**INSTITUTE OF ACTUARIAL AND QUANTITATIVE STUDIES**

**Topic: An Investment Analysis Case Study**

Submitted to Institute of Actuarial and Quantitative Studies

(MSc)

By

**Pranay Solanki -41**

**Raul Murray-25**

**Ritesh Gupta-9**

**Shainal Viyana Pinto-33**

**Shrushti Kava-17**

**Vaishnav Amrutkar-1**

Submitted To

**MR AKASH RUGHANI**

DIRECTOR IAQS

INSTITUTE OF ACTUARIAL AND QUANTITATIVE STUDIES

**November, 2024**

**Introduction:**

This report analyzes the investment opportunity for Lions Gate (LG) Corporation to develop a movie and TV studio in Mumbai, India, aimed at bolstering its international subscriber base. As the streaming landscape becomes increasingly competitive and content costs rise, LG seeks to create original in-house productions to enhance profitability and growth. The proposed studio investment is expected to significantly accelerate subscriber growth, particularly in international markets. By examining projected cash flows, associated costs, and overall financial viability, this report aims to guide decision-making regarding the new studio initiative. The findings indicate a strong potential for revenue generation and operational efficiency, promoting LG’s strategic goals in the evolving media landscape.

**Analysis And Assumptions:**

* In this analysis, we have not directly included depreciation in our cash flow calculations, as it is a non-cash expense. However, depreciation and amortization are included in the cash flow statements as tax saving mechanism
* All cash flow calculations for this project are based on the arrear’s assumption, meaning we consider payments that occur at the end of each period to accurately reflect the timing and financial impact of future cash inflows and outflows.

The following data outlines the company's current details alongside future assumptions made to assess its financial outlook and investment viability of the company

* The US Treasury bond rate at 2% and an inflation rate of 1.5% indicate a stable economic environment.
* The allocated $150 million reflects sunk costs that should not influence future decisions, emphasizing the focus on prospective cash flows.
* An initial infrastructure investment of $1 billion is significant, but there is a straight-line depreciation of $80 million per year over ten years with a salvage value of $200
* In 2020, Lions Gate had 45 million U.S. subscribers and 30 million international subscribers. Without the new studio investment, U.S. subscriber growth is projected at 3% annually, while international growth could increase to 8% with the investment.
* The basic subscription cost is set at $100, with U.S. subscriber servicing costs at $36 and international subscriber costs at $48. All pricing is projected to increase at the inflation rate over the next ten years.
* The studio subscription is priced at $50 and is exclusively available to international subscribers, with an expected attraction of 5 million subscribers in the first year. The servicing cost for this subscription is projected to be $24, with growth anticipated at 8% over the following nine years.
* In 2020, international subscribers utilized only 65% of server capacity, with a maximum limit of 46.15 million. To accommodate growth, a new server is estimated to cost $600 million and will increase in price at the inflation rate if capacity limits are reached.
* Lions Gate will allocate 10% of its existing general and administrative (G&A) expenses, totaling $400 million, to support the new studio, with these costs projected to grow by 5% over the next ten years. Additionally, the studio's G&A costs are estimated at $40 million for the next year, with an anticipated growth rate of 10% annually for the following decade.
* Lions Gate spent $500 million on advertising in the most recent year, with costs projected to increase by 5% annually if the studio investment is not pursued. Should the investment proceed, these expenses will be 15% higher than they would have been without the studio initiative.
* Working capital investments will be calculated as 5% for accounts receivable, 10% for inventory related to movies in production, and 6% for accounts payable, all based on annual revenue. These investments will be made at the beginning of each fiscal year, starting with the first year.
* The new studio is anticipated to generate $30 million in pre-tax cost savings in the first year, with these savings expected to increase by 3% annually over the next ten years. This financial benefit highlights the project's potential to enhance overall profitability.
* Lions Gate has a total equity share capital of approximately $37.46 billion, with each share valued at $87.50 and 428.08 million shares outstanding. Additionally, the company carries a market value of $2.43 billion in interest-bearing debt, highlighting its financial structure.
* In the analysis we have taken 2020 as the base year, with a tax rate set at 10% of revenue and a cost of capital estimated at 10.09% per annum. These assumptions provide a foundation for evaluating the project's financial viability.

The table below illustrates the projected growth in the number of subscribers for Lions Gate from 2020 to 2038. It shows the increase in both U.S. and international subscribers, differentiating between scenarios with and without the investment in the studio. Notably, studio subscriptions are also introduced, indicating a new revenue stream expected to grow steadily over the years.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Years** | **Number of Subscribers** | **International Subscribers** |  | **Studio Subscription** |
|  |  | **Without Investment** | **With investment** |  |
| 2020 | 45 | 30 | 30 |  |
| 2021 | 46.35 | 31.50 | 32.40 | 5 |
| 2022 | 47.74 | 33.08 | 34.99 | 5.4 |
| 2023 | 49.17 | 34.73 | 37.79 | 5.83 |
| 2024 | 50.65 | 36.47 | 40.81 | 6.30 |
| 2025 | 52.17 | 38.29 | 44.08 | 6.80 |
| 2026 | 53.73 | 40.20 | 47.61 | 7.35 |
| 2027 | 55.34 | 42.21 | 51.41 | 7.93 |
| 2028 | 57 | 44.32 | 55.53 | 8.57 |
| 2029 | 58.71 | 46.54 | 59.97 | 9.25 |
| 2030 | 60.48 | 48.87 | 64.77 | 10 |
| 2031 | 63.02 | 51.31 | 71.89 | 11.09 |
| 2032 | 65.66 | 53.88 | 79.80 | 12031 |
| 2033 | 68.42 | 56.57 | 88.58 | 13.67 |
| 2034 | 71.29 | 59.40 | 98.32 | 15.17 |
| 2035 | 74.29 | 62.37 | 109.14 | 16.84 |
| 2036 | 77.4 | 64.49 | 121.1 | 18.6 |
| 2037 | 80.66 | 68.76 | 134.47 | 20.75 |
| 2038 | 84.05 | 72.20 | 149.26 | 23.03 |

The table indicates that server capacity is expected to be exceeded in 2026, prompting the need to set up a new server in that year. Therefore, a new server is set up that year.

