

Hot Potato Investing, The Shareholders of Last Resort, and Structural Distortions in the Markets

An expository essay examining the changing theoretical underpinnings of the CAPM, the market portfolio and passive index flows.

Markets are, at their core, mechanisms for information exchange. Informed investors earn returns in exchange for the service of price discovery. This segmentation between informed and uninformed capital has historically allowed prices to reflect fundamentals with reasonable fidelity. But the nature of that capital structure has changed. Passive flows have created a segment of the market that buys without judgment, holds without conviction, and sells without discrimination. As of year-end 2025, passively managed funds made up over 55% of US fund net assets, up from 53% a year earlier, according to Morningstar. At this scale, passive is no longer a passenger in price formation but a driver of it. This essay examines the growth of passive flows, the distortions they create, the theoretical foundations that made index investing rational, and the regulatory forces now amplifying these dynamics, before turning to what this means in market contexts where the institutional infrastructure to absorb such flows is still being built.

Theoretical Roots:

Passive investing, alongside compounding, is one of the greatest equalizing forces in modern capital markets. The underlying theoretical foundation flows from the CAPM and the concept of the market portfolio. In 1952, Harry Markowitz introduced a mean-variance optimization framework to measure the efficacy of a portfolio. The idea behind this theory is that the optimal portfolio will minimize variance and maximize returns, and depending on the investor's preference function (i.e., capability and willingness to take risk), an optimal portfolio is chosen. The optimal portfolio is one where, for a given level of risk, we hold a portfolio that diversifies away idiosyncratic risk and achieves the desired return. In 1964, William Sharpe extended this via the Capital Asset Pricing Model. Sharpe argued that, based on this framework, the market portfolio sits on the efficient frontier (the risk-minimizing and return-maximizing curve) of portfolios. Relying on Markowitz's framework, if the investor class on average has identical future expectations, the optimal portfolio is the market portfolio.

In 1991, Sharpe published "The Arithmetic of Active Management," which argues that holding the market portfolio is superior for almost all non-active investors. Active investors must pay brokerage costs, conduct trading, and charge higher fees. The average of all active holdings is the market; hence, before costs, a market-cap-weighted market portfolio's return is equivalent to the average active return. The benchmark for an active investor is, therefore, the market return plus the fees they charge. Once the distinction between long-term and short-term capital gains is recognized, this advantage is further

magnified. The low-cost index fund is therefore the better investment for passive investors under these assumptions, and therefore an average passive investor must outperform the average active investor.

This became a reality through Vanguard and John Bogle's mutual fund structure, and low-cost index investing is what has enabled passive investing to both theoretically and practically flourish, making practice reflect theory. The index approximates the market portfolio, making the theoretically optimal portfolio purchasable for passive retail investors.

This brings us to two distinct historical periods. Before index investing, passive investing was not truly passive, as there was no cheap way to access the market portfolio and the product simply did not exist. At best, passive investing involved diversifying across a few blue-chip stocks at the recommendation of a broker. After the advent of low-cost index investing, passive investing began to flourish. So passive investing in its theoretically correct form requires index investing. We can see that this holds practically true by observing the SPIVA US Scorecard, which demonstrates that as of Dec. 31, 2025, 89.93% of active large-cap US equity funds underperformed the S&P 500 over a 15-year period and 92.89% over a 20-year period.

It is worth noting that Sharpe's argument rested on several critical underlying assumptions. It did not account for what happens to CAPM as passive index investors grow in number. A feature of passive investing is that it theoretically outsources alpha generation to active investors in exchange for information, holding a purely passive beta portfolio, and effectively treating that information as a public good. But this naturally gives rise to the free-rider problem. It implies that there must be enough active investors to supply information so that passive investors can continue benefiting, yet that pool is shrinking. This was highlighted in the Grossman-Stiglitz paradox, from their 1980 American Economic Review paper "On the Impossibility of Informationally Efficient Markets," in which they demonstrated that if there were no active investors, markets would become inefficient, thereby incentivizing the creation of active investors and restoring equilibrium. However, this assumption is coming under increasing stress, and this essay examines the implications of index equaling market and the free-rider problem in greater detail.

