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The Myth That Shareholders Are Always Investors

Challenging the Paradigm of Shareholder Primacy

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Abstract

The assumption that shareholders buying and selling stock leads to real business investment is so deeply buried that it can be hard to see. The conflation of *shareholding* and *investing*—the concept that trading financial assets leads to productive investment in goods-and-services production—is not only conceptually confused but also perniciously supports the corporate governance paradigm of shareholder primacy. It is time to abandon the myth: Shareholders of corporations are not always, or even often, "investors." Those of us holding financial assets intermediated by complex chains of financial institutions *are not always contributing anything that improves production to companies*. Calling financial institutions that manage pools of financial assets "institutional investors," rather than "institutional shareholders," perpetuates this conceptual error. Shareholding for purposes of capital appreciation does not necessarily lead to real economic investment. In fact, for publicly traded corporations, most real investment is not financed through the issuance or trading of shares. If firms finance the majority of their real investment through other means, we should not give shareholders exclusive power and special privileges in corporate governance.

"Yes, the planet got destroyed, but for a beautiful moment in time we created a lot of value for shareholders."

Tom Toro/The New Yorker *Collection/The Cartoon Bank*

I. Introduction

> Corporations are controlled by their common stockholders. These stockholders are, in many corporations, not true investors; they "took a chance." Most corporations have at their financial base certain borrowed capital. (Berle 1922, 1)

Among the many myths of mainstream economics is one so pervasive that it has crept into everyday speech: the idea that "shareholders" are always "investors." The conflation of buying and selling financial assets with productive investment in goods-and-services production is not only conceptually confused but also perniciously justifies *shareholder primacy*: the idea that the purpose of all corporate production should be to financially benefit shareholders. It is time to abandon the myth: Shareholders of corporations are not always "investors." This paper examines sources of funds that publicly traded

companies use for real investment and describes how institutional shareholders engage with companies in the unregulated private financial markets. We argue that if firms with publicly traded equity finance the majority of their real investment through other means, and if private funds are engaging in extractive rather than productive behavior for their own financial gain rather than innovation and productive improvement, it is time to end shareholder primacy. An alternative explanation for the pervasiveness of shareholder primacy is that it perpetuates wealth inequality and thus is promoted with an interest in maintaining the status quo: Because the wealthy hold the majority of their wealth in financial assets, they have a strong interest in maintaining shareholder primacy.

Calling shareholders "investors" confuses *real investment* that companies do to innovate and improve their production process with the *trading of securities on the financial markets* and *the purchase and sale of companies for financial asset appreciation* (Lazonick 2018). Those of us holding financial assets intermediated by complex chains of financial institutions—through pools of funds that we refer to here as *institutional shareholders*—are not always contributing anything that improves production. Instead, we hold these assets to build our own wealth—usually, for the non-wealthy among us, for retirement. Retirement funds held $27.6 trillion in financial assets as of the end of 2023 (Board of Governors of the Federal Reserve System 2024). These are the funds that move from a person's paycheck withdrawal or individual contribution into funds that hold portfolios of stocks, bonds, and other financial and real assets on both the open and private sides of financial markets. Most of us hope that, once we reach retirement age, the assets we parted with earlier in life will be worth enough in the financial markets to sustain our well-being. What happens to that money before we use it again is largely a mystery.

Retirement Security

In the five decades since legal changes enabled pensions to purchase corporate stock, despite a ubiquitous cultural emphasis on the stock market as the key to retirement security, retirement security remains elusive. Economist Teresa Ghilarducci has shown that the retirement savings of an average US household fall short by $500,000 (Ghilarducci 2023). For non-wealthy households, retirement assets constitute a large portion of their net worth; though the dollar values are small, the lowest quarter of households by wealth percentile have the highest percentage of their total assets in their retirement accounts (see Table 1). Though an individual holding corporate stock in an employee or individual retirement plan does benefit as stock market values rise, the gains have historically not been sufficient to ensure financial security. A retirement system where individuals did not depend on an ever-rising stock market—and were not devastated if it happened to crash when they were about to reach retirement age—would be more

secure across the income spectrum. Proposals to strengthen Social Security, create Guaranteed Retirement Accounts, and expand programs like the Thrift Savings Plan (the federal employees' retirement plan) to all Americans would support retirement security much more sustainably than continuing to count on the stock market (Ghilarducci and Hassett 2021).

