

## Tiffany & Co.

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Group Project #2: LVMH-Tiffany Case

**MEMORANDUM**

To: Alessandro Bogliolo, CEO, Tiffany & Co.  
From: Mark Romano, Senior Executive, Tiffany & Co.  
Date: October 1, 2019  
Subject: Recommendation re: Potential Acquisition by LVMH

**EXECUTIVE SUMMARY**

We recommend Tiffany & Co. (“The Company,” “Tiffany”) enter into negotiations for LVMH Moët Hennessy Louis Vuitton (“LVMH”) to acquire Tiffany at a price of **\$133.00** per share. The recommendation is based on a comprehensive valuation analysis, including Comparable Companies, Precedent Transactions, Discounted Cash Flow (DCF), and Leveraged Buyout (LBO) analysis methodologies.

**TIFFANY & CO. COMPANY OUTLOOK**

Since 1837, Tiffany & Co. has grown and become a household name through the exceptional quality of its jewelry, rapid growth, and — perhaps most importantly — its brand reputation and recognition, including its famous blue boxes and yellow Tiffany Diamond. The company has maintained a major market share in the United States and has enjoyed tremendous growth in China.

Following lackluster financial performance in recent years, Tiffany adopted a strategic turnaround plan. Results thus far have been mixed, as Tiffany has seen declines in sales growth primarily due to a lack of innovation to new tastes and geopolitical challenges (including declines in United States tourist spending following dollar appreciation, trade tensions between the United States and China, and political unrest in Hong Kong). We believe these challenges will persist beyond the short-term.

Because Tiffany’s stock price has been under pressure due to weaker earnings, LVMH, known for its hostile acquisition strategy, is likely to capitalize on this. Still, LVMH could contribute considerable synergies and afford to pay a substantial premium for Tiffany’s brand recognition.

**LVMH STRATEGIC RATIONALE FOR ACQUISITION**

Since its inception, LVMH has been a leader in the luxury goods industry. It has solidified its market presence in all of its major luxury sectors, dominating every sector except for jewelry and watches. As a renowned brand and leader in the jewelry segment, Tiffany is an appealing target for LVMH to continue to expand within the jewelry and watches segment.

Headquartered in Paris, LVMH presents a strong opportunity for Tiffany to expand its European presence. Expected revenue and cost synergies would stem from distribution, marketing, scale, and working capital management, providing both gross and net margin improvements. Association with LVMH will also facilitate expansion in the watch market. Accordingly, Tiffany could substantially accelerate its growth and improve profitability.

**SUMMARY OF VALUATION METHODOLOGIES**

**Financial Projections** (See Exhibit 3a-b): See base case and a synergy case incorporating gains in revenue growth and gross margin, SG&A integration costs, and working capital turnover increases.

**Comparable Company Analysis** (See Exhibit 6a-b): By examining a peer group of companies in the luxury goods industry with at least \$500 million in revenues and \$5 billion in market capitalization, the team concluded that an appropriate EV/EBITDA range is 11.5-12.5x and an appropriate P/E range is 16-18x, implying a fair value between \$78.91 and \$87.10 per share when using EV/EBITDA multiples and a fair value between \$88.56 and \$99.63 when using P/E multiples for valuation. It is worth noting that EV/EBITDA multiples for larger companies like LVMH were higher among the peer group, which could present an opportunity for Tiffany to increase its valuation through an acquisition.

**Precedent Transactions Analysis** (see Exhibit 7): The found metrics show comparables acquired for 7.6x to 44.2x EBITDA. The 18-20x range implied by the median and mean EBITDA multiples suggest a fair value between \$132.12 and \$148.50 per share. Of note is that other “trophy” luxury brands such as Gianni Versace were recently valued at over 40x EV/EBITDA. A speculative argument could be made that based on these precedent transactions, Tiffany may be able to extract additional value in an acquisition with a loftier multiple, especially given its higher EBITDA margins.

**WACC and DCF Analysis** (See Exhibits 2 and 4a-b). We evaluated WACC based on Tiffany’s current capital structure, current market conditions with a given risk premium, and median of betas of comparable companies (adjusted for leverage) to compute a WACC of 6.87%. This WACC implies a per share DCF valuation for Tiffany between \$68.41 and \$101.39 per share for the base case and \$108.83 and \$157.39 per share when accounting for synergies. More specifically, fair implied share prices are \$82.08 for the base case and \$128.96 for the synergy case according to the PGR approach, and \$86.42 and \$116.99, respectively, according to the EBITDA multiple approach.

**LBO Analysis** (See Exhibit 8a-b): The base case determined a floor valuation of Tiffany based on a required 20-25% IRR. This analysis yielded a valuation range of \$67.49 to \$71.99 per share. Yet, it is important to note that this valuation incorporates a financing structure proposed by our bankers, which does not allow for significant debt paydown; this, along with a higher hurdle rate, explains why the purchase price is so low compared to other valuation methodologies. Additionally, this valuation does not incorporate synergies, which simply means that Tiffany may not be a strong LBO candidate for a financial buyer. The floor price is more attractive if selling to a strategic buyer that is willing to pay a premium for synergies, such as LVMH.

## **RECOMMENDATION**

We believe a substantial portion of Tiffany’s value comes from its brand. The projections do not reflect yet undiscovered revenue and profit opportunities, not to mention ones that could be obtained by a third-party buyer that acquires the company and leverages the brand. Given the premium to the current stock price, to the DCF base case valuation, and to public comparable companies, we can justify selling to LVMH at that price, especially given the numerous revenue and cost synergy opportunities.

As a result of the extensive valuation analysis, we believe that a fair valuation for Tiffany & Co. is \$133.00 per share, a 45% premium over the current stock price. Valuing synergies at \$48.21 per share, this share price represents 85.9% percent of the capitalized synergy value being paid to Tiffany & Co. shareholders. This share price agrees with the synergy case valuation ranges from all methodologies (with a focus on Precedent Transactions and DCF analyses) while understanding that the percentage of synergies being paid to Tiffany’s shareholders is likely as high as possible. We are optimistic that the \$133.00 valuation would still allow Tiffany’s shareholders to realize a significant return also providing an upside for LVMH to pursue this acquisition at this price.

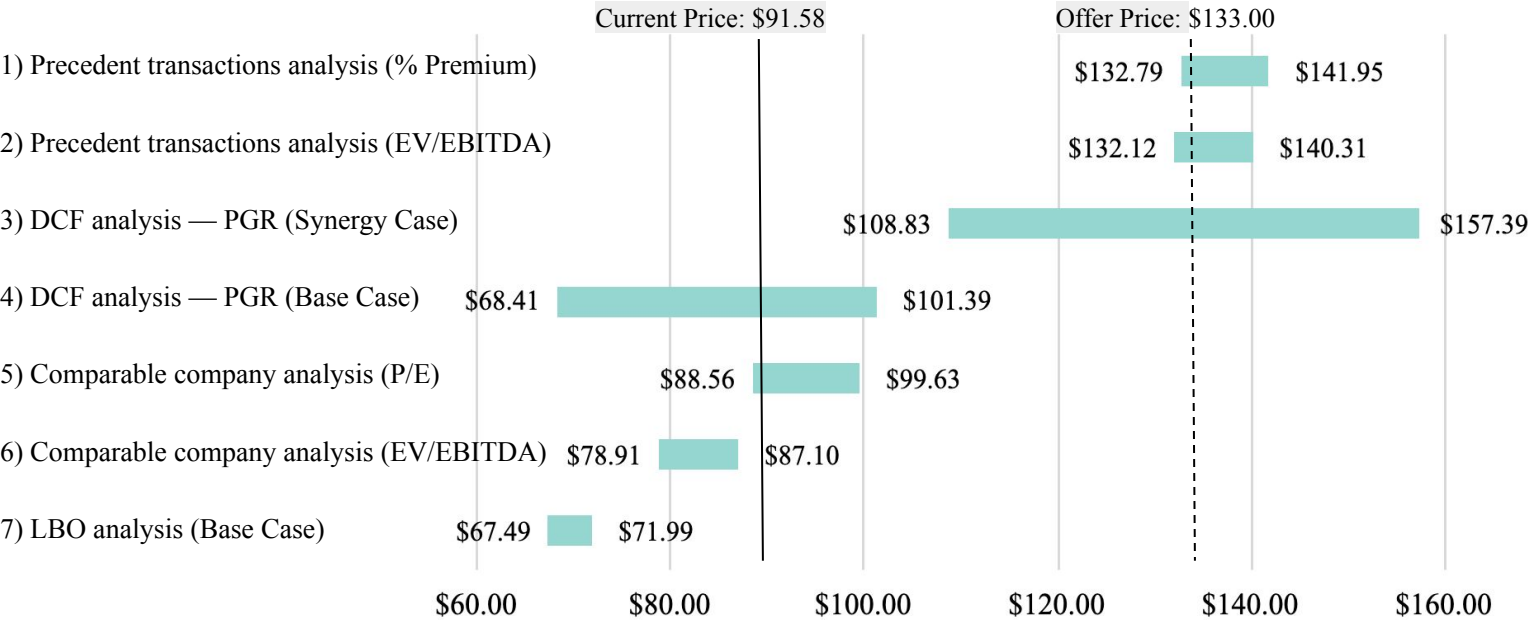
# Tiffany & Co.

