



PERFECTXL

RISK FINDER

User Manual v1.1

10/10/2023

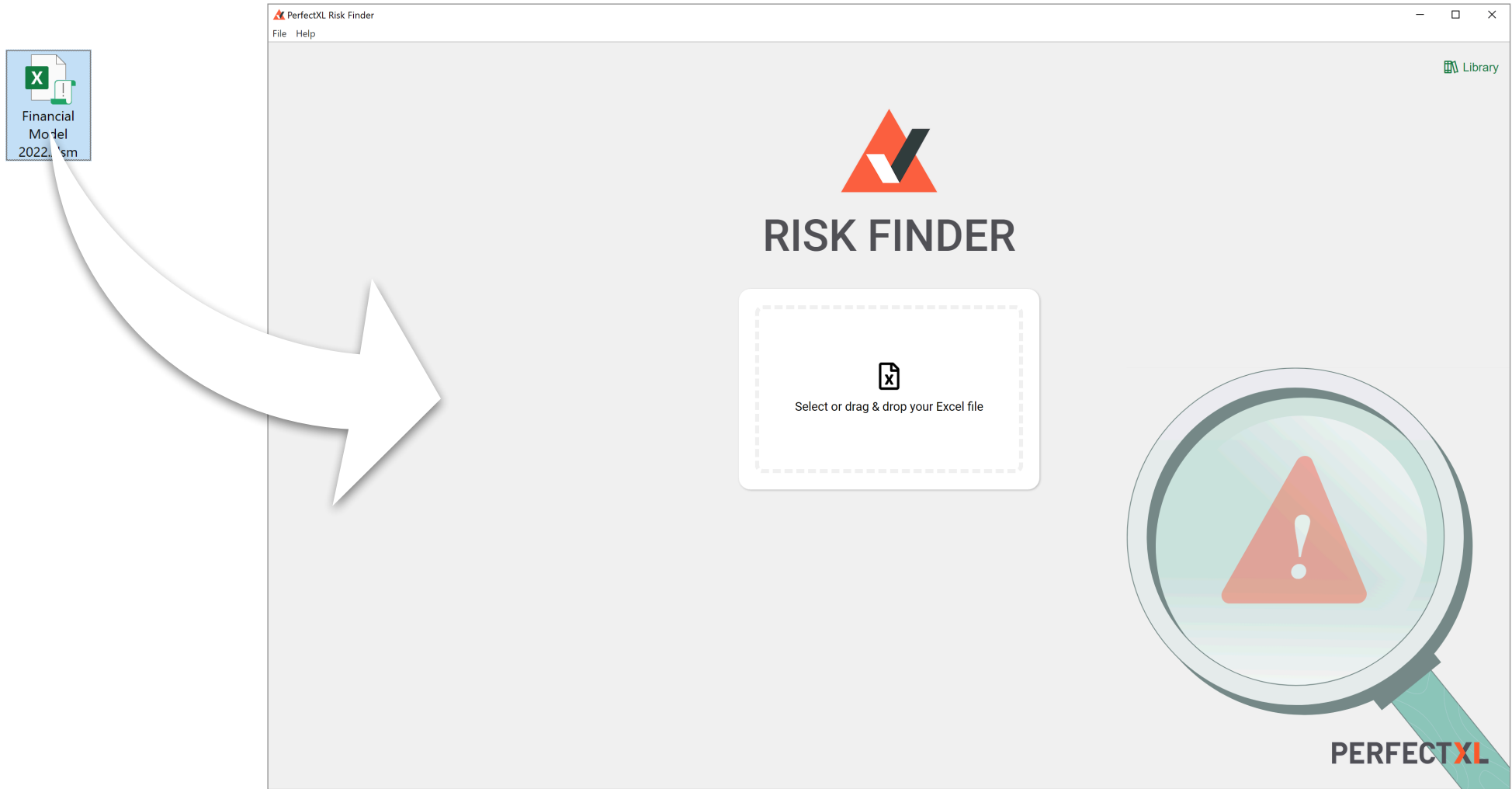




PERFECTXL Suite

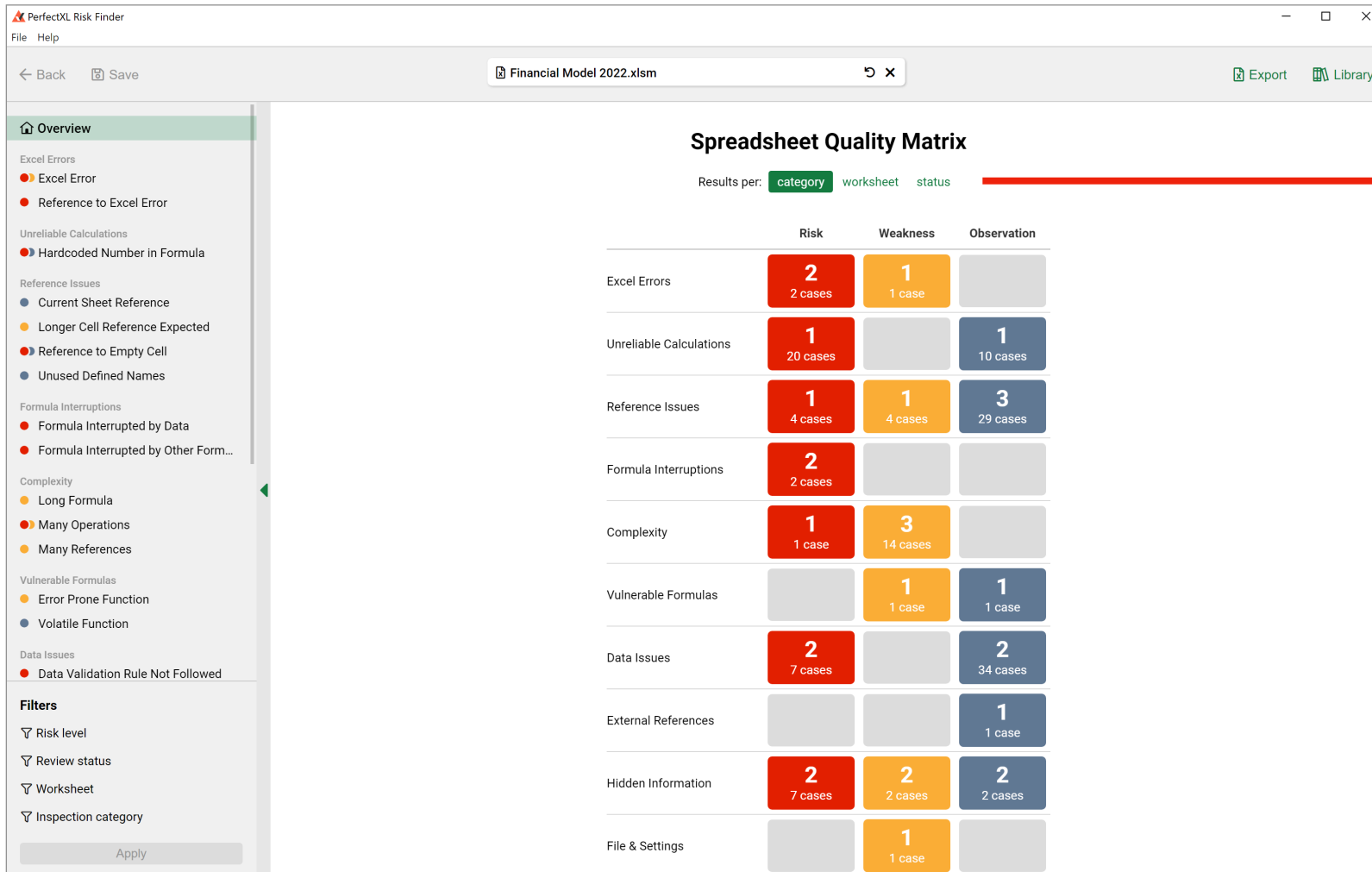
Getting started

Drag a spreadsheet into PerfectXL Risk Rinder to begin analyzing it.



Overview

After analysis, a *Quality Matrix* reveals potential issues with your spreadsheet.



View by category, worksheet or review status.



Big numbers indicate how many kinds of issues were found for a given risk level. Among *Reference Issues*, 1 inspection triggered risks, 1 triggered weaknesses and 3 triggered observations.



Small numbers indicate how many concrete cases were found in your spreadsheet. Commonly different cases point to the same issue occurring in multiple places.