The Shifting Premise:

As seen in the previous section, one of the most critical assumptions is that the alpha left for active investors is enough to compensate them and keep the market allocatively efficient. However, the number of active participants has been systematically decreasing over time. As noted, US passive funds surpassed active funds in total assets for the first time in 2024, according to Morningstar, and now hold the majority of US fund net assets, a share that continues to climb. This too is potentially underestimated

if we account for closet indexers, internal pension indexing, and benchmark-aware active investors. This is an inversion of the standard market structure that has been present until now, and this inversion shows no signs of slowing down. In the previous regime, the mean return of the active participants was the mean return of the market; however, in a market where passive flows are greater than active ones, this stops being arithmetically true. This shift raises a natural economic question: will investor activity begin to carry a positive return premium, such that a factor model accounting for it would have a positive coefficient on that activity term? In this case, we want to question whether passive flows are the underlying structural cause and at what point this becomes exploitable. If the activity return premium begins to exceed the fees associated with it, the case for passive investing inverts.

This shift is not purely market-driven but is also being actively accelerated in the US through governmental intervention. The Pension Protection Act of 2006 had clear and significant advantages. Passive investing and the mass adoption of low-cost index funds and target-date funds have had a net protective effect for defined-contribution pension plan holders. However, a second-order effect has been that this has structurally and legislatively created a segment of price-insensitive capital that is sticky, consistent, predictable, and compounding. What began as legislatively mandated passive flows into low-cost index funds has structurally expanded. Through the Democratizing Access to Alternative Assets for 401(k) Investors executive order in 2025, passive capital is now flowing to illiquid assets. Passive flows into low-cost index funds continue to have strong theoretical and arithmetic justification for the individual investor, despite the larger structural consequences that may occur in the future. However, passive flows into alternatives retain their price insensitivity while stripping away the low-cost, liquid, and market-portfolio foundations that made passive investing theoretically sound. Until a low-cost index of private funds exists, this executive order is one sign of passive investors legislatively becoming eligible to serve as the shareholders of last resort.

Price-insensitive passive flows structurally distort the market. Market elasticity theory suggests that for an elastic market, if a particular security has no change in underlying fundamentals, then flows into that security increase its price, allowing informed sellers to sell above its intrinsic value, booking profit and bringing prices back down to equilibrium. However, Gabaix and Koijen, in a working paper titled "In Search of the Origins of Financial Fluctuations: The Inelastic Markets Hypothesis," estimated that one dollar of net flow into equities raises aggregate market value by roughly five dollars, suggesting a multiplier effect exists. While the methodology is controversial and the magnitude of this multiplier is contested, the existence of a multiplier is a much weaker and more accepted condition that is sufficient for this argument to hold. This, combined with price-insensitive flows and a multiplier effect, suggests that these passive flows may lead to a phase change from a mean-reverting market into a mean-expansive market, and the consequences of this phase change on efficiency, price discovery, and stability are largely underestimated.

The Index as a Construction:

The underlying premise of the index is that it is a representative sample of the market that, within bounds of reasonableness, approximates the market portfolio. The S&P 500 covers roughly 80-85% of total US stock market capitalization. The S&P 500 is ultimately a human invention, with committee discretion over the rules of the underlying. This in itself allows bias to creep in. A set of constant rules might be exploitable; changing them in response to particular events or self-serving motivations can only magnify that bias further.

Understanding the mechanics of the S&P 500 is necessary before proceeding. The index is a free-float-market-cap-weighted construction, though it is equally arguable for an equal-weight index to be used instead. A free-float-weighted index has natural churn built into it by design, allowing underperforming companies to be replaced by better ones. This means a free-float-weighted index is essentially equal to a fund manager choosing the outperforming stocks with a slight delay for little to no cost, and it is precisely this property of mechanically buying winners that causes the index to overweight whatever the market has already bid up. Rob Arnott et al., in "Fundamental Indexation," argue against the free-float-weighted index on exactly this basis. Mathematically, capitalization weighting overweights stocks that are above their intrinsic value and underweights stocks that are currently undervalued. This builds a fundamental drag into market-capitalization-weighted indices, a drag that is structurally more pronounced in periods where the concentration of firms by market capitalization in the total index is high. Arnott's fundamental indexes outperformed the S&P 500 by 1.91% annually over 1962 to 2003, with cap weighting's worst underperformance concentrated in mega-cap-dominated periods. This static construction drag is amplified by a flow dynamic. As prices rise, the market capitalization of a company increases, causing increased passive flows into the company, which further leads to mechanical purchases and a virtuous (or vicious) cycle. This argument is developed by Mike Green of Simplify Asset Management, who argues that as the proportion of passive flows in the market rises, the marginal price-setting buyer becomes increasingly price-inelastic, causing the elasticity of the market as a whole to reduce. This leads to an asymmetric return profile: as the markets keep rising in value the flows are passive and sticky; however, when this mechanism reverses there will be a lack of price-elastic buyers driven by fundamentals to purchase the falling stocks, making corrections and these cycles sharper.

