A Project Report

On

Sales Forecasting And Performance Analysis

BY

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SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF MF F421

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI (RAJASTHAN)

HYDERABAD CAMPUS

(April 2023)

ACKNOWLEDGMENTS

We would like to take this opportunity to express our gratitude to our instructor, Dr. C.P. Kiran, for his patient instruction, enthusiastic encouragement, advice, giving aid in maintaining our progress on track, and supplying critical knowledge regarding the subject area of our project.

ABSTRACT

The technique of projecting future sales volumes or revenues of a company over a given time frame, usually weeks, months, or years, is known as sales forecasting. It's an essential component of company planning and management because it enables companies to set reasonable goals, efficiently allocate resources, predict demand, and make well-informed decisions about marketing, manufacturing, inventory control, and financial planning.

In order to project future sales performance, sales forecasting analyzes market trends, economic indicators, customer behavior, and other pertinent data.

Various techniques and methodologies can be used for sales forecasting, including:

1) Qualitative methods
2) Quantitative methods
3) Time series analysis
4) Regression analysis
5) Market research
6) Forecasting models

In the business world, performance analysis is the process of analyzing many facets of an organization's finances, operations, and general efficacy in order to determine what works and what needs to be improved. Typically, this study entails looking at key performance indicators (KPIs) from several company divisions

CONTENTS

1. Introduction

Any company that deals with tangible things needs to have effective sales forecasting.
Sales forecasting is an inevitable process that each company must go through for financial stability, effective resource management, well-informed decision-making, and long-term corporate success.
It is important for several reasons:

1) Methodical Scheduling
2) Allocation of Resources
3) Financial planning and budgeting
4) Management of Production and Inventory
5) Strategies for Marketing and Sales
6) Risk Management Assessment of Performance

Similarly performance analysis gives businesses insightful information that promotes innovation, expansion, and continual improvement—all of which are essential for long-term success and sustainability.
It's importance can be attributed to the following reasons:

1) Identifying Strengths and Weaknesses
2) Optimizing Efficiency
3) Setting Goals and Objectives
4) Making Informed Decisions
5) Monitoring Progress
6) Enhancing Accountability
7) Improving Customer Satisfaction
8) Staying Competitive

2. Analytical Part of Sales Forecasting

Any company hoping to make educated decisions regarding potential future revenue streams must consider the analytical components of sales forecasting.

A thorough analysis of the analytical component of sales forecasting should show a thorough comprehension of the information, procedures, and outside variables affecting sales performance. It should also provide useful recommendations to assist organizational decision-making processes. Overall, sales forecasting plays a critical role in guiding businesses' strategic decisions, optimizing operations, managing resources effectively, and driving growth and profitability.

Techniques of sales forecasting and analysis

2 a). Methodology

For forecasting we used a static regression analysis model. In order to anticipate future sales, a static regression model for sales forecasting uses historical sales data along with other pertinent variables. It does not take into account changes in the connections between variables over time. This kind of model makes the assumption that throughout the forecast period, the relationships between the variables won't change.

It's crucial to remember that whereas static regression models might offer insightful analysis and predictions, they might miss shifts in the connections between variables over time. Dynamic regression models or more sophisticated time series forecasting techniques might be better suitable in dynamic contexts where these associations might change.

We collected sales data available from the internet. Cleaned the data to some extent to fit our requirements.

We did the analysis for 4 categories of products sold by Myntra, namely:

1) Cosmetics
2) Footwear
3) Bottom wear
4) Top wear

Steps followed for forecasting:

1) Data collection
2) Cleaning data and sorting it into the 4 categories according to monthly sales
3) Adding the monthly sales for 3 months to get the sales of a quarter
4) Then using the quarter wise data we calculated the deseasonalized sales using the formula:

$$\bar{D}_t = \begin{cases} \left[D_{t-(p/2)} + D_{t+(p/2)} + \sum_{i=t+1-(p/2)}^{t-1+(p/2)} 2D_i \right] / (2p) \text{ for } p \text{ even} \\ \sum_{i=t-[(p-1)/2]}^{t+[(p-1)/2]} D_i / p \text{ for } p \text{ odd} \end{cases}$$

$$\bar{D}_t = \left[D_{t-(p/2)} + D_{t+(p/2)} + \sum_{i=t+1-(p/2)}^{t-1+(p/2)} 2D_i \right] / (2p)$$

For our data we considered p=4 and t=3, hence for us p even and we used the first part of the formula above.

5) Using the deseasonalized sales we regressed it against time (the period we are considering)
6) The regression result gives us the level and trend for the model
7) Using level and trend we found out the regressed seasonalized sales for each period
8) Using our sales data and our obtained regressed seasonalized sales values we found the seasonal factor for periods where our sales were known
9) We averaged seasonal factor for quarters by simply adding and dividing them by 3 (because each quarter appeared thrice in 3 years)
10) Using the regressed deseasonalized and average seasonal factor for each quarter we predicted sales by simply multiplying the two numbers together.

Assumption : we assumed that the demand for products in a given quarter is equal to the sales made by the company for simplifying our calculations.

