads				1.48		
One With the Wind		0.19				
Opt		1.11				
Otepec Huntmaster			0.75			
Overflowing Insight					2.08	

Paladin of the Bloodstained		0.38				
Perilous Voyage			0.54			
Pillar of Origins			0.25			
Pious Interdiction		0.44				
Pirate's Cutlass		0.21				
Pirate's Prize		0.75				
Pounce		0.5				
Priest of the Wakening Sun				0.8		
Primal Amulet				2.39		
Primal Wellspring		3.17				
Prosperous Pirates		0.15				
Prying Blade		0.5				
Pterodon Knight		0.75				
Queen's Agent		0.5				
Queen's Bay Soldier		0.14				
Queen's Commission		0.51				
Raging Swordtooth			0.25			
Raiders' Wake			0.39			
Rallying Roar			0.63			
Rampaging Ferocidon				3.25		
Ranging Raptors			0.75			
Raptor Companion		0.55				
Raptor Hatchling			0.83			
Ravenous Daggertooth		0.25				
Regisaur Alpha				7.94		
Repeating Barrage				2.99		
Revel in Riches				0.78		
Rigging Runner			0.95			
Rile		0.25				
Ripjaw Raptor				9.16		
Ritual of Rejuvenation		0.18				
River Heralds' Boon		0.5				
River Sneak			0.63			
River's Rebuke				1.21		
Rootbound Crag				2.67		
Rowdy Crew					3.23	
Ruin Raider				2.46		
Rummaging Goblin		0.5				
Run Aground		0.25				
Ruthless Knave			0.49			
Sailor of Means		0.69				

Sanctum Seeker				1.38		
Sanguine Sacrament				0.62		
Savage Stomp			0.25			
Search for Azcanta				4.41		
Seekers' Squire			0.3			
Sentinel Totem			0.48			
Settle the Wreckage				2.32		
Shadowed Caravel				1.95		
Shaper Apprentice		0.36				
Shapers of Nature			0.25			
Shapers' Sanctuary				2.94		
Shaper's Sanctuary				3.21		
Sheltering Light			0.5			
Shining Aerosaur		0.32				
Shipwreck Looter		0.61				
Shore Keeper		0.5				
Siren Lookout		0.43				
Siren Stormtamer			1.27			
Siren's Ruse		0.46				
Skittering Heartstopper		0.25				
Skulduggery		0.5				
Sky Terror			0.44			
Skyblade of the Legion		0.32				
Skymarch Bloodletter		0.32				
Slash of Talons		0.75				
Sleek Schooner			0.25			
Slice in Twain			0.12			
Snapping Sailback			0.25			
Sorcerous Spyglass				3		
Spell Pierce		0.71				
Spell Swindle				1.67		
Spike-Tailed Ceratops		0.5				
Spires of Orazca		2.73				
Spitfire Bastion				4.51		
Spreading Rot		0.5				
Star of Extinction					1.96	
Steadfast Armasaur			0.46			
Storm Fleet Aerialist			0.25			
Storm Fleet Arsonist			0.22			
Storm Fleet Pyromancer		0.5				
Storm Fleet Spy			0.33			

Storm Sculptor		0.5				
Sunbird's Invocation				0.7		
Sun-Blessed Mount				1.37		
Sun-Crowned Hunters		0.15				
Sunpetal Grove				2.69		
Sunrise Seeker		0.44				
Sure Strike		0.25				
Swashbuckling		0.5				
Sword-Point Diplomacy				2.87		
Tempest Caller			0.7			
Temple of Aclazotz		2.41				
Territorial Hammerskull		0.58				
Thaumatic Compass				2.98		
Thrash of Raptors		0.5				
Thundering Spineback			0.35			
Tilonalli's Knight		0.67				
Tilonalli's Skinshifter				1.22		
Tishana, Voice of Thunder					2.98	
Tishana's Wayfinder		0.16				
Tocatli Honor Guard				1.95		
Treasure Cove		2.02				
Treasure Map				2.15		
Trove of Temptation			0.5			
Unclaimed Territory			2.28			
Unfriendly Fire		0.14				
Unknown Shores		1				
Vampire's Zeal		0.59				
Vance's Blasting Cannons				4.25		
Vanquish the Weak		0.5				
Vanquisher's Banner				2.42		
Verdant Rebirth			0.38			
Verdant Sun's Avatar				0.6		
Vicious Conquistador			0.33			
Vineshaper Mystic			0.37			
Vona, Butcher of Magan					6.86	
Vraska, Relic Seeker					16.46	
Vraska's Contempt				3.24		
Wakening Sun's Avatar					1.99	
Waker of the Wilds				0.52		
Walk the Plank			1.05			
Wanted Scoundrels			0.4			

Watertrap Weaver		0.5				
Wildgrowth Walker			0.26			
Wily Goblin			0.29			
Wind Strider		0.32				
Woodland Stream		0.5				
		56.73	37.05	194.55	125.33	
Total Number of Cards		114	82	71	17	
		0.497632	0.45182927	2.7401	7.3724	
Average Card Price		0.5	0.45	2.74	7.37	
Adjustments for Mythic and Rare				319.88		
				88		
				3.635		
Final Average Card Price		0.5	0.45	3.64		
Total Value in a Pack		5	1.35	3.64		
Average Total Value of a Pack						9.99

Table 2 Ixalan Cards and Prices

Card Name		*Rarity & Price*				
		Common	Uncommon	Rare	Mythic	
Accomplished Automaton		0.13				
Acrobatic Maneuver		0.13				
Aerial Responder			0.24			
Aether Hub			2			
Aether Meltdown			0.19			
Aether Theorist		0.14				
Aether Tradewinds		0.13				
Aetherborn Marauder			0.19			
Aetherflux Reservoir				0.79		
Aethersquall Ancient				0.28		
Aetherstorm Roc				0.26		
Aethertorch Renegade			0.2			
Aetherworks Marvel					1.61	
Ambitious Aetherborn		0.12				
Angel of Invention					5.9	
Animation Module				0.49		
Appetite for the Unnatural		0.14				
Aradara Express		0.13				
Arborback Stomper			0.19			
Architect of the Untamed				0.29		

Armorcraft Judge			0.18			
Attune with Aether		0.25				
Authority of the Consuls				2.1		
Aviary Mechanic		0.12				
Ballista Charger			0.18			
Bastion Mastodon		0.12				
Blooming Marsh				6.39		
Blossoming Defense			1			
Bomat Bazaar Barge			0.2			
Bomat Courier				1.5		
Botanical Sanctum				4.32		
Brazen Scourge			0.2			
Bristling Hydra				1.91		
Built to Last		0.12				
Built to Smash		0.14				
Captured by the Consulate				0.28		
Cataclysmic Gearhulk					2.33	
Cathartic Reunion		0.17				
Ceremonious Rejection			0.44			
Chandra's Pyrohelix		0.14				
Chandra, Pyrogenius					3.2	
Chandra, Torch of Defiance					35.83	
Chief of the Foundry			0.17			
Cloudblazer			0.23			
Cogworker's Puzzleknot		0.13				
Combustible Gearhulk					2.12	
Commencement of Festivities		0.13				
Concealed Courtyard				4.77		
Confiscation Coup				0.27		
Consul's Shieldguard			0.19			
Consulate Skygate		0.12				
Consulate Surveillance			0.2			
Contraband Kingpin			0.2			
Cowl Prowler		0.12				
Creeping Mold			0.17			
Cultivator of Blades				0.25		
Cultivator's Caravan				0.5		
Curio Vendor		0.12				
Deadlock Trap				0.32		
Decoction Module			0.2			
Demolish		0.12				

Demolition Stomper-20			0.19			
Demon of Dark Schemes					0.78	
Depala, Pilot Exemplar				0.4		
Dhund Operative		0.12				
Diabolic Tutor			0.24			
Die Young		0.13				
Disappearing Act			0.2			
Dovin Baan					2.73	
Dramatic Reversal		0.13				
Dubious Challenge				0.34		
Dukhara Peafowl		0.13				
Dukhara Scavenger		0.11				
Durable Handicraft			0.17			
Dynavolt Tower				0.53		
Eager Construct		0.13				
Eddytrail Hawk		0.11				
Electrostatic Pummeler				0.72		
Elegant Edgecrafters			0.18			
Eliminate the Competition				0.28		
Embraal Bruiser			0.16			
Empyreal Voyager			0.18			
Engineered Might			0.19			
Era of Innovation			0.2			
Essence Extraction			0.2			
Experimental Aviator			0.19			
Fabrication Module			0.22			
Failed Inspection		0.13				
Fairgrounds Trumpeter			0.2			
Fairgrounds Warden			0.2			
Fateful Showdown				0.29		
Filigree Familiar			0.25			
Fireforger's Puzzleknot		0.12				
Flame Lash		0.46				
Fleetwheel Cruiser				0.4		
Fortuitous Find		0.11				
Foundry Inspector			0.29			
Foundry Screecher		0.11				
Fragmentize		0.15				
Fretwork Colony			0.2			
Fumigate				1.89		
Furious Reprisal			0.2			