Taking inventory

Click on any inspection result in the sidebar to reveal particular findings within your spreadsheet.

PerfectXL Risk Finder
File Help

Financial Model 2022.xlsm

Export Library

Overview

Excel Errors

- Excel Error
- Reference to Excel Error

Unreliable Calculations

- Hardcoded Number in Formula

Reference Issues

- Current Sheet Reference
- Longer Cell Reference Expected
- Reference to Empty Cell**
- Unused Defined Names

Formula Interruptions

- Formula Interrupted by Data
- Formula Interrupted by Other Form...

Complexity

- Long Formula
- Many Operations
- Many References

Vulnerable Formulas

- Error Prone Function
- Volatile Function

Data Issues

- Data Validation Rule Not Followed

Filters

- Risk level
- Review status
- Worksheet
- Inspection category

Apply

Reference to Empty Cell

Inspection notes

Pay close attention to formulas that reference empty cells. Are these cells knowingly empty, such as when the spreadsheet serves as a template model? Or are there gaps in the source data? Perhaps some of it got accidentally deleted, or a data import failed somewhere. Note that the reference itself could also be the mistake: perhaps the formula is supposed to refer to a different, non-empty cell.

Cases (22)	Notes	Status
<input type="checkbox"/> IP2!E18 and F18, G18, H18		
<input type="checkbox"/> 'P&!C28:N28		
<input type="checkbox"/> 'P&!C60:N60		
<input type="checkbox"/> Balances!C92		
<input type="checkbox"/> Ovr!H1F4:Q16 and R4:AC16		
<input type="checkbox"/> 'P&!C46:N46		
<input type="checkbox"/> BS!B38		
<input type="checkbox"/> Summary!G12:H12		
<input type="checkbox"/> XLoan!D2:D4 and E2, D17:D19, E17		
<input type="checkbox"/> Leases!D3:D5 and D21:D23		
<input type="checkbox"/> Leases!E11 and E29		
<input type="checkbox"/> Leases!F11:AN11 and F29:AN29		
<input type="checkbox"/> Leases!E38:AB38 and E39:AB39		
<input type="checkbox"/> XLease!C3:C5 and D3		
<input type="checkbox"/> Balances!C6:Z6 and C18:D18, F18:R18, C31:Z31, C44:I45, J45, B77, C77, B88, B96, C96, C102, B103, B108, B114, C114, B121, C121, C122:Z122		
<input type="checkbox"/> Balances!B57		
<input type="checkbox"/> Balances!B62		
<input type="checkbox"/> Balances!B74 and B85, B93:E93		
<input type="checkbox"/> Balances!B83 and B90		
<input type="checkbox"/> Balances!E84 and E92		
<input type="checkbox"/> Balances!F84 and F92		
<input type="checkbox"/> Balances!G84:Z84 and G92:Z92		

General info

What is a *Reference to Empty Cell* and why might it be worth looking at?

Specific cases

Concrete cases of the selected issue as detected in the spreadsheet. Each case can be classified as a **risk**, a **weakness** or an **observation**.

Click any case to view details.

Case assessment

View details on any specific case to assess or fix the problem in your spreadsheet.

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< Back Unacceptable Up for discussion Acceptable Irrelevant Notes < 15 / 22 >

Balances!C6:Z6 and C18:D18, F18:R18, C31:Z31, C44:I45, J45, B77, C77 & 11 more

	A	B	C	D	E
1	Balances	Open	Jan-21	Feb-21	Mar-21
2	Fixed Assets				
3	Land and buildings				
4	At Cost				
5	Opening Balance	7,500,000	7,500,000	7,500,000	7,500,000
6	Additions		0	0	0
7	Closing Balance	7,500,000	7,500,000	7,500,000	7,500,000
8					
9	Depreciation				
10	Opening Balance	1,500,000	1,500,000	1,525,000	1,550,000
11	Charge for the period		25,000	25,000	25,000
12	Closing Balance	1,500,000	1,525,000	1,550,000	1,575,000

Formula in Balances!C6:
=IP2!E5

The following formulas refer to 109 empty cells:

Formula in	Referenced empty cells
C6:Z6	IP2!E5:AB5
C18:D18 and F18:R18	IP2!E7:F7 and IP2!H7:T7
C31:Z31	IP2!E9:AB9
Show all	
B121	IP2!D14
C121	IP2!D14
C122:Z122	IP2!E14:AB14

Fix it
Make sure all references in the formulas are correct. Next, check the empty cells in question to populate them with data. This could involve re-running data imports.

