

Project 4 - Analyze Data with Power BI

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How do supplier, product sales, order fulfillment, invoicing, outstanding balances and foreign exchange fluctuations collectively influence the organization's financial performance and cash flow over time?

Report 1 - Sales Analysis by Supplier and Products

Provide a detailed and comprehensive view of product sales performance by suppliers and orders.

Visualizations:

- **Map** – Displays sales performance by supplier.
- **Matrix** – Hierarchical view: *Supplier > Order > Invoices per Order > Items/Products per Invoice* - Used to analyze item quantities and total sales values.
- **Sunburst** – Illustrates the relationship between item quantities across *Product > Invoice > Order > Supplier*.

Report 3 - Invoices, Open Balances and Liabilities to Suppliers

Assess the status of payments to suppliers and identify outstanding debts and balances

Visualizations:

- **Matrix** – Hierarchical view: *Supplier > Order > Invoices per Order* - Show invoices and amounts *paid on time* versus *overdue*.
- **Stacked Column Chart** – Display the relative share of *paid* and *open* invoices per order.
- **Column Chart** – Show overdue payables by month and supplier

Report 2 - Orders vs. Invoices

Comparison and Performance Monitoring

Identify gaps between purchase orders and invoices, and detect failures in the procurement and payment processes.

Visualizations:

- **Matrix** – Hierarchical view: *Order > Invoices per Order* - Examine whether there is alignment between order amounts and invoice amounts and identify discrepancies. Including the display of icons according to the deviation amount.
- **Column Chart** – Analyze the *average time* between the purchase order date and the invoice issuance date.

Report 4 - Analysis of Exchange Rate Gaps and Foreign Currency Payments

Identify financial discrepancies resulting from *currency conversion* between the order/invoice amount in U.S. dollars and the actual payment made in Israeli shekels.

However, the following assumptions were applied due to the lack of information regarding the **actual payment dates**:

- **Paid invoices** were analyzed using the exchange rate on the *invoice issuance date*.
- **Open invoices** – for the purpose of calculating discrepancies, the

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Project
Steps

Sales

Orders vs.
Invoices

Balances &
Liabilities

Exchange
Rates

Conclusions

Project Implementation Steps

Project Steps:

Data Import:

Imported data from the database created in *Project 1 – Basic SQL*, within the *Accounts Payable* model, which included the following tables:

- Suppliers
- Products
- Supplier Orders
- Supplier Invoices
- Items

In the Query Editor:

- Handled NULL values in the *Due Date* column of the *Supplier Invoices* table.
- Added a Historical Exchange Rate table, pulling USD exchange rates according to the relevant dates in the *Orders* and *Invoices* tables
and merged it with the *Exchange Rate* table, which retrieves daily rates and stores cumulative values.
- Verified that all columns had appropriate data types (dates, numbers, etc.).

In Power BI Desktop:

