

# **EFFECT OF PRODUCTION BUDGET, STUDIO AND RELEASE TIMING ON THE REVENUE GROWTH OF BOX OFFICE MOVIE BUSINESS**

**BY GROUP 6**



## BUSINESS UNDERSTANDING

Our company plans to start a new movie studio, like many big companies creating their own films.

However, we don't have much experience in the movie industry. To help the studio succeed commercially we:

- Analyzed recent movie data
- Generated data driven recommendations



# BUSINESS GOAL

To help our company determine what types of movies are most likely to succeed commercially.

## Key Questions:

- What genres perform best?
- What are the best release times?
- What characteristics lead to higher revenue?



# DATA SOURCES

## Datasets Used:

- im.db - IMDb film metadata (SQLite) (Movie ratings and movie basics)
- bom.movie\_gross.csv.gz - Box Office Mojo gross earnings
- tn.movie\_budgets.csv.gz - The Numbers movie budgets



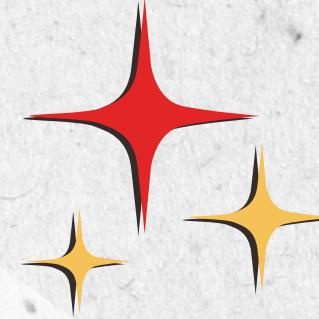
# ANALYSIS

- We unzipped the zipped dataset
- Loaded, cleaned and merged relevant dataset
- Explored patterns in revenue and ratings
- Ran regression models
- Visualized
- Came up with concrete recommendations.



# TOOLS USED

- Python
- Pandas
- SQLite3
- Matplotlib / Seaborn - Visualization
- Jupyter Notebook
- GitHub -team collaboration



# VISUALIZATION

## Viewer insights:

1. Top Genres - *Bar chart*
2. Runtime vs Rating - *Scatter plot*
3. Average rating over time - *Line graph*

## Revenue insights:

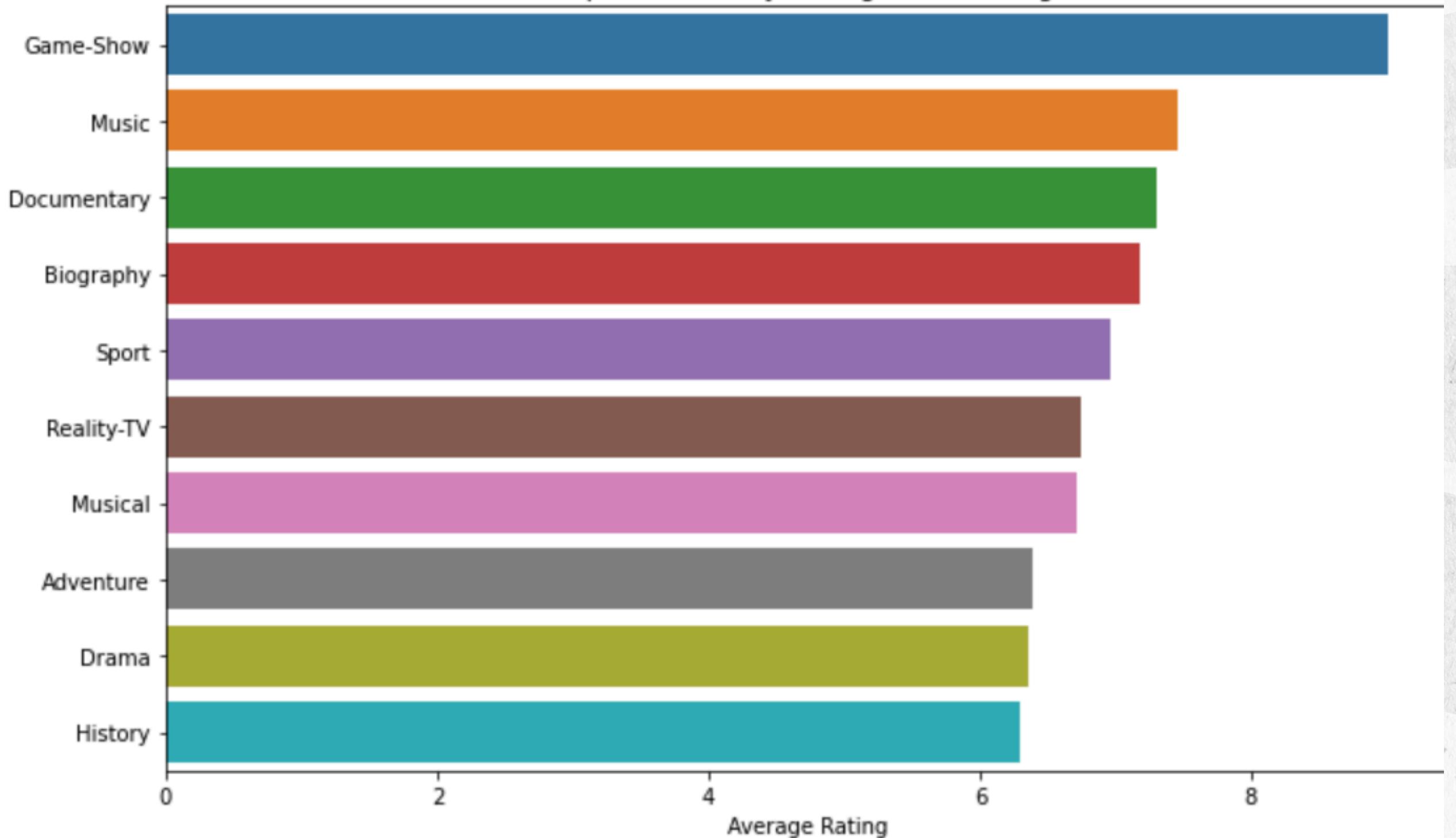
1. Budget vs Genre vs Rating
2. Average ROI by Genre
3. ROI vs Budget by Genre
4. Revenue Trends over time - *Line graph*

