

Explained Simply: Compounding

The \$24 magic money tree: how small money grows huge.

A story about an island, an apple seed and a snowball, and what it teaches us about time and money. With charts, real numbers and the things that can break the magic.

 The \$24 island

 The doubling trick

 Sam and Alex

 What breaks it

 Passing it down

 ISAs and pensions



General information, not financial advice. Examples are illustrative, not forecasts.

THE STORY

The island that cost \$24

How a tiny price became a famous money lesson



In 1626, settlers from the Netherlands got the island of **Manhattan**. Today it is the busy heart of New York City.

What they paid

- ✓ The story says **60 guilders** (Dutch money of the time).
- ✓ Later, people worked out this was about **\$24**.
- ✓ Today, \$24 would not even buy one new video game.

What it is now

- ✓ One of the most expensive places on Earth.
- ✓ Nobody knows the true price for sure.
- ✓ Historians still argue about it.

THE POINT OF THE STORY

A man named Mohnish Pabrai likes to tell this story. His point is not about land. It is about a superpower called **compounding**.

Jargon check: an **investor** is someone whose job is growing money by putting it into things like businesses.

IN THIS GUIDE

What compounding is, what \$24 could have become, the doubling trick, what it could mean for you, and **what breaks the magic**.

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What is compounding?

Growth on top of growth



Plant an apple seed and it grows into a tree. The tree gives apples. Plant their seeds and you get more trees. **Money can work the same way:** it earns money, and next year that new money earns money too.

Money that grows money

£1,000 left alone for 30 years at 7% a year



Illustrative only. Growth added once a year, no fees, tax or inflation. Real returns go up and down.

£1,000 at 7% a year for 30 years: about **£7,600** with compounding, against about £3,100 with simple growth.

REMEMBER

Compounding is money having babies, and **the babies having babies**. Like a snowball: the bigger it gets, the faster it grows.

THE NUMBERS

The \$24 at 7% a year

If it had been invested in 1626 and never touched



Seven percent means that for every \$100, you earn **\$7 each year**. That is not a crazy-high number. But it is **not guaranteed** either.

After	Year	About how much	How big is that?
Start	1626	\$24	Less than one new video game
100 years	1726	\$20,800	A used car
200 years	1826	\$18 million	A giant lottery prize
300 years	1926	\$15.7 billion	Billions!
400 years	2026	\$13.6 trillion	More than almost every country makes in a year

The surprising part: for the first 100 years, not much seems to happen. In the **last 100 years alone**, the money grows by more than \$13 trillion.

HOW IT GROWS

Slow, slow, slow... **then WHOA!**

Worked example: 7% a year, added once a year, never taken out. No tax, fees or inflation.

