Movie Studio Launch Strategy - Data Analysis Report

Executive Summary

This analysis provides data-driven recommendations for launching a successful movie studio by examining movie performance patterns across genres, budgets, release timing, and financial returns. Using data from Box Office Mojo, IMDb, Rotten Tomatoes, TMDb, and The Numbers, we identified key success factors for maximizing box office revenue and ROI.

Problem Statement

Our company is entering the competitive movie production industry by establishing a new movie studio. With increasing corporate investment in original video content, strategic positioning is crucial for box office success.

Key Business Questions

1. **What genres are most profitable?** - Which movie genres consistently generate the highest returns?
2. **What budget ranges optimize ROI?** - What is the relationship between production budget and performance?
3. **When should we release films?** - Which release periods show strongest box office performance?

Success Metrics

- **Primary Goal**: Identify profitable film characteristics to guide initial productions.
- **Key Metrics**: Box office revenue, ROI, profit margins, budget efficiency.

Data Source

- **Box Office Mojo**: Revenue data (3,387 films)
- **IMDb Database**: Movie details, ratings, cast/crew (146,144+ entries)
- **Rotten Tomatoes**: Reviews and ratings (1,560 films)
- **TMDb**: Popularity scores and metadata (26,517 films)
- **The Numbers**: Production budgets and financial performance (5,782 films)

Final Dataset

After merging and cleaning: **2,397 films** with complete financial and rating data

- Runtime range: 40-150 minutes (standard feature films)
- Release years: 2010-2025
- Complete financial metrics: budget, domestic gross, worldwide gross

Constraints

- The data is updated from time to time and hence there is need for constant update on the data sources.

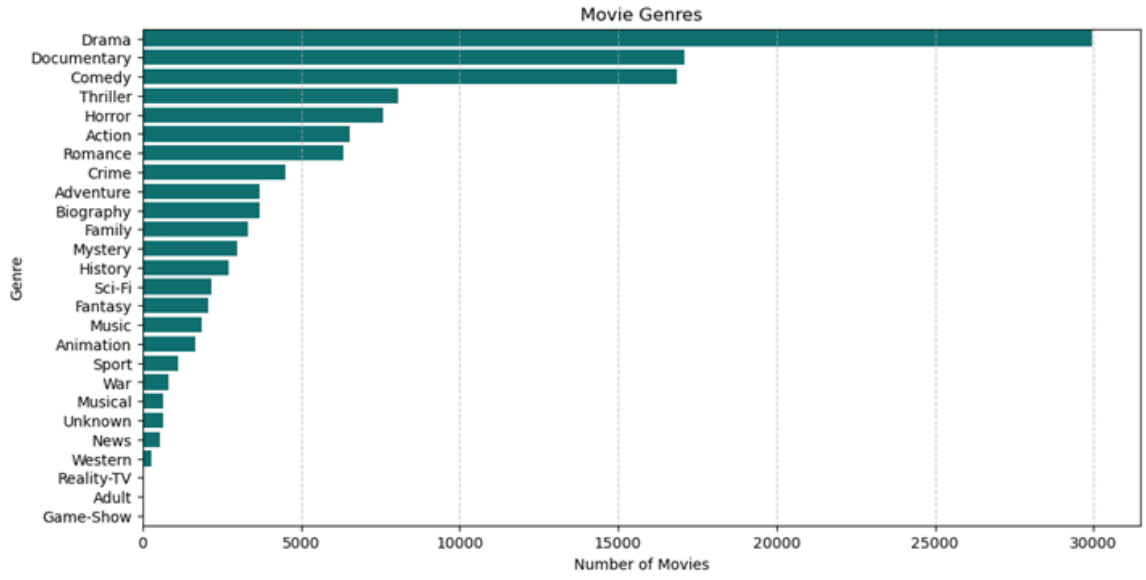
Data Preparation

- Importing the necessary libraries into our notebook for analysis.
- Loading the dataset files to the notebook.
- Computing the data description in rows and columns for each data file.
- Getting a view of the datasets by displaying the head and tail of the datasets.
- Checking for null values in our data. Dropping and applying ‘fillna’ where necessary.
- Merging datasets as needed.
- Checking for duplicates in our dataset and dropping them where needed.

Exploratory Data Analysis

Univariate Analysis

Most common movie genres

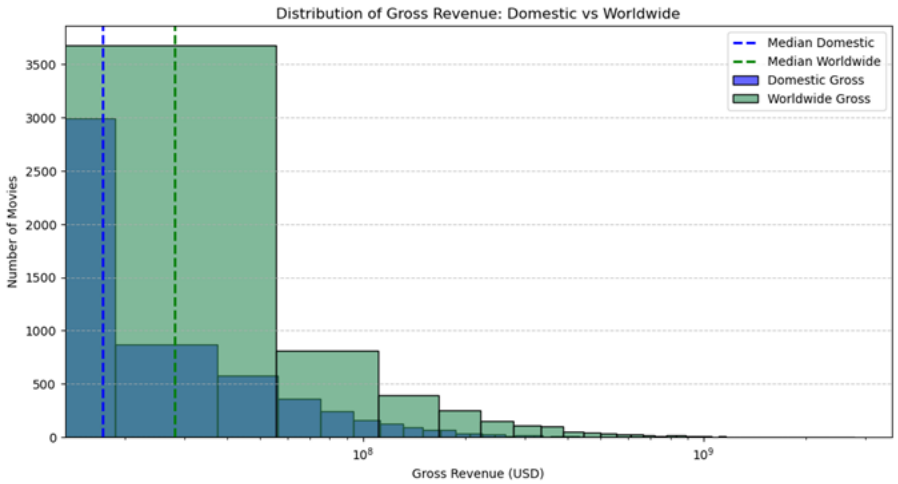


From the graph above;