## Appendix

Group 2

# Exhibit 1: Valuation Summary

## Tiffany & Co: Football Field



### Assumptions/Notes

**Precedent Transactions Analysis:** Based on 10 precedent transactions, a range of 18-19x 2019 EBITDA and a range of 45-55% premium were used for the valuation.

**DCF Analysis:** As required by Professor’s announcement, a PGR range of 0.50% and a WACC range of 1.00% were applied to mid-point per-share valuations for the base case and synergy case, i.e. using 2.25% PGR and 7.37% WACC for the lower bound and 2.75% PGR and 6.37% WACC for the upper bound.

**Comparable Companies Analysis:** Based on comparable companies’ forward EV/EBITDA and P/E ratios, a range of 16-18x was used for P/E and a range of 11.5-12.5x was used for EV/EBITDA valuations.

**LBO Analysis:** The corresponding share price range was found to yield a 20-25% IRR under base case assumptions.

## Exhibit 2: WACC Analysis for Tiffany & Co. (on a stand-alone basis)

(\$Millions)

Cost of Equity (CAPM)	
Risk-free rate	2.03%
Levered beta	0.92
Market risk premium	6.00%
Cost of equity	7.55%
Cost of Debt	
Tax rate	21%
Yield on debt	3.48%
After-tax cost of debt	2.75%
Capital Structure	
Stock price	\$ 91.58
Shares Outstanding	121.6
Equity value	\$ 11,136.13
Net debt	\$ 1,853.60
Total firm value	\$ 12,989.73
Weight of Equity	0.86
Weight of Debt	0.14
<b>WACC</b>	<b>6.87%</b>

Beta Calculation						
	Share Price	Shares Out	Equity	Debt	Beta	Unlevered beta
Burberry Group plc	\$ 24.59	412.5	\$ 10,143.38	\$ 872.60	1.15	1.08
Capri Holdings Limited	\$ 30.97	152.45	\$ 4,721.38	\$ 3,562.00	0.97	0.61
Kering SA	\$ 530.96	125.8	\$ 66,794.23	\$ 6,170.00	1.09	1.02
Pandora A/S	\$ 40.43	92.17	\$ 3,726.25	\$ 6,963.00	1.52	0.61
Prada S.p.A.	\$ 3.10	2558.82	\$ 7,924.67	\$ 23,149.11	1.68	0.51
Ralph Lauren Corporation	\$ 95.08	78.9	\$ 7,501.81	\$ 2,243.50	1.05	0.85
Tapestry, Inc.	\$ 25.44	285.7	\$ 7,268.21	\$ 3,567.80	1.08	0.78
LVMH Moët Hennessy Louis Vuit	\$ 416.57	504.55	\$ 210,180.39	\$ 15,727.00	1.14	1.08
Tiffany & Co.	\$ 91.58	122	\$ 11,172.76	\$ 1,854.00	1.05	
Tax rate @	21%					
Industry median unlevered beta	0.81					
Re-levered beta for Tiffany & Co.	<b>0.92</b>					

### Assumptions/Notes

From the case:

**Tax rate:** 21%

**Yield on debt:** 3.48% (based on Tiffany's rating in Exhibit 11)

**Stock price:** \$91.58

**Shares Outstanding:** 121.6 (in millions)

From Professor's rubric:

**Risk-free rate:** 2.03%

**Market Risk Premium:** 6%

**Net Debt:** \$1,853.60 (in \$Millions)

The cost of equity is calculated using the CAPM pricing formula as well as the aforementioned assumptions. Tiffany's levered beta is calculated using an industry beta by unlevering betas of luxury goods industry comparable companies provided in Exhibit 10 and finding their median to be re-levered using Tiffany's capital structure (see Excel file for more details).

The cost of debt is calculated using the after-tax adjusted corporate bond yield according to Tiffany's BBB rating. The debt and equity weightings are calculated based on the case and rubric assumptions.

# Exhibit 3a: Projections Model — Base Case

## Financial Statement Model

Income Statement										
	2018	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Revenue	4442	4405	4631	4871	5123	5391	5553	5719	5891	6067
Gross Profit	2811	2777	2939	3092	3255	3427	3414	3516	3622	3730
SG&A	2020.7	2009	2084	2192	2306	2426	2499	2574	2651	2730
EBIT	790	769	855	901	949	1001	915	943	971	1000
D&A	229	227	239	251	264	278	286	295	304	313
EBITDA	1019	996	1094	1152	1213	1279	1201	1237	1275	1313
Balance Sheet										
	2018	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Working capital	3041	3016	3171	3335	3508	3691	3802	3916	4033	4154
Capital Expenditures	282	219	290	304	320	338	322	332	343	352
Cash Flow										
Tax Rate	21%									
		2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
EBIT		769	855	901	949	1001	915	943	971	1000
Less: Pro Forma Taxes		(161)	(179)	(189)	(199)	(210)	(192)	(198)	(204)	(210)
Plus: D&A		227	239	251	264	278	286	295	304	313
Less: Increase in NWC		25	(155)	(164)	(173)	(183)	(111)	(114)	(117)	(121)
Less: Capital Expenditures		(219)	(290)	(304)	(320)	(338)	(322)	(332)	(343)	(352)
Unlevered Free Cash Flow		641	469	495	521	548	576	594	610	630
Net debt			1853.6							

## Assumptions

	2018	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
<b>Revenue growth by region</b>										
Americas	-1.1%	4.0%	4.0%	4.0%	4.0%	4.0%	3.0%	3.0%	3.0%	3.0%
Asia Pacific	0.6%	7.0%	7.0%	7.0%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
Europe	-3.9%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Other	-7.3%	2.0%	2.0%	2.0%	2.0%	2.0%	3.0%	3.0%	3.0%	3.0%
<b>Gross margin by region</b>										
Americas	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%	60.0%	60.0%	60.0%	60.0%
Asia Pacific	65.3%	66.0%	66.0%	66.0%	66.0%	66.0%	63.0%	63.0%	63.0%	63.0%
Europe	59.6%	60.0%	60.0%	60.0%	60.0%	60.0%	61.0%	61.0%	61.0%	61.0%
Other	57.7%	58.0%	58.0%	58.0%	58.0%	58.0%	60.0%	60.0%	60.0%	60.0%
SG&A as a percentage of revenue	45.6%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
<b>Revenues by region</b>										
Americas	1,960	1,938	2,016	2,096	2,180	2,267	2,335	2,406	2,478	2,552
Asia Pacific	1,882	1,894	2,027	2,168	2,320	2,483	2,557	2,634	2,713	2,794
Europe	504	485	499	514	529	545	562	579	596	614
Other	95	88	92	92	93	95	98	101	104	107
Revenues	4442	4405	4631	4871	5123	5391	5553	5719	5891	6067
<b>Gross profit by region</b>										
Americas	1,202	1,250	1,300	1,352	1,406	1,401	1,443	1,486	1,531	
Asia Pacific	1,236	1,338	1,431	1,531	1,639	1,611	1,659	1,709	1,760	
Europe	289	299	308	318	327	343	353	364	374	
Other	51	52	53	54	55	59	61	63	64	
Gross profit	2811	2777	2939	3092	3255	3427	3414	3516	3622	3730
SG&A	2021	2009	2084	2192	2306	2426	2499	2574	2651	2730
Operating profit	790	769	855	901	949	1001	915	943	971	1000
Working capital	3041	3016	3171	3335	3508	3691	3802	3916	4033	4154
Net property, plant, & equipment	991	982	1033	1086	1142	1202	1238	1275	1314	1353
Depreciation & amortization	229	227	239	251	264	278	286	295	304	313
Working capital turnover	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
PP&E turnover	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48