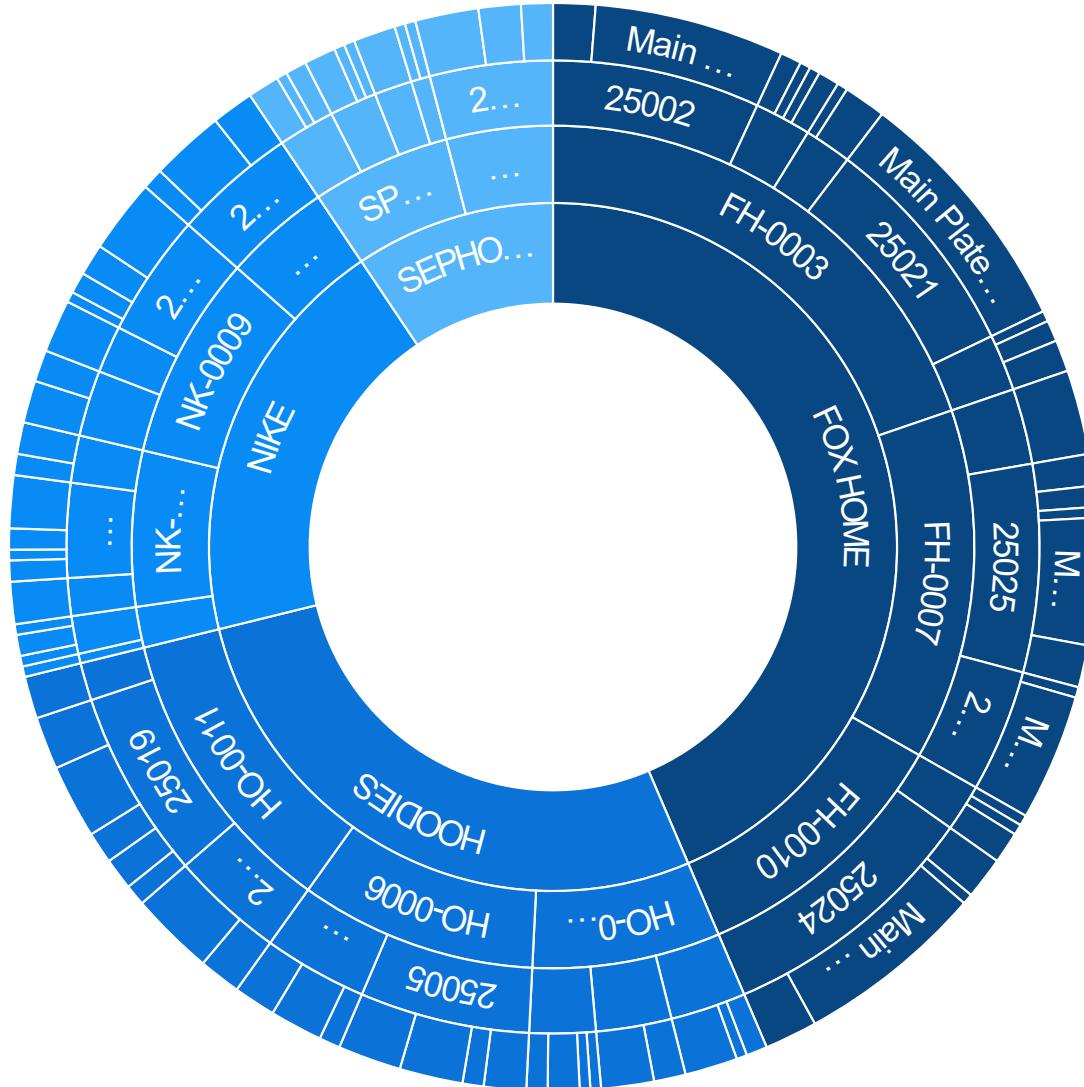
- Table View:
 - Added calculated columns – *Exchange Rate* and *Total NIS* – to the following tables:
 - *Supplier Orders*
 - *Supplier Invoices*
 - *Items*
 - Added a calculated column *Total Line* to the *Items* table.

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Sales Analysis by Supplier and Products (Financial & Time-Based Performance)



Sum of Quantity by CompanyName, SupOrderID, SupInvoiceID and ProductName



SUM_InvoiceTotal by Country and CompanyName

\$55,788.57

Sum of TotalLine

Month Name

[January](#) [February](#) [March](#)

ProductName

[All](#)

CompanyName	Sum of Quantity	Sum of UnitPrice	Sum of Discount	Sum of TotalLine
FOX HOME	139	\$9,162.30	580%	\$16,690.01
FH-0003	63	\$4,348.80	360%	\$6,806.15
25002	22	\$164.80	40%	\$1,142.24
Bath Towel Diva	4	\$109.90	20%	\$351.68
Main Plate Glory	18	\$54.90	20%	\$790.56
25010	6	\$1,579.60	125%	\$1,327.57
Bath Towel Diva	2	\$109.90	20%	\$175.84
Cooking Pot Elementi	1	\$649.90	40%	\$389.94
Cooking Pot Materia	1	\$519.90	40%	\$311.94
Tablecloth Tara	2	\$299.90	25%	\$449.85
25016	5	\$1,079.80	70%	\$1,593.66
25021	24	\$54.90	20%	\$1,054.08
Total	319	\$26,445.00	1595%	\$55,788.57