Case controls

- Back to list of all cases
- Review current case
- Switch between cases

Location in Excel

- Click image or cell location to open in Excel
- Relevant formula in which highlights indicate affected parts.

Details

- Description if needed
- Tables containing affected cell ranges or other details
- Tips to fix the issue

Case evaluation

Leave notes and assign a review status to evaluate cases.

The screenshot shows the PerfectXL Risk Finder application window. The main area displays an error report for 'Reference to Empty Cell' in cell B57 of the 'Balances' sheet. The error message states: 'This formula was extended incorrectly'. Below this, the formula is shown as `=SUM(B6,B18,B31,B44,B45)`. A tooltip explains that the formula refers to 5 empty cells: B6, B18, B31, and B44:B45. A 'Fix it' section provides instructions: 'Make sure all references in the formula are correct. Next, check the empty cells in question to populate them with data. This could involve re-running data imports.' The interface includes a navigation sidebar on the left, a top toolbar with 'Back', 'Save', 'Export', and 'Library', and a bottom status bar with 'Back', 'Unacceptable', 'Up for discussion', 'Acceptable', 'Irrelevant', 'Notes', and '16 / 22'.

	A	B	C	D
51	Closing Balance	10,000	10,417	10,833
52				
53	NBV	15,000	14,583	14,167
54				
55	Fixed Asset - Total			
56	Opening Balance	9,225,000	9,225,000	9,225,000
57	Additions	0	0	0
58	Closing Balance	9,225,000	9,225,000	9,225,000
59				
60	Depreciation			
61	Opening Balance	2,060,000	2,060,000	2,101,250
62	Charge for the period	0	41,250	41,139
63	Closing Balance	2,060,000	2,101,250	2,142,389

Assign review status

Leave comments

Note: status and notes only apply to the active case.

Review multiple cases

Go through your spreadsheet more quickly by reviewing multiple cases at once.

PerfectXL Risk Finder
File Help

Financial Model 2022.xlsm

Export Library

Overview

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- Reference to Excel Error

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- Hardcoded Number in Formula

Reference Issues

- Current Sheet Reference
- Longer Cell Reference Expected
- Reference to Empty Cell**
- Unused Defined Names

Formula Interruptions

- Formula Interrupted by Data
- Formula Interrupted by Other Form...

Complexity

- Long Formula
- Many Operations
- Many References

Vulnerable Formulas

- Error Prone Function
- Volatile Function

Data Issues

- Data Validation Rule Not Followed

Filters

- Risk level
- Review status
- Worksheet
- Inspection category

Apply

Reference to Empty Cell

Pay close attention to formulas that reference empty cells. Are these cells knowingly empty, such as when the spreadsheet serves as a template model? Or are there gaps in the source data? Perhaps some of it got accidentally deleted, or a data import failed somewhere. Note that the reference itself could also be the mistake: perhaps the formula is supposed to refer to a different, non-empty cell.

Mark 6 cases: Unacceptable Up for discussion Acceptable Irrelevant Notes for 6 cases: Edit

<input type="checkbox"/>	<input type="checkbox"/>	IP2!E18 and F18, G18, H18		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P&L!C28:N28		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P&L!C60:N60		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Balances!C92		
<input type="checkbox"/>	<input type="checkbox"/>	OvrH!F4:Q16 and R4:AC16		
<input type="checkbox"/>	<input type="checkbox"/>	P&L!C46:N46		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	BS!B38		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Summary!G12:H12		
<input type="checkbox"/>	<input type="checkbox"/>	XLoan!D2:D4 and E2, D17:D19, E17		
<input type="checkbox"/>	<input type="checkbox"/>	Leases!D3:D5 and D21:D23		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Leases!E11 and E29		
<input type="checkbox"/>	<input type="checkbox"/>	Leases!F11:AN11 and F29:AN29		
<input type="checkbox"/>	<input type="checkbox"/>	Leases!E38:AB38 and E39:AB39		
<input type="checkbox"/>	<input type="checkbox"/>	XLease!C3:C5 and D3		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!C6:Z6 and C18:D18, F18:R18, C31:Z31, C44:I45, J45, B77, C77, B88, B96, C96, C102, B103, B108, B114, C114, B121, C121, C122:Z122		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!B57		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!B62		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!B74 and B85, B93:E93		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!B83 and B90		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!E84 and E92		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!F84 and F92		
<input type="checkbox"/>	<input type="checkbox"/>	Balances!G84:Z84 and G92:Z92		

1) Select one or more cases in the list overview

Use the uppermost checkbox to select all cases.

