

NICHE-SEARCH

WORKSHEET 4 OF 9

# Full DuPont Decomposition — Three-Year Diagnostic

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*Run when ROE has moved materially in either direction, when preparing for investor meetings, or after any year where EM climbed faster than NPM or TAT.*



Complementary worksheet for  
*Financial Ratio Analysis*  
by Ibrahim Anwar

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## What This Is For

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A three-year DuPont decomposition that explains what is actually driving ROE and whether that driver is durable under revenue pressure. ROE is frequently cited in investor discussions and credit applications as a single performance indicator. The problem is that the same ROE percentage can represent two fundamentally different business conditions: one driven by operational margin and asset efficiency (resilient), and one driven by financial leverage (fragile under any revenue decline). This worksheet surfaces which case you are in — and forces you to look at the trend across three years, not just the current year's headline number.

The worksheet is not a daily or monthly tool. It serves the moment when the interpretation of ROE matters to someone outside the business — an investor, a credit committee, a board member asking a serious question. It provides the structured decomposition that answers the real question, which is not 'what is your ROE' but 'how did you get there and how safe is it.'

# Benefits

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What you get when you actually run this worksheet on a real situation:

- Separates ROE into three independently actionable components — NPM, TAT, and EM — each with a different intervention logic.
- Identifies whether ROE resilience has improved or deteriorated over three years, even if the headline ROE number looks stable.
- Shows whether a high EM is masking a structural weakness in NPM or TAT that would become critical in a 20% revenue decline.
- Provides the structured investor or board answer: which component is the weakness, what is the cause, and what is the realistic remediation timeline.
- Builds the comparison basis for per-segment DuPont — total-entity decomposition is a prerequisite for per-segment analysis.

## Framework To Use

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### — DuPont Three-Factor Identity

$ROE = NPM \times TAT \times EM$ . The same ROE from different component combinations implies different operational resilience.

#### Same ROE, Three Different Risk Profiles

	Operationally driven	Asset-efficiency driven	Leverage driven
NPM	8%	5%	3%
TAT	1.5x	3.0x	1.0x
EM	1.7x	1.2x	6.0x
ROE (product)	20.4%	18.0%	18.0%
ICR needed to be safe	> 2.0x (EM low, manageable)	> 2.0x (EM low, manageable)	Must be > 3.0x (EM 6x is fragile)
If revenue falls 20%	NPM compresses; ROE drops but business survives	TAT falls; ROE drops but low EM limits damage	EBIT falls; interest obligation unchanged; ICR can breach 1.0x

## How To Use

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Follow these steps in order. Each one builds on the previous.

- 1 Pull three consecutive annual financial statements. Note whether accounting methodology changed across any of the three years — a change in depreciation method or inventory valuation produces component movements that are accounting, not operational.
- 2 Fill Revenue, Net Income, Total Assets, and Equity for each year from the statements.
- 3 Calculate NPM for each year:  $\text{Net Income} / \text{Revenue}$ .
- 4 Calculate TAT for each year:  $\text{Revenue} / \text{Total Assets}$ .
- 5 Calculate EM for each year:  $\text{Total Assets} / \text{Equity}$ .
- 6 Calculate the ROE check:  $\text{NPM} \times \text{TAT} \times \text{EM}$ . The result should closely match the ROE on the financial statements. If the gap is more than 1 percentage point, verify whether minority interest, preferred equity, or deferred tax creates a definitional difference.
- 7 Fill the Direction column: up / down / stable for each component. Read the Direction column for all three rows: which component deteriorated most over the three years? Is that component now improving or continuing to deteriorate?
- 8 For the weakest component in Year N, write the specific operational cause — not 'market conditions' but the specific line item or asset category responsible.

## Example Use

*A mid-scale industrial parts distributor prepares for a meeting with a potential private equity investor who has noted that the business's 18% ROE appears lower quality than a listed peer's 18% ROE. The owner runs the three-year DuPont diagnostic the day before the meeting.*

Year N-2: Revenue \$6.1M, Net Income \$320K, Total Assets \$4.8M, Equity \$2.1M.  
NPM 5.2%, TAT 1.27x, EM 2.29x. ROE check:  $5.2\% \times 1.27 \times 2.29 = 15.1\%$ .