Assumptions provided by the case, specifically Exhibits 6, 12, and 13.

# Exhibit 3b: Projections Model — Synergy Case

## Financial Statement Model

Income Statement										
	2018	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Revenue	4442	4405	4675	5153	5473	5755	5927	6105	6288	6477
Gross Profit	2811	2777	2965	3478	3695	3887	3884	4001	4121	4245
SG&A	2020.7	2009	2805	2319	2463	2590	2667	2747	2830	2915
EBIT	790	769	160	1159	1232	1297	1217	1254	1291	1330
D&A	229	227	239	251	264	278	286	295	304	313
EBITDA	1019	996	399	1410	1496	1575	1503	1549	1595	1643
Balance Sheet										
	2018	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Working capital	3041	3016	3201	2352	2498	2627	2706	2787	2870	2957
Capital Expenditures	282	219	290	304	320	338	322	332	343	352
Cash Flow										
Tax Rate	21%									
	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F	
EBIT	769	160	1159	1232	1297	1217	1254	1291	1330	
Less: Pro Forma Taxes	(161)	(34)	(243)	(259)	(272)	(256)	(263)	(271)	(279)	
Plus: D&A	227	239	251	264	278	286	295	304	313	
Less: Increase in NWC	25	(185)	849	(146)	(129)	(79)	(81)	(84)	(86)	
Less: Capital Expenditures	(219)	(290)	(304)	(320)	(338)	(322)	(332)	(343)	(352)	
Unlevered Free Cash Flow	641	(109)	1711	771	836	847	872	898	926	
Net debt			1853.6							

## Assumptions

	2018	2019	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Revenue growth by region										
Americas		-1.1%	4.0%	10.0%	4.0%	4.0%	3.0%	3.0%	3.0%	3.0%
Asia Pacific		0.6%	7.0%	10.0%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
Europe		-3.9%	12.0%	12.0%	12.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Other		-7.3%	2.0%	10.0%	2.0%	2.0%	3.0%	3.0%	3.0%	3.0%
Gross margin by region										
Americas		62.0%	62.0%	66.0%	66.0%	66.0%	64.0%	64.0%	64.0%	64.0%
Asia Pacific		65.3%	66.0%	70.0%	70.0%	70.0%	67.0%	67.0%	67.0%	67.0%
Europe		59.6%	60.0%	65.0%	65.0%	65.0%	66.0%	66.0%	66.0%	66.0%
Other		57.7%	58.0%	60.0%	60.0%	60.0%	62.0%	62.0%	62.0%	62.0%
SG&A as a percentage of revenue		45.6%	60.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Revenues by region										
Americas	1960	1938	2016	2217	2306	2398	2470	2544	2621	2699
Asia Pacific	1882	1894	2027	2229	2385	2552	2629	2708	2789	2873
Europe	504	485	543	608	681	701	722	744	766	789
Other	95	88	90	99	101	103	106	109	112	116
Revenues	4442	4405	4675	5153	5473	5755	5927	6105	6288	6477
Gross profit by region										
Americas		1202	1250	1463	1522	1583	1581	1628	1677	1727
Asia Pacific		1236	1338	1560	1670	1787	1761	1814	1869	1925
Europe		289	326	395	442	456	477	491	506	521
Other		51	52	59	60	62	66	68	70	72
Gross profit	2811	2777	2965	3478	3695	3887	3884	4001	4121	4245
SG&A	2021	2009	2805	2319	2463	2590	2667	2747	2830	2915
Operating profit	790	769	160	1159	1232	1297	1217	1254	1291	1330
Working capital	3041	3016	3201	2352	2498	2627	2706	2787	2870	2957
Net property, plant, & equipment	991	982	1033	1086	1142	1202	1238	1275	1314	1353
Depreciation & amortization	229	227	239	251	264	278	286	295	304	313
Working capital turnover	1.46	1.46	1.46	2.19	2.19	2.19	2.19	2.19	2.19	2.19
PP&E turnover	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48

## Assumptions/Notes

To obtain synergy projections, base-case projections in our Exhibit 3a (from Exhibits 12 and 13 of the case) were altered according to the following assumptions offered on page 11 of the case:

1. Gross margin gains of 5% in Europe and 4% in other regions beginning in 2021
2. Increase in SG&A expenses by 15% of expected revenue in 2020
3. Decrease in SG&A expenses to 45% of revenue beginning in 2021
4. Working capital turnover to improve by 50% in 2021 and operate at roughly 2.2 after 2021
  - a. Synergy case working capital levels were then calculated accordingly.



# Exhibit 4a: Discounted Cash Flow (DCF) Analysis — Base Case

## Discounted Cash Flow Analysis - Base Case

### Assumptions

Discount rate (WACC)	6.87%
Perpetuity Growth Rate	2.50%
EBITDA Multiple	11.87 median of the comps

	1	2	3	4	5
Year	2020	2021	2022	2023	2024
UFCF	\$ 469.20	494.72	520.83	547.65	576.20
PV of UFCF	\$ 439.05	433.18	426.74	419.88	413.38

### Terminal Value — PGR Approach

2024 UFCF	\$ 576.20
PGR	2.50%
Terminal Value in 2024	\$ 13,523.39
PV of TV	\$ 9,702.01
PV of UFCF	\$ 2,132.22
Total Enterprise Value	\$ 11,834.23

Terminal Value as % of TEV	81.98%
Stage 1 Cash Flows as % of TE	18.02%
Implied EBITDA Multiple	10

### Per-Share Metrics — PGR Approach

Total Enterprise Value	\$ 11,834.23
(-) Net Debt	\$ 1,853.60
Total Equity Value	\$ 9,980.63
Total Shares Outstanding	121.6
Implied Tiffany Share Price	\$ 82.08

### Terminal Value — EBITDA Multiple Approach

2024 EBITDA	\$ 1,201.33
EBITDA Multiple	11.87
Terminal Value in 2024	\$ 14,259.77
PV of TV	\$ 10,230.31
PV of UFCF	\$ 2,132.22
Total Enterprise Value	\$ 12,362.53

Terminal Value as % of TEV	82.75%
Stage 1 Cash Flows as % of TEV	17.25%
Implied Growth Rate	2.72%

### Per-Share Metrics — EBITDA Multiple

Total Enterprise Value	\$ 12,362.53
(-) Net Debt	\$ 1,853.60
Total Equity Value	\$ 10,508.93
Total Shares Outstanding	121.6
Implied Tiffany Share Price	\$ 86.42

### Sensitivity of Per-Share Value to changes in WACC and PGR

		PGR					
		\$ 82.08	2.00%	2.25%	2.50%	2.75%	3.00%
WACC	7.87%	\$ 58.22	\$ 60.88	\$ 63.78	\$ 66.97	\$ 70.48	
	7.37%	\$ 65.16	\$ 68.41	\$ 71.99	\$ 75.96	\$ 80.38	
	6.87%	\$ 73.53	\$ 77.57	\$ 82.08	\$ 87.13	\$ 92.83	
	6.37%	\$ 83.82	\$ 88.97	\$ 94.78	\$ 101.39	\$ 108.99	
	5.87%	\$ 96.77	\$ 103.51	\$ 111.25	\$ 120.23	\$ 130.79	

## Assumptions/Notes

**WACC:** 6.87% from Exhibit 2

**PGR:** While the case suggests an industry growth rate of 3%-5% (p. 2), we believe that it is a rather ambitious estimate for Tiffany's perpetual growth and use 2.5% as our PGR to reflect higher levels of growth and yet realistic expectations of the economic growth as the U.S. GDP growth rate has fluctuated around 2% on average in the past 10 years.

