How does the evolution of Kering's stock price reflect the challenges faced by the luxury industry?

1. Executive Summary (6 pts; on its own single page):

- **Overview - a basic review including project goals and operational details.**

This report leverages public data from Kering and its key competitors, LVMH and Hermès, to explore how Kering's stock price evolution reflects challenges in the luxury industry. Using microeconomic data such as sales, net income, and stock price trends, combined with macroeconomic indicators like stock index performance and gold prices, we aimed to:

- Understand the current challenges faced by the luxury industry and why Kering is the most impacted.
- Illustrate how stock price reflects a firm's performance within its industry.
- Apply machine learning to analyze real-world scenarios and highlight the importance of data-driven decision-making for strategic management.

- **Results – performance of the model/strategy, including key metrics.**

Our models revealed that Kering is highly sensitive to macroeconomic variables, such as gold prices and retail sales in key markets, compared to LVMH and Hermès. Brand-level analyses showed that Gucci's overreliance on Asia hinders its growth, while YSL and Bottega Veneta demonstrated resilience but need improved geographic diversification. Clustering and simulations further identified strategic opportunities in underutilized regions and potential acquisitions.

- **Conclusion – summarize key aspects and paint the big picture for the audience.**

Kering faces significant challenges from macroeconomic volatility and brand-specific vulnerabilities. To remain competitive, it must address geographic overdependence, optimize its store strategy, and invest in growth opportunities like luxury experiences to align with evolving market trends.

- **Recommendations – give simple, supported, actionable advice.**

1. Optimize Global Presence: Realign store openings in underpenetrated markets like North America and Europe.
2. Strategic Investments: Invest in brands to leverage growth and be active on the merging and acquisition market to better penetrate markets and extend the product range
3. Leverage Brand Strengths: Enhance pricing strategies and marketing to strengthen resilience against economic shocks.
4. Diversify: focus on luxury experiences, such as partnerships in sports events, to capture emerging customer interests.

2. Project Description (10 pts for report and 10 for Notebook): This is the main report. Include and refer to relevant, labeled exhibits (charts, tables, and figures) in the Project description. Appendices are not allowed.

- **Project Overview**

-Review project goals (strategic and metric) and discuss each goal's strategies.

We have decided to work on a data-driven business challenge report.
By doing some research on the luxury industry, we saw that this industry has experienced a huge growth in the last five years but is facing a more complicated period for two years. The industry is currently *"sinking deeper into a downturn"* as stated Laure Guilbault in in Vogue Business. This trend is particularly true for Kering, a French luxury listed company, which has been the most affected by this downturn: Kering is losing attractiveness on the financial market. We want to build a model to understand why the luxury industry is currently struggling and why Kering is the most impacted company. Then, we will provide some recommendations for Kering to remain attractive to investors.
We use microeconomic data like public financial figures (sales, net income, etc) published by Kering and its main competitors, LVMH and Hermès, and their stock price evolution overtime; as well as macroeconomic data like stock index performance or evolution of the gold price.
Our model enables us to compare Kering's performance on the financial markets and on the industry to its peers'.

Our goals are:

➢ Understanding the current challenges faced by the luxury industry and why Kering is the most affected player.

To do so, we make hypotheses about metrics that might impact the luxury industry and Kering, and we then create a model to determine the explanatory power of these metrics. We then determine which metrics are relevant. Understanding which metrics impact the market, and as a result Kering, is key to provide recommendations: we want to establish a strategy to overcome these metrics.

➢ Showing how stock price reflects the performance of a firm within its industry.