- Drama is the most common genre**,** reflecting strong audience connection to emotional storytelling.
- Documentaries rank second**,** showing high interest in real-world topics and issues.
- Comedy surpasses Action**,** suggesting a preference for relatable and light-hearted content.
- Action films rank lower**,** possibly due to genre blending or market saturation.
- Niche genres (e.g., War, Sport, Western) appear infrequently, appealing to more targeted audiences.
- Genre distribution helps align production with audience demand and market trends**.**

Distribution of gross revenue (domestic vs worldwide)

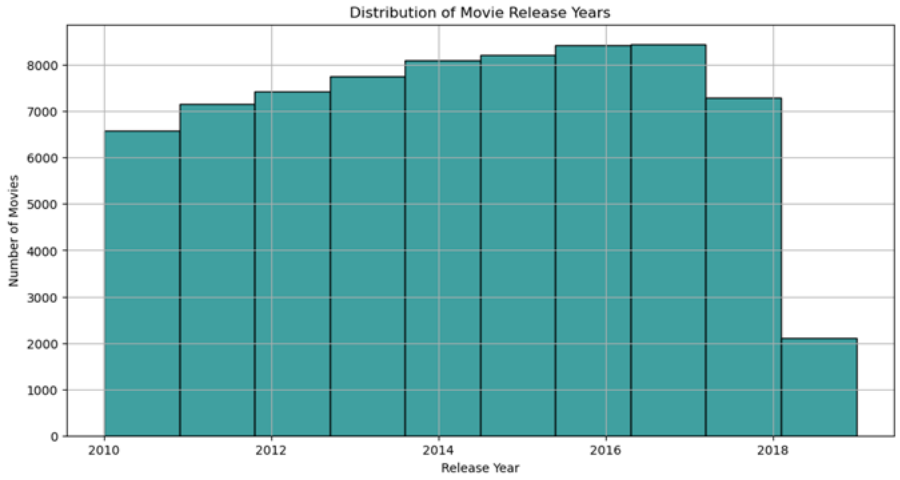
Medians are marked by dashed lines.



The graph above shows that:

- Worldwide gross consistently exceeds domestic earnings, highlighting the value of international markets.
- Median global revenue is significantly higher, driven by broader audience reach and revenue diversification.
- Genres with universal appeal benefit most from global distribution and localization efforts.

Movie Production Trends Over Time



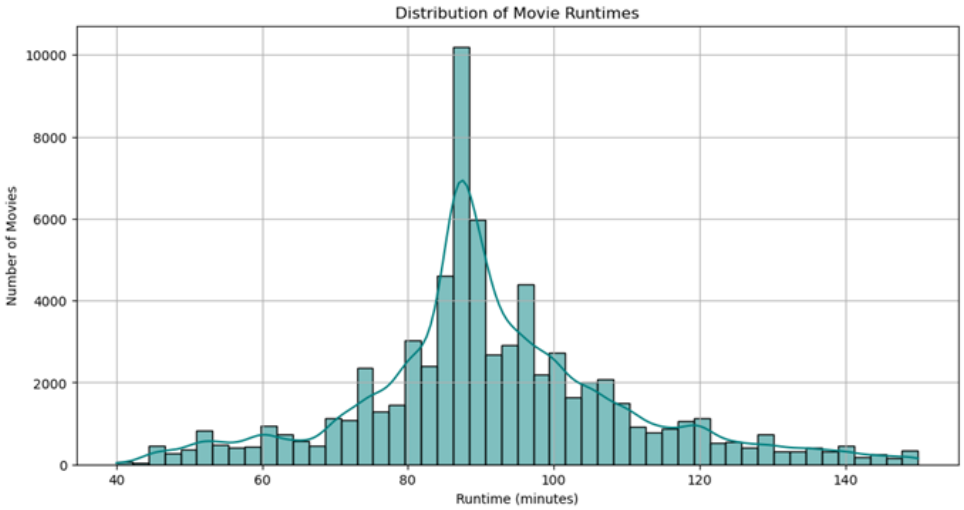
The above visualization illustrates that;

- Movie production peaked in 2017, driven by global entertainment demand and rise of streaming platforms.
- Sharp decline after 2018 reflects the COVID-19 pandemic's impact.
- Post-pandemic rebound likely, fueled by digital content growth and lower entry barriers for creators.

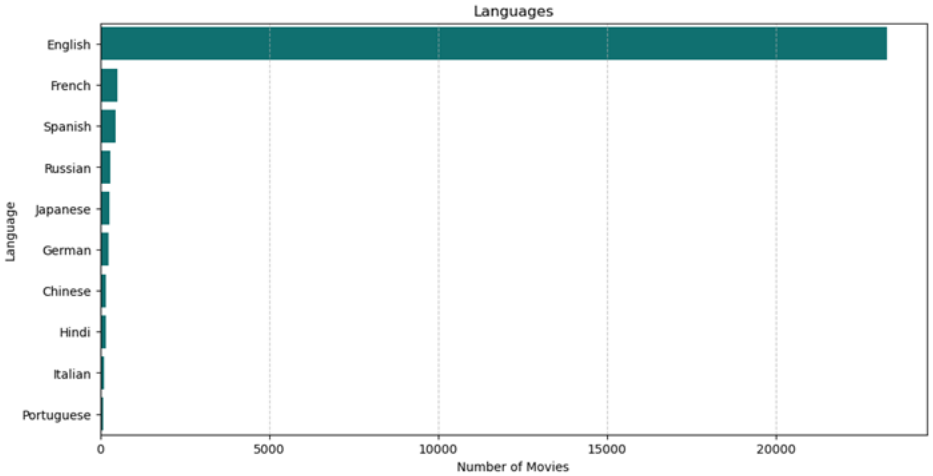
Distribution of movie runtimes

Below visualization shows that;

- 80–120 minutes is the standard runtime, aligning with commercial feature norms.
- Short films are usually under 40 minutes.
- Exceptionally long runtimes often reflect experimental or documentary formats.