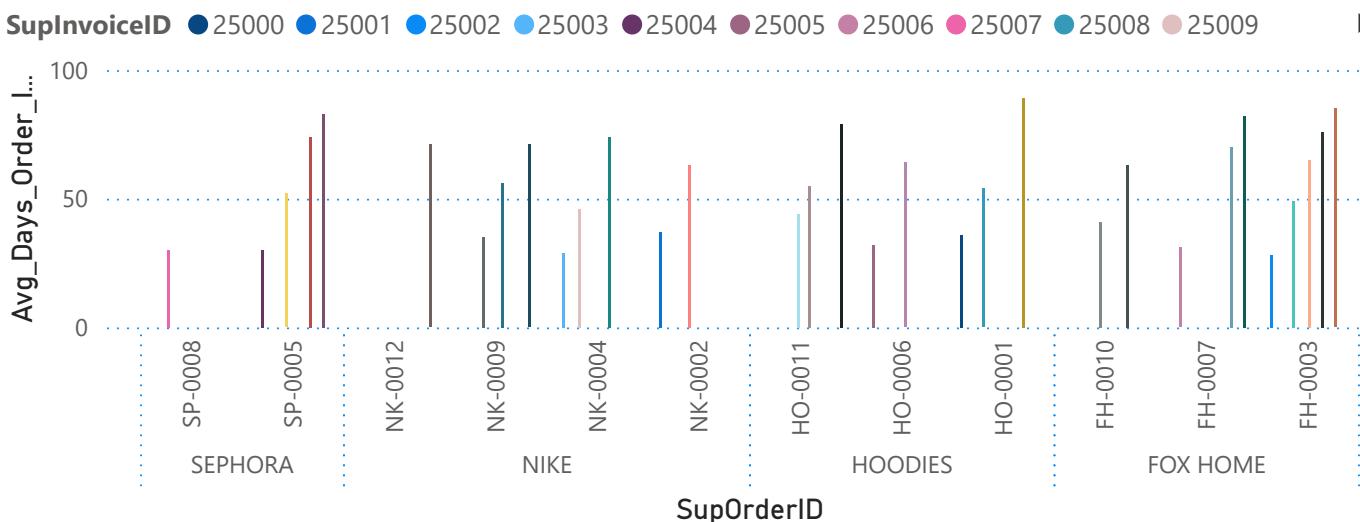


Orders vs. Invoices – Comparison and Performance Monitoring

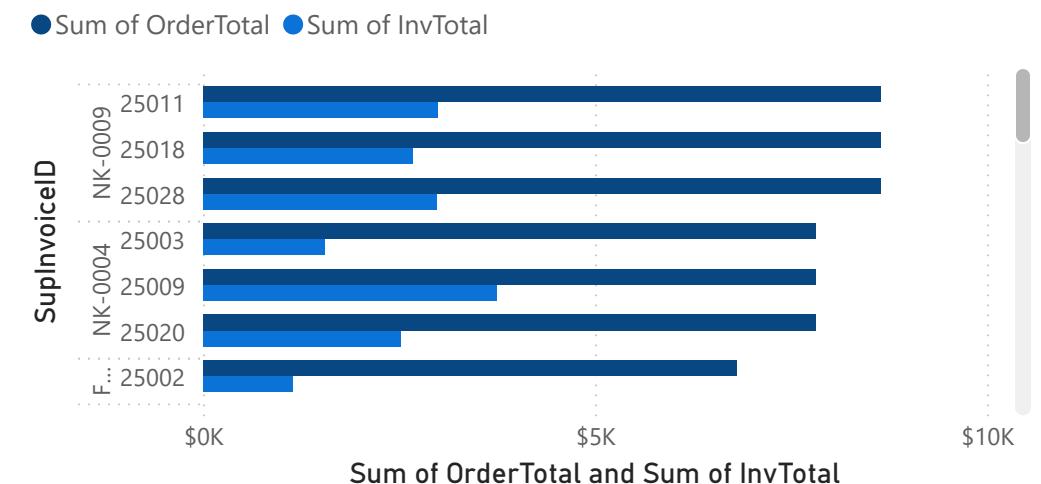
(Financial & Time-Based Performance)