Gearseeker Serpent		0.14				
Gearshift Ace			0.2			
Ghirapur Guide			0.2			
Ghirapur Orrery				0.35		
Giant Spectacle		0.11				
Glassblower's Puzzleknot		0.13				
Glimmer of Genius			0.99			
Glint-Nest Crane			0.26			
Glint-Sleeve Artisan		0.12				
Gonti, Lord of Luxury				0.59		
Guardian of the Great Conduit			0.18			
Harnessed Lightning				1.39		
Harsh Scrutiny			0.24			
Hazardous Conditions			0.19			
Herald of the Fair		0.11				
Highspire Artisan		0.11				
Hightide Hermit		0.11				
Hijack		0.12				
Hunt the Weak		0.12				
Impeccable Timing		0.12				
Incendiary Sabotage			0.2			
Insidious Will				0.3		
Inspired Charge		0.12				
Inspiring Vantage				4.28		
Inventor's Apprentice			0.24			
Inventor's Goggles		0.13				
Inventors' Fair				1		
Iron League Steed			0.18			
Janjeet Sentry			0.2			
Kambal, Consul of Allocation				0.45		
Key to the City				0.56		
Kujar Seedsculptor		0.11				
Larger Than Life		0.15				
Lathnu Hellion				0.42		
Lawless Broker		0.11				
Liberating Combustion				0.29		
Live Fast		0.13				
Long-Finned Skywhale			0.19			
Longtusk Cub			0.95			
Lost Legacy				0.48		
Madcap Experiment				0.34		

Make Obsolete			0.2			
Malfunction		0.11				
Marionette Master				0.33		
Master Trinketeer				0.34		
Maulfist Doorbuster			0.2			
Maulfist Squad		0.12				
Metallurgic Summonings					1.12	
Metalspinner's Puzzleknot		0.13				
Metalwork Colossus				0.52		
Midnight Oil				0.28		
Mind Rot		0.11				
Minister of Inquiries			0.23			
Morbid Curiosity			0.2			
Multiform Wonder				0.29		
Narnam Cobra		0.12				
Nature's Way			0.2			
Night Market Lookout		0.14				
Nimble Innovator		0.12				
Ninth Bridge Patrol		0.13				
Nissa, Nature's Artisan					4.44	
Nissa, Vital Force					3.3	
Noxious Gearhulk					3.29	
Ornamental Courage		0.12				
Ovalchase Daredevil			0.2			
Ovalchase Dragster			0.2			
Oviya Pashiri, Sage Lifecrafter				0.31		
Padeem, Consul of Innovation				0.34		
Panharmonicon				2.66		
Paradoxical Outcome				0.49		
Peema Outrider		0.12				
Perpetual Timepiece			0.21			
Pia Nalaar				0.44		
Prakhata Club Security		0.12				
Prakhata Pillar-Bug		0.13				
Pressure Point		0.13				
Propeller Pioneer		0.12				
Prophetic Prism		0.14				
Quicksmith Genius			0.2			
Rashmi, Eternities Crafter					1.08	
Reckless Fireweaver		0.14				
Refurbish			0.24			

Renegade Firebrand			0.15			
Renegade Freighter		0.13				
Renegade Tactics		0.13				
Restoration Gearsmith			0.2			
Revoke Privileges		0.11				
Revolutionary Rebuff		0.13				
Riparian Tiger		0.12				
Ruinous Gremlin		0.13				
Rush of Vitality		0.13				
Sage of Shaila's Claim		0.15				
Saheeli Rai					4.37	
Saheeli's Artistry				0.31		
Salivating Gremlins		0.13				
Scrapheap Scrounger				1.33		
Select for Inspection		0.13				
Self-Assembler		0.12				
Sequestered Stash			0.19			
Servant of the Conduit			0.7			
Servo Exhibition			0.2			
Shrewd Negotiation			0.18			
Sky Skiff		0.13				
Skyship Stalker				0.26		
Skysovereign, Consul Flagship					2.82	
Skyswirl Harrier		0.12				
Skywhaler's Shot			0.2			
Smuggler's Copter				2.29		
Snare Thopter			0.15			
Spark of Creativity			0.21			
Speedway Fanatic			0.2			
Spirebluff Canal				9.5		
Spireside Infiltrator		0.12				
Spontaneous Artist		0.12				
Start Your Engines			0.17			
Stone Quarry		0.15				
Subtle Strike		0.11				
Syndicate Trafficker				0.37		
Take Down		0.13				
Tasseled Dromedary		0.13				
Terrain Elemental		0.15				
Territorial Gorger				0.29		
Terror of the Fairgrounds		0.11				

Tezzeret's Ambition		0.13				
Thriving Grubs		0.12				
Thriving Ibex		0.13				
Thriving Rats		0.12				
Thriving Rhino		0.13				
Thriving Turtle		0.13				
Tidy Conclusion		0.12				
Toolcraft Exemplar				0.52		
Torch Gauntlet		0.12				
Torrential Gearhulk					18.05	
Trusty Companion			0.19			
Underhanded Designs			0.19			
Unlicensed Disintegration			0.33			
Vedalken Blademaster		0.12				
Verdant Crescendo				0.44		
Verdurous Gearhulk					6.25	
Veteran Motorist			0.22			
Visionary Augmenter			0.2			
Voltaic Brawler			0.3			
Wayward Giant		0.12				
Weaponcraft Enthusiast			0.19			
Weldfast Monitor		0.12				
Weldfast Wingsmith		0.13				
Welding Sparks		0.13				
Whirler Virtuoso			0.28			
Whirlermaker			0.17			
Wild Wanderer		0.13				
Wildest Dreams				0.3		
Wily Bandar		0.12				
Wind Drake		0.13				
Wispweaver Angel			0.2			
Woodland Stream		0.19				
Woodweaver's Puzzleknot		0.15				
Workshop Assistant		0.12				
		13.74	21.35	61.63	99.22	
Total Number of Cards		105	81	56	17	
		0.130857	0.26358025	1.1005	5.8365	
Average Card Price		0.13	0.26	1.12	5.84	
Adjustments for Mythic and Rare				160.85		
				73		

				2.203424658		
Final Average Card Price		0.13	0.26	2.2		
Total Value in a Pack		1.3	0.78	2.2		
Average Total Value of a Pack						4.28

Table 3 Kaladesh Cards and Prices

Card Name		*Rarity & Price*				
		Common	Uncommon	Rare	Mythic	
Acidic Slime			0.24			
Act of Treason		0.15				
Adaptive Automaton				6.71		
Aegis Angel				0.51		
Aether Adept		0.16				
Alabaster Mage			0.19			
Alluring Siren			0.21			
Amphin Cutthroat		0.15				
Angelic Destiny					7.5	
Angel's Feather			0.2			
Angel's Mercy		0.15				
Arachnus Spinner				0.35		
Arachnus Web		0.15				
Arbalest Elite			0.18			
Archon of Justice				0.38		
Armored Warhorse		0.15				
Assault Griffin		0.14				
Auramancer		0.15				
Autumn's Veil			0.2			
Aven Fleetwing		0.15				
Azure Mage			0.2			
Belltower Sphinx			0.19			
Benalish Veteran		0.15				
Birds of Paradise				5.99		
Blood Ogre		0.14				
Blood Seeker		0.15				
Bloodlord of Vaasgoth					1.65	
Bloodrage Vampire		0.15				
Bonebreaker Giant		0.15				
Bountiful Harvest		0.15				
Brindle Boar		0.15				
Brink of Disaster		0.15				

Buried Ruin			0.76			
Call to the Grave				1		
Cancel		0.15				
Carnage Wurm			0.19			
Celestial Purge			0.2			
Cemetery Reaper				3.42		
Chandra, the Firebrand					3.07	
Chandra's Outrage		0.14				
Chandra's Phoenix				0.5		
Chasm Drake		0.15				
Child of Night		0.15				
Circle of Flame			0.19			
Combust			0.23			
Consume Spirit			0.21			
Coral Merfolk		0.15				
Crimson Mage			0.17			
Crown of Empires			0.2			
Crumbling Colossus			0.19			
Cudgel Troll			0.18			
Dark Favor		0.15				
Day of Judgment				2.79		
Deathmark			0.19			
Demon's Horn			0.2			
Demystify		0.15				
Devouring Swarm		0.15				
Diabolic Tutor			0.28			
Disentomb		0.15				
Distress		0.15				
Divination		0.15				
Divine Favor		0.14				
Djinn of Wishes				0.3		
Doom Blade		0.19				
Doubling Chant				0.38		
Dragon's Claw			0.23			
Dragonskull Summit				2.66		
Drifting Shade		0.15				
Drowned Catacomb				3.45		
Druidic Satchel				0.35		
Dungrove Elder				4.13		
Duskhunter Bat		0.15				
Elite Vanguard			0.19			

Elixir of Immortality			0.45			
Elvish Archdruid				2.49		
Fiery Hellhound		0.15				
Fireball			0.2			
Firebreathing		0.15				
Flameblast Dragon				0.64		
Flashfreeze			0.2			
Flight		0.15				
Fling		0.16				
Fog		0.16				
Frost Breath		0.14				
Frost Titan					0.85	
Furyborn Hellkite					1.84	
Garruk, Primal Hunter					6.25	
Garruk's Companion		0.17				
Garruk's Horde				0.32		
Giant Spider		0.15				
Gideon Jura					8.8	
Gideon's Avenger				0.79		
Gideon's Lawkeeper		0.18				
Glacial Fortress				3.43		
Gladecover Scout		0.16				
Goblin Arsonist		0.15				
Goblin Bangchuckers			0.17			
Goblin Chieftain				4.71		
Goblin Fireslinger		0.17				
Goblin Grenade			1.49			
Goblin Piker		0.15				
Goblin Tunneler		0.14				
Goblin War Paint		0.15				
Gorehorn Minotaurs		0.15				
Grand Abolisher				5.69		
Grave Titan					11.15	
Gravedigger		0.15				
Greater Basilisk		0.15				
Greatsword			0.19			
Griffin Rider		0.15				
Griffin Sentinel		0.14				
Grim Lavamancer				4.7		
Guardians' Pledge		0.17				
Harbor Serpent		0.15				