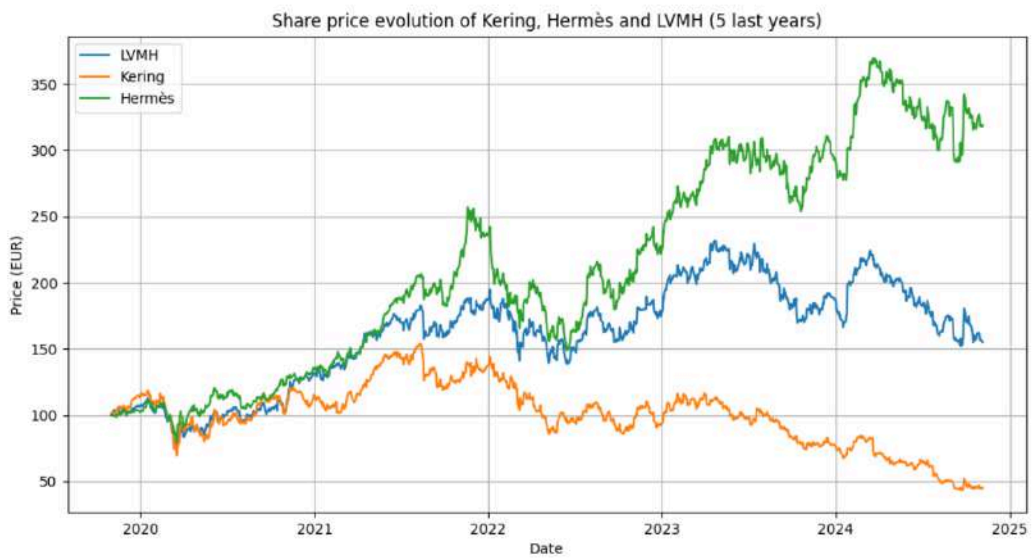
To do so, we want to establish a link between market performance and real-world performance. In other words, we want to understand how operational performance and business decisions impact investors' choice.

➢ Applying machine learning to real case scenarios and understanding why as managers we need to adopt a data-driven approach while making strategic decisions.

To do so, we build a model that enables us to understand and analyze Kering's difficulties within the luxury industry. We also have to understand the relation between the business reality and the outputs obtained with our model.

-Details including company/industry description, problem/opportunity description, data, timeline, financials, metrics.

The luxury industry is a turbulent $387 billion market, as stated by a recent Bain study. Indeed, despite a 5% CAGR since the beginning of the 21st century, the luxury industry is highly volatile. This trend is reflected by the share price evolution that we have computed below for Kering and 2 of the main competitors of this industry.



We can see that Kering's share price confirms this unstable trend. Moreover, we can see that Kering is the most affected by the current luxury downturn. This is the reason why we decided to answer the question: "how does the evolution of Kering's stock price reflect the challenges faced by the luxury industry?".
About Kering:
Kering is a French multinational luxury goods conglomerate founded in 1963, maily operating on the luxury consumer goods market (fashion, accessories, jewelry and watches). The company owns famous luxury brands like Gucci, Yves Saint Laurent, Bottega Veneta, Balenciaga or Boucheron. It is important to mention that Kering's financial success is closely tied to the performance of Gucci, which is currently struggling. Kering's sales fell by 16% in Q3 2024, which marked a third quarter decline in a row, making our analysis even more relevant.

- **Model development and operational details**

-Why did you choose this model? What were the main obstacles? How did you avoid Overfitting?

Our approach followed a “funnel” methodology with a top-down analysis. We chose multiple models to address distinct objectives and systematically analyze Kering’s performance and potential strategies.

Models:

1. Linear Regression (Global Macroeconomic View):
   We began with a linear regression model to identify correlations between Kering’s stock price, its two main competitors (LVMH and Hermès), and macroeconomic variables such as stock indices, exchange rates, interest rates, and commodity prices. This model provided a clear understanding of key relationships at the macroeconomic level.
2. Decision Tree (Microeconomic Analysis):
   To gain insights into the drivers of revenue variations for Kering from one quarter to the same quarter in the previous year, we used a decision tree model. This allowed us to identify macroeconomic conditions under which Kering’s brands performed well or poorly. The decision tree’s interpretability made it particularly suitable for capturing non-linear interactions.
3. Clustering (Strategic Brand Insights):
   To further explore performance at a brand level, we applied clustering techniques to group Kering’s brands based on their performance and market presence. Specifically, we analyzed factors such as the number of stores per region, revenue by region, and revenue trends over the past five years. This approach highlighted strategic opportunities, such as which regions or segments could benefit from new store openings or additional investment.
4. Impulse Response Analysis (Causality):
   To validate our assumptions and analyze causal relationships between macroeconomic variables and brand performance, we implemented an Impulse Response Analysis using a Vector Auto-Regression model. This quantified how external shocks (e.g., inflation, interest rates, exchange rates) impacted each brand.
5. Monte Carlo Simulation (Strategic Scenarios):
   Lastly, we applied Monte Carlo simulations to test hypothetical scenarios, such as Kering acquiring Grand Seiko in Japan. This allowed us to project the potential impact of such an acquisition on Kering’s revenues, integrating assumptions about market growth, integration costs, and regional performance.

