



Blockbuster Breakdown

Team 3



What factors contribute to
a movie's success?

How is success measured?

Success was measured by:

- ★ Profitability
- ★ Ratings
- ★ Awards

We analyzed success against:

- ★ Genres
- ★ Box Office Earnings
- ★ Actors
- ★ Directors
- ★ Awards / Nominations
- ★ Ratings
 - IMDb
 - Metascore
 - RottenTomatoes

Analysis Process

Step 1

Identify Data Sources



- kaggle.com
- omdbapi.com

Step 2

Merge Data Sources



- Import CSV
- Pull data via API

Step 3

Clean Data Source(s)



- Remove duplicates
- Remove NaNs
- Align data types
(e.g., object vs float)

Step 4

Analyze Data Source(s)



- Create DF's
- Create Bins
- Find Count, Mean, Sum
- Plot (Scatter, Bar, Pie, etc.)



Analysis Overview

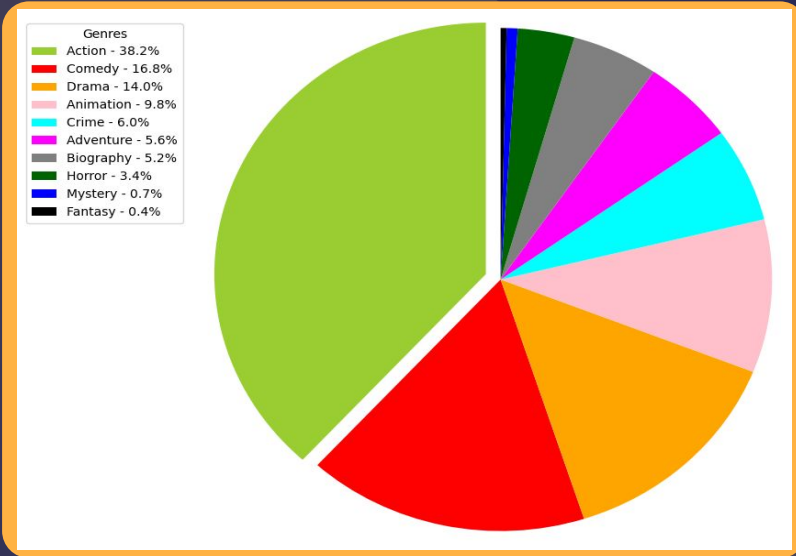
Final Data Source:

- ★ # of Movies:
 - 7351
 - 1688 w/ no NaNs
- ★ Year Range: 1921 -2021

Questions:

- ★ What are movie splits by genre?
- ★ Do top actors impact movie profits?
- ★ Do top directors impact movie profits?
- ★ Are awards influenced by movie budgets?
- ★ Are ratings influenced by movie budgets?

Genre Analysis



Findings:

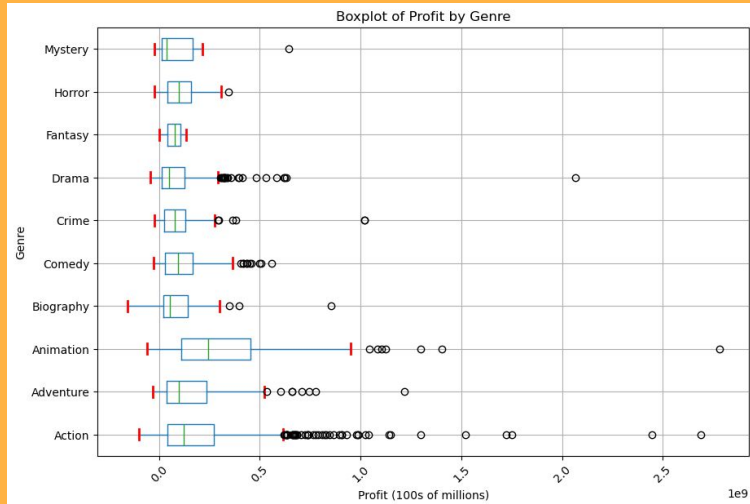
Out of 7000 films In our dataset, action movies constitute approximately $\frac{2}{5}$ of the total films, whereas the next highest being comedies being at 17 percent and so on and so forth.