Most common language of the movie genre



As shown above;

- English dominates as the primary language, reflecting global reach and market preference.
- Major studios are based in English-speaking countries, reinforcing its industry standard.
- Cost-effective and accessible, English-language films benefit from easier international distribution

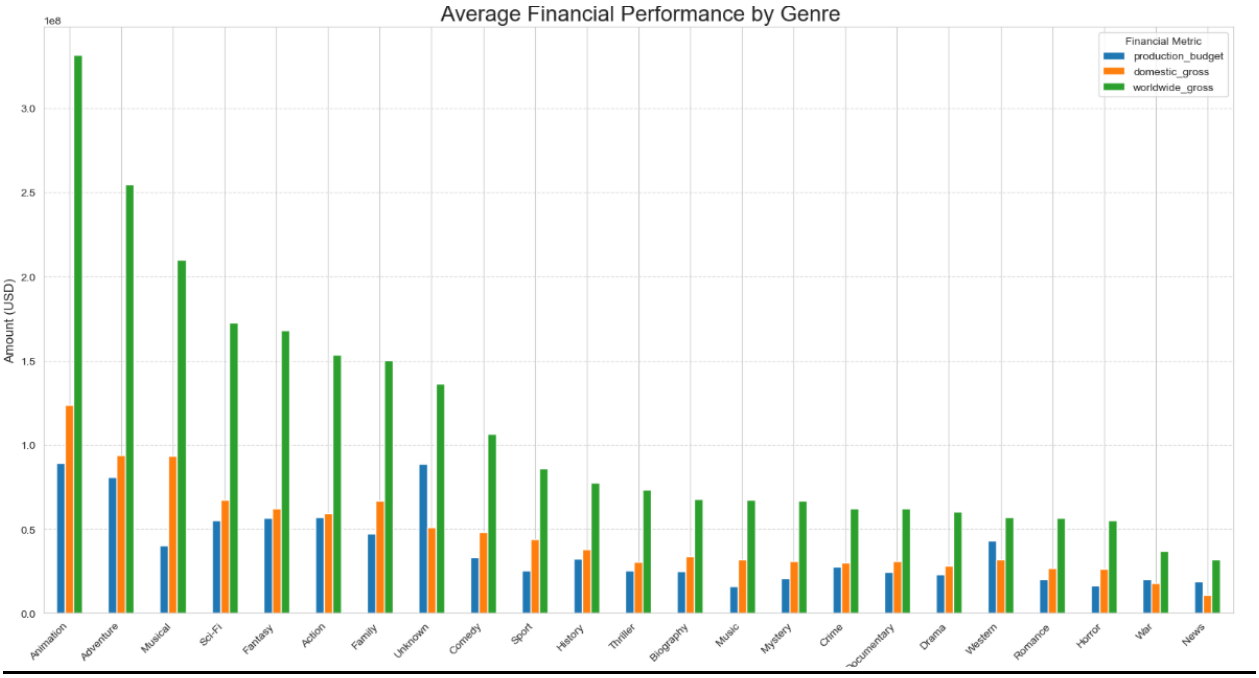
Bivariate Analysis

This section examines the relationship between two variables to identify patterns, trends, and potential dependencies that may influence profitability or other performance metrics.

Movie Genres financial performance

The visualization below reveals that;

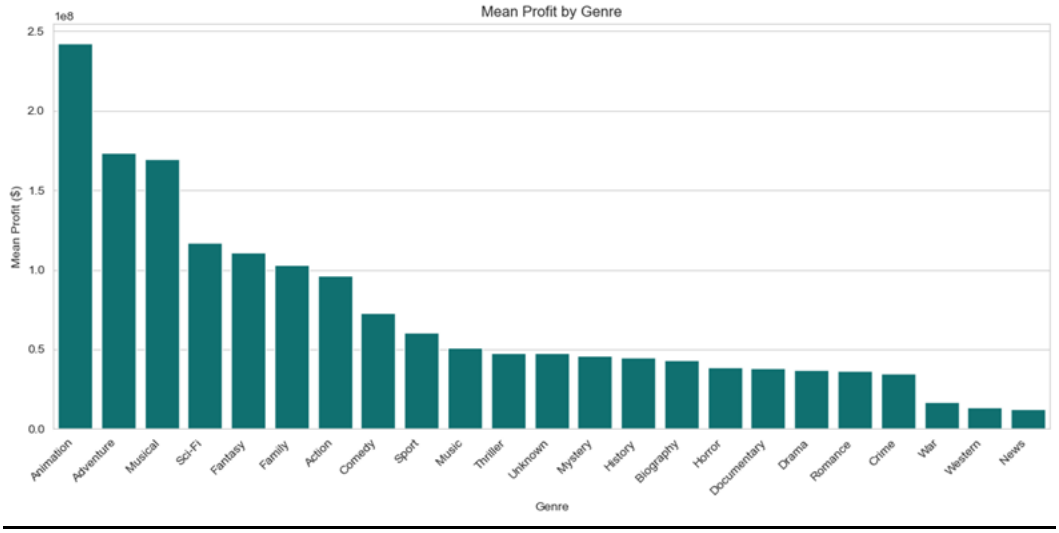
- Global markets drive profitability, with worldwide gross typically exceeding production budgets.
- Top genres include Animation, Adventure, Musical, Sci-Fi, and Romance.
- Lower returns are seen in Horror, War, and News genres, showing a clear genre profitability gradient.