**EBITDA Multiple:** We use a median of EBITDA multiples among the comparable companies in the industry (see Exhibit 6 for more details).

**UFCF:** Unlevered free cash flows are based on financial projections from Exhibit 3 from 2020 to 2024 as a standard 5-year time frame for the first stage of the DCF valuation.

**Terminal Value:** The terminal value is found using two approaches: the perpetual growth rate approach and EBITDA multiple approach according to the assumptions discussed above.

**DCF Sensitivity:** A 1%-range, i.e. +/-0.5% change, is applied to PGR and WACC together with a +/-1 change to the EBITDA multiple as a standard measure of the sensitivity of the enterprise value and a test of the validity of our assumptions and approaches to terminal value (see the Excel file for more details).

**Per-share metrics:** Implied Tiffany's share price is calculated using net debt provided in the rubric and total shares outstanding from the case.

### Sensitivity of Per-Share Value to changes in EBITDA multiple and WACC

		EBITDA Multiple					
		\$ 86.42	10.87	11.37	11.87	12.37	12.87
WACC	7.87%	\$ 75.35	\$ 78.73	\$ 82.12	\$ 85.50	\$ 88.88	
	7.37%	\$ 77.32	\$ 80.78	\$ 84.24	\$ 87.70	\$ 91.16	
	6.87%	\$ 79.33	\$ 82.88	\$ 86.42	\$ 89.97	\$ 93.51	
	6.37%	\$ 81.41	\$ 85.04	\$ 88.66	\$ 92.29	\$ 95.92	
	5.87%	\$ 83.54	\$ 87.25	\$ 90.97	\$ 94.68	\$ 98.40	

# Exhibit 4b: Discounted Cash Flow (DCF) Analysis — Synergy case

## Discounted Cash Flow Analysis - Synergy Case

### Assumptions

Discount rate (WACC)	6.87%
Perpetuity Growth Rate	2.50%
EBITDA Multiple	11.87

	1	2	3	4	5
Year	2020	2021	2022	2023	2024
UFCF	\$ -109.47	\$ 1,711.44	\$ 771.17	\$ 836.26	\$ 846.82
PV of UFCF	\$ -102.43	1498.55	631.85	641.15	607.53

### Terminal Value — PGR Approach

2024 UFCF	\$ 846.82
PGR	2.50%
Terminal Value in 2024	\$ 19,874.75
PV of TV	\$ 14,258.64
PV of UFCF	\$ 3,276.65
Total Enterprise Value	<b>\$ 17,535.29</b>

Terminal Value as % of TEV	81.31%
Stage 1 Cash Flows as % of TE	18.69%
Implied EBITDA Multiple	12

### Per-Share Metrics — PGR Approach

Total Enterprise Value	<b>\$ 17,535.29</b>
(-) Net Debt	\$ 1,853.60
Total Equity Value	\$ 15,681.69
Total Shares Outstanding	121.6
Implied Tiffany Share Price	<b>\$ 128.96</b>

### Terminal Value — EBITDA Multiple Approach

2024 EBITDA	\$ 1,503.46
EBITDA Multiple	11.87
Terminal Value in 2024	\$ 17,846.09
PV of TV	\$ 12,803.23
PV of UFCF	\$ 3,276.65
Total Enterprise Value	<b>\$ 16,079.88</b>

Terminal Value as % of TEV	79.62%
Stage 1 Cash Flows as % of TEV	20.38%
Implied Growth Rate	2.03%

### Per-Share Metrics — EBITDA Multiple

Total Enterprise Value	<b>\$ 16,079.88</b>
(-) Net Debt	\$ 1,853.60
Total Equity Value	\$ 14,226.28
Total Shares Outstanding	121.6
Implied Tiffany Share Price	<b>\$ 116.99</b>

### Sensitivity of Per-Share Value to changes in WACC and PGR

		PGR					
		\$ 128.96	2.00%	2.25%	2.50%	2.75%	3.00%
WACC	7.87%	\$ 93.82	\$ 97.72	\$ 101.99	\$ 106.67	\$ 111.84	
	7.37%	\$ 104.06	\$ 108.83	\$ 114.09	\$ 119.92	\$ 126.42	
	6.87%	\$ 116.40	\$ 122.34	\$ 128.96	\$ 136.38	\$ 144.77	
	6.37%	\$ 131.56	\$ 139.13	\$ 147.67	\$ 157.39	\$ 168.56	
	5.87%	\$ 150.63	\$ 160.54	\$ 171.92	\$ 185.12	\$ 200.63	

## Assumptions/Notes

**WACC:** 6.87% from Exhibit 2

**PGR:** While the case suggests an industry growth rate of 3%-5% (p. 2), we believe that it is a rather ambitious estimate for Tiffany's perpetual growth and use 2.5% as our PGR to reflect higher levels of growth and yet realistic expectations of the economic growth as the U.S. GDP growth rate has fluctuated around 2% on average in the past 10 years.

**EBITDA Multiple:** We use a median of EBITDA multiples among the comparable companies in the industry (see Exhibit 6 for more details).

**UFCF:** Unlevered free cash flows are based on financial projections from Exhibit 3 from 2020 to 2024 as a standard 5-year time frame for the first stage of the DCF valuation.

**Terminal Value:** The terminal value is found using two approaches: the perpetual growth rate approach and EBITDA multiple approach according to the assumptions discussed above.

**DCF Sensitivity:** A 1%-range, i.e. +/-0.5% change, is applied to PGR and WACC together with a +/-1 change to the EBITDA multiple as a standard measure of the sensitivity of the enterprise value and a test of the validity of our assumptions and approaches to terminal value (see the Excel file for more details).

**Per-share metrics:** Implied Tiffany's share price is calculated using net debt provided in the rubric and total shares outstanding from the case.