Year N-1: Revenue \$7.4M, Net Income \$360K, Total Assets \$6.2M, Equity \$2.3M.  
NPM 4.9%, TAT 1.19x, EM 2.70x. ROE check:  $4.9\% \times 1.19 \times 2.70 = 15.7\%$ .

Year N: Revenue \$8.8M, Net Income \$412K, Total Assets \$8.1M, Equity \$2.5M.  
NPM 4.7%, TAT 1.09x, EM 3.24x. ROE check:  $4.7\% \times 1.09 \times 3.24 = 16.6\%$ .

ROE rose from 15.1% to 16.6% over three years. But the composition tells a different story. NPM fell from 5.2% to 4.7% — gradual margin erosion. TAT fell from 1.27x to 1.09x — assets grew faster than revenue, indicating warehouse and equipment expansion outpacing revenue generation. EM rose from 2.29x to 3.24x — the business borrowed to fund expansion, and the leverage increase is what lifted ROE despite the NPM and TAT declines.

The investor question is answered before the meeting: the ROE increase is leverage-driven, not operationally driven. If revenue falls 15%, EBIT compresses, but interest expense does not. With EM 3.24x and ICR at 1.9x (close to the bank minimum), a revenue decline of approximately 9% before ICR hits 1.0x. The business is operating with a narrow margin of safety.

The owner can now present this decomposition directly, note the specific cause of TAT decline (warehouse expansion in Year N-1 that is still ramping revenue), and project when TAT is expected to recover as the new warehouse capacity is fully utilized.



## Reflection Prompts

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*After filling in the worksheet on the previous page, work through these.*

1. Row labels: Revenue · Net Income · Total Assets · Equity · NPM (Net Income / Revenue) · TAT (Revenue / Total Assets) · EM (Total Assets / Equity) · ROE check (NPM × TAT × EM). Direction: up / down / stable. ROE check must closely match ROE on the financial statements — if gap > 1pp, investigate the definitional difference before presenting these figures externally.
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2. Identify the weakest DuPont component in Year N. If NPM: is GPM stable or falling? Stable GPM with falling NPM means operating costs are growing faster than revenue — the problem is between gross and net. Falling GPM means purchase price or production cost pressure — different intervention, different urgency. If TAT: which specific asset category grew fastest relative to the revenue it generates in Year N? Name the two candidates and their balances. If EM is the main ROE driver: calculate ICR. If  $ICR < 2.0x$ , the ROE figure is fragile under any revenue pressure — write the EBIT decline percentage at which ICR hits 1.0x.
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3. For the investor or board presentation: write one sentence for each component describing the three-year direction and what it means operationally. Then write whether the ROE composition in Year N is more or less resilient than in Year N-2 — and specifically, at what revenue decline percentage does ICR breach 1.0x given current EM.
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# Tips and Traps

## TIPS

- Run the diagnostic with three full years of data, not two. Two data points show a direction; three confirm whether the direction is accelerating, decelerating, or reversing.
- Calculate the ROE check in the table and verify it against the financial statements' stated ROE before presenting. A gap of more than 1 percentage point means something is classified differently (minority interest, preferred dividends, deferred tax on equity). Explain the gap or resolve it — do not present it without acknowledgment.
- When TAT declines after a large capex year, note the asset that was acquired and its expected revenue ramp. TAT declines after investment are normal and temporary; TAT declines without recent capex indicate genuine underutilisation.
- For the investor conversation, lead with the composition, not the headline. 'Our ROE improved from 15% to 17% over three years' is less useful than 'NPM has compressed slightly as we invested in expansion, TAT is recovering as the new warehouse ramps, and EM increased to fund the expansion — ICR sits at 1.9x, which we are tracking.'

## TRAPS

- Using consolidated DuPont as the final answer for a multi-segment business. A distribution business with a consumer goods line and an industrial line may have a combined ROE that masks one line generating all the operational return while the other is drag. Per-segment decomposition is the next step after consolidated.
- Comparing DuPont results with a listed competitor without adjusting for tax and interest burden differences. Extended five-factor DuPont separates EBIT margin from interest burden and tax effects; three-factor DuPont mixes them. A competitor with a different debt structure or tax position produces a different NPM for the same operational margin — the comparison must acknowledge this.
- Treating a high EM as neutral because 'we always had leverage.' The relevant measure is trend: EM rising from 1.5x to 3.2x over three years is a structural shift in risk profile, even if the business has always carried some debt.