SupOrderID	SUM_OrderTotal	SUM_InvoiceTotal	Cumulative_InvTotal	DIFF_Order_Invoice	PCT_Order_Invoice
FH-0003	\$6,806.15	\$6,806.15	\$6,806.15	\$0.00	100.00%
25002	\$6,806.15	\$1,142.24	\$1,142.24	\$5,663.91	16.78%
25010	\$6,806.15	\$1,327.57	\$2,469.81	\$4,336.34	36.29%
25016	\$6,806.15	\$1,593.66	\$4,063.47	\$2,742.68	59.70%
25021	\$6,806.15	\$1,054.08	\$5,117.55	\$1,688.60	75.19%
25026	\$6,806.15	\$1,688.60	\$6,806.15	\$0.00	100.00%
FH-0007	\$4,676.62	\$4,676.63	\$4,676.63	\$0.00	100.00%
FH-0010	\$5,207.24	\$5,207.24	\$5,207.24	\$0.00	100.00%
25014	\$5,207.24	\$2,342.52	\$2,342.52	\$2,864.72	44.99%
25024	\$5,207.24	\$2,864.72	\$5,207.24	\$0.00	100.00%
HO-0001	\$1,510.39	\$1,510.39	\$1,510.39	\$0.00	100.00%
Total	\$55,788.58	\$55,788.61	\$55,788.61	\$0.00	100.00%

Avg_Days_Order_Invoice by CompanyName, SupOrderID and SupInvoiceID



Sum of OrderTotal and Sum of InvTotal by SupOrderID and SupInvoiceID



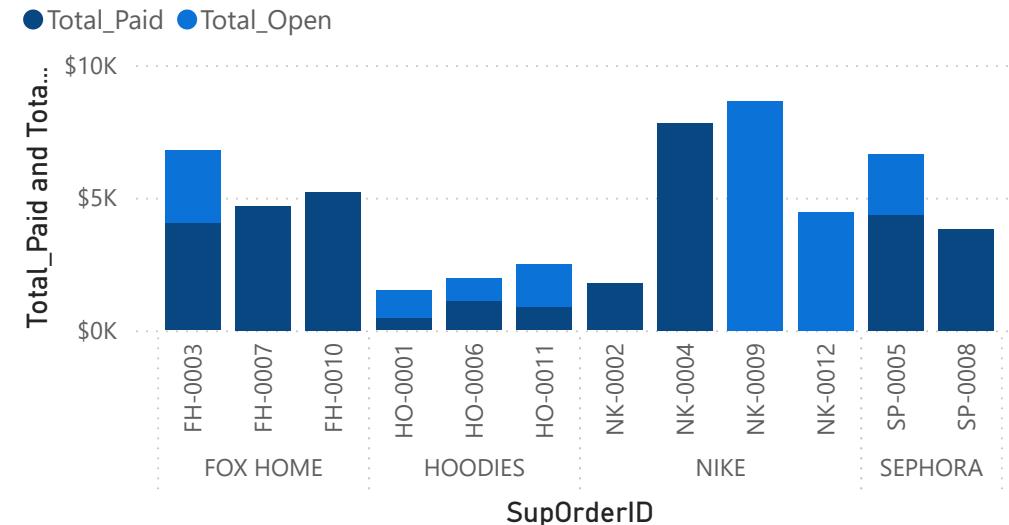
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Invoices, Open Balances and Liabilities to Suppliers

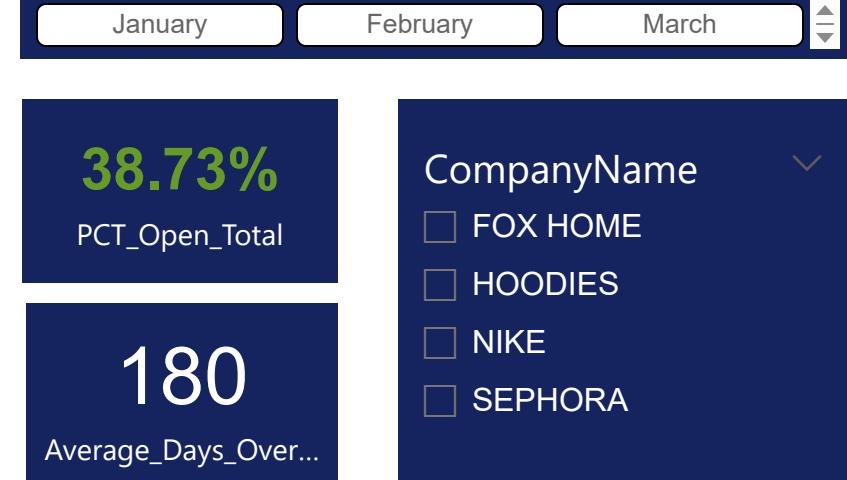
(Financial & Time-Based Performance)