The criteria for inclusion have included a minimum market capitalization of approximately \$14.5 billion, four consecutive quarters of positive GAAP earnings, a minimum 10% public float, and a minimum of 12 months of trading history, with committee discretion layered on top of these hard rules. In May 2026, SpaceX filed an S-1 declaring its intention for an IPO at a valuation of \$1.75 to \$2 trillion. Under these rules, it would be ineligible for inclusion in the index on account of no GAAP profitability

(it had a \$4.28 billion loss in Q1 2026), insufficient trading history, and a low public float. One can argue that revising these rules, by removing profitability requirements, is increasingly needed in the era of high-growth, loss-making firms with substantial growth potential and large positive market capitalizations. However, the introduction of a multiplier serves to artificially inflate the index weight of these firms, which undermines this claim. In April 2026, S&P Dow Jones Indices issued a consultation proposing to waive the profitability and minimum-float requirements, and shorten the trading-history requirement, for megacap companies. The Nasdaq went further: it introduced a new fast-entry rule allowing the top 40 IPO candidates by market capitalization to be added 15 trading days after listing, removed the 10% minimum public float requirement, and introduced a 3× float multiplier for low-float securities.

The S&P 500 is a free-float-weighted portfolio, so this will magnify SpaceX's weight in the index. If these consultations pass and SpaceX is included on its current terms, Bloomberg Intelligence suggests that passive index investors will, by virtue of SpaceX's inclusion in the index, be forced to acquire 19% of its available float through a purely mechanical process, with no judgment made on valuation or future cash flows. This example highlights how the S&P 500, through its committee structure and evolving rules, may stop being a true representative of the market and instead become subject to commercial flows, leaving behind its identity of employing a stable rules-based inclusion framework. The machine of mechanical flows has grown so large that the governing institutions of the market are beginning to change their own rules to work around the index, weakening the theoretical underpinning of the index as an approximation of the market.

The Limits of Market Theory:

The above sections have illustrated a natural argument for how price-insensitive (price-taking) investors distort the market. We have seen the theoretical and arithmetic inevitability behind why passive investors generally outperform active investors, how mechanical flows are now being diverted away from the market portfolio represented by the index into higher-risk, illiquid alternatives through legislative changes, and how the index itself is susceptible to commercial incentives, causing its approximation property to begin weakening. However, while convincing, the academic literature suggests a much more nuanced situation is occurring in the US markets.

Pástor and Stambaugh (2012), in "On the Size of the Active Management Industry," argue that the active management industry has decreasing returns to scale and that the markets have a self-correcting equilibrium mechanism built into them. As the proportion of passive flows in the market rises, the value of information in the market rises, which further attracts capital toward active managers. This suggests a convexity to the value of information and the passive share of capital in the markets. While in the long

run this suggests a cyclical nature to market flows around a long-term equilibrium, the market may remain stuck in a local suboptimal equilibrium for extended periods, especially as the magnitude of shifting styles may not be easily realizable and the friction costs of switching, whether professional (career risk), personal, or institutional (legislative or corporate mandates), might be too much for an allocator to overcome.

A natural and compelling argument for passive flows is dollar-cost averaging. Price insensitivity and the mechanical nature of flows are design features rather than bugs of passive investing. By the very nature of obtaining a pure beta portfolio and giving up on alpha, individual investors are able to create a structured, long-term investment strategy that is, on average, highly effective in achieving market returns that outperform active managers net of fees. However, while this may be true for the individual investor, in aggregate, dollar-cost averaging relies heavily on a mean-reverting market. If mechanical flows begin to expand valuation multiples through their sheer volume, and a phase change occurs into a mean-expansionary environment, the rationality of the market may take too long to return, and when it does, mechanical investors may face a significant drawdown. Rational choices for the individual may not reflect an optimal capital allocation for the market as a whole.