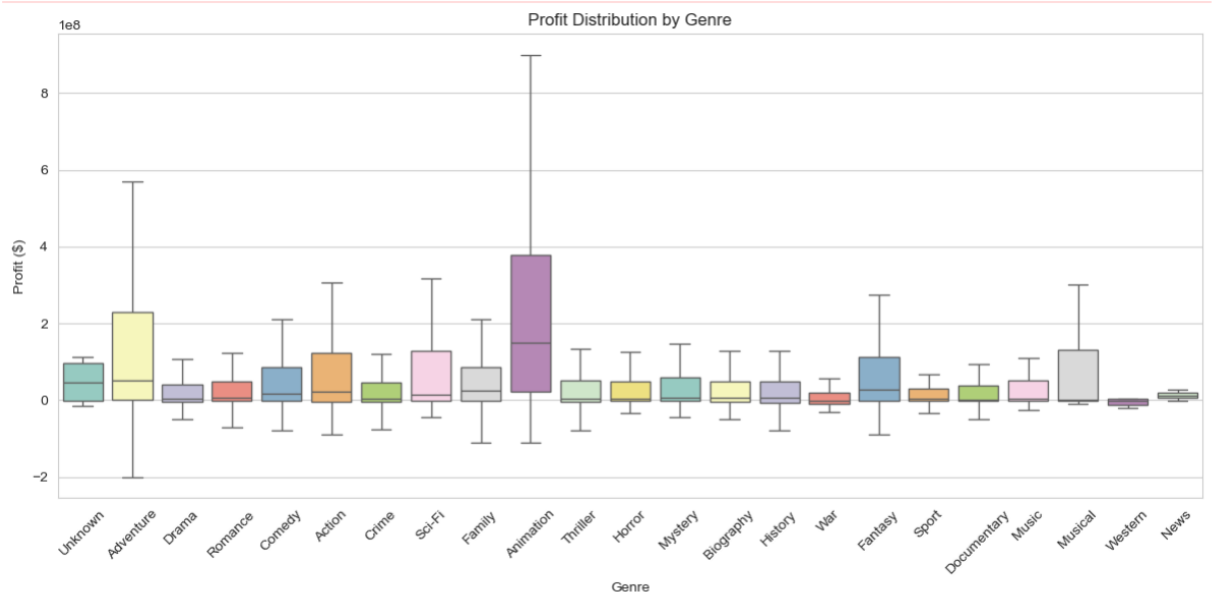


Average profits per genre

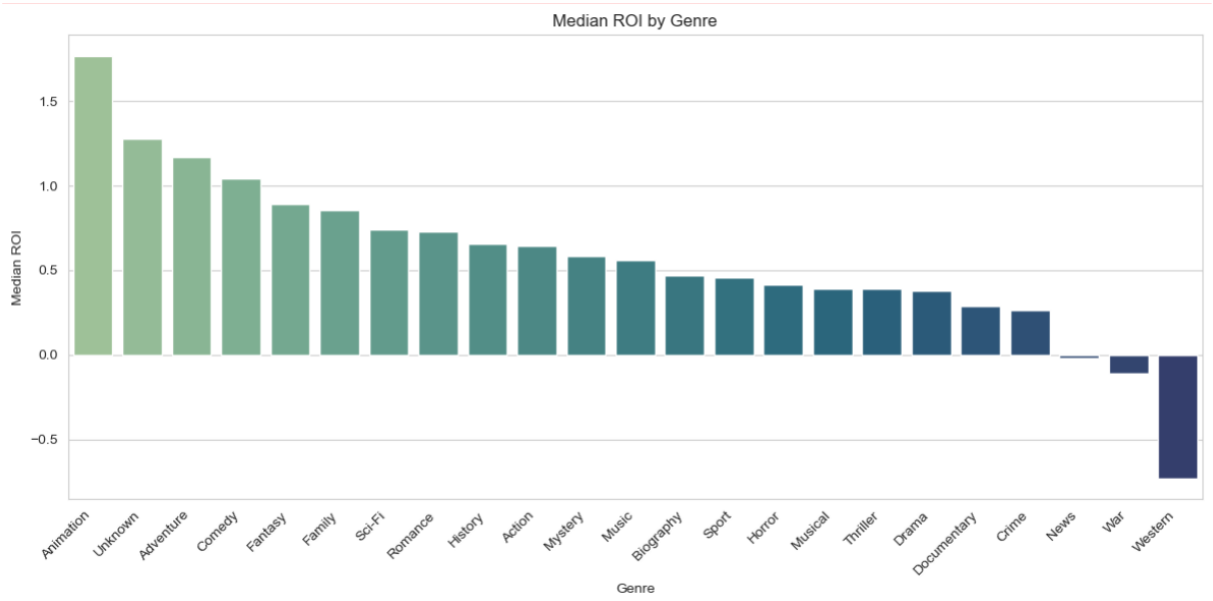
The plots below demonstrate that;

- Most genres show a positive profit skew, driven by a few high-profit outliers.
- Animation, Adventure, Fantasy, and Action consistently have higher profit ranges, suggesting strong global appeal.





