



Research on the Impact of COVID-19 on the Profitability of the Luxury Industry

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Abstract. Since the outbreak of COVID-19, the global economy has become relatively sluggish. Quarantine and lockdown policies hamper the efficiency of the luxury industry. The literature on the impact of COVID-19 on the luxury goods industry is relatively limited. This paper aims to fill in the gaps in this field. Based on the window periods of the pre-epidemic, outbreak, and post-epidemic three years, this paper explores the impact of COVID-19 on stock price changes, equity evaluation, and profitability metrics of the luxury industry to measure the profitability of the luxury industry over that period. This paper uses the CAPM model and event study model to analyze how the stock prices changed during the window periods and whether COVID-19 is a significant factor. The fund “U.S. Global Investors Global Luxury Goods Fund” was selected to represent the industry’s stock performance. Based on these data, the P/E ratio and price-to-book ratio are used to assess market expectations and valuations for the industry. Finally, the financial ratios of the top 100 luxury companies are selected to measure the operating efficiency, sales growth, and growth potential of the industry. In the short term, the stock price of the luxury industry is hovering negative, the utilization efficiency of assets is reduced, the growth rate is slowed down, and the overall health of the industry is reduced. But the post-pandemic performance of the luxury sector is worth looking forward to: share prices are gradually recovering to their pre-pandemic performance, and retaliatory spending presents a good growth opportunity for the sector. The luxury industry needs to adjust its traditional marketing and sales models to embrace models like online sales and practical design to meet the needs of consumers in the COVID-19 era.

Keywords: COVID-19; Luxury Industry; Profitability; CAPM model; Luxury Consumption

1 Introduction

Since the outbreak of COVID-19, the global economy has become relatively sluggish. An enormous amount of workforce, material, and time has been devoted to fighting the epidemic, with quarantine and lockdown policies hampering the efficiency of all industries. The sales growth for the Top 100 companies dropped by more than 20 percentage points yearly. The 2020 composite net profit margin for the 81 Top 100 companies

reporting net profits fell by 5.7 percentage points. [1] In the post-epidemic era, owing to repressed consumption during the pandemic, consumers may overcompensate for the scarcity of luxury experiences, thereby eliciting “a materialistic accumulation spree”, displaying patterns of conspicuousness once the pandemic ends. [2] The results of the study showed that offline (online) clothing consumption at mass markets has decreased (increased) since the pandemic, whereas sales of luxury fashion brands at offline department stores have grown. [3] This shows that luxury goods still have their advantages and competitiveness. Therefore, the long-term potential of luxury goods is also worth looking forward to.

Tourism industry, as the important driver of luxury spending, has come to a halt due to the impact of the epidemic. Fashion weeks and trade shows have been essential ways that brands have maintained vibrant relationships with consumers and trade partners. [4] But with travel restricted, tourism and fashion weeks have come to a halt. Moreover, most luxury-goods companies rely heavily on offline sales rather than e-commerce. All kinds of force majeure during the epidemic have brought many tests to the operation mode, marketing methods, and profitability of the luxury industry. This paper aims to study and analyze the impact, challenges, and growth opportunities brought by the epidemic on the luxury industry.

The high-priced luxury sector has a relatively small customer base and limited research on its impact from the pandemic. "Luxury" in this paper includes designer clothing and footwear, luxury handbags and accessories, luxury jewelry and watches, and luxury cosmetics and perfumes.

The following will analyze the impact of the epidemic on the profitability of the luxury industry by studying the stock price changes of the luxury industry in the three fiscal years before (2019), when (2020) and after (2021) the epidemic as well as the changes in the financial ratios of the top 100 luxury companies. Moreover, this paper intends to integrate the main viewpoints of the existing literature, further investigate, and analyze the data, explore the shortcomings of the luxury industry, and put forward suggestions for the industry's survival and long-term development under the epidemic.

2 Methodology

2.1 the stock performance

Data sources.

The stock performance of the industry is measured by the U.S. Global Investors Global Luxury Goods Fund (USLUX). This fund contains many companies listed in the top 100 luxury companies, such as LVMH Moet Hennessy Louis Vuitton SE ADR and The Estee Lauder Companies Inc Class A. The date range is from January 1, 2019, to December 31, 2021[5].

