Position Sizing & Risk Budgeting

At the Strategy Level — Lesson Explainer

The Concept

Risk budgeting extends the Intermediate Position Sizing idea - 'how much can this hurt me if I'm wrong?' - from a single stock to an entire multi-strategy or multi-asset portfolio.

Key insight: an equal dollar amount in two different assets is not an equal amount of risk. $10,000 in a low-volatility bond and $10,000 in a high-volatility small-cap stock contribute very different amounts of risk, even with matching dollar amounts.

A common formula: position size = (target risk contribution) / (asset's volatility). A more volatile asset gets a smaller dollar allocation for the same risk budget; a calmer asset gets a larger one.

Illustrative Example: Equal Dollars vs. Equal Risk

Three hypothetical assets with very different volatility, sized two ways from a $300,000 total allocation.

Asset	Volatility	Equal-Dollar Size	Risk-Budgeted Size
Bonds (Low Vol)	6%	$100,000	$192,000
Large-Cap Stocks (Med Vol)	16%	$100,000	$72,000
Small-Cap Stock (High Vol)	**32%**	**$100,000**	**$36,000**

Under equal-dollar sizing, the small-cap stock (32% volatility) contributes over 5x as much risk as the bonds (6% volatility), despite the identical dollar size. Risk-budgeted sizing balances the risk contributions instead.

5 Things to Know About Risk Budgeting

1. Equal dollars is not equal risk - the single most important idea in this lesson.

2. Volatility estimates are themselves uncertain and can shift quickly around regime changes.

3. Risk parity isn't automatically 'safer' - total risk still depends on overall exposure/leverage.

4. This scales the Intermediate idea up, not replaces it - same logic, applied to a whole book.

5. Correlation between positions still matters - volatility alone ignores how positions move together.

4 Things to Check When Risk-Budgeting a Book

• Measure volatility consistently - same lookback window and method across every asset compared.

• Don't ignore correlation - positions that move together still concentrate risk.

• Rebalance as volatility shifts - revisit sizing periodically as estimates change.

• Set an overall risk budget first - risk parity distributes risk, it doesn't cap it.

Worth knowing:
this explains risk-budgeting methodology using illustrative numbers - it isn't personalized financial advice, and no allocation here is a recommendation for your own portfolio. Volatility-based sizing depends on estimates that are never certain, and past volatility is not a guarantee of future volatility.

Quiz — Answer the questions, then check the key on the next page

1. What is the key insight behind risk budgeting?

A. Every asset should get exactly the same dollar allocation
B. Only bonds should be held in a portfolio
C. An equal dollar amount in two different assets is not an equal amount of risk
D. Risk cannot be measured or estimated

2. In the illustrative example, why did the small-cap stock get a smaller risk-budgeted dollar size?

A. Because small-cap stocks are illegal to hold in large amounts
B. Because it had the lowest expected return
C. Because it was the newest position in the portfolio
D. Because its higher volatility meant a smaller dollar size was needed to contribute the same risk

3. What does this lesson say risk parity does NOT automatically do?

A. Distribute risk more evenly across positions
B. Make a portfolio automatically 'safer' - total risk still depends on overall exposure and leverage
C. Use volatility estimates in its sizing formula
D. Apply the position-sizing idea across multiple assets

4. What does this lesson say a fuller risk-budgeting approach should also account for, beyond volatility alone?

A. Correlation between positions
B. The color scheme of the trading platform
C. The number of employees at each company
D. The alphabetical order of ticker symbols

5. How does risk budgeting relate to the Intermediate Position Sizing lesson?

A. They are unrelated, completely different concepts
B. Risk budgeting replaces and contradicts single-stock position sizing
C. Risk budgeting scales the same 'size by risk, not dollars' idea up to a whole book
D. Risk budgeting only applies to cryptocurrency portfolios

Answer Key

1. What is the key insight behind risk budgeting?

Correct answer: C. An equal dollar amount in two different assets is not an equal amount of risk

A flat dollar allocation silently over-weights risk toward the most volatile positions.

2. In the illustrative example, why did the small-cap stock get a smaller risk-budgeted dollar size?

Correct answer: D. Because its higher volatility meant a smaller dollar size was needed to contribute the same risk

More volatile assets get smaller dollar allocations so each position contributes similar risk.

3. What does this lesson say risk parity does NOT automatically do?

Correct answer: B. Make a portfolio automatically 'safer' - total risk still depends on overall exposure and leverage

Risk parity changes how risk is distributed, but total portfolio risk still depends on overall exposure.

4. What does this lesson say a fuller risk-budgeting approach should also account for, beyond volatility alone?

Correct answer: A. Correlation between positions

Sizing by volatility alone ignores how positions move together, which still concentrates risk.

5. How does risk budgeting relate to the Intermediate Position Sizing lesson?

Correct answer: C. Risk budgeting scales the same 'size by risk, not dollars' idea up to a whole book

Risk budgeting extends the same core idea from single-stock position sizing to an entire portfolio.