CompanyName	Total_Paid	Total_Open
NIKE	\$9,575.29	\$13,105.37
HOODIES	\$2,475.22	\$3,479.26
FOX HOME	\$13,947.34	\$2,742.68
FH-0003	\$4,063.47	\$2,742.68
25026		\$1,688.60
25021		\$1,054.08
25002		\$1,142.24
25010		\$1,327.57
25016		\$1,593.66
FH-0007	\$4,676.63	
FH-0010	\$5,207.24	
SEPHORA	\$8,182.49	\$2,280.96
Total	\$34,180.34	\$21,608.27

Total_Paid and Total_Open by CompanyName and SupOrderID

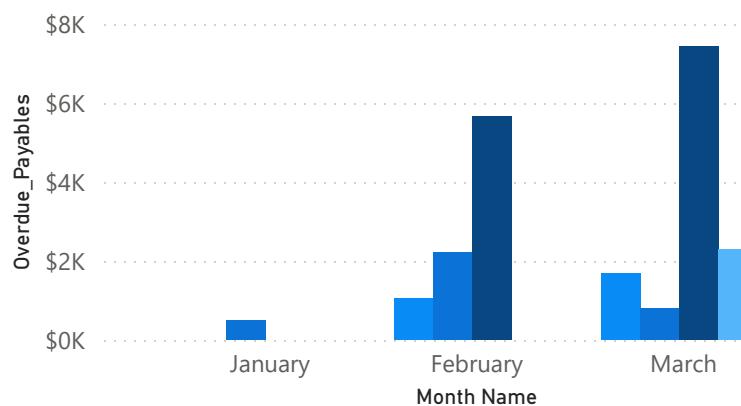


Month Name



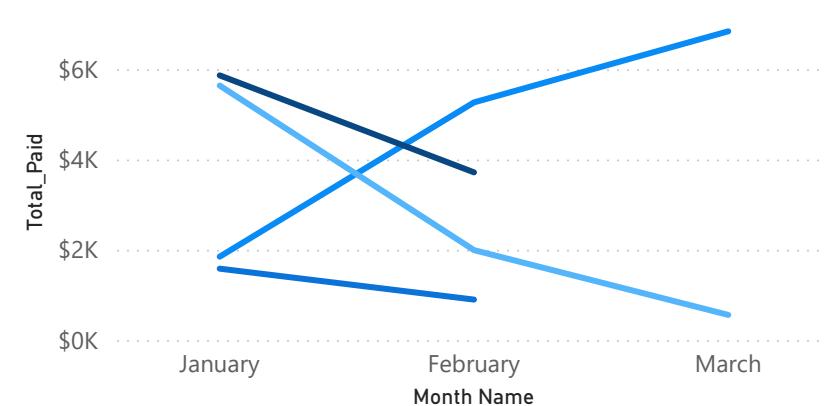
Overdue_Payables by Month Name and CompanyName