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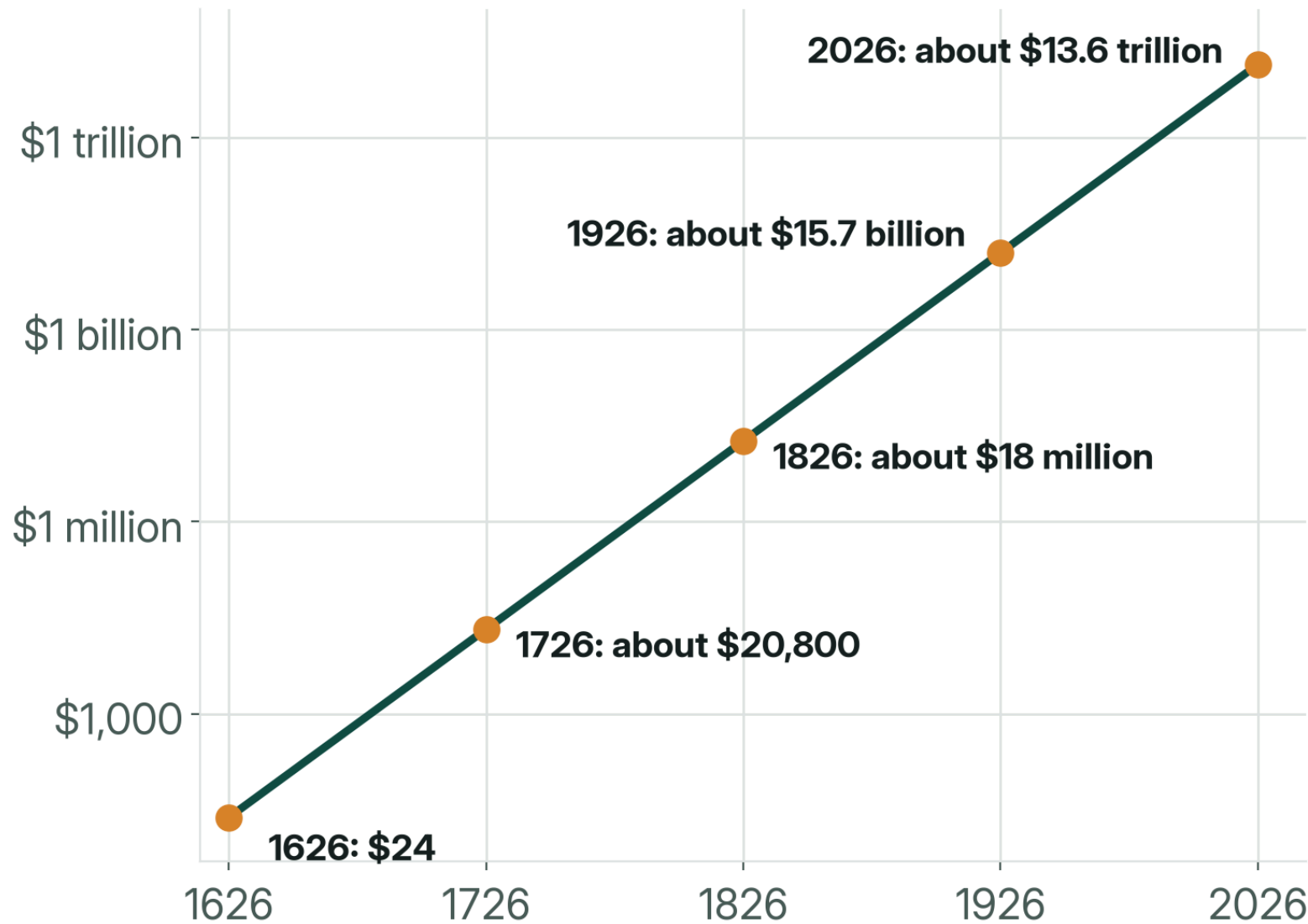
Slow, slow... then WHOA!

400 years of growth on one chart



What if the \$24 grew at 7%?

Each step up the scale is 1,000 times bigger



Pretend example: \$24 invested in 1626 at 7% a year, never touched. Log scale, so a straight line means steady growth. It shows how the maths works; it does not predict the future.

Each line up the side is **1,000 times** bigger than the one below. That is the only way to fit \$24 and \$13.6 trillion on one chart.

