COMM 421

Equity Valuation of Six Flags Entertainment

Group 4

Group members:

Zheyang Ren 20565274

Leyao Wang 20568069

Xiyuan Zheng 20511698

Table of Contents

Introduction

Six Flags Entertainment is the largest regional theme park in the world (2017 annual report). It currently operates 20 theme parks and water parks across North America, and 17 of them are located in the United States. Currently, Six Flags is planning to increase its global presence through international licensing in China and Dubai. Six Flags' revenue stream is highly cyclical, most of their revenue concentrated in the second quarter and third quarter of the calendar year. In the breakdown of its revenue stream, ticket admission and food & merchandise sale are the major components which constituted approximately 53% and 40% of the total revenue. (annual report balance sheet)

Industry Analysis

Porter's Five Forces

Please see Appendix a1 for details

PEST

Please see Appendix a2 for details

Market Index Construction

S&P 500 and US Leisure & Recreation are two existed market indices that were considered to be the market index in the valuation process since S&P 500 is broadly used in many valuation projects and US Leisure & Recreation is the most theme-park-oriented industry index. However, according to TradingView, Six Flags Entertainment is not a component of S&P 500, which renders S&P 500 inappropriate. According to the list of components of US Leisure and Recreation given by TradingView, companies conducting business in hotel booking, trip arrangement, movie theatres and fitness are also included. Therefore, US Leisure & Recreation is not specialized in the theme park market, and hence a customized theme park index needs to be constructed.

As a result, companies in the peer group are selected to be the theme park market. A market-capitalization method is used to get the required rate of return of the market. In the first approach, the index calculated is skewed by Walt Disney due to its large capitalization. According to Walt Disney's 2017 Annual Report page 30, parks and resorts business segments contributes 25.5% of total operating income. Thus, 25.5% is multiplied to Walt Disney's market cap to construct a pure theme park company in the second approach. As demonstrated in the worksheet “Market Index Construction”, the market return is 23.05%.

DCF Model Valuation

Six Flags has a very stable asset composition over the five years. As shown from the Appendix a3, nearly 50% of the assets concentrated in Land, Rides and Equipment. Although the company had undergone a series of restructuring, at least in the past five years, goodwill was consistently levelled at 25% of total assets. This is a strong indication that the company's revenue generating assets and investment strategies have not been fundamentally changed in recent years. In addition, the company have not announced any heavy capital expenditures regarding future projects. The stability of asset composition is considered as an anchor assumption for the estimation of long-term growth rate.

The valuation model chosen for Six Flags is a two-stage H-model. It is justified by two reasons: first, the company has a very consistent history of dividend payouts and secondly, the growth in dividends is related to the growth in earning. The formula for H-model is:

$$V_0 = \frac{\left[D_0 \times \left(1 + g_L\right)\right] + \left[D_0 \times H\left(g_S - g_L\right)\right]}{r - g_L}$$

The long-term growth rate, g_L, is calculated by averaging the growth of Revenue in the past five years at 5.21%. Note that growth in Net Income was not chosen since many non-recurring expense items were included in Net Income in previous years which introduce significant distortions in estimating growth. In addition, the growth in revenue can be approximated by nearly a linear trend and the correlation between g_L and the growth in stock price is at 0.61 which implies a relatively strong correlation. Thus, it is believed that Revenue is a more reasonable approach for the true long-term growth.

The short-term growth rate, g_S, is derived from the short-term growth in dividends which is averaged to be 14.61% as demonstrated from the Appendix a4. According to the line chart, it is observed that the dividends are increasing in recent years in a fairly consistent fashion. Disclosed through MD&A in 2016, Six Flags projected its Adjusted EBITDA to reach $750m by 2020. Therefore, an implied growth of 12.8% is derived which is slightly lower, but reasonably close to g_S. It becomes the first clue to adjust down the short-term growth rate.

In the valuation, the parameter H is selected as 5, representing 10 years of gradual declines in dividends. This is chosen for three reasons. First, Six Flags re-financed a large portion of its debts through a floating rate note in 2017, maturing in 10 years. It is expected that the company to reduce its dividend payouts in order to accumulate enough liquidity to redeem this liability at the end of its term. Secondly, the company currently reports negative equities since its debt obligations exceed its assets. It is reasonably assumed that the company will gradually decrease its dividends to obtain a positive position. Lastly, the H parameter is picked such that the current g_S, 14.61%, will converge to the management's target growth of 12.8% by 2020.

Capital Asset Pricing Model (CAPM) is used to calculate the cost of equity. By regressing the 5-year weekly return of Six Flags and the return of constructed theme park market, the systematic risk coefficient Beta is calculated to be 0.594. The US 5-year Treasury Bill is selected to be risk-free rate, demonstrated as 2.21% since the investment horizon of Six Flags' investor is expected to be 5 years. After plugging in parameters to CAPM, the cost of equity is calculated to be 14.59%.