Hideous Visage		0.15				
Honor of the Pure				2.25		
Hunter's Insight			0.25			
Ice Cage		0.15				
Incinerate		0.18				
Inferno Titan					1.25	
Jace, Memory Adept					5.5	
Jace's Archivist				0.56		
Jace's Erasure		0.17				
Jade Mage			0.2			
Kite Shield			0.26			
Kraken's Eye			0.18			
Lava Axe		0.15				
Levitation			0.19			
Lifelink		0.15				
Lightning Elemental		0.14				
Llanowar Elves		0.17				
Lord of the Unreal				0.86		
Lure			0.18			
Lurking Crocodile		0.15				
Mana Leak		0.34				
Manabarbs				0.33		
Manalith		0.22				
Manic Vandal		0.15				
Master Thief			0.18			
Merfolk Looter		0.15				
Merfolk Mesmerist		0.15				
Mesa Enchantress				0.38		
Mighty Leap		0.15				
Mind Control			0.2			
Mind Rot		0.15				
Mind Unbound				0.36		
Monomania				0.3		
Naturalize		0.15				
Negate		0.15				
Oblivion Ring			0.32			
Onyx Mage			0.19			
Overrun			0.22			
Pacifism		0.15				
Pentavus				0.34		
Peregrine Griffin		0.15				

Personal Sanctuary				0.33		
Phantasmal Bear		0.16				
Phantasmal Dragon			0.22			
Phantasmal Image				3.02		
Plummet		0.15				
Ponder		1.66				
Pride Guardian		0.15				
Primeval Titan					9.37	
Primordial Hydra					7	
Quicksilver Amulet				7.99		
Rampant Growth		0.18				
Reassembling Skeleton			0.21			
Reclaim		0.15				
Redirect				0.45		
Reverberate				0.77		
Rites of Flourishing				0.99		
Roc Egg			0.18			
Rootbound Crag				1.85		
Royal Assassin				0.71		
Runeclaw Bear		0.15				
Rune-Scarred Demon				7		
Rusted Sentinel			0.19			
Sacred Wolf		0.15				
Scepter of Empires			0.2			
Scrambleverse				0.37		
Sengir Vampire			0.19			
Serra Angel			0.2			
Shock		0.16				
Siege Mastodon		0.15				
Skinshifter				0.64		
Skywinder Drake		0.15				
Slaughter Cry		0.15				
Smallpox			0.35			
Solemn Simulacrum				4.56		
Sorin Markov					17.01	
Sorin's Thirst		0.15				
Sorin's Vengeance				1		
Sphinx of Uthuun				0.33		
Spirit Mantle			1.52			
Stampeding Rhino		0.15				
Stave Off		0.15				

Stingerfling Spider			0.18			
Stonehorn Dignitary		0.18				
Stormblood Berserker			0.24			
Stormfront Pegasus		0.14				
Sun Titan					3.99	
Sundial of the Infinite				4.29		
Sunpetal Grove				2.38		
Sutured Ghoul				0.32		
Swiftfoot Boots			0.86			
Taste of Blood		0.15				
Tectonic Rift			0.17			
Thran Golem			0.19			
Throne of Empires				0.39		
Time Reversal					1.76	
Timely Reinforcements			1.99			
Titanic Growth		0.15				
Tormented Soul		0.16				
Trollhide		0.15				
Turn to Frog			0.2			
Unsummon		0.15				
Vampire Outcasts			0.19			
Vastwood Gorger		0.15				
Vengeful Pharaoh				3		
Visions of Beyond				5.99		
Volcanic Dragon			0.2			
Wall of Torches		0.15				
Warpath Ghoul		0.15				
Warstorm Surge				0.5		
Worldslayer				0.63		
Wring Flesh		0.15				
Wurm's Tooth			0.19			
Zombie Goliath		0.15				
Zombie Infestation			0.61			
-						
		17.16	18.57	108.58	86.99	
Total Number of Cards		101	60	53	15	
		0.169901	0.3095	2.0487	5.7993	
Average Card Price		0.17	0.31	2.05	5.8	
Adjustments for Mythic and Rare				195.57		
				68		
				2.876029412		

Final Average Card Price		0.17	0.31	2.88		
Total Value in a Pack		1.7	0.93	2.88		
Average Total Value of a Pack						5.51

Table 4 Magic 2012 Cards and Prices

Card Name		*Rarity & Price*				
		Common	Uncommon	Rare	Mythic	
Acidic Slime			0.24			
Ajani, Caller of the Pride					5.72	
Ajani's Sunstriker		0.16				
Akroma's Memorial					16.98	
Angelic Benediction			0.22			
Angel's Mercy		0.15				
Arbor Elf		0.25				
Archaeomancer		0.17				
Arctic Aven			0.21			
Arms Dealer			0.19			
Attended Knight		0.15				
Augur of Bolas			0.24			
Aven Squire		0.15				
Battle of Wits				0.39		
Battleflight Eagle		0.15				
Bladetusk Boar		0.14				
Blood Reckoning			0.19			
Bloodhunter Bat		0.14				
Bloodthrone Vampire		0.15				
Bond Beetle		0.15				
Boundless Realms				3.2		
Bountiful Harvest		0.15				
Canyon Minotaur		0.15				
Captain of the Watch				0.7		
Captain's Call		0.16				
Cathedral of War				1.46		
Centaur Courser		0.14				
Chandra, the Firebrand					3.16	
Chandra's Fury		0.15				
Chronomaton			0.21			
Cleaver Riot			0.18			
Clock of Omens			0.2			
Clone				0.43		

Courtly Provocateur			0.2			
Cower in Fear			0.18			
Craterize		0.15				
Crimson Muckwader			0.18			
Crippling Blight		0.15				
Crusader of Odric			0.23			
Dark Favor		0.15				
Deadly Recluse		0.15				
Diabolic Revelation				1.33		
Disciple of Bolas				1.03		
Disentomb		0.14				
Divination		0.15				
Divine Favor		0.15				
Divine Verdict		0.15				
Door to Nothingness				1.25		
Downpour		0.14				
Dragon Hatchling		0.14				
Dragonskull Summit				2.5		
Drowned Catacomb				3.65		
Duress		0.16				
Duskdale Wurm			0.21			
Duskmantle Prowler			0.18			
Duty-Bound Dead		0.15				
Elderscale Wurm					2.2	
Elixir of Immortality			0.42			
Elvish Archdruid				2.49		
Elvish Visionary		0.15				
Encrust		0.14				
Erase		0.15				
Essence Drain		0.15				
Essence Scatter		0.15				
Evolving Wilds		0.17				
Faerie Invaders		0.15				
Faith's Reward				0.6		
Farseek		0.19				
Fervor				0.69		
Fire Elemental		0.15				
Firewing Phoenix				0.38		
Flames of the Firebrand			0.18			
Flinthoof Boar			0.28			
Fog		0.17				

Fog Bank			0.89			
Fungal Sprouting			0.25			
Furnace Whelp			0.19			
Garruk, Primal Hunter					6.46	
Garruk's Packleader			0.21			
Gem of Becoming			0.19			
Giant Scorpion		0.15				
Gilded Lotus				12.24		
Glacial Fortress				3.64		
Glorious Charge		0.15				
Goblin Arsonist		0.15				
Goblin Battle Jester		0.15				
Griffin Protector		0.14				
Ground Seal				0.36		
Guardian Lions		0.14				
Guardians of Akrasa		0.14				
Hamletback Goliath				0.33		
Harbor Bandit			0.18			
Harbor Serpent		0.15				
Healer of the Pride			0.23			
Hellion Crucible				0.37		
Hydrosurge		0.14				
Index		0.15				
Intrepid Hero				0.85		
Jace, Memory Adept					5.39	
Jace's Phantasm			1.36			
Jayemdae Tome			0.19			
Kindled Fury		0.15				
Kitesail			0.18			
Knight of Glory			0.26			
Knight of Infamy			0.23			
Kraken Hatchling		0.15				
Krenko, Mob Boss				4.29		
Krenko's Command		0.18				
Liliana of the Dark Realms					8.05	
Liliana's Shade		0.14				
Magmaquake				0.32		
Mark of Mutiny			0.2			
Mark of the Vampire		0.14				
Master of the Pearl Trident				5.93		
Merfolk of the Pearl Trident		0.15				

Mind Rot		0.14				
Mind Sculpt		0.21				
Mindclaw Shaman			0.2			
Mogg Flunkies		0.14				
Murder		0.25				
Mutilate				0.6		
Mwonvuli Beast Tracker			0.17			
Naturalize		0.15				
Nefarox, Overlord of Grixis				0.61		
Negate		0.15				
Nicol Bolas, Planeswalker					8.91	
Oblivion Ring			0.3			
Odric, Master Tactician				1.49		
Omniscience					22.08	
Pacifism		0.15				
Phylactery Lich				0.43		
Phyrexian Hulk			0.17			
Pillarfield Ox		0.15				
Planar Cleansing				0.41		
Plummet		0.14				
Predatory Rampage				0.31		
Prey Upon		0.15				
Primal Clay			0.19			
Primal Huntbeast		0.14				
Primordial Hydra					6.91	
Prized Elephant			0.2			
Public Execution			0.18			
Quirion Dryad				0.33		
Rain of Blades			0.22			
Rancor			1.58			
Ranger's Path		0.15				
Ravenous Rats		0.16				
Reckless Brute		0.14				
Redirect				0.47		
Reliquary Tower			4.2			
Reverberate				0.86		
Revive			0.19			
Rewind			0.29			
Rhox Faithmender				4.42		
Ring of Evos Isle			0.2			
Ring of Kalonia			0.22			