Main Obstacles and Solutions:

- Data Availability:
  Gathering data across various sources was a key challenge. For example, we lacked pre-compiled datasets for quarterly macroeconomic variables or brand-level financial performance. To address this, we relied on multiple sources, including CapitalIQ, Investing.com, and YahooFinance, and manually extracted relevant information.
- Impact of the COVID-19 Crisis:
  Data for Q2 2020 and Q2 2021 were heavily affected by the pandemic. To ensure accuracy, we excluded these quarters to avoid misleading results.
- Small Sample Size (19 observations for the decision tree):
  The limited dataset made traditional train-test splits impractical. Instead, we minimized the decision tree depth to reduce overfitting, using the Mean Squared Error as a criterion. R-squared metrics further validated model performance.

Avoid Overfitting

1. Linear Regression:
   We split the data into training and test sets, using RMSE to evaluate performance. Minimal differences between the two sets confirmed the model's generalization capabilities.
2. Decision Tree:
   Due to the small dataset, we adjusted tree depth to minimize overfitting, using MSE to select the optimal depth. The R-squared values validated the chosen depth and variable selection.
3. Clustering:
   While clustering is less prone to overfitting, we ensured robustness by carefully selecting variables that reflected market and brand dynamics, such as store presence and regional revenue.
4. Monte Carlo Simulation:
   The model relies on external assumptions. To avoid overfitting, we grounded our inputs (i.e., growth rates, macroeconomic scenarios) in real-world data and industry reports.
5. Variable Selection:
   Across all models, we focused on relevant macroeconomic and industry-specific variables, avoiding those with weak theoretical justification. Additionally, we excluded COVID-impacted data points to reduce noise.

- **Key Results**

Summarize your results based on your model, such as:
-Overall description of the results
-When discussing performance, refer to relevant metrics and why you decided to use them

Linear regression model:

Our linear regression model highlighted significant correlations between Kering's stock price and macroeconomic variables, particularly in the European, American, Chinese, and Japanese markets.

Gold prices have a negative coefficient for Kering, indicating that rising gold prices lead to higher production costs and tighter profit margins. This reflects Kering's vulnerability to input cost pressures, particularly in luxury goods requiring precious materials.

We also applied the model to the 2 others competitors:

- Hermès: Unlike Kering, Hermès showed no significant correlation with gold prices. This suggests that Hermès is better positioned to leverage demand for gold-related products without compromising margins, likely due to pricing power or more efficient sourcing strategies.
- LVMH: The model revealed that LVMH is less dependent on the Chinese market compared to Kering. LVMH's diversified regional presence allows it to mitigate the impact of China's slowing economic growth, giving it a strategic advantage in maintaining steady performance across global markets.

To ensure the robustness of our model, we applied cross-validation by splitting the dataset into training and test subsets. The results demonstrated the model's strong performance:

- **Training Correlation:** 0.903
- **Test Correlation:** 0.910
- **Training RMSE:** 35.99
- **Test RMSE:** 35.40

These metrics confirm the model's ability to accurately capture the relationships between variables while maintaining generalizability. The high correlation values indicate strong alignment between predicted and actual data, while the low RMSE highlights precise predictions with minimal errors. We chose correlation to measure the strength of linear relationships and RMSE to quantify the model's predictive accuracy, ensuring our approach avoided overfitting and provided reliable insights.

Decision Tree:

Kering:

Node ID	Business Rule	Revenue Change
1	Retail Sales US > 6.5% ; Retail Sales China <= 2.1% and Japan Trade Balance > -2438.2	**35.10%**
2	Retail Sales US > 6.5% ; Retail Sales China <= 2.1% and Japan Trade Balance <= -2438.2	**27.40%**
3	Retail Sales US > 6.5% ; Retail Sales China > 2.1% ; Consumer Confidence China <= 73.025 and China GDP > 0.6%	**22.70%**
4	Retail Sales US > 6.5% ; Retail Sales China > 2.1% ; Consumer Confidence China > 73.025 and Retail Sales Japan <= 4.9%	**22.10%**
5	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 and China Trade Balance <= 36.15	**21.70%**
6	Retail Sales US > 6.5% ; Retail Sales China > 2.1% ; Consumer Confidence China > 73.025 and Retail Sales Japan > 4.9%	**21.40%**
7	Retail Sales US > 6.5% ; Retail Sales China > 2.1% ; Consumer Confidence China <= 73.025 and China GDP <= 0.6%	**21.30%**
8	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; China Trade Balance > 36.15 and Fed Rate > 2.1%	**15.70%**
9	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; China Trade Balance > 36.15 ; Fed Rate <= 2.1% and Unemployment Rate Japan <= 2.3%	**14.00%**
10	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; China Trade Balance > 36.15 ; Fed Rate <= 2.1% and Unemployment Rate Japan > 2.3%	**13.90%**
11	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; Inflation EU <= 4.9% ; Inflation EU <= 8.0% and Consumer Confidence US <= 106.95	**2.40%**
12	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; Inflation EU <= 4.9% ; Inflation EU <= 8.0% and Consumer Confidence US > 106.95	**1.70%**
13	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; Inflation EU <= 4.9% and Inflation EU > 8.0%	**-2.30%**