Model.

The Capital Asset Pricing Model (CAPM) is a model that describes the relationship between systematic risk and expected return for assets, particularly stocks. And it is widely used by investors to measure the volatility of stock prices.

The formula of CAPM model is as follows:

$$E(r_i) = r_f + \beta_{im} \times (E(r_m) - r_f) \quad (1)$$

- $E(r_i)$: The expected rate of return
- r_f : The risk-free rate--accounts for the time value of money
- β_{im} : The sensitivity of the stock to the market risks
- $E(r_m) - r_f$: The risk premium--accounts for the investor taking on additional risk

Therefore, the higher $E(r_i)$ represents higher stock prices, which means the more positive impact of COVID-19.

α_i is the abnormal rate of return on security in excess of that predicted by the CAPM.

The formula on s mispriced security is as follows:

$$E(r_i) = \alpha_i + r_f + \beta_{im} \times (E(r_m) - r_f) \quad (2)$$

Based on the CAPM model, this paper wants to use the event study model (the market model) to analyze the influence of COVID-19 on the luxury goods industry.

Calculate the normal rate of return:

$$R_{i,t} = \alpha_i + \beta_i R_{i,M_{it}} \quad (3)$$

Calculate the average abnormal rate of return:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{i,M_{it}}) \quad (4)$$

Calculate the cumulative abnormal rate of return:

$$CAR_{i(t_1,t_2)} = \sum_{t_2}^{t_1} AR_{i,t} \quad (5)$$

Where variable resolution represents:

$R_{i,t}$ is the return rate of stock i . $R_{i,M_{it}}$ is the market return rate of the trading market. α_i and β_i is what we mentioned before in the CAPM model. $AR_{i,t}$ is the average abnormal return rate of stock i on the trading day t , obtained by subtracting the expected return from the actual return. $CAR_{i(t_1,t_2)}$ is the cumulative abnormal return rate of stock i in the event window period (t_1, t_2) . T-Test: The T-test is used to observe the abnormal return rate during the window period, which is described in the timeline part, to decide the significance of the data. The confidence interval is 1%.

Window periods.

This paper selects three points as window periods. The timeline contains three intervals and a special event point ($t=0$). For the event point, this is the date that COVID-19 officially began. The "Estimation Window" is used to determine the fund performance

before the pandemic. The "Event Window" is used to investigate the impact on earnings from the outbreak to the end point in time covered in this article.

On December 18, 2019, the Wuhan Center for Disease Control and Prevention found some cases of pneumonia caused by an unknown virus. Therefore, this paper assumes the T1 point on December 18, 2019.

This paper selected January 1, 2019 - December 17, 2019 as the estimation window.

On January 20, 2020, the Chinese government focused on epidemic prevention and control for the first time, so this paper assumed that this was the event point.

December 31, 2021 is the end of the time discussed in this article, assuming that this date is T2.

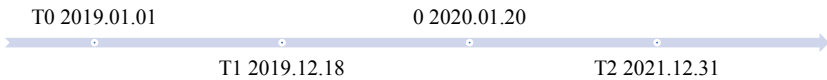


Fig. 1. Illustration of Window Periods (Made by the author)

Equity Evaluation.

P/E Ratio: Stock price to earnings per share. It indicates investors’ perceived growth opportunity in the luxury goods industry.

Price-to-Book Ratio: Indicates how aggressively the market values the industry.

2.2 The performance of profitability metrics

Data sources.

The performance of profitability ratios of the industry is gained from Deloitte’s report [6] on Top 100 luxury goods companies. The report mainly focuses on 2019 and 2020, and there is a small amount of data for 2018. The data for 2021 is not available yet.

Metrics.

$$\text{Return on Assets (RoA)} = (\text{Net Income} / \text{Total Assets}) * 100$$

It is an indicator of how profitable a company is relative to its total assets. The ratio measures how efficiently management is using its assets to generate earnings.

$$\text{Sales Growth} = ((\text{Current Year Revenue} / \text{Prior Year Revenue}) - 1) * 100$$

It provides a snapshot of the change in revenue from one year to the next. Investors can judge whether a company is stable or volatile through Sales Growth.

$$\text{Operating Margin} = (\text{Operating Income} / \text{Revenue}) * 100$$

It reflects how much revenue remains after the costs of production. This measure gives analysts an idea of the company’s core margin on each dollar of sales.