## Linear Regression & Time Series Analysis



# VIEWER INSIGHTS: 1. TOP GENRES BY AVERAGE TMDB RATING

Top 10 Genres by Average IMDb Rating

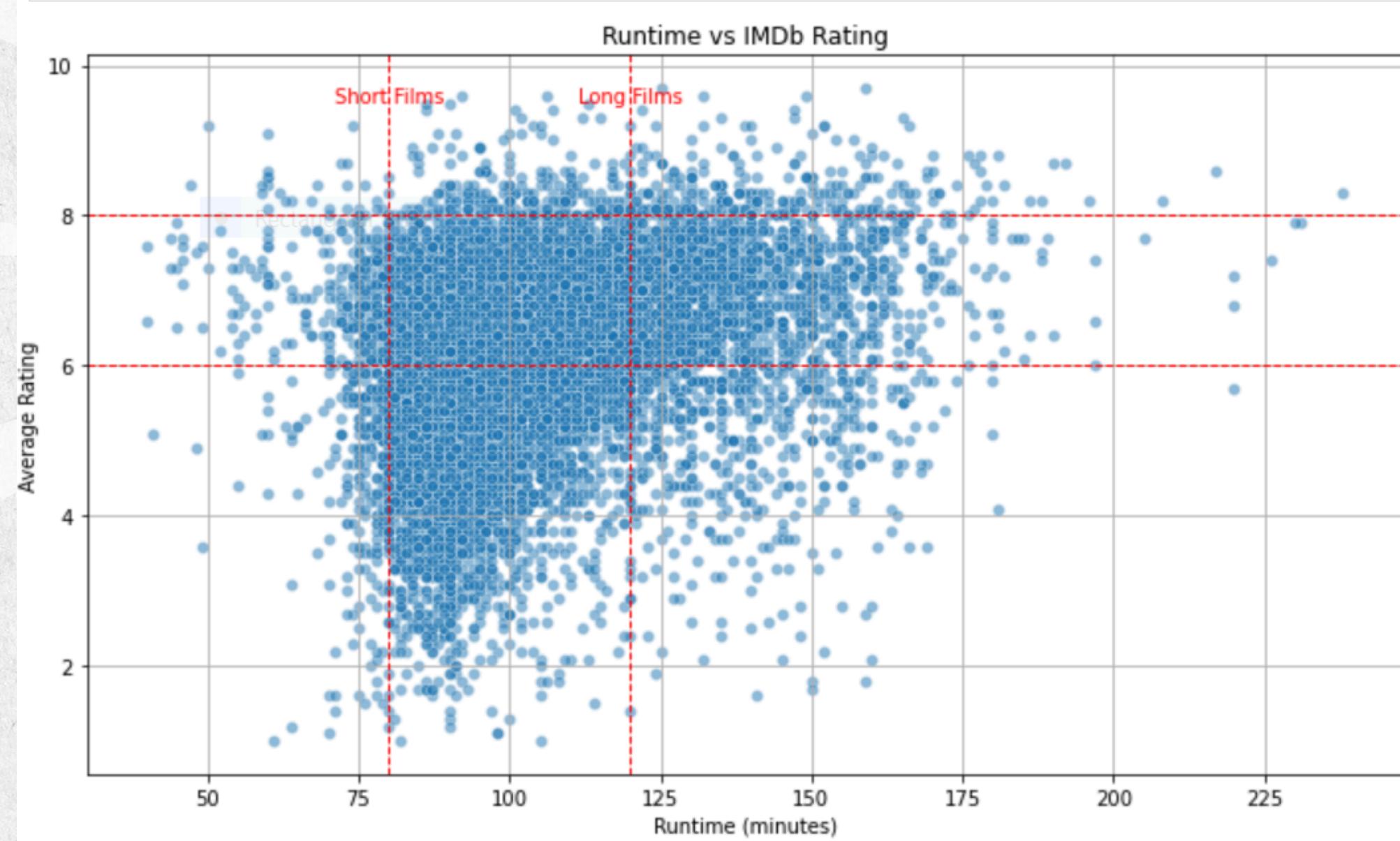


**Observation:** Game Show, Music, Documentary, and Biography had the highest average ratings.