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The doubling trick

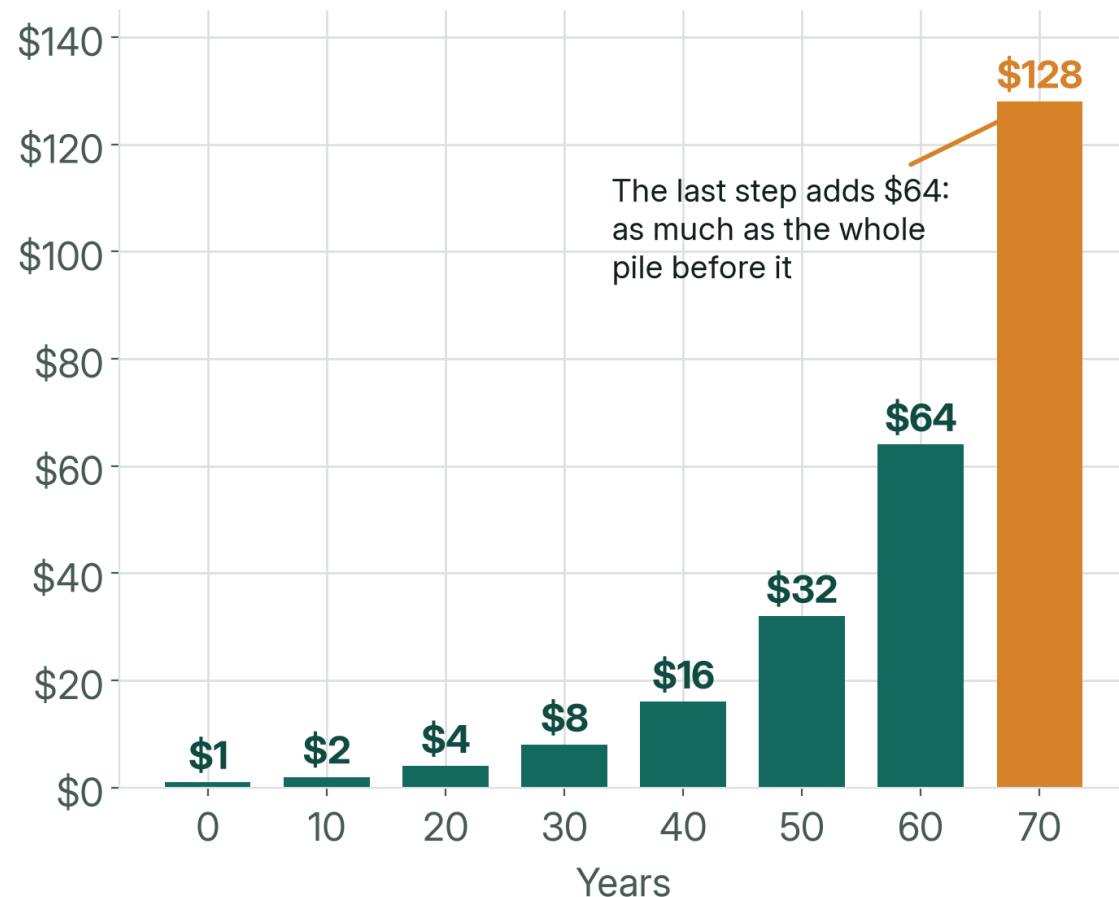
The rule of 72



At 7% a year, money **doubles about every 10 years**. Quick check: divide 72 by the yearly growth rate. **$72 \div 7 \approx 10$ years**. At 4%, it would be $72 \div 4 =$ about 18 years.

The doubling trick

At 7% a year, \$1 doubles about every 10 years