Implications:

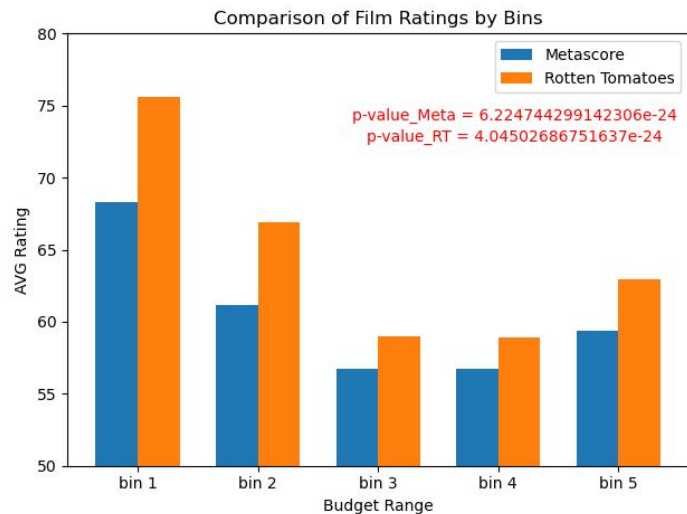
Dominance of action movies appeal to wide range of audiences

Need for other genres to not oversaturate audiences to ensure a richer cinematic experience to appeal to many people's preferences.

Genre Analysis



Budget Analysis



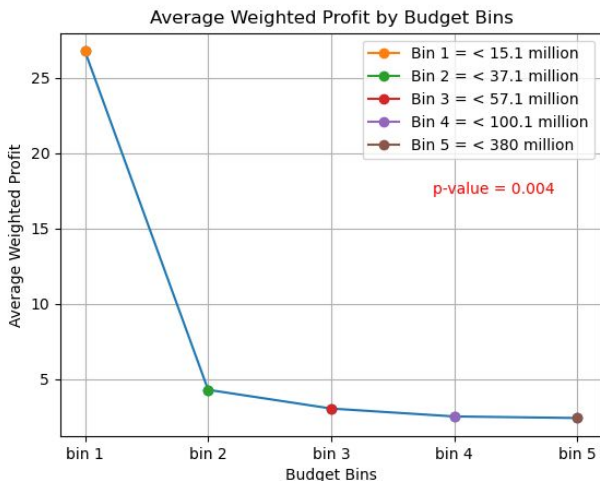
Findings:

Bin 1 and Bin 2 performed better than higher budget movies

Testing:

Anova test for both Metascore and Rotten Tomatoes

Budget Analysis



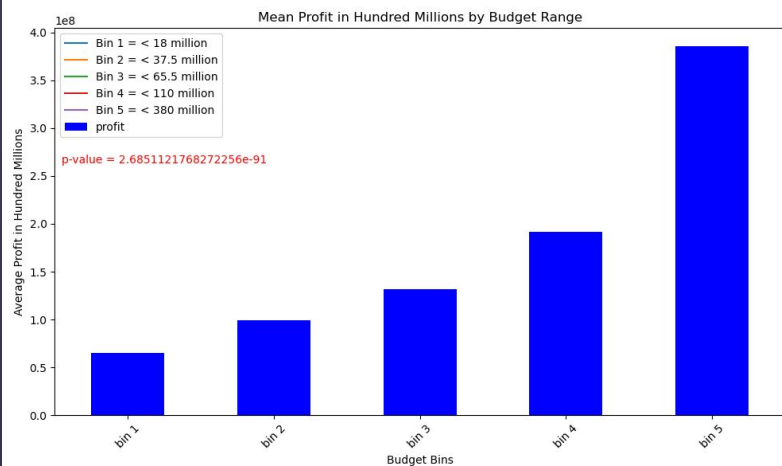
Findings:

Bin 1 far outperforms other bins. Horror movies in bin 1 were disproportionately successful.