14	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; Inflation EU <= 4.9% ; EU Trade Balance > 40.85 and US Trade Balance > -196.2	**-5.20%**
15	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; Inflation EU <= 4.9% ; EU Trade Balance > 40.85 and US Trade Balance <= -196.2	**-10.10%**
16	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; Inflation EU <= 4.9% ; EU Trade Balance <= 40.85 and Japan GDP <= -0.1%	**-13.10%**
17	Retail Sales US <= 6.5% ; US Trade Balance <= -104.95 ; Inflation EU <= 4.9% ; EU Trade Balance <= 40.85 and Japan GDP > -0.1%	**-15.30%**

- The decision tree model reveals that Kering thrives when US retail sales are strong and China's retail sales are moderate, with key markets like the US, Europe, China, and Japan driving growth. The best performance (35.1% increase) occurs when these conditions align with a favorable Japan trade balance. However, weaker retail sales in the US or negative economic conditions, such as high EU inflation or low Japan GDP, lead to significant revenue declines (-13.1%).
- The model's optimal tree depth of 5 minimized the MSE, and a strong R-squared value of 0.9985 demonstrates that the macroeconomic factors explained most of Kering's revenue variation.

<u>Gucci:</u>

ID	**Business Rule**	**Revenue Change**
16	Consumer Confidence Europe > 11.2% ; US GDP > 2.9% ; Retail Sales US > 9.6%	**35.80%**
15	Consumer Confidence Europe > 11.2% ; US GDP > 2.9% ; Retail Sales US <= 9.6%	**30.20%**
13	Consumer Confidence Europe > 11.2% ; US GDP <= 2.9% ; Retail Sales China > 6.1% ; China Loan Growth <= 12.7% ; Unemployment Rate EU > 7.8%	**20.10%**
6	Consumer Confidence Europe <= 11.2% ; Inflation US <= 7.3% ; Consumer Confidence US > 102.95 ; China Trade Balance > 264.31	**19.60%**
5	Consumer Confidence Europe <= 11.2% ; Inflation US <= 7.3% ; Consumer Confidence US > 102.95 ; China Trade Balance <= 264.31	**18.90%**
12	Consumer Confidence Europe > 11.2% ; US GDP <= 2.9% ; Retail Sales China > 6.1% ; China Loan Growth <= 12.7% ; Unemployment Rate EU <= 7.8%	**15.40%**

14	Consumer Confidence Europe > 11.2% ; US GDP <= 2.9% ; Retail Sales China > 6.1% ; China Loan Growth > 12.7%	**13.10%**
4	Consumer Confidence Europe <= 11.2% ; Inflation US <= 7.3% ; Consumer Confidence US <= 102.95 ; Unemployment Rate US > 3.7% ; Retail Sales Japan > 4.8%	**-0.90%**
3	Consumer Confidence Europe <= 11.2% ; Inflation US <= 7.3% ; Consumer Confidence US <= 102.95 ; Unemployment Rate US > 3.7% ; Retail Sales Japan <= 4.8%	**-5.10%**
1	Consumer Confidence Europe <= 11.2% ; Inflation US <= 7.3% ; Consumer Confidence US <= 102.95 ; Unemployment Rate US <= 3.7% ; Unemployment Rate EU <= 6.5%	**-7.50%**
2	Consumer Confidence Europe <= 11.2% ; Inflation US <= 7.3% ; Consumer Confidence US <= 102.95 ; Unemployment Rate US <= 3.7% ; Unemployment Rate EU > 6.5%	**-11.00%**
8	Consumer Confidence Europe <= 11.2% ; Inflation US > 7.3% ; China Loan Growth <= 8.4% ; China House Prices > 4.7%	**-12.90%**
7	Consumer Confidence Europe <= 11.2% ; Inflation US > 7.3% ; China Loan Growth <= 8.4% ; China House Prices <= 4.7%	**-13.80%**
9	Consumer Confidence Europe <= 11.2% ; Inflation US > 7.3% ; China Loan Growth > 8.4%	**-14.20%**
11	Consumer Confidence Europe > 11.2% ; US GDP <= 2.9% ; Retail Sales China <= 6.1% ; Japan Trade Balance > -1203.3	**-20.10%**
10	Consumer Confidence Europe > 11.2% ; US GDP <= 2.9% ; Retail Sales China <= 6.1% ; Japan Trade Balance <= -1203.3	**-22.60%**