Substituting 14.61% as short-term growth rate, 5.21% as long-term growth rate, 5 as H value, 14.59% as the cost of equity, and $2.62 as current dividends paid out to the two-stage H model, the stock price of Six Flags is $ 42.51.

Quality of Earning

The majority of Six Flags' earning is cash- or cash-equivalent- based with relatively small bad debt allowances. This supports that the company will obtain a strong cash position in the future and have the capacity to maintain a high level of dividends. In addition, the company's emphasis on boosting season pass sales will smooth out the revenue curve and enable the company to gradually, but not abruptly, reduce its dividends.

Weather impact is a material but uncontrollable factor that negatively affects the company. The increasing incidents of weather disruptions will add uncertainty to Six Flags' revenue growth.

Sensitivity Analysis

Reference to Appendix a5, Because the required return r_e and long-term growth rate g_L have a significant impact on the valuation model, and were shocked by 1%, 2% and 5% respectively to perform the sensitivity analysis. As a result, the majority of the simulated prices are concentrated a range between $40.00 - $55.00, which indicates that the estimated stock price of $42.51 is reasonable and relatively stable.

Comparable Analysis & Valuation

Based on the characteristics and the industry analysis of Six Flags, Cedar Fair, Merlin Entertainment, Seaworld Park & Entertainment and Walt Disney are selected as Six Flags' comparables. After extracting the average historical five-year key ratios, the following table is constructed for comparing against Six Flags' normalized multiples:

	P/S	P/E	EV/EBITDA	P/CF
Cedar Fair	2.608	24.676	10.456	9.344
Seaworld	1.298	41.30333333	10.256	6.794
Merlin Entertainment	3.206	28.65	13.556	11.112
Walt Disney	3.096	20.652	11.944	14.448
Peer Group Average	**2.552**	**28.82033333**	**11.553**	**10.4245**
Six Flags	3.84	35.404	15.324	11.084

***Table excludes ROE & P/B listed because Six Flags has negative equities.**

In general, Six Flags' key multipliers are higher than the peer averages which implies that the market holds positive prospects on Six Flags. In particular, Six Flags' P/E ratio (35.404) is greater than the peer groups' P/E (28.82), which can be interpreted that Six Flag is still experiencing growth compare to its peers. With P/E comparable valuation method, the price is calculated as $70.07. However, since Six Flag's earning trend deviates year from year and appears to be cyclical, using P/E estimated price could be misleading. In addition, the high P/E ratio could also be interpreted as an indicator of overvaluation by the market. Six Flags' revenue demonstrates a linear growing trend in the last five years; therefore, an estimate based on P/S ratio would be more appropriate than P/E. Using 2017's year-end outstanding common shares, which is 8.84 mllion, and forecasted total revenue of $1.43 million in 2018, a projected price of $41.23 could be derived using the average P/S ratio (2.552). Note that the resulting price, $41.23, is reasonably close to $42.5 which is calculated by the two-stage H model.

Six Flags' Challenge

A serious challenge that Six Flags needs to face in the near future is that it has to turn its negative equity to positive while maintaining a short-term growth in its dividend payouts. According to Appendix a6, the annual balance sheet demonstrates a downward trend of Six Flag's equity (already negative) in the last 5 years, but its dividend payouts maintains at a relatively high level compared to its net earnings. The company currently holds a structure that is not sustainable in the long run. If Six Flags cannot boost its earnings in the short term, it may impose a challenge for the cash management given the market expects high dividends.

On the positive side, Six Flags' international expansion through licensing succeeds in fueling its free cash flows. According to the worksheet "SF Historical & Forecasted IS", if Six Flags maintains its current investment strategy and structure level, the increase in net income will surpass its dividends and results in positive retained earnings. This implies that Six Flags may overcome the challenge of regaining a positive position in its equity.

Recommendation

In conclusion, the valuation projects that the market is overpricing Six Flags' stocks since the market price exceeds the H-model forecast and the comparative valuation. The investment recommendation would be a strong sell along with a protected call to limit the downside losses.

References

1. S&P 500 Index (SP:SPX) Constituents. (n.d.). Retrieved November 18, 2018, from https://www.tradingview.com/symbols/SPX/components/
2. Six Flags 2017 Annual Report (Rep.). (2018, February). Retrieved November 18, 2018, from Six Flags Entertainment website: http://investors.sixflags.com/financial-information/annual-reports
3. The Walt Disney Company Fiscal Year 2017 Annual Financial Report (Rep.). (2017, November). Retrieved November 18, 2018, from https://www.thewaltdisneycompany.com/wp-content/uploads/2017-Annual-Report.pdf

Appendix

a1

Porter's Five Forces

Rivalry Threats
- **Medium**
- **3 – 4 direct competitors (peer groups)**

New Entrants Threats
- **Low**
- **Huge capital & time requirements for initiation**
- **Limited real estate supply**
- **Zoning restrictions**