### Sensitivity of Per-Share Value to changes in EBITDA multiple and WACC

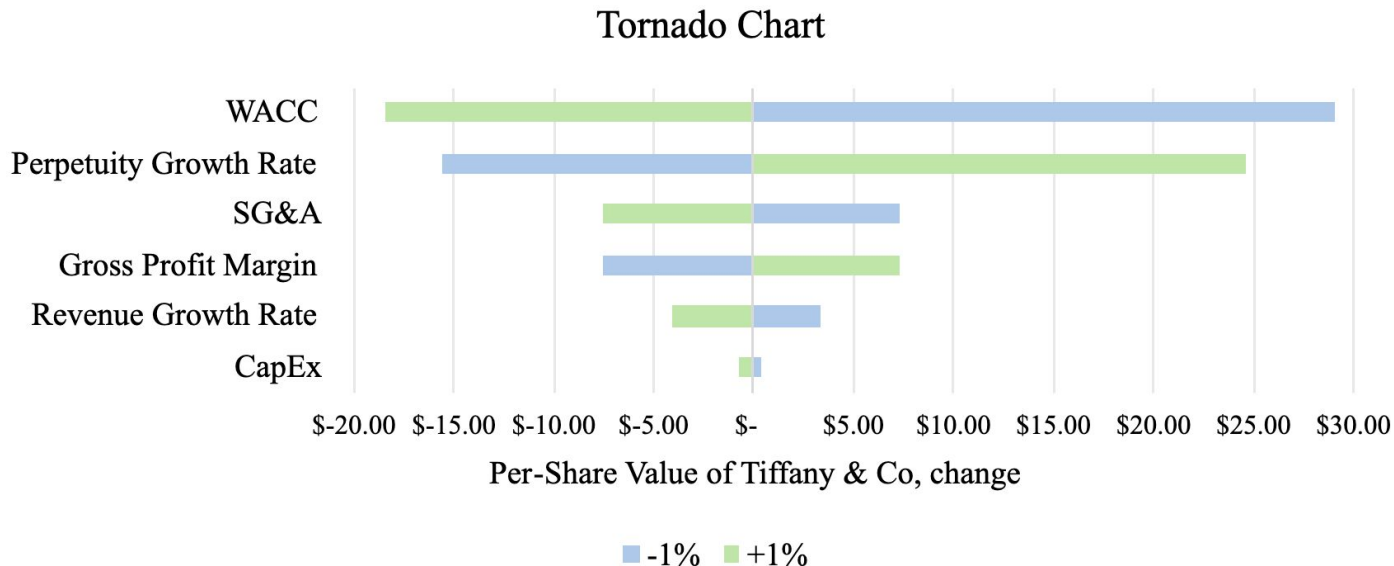
		EBITDA Multiple					
		\$ 116.99	10.87	11.37	11.87	12.37	12.87
WACC	7.87%	\$ 102.95	\$ 107.19	\$ 111.42	\$ 115.65	\$ 119.89	
	7.37%	\$ 105.50	\$ 109.84	\$ 114.17	\$ 118.50	\$ 122.83	
	6.87%	\$ 108.12	\$ 112.56	\$ 116.99	\$ 121.43	\$ 125.86	
	6.37%	\$ 110.81	\$ 115.35	\$ 119.89	\$ 124.43	\$ 128.98	
	5.87%	\$ 113.58	\$ 118.23	\$ 122.88	\$ 127.53	\$ 132.17	

# Exhibit 5: Sensitivity Analysis

## Assumptions/Notes

We conduct a sensitivity analysis of the per-share value derived in the DCF analysis to changes in WACC, PGR, revenue growth, gross profit margin, SG&A, and CapEx.

We apply a +/- **1% change** on a yearly basis to revenue growth rate, gross margin, and capex assumptions in projections, while +/- **1% value** changes in WACC, PGR, and SG&A are universal to 2020-2024 and applied in the DCF stage (see the Excel file for more details).



## Key Variables Summarized

Variable	(-1%)	Base Case	(+1%)
WACC	5.87%	6.87%	7.87%
Perpetuity Growth Rate	1.50%	2.50%	3.50%
SG&A	44.00%	45.00%	46.00%
Gross Profit Margin	-1.00%	year-specific	1.00%
Revenue Growth Rate	-1.00%	year-specific	1.00%
CapEx	-1.00%	year-specific	1.00%

## Present Value of Enterprise Value

Variable	(-1%)	Base Case	(+1%)
WACC	\$ 15,372.82	\$11,834.23	\$ 9,605.93
Perpetuity Growth Rate	\$ 9,945.97	\$11,834.23	\$14,829.73
SG&A	\$ 12,729.05	\$11,834.23	\$10,922.58
Gross Profit Margin	\$ 10,922.58	\$11,834.23	\$12,729.05
Revenue Growth Rate	\$ 12,252.21	\$11,834.23	\$11,351.27
CapEx	\$ 11,892.95	\$11,834.23	\$11,758.68

## Present Value of Share Price

Variable	(-1%)	Base Case	(+1%)
WACC	\$ 111.18	\$ 82.08	\$ 63.75
Perpetuity Growth Rate	\$ 66.55	\$ 82.08	\$ 106.71
SG&A	\$ 89.44	\$ 82.08	\$ 74.58
Gross Profit Margin	\$ 74.58	\$ 82.08	\$ 89.44
Revenue Growth Rate	\$ 85.51	\$ 82.08	\$ 78.11
CapEx	\$ 82.56	\$ 82.08	\$ 81.46

# Exhibit 6a: Comparable Companies Analysis

All values are TTM except forward multiples

Companies	Total Revenue (TTM)	Revenue % Growth, 3 Year CAGR (TTM)	Gross Margin (TTM)	EBITDA (Earnings Before Interest, Tax, Depreciation, & Amortization) (TTM)	EBITDA % Growth, 3 Year CAGR (TTM)	EBITDA Margin (TTM)	Net Income after Non-Controlling/Minority Interests (TTM)	Total Debt (TTM)	Net Debt (TTM)	Free Cash Flow (FCF) (TTM)	ROA (Return on Asset) (TTM)	ROE (Return on Equity) (TTM)	Total Debt to Equity (TTM)	Debt to Capital (TTM)	Current Ratio (TTM)	Quick Ratio (TTM)
PANDORA (CSE: PNDORA)	4083031	13.96%	78.64%	1294014	21.59%	31.69%	687858	1657986	1450571	752290	21.03%	92.60%	2.09x	0.68x	0.99x	0.47x
Hermes International (PAR: RMS)	14529027	28.09%	72.29%	6853866	35.93%	47.17%	4664827	2277124	-9467750	5546719	22.94%	31.50%	0.14x	0.12x	4.40x	3.58x
Brunello Cucinelli (MIL: BC)	1232938	27.95%	48.42%	353028	57.58%	28.63%	124024	737300	618108	146155	9.22%	30.37%	1.47x	0.60x	1.24x	0.54x
Compagnie Financière Richemont (SWX: CFR)	21871299	18.50%	68.41%	5204810	111.44%	23.80%	2754986	16976279	-1885195	4848433	10.01%	21.65%	0.84x	0.46x	2.48x	1.63x
LVMH Moët Hennessy Louis Vuitton (PAR: MC)	93224044	24.49%	68.80%	31287129	28.14%	33.56%	16419412	42973526	30522301	16415084	11.39%	27.36%	0.62x	0.39x	1.32x	0.58x
Tapestry (Retail Company) (NYS: TPR)	6726700	13.14%	72.28%	1385800		20.60%	928100	9339700	1877400	1153200	10.97%	38.90%	3.51x	0.78x	6.25x	5.49x
Swatch Group (SWX: UHR)	8419595	7.51%	80.14%	1783813	41.52%	21.19%	1045793	30025	-2331917	1025559	7.12%	8.31%	0.01x	0.01x	8.46x	2.52x
Burberry Group (LON: BRBY)	3851948	12.15%	70.43%	1196615	38.02%	31.07%	557277	1891166	1082235	732421	12.90%	33.88%	1.39x	0.58x	1.56x	0.98x
Kering (PAR: KER)	21171888	14.31%	76.29%	6833306	11.55%	32.28%	3227831	18964240	14628862	2020235	8.31%	20.94%	1.07x	0.53x	1.38x	0.68x
Prada (HKG: 01913)	5114333	24.95%	80.44%	1839430	38.02%	35.97%	726101	2877910	2115715	561063	9.04%	18.53%	0.67x	0.40x	1.49x	0.84x
ULTA Beauty (NAS: ULTA)	11207303	22.13%	39.09%	1921869	53.19%	17.15%	1291005	1911092	1144498	1522572	23.65%	62.44%	0.84x	0.46x	1.71x	0.59x
Ralph Lauren (NYS: RL)	6604300	14.60%	65.70%	917400		13.89%	587900	2756100	838700	715400	8.54%	23.94%	1.07x	0.52x	2.17x	1.46x
Capri Holdings (NYS: CPRI)	5282000	9.21%	65.11%	414000		7.84%	209000	3711000	3462000	293000	2.82%	10.79%	1.92x	0.66x	1.06x	0.34x
Summary Statistics																
Min	1232938	7.51%	39.09%	353028	11.55%	7.84%	124024	30025	-9467750	146155	2.82%	8.31%	0.01x	0.01x	0.99x	0.34x
Mean	15639877	17.77%	68.16%	4714237	43.70%	26.53%	2555701	8161804	3388887	2748625	12.15%	32.40%	1.20x	0.47x	2.65x	1.52x
Median	6726700	14.60%	70.43%	1783813	38.02%	28.63%	928100	2756100	1144498	1025559	10.01%	27.36%	1.07x	0.52x	1.56x	0.84x
Max	93224044	28.09%	80.44%	31287129	111.44%	47.17%	16419412	42973526	30522301	16415084	23.65%	92.60%	3.51x	0.78x	8.46x	5.49x
Tiffany & Co.	4405000		62.92%	995553		22.60%	560900		1853600						4.22x	