2) Change or add a review status

Clear a currently assigned status by clicking it again.

3) Edit notes of all selected cases

This will not affect the *Inspection notes*.

Sidebar shows which issues have reviews in progress

Symbols indicate the currently assigned review status and presence of notes.

Finish a review

PerfectXL Risk Finder

File Help

Back Save Financial Model 2022.xlsm Export Library

Reference to Empty Cell

Pay close attention to formulas that reference empty cells. Are these cells knowingly empty, such as when the spreadsheet is blank? Perhaps some of it got accidentally deleted, or a data import failed somewhere. Note that the reference itself could also be to an empty cell.

Cases (22)

- IP2!E18 and F18, G18, H18
- 'P&L!C28:N28
- 'P&L!C60:N60
- Balances!C92
- OvrH!F4:Q16 and R4:AC16
- 'P&L!C46:N46
- BS!B38
- Summary!G12:H12
- XLoan!D2:D4 and E2, D17:D19, E17
- Leases!D3:D5 and D21:D23
- Leases!E11 and E29
- Leases!F11:AN11 and F29:AN29
- Leases!E38:AB38 and E39:AB39
- XLease!C3:C5 and D3
- Balances!C6:Z6 and C18:D18, F18:R18, C31:Z31, C44:I45, J45, B77, C77, B88, B96, C96, C102, B103, B108, B114, C114, B121, C121, C122:Z122
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- Balances!B83 and B90
- Balances!E84 and E92
- Balances!F84 and F92
- Balances!G84:Z84 and G92:Z92

Inspection notes

Checked by Dave

OK Cancel

Filters

- Risk level
- Review status
- Worksheet
- Inspection category

Apply

You can leave some general notes about this issue.

Fully reviewed issues are marked with a

An issue is considered fully reviewed when all cases have been assigned a review status.

Save your progress

Take a break from the audit and continue at a later time.

The screenshot shows the PerfectXL Risk Finder interface. A red line highlights the 'Save' button in the top navigation bar. A modal dialog is displayed in the center, asking: 'Would you like to restore your last progress, saved 2 days ago? If not, your progress will be deleted and you'll start with a blank analysis.' The dialog has 'Yes' and 'No' buttons.

Spreadsheet Quality Matrix

Results per: category worksheet **status**

	Risk	Weakness	Observation
No status	10 39 cases	8 19 cases	9 59 cases
Unacceptable			1 1 case
Irrelevant			

Use the Save-button at any time to save your review progress. Saving will not modify the spreadsheet you're reviewing.

The next time you analyze the same spreadsheet, you will be asked if you would like to continue from your last save.

Clicking 'No' removes any previous progress and starts with a clean analysis result.

Share your results

Export an .xlsx to share issues—including review statuses and comments—with colleagues or clients.

PerfectXL Risk Finder

File View Help

Save Financial Model 2022.xlsm Exporting... Library

Spreadsheet Quality Matrix

AutoSave Off PXL Risk Finder Report - Financial Model 2022... Search Joeri van Veen

File Home Insert Draw Page Layout Formulas Data Review View Automate Developer Help PerfectXL

Undo Clipboard Font Alignment Number Styles Cells Editing Highlighter

BA52

Inspection	Category	Risk	Weakness	Observation	Total	Notes
Excel Error	Excel Errors	1	1	-	2	
Reference to Excel Error	Excel Errors	1	-	-	1	
Hardcoded Number in Formula	Unreliable Calculations	20	-	10	30	
Current Sheet Reference	Reference Issues	-	-	10	10	
Longer Cell Reference Expected	Reference Issues	-	4	-	4	
Reference to Empty Cell	Reference Issues	4	-	18	22	Checked by Dave
Unused Defined Names	Reference Issues	-	-	1	1	
Formula Interrupted by Data	Formula Interruptions	1	-	-	1	
Formula Interrupted by Other Formula	Formula Interruptions	1	-	-	1	
Long Formula	Complexity	-	1	-	1	
Many Operations	Complexity	1	11	-	12	

Fixing issues

When viewing case details, scroll down to see how to improve your spreadsheet using helpful tips and buttons.