**Interpretation:** Viewers prefer engaging, emotional, or reality based content over traditional plot heavy films.



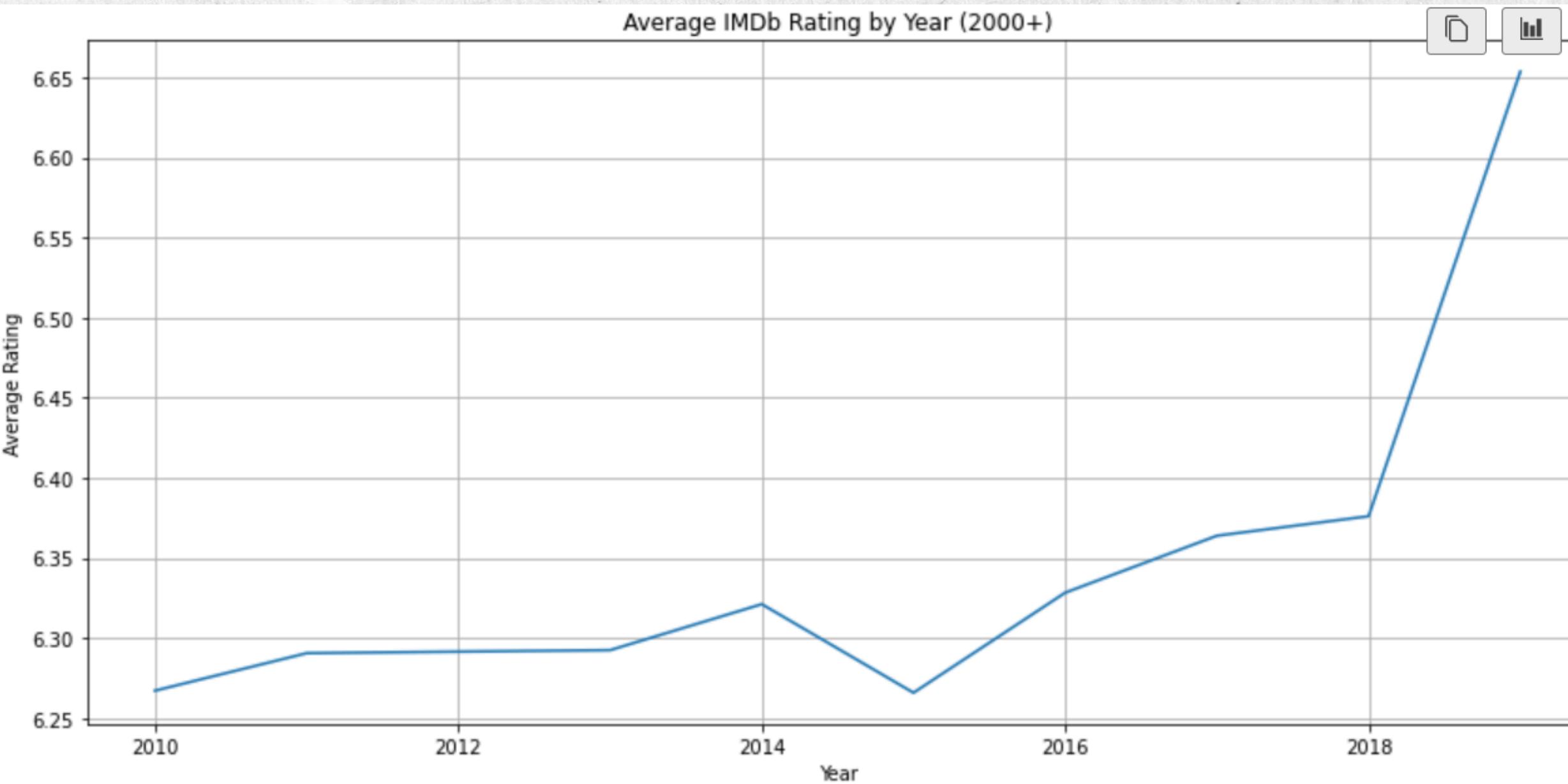
## 2: RUNTIME VS TMDB RATING



**Observation:** Moderate runtimes (~80-120 minutes) tend to get better ratings.  
**Interpretation:** Avoid overly long or very short films.