## Assumptions/Comparable Companies Rationale

Comparable companies were chosen based on these criteria:

1. Revenue:  $\geq$  **\$500M**
2. Market Cap:  $\geq$  **\$5B**
3. Industry: **Luxury Goods**
4. The comparable company set from the case was added to provide more color on the industry
5. Christian Dior was removed from the group, as its financials are identical to those of LVMH

Several large brands offering wider varieties of products were included given expansiveness of LVMH as a conglomerate. Some metrics in addition to growth, leverage, and profitability were included as well. Companies' data is drawn from Yahoo.Finance and Pitchbook.



# Exhibit 6b: Comparable Companies Analysis

All values are TTM except forward multiples

Companies	Stock Price	Diluted EPS (TTM)	Price(Daily)/Earnings	Beta - 3 Year	Market Cap	Enterprise Value (Daily)	EV(Daily)/EBITDA (TTM)	Forward P/E	Forward EV/EBITDA	Primary Industry Code	HQ Country/Territory
PANDORA (CSE: PNDORA)	159.22	8	19.91x	1.44x	12983114	14433685	11.15x	17.61	11.03	Accessories	Denmark
Hermes International (PAR: RMS)	2541.07	44.49	57.11x	0.98x	266131528	256665989	37.45x	50.51	34.54	Clothing	France
Brunello Cucinelli (MIL: BC)	107.17	1.82	58.75x	0.68x	7282440	7913616	22.42x	57.47	19.35	Accessories	Italy
Compagnie Financière Richemont (SWX: CFR)	148.57	4.78	20.04x	0.98x	87258749	85431772	17.06x	18.83	16.2	Accessories	Switzerland
LVMH Moët Hennessey Louis Vuitton (PAR: MC)	866.67	32.82	26.41x	0.95x	432944752	465328547	14.87x	23.87	14.23	Accessories	France
Tapestry (Retail Company) (NYS: TPR)	42.93	3.96	10.84x	1.47x	9846689	11724089	8.46x	8.38	8.21	Accessories	United States
Swatch Group (SWX: UHR)	230.92	20.17	11.45x	0.77x	11869389	9604193	5.38x	11.47	5.64	Accessories	Switzerland
Burberry Group (LON: BRBY)	14.66	1.46	10.01x	0.83x	5255217	6345993	5.30x	14.99	5.16	Accessories	United Kingdom
Kering (PAR: KER)	393.13	26.37	14.91x	1.19x	48192727	63703698	9.32x	15.48	8.88	Clothing	France
Prada (HKG: 01913)	7.86	0.28	27.71x	0.58x	20101098	22242253	12.09x	23.42	12.2	Clothing	Italy
ULTA Beauty (NAS: ULTA)	444.75	26.03	17.09x	0.82x	21467524	22612022	11.77x	16.64	11.87	Luxury Goods	United States
Ralph Lauren (NYS: RL)	171.95	8.79	19.50x	1.37x	10991999	11830699	12.90x	15.22	11.68	Clothing	United States
Capri Holdings (NYS: CPRI)	43.75	1.78	22.79x	1.05x	5099792	8562792	20.68x	9.89	14.56	Clothing	United Kingdom
<b>Summary Statistics</b>											
Min	7.86	0.28	10.01x	0.58x	5099792	6345993	5.30x	8.38	5.16		
Mean	397.9	13.9	24.35x	1.01x	72263463	75876873	14.53x	21.83	13.35		
Median	159.22	8	19.91x	0.98x	12983114	14433685	12.09x	16.64	11.87		
Max	2541.07	44.49	58.75x	1.47x	432944752	465328547	37.45x	57.47	34.54		
Tiffany & Co.	91.58	4.61	19.85x	1.05x	11136128	12989728	13.05x		11.87	Luxury Goods	United States

## Assumptions/Comparable Companies Rationale

Comparable companies were chosen based on these criteria:

1. Revenue:  $\geq$  \$500M
2. Market Cap:  $\geq$  \$5B
3. Industry: **Luxury Goods**
4. The comparable company set from the case was added to provide more color on the industry
5. Christian Dior was removed from the group, as its financials are identical to those of LVMH

Several large brands offering wider varieties of products were included given expansiveness of LVMH as a conglomerate. Some metrics in addition to growth, leverage, and profitability were included as well. Companies' data is drawn from Yahoo.Finance and Pitchbook.

Share Price Calculations			
Total Shares Outstanding	122	Low Estimates	
2019 Net Income	673	2019 EBITDA	996
Comparable Companies Median Forward P/E	16	Comparable Companies Median Forward EV/EBIT	11.5
Implied Equity Value	10769	Implied Enterprise Value	11449
Implied Share Price	\$88.56	Less: Net Debt	(1854)
		Implied Equity Value	9595
		Implied Share Price	\$78.91
High Estimates			
2019 Net Income	673	2019 EBITDA	996
Comparable Companies Median Forward P/E	18	Comparable Companies Median Forward EV/EBIT	12.5
Implied Equity Value	12115	Implied Enterprise Value	12444
Implied Share Price	\$99.63	Less: Net Debt	(1854)
		Implied Equity Value	10591
		Implied Share Price	\$87.10

# Exhibit 7: Precedent Transactions Analysis

	Date	Acquiror	Target	Deal Size, in \$M	EBITDA Margin	Aggregate Value/EBITDA	% Premium
1	2013-01-14	The Swatch Group	Harry Winston Inc.	\$ 750	8%	23.6	N/A
2	2014-05-29	Signet Jewelers	Zale	\$ 1,460	4%	21.2	41%
3	2015-08-21	Ascena Retail Group	Ann Taylor	\$ 2,100	9%	9.0	N/A
4	2017-07-01	LVMH	Christian Dior (Fashion &	\$ 7,060	15%	15.6	15%
5	2017-07-10	Tapestry, Inc. (formerly Coach, Inc.)	Kate Spade & Company	\$ 2,400	8%	8.7	28%
6	2017-11-01	Capri Holdings (formerly Michael Kors Holdings)	Jimmy Choo PLC	\$ 1,350	12%	21.6	37%
7	2018-05-09	Richemont	Yoox Net-a-Porter Group	\$ 3,000	7%	44.2	N/A
8	2018-12-31	Capri Holdings	Gianni Versace	\$ 2,120	7%	40.7	N/A
9	2021-07-01	EssilorLuxottica	GrandVision	\$ 6,618	24%	7.6	N/A
10	2023-08-10	Tapestry, Inc.	Capri Holdings	\$ 8,500	15%	9.0	59%

## Assumptions/Transaction Rationale

The analysis is based on 10 relevant precedent M&A transactions in 2013-2023 in the luxury goods industry focusing on watches, jewelry, and luxury apparel with the deal size of over \$500M. As a result, our focused range is 45% - 55% premium and 18-20x EBITDA (around 50% premium to EBITDA multiple derived in DCF) as we preferred to give more weight to the more recent transactions, reflective of market conditions, and approach the 60% premium paid to Bulgari, deemed highly relevant in the case.

