

SumProduct Pty Ltd Tornado Chart Example

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General Cover Notes:

How to build a ranked sensitivity chart (often known as a tornado chart).

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PLEASE READ:

If, upon opening, this file appears to contain errors (e.g. #NAME?), please ensure the following:

Go to Tools -> Add-Ins (**ALT + T + I**, all versions of Excel);

Make sure **Analysis ToolPak** and **Analysis ToolPak - VBA** add-ins are both checked.

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Tornado Chart Example

Section 1.

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Section Cover Notes:
Walk-through example.

Tornado Chart

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Tornado Chart

Sensitivity Data

| | |
|-------------------------|---|
| Units Produced | - |
| Proportion of Product A | - |
| Price of Product A | - |
| Price of Product B | - |
| Gross Margin, Product A | - |
| Gross Margin, Product B | - |
| Operating Expenditure | - |
| Tax | - |

Data Table

Raw Data

Activate?

| | (10.0%) | - | 10.0% |
|-------------------------|-----------|-----------|-----------|
| Units Produced | \$317,909 | \$454,344 | \$590,778 |
| Proportion of Product A | \$438,397 | \$454,344 | \$470,291 |
| Price of Product A | \$348,031 | \$454,344 | \$560,656 |
| Price of Product B | \$424,222 | \$454,344 | \$484,466 |
| Gross Margin, Product A | \$348,031 | \$454,344 | \$560,656 |
| Gross Margin, Product B | \$424,222 | \$454,344 | \$484,466 |
| Operating Expenditure | \$545,344 | \$454,344 | \$363,344 |
| Tax | \$473,816 | \$454,344 | \$434,872 |

"Adj Spread" acknowledges that the **RANK** function will allow more than one value to have the same rank, which will cause problems in calculations below.

This adjustment (second half of the calculation) is merely an adjustment that takes into account original position in the sensitivity table (e.g. if two or more items are tied, they are ranked as to which was higher in the original table).

This is one type of adjustment: feel free to revise accordingly.