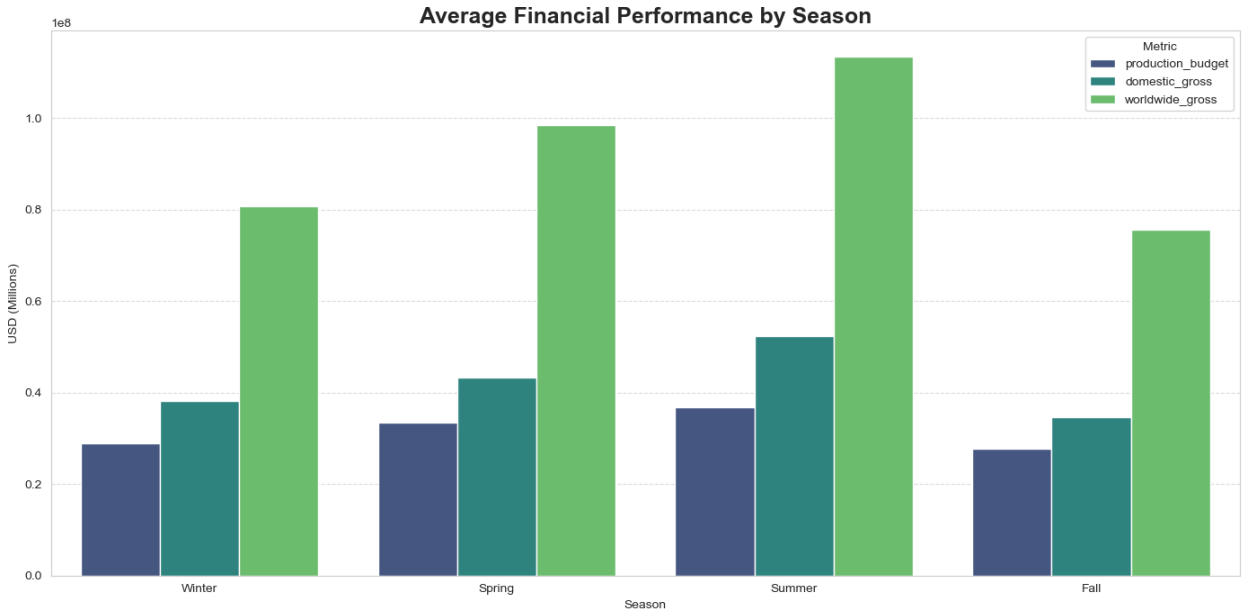
Return on Investment (ROI) per genre

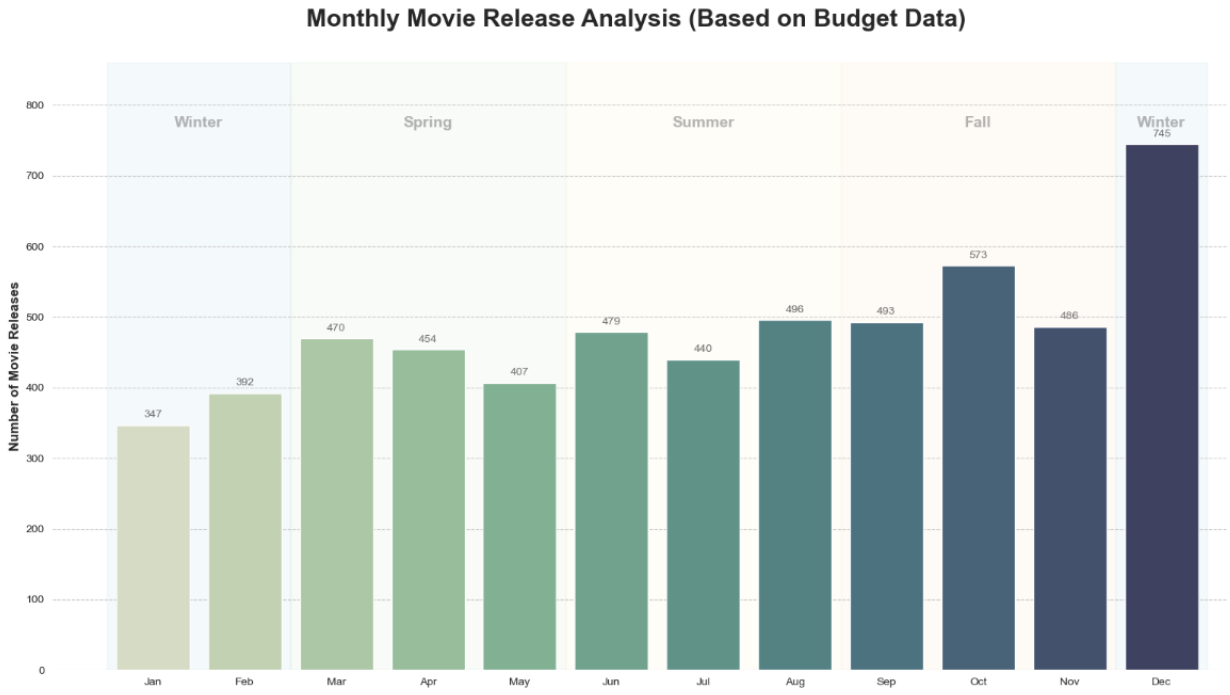


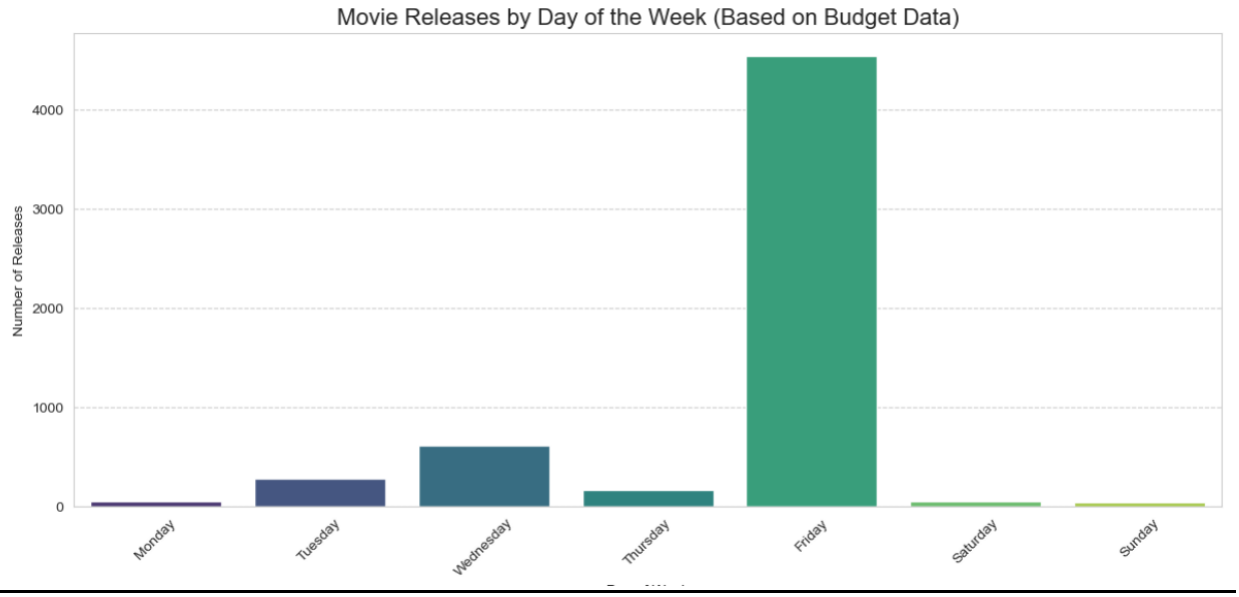
The preceding visual highlights that:

- Most genres show positive ROI, indicating that filmmaking is generally profitable in this dataset.
- Animation leads in ROI, likely due to strong family appeal, global marketability, and merchandise opportunities.
- Western films show negative median ROI, suggesting underperformance relative to production costs.
- The "Unknown" genre ranks unusually high**,** likely due to incomplete or inconsistent data labeling which should be interpreted with caution.

Average performance of movies per season, months and day of the week







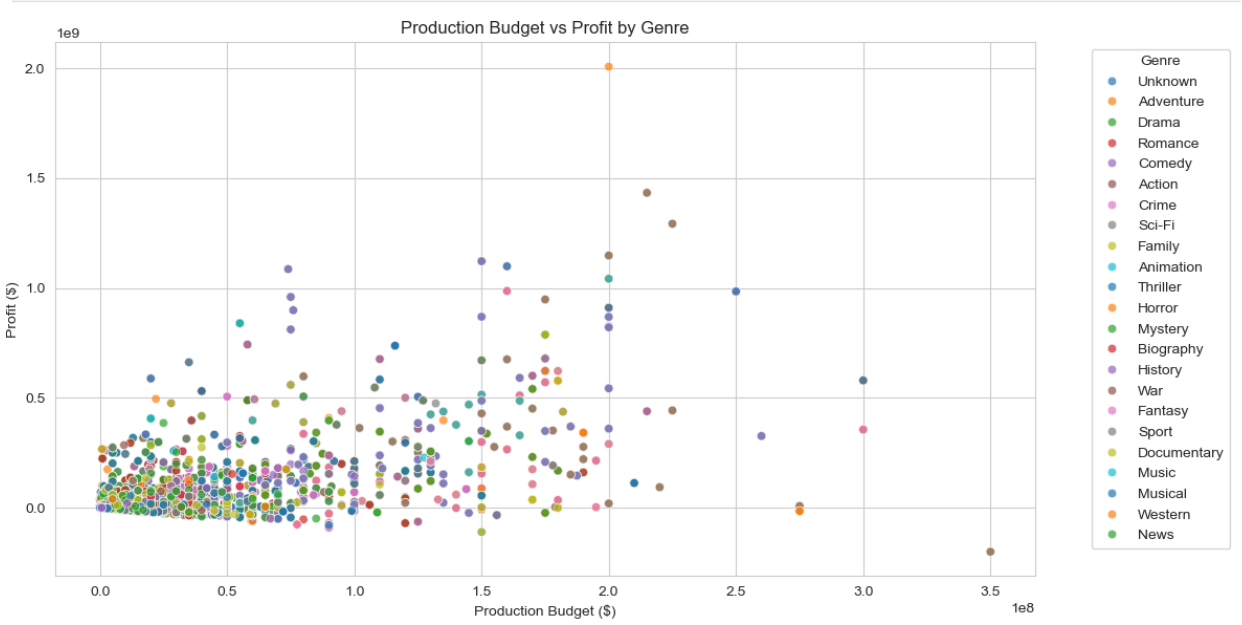
Season and Release day insights from the charts above indicate that:

- Summer yields the highest financial returns, followed by Spring**,** Winter**,** and Fall**,** diverging from typical industry expectations.
- Winter has the most releases, driven by holiday blockbusters and award contenders.
- Fall (notably October) features horror and prestige films; Spring is least active, often used for mid-budget or experimental releases.
- Seasonal insights may be affected by data loss during merging.
- Friday is the dominant release day, aligned with weekend box office strategy. Wednesday is used for early high-profile launches.

Multivariate Analysis

Multivariate analysis examines how multiple variables interact, such as genre, budget, and ROI, to reveal patterns influencing movie profitability.

Relationship between Production budget and Profit using Genre



Genre alone is not a reliable predictor of profitability**.** Returns vary widely even within the same genre.