Implications:

Possible that a sampling bias is present with better known low budget movies being oversampled in data set

Budget Analysis



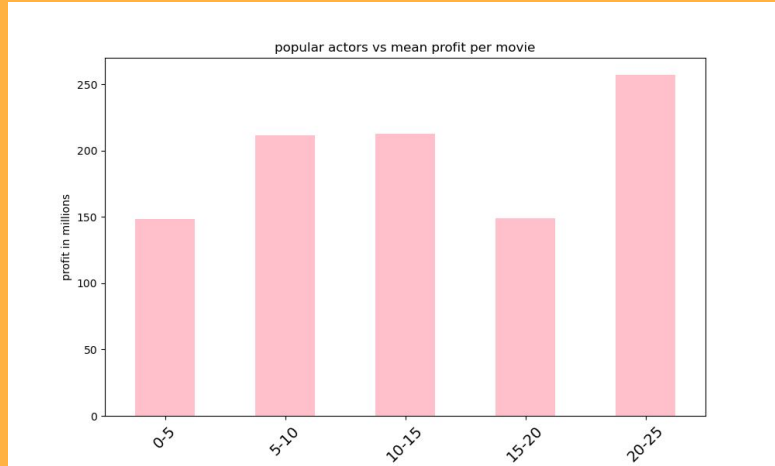
Findings:

High budget movies make far more money on average. Also, are less likely to lose money in this sample

Implications:

What accounts for success of blockbuster films?

Movies by top actors are more successful



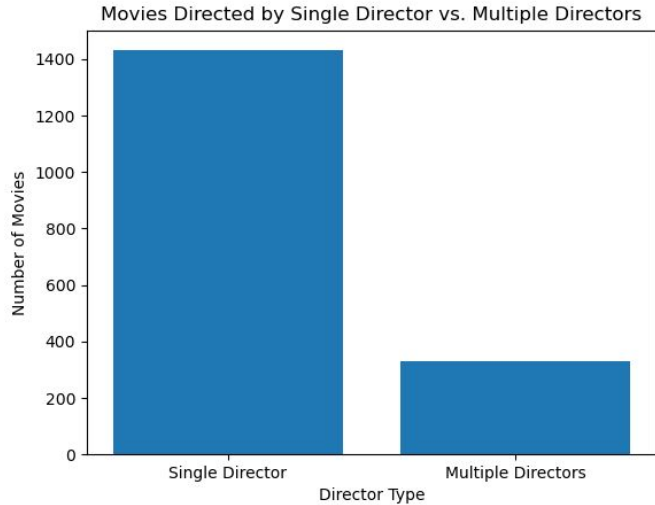
Findings:

Actors who have been in more than 20 movies have more average profit per movies, but actors that have starred in less than 20 movies have varying profits.

Implications:

There is a threshold to actor popularity and the profit they make, after they have starred in 20 movies they seem to make more profit than other popular actors

Top Directors Analysis



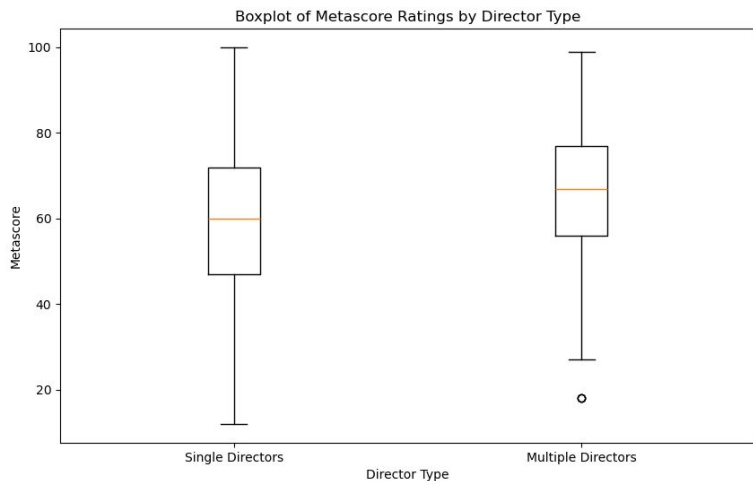
Findings:

Of the movies provided in the dataset, 81.31% were directed by an individual director, whereas 18.69% were directed by multiple directors

Implications:

The dataset showed that among all the top movies, a majority were directed by an individual. Movies directed by an individual would offer more creative freedom in terms of how the movie was directed.