The Subscriber count after 2030 are increased as per assumptions given below to calculate the Net Present Value for a longer life.

The further workings are done as follows

* Working capital calculations are conducted using the formula: Accounts Receivable + Inventory - Accounts Payable.
* Interest expenses are assumed based on the U.S. Treasury bond rate applied to the company's interest-bearing debt.

**Decision on Investment:**

1. **NPV – 10-year life:**

|  |  |
| --- | --- |
| Total Investment | $1150.00 |
| Total Net Discounted cashflow | $9787.97 |
| Net present Value | $8637.97 |

The investment analysis indicates a total investment of $1,150.00, with projected total net discounted cash flows amounting to $9,787.97 over a 10-year period. This results in a net present value (NPV) of $8,637.97. Since the NPV is significantly positive, this suggests that the investment is expected to generate substantial returns, making it a favorable decision to proceed with the investment. A positive NPV indicates that the project's expected cash flows, adjusted for the time value of money, exceed the initial investment, supporting the conclusion to invest.

1. **. NPV- Longer life:**

* For longer life of a project, we have made the following certain assumptions:
* An additional $500 million will be invested in studio upgrades after 10 years for renovations and upgrades for next 8 years
* International subscriptions will grow by 11% and U.S. subscriptions by 4.2% due to the investment.
* At year 10, the base subscription price will be set at $116, assuming a 1.5% inflation rate.
* Subscriptions rates will be reduced in response to expected market share growth outpacing inflation hence subscription rates are reduced to $115.
* Prices for studio subscriptions will increase to $60.
* Studio Subscription service cost increased to $25
* U.S. Subscription service cost increased to $40
* International Subscription service cost increased to $50
* The following are changes in working capital due to increase in studio capacity
  + - Increased to 20%
    - Accounts Payable: Increased to 9%
    - Accounts Receivable: Increased to 7%
* The salvage value at the end of the project is considered insignificant and not included as revenue.

Hence the NPV for 18 years

|  |  |
| --- | --- |
| Current NPV | $4727.67 |
| Previous NPV | $8637.97 |
| Net Present Value | $13365.63 |

The current NPV is found by Net Discounting Cashflows from 2031 to 2038

The current NPV for the period from 2031 to 2033 is $4,727.67, reflecting a decline from the previous NPV of $8,637.97, which indicates potential challenges in cash flow. Despite this decrease, the total NPV over 18 years stands at $13,365.63, suggesting the investment remains financially viable in the long term. Further investigation into the factor’s affecting cash flow is recommended.

**3**.**Internal Rate of Return:**

The internal rate of return (IRR) for the 10-year cash flow is 19.64%, indicating a strong return relative to the initial investment. For the 18-year cash flow, the IRR increases to 22.51%, suggesting even greater profitability over the extended period and reinforcing the investment's attractiveness, but falling off drastically considering the increase in years.

**4.Sensitivity Analysis:**

Our interpretation of Sensitivity Analysis is the volatility of the cashflow based on certain changes in the underlying cashflow elements to simulate the ever-changing market and its unpredictability.

Key assumptions underlying the analysis are:

* **Analysis 1 (5% Effect):**
* The Revenue, Cost of Servicing & Total Commitments was stressed upon by 5%.
* The shift in revenue signals a lower gross profit in current and more noticeably, in future times due to the compounding effects of the discount rates.
* The Opposite effect is displayed by the costs (Cost of Servicing & Total Commitments).
* This still led to a *positive NPV*, significantly lower than the original cashflow.
* The *IRR* under this stress test was *reduced* to *9.20%* from the original 19.64%.
* **Analysis 2 (10% Effect):**
* The same assumptions are considered albeit at a more significant rate.
* The stress of 10% broke the projections and displayed an array of losses eventually leading to a *negative NPV*.
* This displays the stress limit of the project lying somewhere in the middle of 5% and 10%.
* The *IRR* under this stress test was 8.27%.

**Conclusion:**

A decrease in the growth rate of subscribers can significantly impact revenue projections, underscoring the investment's reliance on achieving anticipated subscriber growth. Changes in working capital needs can greatly affect liquidity an increase in working capital requirements may limit the cash available for operational activities. With an interest rate on debt set at 2%, any fluctuations in this rate could adversely affect profitability, highlighting the importance of managing financing costs effectively. We also assume that at the end of 10th year the salvage value of the studio and the current working capital is acquired without any additional reductions.

To ensure the project's financial viability, it is crucial to maintain a strict control over revenue and termination thresholds. Exceeding a 10% deviation from reliable expenses could significantly impact the project's NPV and overall profitability. By adhering to this threshold, the project can mitigate risks and maintain its positive financial outlook.

However, the general consensus is to invest in the project.