Rule of thumb (rule of 72: $72 \div 7 \approx 10$ years). The exact time at 7% is about 10.2 years, so after 70 years \$1 grows to about \$114 rather than \$128.

Using the “about 10 years” rule. The exact figure after 70 years at 7% is about \$114.

THE SECRET INGREDIENT IS TIME

Each step adds as much as **the whole pile before it**. That is why the end is the most exciting part.

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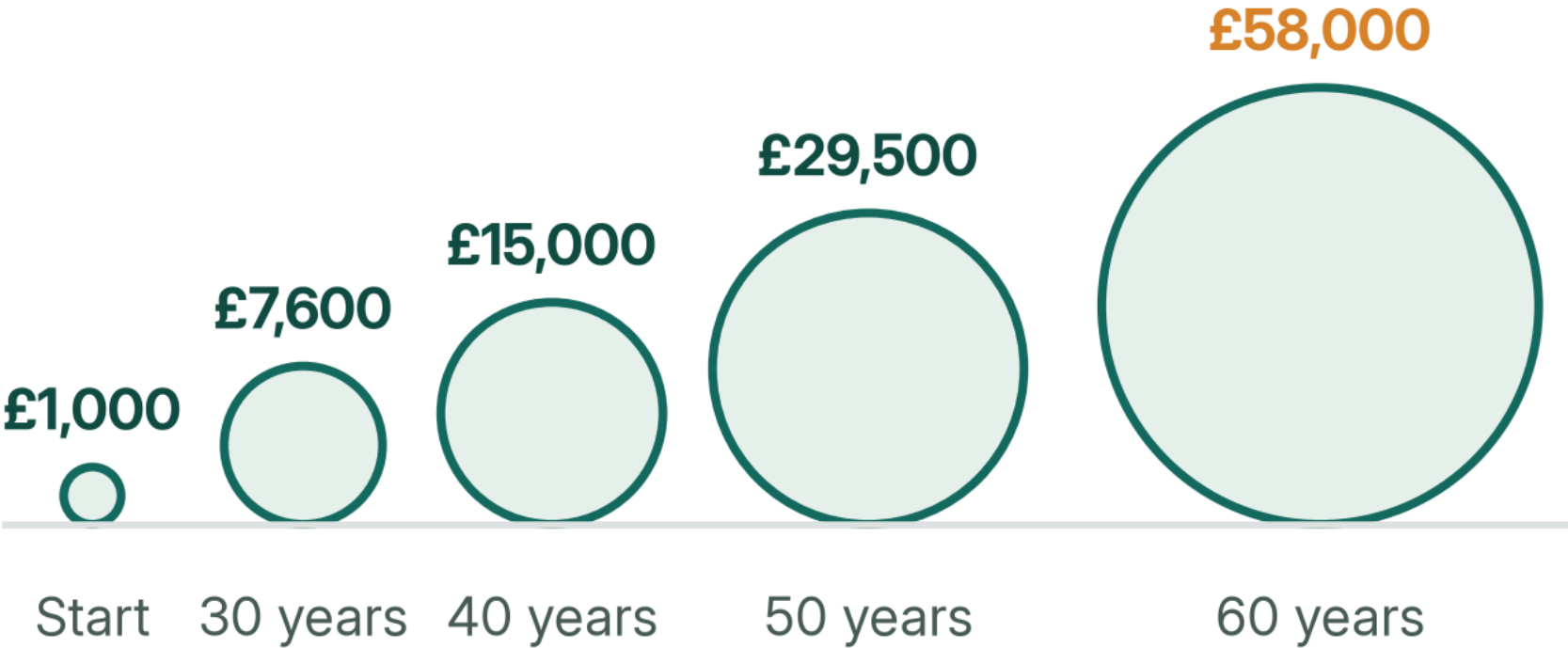
A £1,000 gift, left alone

