



# Error Checking

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## Checking Techniques

Always audit the work  
Consider printing to check in detail

### Sense

Output makes sense?

### Structure

Formula structure  
consistent and  
expected?

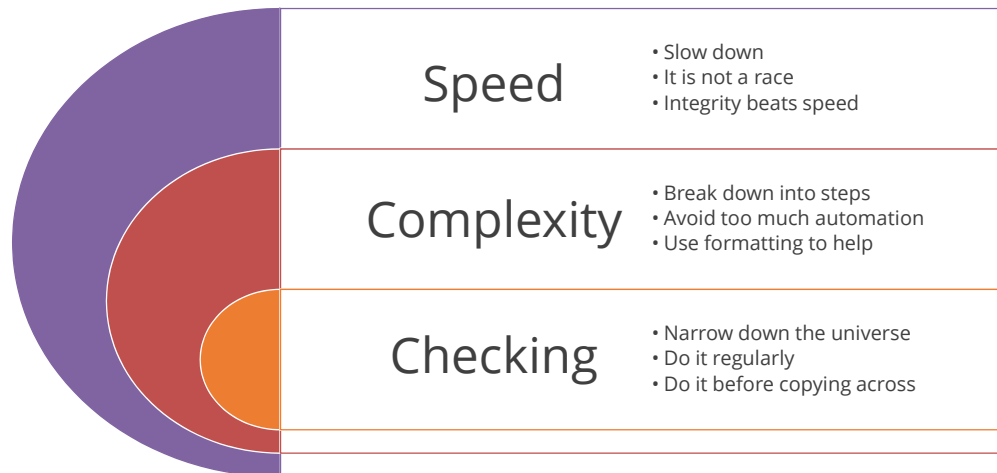
### Stress

Model reacts  
predictably to  
changes?

## Keyboard Shortcuts for Checking

Key stroke	What it does
F2	Shows component cells
CTRL [	Jumps to first variable if formula is cross tab
Enter	Jumps from variable to variable if formula on the same tab
F5	Back to the start
F2 F9	Calculates what is selected, ESC to finish
ALT M P	Trace precedents
ALT M D	Trace dependents
ALT M K	Error checking
ALT M A	Removes all arrows
ALT M H or CTRL `	Show formulas (an on off switch)

## Building to Avoid / Spot Errors



## Checking Techniques – Sense

	Year 1	Year 2	Year 3	Year 4
Revenues	404.1	416.2	428.7	441.6
Operating costs	383.9	395.4	390.1	419.5
Operating profits	20.2	20.8	38.6	22.1
Tax expense	2.0	2.1	3.9	2.2
Net income	18.2	18.7	34.8	19.9

Check the time series:  
Large sales growth caused by acquisition?



Check with peer group:  
Sales growth way lower than competitors?



Check the “family” relationships:  
Sales up, operating costs down?  
Large debt repayment, cash up?

## Checking Techniques – Structure

Consistent periods columns			Consistent row labels	
Column reference	F	G	Assumptions	
Balance sheet	Year 1	Year 2	Receivables	Inconsistent formulas more obvious
Income statement	Year 1	Year 2	Inventories	
Operating statistics	Year 1	Year 2	Prepays	
Ensures consistency of formulas % of formula have same column references Growth % has this and last period references			Balance sheet	
			Receivables	
			Inventories	
			Prepays	
Final period = 0.0? Check for structure issue in period 1				

## Checking Techniques – Stress

Change an assumption	Predict output change	Check model behaves as predicted	Undo stress test
<p>Bigger changes are easier to see</p> <p>Isolated changes are best (sales growth impacts too many line items)</p>	<p>PP&amp;E will go up and cash will go down</p> <p>Debt will go up and cash will go up</p>	<p>Has PP&amp;E gone up and cash gone down?</p> <p>Have debt and cash gone up?</p> <p>Does the model still balance?</p>	<p>Make any necessary changes</p> <p>Recheck the changes</p>

Always stress test zero line items to ensure they work when populated

Always stress test line items which can be either positive or negative

## Balance Sheet out of Balance

Balance Sheet	
Cash and cash equivalents	83.3
Operating assets	80.8
Long term assets	68.9
Total assets	149.8
Operating liabilities	117.2
Total liabilities	117.2
Equity	115.8
Total liabilities and equity	233.0
Balance ?	83.3

ALWAYS calculate amount out of balance

Check out of balance amount for consistency with any BS or CFS line item

Divide out of balance amount by 2 for a sign error on BS or CFS

Difference the same each period?  
Beginning balance problem

Period 1 balances but not later periods?  
Copy across again

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## Top 10 Errors – Prevention and Diagnosis

### Faulty subtotals

#### Prevention

- Build for historicals – never hard code
- Check to source
- Copy across

#### Diagnosis

- F2 for visual reference
- Sense check over time series

### Signs the wrong way around especially on cash flow statement

#### Prevention

- Use the rules of cash
- Use the structure (liabilities and equity one way, assets the opposite)
- Balance Sheet integration?

#### Diagnosis

- Structure check line by line
- Sense check over time series

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## Top 10 Errors – Prevention and Diagnosis

### Historic balance sheet feeding forecast incorrectly

#### Prevention

- One feed rule – inputs hard coded once only
- Use formatting for visual reference
- Historic numbers never calculated – always input except subtotals

#### Diagnosis

- Balance sheet out of balance by same amount each year?
- Visual check of historical back up calculations

### Bad clicks – usually off by one year

#### Prevention

- Use the labels when formula building
- Regular structure checks
- Sense check over the time series

#### Diagnosis

- Final year shows zero?
- Stress test by changing year 1 assumptions

## Top 10 Errors – Prevention and Diagnosis

### Unnecessary circular references

#### Prevention

- Build with iteration turned OFF

#### Diagnosis

- Use the circular reference auditing tool

### Interest calculated inconsistently

#### Prevention

- Build interest for first debt item
- Check in detail
- Copy to all other debt or cash items

#### Diagnosis

- Use F2 for visual check
- Stress check interest rate or beginning and ending balances

## Top 10 Errors – Prevention and Diagnosis

### Copy across failure

#### Prevention

- Do not copy across line by line
- Ideally copy across at the very end or at least in blocks

#### Diagnosis

- Year 1 balances and then out of balance

### Confusion between “flow” data and “point in time” data

#### Prevention

- Use accounting knowledge and rules of cash
- BS or IS or CFS or BASE data? Pay attention

#### Diagnosis

- Sense check over time series

## Top 10 Errors – Prevention and Diagnosis

### Missing cash flow statement line items

#### Prevention

- Build the CFS by using the BS
- Each BS change needs a line in the CFS or CF reconciliation

#### Diagnosis

- BS integration? Does it balance?
- Do a math check – change in BS line item = CFS line item?

### Cash and / or Short term debt included in OWC

#### Prevention

- Use operating items only in OWC
- Always build the subtotal – never link from BS

#### Diagnosis

- Circular message