PerfectXL Risk Finder

Financial Model 2022.xlsm

Save Export Library

Formula Interrupted by Data
Formula Interrupted by Other Formula

Complexity
Long Formula
Many Operations
Many References

Vulnerable Formulas
Error Prone Function
Volatile Function

Data Issues
Data Validation Rule Not Followed
Sensitive Data
Unnecessary Space

External References
Formula with External Reference

Hidden Information
Hidden Columns
Hidden Defined Names
Hidden Rows
Hidden Worksheet
Invisible Cell Value
Very Hidden Worksheet

File & Settings
Old Spreadsheet

Filters
Risk level
Review status
Worksheet
Inspection category

Apply

Very Hidden Worksheet

Inspection notes

In addition to hiding a worksheet in Excel, a worksheet can also be made "very hidden". This not only hides it from view, but also removes it from the *Unhide worksheet* list. This gives a false sense of security and should therefore be avoided.

< Back Unacceptable Up for discussion Acceptable Irrelevant | Notes < 2 / 6 >

Fix it

Is the worksheet **Loans** important for the spreadsheet model? Either make it visible or hide it using Excel's regular hide functionality. If you're concerned about accidental changes, simply protect the worksheet.

[Unhide this worksheet](#)

Alternatively, you can unhide the very hidden worksheet in the VBA Editor:

- Select the worksheet **Loans** in the Project Explorer.
- Make sure the Properties Window is visible (*View > Properties Window*).
- Change the 'Visible' property from 2 - xlSheetVeryHidden to -1 - xlSheetVisible.

Microsoft Visual Basic for Applications - Book1

Project - VBAProject

VBAProject (Book1)

- Microsoft Excel Objects
 - Sheet1 (Sheet1)
 - Sheet2 (Sheet2)
 - ThisWorkbook

Properties - Sheet1

Sheet1 Worksheet

Property	Value
EnableOutlining	False
EnablePivotTable	False
EnableSelection	0 - xlNoRestrictions
Name	Sheet1
ScrollArea	
StandardWidth	8.47
Visible	-1 - xlSheetVisible
	0 - xlSheetHidden
	2 - xlSheetVeryHidden

Automatic fix

If available, this button fixes the current case or brings you to the right place in Excel.

Manual fix

Explains how to fix the issue using only Excel.

Inspection Library

Read when certain inspections trigger risks and learn how you can avoid common pitfalls.

The screenshot shows the PerfectXL Risk Finder application interface. The 'Library' window is open, displaying the 'Double Count' inspection. The left sidebar lists various inspection categories, with 'Double Count' highlighted. The main content area provides a detailed explanation, risk level, and how to avoid the issue, accompanied by an Excel spreadsheet example.

Library

Inspections | Principles

Double Count

Explanation

A double count occurs when a cell is calculated more than once in the same formula, either directly or indirectly. This could mean that the result of the formula is incorrect.

Risk level

The impact a double count can have on a model is quite severe, which is why it's a **risk**. If a number is included three or more times it might be intentional and the level drops to a **weakness**.

How to avoid

When including separate aggregations among a data set, use Excel's SUBTOTAL-function. Use it both for subtotals and the grand total; the SUBTOTAL-function ignores any SUBTOTAL results it encounters, eliminating the risk of a double count.

Example

A classic example of a double count is a formula that sums together both data subtotals. In this example, the subtotals at C4 and C9 are counted twice:

	A	B	C	D	E
1	Fruits	Apples	€ 0.10		
2		Oranges	€ 0.14		
3		Pears	€ 0.23		
4		Subtotal	€ 0.47		
5					
6	Veggies	Broccoli	€ 0.30		
7		Cauliflower	€ 0.28		
8		Carrots	€ 1.25		
9		Subtotal	€ 1.83		
10					
11	Grand Total	=SUM(C:C)			
12					
13					

Click Library in the top right corner or click the next to any inspection title to bring up the library.