Nobody lives 400 years, but you might invest for 50 or 60

Imagine someone gives you **£1,000** and it grows by 7% a year, never touched.

After	About how much
30 years	£7,600
40 years	£15,000
50 years	£29,500
60 years	£58,000

The snowball: a £1,000 gift, never touched



Illustrative only. 7% a year, added once a year, no fees, tax or inflation.
Each ball's area matches its value.

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START EARLY

Sam and Alex

Same savings, different start



Both save **£500 a month** and stop at 65. Sam starts at 25. Alex starts at 35.

SAM • STARTS AT 25

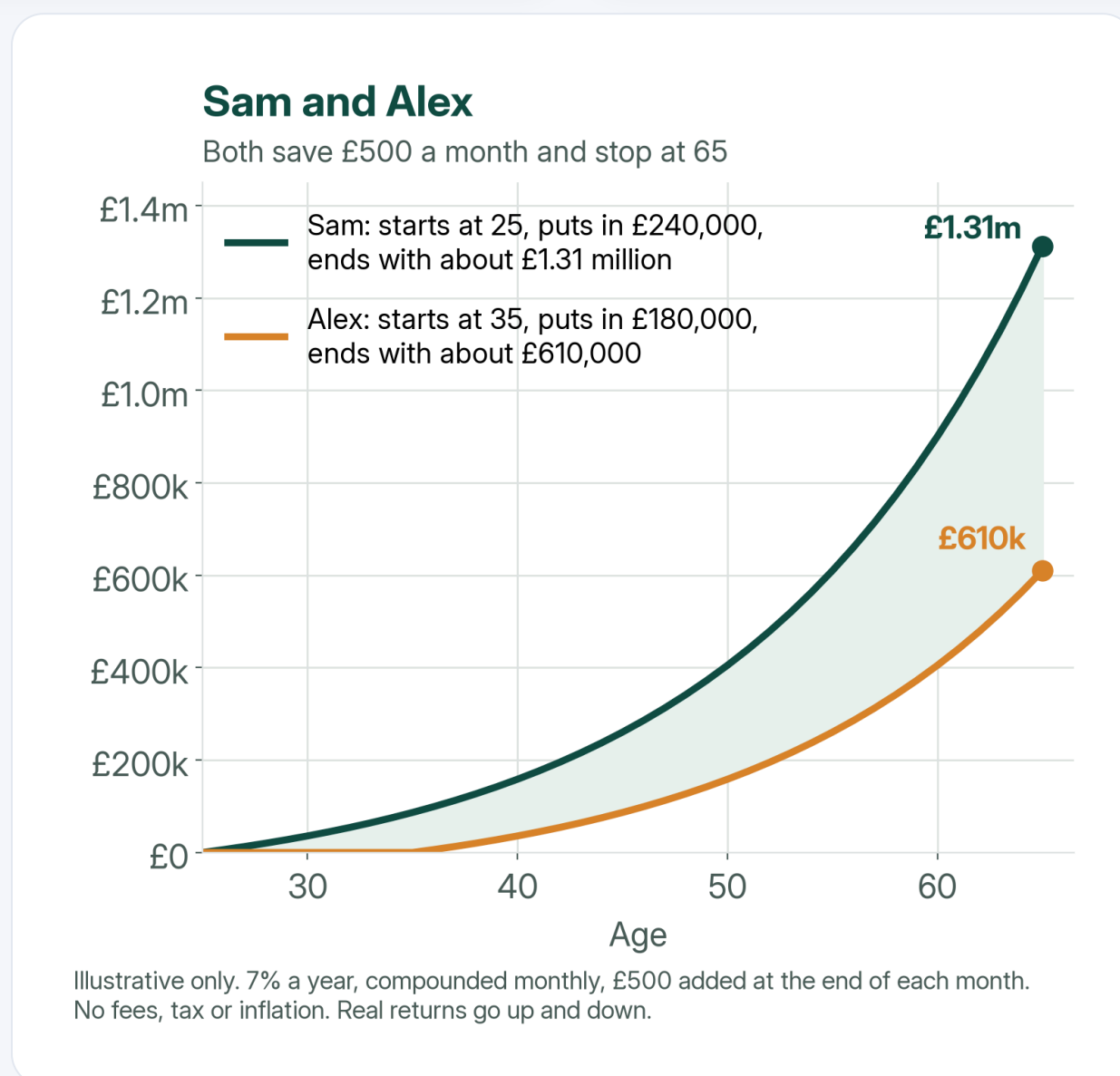
Puts in £240,000.