Ring of Thune			0.27			
Ring of Valkas			0.2			
Ring of Xathrid			0.22			
Rise from the Grave			0.18			
Roaring Primadox			0.16			
Rootbound Crag				1.82		
Rummaging Goblin		0.15				
Safe Passage		0.15				
Sands of Delirium				0.75		
Scroll Thief		0.15				
Searing Spear		0.16				
Sentinel Spider		0.15				
Serpent's Gift		0.14				
Serra Angel			0.21			
Serra Avatar					1.07	
Serra Avenger				2.03		
Servant of Nefarox		0.14				
Shimian Specter				0.32		
Show of Valor		0.15				
Sign in Blood		0.16				
Silklash Spider				0.36		
Silvercoat Lion		0.14				
Sleep			0.2			
Slumbering Dragon				1.92		
Smelt		0.15				
Spelltwine				0.35		
Sphinx of Uthuun				0.39		
Spiked Baloth		0.14				
Staff of Nin				0.96		
Stormtide Leviathan				0.39		
Stuffy Doll				2.5		
Sublime Archangel					7.59	
Sunpetal Grove				2.28		
Switcheroo			0.19			
Talrand, Sky Summoner				0.94		
Talrand's Invocation			0.21			
Thragtusk				2.33		
Thundermaw Hellkite					7.06	
Timberpack Wolf		0.15				
Titanic Growth		0.15				
Torch Fiend			0.17			

Tormented Soul		0.15				
Tormod's Crypt			0.28			
Touch of the Eternal				0.36		
Trading Post				0.41		
Tricks of the Trade		0.15				
Trumpet Blast		0.15				
Turn to Slag		0.14				
Unsummon		0.15				
Vampire Nighthawk			0.7			
Vampire Nocturnus					5.37	
Vastwood Gorger		0.15				
Vedalken Entrancer		0.14				
Veilborn Ghoul			0.17			
Vile Rebirth		0.15				
Void Stalker				0.31		
Volcanic Geyser			0.17			
Volcanic Strength		0.15				
Walking Corpse		0.15				
Wall of Fire		0.15				
War Falcon		0.15				
War Priest of Thune			0.2			
Warclamp Mastiff		0.15				
Watercourser		0.15				
Welkin Tern		0.15				
Wild Guess		0.15				
Wind Drake		0.15				
Wit's End				0.36		
Worldfire					1.37	
Xathrid Gorgon				0.4		
Yeva, Nature's Herald				1.05		
Yeva's Forcemage		0.14				
Zombie Goliath		0.15				
-						
		15.35	20.34	78.59	108.32	
Total Number of Cards		101	60	53	15	
		0.15198	0.339	1.4828	7.2213	
Average Card Price		0.15	0.34	1.48	7.22	
Adjustments for Mythic and Rare				186.91		
				68		
				2.748676471		
Final Average Card Price		0.15	0.34	2.75		

Total Value in a Pack		1.5	1.02	2.75		
Average Total Value of a Pack						5.27

Table 5 Magic 2013 Cards and Prices

Card Name		*Rarity & Price*				
		Common	Uncommon	Rare	Mythic	
Aether Snap				0.61		
Aether Vial			44.99			
Ageless Entity				0.54		
Angel's Feather			0.2			
Arcane Spyglass		0.14				
Arcbound Bruiser		0.14				
Arcbound Crusher			0.64			
Arcbound Fiend			0.23			
Arcbound Hybrid		0.15				
Arcbound Lancer			0.21			
Arcbound Overseer				1.53		
Arcbound Ravager				41.95		
Arcbound Reclaimer				1.13		
Arcbound Slith			0.41			
Arcbound Stinger		0.16				
Arcbound Worker		0.15				
Auriok Glaivemaster		0.14				
Auriok Siege Sled			0.19			
Barbed Lightning		0.15				
Blinkmoth Nexus				5.73		
Burden of Greed		0.14				
Carry Away			0.2			
Chimeric Egg			0.21			
Chittering Rats		0.45				
Chromescale Drake				0.35		
Coretapper			1.25			
Crazed Goblin		0.14				
Darksteel Brute			0.19			
Darksteel Citadel		0.62				
Darksteel Colossus				6.39		
Darksteel Forge				8.75		
Darksteel Gargoyle			0.24			
Darksteel Ingot		0.32				
Darksteel Pendant		0.15				

Darksteel Reactor				4.29		
Death Cloud				2.27		
Death-Mask Duplicant			0.24			
Demon's Horn			0.2			
Dismantle			0.21			
Dragon's Claw			0.27			
Drill-Skimmer		0.14				
Drooling Ogre		0.15				
Dross Golem		0.15				
Eater of Days				2.06		
Echoing Calm		0.15				
Echoing Courage		0.14				
Echoing Decay		0.2				
Echoing Ruin		0.16				
Echoing Truth		0.3				
Emissary of Despair			0.19			
Emissary of Hope			0.19			
Essence Drain		0.14				
Fangren Firstborn				0.9		
Fireball			0.2			
Flamebreak				0.99		
Furnace Dragon				0.4		
Gemini Engine				0.33		
Genesis Chamber			2.76			
Geth's Grimoire			0.85			
Goblin Archaeologist			0.22			
Greater Harvester				0.33		
Grimclaw Bats		0.14				
Hallow		0.16				
Heartseeker				0.71		
Hoverguard Observer			0.19			
Hunger of the Nim		0.14				
Infested Roothold			0.19			
Inflame		0.14				
Juggernaut			0.19			
Karstoderm			0.19			
Kraken's Eye			0.2			
Krark-Clan Stoker		0.15				
Last Word				1.25		
Leonin Battlemage			0.25			
Leonin Bola		0.15				

Leonin Shikari				5.71		
Lich's Tomb				0.39		
Loxodon Mystic		0.14				
Machinate		0.14				
Magnetic Flux		0.14				
Memnarch				5.49		
Mephitic Ooze				0.32		
Metal Fatigue		0.15				
Mirrodin's Core			0.3			
Murderous Spoils			0.2			
Mycosynth Lattice				28.12		
Myr Landshaper		0.17				
Myr Matrix				2.26		
Myr Moonvessel		0.18				
Nemesis Mask			0.31			
Neurok Prodigy		0.14				
Neurok Transmuter			0.21			
Nim Abomination			0.2			
Nourish		0.16				
Oxidda Golem		0.14				
Oxidize			0.29			
Panoptic Mirror				2.97		
Pristine Angel				1.3		
Psychic Overload			0.2			
Pteron Ghost		0.14				
Pulse of the Dross				0.33		
Pulse of the Fields				0.42		
Pulse of the Forge				0.47		
Pulse of the Grid				0.37		
Pulse of the Tangle				0.35		
Purge			0.19			
Quicksilver Behemoth		0.15				
Razor Golem		0.16				
Reap and Sow		0.16				
Rebuking Ceremony				0.32		
Reshape				4.18		
Retract				5.53		
Ritual of Restoration		0.14				
Roaring Slagwurm				0.32		
Savage Beating				6.21		
Scavenging Scarab		0.14				

Screams from Within			0.21			
Scrounge			0.2			
Second Sight			0.2			
Serum Powder				2.9		
Shield of Kaldra				4.25		
Shriveling Rot				0.34		
Shunt				0.36		
Skullclamp			2			
Slobad, Goblin Tinkerer				0.74		
Soulscour				0.46		
Spawning Pit			0.87			
Specter's Shroud			0.21			
Spellbinder				0.52		
Spincrusher			0.24			
Spire Golem		0.29				
Stand Together			0.2			
Steelshaper Apprentice				0.65		
Stir the Pride			0.22			
Sundering Titan				4.39		
Surestrike Trident			0.28			
Sword of Fire and Ice				40.49		
Sword of Light and Shadow				25.43		
Synod Artificer				0.34		
Talon of Pain			0.2			
Tangle Golem		0.14				
Tangle Spider		0.15				
Tanglewalker			0.21			
Tears of Rage			0.21			
Tel-Jilad Outrider		0.14				
Tel-Jilad Wolf		0.15				
Test of Faith			0.2			
Thought Dissector				0.4		
Thunderstaff			0.2			
Trinisphere				9.54		
Turn the Tables				0.4		
Unforge		0.14				
Ur-Golem's Eye		0.15				
Vedalken Engineer		0.17				
Vex		0.15				
Viridian Acolyte		0.15				
Viridian Zealot				0.86		

Voltaic Construct			0.28			
Vulshok Morningstar		0.18				
Vulshok War Boar			0.19			
Wand of the Elements				0.32		
Well of Lost Dreams				3.19		
Whispersilk Cloak		0.5				
Wirefly Hive			0.2			
Wurm's Tooth			0.2			
		9.82	63.92	241.15	0	
Total Number of Cards		55	55	55	0	
		0.178545	1.16218182	4.3845	######	
Average Card Price		0.18	1.16	4.38		
Adjustments for Mythic and Rare				241.15		
				55		
				4.384545455		
Final Average Card Price		0.18	1.16	4.38		
Total Value in a Pack		1.8	3.48	4.38		
Average Total Value of a Pack						9.66

Table 6 Darksteel Cards and Prices

Card Name		*Rarity & Price*				
		Common	Uncommon	Rare	Mythic	
Abuna's Chant		0.14				
Acquire				2.05		
Advanced Hoverguard		0.14				
All Suns' Dawn				0.56		
Anodet Lurker		0.14				
Arachnoid			0.19			
Arcbound Wanderer			0.21			
Armed Response		0.15				
Artificer's Intuition				1.13		
Auriok Champion				22.3		
Auriok Salvagers			0.21			
Auriok Windwalker				0.46		
Avarice Totem			0.22			
Baton of Courage		0.14				
Battered Golem		0.17				
Beacon of Creation				2.69		
Beacon of Destruction				0.47		

