>>>> Slides @ 1 min

What is a Dashboard + Purpose

>>>> Data Dashboard_KH_01_screenshots.xlsx @ 2 mins

What is our Goal ? to show a high level understanding of the data + summarise based on changing the "rolling lookback" time periods.

FINAL WORKSHEET to FIRST WORKSHEET to consolidate to pivot etc --> connecting to rolling lookback time periods of 8 months

SENSE CHECK - all okay with where we are heading?

>>>>> Data Dashboard_KH_02_empty.xlsx @ 7 mins

****** Trades Worksheet ******

Gross Value = Shares x Gross Price

'=E2*F2

Month

'=DATE(YEAR(G2),MONTH(G2),1)

Cash

'=IF(B2="Sell",H2,H2*-1)

Ticker

'=MID(C2,1,FIND(".",C2)-1)

Country Code

'=RIGHT(C2,2)

Country Name

'=VLOOKUP(L2,'Country Mapping'!A:B,2,0)

SENSE CHECK: all okay? @ 16 mins - caused a pause for 1 min

Commision Charge % = insert 2 cols:

'row in Commissions Data: MATCH($A2 i.e. client,'Commissions Data'!$A$2:$A$21,0)

'col in Commissions Data: MATCH($L2 i.e. country code,'Commissions Data'!$A$1:$I$1,0)

'=INDEX('Commissions Data'!$A$2:$J$21,

MATCH($A2,'Commissions Data'!$A$2:$A$21,0),

MATCH($L2,'Commissions Data'!$A$1:$I$1,0))*0.0001

Commision Charge:

'=H2*N2 [H2 = Gross Value]

Minimum Ticket Charge

MATCH($A2,'Commissions Data'!$A$2:$A$21,0)

MATCH($P$1,'Commissions Data'!$A$1:$J$1,0)

'=INDEX('Commissions Data'!$A$2:$J$21,

MATCH($A2,'Commissions Data'!$A$2:$A$21,0),

MATCH($P$1,'Commissions Data'!$A$1:$J$1,0))

Revenue:

'=MAX(O2,P2)

SENSE CHECK: all okay? @ 25 mins - caused a pause for 1 min

>>>>> Data Dashboard_KH_03_trades.xlsx @ 26 mins

****** Pivotable Worksheet ******

Pivot tables can be used to quickly analyze data and present it in a more readable form, in this case to present Sales data to Management

1a. Select ANY cell in the Trades worksheet --> insert a pivot table into a new worksheet (Insert > PivotTable OR ALT DP for the Wizard)

1b. Sum of "Revenue" by "Client" (Rows) and "Country Name" (Columns)

-- sanity check: the Grand Total = 33,390,448 as we expect

Do we have 10,000 rows of data - can sense check the pivot - by Summarize Values by Count

1c. Field Settings: Let us rename the "Country Name" field 'Country'

2. Formatting

2a. Fix the number format for the Revenue field

via Value Field Settings (DONT DO THIS on pivot table directly)

"PivotTable Analyze (ALT + JT)" > Field Settings

2b. Right align column titles and standardized column widths (in usual way)

Apply a filter - not that the column widths changes - not great

"PivotTable Analyze (ALT + JT)" > Options

3a. Ensure 'Preserve Cell formatting on update' is CHECKED - by default

3b. Ensure 'Autofit Column Widths' is UNCHECKED

4. Row Labels & Column Labels - can be OVERTYPED so they are not the default (BUT not dynamic e.g. if you change the table layout)

"PivotTable Analyse" --> "Show" group --> "Field Headers" --> uncheck to remove these completely

5. Sorting [Data tab - ALT + A + SS]

5a. in the Germany COL (anywhere) - sort smallest to largest - ordered contributors to German revenue

5b. in the Grand Total ROW - ordered contributors to Total revenue

6. Filtering

6a. Add a "Month" Filter to this table - in the PivotTable Field List, RIGHT CLICK on the field "Month" and select "Move to Report Filter" (or simply drag)