Has about **£1.31 million**.

ALEX • STARTS AT 35

Puts in £180,000.

Has about **£610,000**.



STARTING EARLY IS A SUPERPOWER

Alex waited just 10 years and ended up with **about £700,000 less**, despite paying in only £60,000 less.

Worked example: 7% a year, added monthly, £500 paid in at the end of each month. No fees, tax or inflation.

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What breaks the magic

Three things that stop the tree growing



Compounding needs **time** and needs to be **left alone**. Three things get in the way.



1. Starting late

The last years are the biggest ones, so **every year you wait costs you a lot**. Sam and Alex show how much.



2. Big losses

Losing money hurts more than you think. **Lose half and you need to double** what is left just to get back to where you started.



3. Taking it out early

If you dig up the tree to check the roots, it stops growing. **High fees do the same thing**, because they nibble away at the growth.

Example: £10,000 left for 30 years grows to about **£76,100** at 7% a year. A 1% yearly fee (so 6%) leaves about **£57,400**, roughly £18,700 less.

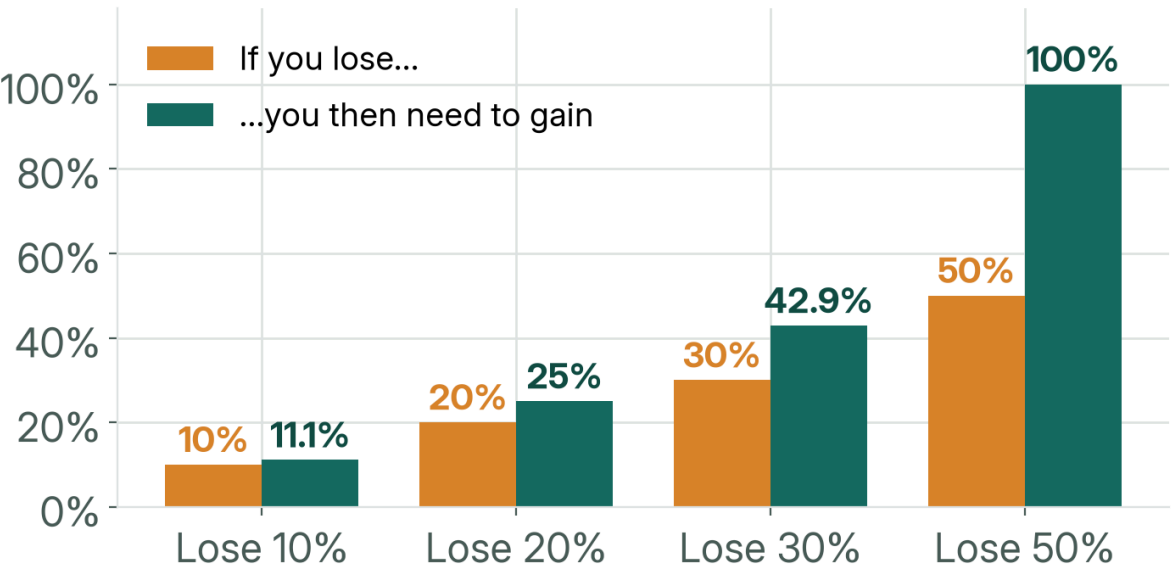
Losses and fees

Why they matter so much



Big losses are hard to undo

The gain you need just to get back to where you started



Fees nibble the growth

£10,000 left alone for 30 years



Illustrative only. Growth added once a year. The fee is shown as 1 percentage point off the return (7% becomes 6%). No tax or inflation. Real returns go up and down.

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Passing it down

Generational wealth



Generational wealth means money that helps your children, and their children too. You plant the tree, but your grandchildren might sit in its shade.

£1 MILLION AFTER 30 YEARS

About **£7.6 million**

£1 MILLION AFTER 60 YEARS

About **£58 million**

✓ What long-lasting wealthy families usually do

- ✓ **Teach the children.** A child who understands compounding starts with a huge head start.
- ✓ **Spend less than the money grows.** If it grows 7% and they take out 4%, the tree keeps getting bigger.
- ✓ **Keep costs low.** Smaller fees mean more growth stays in the tree.
- ✓ **Own things that grow**, like shares (small pieces of businesses), not just cash under the mattress.

Worked example: 7% a year, added once a year. No tax, fees or inflation.

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7% vs real stock markets



What three famous share indexes did over about 40 years

All our examples use **7% a year**. Here is what three famous share indexes returned on average, with **dividends** (the share of profits companies pay out) put back in.

Index	What it is	Period	A year
FTSE 100	The 100 biggest companies on the London Stock Exchange	1984 launch to end of 2023, in £	8.10%
S&P 500	About 500 large US companies	1985 to 2024, in US\$	11.68%
Nasdaq-100	100 large non-financial US Nasdaq companies, many in tech	Jan 1985 launch to end of 2024, in US\$	14.25%

Same method as Sam and Alex: £500 a month, paid in at the end of each month, growing monthly, until 65.

Rate a year	Sam ends with	Alex ends with	Gap
7.00% Our example	£1,312,000	£610,000	£702,000
8.10% FTSE 100	£1,797,000	£760,000	£1,036,000
11.68% S&P 500	£5,318,000	£1,628,000	£3,690,000
14.25% Nasdaq-100	£12,126,000	£2,909,000	£9,217,000

Worked example, rounded to the nearest £1,000. Sam pays in £240,000 from 25; Alex pays in £180,000 from 35. No fees, tax or inflation, and the same rate every year, which never happens in real life.