1. Harry Winston Inc. acquisition by the Swatch Group is a suitable simulation of the LVMH-Tiffany acquisition as an American couture jewelry and watch brand was acquired by a European-based holding company to achieve a dominant position in the watches and jewelry segment and expand presence in the U.S. market.
2. Despite some different business characteristics in terms of the target market (more affordable jewelry than Tiffany), Zale is a vivid example of a high premium paid for the revenue and cost synergies potential.
3. Ascena aimed to secure a leading position in a respective desired segment like LVMH but also drive revenue through new affluent clientele, which is not LVMH's goal as it has focused on high-income customers.
4. A relevant example of LVMH's aggressive acquisition strategy highlights its solvency and high willingness to pay for a prestigious brand when it fits its industry domination and market segment expansion objectives.
5. Tapestry's acquisition of Kate Spade is another example of a high premium paid for the retail operation and supply chain optimization in luxury accessories and handbags.
6. In spite of a reverse dynamic of an American company purchasing an English fashion house, it provides valuable perspective into premiums paid for a monobrand with a global presence and strong brand recognition.
7. In addition to the highest EBITDA multiple among the 10 transactions, Richemont's acquisition of YNAP, which operates in the e-commerce space, represents an important market trend worth keeping in mind for LVMH in the future of a growing consumer base purchasing luxury goods, watches and jewelry inclusive, online.
8. Similarly to two previous transactions, a high EBITDA multiple to the enterprise value paid by the acquirer corresponds to the target's iconic brand image, potential for operational synergies thanks to the fashion group resource integration, and diversified geographic revenues driven by increased exposure to Asia, similar to one of LVMH's goals.
9. Although GrandVision is a luxury sunglasses retail brand, it is rather similar to Tiffany in financial characteristics, such as EBITDA margin and gross margin. It is also important to note, however, that EssilorLuxottica only acquired 76.72% ownership interest, which is why the deal size would have likely been different if it had not been a partial acquisition.
10. To consolidate the luxury goods market, Tapestry paid a 59% premium for Capri Holdings group's iconic, established brands with world-class reputation: Versace, Jimmy Choo, and Michael Kors, which is also the largest transaction value in the space. Yet, we believe it is in the same ballpark with LVMH's acquisition of Tiffany and its strong brand image.

Min	7.6	15%
Max	44.2	59%
Mean	20.1	36%
Median	18.4	37%
<b>Focused Range</b>	<b>18-19x</b>	<b>45% - 55%</b>

To summarize, a total range for the per-share value of Tiffany & Co. suggested by our precedent transactions analysis would be **\$132.12 to \$141.95**, equivalent to 18-19x 2019 EBITDA and a 45-55% premium to its current share price of \$91.58 capturing the other two values within the range as well (see Excel file for more details).

# Exhibit 8a: Leveraged Buyout (LBO) Analysis

Assumptions	
Entry Multiple	9.70x
2020E EBITDA	\$1094
Marginal Tax Rate	21.0%

Pro Forma Financial Statements					
	2020	2021	2022	2023	2024
Revenue	4631	4871	5123	5391	5653
Total Expenses	3777	3970	4174	4390	4637
EBIT	\$855	\$901	\$949	\$1001	\$915
Interest Expense	494	491	487	483	477
EBT	\$361	\$410	\$462	\$518	\$438
Taxes	76	86	97	109	92
Net Income	\$285	\$324	\$365	\$409	\$346
Plus: D&A	239	251	264	278	286
Decrease (Increase) in Working Capital	(155)	(164)	(173)	(183)	(111)
Less: CapEx	(290)	(304)	(320)	(338)	(322)
Cash Flow Available for Debt Paydown	\$79	\$107	\$136	\$166	\$199
Less: Revolver Paydown	(79)	(107)	(136)	(166)	(199)
Cash Flow Available for Bank Loan Paydown	--	--	--	--	--
Less: Discretionary Bank Loan Paydown	--	--	--	--	--
Cash Flow Available for Sub Debt Paydown	--	--	--	--	--
Less: Sub Debt Paydown	--	--	--	--	--
Excess Cash Flow	--	--	--	--	--
<b>Debt Schedule</b>					
Revolver	1000	921	814	678	512
Bank Loan	5500	5500	5500	5500	5500
Sub Debt Beginning Balance	1500	1500	1500	1500	1500
Total Beginning Balance	\$8000	\$7921	\$7814	\$7678	\$7313
Revolver Payment	(79)	(107)	(136)	(166)	(199)
Bank Loan Payment	--	--	--	--	--
Sub Debt Paydown	--	--	--	--	--
Scheduled Debt Paydown	(\$79)	(\$107)	(\$136)	(\$166)	(\$199)
Revolver Ending Balance	921	814	678	512	313
Bank Loan Ending Balance	5500	5500	5500	5500	5500
Sub Debt Ending Balance	1500	1500	1500	1500	1500
Total Ending Balance	\$7921	\$7814	\$7678	\$7312	\$7313
<b>Cash Balance</b>					
Beginning Balance	200	200	200	200	200
Plus: Excess Cash Flow	--	--	--	--	--
Total Ending Balance	\$200	\$200	\$200	\$200	\$200
<b>Interest Expense</b>					
Revolver Average Debt Balance	960	868	746	595	413
Bank Loan Average Debt Balance	5500	5500	5500	5500	5500
Sub Debt Average Balance	1500	1500	1500	1500	1500
Average Debt Balance	\$7960	\$7868	\$7746	\$7595	\$7413
Revolver	3.00%	3.00%	3.00%	3.00%	3.00%
Bank Loan	6.00%	6.00%	6.00%	6.00%	6.00%
Sub Debt	9.00%	9.00%	9.00%	9.00%	9.00%
Average Interest Rate	6.20%	6.24%	6.29%	6.36%	6.44%
Revolver Interest Expense	29	26	22	18	12
Bank Loan Interest Expense	330	330	330	330	330
Sub Debt Interest Expense	135	135	135	135	135
Total Interest Expense	\$494	\$491	\$487	\$483	\$477

Transaction Value	
Enterprise Value	10607
Less: Net Debt	(1854)
Transaction Equity Value	\$8754
Shares Outstanding (millions)	122
Implied Share Price	\$71.99

20% IRR: \$71.99  
per share

Sources and Uses				
	%TV	xEBITDA	Interest Rate	%Total Amount
Revolver		0.91x	3.00%	9.1% 1000
Bank Loan		5.03x	6.00%	50.1% 5500
Subordinated Debt		1.37x	9.00%	13.7% 1500
Sponsor's Equity				27.2% 2982
Total Sources				100.0% \$10982
Transaction Equity Value				79.7% 8754
Refinancing Net Debt				16.9% 1854
Transaction Fees and Expenses	2.00%			1.6% 175
Beginning Cash Balance	2.28%			1.8% 200
Total Uses				100.0% \$10982
Debt/EBITDA	7.32x			

Exit					
	2020	2021	2022	2023	2024
Years of Investment	1	2	3	4	5
EBITDA	1094	1152	1213	1279	1201
Exit Multiple	12.00x	12.00x	12.00x	12.00x	12.00x
Enterprise Value	\$13122	\$13821	\$14561	\$15346	\$14416
Total Debt	7921	7814	7678	7512	7313
Less: Cash	(200)	(200)	(200)	(200)	(200)
Net Debt	\$7721	\$7614	\$7478	\$7312	\$7113
Equity Value	\$5402	\$6207	\$7082	\$8034	\$7303
IRR	81%	44%	33%	28%	20%
Cash-on-Cash Return	1.81x	2.08x	2.37x	2.69x	2.45x

Credit Metrics				
	2020	2021	2022	2023
Debt/EBITDA	7.24x	6.78x	6.33x	5.87x
EBITDA/Interest Expense	2.21x	2.35x	2.49x	2.65x

Operational Metrics				
	2020	2021	2022	2023
EBITDA	\$1094	\$1152	\$1213	\$1279
EBITDA Margin	23.6%	23.6%	23.7%	23.7%

Sensitivity Analysis				
IRR Sensitivity				
Entry Multiple				
	8.70x	9.20x	9.70x	10.20x
Exit Multiple	11.00x	27%	20%	15%
	11.50x	29%	23%	18%
	12.00x	31%	25%	20%
	12.50x	33%	27%	22%
	13.00x	35%	29%	23%
Cash-on-Cash Sensitivity				
Exit Multiple				
	8.70x	9.20x	9.70x	10.20x
Exit Multiple	11.00x	3.27x	2.52x	2.05x
	11.50x	3.58x	2.76x	2.25x
	12.00x	3.91x	3.01x	2.45x
	12.50x	4.23x	3.26x	2.65x
	13.00x	4.56x	3.51x	2.85x

## Assumptions/Notes

**Exit Multiple:** 12.00x, in line with comparable company multiples in Exhibit 6b.

**Entry Multiple:** This price was calculated in order to yield a 20% IRR on this investment.

**Debt Financing:** The proposed debt financing was used from the package suggested by Professor Gibbs, at approximately 7.5x 2020E EBITDA.