## 3: AVERAGE RATING OVER TIME



**Observation:** Average ratings stayed steady (6.25–6.40) from 2010 to 2018

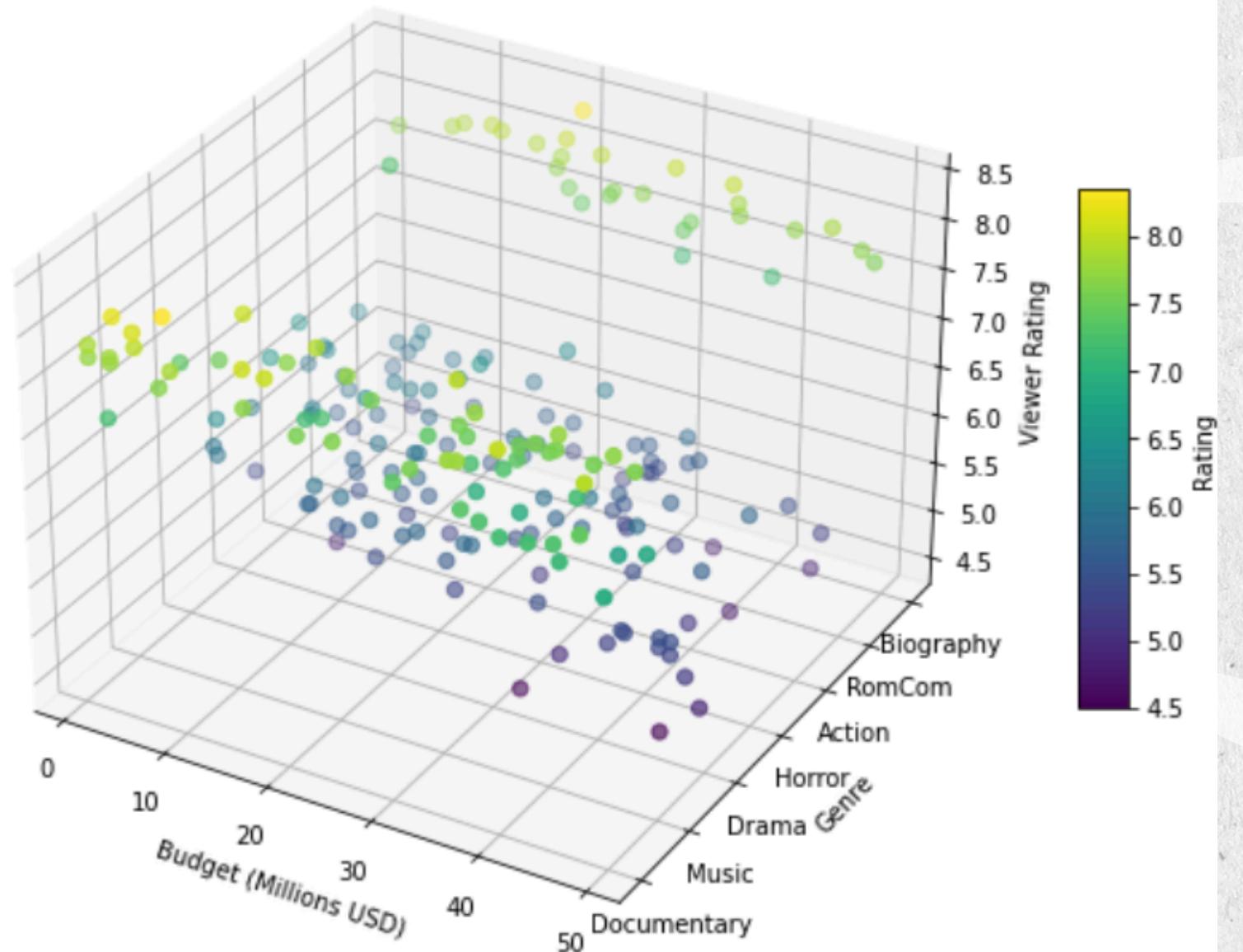
- Sharp increase in 2019

**Interpretation:** The spike in 2019 may reflect higher audience satisfaction or fewer low quality films released that year



