How to Calculate Stock Dilution Percentage (With Examples)

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Step-by-step formula to calculate stock dilution percentage. Worked examples covering ATM offerings, shelf drawdowns, and warrant exercises with real numbers.

? In This Article

* The Basic Dilution Formula
* Example 1: ATM Offering Dilution
* Example 2: Shelf Registration Drawdown
* Example 3: Warrant Exercise Dilution
* Example 4: Convertible Note Conversion
* Calculating Cumulative Dilution
* Translating Dilution % to Per-Share Price Impact

The Basic Dilution Formula

Stock dilution percentage measures how much existing shareholders' ownership stake is reduced by the issuance of new shares. The core formula is simple:

? Dilution Percentage Formula

Dilution % = New Shares Issued ÷ (Shares Outstanding After Issuance) × 100

Or equivalently: New Shares ÷ (Old Shares + New Shares) × 100

Note: This is not New Shares ÷ Old Shares. That formula calculates the share count increase percentage, which overstates dilution.

Why the denominator uses total shares after issuance rather than before: dilution percentage represents each existing shareholder's pro-rata share of the newly expanded pie. If a company had 100 shares and issues 20 new ones, existing holders now own 100/120 = 83.3% of the company - they were diluted by 16.7%, not by 20%.

The distinction matters at large dilution percentages. A company doubling its share count dilutes existing holders by 50% (1 million new shares ÷ 2 million total = 50%), not by 100% - their ownership is halved, but they still own the company.

Example 1: ATM Offering Dilution

ATM (at-the-market) offerings allow companies to sell shares continuously into the open market through a broker-dealer. The dilution accumulates over time as shares are sold.

? ATM Offering Dilution Calculation

Scenario: Company XYZ has 50,000,000 shares outstanding. They have an active ATM program and sell 5,000,000 new shares over 3 months at an average price of $3.00, raising $15,000,000.

* Shares outstanding before: 50,000,000
* New shares issued: 5,000,000

* Shares outstanding after: 55,000,000
* Dilution % = 5,000,000 ÷ 55,000,000 × 100 = 9.09%

An investor who owned 500,000 shares (1.00% of the company) before the ATM offering now owns 500,000 / 55,000,000 = 0.91% of the company. Their ownership percentage was reduced by 9.09%.

Note that the ATM offering also raises $15M in cash, which increases the company's book value. If that cash is deployed productively, the per-share intrinsic value may not fall by the full dilution percentage. But in the short term, before the capital is deployed, dilution creates direct downward pressure on per-share metrics.

Example 2: Shelf Registration Drawdown

Shelf registrations (S-3 filings) allow companies to register a dollar amount of securities for future sale. When they draw down on the shelf, they sell new shares (or other securities) up to the registered dollar amount.

? Shelf Drawdown Dilution Calculation

Scenario: Company ABC has 80,000,000 shares outstanding at a current stock price of $2.50. They have a $20,000,000 S-3 shelf registration and announce a $5,000,000 direct offering at $2.00 per share (a 20% discount to market).

* Dollar amount of offering: $5,000,000
* Offering price per share: $2.00
* New shares to be issued: $5,000,000 ÷ $2.00 = 2,500,000
* Shares outstanding before: 80,000,000
* Shares outstanding after: 82,500,000
* Dilution % = 2,500,000 ÷ 82,500,000 × 100 = 3.03%

However, because the offering priced at a 20% discount to the then-current $2.50 market price, existing shareholders face an additional value impact: new investors got shares worth $2.50 for $2.00. This creates a book value dilution that's larger than the simple share count dilution.

When offerings are priced at discounts to market, you need to calculate economic dilution (book value dilution), not just share count dilution. Economic dilution is always larger when shares are sold below market value.

Example 3: Warrant Exercise Dilution

Warrants give holders the right to buy shares at a specified "exercise price." When warrants are exercised, new shares are created, diluting existing shareholders. Unlike ATM offerings, warrant exercises bring in cash at the exercise price - which may be below or above market value depending on when the warrants were issued.

? Warrant Exercise Dilution Calculation

Scenario: Company DEF has 30,000,000 shares outstanding. They have 4,000,000 outstanding warrants with an exercise price of $1.50. The current stock price is $3.00 (warrants are "in the money"). All 4,000,000 warrants are exercised.

* Warrants exercised: 4,000,000
* New shares created: 4,000,000
* Shares outstanding before: 30,000,000

* Shares outstanding after: 34,000,000
* Dilution % = 4,000,000 ÷ 34,000,000 × 100 = 11.76%

The company receives $1.50 × 4,000,000 = $6,000,000 in cash from the warrant exercises. However, the warrants were exercised at $1.50 when market price was $3.00, so the new shares were issued at a 50% discount to market - creating significant economic dilution beyond the 11.76% share count dilution.

Example 4: Convertible Note Conversion

When convertible notes are converted to equity, the note principal (and sometimes accrued interest) becomes shares at the specified conversion price. This eliminates the debt from the balance sheet but creates new shares.

? Convertible Note Dilution Calculation

Scenario: Company GHI has 20,000,000 shares outstanding. They have a $1,000,000 convertible note with a fixed conversion price of $0.50 per share. The lender converts the full note.

* Note principal: $1,000,000
* Conversion price: $0.50/share
* New shares created: $1,000,000 ÷ $0.50 = 2,000,000
* Shares outstanding before: 20,000,000
* Shares outstanding after: 22,000,000
* Dilution % = 2,000,000 ÷ 22,000,000 × 100 = 9.09%

If the current stock price is $1.50 and the conversion price is $0.50, the lender received shares worth $3,000,000 market value for a $1,000,000 note - and existing shareholders' 9.09% dilution represents $3M of value transferred to the lender at the expense of the company's market cap.

Calculating Cumulative Dilution

Many heavily diluted companies have stacked multiple rounds of dilution. To calculate cumulative dilution across multiple issuances, you can't simply add the individual percentages - you need to compound them:

Cumulative Dilution Formula:

Total Dilution % = 1 - (Original Shares ÷ Current Shares Outstanding) × 100

? Cumulative Dilution Over Time

Example: Company started with 10,000,000 shares. After 3 years of dilutive financing:

* Year 1: Issued 2,000,000 shares (16.7% dilution that year)
* Year 2: Issued 5,000,000 shares (from 12M to 17M = 29.4% dilution that year)
* Year 3: Issued 8,000,000 shares (from 17M to 25M = 32% dilution that year)

Cumulative dilution = 1 - (10,000,000 ÷ 25,000,000) = 1 - 0.40 = 60%

A shareholder who owned 100,000 shares at founding (1.00% of the company) now owns 100,000 / 25,000,000 = 0.40% of the company. They have been diluted by 60% cumulatively.

Translating Dilution % to Per-Share Price Impact

Dilution percentage doesn't map directly to stock price impact - other factors (the cash raised, how that capital is deployed, market sentiment) all influence price. But as a rule of thumb for

immediate-term analysis:

* Dilution at market price: Minimal theoretical immediate price impact (cash raised = market cap increase from new shares), but psychological and selling-pressure impacts are real
* Dilution at discount to market price: Creates immediate per-share book value dilution proportional to the discount depth and the number of shares issued
* Dilution via variable-rate conversion: Price-destroying - conversion at heavy discounts to current market, combined with immediate market sale of converted shares, creates double-barreled downward pressure

The practical approach: use dilution percentage as a screening signal for risk, not a precise price-impact predictor. A company with cumulative dilution of 80% over 3 years that is still actively diluting warrants serious scrutiny, regardless of near-term price action.

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