6c. Add a "Venue" Slicer ("PivotTable Analyze" > Insert Slicer)

6e. Add a "Month" Timeline ("PivotTable Analyze" > Insert Timeline)

SENSE CHECK: all okay? @ 47 mins

>>>>> Data Dashboard_KH_04_pivot.xlsx @ 48 mins

****** Rolling Analysis ******

4 mins: for coaching:

recap the files set up, for them to practice

+ review the screenshot version to demo what we are heading to - i.e. mention flexibility/offset

**** Rolling Volume per client - we need a pivot table in cell A6

create our Pivot onto a new sheet, due to how Pivot tables are created (sometime take up more space than expected!)

On the "Trades" worksheet - insert a Pivot Table (ALT D P) - Client (Rows) | Month (Columns) | Gross Value (Summation)

As Excel is being helpful - by showing the months/quarters/years - we will need to ungroup the Month

Remove the Grand Totals - BOTH ROWS AND COLS [reference the screenshot as to why]

some EMPTY cells --> let's ensure they appear as ZERO

--> Right-click within the Pivot Table

--> Pivot Table Options

--> Layout & Format tab

--> "For Empty cells show option" checked --> enter ZERO

"PivotTable Analyse" --> "Actions" Group --> Move PivotTable --> A6

Let's improve the aesthetics:

the note above the Pivot Table --> Volume EURm

so we want to show the data in Millions - amend the number format to be: #,#0,,

raw data is still all the digits

add conditional formatting to the values: "color scales" set to "Green White Red" (the third option along)

SENSE CHECK: all okay? @ 59 mins

Rolling Total per client - ie need to use the number of "rolling" months requested in the dashboard

=SUM(select the "8" cells manually from M8 going Leftwards)/1000000

One cell to LEFT of N8

OFFSET - look at args - note that negative numbers have worked for width for many years/decades

=SUM(OFFSET(M8,0,0,1,-8))/1000000

The OFFSET returns a range of cells via the height and width arguments

1 for the row and negative 8 for the number of rolling months

=SUM(OFFSET(M8,0,0,1,-Dashboard!$C$4))/1000000

One cell to LEFT

The OFFSET returns a range of cells via the height and width arguments

1 for the row and negative C4 for the number of rolling months

SENSE CHECK: all okay? @ 66 mins

Populate the MIN and MAX for each Month

Copy the pivot table down - from vol (gross value) into rev

--> how should I change this ? --> BREAK 5 mins @ 69 mins

>>>>> Data Dashboard_KH_05_rolling_vol.xlsx @ 75 mins

**** Rolling Revenue per client

option one: from vol (gross value) into rev - drag out vol and drag in rev

option two: amend the Summation to Revenue

->CHECK "defer layout update",

CHECK "revenue",

drag Gross Value out,

<Update>

notice the formatting has reverted to default

Let's improve the aesthetics:

the note above the Pivot Table --> Revenue EURk

so we want to show the data in Thousands - amend the number format to be: #,#0,

add conditional formatting to the values: "color scales" set to "Green White Red" (the third option along)

MENTION: the C4 from dashboard, could have a cell name associated - optional

**** Rolling Revenue per client per trade @ 79 mins

As we want some per trade data, we shall utilise the above Pivot Table

1st:- count for trades per client per month

= COUNTIFS(Trades!$A:$A i.e. clients, Allianz i.e. $A67 ,

Trades!$I:$I i.e. month, Mar-22 i.e. B$66)

2nd:- Revenue from above, i.e. B40 / COUNTIFS () --> type in B40 manually !