# REVENUE INSIGHTS: 1: BUDGET VS GENRE VS RATING

3D View: Budget vs Genre vs Rating



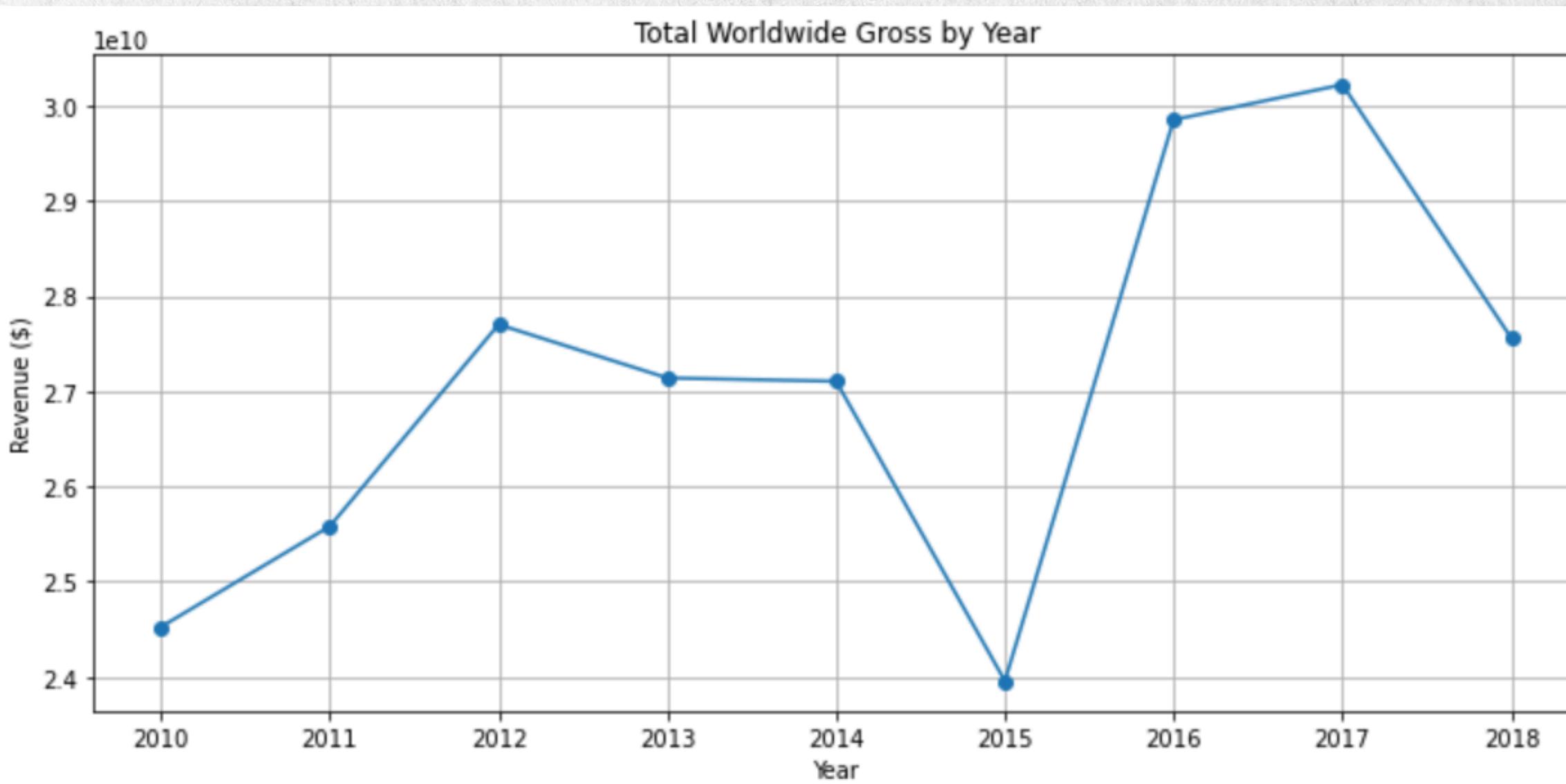
**Observation:** Documentary, Music, and Biography films get high ratings with low budgets.

Action and Horror need more spending. Emotional genres lose ratings as budgets rise.

**Interpretation:** More budget doesn't always mean better. Some genres thrive on simplicity - focus on content, not cost.