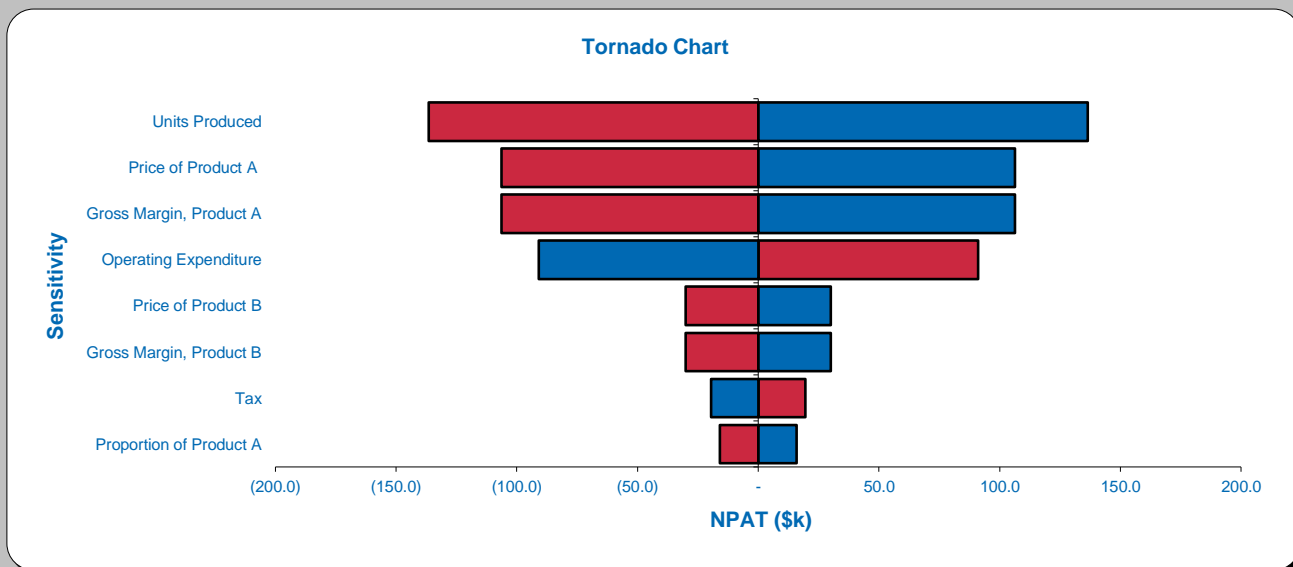
Cleaned Data

| | (10.0%) | - | 10.0% | Spread | Adj Spread | Rank |
|---------------------------|-------------|---|------------|-----------|------------|------|
| 1 Units Produced | (\$136,434) | - | \$136,434 | \$272,869 | \$272,869 | 1 |
| 2 Proportion of Product A | (\$15,947) | - | \$15,947 | \$31,894 | \$31,894 | 8 |
| 3 Price of Product A | (\$106,313) | - | \$106,313 | \$212,625 | \$212,625 | 2 |
| 4 Price of Product B | (\$30,122) | - | \$30,122 | \$60,244 | \$60,244 | 5 |
| 5 Gross Margin, Product A | (\$106,313) | - | \$106,313 | \$212,625 | \$212,625 | 3 |
| 6 Gross Margin, Product B | (\$30,122) | - | \$30,122 | \$60,244 | \$60,244 | 6 |
| 7 Operating Expenditure | \$91,000 | - | (\$91,000) | \$182,000 | \$182,000 | 4 |
| 8 Tax | \$19,472 | - | (\$19,472) | \$38,944 | \$38,944 | 7 |

Ranked data

| | (10.0%) | - | 10.0% |
|---------------------------|-------------|---|------------|
| 1 Units Produced | (\$136,434) | - | \$136,434 |
| 2 Price of Product A | (\$106,313) | - | \$106,313 |
| 3 Gross Margin, Product A | (\$106,313) | - | \$106,313 |
| 4 Operating Expenditure | \$91,000 | - | (\$91,000) |
| 5 Price of Product B | (\$30,122) | - | \$30,122 |
| 6 Gross Margin, Product B | (\$30,122) | - | \$30,122 |
| 7 Tax | \$19,472 | - | (\$19,472) |
| 8 Proportion of Product A | (\$15,947) | - | \$15,947 |

Tornado Chart



Simple P&L Example

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Simple P&L Example

Assumptions

| | Input | Sensitivity | Used |
|-------------------------|-------------|-------------|-------------|
| Units Produced | 45,000 | - | 45,000 |
| Proportion of Product A | 75.0% | - | 75.0% |
| Proportion of Product B | | | 25.0% |
| Price of Product A | \$100.00 | - | \$100.00 |
| Price of Product B | \$75.00 | - | \$75.00 |
| Gross Margin, Product A | 45.0% | - | 45.0% |
| Gross Margin, Product B | 51.0% | - | 51.0% |
| Operating Expenditure | \$1,300,000 | - | \$1,300,000 |
| Tax | 30.0% | - | 30.0% |

Outputs

| Revenue | Product A | Product B | Total |
|------------------------------|----------------------|--------------------|----------------------|
| Units | 33,750 | 11,250 | 45,000 |
| Price | \$100.00 | \$75.00 | \$93.75 |
| Revenue | \$3,375,000 | \$843,750 | \$4,218,750 |
| Cost Of Goods Sold | (\$1,856,250) | (\$413,438) | (\$2,269,688) |
| Gross Margin | \$1,518,750 | \$430,313 | \$1,949,063 |
| Operating Expenditure | | | (\$1,300,000) |
| Net Profit Before Tax | | | \$649,063 |
| Tax Expense | | | (\$194,719) |
| Net Profit After Tax | | | \$454,344 |