- For Gucci, the model shows a 35.8% revenue increase when consumer confidence in Europe is high, US GDP exceeds 2.9%, and US retail sales are strong. In contrast, revenue decreases up to -22.6% when China's retail sales are low, US unemployment is high, and Japan's trade balance is negative.
- The model's optimal depth is 5, with a R-squared value of 0.9995, suggesting a highly accurate fit to the data and strong explanatory power for Gucci's revenue fluctuations.

YSL:

ID	**Business Rule**	**Revenue Change**
4	Retail Sales US > 6.5%; Inflation Japan > 0.5%	**43.10%**
3	Retail Sales US > 6.5%; Inflation Japan <= 0.5%	**23.30%**

2	Retail Sales US <= 6.5%; Retail Sales China > 7.6%	**16.00%**
1	Retail Sales US <= 6.5%; Retail Sales China <= 7.6%	**-5.50%**

- For YSL, the model indicates a 43.1% revenue increase when US retail sales are high and inflation in Japan exceeds 0.5%. Conversely, when both US retail sales and Chinese retail sales are low, revenue can decrease by -5.5%. YSL is less dependent on the asian market and was able to leverage growth when Gucci was struggling.
- The model's optimal depth is 2, with a R-squared value of 0.901, demonstrating a strong fit to the data with good explanatory power for YSL's revenue changes.

Bottega Veneta:

ID	Business Rule	Revenue Change (%)
4	FED rate <= 0.048; China House Prices <= 0.093; China Trade Balance > 250.0; EU GDP > 0.005	**20.60%**
3	FED rate <= 0.048; China House Prices <= 0.093; China Trade Balance > 250.0; EU GDP <= 0.005	**20.40%**
1	FED rate <= 0.048; China House Prices <= 0.093; China Trade Balance <= 250.0; Consumer confidence China <= 73.025	**14.00%**
2	FED rate <= 0.048; China House Prices <= 0.093; China Trade Balance <= 250.0; Consumer confidence China > 73.025	**8.80%**
11	FED rate > 0.048; Japan Trade Balance > -1418.55; Consumer confidence Japan > 36.2	**4.20%**
5	FED rate <= 0.048; China House Prices > 0.093; Retail sales Japan <= 0.007	**3.40%**
9	FED rate > 0.048; Japan Trade Balance <= -1418.55; Japan Trade Balance > -1686.65	**3.20%**
7	FED rate > 0.048; Japan Trade Balance <= -1418.55; Japan Trade Balance <= -1686.65; Unemployment rate US <= 0.037	**-0.30%**
8	FED rate > 0.048; Japan Trade Balance <= -1418.55; Japan Trade Balance <= -1686.65; Unemployment rate US > 0.037	**-2.50%**
6	FED rate <= 0.048; China House Prices > 0.093; Retail sales Japan > 0.007	**-5.00%**

10	FED rate > 0.048; Japan Trade Balance > -1418.55; Consumer confidence Japan <= 36.2	**-12.80%**

- For Bottega Veneta, the highest revenue increase of 20.6% occurs when the FED rate is low, China house prices are low, and both China's trade balance is high and EU GDP is positive. Conversely, the revenue can decline by -12.8% when the Japan trade balance is negative, consumer confidence in Japan is low, and the FED rate is high. Like YSL, Bottega was able to generate value in other markets more important to the brand, such as Europe and the USA.
- The model's optimal depth is 4, with a R-squared value of 0.967, indicating a strong fit and high predictive power for Bottega Veneta's revenue changes.

<u>Clustering:</u>

<u>Store distribution in 2024:</u>

Gucci: The store distribution is highly effective, with a well-balanced presence across key markets. This positioning enables Gucci to maximize revenue potential and maintain strong global market coverage.

