Microsoft Movie Studio

Identifying High ROI Genres

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Rationale

Goal: to set the focus for Microsoft's investment in a new movie studio, our team has identified the genres with the highest return on investment (ROI)

ROI is the best metric to achieve our objective. Our definition of ROI is based on gross revenue (worldwide gross / production budget). we have chosen this metric for the following reasons:

1. **Valuation**: given that Microsoft is a publicly traded company, the company's valuation is based off of quarterly earnings (earnings per share) and not profit margin. We also recognize that Microsoft wants their new movie studio to be profitable, therefore using total sales or gross revenue would be meaningless.
2. **Context**: We do not want to assume that Microsoft will be as immediately as profitable as their competitors, when entering a new market. We should assume the company will incur higher production and operational costs due to initial capex and operational inefficiencies.
3. **Perception**: Important at an early stage. Headlines with large box office earnings (not profits) are advantageous when establishing a venture in a new vertical around strong competition.

Methodology

1 Feature Selection
- Identifying gross revenue ROI as target variable
- Select 'Genre' as subject for exploration

2 Data Cleaning
- Transformation of variable str to int
- Drop outliers

3 Feature Engineering
- New feature creation ROI & ROI Category based on quintiles
- Sort values
- Reset index
- Merge datasets
- Drop missing values
- Split Genres (new feature creation)

4 Exploratory Analysis & Visualization
- Comparing central tendency
- Distribution plots
- Quintile comparisons

Findings #1

Assessing the impact of genre groupings[1] on ROI reveals the relative riskiness of top two items based on standard deviation. By comparison, the third genre grouping could represent an opportunity for the client to pursue.

	genre_groupings	median_worldwide_roi	std_worldwide_roi
0	Horror,Mystery,Thriller	1271.051550	7332.772539
1	Drama,Horror,Mystery	450.073388	882.699736
2	Action,Adventure,Animation	395.228987	171.909120
3	Action,Adventure,Comedy	376.935680	325.323322
4	Action,Sci-Fi,Thriller	364.960432	378.791540

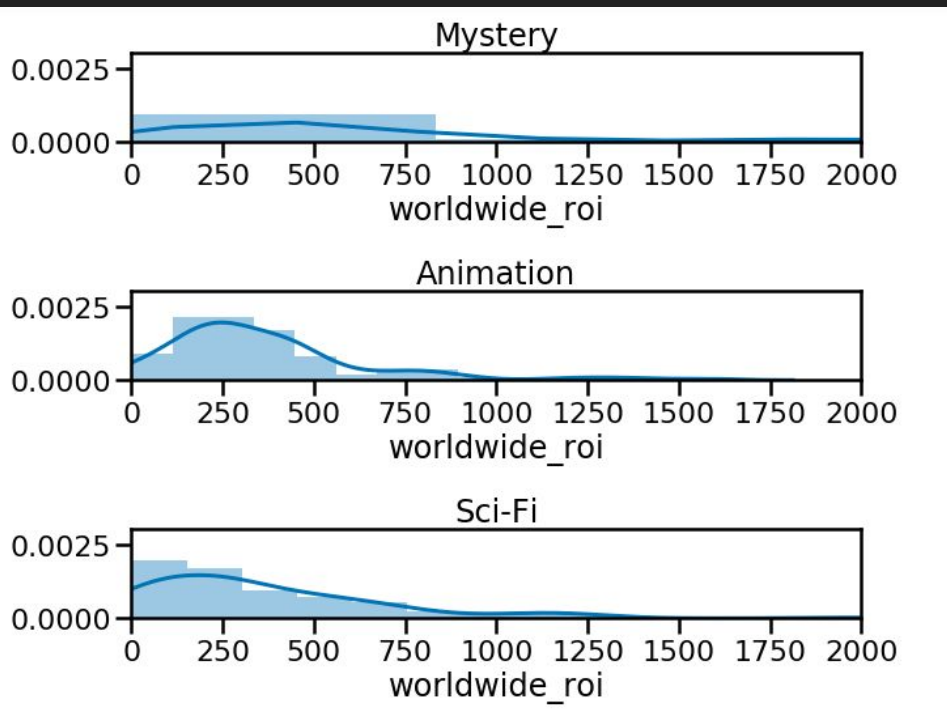|	genre_groupings	median_worldwide_roi	std_worldwide_roi
5	Action,Adventure,Sci-Fi	349.496872	203.871901
6	Biography,Drama,History	340.998410	262.456464
7	Drama,Romance	325.862654	554.108035
8	Adventure,Animation,Comedy	299.456497	306.526454
9	Action,Adventure,Thriller	274.347100	116.954143
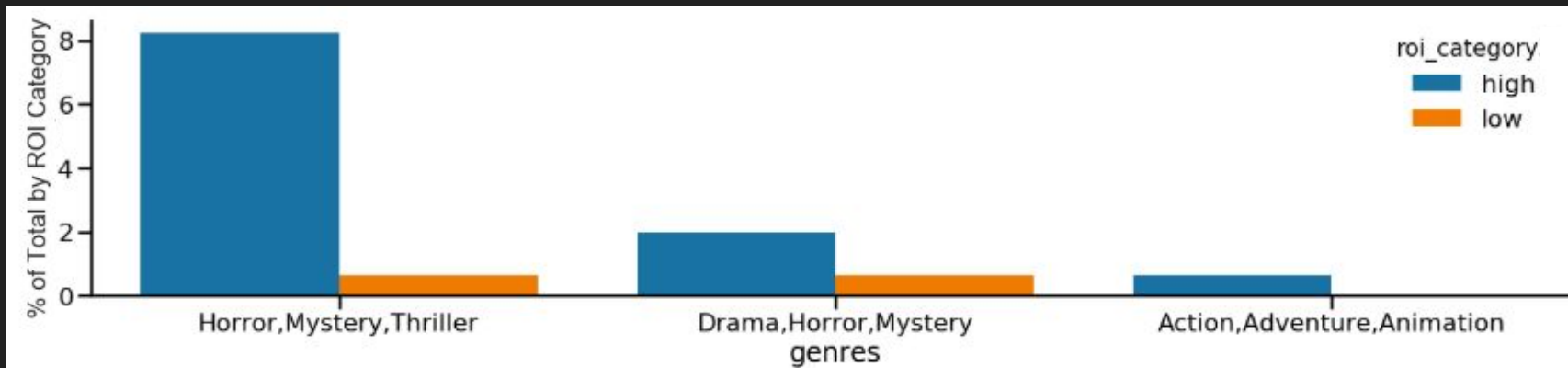
1. Reflects genre groupings with count of films >= 10