Beacon of Immortality				7.56		
Beacon of Tomorrows				5.93		
Beacon of Unrest				2.78		
Blasting Station			3.8			
Blind Creeper		0.15				
Blinkmoth Infusion				0.35		
Bringer of the Black Dawn				2.38		
Bringer of the Blue Dawn				2.56		
Bringer of the Green Dawn				0.95		
Bringer of the Red Dawn				1.13		
Bringer of the White Dawn				1.23		
Cackling Imp		0.14				
Channel the Suns			0.45			
Chimeric Coils			0.2			
Circle of Protection: Artifacts			0.21			
Clearwater Goblet				0.83		
Clock of Omens			0.26			
Composite Golem			0.26			
Condescend		1				
Conjurer's Bauble		0.21				
Cosmic Larva				0.3		
Cranial Plating		0.65				
Crucible of Worlds				66.04		
Dawn's Reflection		0.18				
Desecration Elemental				0.35		
Devour in Shadow			0.2			
Disruption Aura			0.2			
Door to Nothingness				1.09		
Doubling Cube				12.08		
Dross Crocodile		0.15				
Early Frost		0.15				
Ebon Drake			0.2			
Endless Whispers				0.91		
Energy Chamber			0.88			
Engineered Explosives				52.31		
Ensouled Scimitar			0.22			
Eon Hub				0.82		
Etched Oracle			0.19			
Eternal Witness			5.99			
Eyes of the Watcher			0.21			
Fangren Pathcutter			0.2			

Feedback Bolt			0.2			
Ferocious Charge		0.15				
Ferropede			0.22			
Fill with Fright		0.15				
Fist of Suns				3.84		
Fleshgrafter		0.15				
Fold into Aether			0.21			
Furnace Whelp			0.2			
Gemstone Array			1.18			
Goblin Brawler		0.15				
Goblin Cannon			0.19			
Grafted Wargear			1.67			
Granulate				0.33		
Grinding Station			0.75			
Guardian Idol			0.68			
Healer's Headdress		0.15				
Heliophial		0.14				
Helm of Kaldra				4.74		
Horned Helm		0.15				
Hoverguard Sweepers				0.32		
Infused Arrows			0.19			
Into Thin Air		0.15				
Ion Storm				0.4		
Iron-Barb Hellion			0.2			
Joiner Adept				2.25		
Krark-Clan Engineers			0.2			
Krark-Clan Ironworks			8.89			
Krark-Clan Ogre		0.15				
Lantern of Insight			3.49			
Leonin Squire		0.15				
Lose Hope		0.14				
Loxodon Anchorite		0.15				
Loxodon Stalwart			0.2			
Lunar Avenger			0.21			
Magma Giant				0.33		
Magma Jet			0.51			
Magnetic Theft			0.23			
Mana Geyser		0.18				
Mephidross Vampire				5.57		
Moriok Rigger				0.35		
Mycosynth Golem				13.56		

Myr Quadropod		0.14				
Myr Servitor		0.3				
Neurok Stealthsuit		0.18				
Night's Whisper			1.22			
Nim Grotesque			0.19			
Opaline Bracers		0.14				
Ouphe Vandals			0.19			
Paradise Mantle			2.37			
Pentad Prism		0.3				
Plasma Elemental			0.21			
Plunge into Darkness				3.15		
Possessed Portal				0.67		
Qumulox			0.2			
Rain of Rust		0.14				
Raksha Golden Cub				3.04		
Razorgrass Screen		0.14				
Razormane Masticore				0.33		
Relentless Rats			2.37			
Relic Barrier			0.2			
Retaliate				0.5		
Reversal of Fortune				0.4		
Rite of Passage				2.33		
Roar of Reclamation				0.5		
Rude Awakening				0.4		
Salvaging Station				0.66		
Sawtooth Thresher		0.15				
Screaming Fury		0.15				
Serum Visions		2.47				
Shattered Dreams			0.19			
Silent Arbiter				2.23		
Skullcage			0.2			
Skyhunter Prowler		0.15				
Skyhunter Skirmisher			0.21			
Skyreach Manta		0.14				
Solarion				0.62		
Spark Elemental		0.54				
Sparring Collar		0.15				
Spectral Shift				0.32		
Spinal Parasite			0.19			
Staff of Domination				22.25		
Stand Firm		0.14				

Stasis Cocoon		0.15				
Steelshaper's Gift			4.3			
Summoner's Egg				1.19		
Summoning Station				0.87		
Suncrusher				0.32		
Suntouched Myr		0.14				
Sylvok Explorer		0.14				
Synod Centurion			0.19			
Tangle Asp		0.15				
Tel-Jilad Justice			0.19			
Tel-Jilad Lifebreather		0.14				
Thermal Navigator		0.15				
Thought Courier		0.15				
Tornado Elemental				0.67		
Trinket Mage		0.24				
Tyrranax		0.15				
Vanquish			0.18			
Vedalken Mastermind			0.3			
Vedalken Orrery				12.98		
Vedalken Shackles				10.45		
Vicious Betrayal		0.14				
Viridian Lorebearers			0.19			
Viridian Scout		0.15				
Vulshok Sorcerer		0.16				
Wayfarer's Bauble		0.17				
		12.73	46.81	284.83	0	
Total Number of Cards		55	55	55	0	
		0.231455	0.85109091	5.1787	######	
Average Card Price		0.23	0.85	5.18		
Adjustments for Mythic and Rare				284.83		
				55		
				5.178727273		
Final Average Card Price		0.23	0.85	5.18		
Total Value in a Pack		2.3	2.55	5.18		
Average Total Value of a Pack						10.03