Table 1. Retirement Accounts as Percent of Assets

Household Wealth Percentile	Retirement Assets (in millions)	Total Assets (in millions)	Retirement Assets as Percent of Total Assets
Less than 25%	$6.00	$12.70	47.24%
25–49.9%	$22.38	$165.90	13.49%
50–74.9%	$80.00	$473.10	16.91%
75–89.9%	$269.00	$1,217.40	22.10%
90–100%	$900.00	$4,170.03	21.58%

Source: Distributional Financial Accounts of the Federal Reserve

Colloquially, we call this process "investment," which suggests that the money that you and I are saving turns into resources that are useful to goods-and-services–producing companies. When we transfer money from our checking account to a Vanguard Individual Retirement Account or to Robinhood, we call that transfer an "investment": It is an investment in our *own* future, as we put our money in these funds in order to passively watch our wealth increase. However, leaders in the financial industry lead us to think that we are also investing in the future productivity of corporate America, even though our funds may simply be used to buy corporate stock that is already circulating on the secondary markets or to engage in many other types of purely financial activities. BlackRock CEO Larry Fink's 2024 Annual Letter claims that "if more people could invest in the capital markets, it would create a virtuous economic cycle, fueling growth for companies and countries" (Fink 2024). By contrast, financial leaders such as John Bogle, founder of Vanguard, have spoken publicly about how the stock market actually works today:

> In recent years, annual trading in stocks—necessarily creating, by reason of the transaction costs involved, negative value for traders—averaged some $33 trillion. But capital formation—that is, directing fresh investment capital to its highest and best uses, such as new businesses, new technology, medical breakthroughs, and modern plant and equipment for existing business—averaged some $250 billion. Put another way, *speculation represented about 99.2 percent of the activities of our equity market system*, with capital formation accounting for 0.8 percent. (Merriman 2016; italics added)

As Bogle explained, today the shares of publicly traded companies are traded largely on the secondary financial markets, and the money that we use to buy shares from share-sellers largely does not reach the company; it goes to the person or institution from whom we buy the shares. The only time money reaches the company is when they issue shares directly, whether through an initial public offering (IPO) or a secondary issuance. For the past two decades, companies on US stock markets have been repurchasing their own shares at a higher volume than they have been issuing new shares—which means that funds are flowing *from* companies to share-sellers, not the other way around (Palladino 2021a). Institutional economists such as William Lazonick have documented how much of the financing for improving productivity has come from retained earnings (Lazonick 2022). The confusion over the role of shareholders in the corporation is not new. Adolf Berle, author of *The Modern Corporation and Private Property* (often misread as arguing for shareholder primacy), pointed out that in the 1950s, 60 percent of real investment had come from retained earnings, while just 6 percent came from new equity issuances. As William Bratton and Michael Wachter explained in 2008,

> stock exchanges no longer served primarily as places for new investment and capital allocation, traditional functions only implicated in the rare instance of a new issue of common stock. The markets instead served as mechanisms for investor liquidity, a service provided for the benefit of the original owners' passive grandchildren or the transferees of their transferees. *The connection to capital gathering and productive allocation was for the most part psychological.* (32; italics added)

Understanding the distinction between shareholding and investing is further complicated in the 2020s because the 20th-century division between "public" (in the sense of open to all) financial markets and "private" (open to only wealthy "accredited investors" and institutional shareholders) financial markets has broken down (Georgiev 2021; Palladino and Karlewicz 2024). Private[1] markets are now the center of gravity in financial markets: Private funds have approximately tripled in size in the past decade to $26 trillion in gross assets (compared to the $23 trillion in the US commercial banking industry), and private markets raise more in equity than public markets (Gensler 2023; Ivashina and Lerner 2019). A common justification of the scale of shareholder payments made by publicly traded companies is that they enable "investors" to take funds out of the dinosaurs that still trade publicly and put those funds toward the young and hungry companies of the future, many of them not publicly traded in the private markets. However, much of the activity in private financial markets involves buying and selling for capital gains, without productive improvements (Ballou 2023; Christophers 2023). The data for sources and uses of funds is less available for private financial actors because they are under-regulated. But do we accept the myth just because we can see less of what is transpiring under the hood? This is not investment that furthers the

[1] This paper uses the terms *open* and *public* as synonyms, with *private* referring to the financial markets that are non-public, based on the traditional distinction in securities law.

productive capabilities of goods-and-services–producing companies—it is based on value extraction from nonfinancial companies. If we break the myth that shareholding and trading for purposes of capital gain is what enables businesses to thrive, it opens the aperture to rethinking the best structure for corporate governance and regulation of financial markets.