Findings #2

Mystery, Animation, and Sci-Fi are top genres.

Findings #3

A deeper analysis of the top 10 titles of the highest ROI genre groups revealed a high level of serialization

| worldwide_roi	roi_category	original_title	genres
762.882313	high	The Lego Movie	Action,Adventure,Animation
621.260356	high	Incredibles 2	Action,Adventure,Animation
443.225031	somewhat high	Kung Fu Panda 2	Action,Adventure,Animation
426.913444	somewhat high	Puss in Boots	Action,Adventure,Animation
424.495130	somewhat high	The Croods	Action,Adventure,Animation
423.852600	somewhat high	How to Train Your Dragon 2	Action,Adventure,Animation
402.525801	somewhat high	How to Train Your Dragon: The Hidden World	Action,Adventure,Animation
395.228987	somewhat high	Big Hero 6	Action,Adventure,Animation
369.713673	somewhat high	Kung Fu Panda 3	Action,Adventure,Animation

worldwide_roi	roi_category	original_title	genres
41656.474000	high	The Gallows	Horror,Mystery,Thriller
5107.359020	high	Get Out	Horror,Mystery,Thriller
4241.172100	high	Chernobyl Diaries	Horror,Mystery,Thriller
4140.796880	high	Paranormal Activity 3	Horror,Mystery,Thriller
3951.737231	high	Annabelle	Horror,Mystery,Thriller
2924.260233	high	Sinister	Horror,Mystery,Thriller
2856.359840	high	Paranormal Activity 4	Horror,Mystery,Thriller
2500.205200	high	Happy Death Day	Horror,Mystery,Thriller
2066.012640	high	Ouija	Horror,Mystery,Thriller
2035.899100	high	Annabelle: Creation	Horror,Mystery,Thriller

Findings #4

Client should avoid pursuing projects in low ROI genres such as Biography, Drama, and Crime.

	genres	median_roi	stdev	count
12	Biography	186.987333	442.768858	135
14	Drama	176.019900	462.449961	734
16	Crime	163.040095	222.134389	233
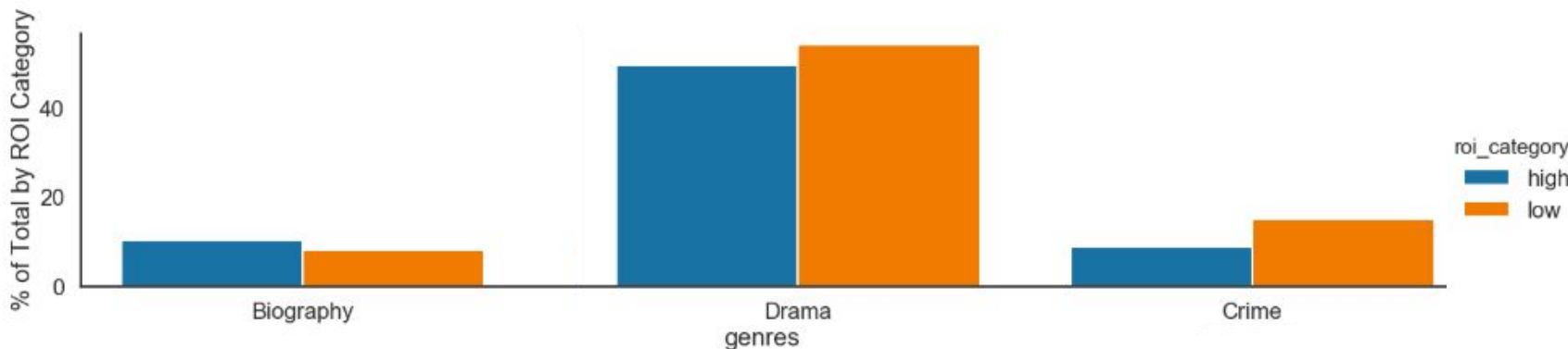
Recommendations

1. Client should target high ROI genres such as Mystery, Animation, and Sci-Fi. In the past, the combination of Action/Adventure/Animation has yielded high-return films.

2. Client should seek concepts/titles than have significant potential for serialization within high ROI genres (potentially look to comics or multi-novel series).

3. Client should avoid Biography, Drama, and Crime genres, given their relatively low ROI.

Areas for Further Analysis

1. Key player analysis (actors, directors, studio)

2. Reviews & ratings

3. Geography (new markets, cultural sensitivity)

4. Content (beyond genre: synopsis, cinematic)

5. Time (seasonality)

Appendix

Risk Reward Matrix