# Appendixes

## Appendix A – DuPont Three-Factor Calculation Reference

Three inputs needed (from annual financial statements):

Revenue : \$ \_\_\_\_\_  
 Net Income : \$ \_\_\_\_\_  
 Total Assets : \$ \_\_\_\_\_  
 Total Equity : \$ \_\_\_\_\_

Calculations:

NPM = Net Income / Revenue = \_\_\_\_%  
 TAT = Revenue / Total Assets = \_\_\_\_x  
 EM = Total Assets / Total Equity = \_\_\_\_x  
 ROE (DuPont check) = NPM × TAT × EM = \_\_\_\_%  
 ROE (from statements) = \_\_\_\_%

If DuPont check differs from stated ROE by more than 1pp:

Check for: minority interest deducted from equity but not from net income,  
 preferred dividends treated as equity but excluded from net income,  
 deferred tax asset/liability changes affecting equity without flowing through P&L.

## Appendix B – EBIT Decline Tolerance Formula

ICR = EBIT / Interest Expense

EBIT decline tolerance =  $1 - (1 / \text{ICR})$

At ICR 1.33x : tolerance =  $1 - 1/1.33 = 25\%$  (EBIT can fall 25% before ICR hits 1.0x)

At ICR 1.50x : tolerance =  $1 - 1/1.50 = 33\%$

At ICR 2.00x : tolerance =  $1 - 1/2.00 = 50\%$

At ICR 3.00x : tolerance =  $1 - 1/3.00 = 67\%$

If EM rose from Year N-2 to Year N, recalculate ICR for each year:

Compare ICR trend alongside EM trend.

Rising EM + falling ICR = the safety margin is narrowing as leverage grows.

This is the DuPont warning that needs to be named explicitly.



WHERE THIS WORKSHEET COMES FROM

## Financial Ratio Analysis

*Read Your Own Financial Statements Before the Bank Reads Them for You*

by Ibrahim Anwar

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This worksheet is one of nine in the *Financial Ratio Analysis* companion worksheet pack. The full pack is grouped into three categories: high-volume worksheets you can run weekly, niche-search worksheets for rare but high-value situations, and specific-case worksheets that walk you through a single concrete scenario.

Every framework, decision filter, and figure used in these worksheets is drawn from the chapters of the source book. The book sets the diagnosis, the worksheets give you the form to act on it.

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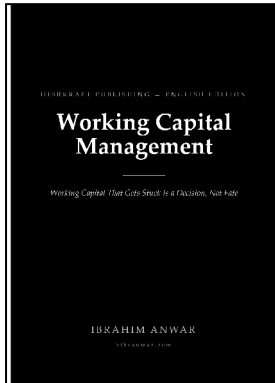
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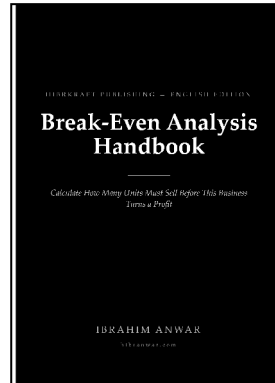


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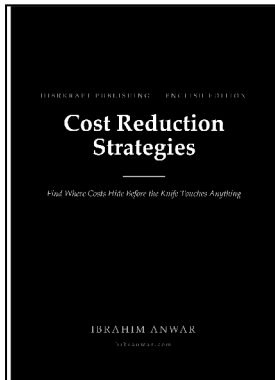


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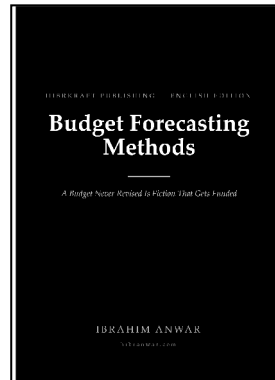


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