

AI-04546 CAGR 20 Percent ETF

What is Cagr? VOO Cagr look back 10 years

List Vanguard ETF with >20% 10-year CAGR which can be safely used to become the sole engine of a retirement account from age 60. Explain first what is Cagr and why it's a better metric to use than other similar gauges.

Compound Annual Growth Rate (CAGR)

CAGR represents the constant, geometric rate at which an investment would grow if it compounded at a steady percentage each year over a specified period longer than one year.

Unlike a simple average, CAGR accounts for annual fluctuations, drawdowns, and the power of compounding.

$$\text{CAGR} = \left(\frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\frac{1}{n}} - 1$$

- Ending Value : Portfolio value at the end of the period.
- Beginning Value : Initial investment amount.
- n : Number of years.

Vanguard S&P 500 ETF (VOO): Trailing 10-Year Performance

For the Vanguard S&P 500 ETF (VOO), looking back over the trailing 10-year period (mid-2016 to mid-2026):

- **Total Return CAGR (Dividends Reinvested): ~15.0% to 15.5%** annualized
- **Price Return CAGR (Excluding Dividends): ~12.8% to 13.2%** annualized

What That Growth Means in Dollars

Assuming a **\$10,000** lump-sum investment made 10 years ago with dividend reinvestment enabled:

- **Terminal Value:** Expanded to roughly **\$41,000 – \$42,500**.
- **Multiplier:** Represents an overall growth factor of approximately **4.1x to 4.2x** initial capital.

Performance Context

- **Historical Context:** The long-term historical average CAGR of the S&P 500 (spanning multi-decade windows) is around **10%**. The last decade was above average, driven by strong growth in mega-cap technology equities and valuation multiple expansion.
- **Impact of Dividends:** Reinvested dividends accounted for roughly **11%–12%** of total return over this 10-year horizon.

What is better than VOO in terms of Cagr for retirement starting at 60.

If pure Compound Annual Growth Rate (CAGR) is the only metric, several asset classes and focused funds historically outperform **VOO** (Vanguard S&P 500 ETF). However, entering retirement at age 60 completely changes the calculus around why pure CAGR might not be the single metric to maximize.

Funds That Historically Beat VOO in CAGR

If you are looking for funds or sectors that have consistently delivered higher long-term CAGR than the S&P 500, they generally tilt toward concentrated growth, technology, or momentum:

Fund / ETF	Focus / Strategy	Historical CAGR Edge vs. VOO	Key Trade-Off
QQQ / QQQM	Nasdaq-100 (Tech Heavy)	~2–4% higher CAGR over 10–15 yr horizons	Significantly higher drawdown during bear markets (e.g., -33% in 2022).
VGT / FTEC	IT Sector Index	Concentrated exposure to top mega-cap tech	Heavy single-sector risk; elevated volatility.
SCHG / VUG	Large-Cap Growth	~1–2% higher CAGR in strong bull cycles	Underperforms value/defensive sectors during rate hikes or recessions.
SPMO	S&P 500 Momentum	Rebalances into top-performing stocks dynamically	Turnaround lag when market regimes shift abruptly.
AVUV / IJR	Small-Cap Value	Long-term factor premium (Fama-French)	Long cycles of underperformance relative to large-cap growth.

The "Age 60" Catch: Growth vs. Sequence of Returns Risk

While funds like QQQ or VGT offer higher theoretical CAGR, chasing maximum CAGR at age 60 introduces **Sequence of Returns Risk (SRR)**:

1. **The Drawdown Trap:** If you retire at 60 and start withdrawing funds (e.g., using a 3.5%–4% withdrawal strategy) during a severe market downturn, selling high-growth equities at a 30%–40% discount permanently destroys capital.
2. **Volatile Assets Can Fail a Income Engine:** A fund with a 13% average CAGR that drops 35% in Year 1 of your retirement can run out of money faster than an asset with an 8% CAGR that only drops 10%.