CompanyName ● FOX HOME ● HOODIES ● NIKE ● SEPHORA

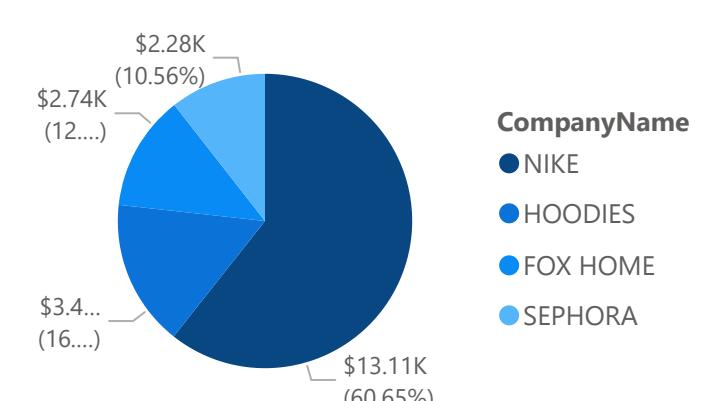


Total_Paid by Month Name and CompanyName

CompanyName ● FOX HOME ● HOODIES ● NIKE ● SEPHORA



Open_Balance by CompanyName



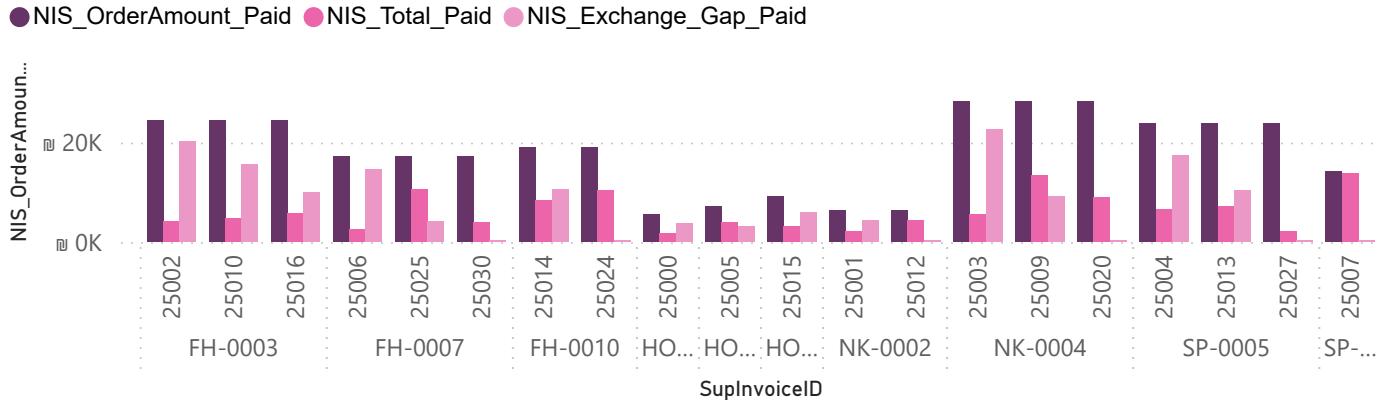


Analysis of Exchange Rate Gaps and Foreign Currency Payments

(Financial & Time-Based Performance)

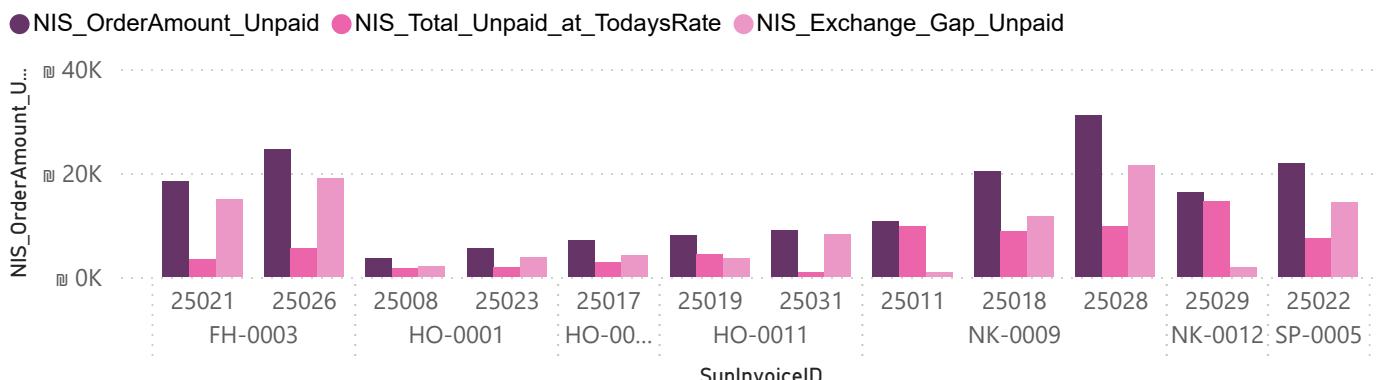
PAID INVOICES

NIS_OrderAmount_Paid, NIS_Total_Paid and NIS_Exchange_Gap_Paid by SupOrderID and SupInvoiceID