=B40/COUNTIFS(Trades!$A:$A,$A67,Trades!$I:I,B66)

3rd:- divide by 1000 to ensure the data is in thousands

=(B40/COUNTIFS(Trades!$A:$A,$A67,Trades!$I:I,B66))/1000

4th:- wrap this in an IFERROR(, 0)

=IFERROR(B40/COUNTIFS(Trades!$A:$A,$A67,Trades!$I:I,B66),0)/1000

Bring down the Rolling Sum formula from above - amend this:

to NOT be divide by 1000

from SUM() to MEDIAN()

increase by 1 dp

=MEDIAN(OFFSET(M67,0,0,1,-Dashboard!$C$4))

>>>>> Data Dashboard_KH_06_rolling_rev.xlsx @ 86mins

****** Dashboard ******

When creating a dashboard we need to consider the layout - here we have the titles and most of the formatting are already in place to help guide us

What is our Goal ? to show a high level understanding of the data + summarise based on changing the "rolling lookback" time periods.

Now we have our input worksheets, we can bring this together

Highlights - two "gross value" totals

Firstly, data relating to ALL the trades → Secondly, for the most RECENT month

Firstly, data relating to ALL the trades

date range of our trades =MIN(Trades!$G:$G), =MAX(Trades!$G:$G)

gross value =SUM(Trades!H:H i.e. gross value)/1000000

Secondly, for the most RECENT month

Month =MAX(Trades!$I:$I) amend formatting to show MMM-YY

why col I, due to the criteria in the next cell:

Number of Trades =COUNTIF(Trades!$I:$I,C16)

gross value =SUMIF(Trades!$I:$I ie 1st of month,

do criteria last: C16 i.e. 1st of month,

Trades!$H:$H i.e. gross value)/1000000

SENSE CHECK: all okay? @ 90 mins

>>>>> Data Dashboard_KH_07_dashboard_highlights.xlsx @ 91 mins

Volume and Revenue

Display the largest clients and the smallest clients as defined by volume and revenue

We use LARGE() to extract the largest clients by volume and then by revenue,

with reference to the numbers 1, 2, 3,

which we keep in light grey font to help the user of the dashboard

=LARGE('Rolling Analysis'!$N$7:$N$26 i.e. Volume, A22 i.e. 1)

=LARGE('Rolling Analysis'!$N$38:$N$57 i.e. Revenue, A27 i.e. 1)

As these numbers are precise,

we can extract the Client names using an INDEX() with a MATCH()

=INDEX('Rolling Analysis'!$A$7:$A$26 i.e. the names for the Volume,

MATCH(B22 i.e. the largest amount we just found,

'Rolling Analysis'!$N$7:$N$26 i.e. all the Volumes ,

0)) -- ZERO is needed for "exact", 1 by default.

=INDEX('Rolling Analysis'!$A$38:$A$57 i.e. the names for the Rev ,

MATCH(B27 i.e. the largest amount we just found,

'Rolling Analysis'!$N$38:$N$57 i.e. all the Rev,

0))

Data Dashboard_KH_08_dashboard_top3.xlsx

EXERCISE - ? mins - repeat this with SMALL() to extract the smallest clients by volume and then by revenue

>>>>> Data Dashboard_KH_09_dashboard_top_bottom3.xlsx @ 96 mins

SENSE CHECK: on the SMALL() similar to LARGE() - 1 min

we now insert a Chart, here you might want to use a Pie Chart,

but a better choice would be the Sunburst Chart.

we select the Revenue data from our Rolling Analysis

ONLY the client names and the revenue totals [no headers] [40 cells]

A38:A57 N38:N57

"insert" ribbon and Recommended Charts - which will show as "not available"

--> switch tabs "All Charts"

--> select "Sunburst"

--> "OK"

--> i.e. created on the current worksheet

"Chart Design" (within the Ribbon) within the "Location" group

--> select "Move Chart"

--> next to the radio button "Object in" within the dropdown list select the "Dashboard" worksheet !

drag the Sunburst Chart to the approriate location

remove the title

resize the plot

go to top - change the lookback period to be 4.. see this chart has changed

the dashboard SHOULD BE interactive - so WANT to utlise the changing "rolling lookback" time periods

show SLIDEDECK

to update the number of months let's add a "Spin Button" form control

found: within the "Developer" tab in the ribbon, within the "Controls" group click on "Insert"