2 b). Forecasting

The following results were obtained:

Forecasts for 2024	
Quarter	Sales
1	59624.36157
2	57533.12462
3	63770.19032
4	54483.43891

SALES FORECASTING FOR COSMETICS

Forecasts for 2024	
Quarter	Sales
1	56974.70616
2	62022.04339
3	71600.79186
4	49407.98408

SALES FORECASTING FOR FOOTWEAR

Forecasts for 2024	
Quarter	Sales
1	46121.60919
2	48972.01109
3	48521.54499
4	45157.86625

SALES FORECASTING FOR BOTTOMWEAR

Forecasts for 2024	
Quarter	Sales
1	46121.60919
2	48972.01109
3	48521.54499
4	45157.86625

SALES FORECASTS FOR TOPWEAR

2 c). Analysis

Analyzing sales forecasts entails assessing forecast accuracy, spotting patterns and trends, comprehending the variables affecting sales, and making modifications to enhance forecasts in the future.

From the data we can comment on a few things:

1) The sales of cosmetics are expected to increase in the 3rd quarter of the year hence the company should be ready with the inventory in hand so that they are able to satisfy customer needs faster thereby increasing customer satisfaction and rising above their competitors.
2) There is expected to be a huge jump in the sales of footwear in the 3rd quarter as well, therefore the company should have that inventory ready as well to dish out orders as fast as they can and manage the sales of both the cosmetics and footwear together. And allocate their resources accordingly.
3) The sales of both the bottom wear and topwear are expected to be pretty consistent. To increase the sales the company should employ proper marketing strategies for the respective segments.
4) Financial planning and budgeting for the 3rd quarter is very crucial in the growth of the company. As the sales rises management of production and inventory needs to be taken care of as well. To maximize profits there should be proper methodical scheduling of transport of goods.
5) As the sales decrease for any segment of products there is a huge risk of obsolete inventory and the large amount of costs associated with it. Therefore proper risk management and assessment of performance should be done at regular intervals of time.

Link to the excel sheet for data and forecasting: Myntra dataset (1).xlsx

3. Performance Analysis

We will be comparing the performance of both firms on the following parameters:

1. Return on Equity - ROE
2. Return on Assets - ROA
3. Accounts Receivables Turnover - ART
4. Accounts Payables Turnover - APT
5. Plant Property and Equipments Turnover - PPR Turnover
6. Inventory Turnover Ratio - INVT
7. Cash to Cash Cycle - C2C cycle

As Myntra is not listed anywhere, therefore it never releases its annual financial reports separately.

We have taken a similar company (Nykaa), which is publicly traded, to compare it with a company that only operates offline retail stores (Zudio - Trent Limited)

1. **Return on Equity:** It measures a firm's profitability in relation to its Equity owned by the shareholders.

ROE	NYKAA			ZUDIO	
	FY 22-23	FY 22-21		FY 22-23	FY 22-21
PAT	613.09	1035.13		393.69	34.6
EQUITY SHARE CAPITAL	2852	474		35.55	35.55
RETURN ON EQUITY	0.214968	2.183819		11.07426	0.973277

In this case, Nykaa has an abrupt change in shareholder's equity, while Zudio's profit increased by more than 10 times in a single year. Due to this, both companies have had very inconsistent ROEs for the past two years and cannot be directly compared to each other.

But, due to the sudden jump in profits, Zudio gave a very good return to its shareholders.

2. **Return on Asset:** It shows how efficient a firm is in converting its assets into profit.

ROA	NYKAA			ZUDIO	
	FY 22-23	FY 22-21		FY 22-23	FY 22-21
Profit before interest exp	906.2	798.5		652.144	247.918
Total Assets	29500	26460		8081.53	7726.02
RETURN ON ASSETS	0.030719	0.030178		0.080696	0.032089

The ROA of Nykaa is consistent, which means that it generates similar returns in comparison to its assets, while Zudio's ROA increases significantly over the year, showing better asset utilization.

In comparison, Zudio's performance shows a marked enhancement, reflecting potentially more effective asset utilization and profitability growth over time.

3. **Accounts Receivable Turnover:** It is a measure of how effective a firm is in collecting debts and giving credit. It is also known as the Debtor's Turnover ratio

ACCOUNTS RECEIVABLE TURNOVER	NYKAA			ZUDIO	
	FY 22-23	FY 22-21		FY 22-23	FY 22-21
Sales Revenue	3464.85	3034.06		2177.99	1876.99
Trade receivables	34.39	18.26		586.04	206.53
ART	100.752	166.159		3.71645	9.08822

Nykaa has a very high ART which means they take a very long time to collect their receivables, while Zudio already has a lower ART and they have managed to reduce it even further suggesting good management.

4. **Accounts Payables Turnover:** It is the rate at which a firm pays back to its suppliers or creditors.

ACCOUNTS PAYABLE TURNOVER	NYKAA			ZUDIO	
	FY 22-23	FY 22-21		FY 22-23	FY 22-21
CoGS	28657	21300		5308.52	2707.47
TRADE PAYABLES	2654	3621		629.34	370.89
APT	10.79766	5.882353		8.435059	7.299927

The percentage increase in APT is significantly greater at Nykaa when compares to Zudio, which suggests that Zudio has a slower rate of accounts payables than Nykaa.