Substitute Threats
- **High**
- **Many substitutes such as movies, sporting events, home entertainment options, restaurants**

Customer Bargaining Power
- **High**
- **Highly seasonal**
- **Many alternative options**

Supplier Bargaining Power
- **Low**
- **Many suppliers in terms of constructions and food**

a2

PEST

Political
- More strict environment laws and regulations from local, state and federal governments
- Facing laws and regulations from other countries when expanding internationally

Environmental
- More frequent large-sized hurricanes and typhoons
- Increased frequency of billion-dollar disasters in recent year
- Largely impact the seasonal revenue stream of Six Flags

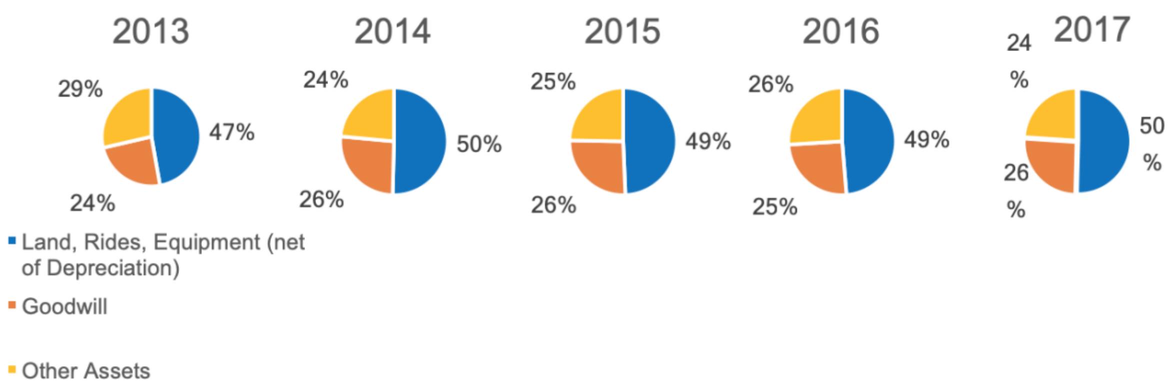
Social
- Increasing trend on home-entertainment
- Customers may have more alternative choices than six flags

Technology
- Virtual reality, face recognition tech
- New development opportunity

a3

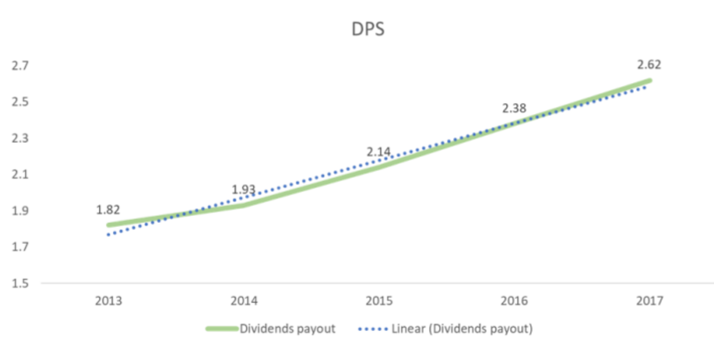
Balance Sheet

	2013	2014	2015	2016	2017
Land, Rides, Equipment (net of Depreciation)	47.230%	50.400%	49.338%	48.690%	50.392%
Goodwill	24.168%	26.077%	25.953%	25.335%	25.655%



a4

Past Growth and Forecast – Short Term



Justification 1:

- Average dividend growth rate: 14.61%
- Exhibit linear growth rate
- Short term growth rate

Justification 2:

- Adjusted EBITDA Target $750m by 2020
- Adj. EBITDA: 542m in 2016
- Implicit growth: 12.8%

a5

Sensitivty Analysis Matrix								
Long-term growth gL		Required Return re						
		-5%	-2%	-1%	0.00%	+1%	+2%	+5%
		9.59%	12.59%	13.59%	14.59%	15.59%	16.59%	19.59%
-5%	0.21%	48.1007	36.4447	33.7208	31.3759	29.3358	27.5449	23.281
-2%	3.21%	65.7907	44.7489	40.4378	36.8844	33.9051	31.3711	25.6255
-1%	4.21%	76.0714	48.8383	43.6316	39.4282	35.9635	33.0586	26.6102
0.00%	5.21%	91.0466	54.0359	47.5877	42.5144	38.4186	35.0426	27.7319
+1%	6.21%	114.883	60.8628	52.6158	46.3371	41.3971	37.409	29.0213
+2%	7.21%	158.749	70.2276	59.2201	51.1958	45.0865	40.2798	30.519
+5%	10.21%	-558.702	145.539	102.48	79.0831	64.3837	54.2923	36.928

a6