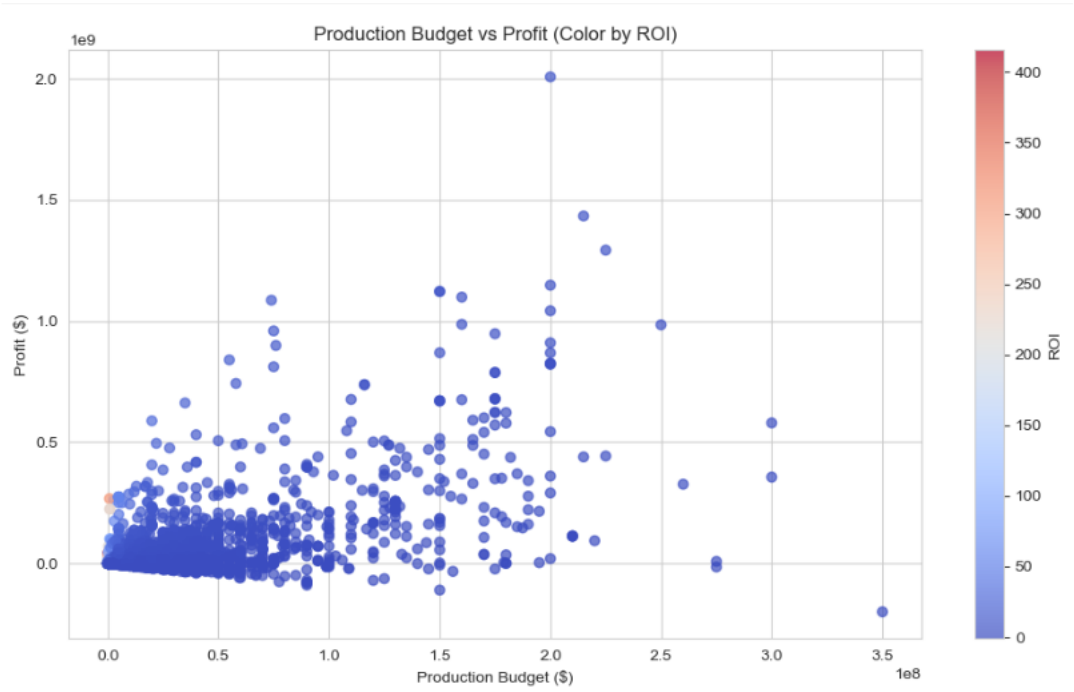
As shown in the above visualization, high-budget genres involve greater financial risk and do not consistently yield higher returns.

Non-genre factors like release timing, star power, and audience reception may also have a stronger influence on a film's financial success.

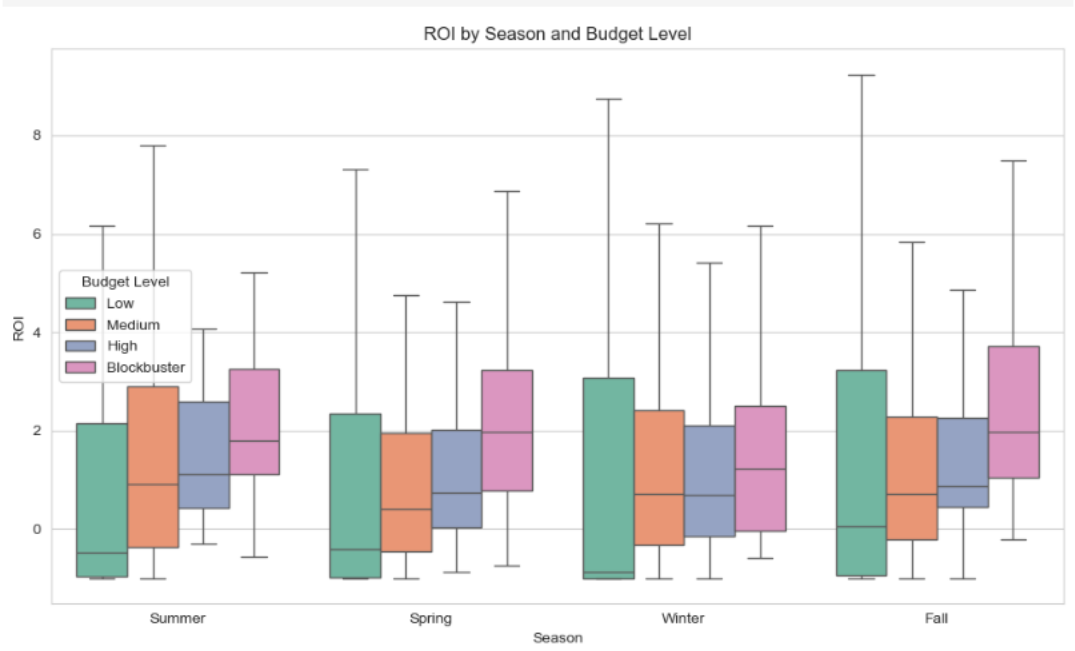
Comparing Production Budget and Profit with Return On Investment (ROI)