Table 7 Fifth Dawn Cards and Prices

Data Plots

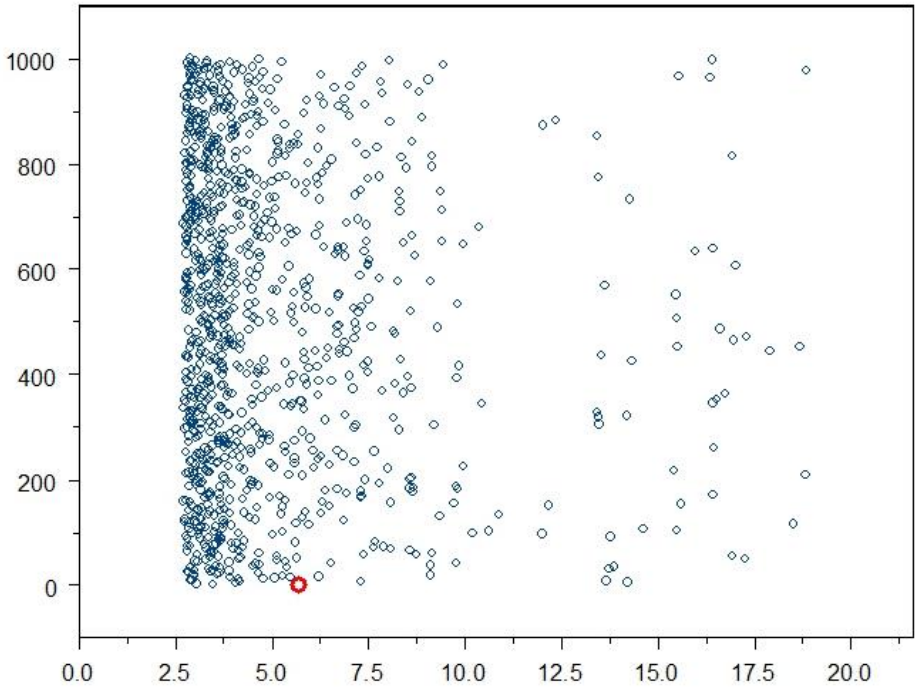


Figure 1. Ixalan Scatterplot of n = 1000 packs

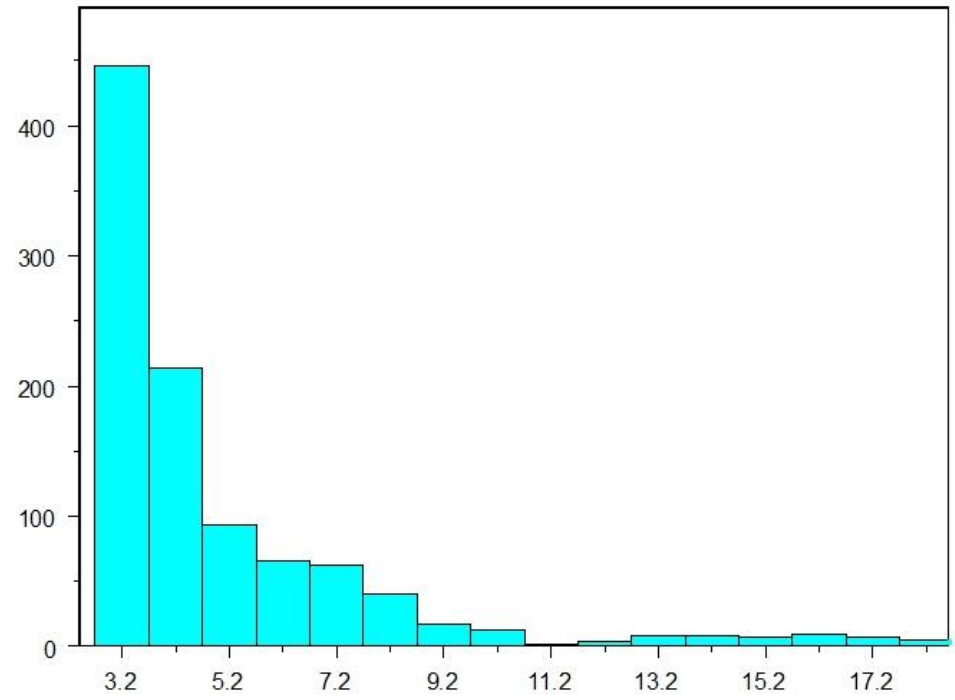


Figure 2. Ixalan Histogram of Pack Values

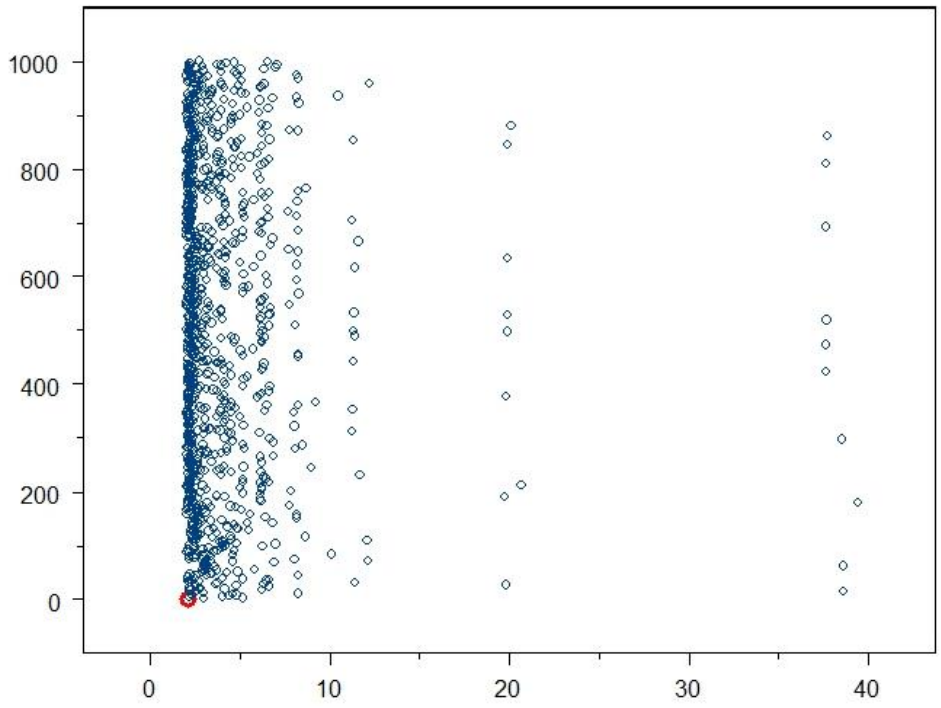


Figure 3. Kaladesh Scatterplot of n = 1000 packs

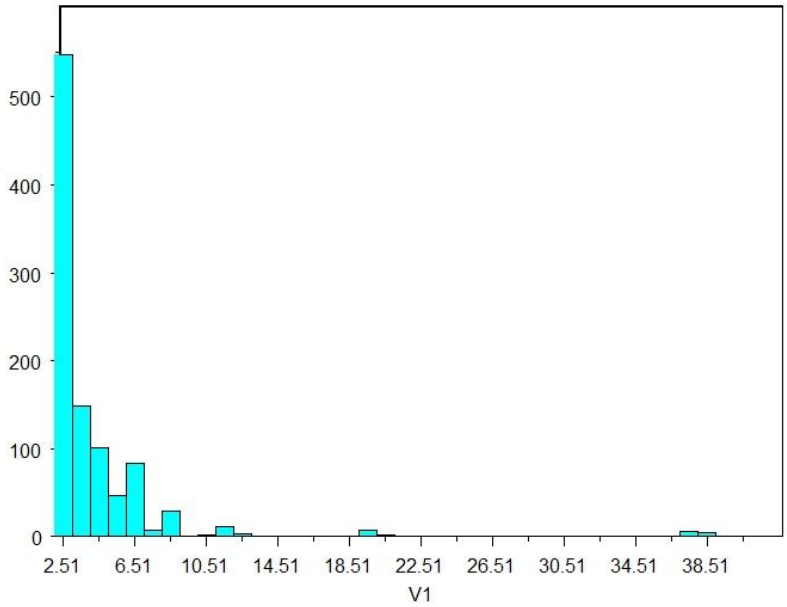


Figure 4. Kaladesh Histogram of Pack Values

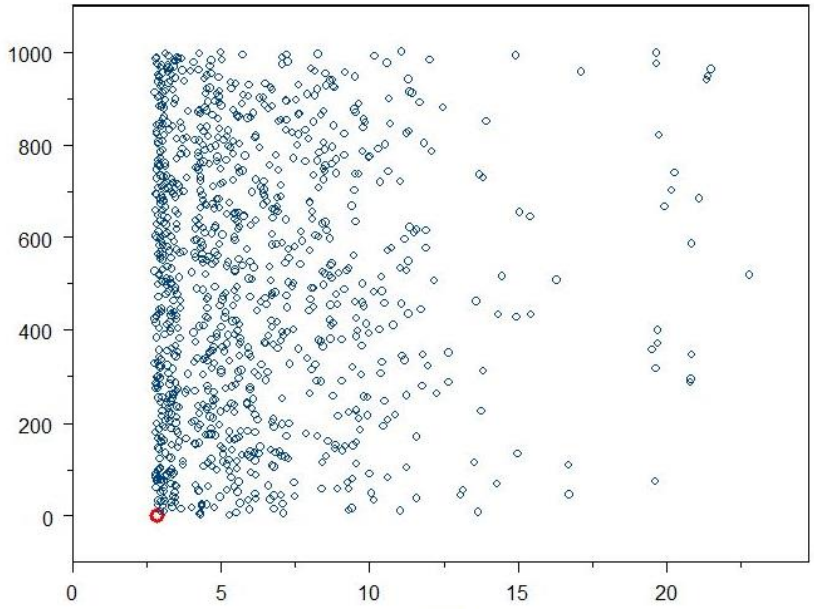


Figure 5. Magic 2012 Scatterplot of n = 1000 packs

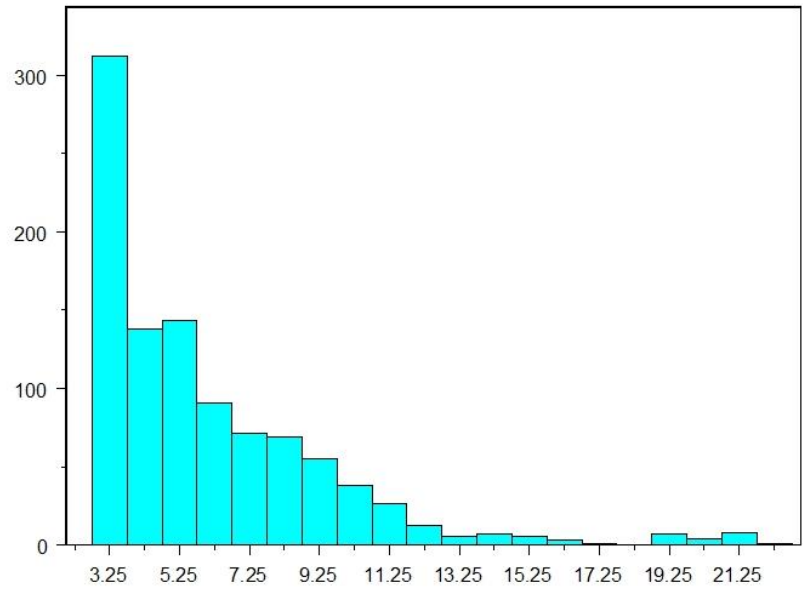


Figure 6. Magic 2012 Histogram of Pack Values