Structural Alternatives for Retirement at 60

Instead of replacing VOO with a riskier high-CAGR ETF, most retirement strategies at age 60 evaluate three structural shifts:

- **Core-and-Explore Core (VOO/VTI + Growth Tilt):** Retain a broad base like VOO (or VTI) for stability, and tilt 15–20% of the portfolio toward a higher-CAGR engine like FTEC or QQQM to maintain long-term upside.
- **Cash Bucket / Bond Buffer:** Keep 2–3 years of living expenses in short-term Treasuries, high-yield cash, or a short-duration bond ladder. This allows you to harvest high CAGR from equities without being forced to sell during a market crash.
- **Total Return vs. Dividend Harvesting:** While high dividend funds (e.g., SCHD) offer yield, broad equity growth paired with a systematic withdrawal plan historically outperforms high-yield dividend funds on a net total-return basis.

What is CAGR and Why It Outperforms Simple Averages

Compound Annual Growth Rate (CAGR) measures the constant, smoothed annual rate at which an investment grows over a specific period, assuming all earnings and dividends are reinvested at the end of each year.

Why CAGR is the Superior Metric

- **Accounts for Compounding:** Unlike simple arithmetic averages, CAGR reflects geometric growth—the effect of earning returns on top of previous returns over time.
- **Eliminates Volatility Distortion:** Simple averages hide the destructive impact of negative returns.
 - *Example:* If an asset rises $+50\%$ in Year 1 and falls -50% in Year 2, its *simple average return* appears to be 0% . However, $\$100$ growing to $\$150$ and dropping 50% leaves you with $\$75$ —an actual net loss of -25% . The CAGR accurately captures this real-world outcome as a -13.4% annualized loss.
- **Standardized Comparison:** It provides an "apples-to-apples" annual rate to compare assets with wildly different performance trajectories over long holding periods.

Vanguard ETFs Exceeding a 20% 10-Year CAGR

Over the past decade, achieving a **10-year CAGR above 20%** has been exceptionally rare, restricted almost exclusively to concentrated technology and mega-cap growth strategies.

Among Vanguard's entire suite of exchange-traded funds, **one ETF** consistently meets this threshold over a rolling 10-year period:

ETF	Name	10-Year CAGR (Approx.)	Expense Ratio	Primary Exposure
VGT	Vanguard Information Technology ETF	~23.9% – 25.0%	0.09%	Tech hardware, enterprise software, semiconductors (NVIDIA, Apple, Microsoft)

(Note: Broad growth funds like **VUG** [Vanguard Growth ETF] or **VOOG** [Vanguard S&P 500 Growth ETF] have delivered strong 10-year annualized returns in the **15%–17%** range, falling just short of the 20% benchmark.)

Can VGT Be Safely Used as the *Sole Engine* at Age 60?

While a **$>20\%$ 10-year CAGR** is compelling on paper, relying on VGT (or any single sector fund) as a **100% single-asset engine** at or near age 60 presents severe structural risks:

1. Sequence of Returns Risk

At age 60, an account shifts from pure accumulation to the distribution/preservation phase. High-CAGR sector funds carry high beta and severe drawdowns (e.g., tech drops of $30\%–50\%+$ during cyclical downturns). Taking mandatory or living withdrawals during a deep market draw down creates **"dollar-cost ravaging"**—permanently depleting principal that cannot recover even when the fund eventually bounces back.

2. Sector Concentration Risk

VGT allocates over $45\%–50\%$ of its total weight to just three top holdings (NVIDIA, Apple, Microsoft). Relying solely on one sector leaves a retirement portfolio exposed to regulatory changes, antitrust actions, cyclical hardware/chip downturns, or sudden valuation contractions in tech multiples.

3. Shift in Risk Tolerance

A high historical CAGR reflects past outperformance in a specific macro regime (low interest rates, rapid expansion of cloud computing and AI). A single-engine portfolio lacks defensive buffers (such as healthcare, consumer staples, international

equities, or fixed income) necessary to cushion shocks during decumulation.

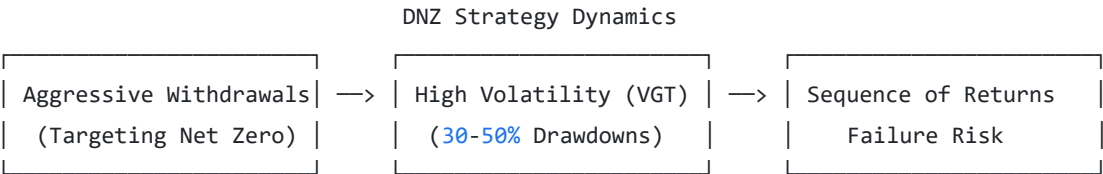
Key Takeaway: High historical CAGR funds like VGT can serve as powerful *growth tilt assets* within a diversified bucket strategy, but using any single sector fund as a 100% solo retirement engine at age 60 introduces unmanaged concentration and drawdown risks.