UNPAID INVOICES

NIS_OrderAmount_Unpaid, NIS_Total_Unpaid_at_TodaysRate and NIS_Exchange_Gap_Unpaid by SupOrderID and SupInvoiceID



Notes:

- Payment date not available due to missing data.
- NIS Total Paid** uses USD rate from **invoice date**.
- NIS Total Unpaid** uses USD rate from **today**.

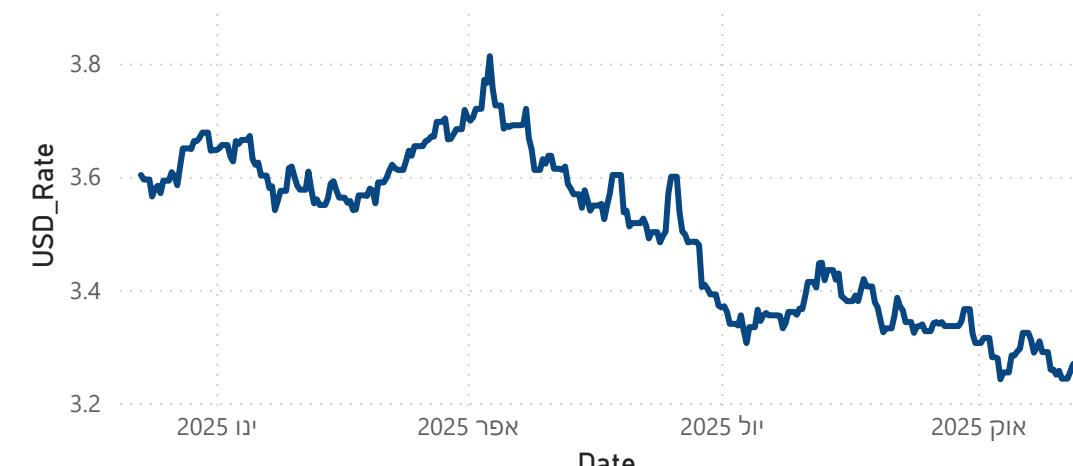
NIS Exchange Gap
Between Orders Date and Payments Date
₪ 9,027.68

SupInvoiceID	▼	SupOrderID	▼
All	▼	All	▼

Todays_USD_Rate

₪

USD_Rate by Date



Reports' Conclusions

Report 1 - Sales Analysis by Supplier and Products

Key Insights – Reporting Period:

- Home Fox (Israel) achieved the highest sales volume among all groups.
- Nike (USA) recorded the highest total sales value, leading in overall revenue.
- February stood out as the top-performing month, driven by strong sales volume from Hoodies (Israel), while Nike (USA) maintained its lead in total sales value.

Report 2 - Orders vs. Invoices – Comparison and Performance Monitoring

Key Insights – Reporting Period:

- There are no financial discrepancies between orders and invoices.
- Order ID # FH0003 to Home Fox (Israel) had the highest number of invoices per order – 5 payments.
- The Average Days Order–Invoice for the entire report period is 56 days - This is partly because some orders are billed in installments, which includes invoices issued later for advance payments.
- Splitting an order into multiple installment payments allows the supplier to maintain cash flow for ongoing operations.
- The supplier receives a stable cash inflow over time, rather than only after delivering the entire order.
- Installment payments enable the supplier to plan production or procurement in advance, according to available cash.
- Billing in installments also communicates reliability and professionalism to the customer.

Report 3 - Invoices, Open Balances and Liabilities to Suppliers

Key Insights – Reporting Period:

- As of the report date –
\$34,180.34 has been paid out of total orders amount of \$55,788.61.
An amount of \$21,608.27 remains open and overdue.