Comprehensive Financial Analysis and Forecasting Plan

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1 Objectives

* Identify trends in revenue and profit over time.
* Predict future revenue and profit using time-series forecasting techniques.
* Uncover the most profitable categories, segments, regions, and countries.
* Investigate the impact of seasonality and yearly trends on profit margins.

2 Methodology

2.1 Data Preparation

1. **Data Collection:**
* Identify and gather data from all relevant tables within your database.
* Specify the date ranges for your analysis.

2. **Data Cleaning:**
* Examine data quality - address missing values, inconsistencies, and outliers.
* Transform and format the data as needed for analysis (e.g., calculate derived fields).

2.2 Exploratory Analysis

3. **Descriptive Statistics:**
* Calculate summary statistics (mean, median, standard deviation) for revenue, profit, margins, and other relevant variables.

4. **Visualization:**
Create visualizations to uncover patterns and relationships:
* Line charts for revenue and profit trends.
* Bar charts for comparing profitability across categories, segments, etc.
* Scatterplots to explore potential correlations.

2.3 In-Depth Analysis

5. **Trend Analysis:**
* Calculate profit: `fact_sales_montly.sold.quantity * fact_gross_price.gross_price * fact_pre_discount.pre_invoice_discount_pct - fact_sales_montly.sold.quantity* fact_manufacturing_cost.manufacturing_cost`
* Analyze the trends for seasonality or other cyclical patterns for profit and revenue.

6. **Profitability Analysis:**
* Calculate margin:`fact_sales_montly.sold.quantity * fact_gross_price.gross_price - fact_sales_montly.sold.quantity* fact_manufacturing_cost.manufacturing_cost`
* Isolate the most profitable categories, segments, regions, and countries. Consider Pareto analysis for prioritization.
* Examine margin fluctuation over time (due to seasonality or year-on-year change).

7. **Correlation Analysis:**
* Calculate correlation coefficients to explore potential relationships between revenue, profit, and other related variables.

2.4 Predictive Modeling

8. **Model Selection:**
* Research suitable time-series forecasting models (e.g., ARIMA, SARIMA, Prophet, LSTM).

9. **Model Development and Training:**
* Divide your data into training, validation and testing sets.
* Train the selected models on the training set.

10. **Model Evaluation:**
* Evaluate models performance on the validation set using metrics like MAE, RMSE, or MAPE. * Iterate on model selection and tuning to optimize accuracy.
* Chose best mode;

3 Tools

Python, SQL, Tableau