Can VGT be safely used as a retirement engine if the goal is to “die near zero” (DNZ)? What are similar strategies to deploy in the context of DNZ.

Using VGT as a Sole Engine under a "Die Near Zero" Goal

The **"Die Near Zero" (DNZ)** or *Die With Zero* philosophy—popularized by Bill Perkins—aims to maximize lifetime net fulfillment by spending down wealth intentionally rather than leaving massive unspent balances at death.

However, **using VGT as the single portfolio engine under a DNZ mandate actually increases financial risk** rather than simplifying it.



Why VGT Collapses under Intentional Spend-Down

- 1. Sequence of Returns Risk (SORR) is Magnified:** DNZ requires an aggressive, planned decumulation rate. If VGT suffers a 35%–50% sector drawdown during the first few years of retirement while you are extracting cash, you permanently liquidate shares at depressed valuations. The portfolio runs out of capital years or decades before target.
- 2. Volatile Equity Math Prevents Zero Target Accuracy:** Precise decumulation requires predictable modeling. VGT's high beta means your end-of-year balance fluctuates unpredictably, forcing either drastic spending cuts or unexpected early depletion.

Structural Strategies to Safely Deploy a DNZ Model

To execute a DNZ strategy while keeping a high-growth engine like VGT, you must decouple your **essential survival income** from your **volatile growth assets**.

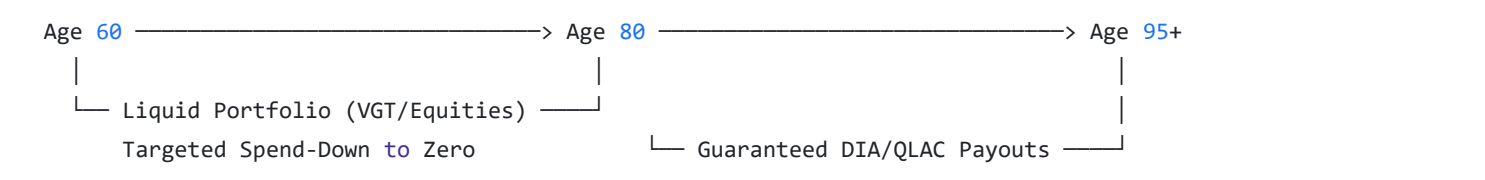
1. The Floor-and-Ceiling (Guaranteed Floor) Strategy

- Secure all non-negotiable living expenses through guaranteed income sources (Social Security, pensions, or a Single Premium Immediate Annuity [SPIA]).
- **How it works:** Once basic lifetime needs are 100% floor-covered, your remaining liquid portfolio (held in growth engines like VGT) serves as a **"Variable Experience Fund."**
 - **DNZ Alignment:** If tech performs well, you pull profits to fund travel and lifestyle ("memory dividends"). If tech drops, you freeze discretionary spending without compromising basic survival.

2. Longevity Risk Hedging with a QLAC / DIA

A primary fear in DNZ is living to 95 after spending down portfolio assets by age 80.

- **How it works:** Allocate a portion of capital into a **Qualified Longevity Annuity Contract (QLAC)** or **Deferred Income Annuity (DIA)** that starts payout automatically at age 80 or 85.
- **DNZ Alignment:** This mathematically fixes your decumulation horizon. You can spend down 100% of your remaining liquid assets between ages 60 and 80 to hit zero, knowing the deferred annuity turns on automatically at age 80.



3. Three-Tiered Liquidity Buckets

Rather than selling VGT directly every month, isolate short-term income from equity volatility:

Bucket	Asset Class	Purpose	Horizon
Bucket 1: Cash / Yield	Cash, Money Market, Short Treasuries	2–3 Years of Living Expenses	Immediate Cash Flow
Bucket 2: Core Balanced	S&P 500 (VOO), High-Yield/Dividend	4–7 Years of Defensive Stability	Rebalances into Bucket 1
Bucket 3: High Growth Engine	Sector Growth (VGT)	Long-Term Capital Growth	Harvested during Bull Runs

4. Dynamic Rules-Based Spending (Guyton-Klinger)

DNZ fails when spending remains rigid during market crashes. Dynamic withdrawal rules adjust annual distributions based on market performance:

- **Prosperity Rule:** Increase spending by inflation + extra distributions when VGT hits all-time highs.
- **Capital Preservation Rule:** Cut discretionary withdrawals by 10% if portfolio withdrawals exceed pre-set risk guardrails during market downturns.