**Pro Forma Financial Statements:** Information was gathered from the corresponding Base Case Projections Model in Exhibit 3a.

**Observation:** This LBO model does not allow for significant debt paydown, which drives the implied share price down to achieve the desired IRR.

# Exhibit 8b: Leveraged Buyout (LBO) Analysis

Assumptions	
Entry Multiple	9.20x
2020E EBITDA	\$1094
Marginal Tax Rate	21.0%

Pro Forma Financial Statements					
	2020	2021	2022	2023	2024
Revenue	4631	4871	5123	5391	5653
Total Expenses	3777	3970	4174	4390	4637
EBIT	\$855	\$901	\$949	\$1001	\$915
Interest Expense	494	491	487	483	477
EBT	\$361	\$410	\$462	\$518	\$438
Taxes	76	86	97	109	92
Net Income	\$285	\$324	\$365	\$409	\$346
Plus: D&A	239	251	264	278	286
Decrease (Increase) in Working Capital	(155)	(164)	(173)	(183)	(111)
Less: CapEx	(290)	(304)	(320)	(338)	(322)
Cash Flow Available for Debt Paydown	\$79	\$107	\$136	\$166	\$199
Less: Revolver Paydown	(79)	(107)	(136)	(166)	(199)
Cash Flow Available for Bank Loan Paydown	--	--	--	--	--
Less: Discretionary Bank Loan Paydown	--	--	--	--	--
Cash Flow Available for Sub Debt Paydown	--	--	--	--	--
Less: Sub Debt Paydown	--	--	--	--	--
Excess Cash Flow	--	--	--	--	--
<b>Debt Schedule</b>					
Revolver	1000	921	814	678	512
Bank Loan	5500	5500	5500	5500	5500
Sub Debt Beginning Balance	1500	1500	1500	1500	1500
Total Beginning Balance	\$8000	\$7921	\$7814	\$7678	\$7512
Revolver Payment	(79)	(107)	(136)	(166)	(199)
Bank Loan Payment	--	--	--	--	--
Sub Debt Paydown	--	--	--	--	--
Scheduled Debt Paydown	(\$79)	(\$107)	(\$136)	(\$166)	(\$199)
Revolver Ending Balance	921	814	678	512	313
Bank Loan Ending Balance	5500	5500	5500	5500	5500
Sub Debt Ending Balance	1500	1500	1500	1500	1500
Total Ending Balance	\$7921	\$7814	\$7678	\$7512	\$7313
<b>Cash Balance</b>					
Beginning Balance	200	200	200	200	200
Plus: Excess Cash Flow	--	--	--	--	--
Total Ending Balance	\$200	\$200	\$200	\$200	\$200
<b>Interest Expense</b>					
Revolver Average Debt Balance	960	868	746	595	413
Bank Loan Average Debt Balance	5500	5500	5500	5500	5500
Sub Debt Average Balance	1500	1500	1500	1500	1500
Average Debt Balance	\$7960	\$7868	\$7746	\$7595	\$7413
Revolver	3.00%	3.00%	3.00%	3.00%	3.00%
Bank Loan	6.00%	6.00%	6.00%	6.00%	6.00%
Sub Debt	9.00%	9.00%	9.00%	9.00%	9.00%
Average Interest Rate	6.20%	6.24%	6.29%	6.36%	6.44%
Revolver Interest Expense	29	26	22	18	12
Bank Loan Interest Expense	330	330	330	330	330
Sub Debt Interest Expense	135	135	135	135	135
Total Interest Expense	\$494	\$491	\$487	\$483	\$477

25% IRR: \$67.49  
per share

Transaction Value	
Enterprise Value	10061
Less: Net Debt	(1854)
Transaction Equity Value	\$8207
Shares Outstanding (millions)	122
Implied Share Price	\$67.49

Sources and Uses					
	%TV	xEBITDA	Interest Rate	%Total	Amount
Revolver		0.91x	3.00%	9.6%	1000
Bank Loan		5.03x	6.00%	52.8%	5500
Subordinated Debt		1.37x	9.00%	14.4%	1500
Sponsor's Equity				23.3%	2425
Total Sources				100.0%	\$10425
Transaction Equity Value				78.7%	8207
Refinancing Net Debt				17.8%	1854
Transaction Fees and Expenses	2.00%			1.6%	164
Beginning Cash Balance	2.44%			1.9%	200
Total Uses				100.0%	\$10425
Debt/EBITDA	7.32x				

Exit					
	2020	2021	2022	2023	2024
Years of Investment	1	2	3	4	5
EBITDA	1094	1152	1213	1279	1201
Exit Multiple	12.00x	12.00x	12.00x	12.00x	12.00x
Enterprise Value	\$13122	\$13821	\$14561	\$15346	\$14416
Total Debt	7921	7814	7678	7512	7313
Less: Cash	(200)	(200)	(200)	(200)	(200)
Net Debt	\$7721	\$7614	\$7478	\$7312	\$7113
Equity Value	\$5402	\$6207	\$7082	\$8034	\$7303
IRR	123%	60%	43%	35%	25%
Cash-on-Cash Return	2.23x	2.56x	2.92x	3.31x	3.01x

Credit Metrics					
	2020	2021	2022	2023	2024
Debt/EBITDA	7.24x	6.78x	6.33x	5.87x	6.09x
EBITDA/Interest Expense	2.21x	2.35x	2.49x	2.65x	2.52x

Operational Metrics					
	2020	2021	2022	2023	2024
EBITDA	\$1094	\$1152	\$1213	\$1279	\$1201
EBITDA Margin	23.6%	23.6%	23.7%	23.7%	21.6%

Sensitivity Analysis					
IRR Sensitivity					
Exit Multiple	Entry Multiple				
	8.70x	9.20x	9.70x	10.20x	10.70x
	11.00x	27%	20%	15%	12%
	11.50x	29%	23%	18%	14%
	12.00x	31%	25%	20%	16%
	12.50x	33%	27%	22%	17%
Cash-on-Cash Sensitivity	Entry Multiple				
	8.70x	9.20x	9.70x	10.20x	10.70x
	11.00x	3.27x	2.52x	2.05x	1.72x
	11.50x	3.59x	2.76x	2.25x	1.89x
	12.00x	3.91x	3.01x	2.45x	2.06x
	12.50x	4.23x	3.26x	2.65x	2.23x

## Assumptions/Notes

**Exit Multiple:** 12.00x, in line with comparable company multiples in Exhibit 6b.

**Entry Multiple:** This price was calculated in order to yield a 25% IRR on this investment.

**Debt Financing:** The proposed debt financing was used from the package suggested by Professor Gibbs, at approximately 7.5x 2020E EBITDA.

**Pro Forma Financial Statements:** Information was gathered from the corresponding Base Case Projections Model in Exhibit 3a.

**Observation:** This LBO model does not allow for significant debt paydown, which drives the implied share price down to achieve the desired IRR.