YSL and Bottega Veneta: Both brands are overly concentrated in the Pacific Asia region. To mitigate risks and unlock new growth opportunities, they should consider increasing their store presence in Europe and North America, where demand remains strong.

Other Houses: These brands have successfully captured significant revenue in Japan, reflecting a highly strategic and effective store distribution in the region. Their approach provides valuable insights that Kering could leverage to enhance its overall market strategy.

<u>Store opening since 2019:</u>

Gucci: The brand has been flat on store opening for 5 years, this means that Kering may have opened too many stores in non-strategic regions in the last 5 years that weren't a driver of growth. Pacific Asia and Japan are the most pertinent examples: Gucci should slow its store opening in those regions as it doesn't leverage growth. However opening store in region in the rest of world seems to have been very positive for the brand

YSL: Store openings in its two primary markets, Europe and the USA, have driven consistent growth over the past five years. However, the strongest growth has been observed in the Rest of the World region, despite it accounting for only the fourth-highest number of store openings among the five regions.

Bottega Veneta: Store opening in North America has been a strong driver of growth, but Bottega didn't open enough stores to have the same trend in Europe. Instead stores opening in the rest of the world were not a driver of growth. Japan also has experienced strong growth with the fewest stores opening compared to a high store opening Gucci that didn't drove growth.

Investment in brands:

Both 2021 and 2022 were marked by significant investments across all brands, driving higher overall growth during these years. However, the trend is especially pronounced for Gucci, where the brand's lowest-performing year coincided with its lowest investment levels. In contrast, YSL and Bottega present a different scenario for 2019, as Kering's substantial investments in these two brands failed to yield convincing results.

Impulse Response Analysis:

We used such model as we thought it was the most adapted one to show the causation between macroeconomic variables and each brand. Our way of functioning was to use it to validate every hypothesis we made earlier about store openings.

- Gucci: By looking at the plots we can confirm that Gucci is highly related to retail sales in both China and Japan and can suffer from high volatility if theses variables are moving. This validate our assumptions about stagnating store openings in these 2 regions
- YSL: We decided to look at the causation for the main regions where YSL make revenue and used the variables that were the most significant for our decision tree. Therefore, the results show us that good situation in NA and in EU leads to long term growth for YSL. We can highlight the fact that situation in EU can have a negative short term effect on the brand but tends to lead to long-term growth.
- Bottega: We used the same principles as YSL for Bottega. We can point out the short-term effect of Fed rate meaning that the brand have reliance on this region. However, the situation tends to stabilize on the long-term and leads to growth. In contrast, EU GDP hass less short term impact but keeps the same trend over period, expanding more to this region could attenuate this trend and drive growth.

Monte-Carlo simulation:

By analyzing the current luxury market for both watches and Japan, we determined a realistic growth rate for a potential acquisition of Grand Seiko by Kering. We also reviewed past acquisitions in this segment to estimate integration costs. Our simulation projected a 23.8% growth rate in the Other Houses' watch segment (up from the current 12%) and a 38% growth rate in the Japan region for Other Houses (up from the current 16.6%).

- **Conclusions**

-Summarize key aspects and paint the big picture for the audience. Use the conclusion to transition from the summary to future recommendations.

Our analysis demonstrates the complexity and interdependence of macroeconomic, brand-specific, and market dynamics on Kering's financial performance. Using a combination of models, we revealed:

1. Macroeconomic Sensitivity: Kering is highly sensitive to macroeconomic variables, with gold prices, trade balances, and retail sales in key markets like the US and China significantly influencing its stock performance. Comparisons with LVMH and Hermès highlight Kering's relative vulnerability to input costs and regional market dependencies.

2. Brand-Specific Insights:
    - Gucci thrives under strong consumer confidence in Europe and robust retail growth in the US but struggles with excessive reliance on Asia.
    - YSL and Bottega Veneta have shown resilience in diversifying their revenue streams, but imbalances in store distribution limit growth potential in certain regions.
    - Other Houses, while benefiting from strategic store distributions in Japan, could adopt a more globally balanced approach.

3. Strategic Gaps: Our clustering analysis and scenario testing indicate potential oversaturation in specific markets (e.g., Pacific Asia for Gucci) and underutilized opportunities in Europe and North America for YSL and Bottega Veneta.

4. Growth Drivers and Risks: Decision tree analyses identified critical drivers like consumer confidence and trade balances, while highlighting downside risks from inflation, slowing GDP growth, and regional market contractions.