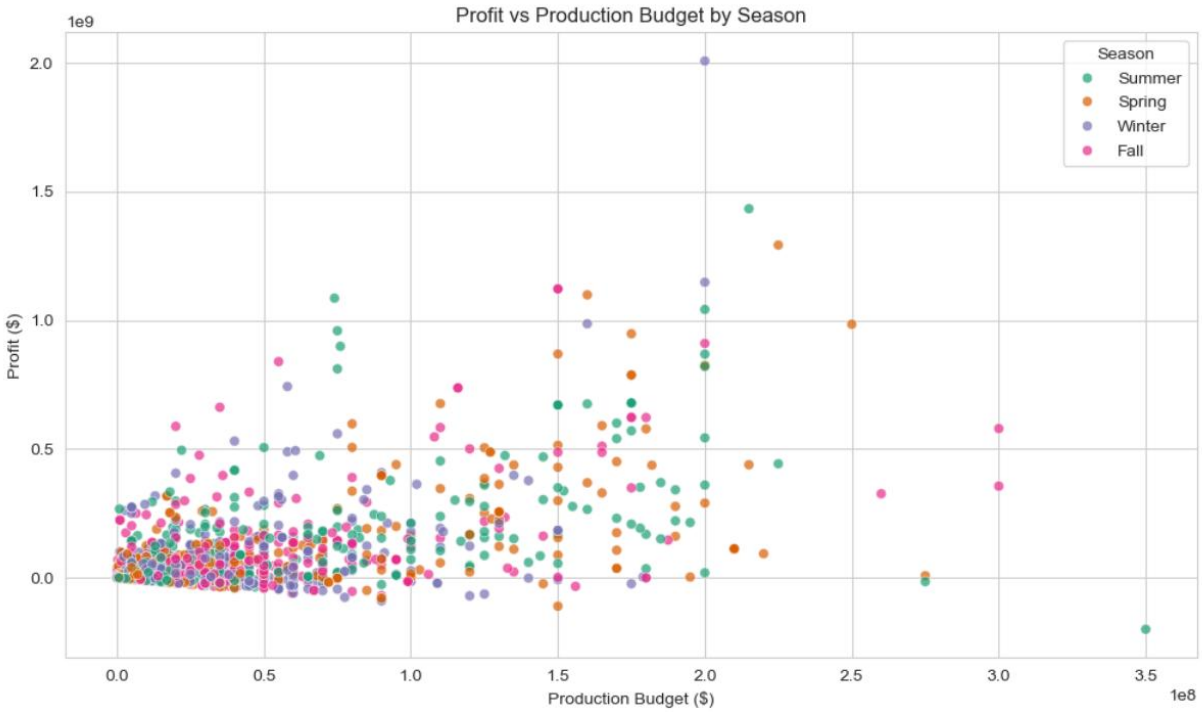
ROI visualized by color in the plot below and which indicates that:

- There's no consistent link between production budget and profit since both high- and low-budget films show mixed results.
- Low-budget films frequently deliver strong ROI, highlighting their cost-efficiency.
- High-budget films carry greater financial risk, making ROI a more useful metric than profit alone.



Return On Investment by Season and Budget





As observed above, low-budget films consistently yield higher ROI, highlighting strong cost-efficiency and lower risk. ROI however does not significantly vary across seasons, showing no clear seasonal advantage. Budget size has a greater impact on ROI than release timing, stressing the importance of financial strategy over scheduling.

Key Findings

1. Genre Performance

Most Profitable Genres (by Average ROI):

1. **Animation** - Highest ROI and profit margins
2. **Adventure** - Strong global appeal and returns
3. **Comedy** - Balanced costs with wide audience reach
4. **Fantasy** - High profit potential with franchise opportunities

Financial Performance:

- Animation and Adventure genres show consistently higher worldwide gross
- Drama dominates volume but shows moderate ROI
- All major genres demonstrate positive average returns

2. Budget Optimization

Key Insights:

- **Optimal Range**: $1M - $10M production budgets show strong ROI
- **Median Budget**: ~$10M for commercially viable films
- **Correlation**: Weak positive correlation (0.113) between budget and ratings
- **Risk Management**: Stay within $1M-$10M range for new studio entry

3. Release Timing Strategy

Seasonal Performance:

- **Summer**: Highest average financial returns despite fewer releases
- **Winter**: Most releases (led by December holiday season)
- **Spring**: Lowest competition, potential for standout performance

Day-of-Week Pattern:

- **Friday**: Dominant release day (industry standard)
- **Wednesday**: Secondary choice for holiday/premium releases

4. Financial Performance Metrics

Global vs Domestic Revenue:

- Worldwide gross significantly outperforms domestic revenue
- International markets crucial for profitability
- English-language films dominate (global accessibility)

Runtime Impact:

- Optimal range: 80-120 minutes
- Weak correlation (0.18) between runtime and financial performance
- Standard feature length (90-120 min) recommended

Conclusion

1. Genre Strategy

- **Primary Focus**: Animation and Adventure genres for highest ROI potential
- **Secondary Options**: Comedy and Fantasy for balanced risk-return
- **Avoid Initially**: Niche genres (Western, War) until studio establishes market presence

2. Budget Allocation

- **Target Range**: $1M - $10M production budgets for optimal ROI
- **Risk Management**: Avoid high-budget projects ($100M+) in initial phase
- **Focus**: Quality storytelling over expensive production values

Budget Range	Risk Level	Expected ROI	Recommendation
$1-5M	Low	150-200%	**Start here**
$5-10M	Medium	120-180%	**Scale target**
$10-50M	High	100-150%	**Future growth**
$50M+	Very High	80-120%	**Avoid initially**

3. Release Strategy

- **Seasonal**: Target summer releases for maximum financial returns
- **Day**: Friday releases for optimal opening weekend performance
- **Competition**: Consider spring releases to avoid oversaturated periods

4. Market Approach

- **Language**: Prioritize English-language productions for global reach
- **Distribution**: Develop worldwide distribution strategy (international revenue > domestic)
- **Runtime**: Maintain 90–120-minute standard for commercial viability

5. Success Metrics Framework

- **Target ROI**: Aim for positive returns (most genres show profitability)
- **Rating Threshold**: Target 6.0+ IMDb rating for audience acceptance

- **Global Strategy**: Prioritize worldwide gross over domestic-only releases

Risk Mitigation

1. **Start Small**: Begin with proven genres (Animation, Comedy) and moderate budgets
2. **Diversify Portfolio**: Avoid over-concentration in single genre or budget range
3. **Market Testing**: Use spring releases to test audience response with lower competition
4. **Quality Control**: Maintain rating standards (6.0+) for long-term brand building

Recommendations

The analysis reveals that successful movie studio launch requires strategic focus on:

- **High-ROI genres** (Animation, Adventure, Comedy)
- **Moderate budgets** ($1M-$10M range)
- **Strategic timing** (summer releases, Friday premieres)
- **Global distribution** approach

This data-driven approach provides a foundation for entering the competitive movie market with optimized chances for profitability and sustainable growth.

Note: Analysis based on merged datasets with some data limitations. Recommendations should be validated with additional market research and industry expertise.