## 2: REVENUE TRENDS OVER TIME



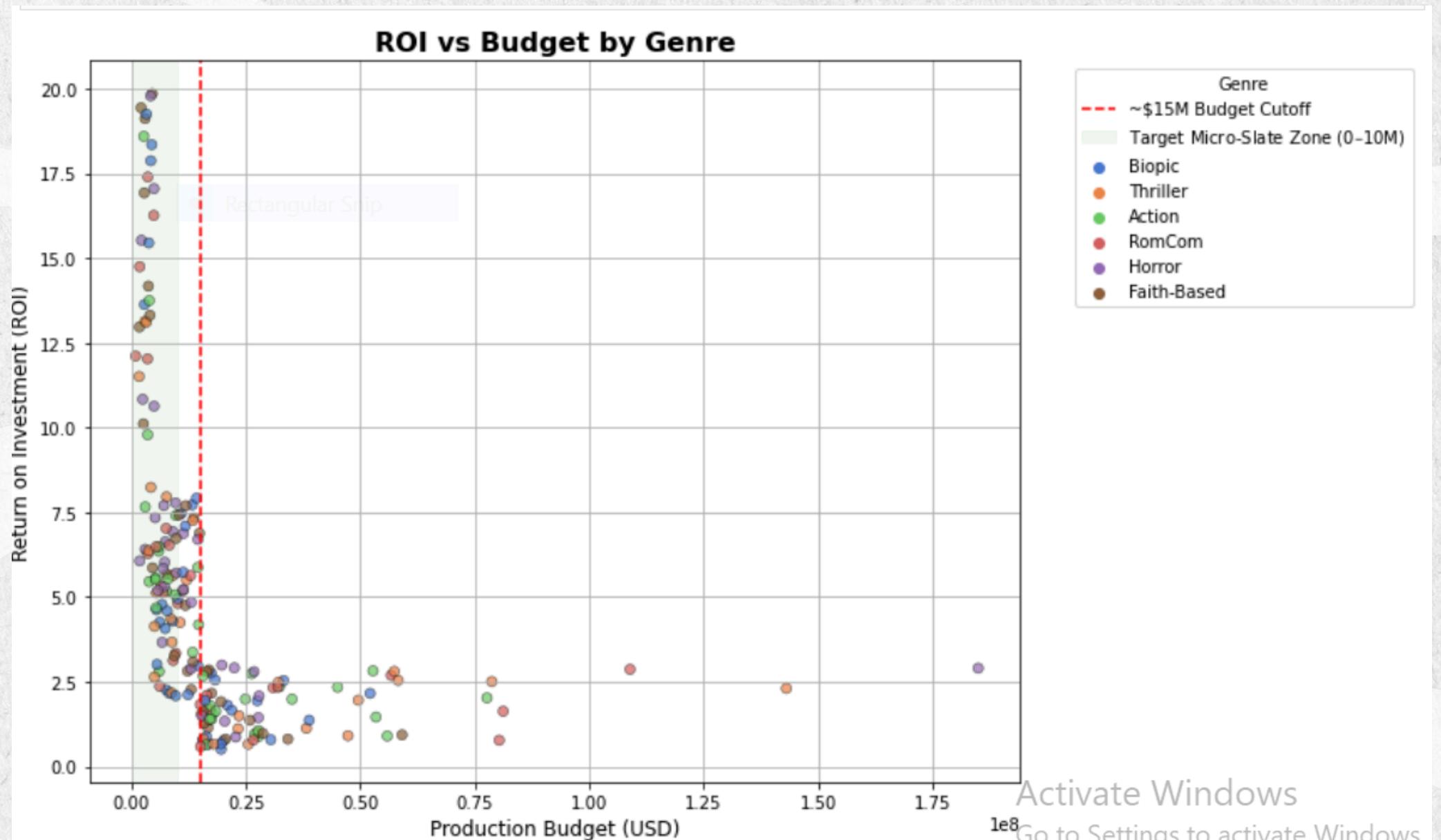
**Observation:** Steady growth from 2010 to 2012, Sharp dip in 2015, followed by a strong rise in 2016–2017