3 Results

3.1 The stock performance of the luxury goods industry

The stock performance of the luxury goods industry presents the CAR and the T-value at 12 different intervals of the event window. It shows the impact of COVID-19 on the market value of the luxury goods industry. Based on the T-value shown, we can confirm that the COVID-19 has an impact on USLUX's price. The analysis of CAR over time of the event window is shown in the charts below (Figure 2).

Table 1. Results of the Impact of COVID-19 on the Luxury Goods Industry (Made by the author)

Event Window	CAR	T-value
(-23,0)	-0.0001005	-0.0238239
(-15,0)	0.00023187	0.04003261
(-5,0)	0.31280442	8.34448369*
(0,0)	0	0
(0,5)	-0.0099383	-1.2712717
(0,15)	-0.0013461	-0.154592
(0,23)	-0.000166	-0.0266548
(0,50)	-0.0070412	-0.8598352
(0,100)	-0.0018487	-0.3100769
(0,300)	0.00041991	0.17009625
(0,500)	0.00070492	0.45006573
(0,700)	0.00065181	0.47753591

Note. CAR stands for cumulative abnormal return. The ordinate represents the event window. “*” is significant at the 1% confidence level.

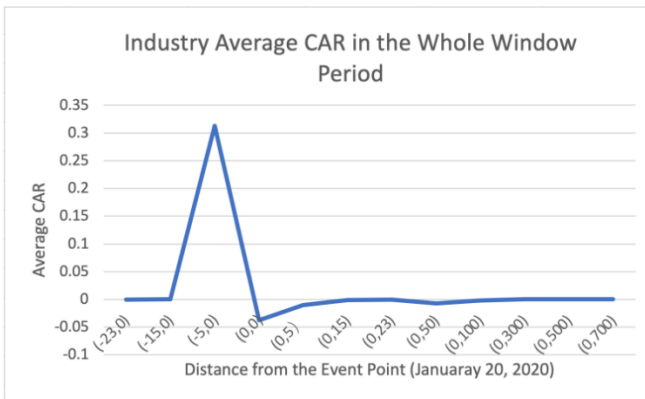


Fig. 2. The Average CAR Overtime of the Luxury Goods Industry (Made by the author)

According to Figure 2, the CAR of the industry did not change greatly in the 23 to 15 days before the COVID-19 outbreak. In the 15 to 5 days before the event, that the average CAR increased greatly, coming to the highest point among the event window, from 0.00023 to 0.3128. After reaching the highest point, it began to drop violently in

the 5 days to the event point. On the event point day, the CAR declined to the lowest level and was negative. After the event point, the CAR recovered gradually but was still negative. Until 300 days after the event point, the CAR became a positive number. Therefore, the epidemic has dealt a blow to the luxury goods industry since its outbreak. Although yields are slowly improving, it has taken nearly a year for the industry to turn positive.

The P/E ratio of USLUX was 27.96, which is lower than the category average of 35.75. The Price-to-book of USLUX was 3.06, which is lower than the category average of 5.98. These ratios indicate that the industry might be endowed with relatively limited growth opportunities. However, the luxury sector is a relatively mature industry, and it is normal for growth opportunities to be low relative to the market index.

3.2 The performance of profitability metrics

Return on Assets (RoA) of the top 100 companies in 2019 is 7.4%, and in 2020 is 2.8%. The decrease means management is less efficient at generating earnings from assets. Sales Growth of the top 100 companies in 2019 is 8.5% and in 2020 is -12.2%. Sales growth decreased sharply, which indicated the industry is a low-growth industry and the Top 100 companies are volatile. Operating Margin of the top 100 companies in 2019 is 10.8% and in 2020 is 5.1%. The reduction in Operating Margin suggests that the industry has become less healthy during the pandemic.

All of the three profitability metrics drop significantly in 2020. Especially the Sales Growth, which declined by 20.7%, to a negative number.