Comparing the two, Nykaa experiences a significant improvement in APT, reflecting a more efficient management of accounts payable and possibly tighter control over cash flow. Meanwhile, Zudio also shows an increase in APT but at a slower rate compared to Nykaa, indicating a relatively stable but slightly slower pace in paying off its accounts payable obligations.

5. **PPE Turnover:** Also known as Fixed asset turnover. This shows the revenue generated per rupee spent on infrastructure.

PPE TURNOVER	NYKAA			ZUDIO	
	FY 22-23	FY 22-21		FY 22-23	FY 22-21
REVENUE	51438	37739		8502.94	4673.23
NET PPE	7297	5077		871.18	724.94
PPET	7.049198	7.433327		9.760256	6.446368

A high turnover indicates that assets are being utilized efficiently and large amounts of sales are generated using a small amount of assets. Hence Zudio is able to generate more revenue per rupee they spend on property, plant and equipment as compared to Nykaa whos ratio is 7.04 for FY 22-23 as compared to 9.76 for Zudio in the same year.

6. **Inventory Turnover:** It shows the number of times inventory was depleted in a fixed time period.

INVENTORY TURNOVER	NYKAA			ZUDIO	
	FY 22-23	FY 22-21		FY 22-23	FY 22-21
CoGS	28657	21300		5308.52	2707.47
INVENTORIES	10051	8756		1361.16	867.78
INVT	2.851159	2.432618		3.899997	3.119996

Both the companies have comparable inventory turnover ratio.

While Nykaa had to replace it's inventory 2.85 times in FY 22-23 Zudio churned its inventory almost 4 times the same year. Hence we can say that the goods are sold faster by Zudio in comparison to Nykaa.

7. **Cash to Cash Cycle (C2C Cycle):** It is the amount of time from when the cash went out as cost and returns as collected revenue.

CASH TO CASH CYCLE	NYKAA			ZUDIO	
	FY 22-23	FY 22-21		FY 22-23	FY 22-21
APT	10.7977	5.88235		8.43506	7.29993
INVT	2.85116	2.43262		3.9	3.12
ART	100.752	166.159		3.71645	9.08822
C2C Cycle	13.9385	12.8491		21.1604	15.265

A longer CCC means that it takes a longer time to generate cash, which can mean insolvency for small companies.

Shorter cycles imply good financial health of the company.

Hence ZUDIO is financially "unhealthy" with respect to the C2C performance parameter.

Excel sheet link: [FINANCIALS.xlsx]

4. Conclusion

This report presents a comprehensive step by step process for sales forecasting and performance analysis for particular companies.

In conclusion we can say that sales forecasting serves as a strategic tool for businesses across various aspects of their operations.

First of all, by offering predictions about future sales volumes and patterns, it supports strategic planning. Long-term decisions on production, inventory control, resource allocation, and expansion plans are guided by this data.

Second, financial planning and budgeting procedures heavily rely on sales forecasting. Businesses may assess income streams, set sales targets, manage resources efficiently, and create realistic financial projections with the help of accurate forecasts.

Additionally, sales predictions help with resource allocation by maximizing personnel needs, marketing budgets, production schedules, and inventory levels to efficiently satisfy customer demand while reducing expenses and waste.

Businesses can also assess sales performance, determine areas for development, and assess the efficacy of marketing campaigns and sales strategies by comparing actual sales figures to predicted values.

By highlighting possible risks to future sales and empowering companies to create risk-reduction and backup plans, sales projections can help firms manage risk.

Furthermore, sales projections serve as a foundation for decisions made in a number of organizational functional areas, including as pricing policies, new product introductions, market expansions, and strategic investments.

While sales forecasting plays a critical role in guiding businesses' strategic decisions, optimizing operations, managing resources effectively, and driving growth and profitability, performance analysis has its own functionality for brands and companies.

Because performance analysis has so many advantages, businesses can't do without it. First of all, it functions as a diagnostic tool that enables companies to precisely identify their strengths and flaws. Companies can identify areas for improvement and areas where they shine by closely examining a variety of performance data.

Performance analysis also plays a crucial role in efficiency optimization. By carefully analyzing operational workflows and procedures, businesses can find inefficiencies and wasteful areas. Equipped with this data, entities can optimize their processes, curtail superfluous expenses, and augment efficiency.

Apart from supporting goal-setting and decision-making, performance analysis promotes responsibility inside businesses. Businesses encourage a culture of accountability and ownership by evaluating team and individual performance against preset benchmarks. Because they are aware that their performance is being watched over and assessed, employees are encouraged to take responsibility for their job and aim for perfection.

Ahead of the curve is critical in today's cutthroat business environment. Through performance analysis, businesses can find areas for innovation, assess how they stack up against rivals and industry norms, and adjust to shifting consumer demands. Businesses may build on their strengths, address their flaws, and set themselves up for long-term success by utilizing performance data efficiently.

Hence we can conclude that both sales forecasting and performance analysis are two very important business activities that a brand should regularly indulge in for maximizing profits and growing exponentially.

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