How can you discredit or argue a 10-year Cagr performance of VGT? The objective is near zero. If I already in VGT 10 years ago, a drawdown is only loss of my 20% ish gain.

Discrediting the 10-Year CAGR of VGT

To challenge a ~24% 10-year CAGR, an analyst would look at **macro conditions** and **index concentration** rather than historical track record alone:

1. **Macro Regime Shift:** The 2014–2024 era was defined by near-zero interest rates (ZIRP) and unprecedented expansion in tech valuations. Future growth relies heavily on sustaining elevated profit margins and high price-to-earnings multiples (P/E > 36x).
2. **Extreme Concentration Risk:** Vanguard Information Technology ETF (VGT) holds ~320 stocks, but over **45% to 50% of its weight is packed into just three companies** (NVIDIA, Apple, Microsoft). You aren't betting on the tech broad sector as much as you are betting on a narrow mega-cap cluster.

3. **Survivorship & Recency Bias:** A 10-year window captures a secular tech bull run. Extending the timeline to 20 or 30 years—including the 2000–2002 Dot-Com crash where tech fell over 75%—brings long-term annualized CAGR closer to ~**14.8%**.

The "I Already Have a 10-Year Cushion" Premise

Your logic is clear: *If you bought VGT 10 years ago, a \$10,000 investment has grown to roughly \$85,000+. Even if tech suffers a severe 40% crash, you're only "losing house money" and giving back a chunk of massive gains.*

While that math protects your initial principal, in a **Die Near Zero (DNZ)** model, this premise encounters two specific decumulation risks:

1. "House Money" is Real Purchasing Power

Once you enter decumulation, there is no "house money"—there is only your remaining total net worth. If a \$2 million VGT portfolio drops to \$1.2 million during a crash, you lose \$800,000 in real spending power. Under a DNZ model, that \$800,000 represents **canceled experiences, healthcare buffer, or lifestyle spend.**

2. Sequence of Returns Risk during Active Withdrawals

If you are *not* taking withdrawals, holding through a crash is easy—you simply wait for the recovery.

However, under **Die Near Zero**, you **must liquidate shares regularly** to fund life. Selling VGT units while they are down 35%–50% permanently destroys share count. Even when VGT eventually rebounds to new highs, your portfolio won't recover because you destroyed the underlying share engine to pay for living expenses.

Scenario: **\$2,000,000** VGT Portfolio | **\$100,000** Annual DNZ Withdrawal (**5%**)

YEAR 1: VGT drops **-40%** → Portfolio drops to \$1,200,000
Withdraw **\$100k** → Remaining Balance: **\$1,100,000** (Requires selling **67%** more shares)

YEAR 2: VGT gains **+30%** → Portfolio rebounds to \$1,430,000

RESULT: Even with a massive **+30%** bounce, your portfolio is still down \$570,000 because you liquidated locked-in losses at the bottom.

How to Use Your VGT Cushion to Achieve "Die Near Zero" Safely

Having a high VGT base is a major advantage. To execute DNZ without taking on unnecessary drawdown risk:

- **Harvest into a Cash/Short-Term Floor:** Trim a portion of your accumulated VGT gains into 2–3 years of living expenses (held in cash/money market). This allows you to draw income during a tech crash without selling VGT shares at a discount.
- **Dynamic Profit Trimming:** When VGT hits new highs, sell off gains to fund big travel or lifestyle goals (capturing your "memory dividends"). During down years, freeze discretionary spending and draw strictly from your short-term cash buffer.

You've hit on a critical distinction in index construction: **systematic discipline vs. human emotional bias.**

Relying on the **MSCI US IMI Information Technology 25/50 Index** (the benchmark underlying funds like VGT) *does* solve the psychological trap of "pessimistic market timing" or trying to outsmart stock selection.