A further complication arises from Cliff Asness of AQR Capital Management, who in "The Less-Efficient Market Hypothesis" argues that markets have become less informationally efficient over the past three decades. This conclusion is consistent with the thesis proposed here; however, Asness offers an important counterpoint to the argument that passive flows are the primary structural cause. He provides three distinct hypotheses for this trend and is particularly lukewarm towards a passive-flows-based indexing argument and concedes only that there is a reasonable but still uncertain argument that indexing has made prices more inelastic. His preferred explanation is behavioural rather than mechanical: the wisdom of the crowd is eroding and is increasingly being replaced by its madness. Social media, gamified trading, and the collapse of crowd independence have increased the interconnectedness and correlation of actors in the crowd, resulting in errors no longer cancelling out. This divides the market much more sharply between informed and uninformed investors. He argues that whether indexing has made the market more or less efficient depends on which group, informed or uninformed, has migrated to passive vehicles and in what proportion. If the informed have indexed in larger proportion, then the remaining informed face less competition for alpha and benefit in the long run, and the uninformed exert a greater distorting effect on stock prices over the medium term. This suggests the directional claim that the markets exhibit increased exploitable distortions is true; however, passive flows are not the primary driver of it.

In the US markets, the arguments and empirical evidence are not yet completely clear. The US, due to its dominant position in the world, deep financial industry of active, sophisticated, and quantitatively

driven managers, strong corporate governance, and over a century of accumulated cultural, political, and institutional history, has developed systematic buffers that are currently withstanding this pressure. Academic literature, while backward-looking, has shown the resilience of US markets and the mixed conclusions that can be drawn when looking to the past. However, on a forward-looking basis, the direction of travel is clear as the balance becomes increasingly inverted between passive and active flows. As Hemingway wrote, "How did you go bankrupt? Two ways. Gradually and then suddenly." These passive flows may exhibit a similar pressure on the market until it undergoes a phase transition, creating distortions that sophisticated managers can use to find persistent systematic alpha.

Compressed Financialization and the Indian Case:

We have seen several arguments for and against the case of systematic distortions due to passive flows in the US markets. In this section, we highlight how the same buffers that act to immunize and structurally contain the extent of these distortions are much smaller in India and what this might mean for developing economies as a whole. These buffers developed over a century of financial history in the US; however, India became a market-driven economy largely after the 1991 liberalization, when the economy greatly deregulated, modernized, and underwent economic reforms. Modern financial India has existed for 35 years. Rapid financialization, a limited economic, cultural, and institutional history, and a much less sophisticated financial base create a structurally different case for the widespread adoption of passive flows and the phase transition that might follow. The United States financialized gradually alongside its economic development; however, India financialized much earlier in the economic cycle. Retail participation, corporate governance norms, accounting standards, and price discovery mechanisms evolved over decades, whereas in India these were largely imported from developed economies. It is a materially different path of development. India's digital infrastructure and regulatory support have accelerated this. In a highly digitalized society supported by UPI, zero-fee discount brokerages, and a population that is highly receptive to passive investments through systematic investment plans (SIPs), these distortions are magnified.

We can see regulatory parallels in the Indian markets too. The Employees' Provident Fund Organization (EPFO) is broadly analogous to a combination of US Social Security and a 401(k), though it is structured as a mandatory provident fund. Every covered employee in India contributes 12% of wages to their EPFO account, with a matching employer contribution. This is invested by the Indian government and was initially only invested into government bonds and securities. However, the Central Board of Trustees, the EPFO's governing body, approved investing up to 15% of incremental inflows in equity through index ETFs. This largely tracks the Nifty 50 and Sensex, covering roughly 55-60 unique companies (depending on index overlap) in India that receive government-mandated mechanical flows every month as a result. While similar to 401(k) investors in the US, this is a much more

concentrated flow. In an economy with a much thinner base, these concentrated flows only serve to magnify this distortion. EPFO flows, representing perfectly price-inelastic buyers, are playing hot potato in a rapidly developing and volatile economy. While there might be a smaller percentage of passive flows currently, those flows are concentrated within a much more rapidly and recently financialized economy. The direction of this change is clear and appears to be following the US path; however, the phase transition to a mean-expansionary, passive-dominated market might occur much earlier here.

Passive investing was a construction designed to track the markets, but at a sufficient scale it might control them.

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