- Peak revenue in 2017, then a slight drop in 2018

**Interpretation:** Movie revenues are highly influenced by timing and the presence of major releases



## 3: ROI VS BUDGET ~ON GENRE

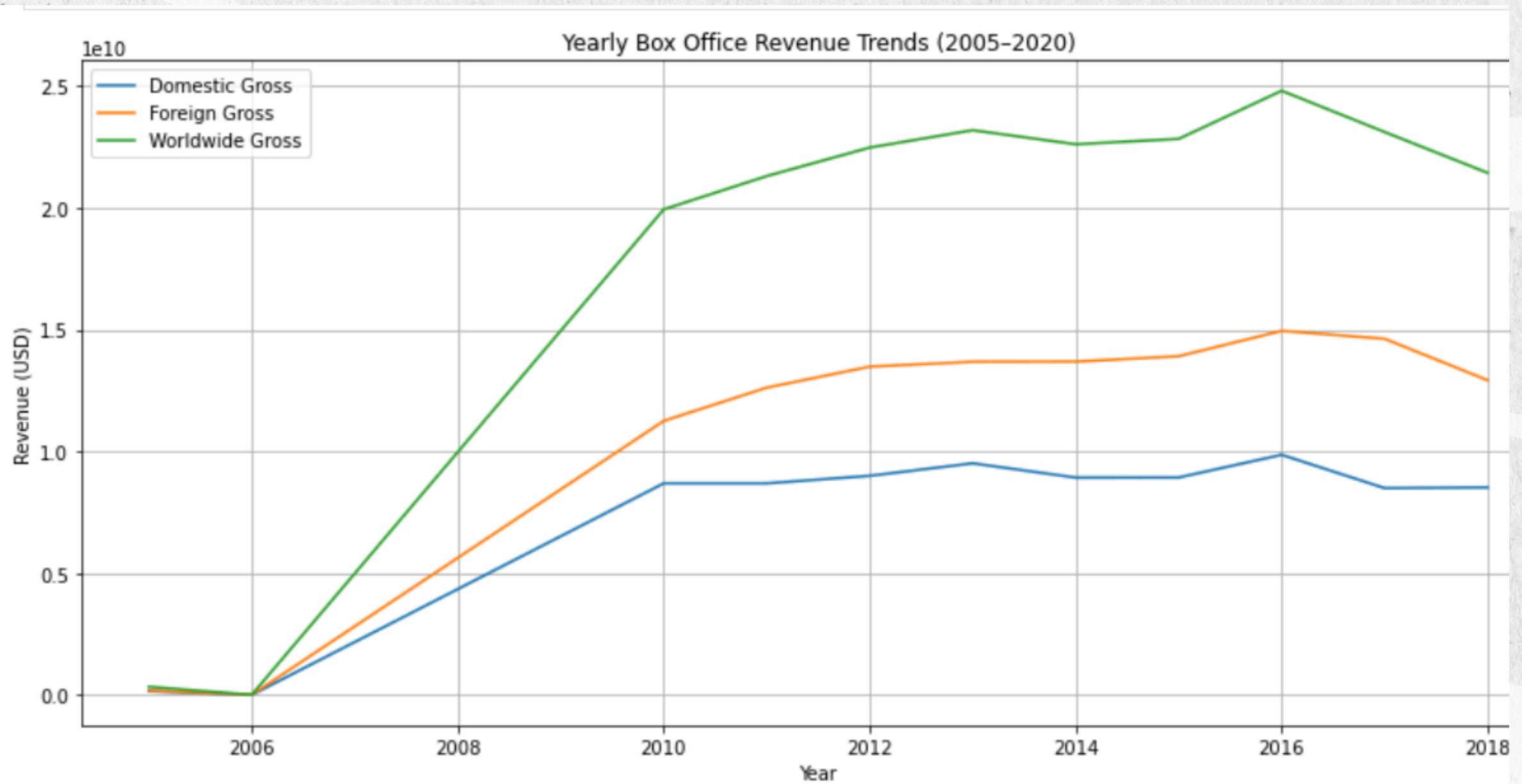


**Observation:** Low-budget films in horror, thriller, and biopic genres yield the highest ROI.

**Interpretation:** Smaller budgets with strong storytelling can outperform expensive productions, especially in niche genres.