4 Discussion

Although numerous analyses have shown that the overall financial performance of luxury apparel and mass apparel companies was different in the period between 2008 and 2011 [7], COVID-19 has dealt a major blow to the profitability of the luxury sector in the short term: lower share prices, lower operational efficiencies, and fewer growth opportunities. Managers were not able to use assets as efficiently as in the periods before the pandemic. However, from a long-term perspective, yields are gradually returning to pre-epidemic levels and the industry is gradually recovering.

4.1 Reasons

The luxury goods industry is mostly traditional and mature enterprises. The sales model is mainly offline shopping, focusing on providing a high-end consumption experience for consumers. Offline fashion week and red carpet are the main marketing fronts for luxury goods. However, the epidemic isolated people at home, which directly caused a serious impact on the offline sales model and marketing model. Entrenched operating models that are difficult to change in the short term may be the main reason for the decline in profitability and growth opportunities in the short term. And with the advent

of the digital era, online shopping is becoming more and more popular. Due to restrictions during the ongoing pandemic, the e-shopping locus has burgeoned significantly due to its inherent safety, convenience, and contactless and cashless purchasing. [7] In the long run, time has given the industry a cushion and a chance to adjust, and many companies are starting to experiment and promote online sales and marketing.

The pandemic has depressed the global economy, causing companies to close and workers to lose their jobs. People have less income, fewer savings, and less cash. Consumption of non-essential items will decrease or even disappear. Consumers who can afford to spend may shift their attention from luxury goods' "gorgeous luxury" to "quality practical". Policies of working from home and seclusion have made conspicuous consumption far less likely.

The third reason is reduced capacity due to factory closures. Similarly, during the epidemic, logistics are blocked or slowed down, and employees taking leave due to infection will reduce the operating efficiency of the company, thus reducing profitability.

4.2 Suggestions

Luxury companies can be a big part of the fight against COVID-19. Additionally, a powerful crisis committee could be set up to take decisions quickly. Many luxury fashion brands have started helping medical institutions and their staff by providing them with masks, sanitizers, and gowns for free. [8] Meanwhile, luxury groups have granted financial aid to hospitals.[9] For example, Valentino has already taken this action. The company, which exports luxury leather bags to more than 80 countries, is now selling face masks to the public online and says a shift to digital has proved a lifeline. [10]

Luxury companies can open and strengthen online sales channels and network marketing. Demand for luxury goods will be supported by the Chinese middle class, Millennials, Gen Z, and e-commerce. [11] Traditional enterprises should adapt to the trend of The Times and change with the trend instead of remaining complacent. Companies with existing e-commerce and digital marketing capabilities should respond quickly to online sales and marketing models. Online marketing is also far more influential than offline marketing. Celebrity messages to contain some references to luxury, enough to inspire and motivate. [12] To attract adolescents and young customers, luxury fashion brands used celebrities and influencers in promotional activities, and this strategy still effective in the COVID-19 crisis period. [13]

Luxury companies need to find innovative ways to retain existing customers and attract potential customers, as well as create positive reputations for their products and brands. The feeling of isolation leads to a higher intention to purchase luxury brands. Both COVID-19 anxiety and social capital moderate the relationship between bandwagon luxury consumption behavior and intention to purchase luxury brands/subjective well-being related to the luxury brand purchase. [7] Therefore, luxury goods companies can seize this opportunity to provide humanistic care to customers. While improving the brand satisfaction of old customers, it also attracts new customers with a good brand reputation.

5 Conclusion

By analyzing stock price changes, equity valuation, and financial ratios, this paper studies the performance and trend of the profitability of the luxury industry in the three years before, during, and after COVID-19. After the outbreak, the global economy was in a downturn, production and logistics slowed down, and people's income and cash flow were unstable. The traditional offline sales and publicity model of the luxury industry has been greatly impacted. People are also spending less on non-essential products. In the short term, the stock price of the luxury industry is hovering negative, the utilization efficiency of assets is reduced, the growth rate is slowed down, and the overall health of the industry is reduced. But the post-pandemic performance of the luxury sector is worth looking forward to, as share prices are gradually recovering to their pre-pandemic performance, and retaliatory spending presents a good growth opportunity for the sector.

However, there are limitations in this research. The overall financial ratio of TOP100 companies in 2021 is not available, and the performance of profitability in the post-epidemic era can only be evaluated by stock price and equity evaluation in this paper. As the data are updated, future studies can fill in this gap.

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