5. Scenario Testing: Monte Carlo simulations underscored the importance of aligning strategic initiatives such as acquisitions or store openings with measurable market growth indicators to maximize return on investment.

Kering's growth prospects hinge on a balanced approach that leverages strengths like brand prestige and pricing power while addressing vulnerabilities such as geographic overdependence and input cost pressures. Resilience against macroeconomic shocks and strategic realignment at the brand level are crucial for sustained performance.

- **Future Recommendations**

-Provide simple, actionable and well-justified advice on your company's future analytics journey.

Based on our analysis, our recommendations for Kering are:

- Optimizing Global Presence: Adjusting store strategies to better align with growth potential in underpenetrated markets.
    - For Gucci, we saw that the brand was way too much exposed to regions especially Pacific Asia. Thus, Kering should reinforce the presence of the brand in the rest of the world as the store opening in the last 5 years didn't leverage growth in both Occident and Asia. Our advice would be to open moderately stores in the rest of the world
    - For YSL, the repartition of stores has been very coherent with the revenue changes over the last 5 years. Kering should therefore keep the same pace on store opening for both EU and NA. However, YSL has an historical market in middle east which enables the brand to generate growth in this strategic region considered as rest of the world. Thus, opening stores in such regions would be very pertinent for this brand while keeping the same pace on the occident.
    - For Bottega, we saw that the store repartion was good except a too important presence in Pacific Asia while its main markets are Europe and North America. Over the last 5 years Bottega opened many stores to focus on NA and was able to drive an impressive growth. From all the similarities, we can clearly compare the North American market to the european one. By this assumption we think that Bottega should keep the same pace on opening stores in NA but increase the pace of stores opening in Europe, while reducing the pace in both Pacific Asia and Rest of the world as the brand isn't able to generate as much growth in these regions. Bottega has also a good potential of penetrating better the Japan market and should consider opening more stores in this region.

    - Other Houses presence in a more diversified portfolio should be a leverage for growth generation especially in strategic markets such as Japan. By looking at the cluster we can clearly see that the other brands have an important presence in Japan that enables the houses to generate growth as important as NA which is a crucial market for the 3 main brands.
- Investing strategically: Invest in brands to leverage growth and be active on the merging and acquisition market to better penetrate markets and extend the product range
    - As we saw before, the first assumption would be to invest much in YSL and Bottega, to separate Kering from the Gucci's "dependency". However, the reality is different and we think with empirical views that investing in Gucci after this difficult period must be the best method in ordrer to stop the decrease in revenue and create growth on the long-term.
    - We talked earlier about the penetration of Kering to key market such as Japan. More than store opening, the best way to get into a market that enables Hermes and LVMH to leverage growth would be to acquire a brand with an already established presence in the region. Moreover we remarked in other competitors a strong growth in the watches segment. Thus, Grand Seiko a luxury japanese watch brand must help Kering to both increase its geographical presence in Japan and boost its growth in a key product such as watches
    - Kering hal also been able to generate strong growth over the last 2 years with a particular product segment: Kering Eyewear. We didn't talk a lot about it as this segment is already doing very well, however we think this segment would be a driver of growth for the brand in the futures years and Kering should be cautious about a possible slowing in the revenue of the brand. As we saw recently, the strong eyewear player EssilorLuxxotica acquired Supreme to position itself on the premium segment. We could imagine that a partnership between Kering Eyewear and EssilorLuxxotica would enable the brand to both spread the margins by producing at a lower costs but also have a broader presence on the eyewear market and therefore generate long-term growth for a segment that is becoming crucial for the brand.
- Leveraging Brand Strengths: Tailoring marketing and pricing strategies to maximize margins while minimizing risks in volatile markets.
    - All the recommendations outlined above are grounded in our quantitative data analysis. However, Kering's strategic success also heavily relies on its ability to address qualitative aspects. Maintaining its premium luxury image requires careful brand stewardship, ensuring that marketing efforts for potential partnerships or acquisitions effectively highlight their value.

Simultaneously, the group must continue optimizing its cost structure to improve margins, either by reducing expenses (i.e. gold price negative coefficient) or leveraging its brand equity to justify higher prices. Furthermore, Kering should strategically expand into new regions, tailoring its approach to align with the unique characteristics and strengths of each brand, ensuring a differentiated and culturally resonant positioning in every market.