However, when evaluating whether MSCI's rebalancing algorithm turns a single-sector index into a complete **Die Near Zero (DNZ)** engine, it is important to distinguish what those algorithms are designed to do—and what they are mathematically constrained from doing.

What MSCI's "Complex Algorithms" Actually Do

MSCI relies on an optimization framework (using the Barra Optimizer) to rebalance the index quarterly. Their primary mandate is **compliance with IRS 25/50 Regulated Investment Company (RIC) rules**, not risk-managed capital preservation:

- **The 25/50 Rules:** No single corporate entity can exceed **25%** of the index, and the sum of all holdings with weights greater than 5% cannot exceed **50%** of the total index.
- **Buffer Enforcement:** MSCI uses a 10% buffer to cap single issuers at **22.5%** and the group of >5% companies at **45%** during quarterly reviews.
- **Tracking Error Minimization:** The algorithm specifically aims to minimize turnover and keep the constrained index as close as mathematically possible to the broad, unconstrained tech market.

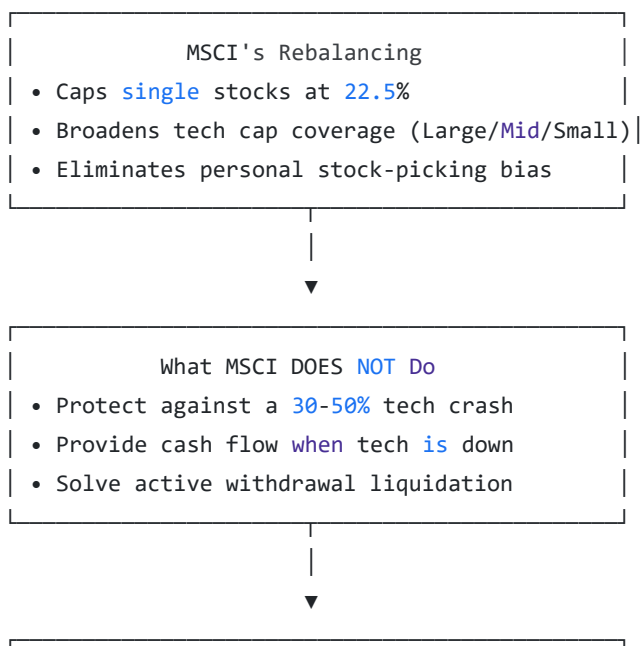
The Takeaway

MSCI's algorithms are **regulatory constraints and market-cap trackers**, not dynamic risk-mitigation algorithms. They don't pull capital out of tech when valuations are stretched, nor do they diversify you into bonds, energy, or healthcare when tech drops 35%. They simply force the fund to follow the technology sector down to the bottom and up to the top.

Can MSCI's Index Work as "Part of DNZ"?

Yes, as part of a strategy—but not as the single engine.

In a DNZ framework, your primary enemy is **Sequence of Returns Risk (SORR)** during active withdrawals. Delegating portfolio management to MSCI's index engine handles the *growth side*, but it leaves the *decumulation side* unaddressed.



DNZ Solution
Combine MSCI VGT Growth Engine +
Non-Equity Buffer (Annuity / Cash / Ladder)

How to Integrate MSCI/VGT into a True DNZ Architecture

If you want to leverage MSCI's rules-based rebalancing while removing personal bias, structure your DNZ execution so the index handles the **growth engine** while an automated overlay handles the **income engine**:

- 1. **Let MSCI Run the Core:** Keep your concentrated VGT position. Trust MSCI's quantitative rebalancing to drop failing tech companies and automatically weight rising ones (like semiconductor and software leaders).
- 2. **Automate the Off-Ramp (The Buffer):** Build a 3-to-5-year cash or short-duration Treasury buffer. Withdraw your living expenses strictly from this buffer.
- 3. **Rules-Based Profit Harvesting:** Establish a systematic rule (e.g., once a year, if VGT is up $>15\%$, harvest gains into the cash buffer or discretionary "experience spend"). If VGT is down, harvest nothing and let MSCI's algorithm hold through the trough while you live off the buffer.

By framing it this way, you let MSCI's mathematical engine do what it was built to do—capture max tech upside without human emotion—while your decumulation architecture protects your living standard and guarantees you hit your "near zero" target safely.