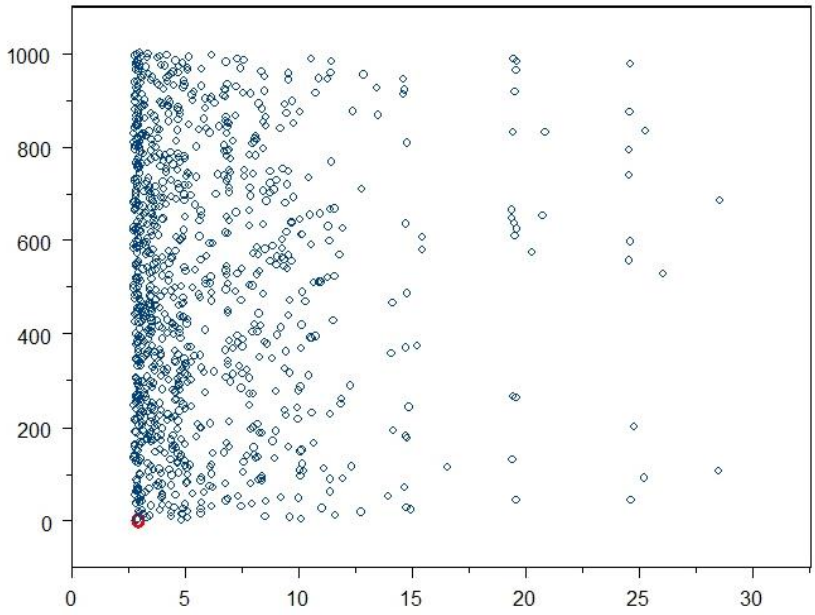


Figure 7 Magic 2013 Scatterplot of n = 1000 packs

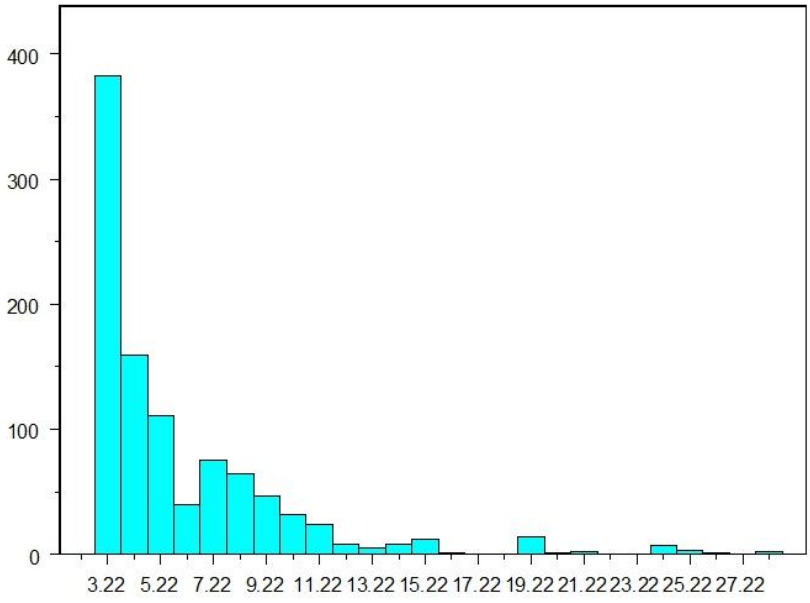


Figure 8. Magic 2013 Histogram of Pack Values

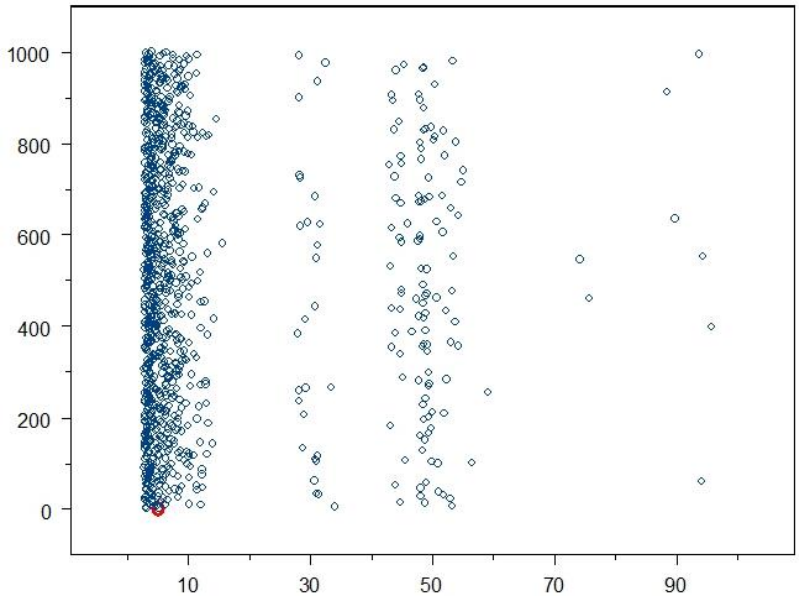


Figure 9. Darksteel Scatterplot of n = 1000 packs

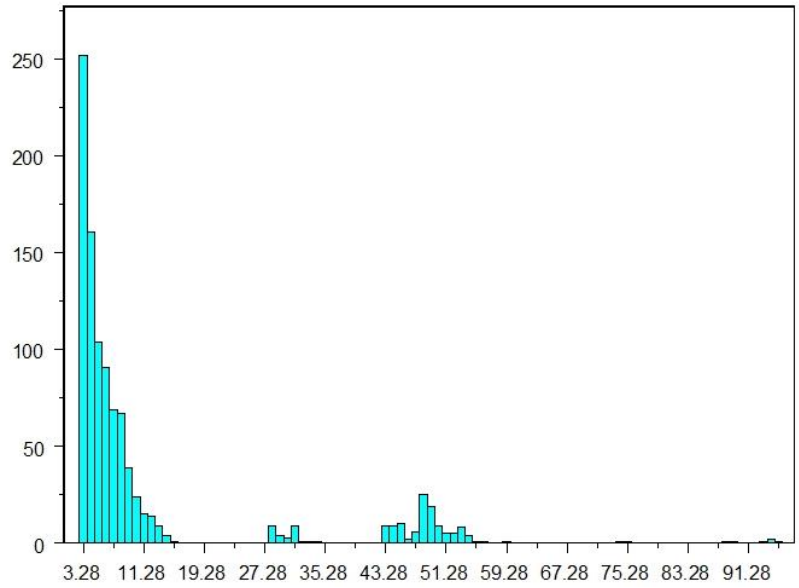


Figure 10 Darksteel Histogram of Pack Values

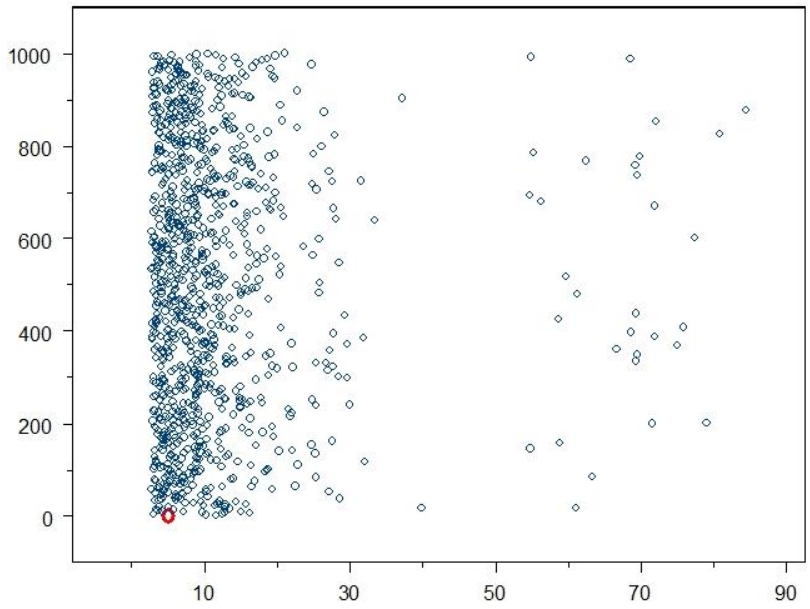


Figure 11. Fifth Dawn Scatterplot of n = 1000 packs

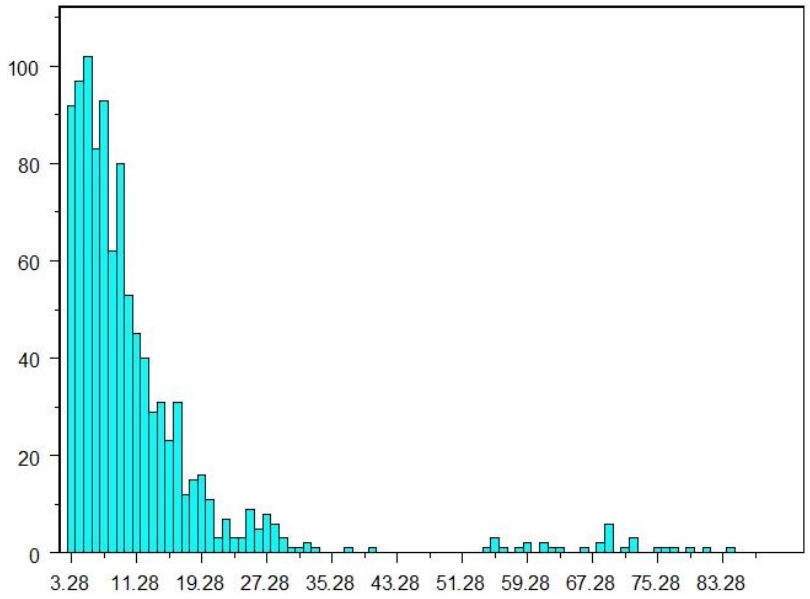


Figure 12. Fifth Dawn Histogram of Pack Values

Supplementary Code (C++)