These actionable steps will position Kering to navigate industry challenges and capitalize on emerging opportunities, ensuring long-term competitiveness and profitability.

Besides, to complete our data analysis we read some industry studies. The luxury industry is currently facing a downturn that is expected to last for the next coming years. All the industry players are affected by this poor business climate, but Kering is suffering the most from it. As highlighted by Bain & Company's Luxury 2024 study, the "personal luxury goods" market is the most affected by this poor business climate whereas the "luxury experience" market is encountering a huge customer appetite.
At the moment Kering has not developed a strong luxury experience offer, whereas its competitors did. For example, LVMH decided to invest in Formula 1 through a 10-year sponsorship starting in 2025; while Hermès is a key player of prestigious horse riding events like the Hermès Grand Prix.
To remain resilient in the case of an industry downturn, we recommend Kering to diversify its offer by investing in luxury experiences. Sport luxury experiences appear to be a good opportunity for Kering.

Sources:

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3. Learning Component (5 pts)

- **Learning: What did your team learn during the project?**

First of all thanks to this project we better understood the complexities of the luxury industry and the factors affecting the performance of companies like Kering. We gained a better understanding of how macroeconomic factors such as stock indices, gold prices and microeconomic challenges such as brand dependency, changes in consumer behavior affect this industry and its volatility.

On the second part, by using machine learning to analyze the data, we were able to identify key trends and factors impacting Kering's stock price, particularly how its heavy reliance on Gucci contributed to its struggles. This taught us the importance of diversifying revenue streams to avoid overdependence on a single brand.

Eventually, we recognized the critical relationship between operational decisions and investor sentiment, making us understand that financial markets often react directly to a company's strategic moves and operational performance.

- **Group Dynamics: What team challenges did you overcome?**

At the start of the project, our team faced several challenges, including aligning our data interpretation methods and deciding whether to pursue the luxury industry given the limited data available.

There was initial uncertainty about whether the dataset would be comprehensive enough to draw meaningful conclusions. However, the intriguing correlation we believed existed between Kering's stock price and the challenges faced by the luxury industry motivated us to move forward. Despite the complexities and volatility of the industry, especially with the impact of macroeconomic factors, we saw potential for valuable insights.

Our first hurdle was standardizing our data preprocessing techniques to ensure consistency in our analysis. We also faced some confusion around workload division, but by assigning tasks based on each member's strengths, we managed to improve efficiency. Communication challenges arose, especially in aligning on project objectives, but regular check-ins kept us on track.

In the end, the project taught us the importance of adapting our methodology and staying flexible when confronted with complex datasets, reinforcing the value of creativity and persistence in overcoming obstacles.

- **Company Dynamics: What industry/company problems did you overcome?**

Kering's stock price evolution posed several challenges, primarily due to the lack of detailed internal data. Public financial figures and operational insights were limited, which made it hard to fully grasp the company’s strategic decisions. To address this, we turned to macroeconomic data and looked at the performance of competitors like LVMH and Hermès. This approach gave us a broader perspective on the industry and helped us benchmark Kering’s performance against its peers. Another difficulty was understanding how external factors, such as shifts in global stock indices and commodity prices, affected Kering’s stock. Because of this issue we needed to dive deeper into research and refine our models to ensure we were capturing these influences accurately. Additionally, Kering's heavy reliance on Gucci presented a challenge when developing recommendations for the company as a whole. To provide a more well-rounded view, we expanded our analysis to include other brands in Kering’s portfolio, allowing us to offer more balanced and insightful recommendations.

- **Future recommendations: What would you do differently in the future?**

If we could look back on it, there are a few ways in which we would approach the project differently.

First, we would seek to diversify our sources of data, particularly by adding in more granular internal data or paid sources, such as consumer sentiment analysis or proprietary financial reports. This would give a much deeper dive into Kering's operations and market dynamics. We would also consider the use of scenario analysis to simulate how the stock price of Kering might respond to various changes in operational and macroeconomic factors, with a view to enhancing the predictability of future trends more accurately.

Then, in terms of the analysis itself, we would extend our focus beyond Gucci and explore the performance of other brands in Kering's portfolio, which would result in more well-rounded recommendations. From the perspective of the team, we would use agile methodologies like a project kick-off week to improve workflow and speed up problem-solving immediately and rapidly in order to tackle the project sooner.

And lastly, we would give more focus to diversification strategies similar to what competitors have been doing, such as LVMH and Hermès, which invested in sectors like sports to reduce dependence on one brand.