[HINT: which visually contains an up and down arrow button]

NB: to enable the "Developer" tab in Excel

right-click anywhere on the ribbon and select "Customize the Ribbon"

in the Excel Options window that opens

under the "Customize the Ribbon" list on the right

check the box next to "Developer"

click "OK"

The mouse pointer will have changed to a thin cross / plus sign

--> correct mode to insert the 'Spin Button (Form Control)' --> draw it wherever we want

--> click where you want the upper-left corner of the spin button --> amend the size

Set up the control properties via: RIGHT CLICK on this Spin Button, and choose the Format Contol

- "Current"
  - enter the initial value of the spin button - we'll use 7
- "Minimum"
  - enter the lowest value that a user can specify by clicking the bottom arrow in the spin button - i.e. 1
- "Maximum"
  - enter the highest value that a user can specify by clicking the top arrow in the spin button - i.e. 12
- leave the "Incremental change" box with the default of 1
  - ONE (the value increases or decreases when the arrows are clicked)
- "Cell link" - i.e. the cell reference for the current position of the spin button
  - here $C$4 (which will be overwritten by our choice of 7)

click <ok>

Let's press the top arrow a few times - notice: chart changes & number of rolling months changes!

- after the minimum value has been reached or after the maximum value has been reached

--> more clicks will have NO effect on the value returned,

i.e. spin button does not cycle through the range of allowed values.

Let's create a copy of the spin button at the top of the dashboard.

(Copy via right click, scroll to top then paste, finally resize)

the user of our dashboard can amend the "Rolling Analysis" in either location!

--> affect C4 which affects many parts of the workbook

SENSE CHECK: all okay? @ 102 mins

>>>>> Data Dashboard_KH_10_dashboard_sunburst.xlsx @ 103 mins

Let's rank our clients based on the previously calculated metrics of Volume and Revenue

(on the "Rolling Analysis" worksheet)

SKIP:

We can start by populating the medians for each of our rolling averages:

=MEDIAN('Rolling Analysis'!$N$7:$N$26)

=MEDIAN('Rolling Analysis'!$N$38:$N$57)

KH TO DELETE L43 as silly

Rank each of these THREE using PERCENTRANK.INC()

(i.e. calculate the k-th percentile of values in the given array of rolling averages)

=PERCENTRANK.INC(range of values for Rolling Volume, value within this array)

=PERCENTRANK.INC('Rolling Analysis'!$N$7:$N$26,'Rolling Analysis'!N7)

=PERCENTRANK.INC('Rolling Analysis'!$N$38:$N$57,'Rolling Analysis'!N38)

=PERCENTRANK.INC('Rolling Analysis'!$N$64:$N$83,'Rolling Analysis'!N64)

Add in the names of the clients on the LEFT:

='Rolling Analysis'!A7

We can use these three ranks % to create a "score", as a weighted sum (here let's assume that each contributes one third)

=SUMPRODUCT($J$45:$L$45 i.e. weights, J49:L49 i.e. ranks)

The intuition being that a higher score is good.

from this set of scores we can rank the clients (i.e. a number in a list of numbers) using the RANK.EQ() function

=RANK.EQ(value within the array, range of Scores)

=RANK.EQ(M49, $M$49:$M$68)

review the conditional formatting - reviewed some of the rules @ 111 mins

Finally, we will add a "watch list" for clients that breach a pair of thresholds (Volume < 15% or Revenue < 25%) relative to the ranks (%) of these two range of values.

=IF(OR(J49<$J$46 i.e. Vol Rank vs the Threshold, K49<$K$46 i.e. Rev Rank vs the Threshold), "Watch" , "")

Finally review the conditional formatting - e.g. Watch

>>>>> Data Dashboard_KH_11_dashboard_watchlist - complete.xlsx