This code was used for the Magic 2012 Analysis with the only other differences being the prices and number of common, uncommon, and rare class cards between each set.

```
#include<iostream>
#include<iomanip>
#include<string>
#include<ctime>    //For the random number generator
#include<cstdlib> //For the random number generator
#include<algorithm>
#include<fstream>

using namespace std;
float commonPrice(int random_integer)
{
float cardPrice;
float commonsPrice;
                        if (random_integer == 1)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 2)
                                {cardPrice = 0.16;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 3)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 4)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 5)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 6)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 7)
                                {cardPrice = 0.14;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 8)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 9)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 10)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 11)
                                {cardPrice = 0.14;
                                commonsPrice = cardPrice + commonsPrice;}
                        if (random_integer == 12)
                                {cardPrice = 0.15;
                                commonsPrice = cardPrice + commonsPrice;}
```

```
if (random_integer == 13)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 14)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 15)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 16)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 17)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 18)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 19)
        {cardPrice = 0.14;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 20)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 21)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 22)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 23)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 24)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 25)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 26)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 27)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 28)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 29)
        {cardPrice = 0.14;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 30)
        {cardPrice = 0.19;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 31)
        {cardPrice = 0.15;
```

```
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 32)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 33)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 34)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 35)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 36)
        {cardPrice = 0.16;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 37)
        {cardPrice = 0.16;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 38)
        {cardPrice = 0.14;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 39)
        {cardPrice = 0.17;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 40)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 41)
        {cardPrice = 0.18;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 42)
        {cardPrice = 0.16;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 43)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 44)
        {cardPrice = 0.17;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 45)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 46)
        {cardPrice = 0.14;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 47)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 48)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 49)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 50)
```

```
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 51)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 52)
        {cardPrice = 0.14;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 53)
        {cardPrice = 0.17;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 54)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 55)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 56)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 57)
        {cardPrice = 0.18;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 58)
        {cardPrice = 0.17;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 59)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 60)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 61)
        {cardPrice = 0.14;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 62)
        {cardPrice = 0.17;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 63)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 64)
        {cardPrice = 0.34;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 65)
        {cardPrice = 0.22;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 66)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 67)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 68)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
```

```
if (random_integer == 69)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 70)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 71)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 72)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 73)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 74)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 75)
        {cardPrice = 0.16;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 76)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 77)
        {cardPrice = 1.66;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 78)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 79)
        {cardPrice = 0.18;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 80)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 81)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 82)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 83)
        {cardPrice = 0.16;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 84)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 85)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 86)
        {cardPrice = 0.15;
        commonsPrice = cardPrice + commonsPrice;}
if (random_integer == 87)
        {cardPrice = 0.15;
```

```
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 88)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 89)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 90)
                {cardPrice = 0.18;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 91)
                {cardPrice = 0.14;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 92)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 93)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 94)
                {cardPrice = 0.16;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 95)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 96)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 97)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 98)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 99)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 100)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}
        if (random_integer == 101)
                {cardPrice = 0.15;
                commonsPrice = cardPrice + commonsPrice;}

return commonsPrice;
}

float uncommonPrice(int random_integer)
{
float uncommonsPrice;
float cardPrice;
        if (random_integer == 1)
                {cardPrice = 0.24;
                uncommonsPrice = cardPrice + uncommonsPrice;}
        if (random_integer == 2)
                {cardPrice = 0.19;
```

```
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 3)
            {cardPrice = 0.21;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 4)
            {cardPrice = 0.20;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 5)
            {cardPrice = 0.18;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 6)
            {cardPrice = 0.20;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 7)
            {cardPrice = 0.20;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 8)
            {cardPrice = 0.19;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 9)
            {cardPrice = 0.76;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 10)
            {cardPrice = 0.19;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 11)
            {cardPrice = 0.20;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 12)
            {cardPrice = 0.19;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 13)
            {cardPrice = 0.23;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 14)
            {cardPrice = 0.21;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 15)
            {cardPrice = 0.17;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 16)
            {cardPrice = 0.20;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 17)
            {cardPrice = 0.19;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 18)
            {cardPrice = 0.18;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 19)
            {cardPrice = 0.19;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 20)
            {cardPrice = 0.20;
            uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 21)
```

```
        {cardPrice = 0.28;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 22)
        {cardPrice = 0.23;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 23)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 24)
        {cardPrice = 0.45;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 25)
        {cardPrice = 0.20;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 26)
        {cardPrice = 0.20;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 27)
        {cardPrice = 0.17;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 28)
        {cardPrice = 1.49;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 29)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 30)
        {cardPrice = 0.25;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 31)
        {cardPrice = 0.20;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 32)
        {cardPrice = 0.26;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 33)
        {cardPrice = 0.18;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 34)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 35)
        {cardPrice = 0.18;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 36)
        {cardPrice = 0.18;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 37)
        {cardPrice = 0.20;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 38)
        {cardPrice = 0.32;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 39)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
```

```
if (random_integer == 40)
        {cardPrice = 0.22;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 41)
        {cardPrice = 0.22;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 42)
        {cardPrice = 0.21;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 43)
        {cardPrice = 0.18;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 44)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 45)
        {cardPrice = 0.20;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 46)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 47)
        {cardPrice = 0.20;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 48)
        {cardPrice = 0.35;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 49)
        {cardPrice = 1.52;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 50)
        {cardPrice = 0.18;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 51)
        {cardPrice = 0.24;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 52)
        {cardPrice = 0.86;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 53)
        {cardPrice = 0.17;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 54)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 55)
        {cardPrice = 1.99;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 56)
        {cardPrice = 0.20;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 57)
        {cardPrice = 0.19;
        uncommonsPrice = cardPrice + uncommonsPrice;}
if (random_integer == 58)
        {cardPrice = 0.20;
```

```
                        uncommonsPrice = cardPrice + uncommonsPrice;}
                if (random_integer == 59)
                        {cardPrice = 0.19;
                        uncommonsPrice = cardPrice + uncommonsPrice;}
                if (random_integer == 60)
                        {cardPrice = 0.61;
                        uncommonsPrice = cardPrice + uncommonsPrice;}

return uncommonsPrice;
}


float raresPrice(int random_integer)
{
float rarePrice;
float cardPrice;
        if (random_integer == 1)
                        {cardPrice = 6.71;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 2)
                        {cardPrice = 0.51;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 3)
                        {cardPrice = 7.50;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 4)
                        {cardPrice = 0.35;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 5)
                        {cardPrice = 0.38;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 6)
                        {cardPrice = 5.99;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 7)
                        {cardPrice = 1.65;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 8)
                        {cardPrice = 1.00;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 9)
                        {cardPrice = 3.42;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 10)
                        {cardPrice = 3.07;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 11)
                        {cardPrice = 0.50;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 12)
                        {cardPrice = 2.97;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 13)
                        {cardPrice = 0.30;
                        rarePrice = cardPrice + rarePrice;}
                if (random_integer == 14)
```

```
        {cardPrice = 0.38;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 15)
        {cardPrice = 2.66;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 16)
        {cardPrice = 3.45;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 17)
        {cardPrice = 0.35;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 18)
        {cardPrice = 4.13;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 19)
        {cardPrice = 2.49;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 20)
        {cardPrice = 0.64;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 21)
        {cardPrice = 0.85;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 22)
        {cardPrice = 1.84;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 23)
        {cardPrice = 6.25;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 24)
        {cardPrice = 0.32;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 25)
        {cardPrice = 8.80;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 26)
        {cardPrice = 0.79;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 27)
        {cardPrice = 3.43;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 28)
        {cardPrice = 4.71;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 29)
        {cardPrice = 5.69;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 30)
        {cardPrice = 11.15;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 31)
        {cardPrice = 4.70;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 32)
        {cardPrice = 2.25;
        rarePrice = cardPrice + rarePrice;}
```

```
if (random_integer == 33)
        {cardPrice = 1.25;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 34)
        {cardPrice = 5.50;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 35)
        {cardPrice = 0.56;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 36)
        {cardPrice = 0.86;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 37)
        {cardPrice = 0.33;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 38)
        {cardPrice = 0.38;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 39)
        {cardPrice = 0.36;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 40)
        {cardPrice = 0.30;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 41)
        {cardPrice = 0.34;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 42)
        {cardPrice = 0.33;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 43)
        {cardPrice = 3.02;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 44)
        {cardPrice = 9.37;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 45)
        {cardPrice = 7.00;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 46)
        {cardPrice = 7.99;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 47)
        {cardPrice = 0.45;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 48)
        {cardPrice = 0.77;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 49)
        {cardPrice = 0.99;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 50)
        {cardPrice = 1.85;
        rarePrice = cardPrice + rarePrice;}
if (random_integer == 51)
        {cardPrice = 0.71;
```

```
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 52)
                {cardPrice = 7.00;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 53)
                {cardPrice = 0.37;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 54)
                {cardPrice = 0.64;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 55)
                {cardPrice = 4.56;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 56)
                {cardPrice = 17.01;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 57)
                {cardPrice = 1.00;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 58)
                {cardPrice = 0.33;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 59)
                {cardPrice = 3.99;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 60)
                {cardPrice = 4.29;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 61)
                {cardPrice = 2.38;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 62)
                {cardPrice = 0.32;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 63)
                {cardPrice = 0.39;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 64)
                {cardPrice = 1.76;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 65)
                {cardPrice = 3.00;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 66)
                {cardPrice = 5.99;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 67)
                {cardPrice = 0.50;
                rarePrice = cardPrice + rarePrice;}
        if (random_integer == 68)
                {cardPrice = 0.63;
                rarePrice = cardPrice + rarePrice;}

return rarePrice;;
}
```

```
unsigned seed = time(0);

int main()
{
ofstream outputFile;
outputFile.open("Magic 2012.txt", std::ios_base::app);

srand(seed);

for (int iteration = 1; iteration<=1000; iteration++)
{

//For the 10 common cards drawn
float totalcard1 = 0;
for (int a = 0; a<10; a++)
{
const int randomNumbermin = 1;
const int randomNumbermax=101;
int RandomNumber = (rand() % (randomNumbermax - randomNumbermin + 1)) + randomNumbermin;
float card1 = commonPrice(RandomNumber);
totalcard1 += card1;
}

//For the 5 uncommon cards drawn
float totalcard2 = 0;
for (int b = 0; b<5; b++)
{
const int randomNumbermin = 1;
const int randomNumbermax= 60;
int RandomNumber = (rand() % (randomNumbermax - randomNumbermin + 1)) + randomNumbermin;
float card2 = uncommonPrice(RandomNumber);
totalcard2 += card2;
}

//For the 1 rare cards drawn
float totalcard3 = 0;
for (int c = 0; c<1; c++)
{
const int randomNumbermin = 1;
const int randomNumbermax= 68;
int RandomNumber = (rand() % (randomNumbermax - randomNumbermin + 1)) + randomNumbermin;
float card3 = raresPrice(RandomNumber);
totalcard3 += card3;
}

float totalcardvalue = totalcard1 + totalcard2 + totalcard3;
outputFile << totalcardvalue << endl;
}

outputFile.close();

return 0;

}
```