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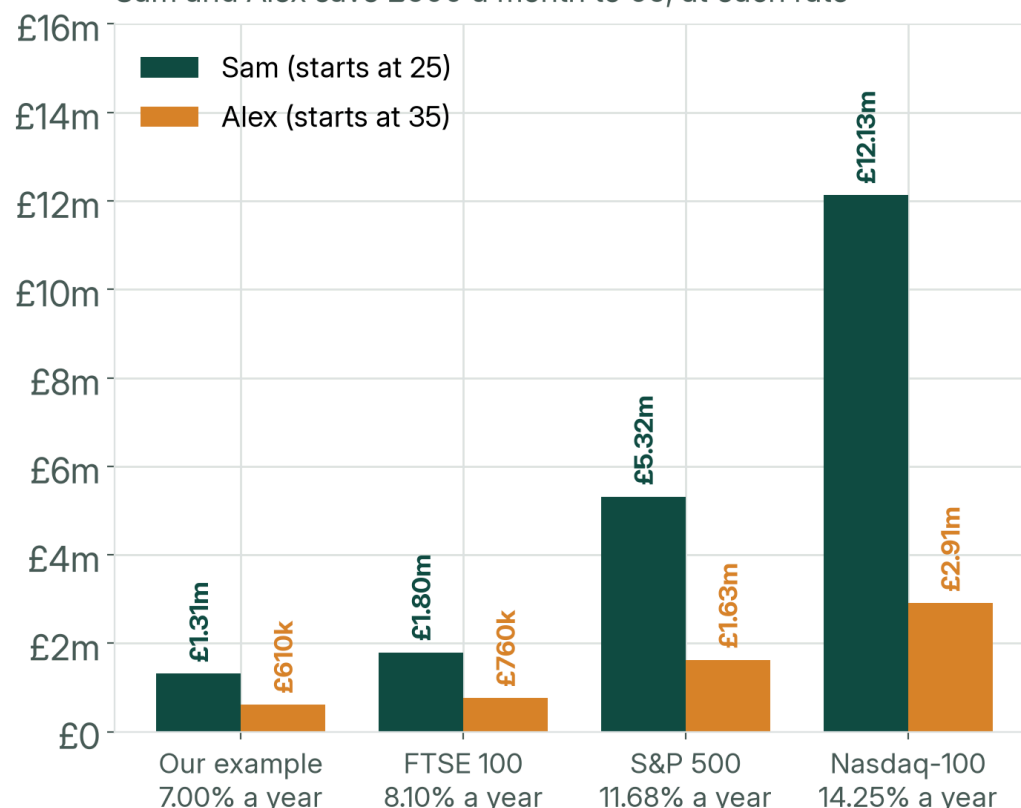
Sam and Alex, real rates

Same £500 a month, four different rates



7% vs real market averages

Sam and Alex save £500 a month to 65, at each rate



Illustrative only. Past ~40-year average yearly returns with dividends reinvested, before fees, tax and inflation (S&P 500 and Nasdaq-100 in US dollars, FTSE 100 in pounds). Compounded monthly, £500 added at the end of each month. Past returns are not a promise of future returns.

⚠ Before you get excited

- ✓ **Exchange rates matter.** S&P 500 and Nasdaq-100 returns are in US dollars. A UK investor's returns would also move with the pound-to-dollar rate.
- ✓ **Past averages, not a promise.** The Nasdaq-100 fell 83% when the tech bubble burst around 2000.
- ✓ **Fees, tax and inflation** reduce what you really keep.

Sources: FTSE 100: The Guardian, "Footsie turns 40", 2 Jan 2024 (£1,000 at the 1984 launch grew to £22,550 with dividends reinvested; 8.10% a year). S&P 500: A. Damodaran, NYU Stern, "Historical Returns on Stocks, Bonds and Bills", data updated Jan 2026 (S&P 500 incl. dividends, 1985–2024; 11.68% a year). Nasdaq-100: Nasdaq, "Nasdaq-100 Index Celebrates 40 Years of Innovation", 30 Jan 2025 (14.25% a year, 31 Jan 1985 to 31 Dec 2024). All nominal, before fees, tax and inflation.

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7% is not a promise

What the story does and doesn't tell you



Returns go up and down

Some years the money goes down, not up.



Prices rise

This is called **inflation**. Money buys a little less each year.



Nobody invests 400 years

The Manhattan story shows how the maths works. It does not predict the future.



Information, not advice

Before making decisions, speak to a **qualified financial adviser** (one authorised by the FCA).



A UK note: ISAs and pensions

UK

- ✓ Money invested inside an **ISA** or a **pension** grows without being taxed as it builds up.
- ✓ That means more of the growth stays in the pot to **keep compounding**.
- ✓ Pension money is usually taxed when you take it out, apart from a tax-free part.
- ✓ The rules and limits can change.

Your money is at risk. When you invest, you could get back less than you put in.

The big idea

A small amount, a steady return and **lots of time** can beat a big amount that gets interrupted. You can control when you start, how much you add and how long you leave it alone. **Plant the seed early, protect it, and let time do the rest.**

$72 \div 7 \approx 10$

Years to double at 7% a year

10 years

Sam's head start was worth about £700,000

£1,000 → £58,000

A gift left alone for 60 years at 7% a year

Lose 50%

...and you need +100% just to get back



Think about it

If you planted £24 today, about how old would you be when it doubled? (Hint: about 10 years from now.)



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