Top Directors Analysis



Findings: (Independent T-test)

T-Statistic = -6.589

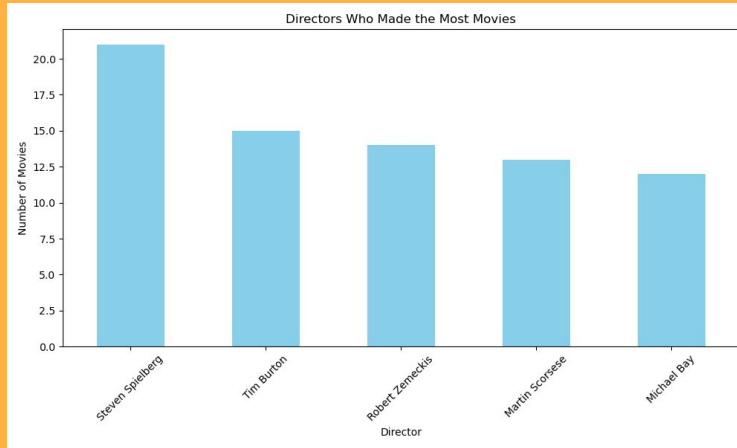
P-value = $5.81 \times 10^{-11} < 0.05$; Reject H_0 .

The mean score for movies directed by an individual was 59.98/100, whereas the mean score for movies directed by multiple directors was 66.73/100

Implications:

Metascore for movies directed by multiple directors scored higher than individual directors. Collaboration may spark more of an interest and thus output more reviews from metacritics

Top Directors Analysis



Steven Spielberg - 21

Tim Burton - 15

Robert Zemeckis - 14

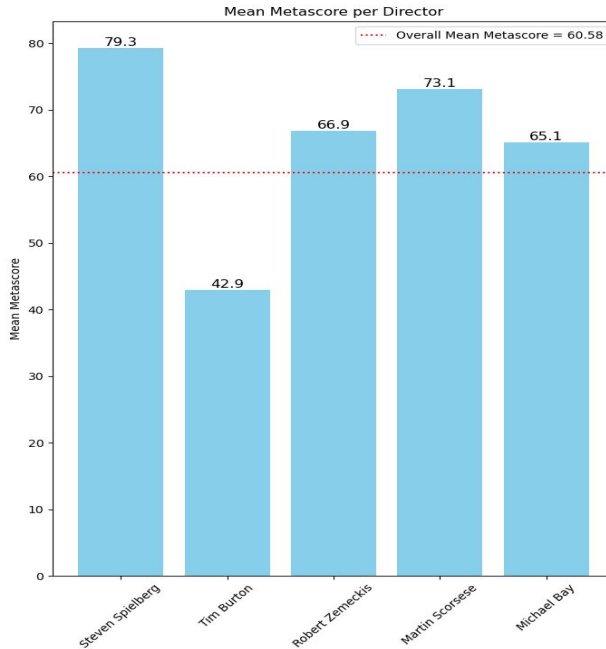
Martin Scorsese - 13

Michael Bay - 12

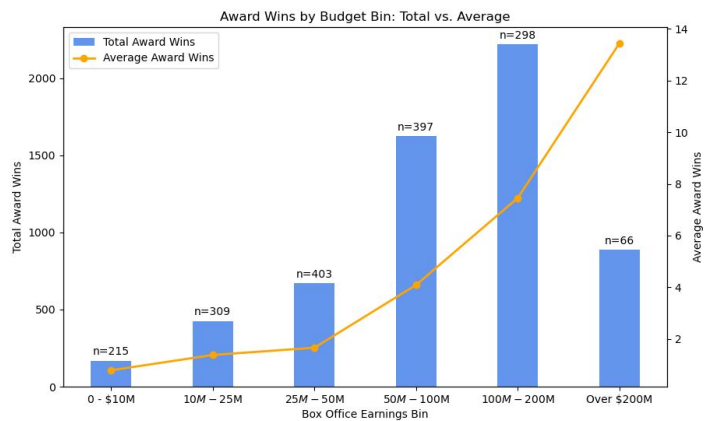
Top Directors Analysis

Findings:

Of the top 5 directors, Steven Spielberg had the highest average metacritic score



Larger Budgets Boost Movie Award Success



n = # of movies

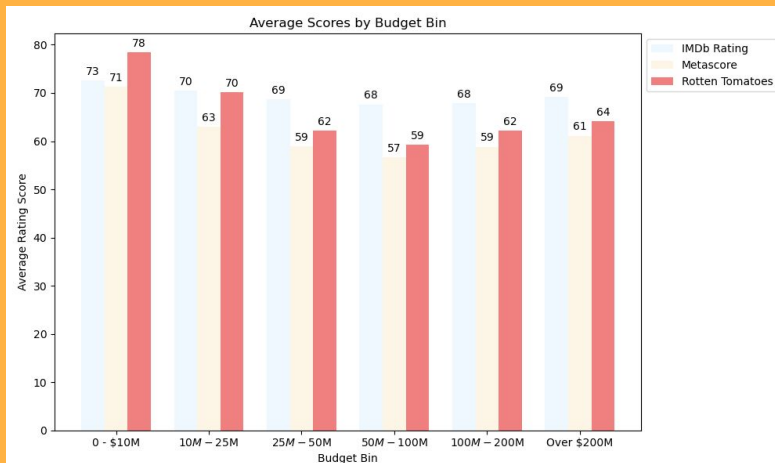
Findings

Original scatter plot analysis showed a low positive correlation (approximately 0.3) between movie budget and award wins. However, when the data was segmented into bins, it became clear that a larger budget can significantly contribute to the success of movies in terms of awards.

Implications

Studios may need to reassess their budget allocation strategies, possibly directing more funds towards production, marketing, and other areas that contribute to a film's award potential.

Budget Extremes Outperform Mid Range Films In Ratings



Findings:

- The data shows a U-shaped trend, with movies having very low or very high budgets receiving higher average scores than mid-range budget films. This suggests that, unlike awards, studios don't need to spend heavily to get good reviews.
- ANOVA Analysis (In Speaker Notes) - Significant rating differences across budget bins indicate that ratings are sensitive to changes in movie budgets.

Implications:

Movies with budgets between \$25M - \$100M show a decline in average scores across all metrics. The lowest average scores are seen in the \$25M - \$50M range, suggesting that mid-range budget movies might not perform as well critically compared to lower or higher budget movies.

Summary Analysis

Based on our data analysis, successful movies...

- ★ Have *Action* as the genre (either main genre or subgenre).
- ★ Generate more profit (volume vs margin) when large budget films are produced.
- ★ Claim more nominations and awards when large budget films are produced.
- ★ Have favorable ratings (e.g., Rotten Tomatoes) on both extremes of the budget (either low-cost or high-cost) vs films with mid range budgets.
- ★ Have actors that have already been in multiple movies (i.e., exposure of the actor(s) long-term would mean more popularity = more chances of being a successful movie.)
- ★ Have directors collaborating with each other rather than a movie with a single director, since the former scored higher in metacritics than the latter.

Thank you!



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Top Movies

Best Rated	Highly Acclaimed (Rating & Awards)	Most Profitable
Godfather	Mad Max: Fury Road	Avatar
12 Angry Men	Lord of the Rings: The Return of the King	Avengers: End Game
Lord of the Rings: The Return of the King	The Dark Knight	Titanic
Casa Blanca	Inception	Avengers: Infinity War
Schindler's List	Lord of the Rings: The Two Towers	Spider-Man: No Way Home

Top Genres, Directors, and Actors

Genres	Directors (Movies)	Actors (Appearance)
Action	Steven Spielberg	Johnny Depp
Comedy	Tim Burton	Tom Hanks
Drama	Robert Zemeckis	Tom Cruise
Animation	Martin Scorsese	Leonardo DiCaprio
Crime	Michael Bay	Denzel Washington