# LINEAR REGRESSION & TIME SERIES ANALYSIS



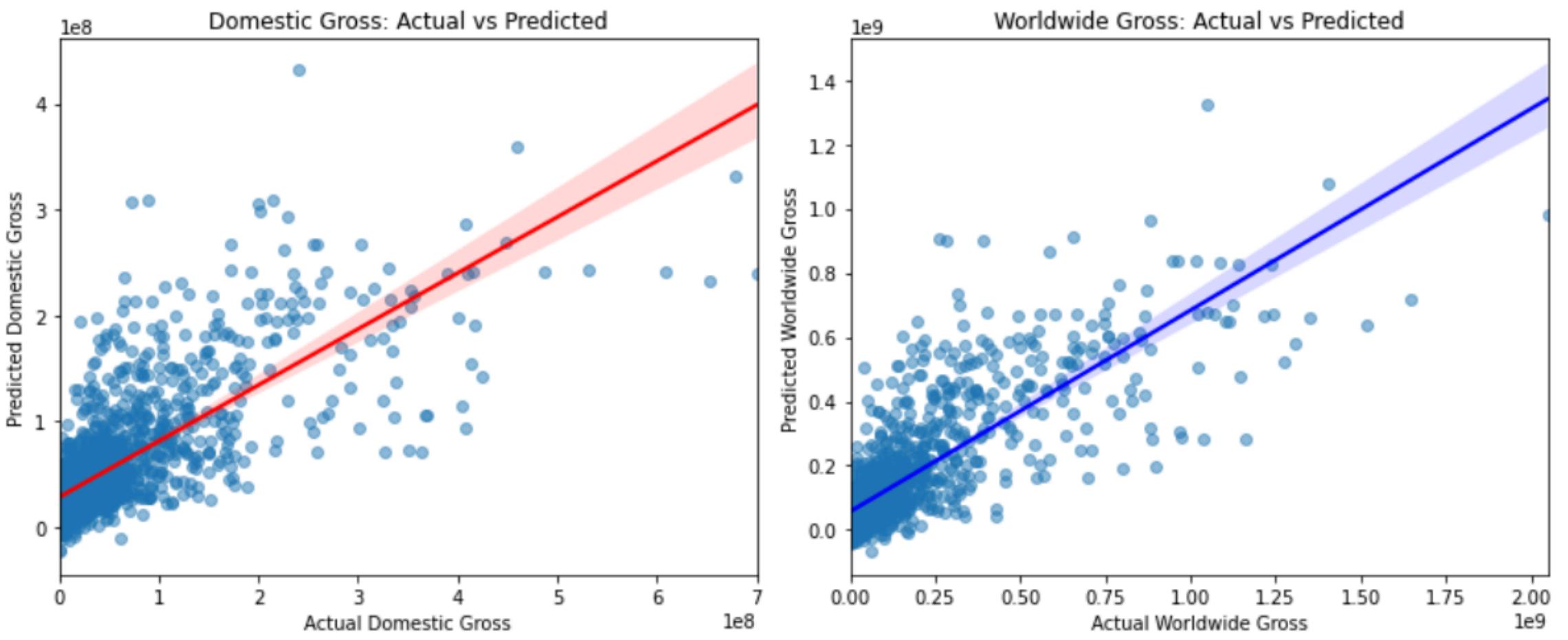
**Observation:** Production budget is the strongest predictor of domestic revenue; other variables like studio and release month contribute little.

**Interpretation:** Spending more on production generally leads to higher earnings, but relying on other single factors (like studio or release month) doesn't guarantee box office success. Focus budgeting decisions wisely.



# LINEAR REGRESSION & TIME SERIES ANALYSIS

**Observation:** Domestic gross closely aligns with model predictions. Worldwide gross is more scattered and unpredictable.



**Interpretation:** Domestic success is easier to forecast using budget and release data. International earnings depend on extra factors like global marketing, cultural fit, and star power.



# RECOMMENDATIONS

## 1. Invest in Profitable Genres

Focus on proven winners like Drama, Animation, Sci-Fi

Avoid risky genres (Horror, Thriller) unless there's niche appeal or strong scripts.

## 2. Smart Budgeting

Stick to mid-to-high budgets for best ROI.

Avoid extremes – too low may flop, too high is risky.

## 3. Time Releases Right

Launch big titles in Summer or Holidays.

Drop smaller/experimental films in off-peak months to avoid big competition.



# RECOMMENDATIONS CONT...

## **4. Test Locally, Scale Globally**

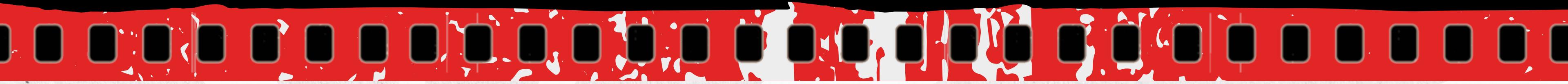
Use U.S. market to test success before going international.  
Adjust based on regional data & audience feedback.

## **5. Account for Global Factors**

Include language, culture & marketing in international strategy.  
Better global forecasting = smarter releases.

## **6. Balance Art & Data**

Let creatives create – but greenlight with data.  
Blend storytelling + analytics to lower risk.



THANK  
YOU



QUESTIONS?