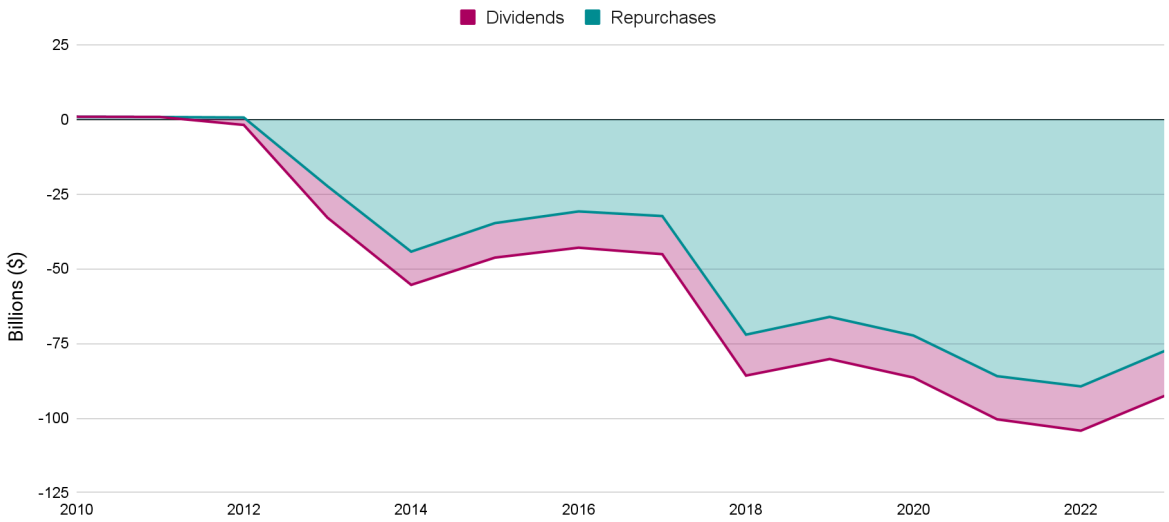
Buying Apple Shares Does Not Fund the Company's Innovation

Apple is the world's most valuable company by market capitalization and a key component of millions of portfolios, from household retirement accounts to multibillion-dollar institutional shareholders. Individuals and institutions purchasing Apple shares commonly believe that in doing so they are investing in the research and development and operations of the company. With these new proceeds, it is assumed, Apple is able to produce innovative products like the iPhones, MacBooks, and software many of us use daily. But the case of Apple illustrates that this common myth is mostly a fallacy.

In fact, Apple shares are purchased largely on a secondary market. The money that is used to buy shares from share-sellers might boost Apple's share price, but it does not provide the company fresh capital. The proceeds go instead through a brokerage firm to the person or institution from whom we buy the shares. Apple has not issued any new common stock since its IPO in 1980, which it used to raise a paltry $100 million (Lazonick, Mazzucato, and Tulum 2013; Koning Beals 2017). This means that the only Apple shareholders who contributed funds to the company to run its operations were those first purchasers of Apple shares in this IPO (Lazonick 2017a).

Rather than issuing new shares investors might buy to fund the company's growth, Apple has been actively reducing its outstanding shares in recent years through repurchases. In May 2024, Apple announced plans to repurchase $110 billion of its own stock (Apple 2024), the largest share repurchase in US history (Kelly 2024). The size of the announced repurchase is a step up from previous years but maintains an ongoing trend for the company. Between 2023 and the start of Apple's Capital Returns Program in 2012, the company spent $627 billion in net-equity repurchases and $146 billion in dividends (Figure 1). To put this spending in perspective, since 2013 the company has spent approximately $180 billion on R&D (Williams 2024) and seen its market capitalization rise from $500 billion to over $3 trillion (CompaniesMarketCap 2024).

Figure 1. Apple Net Total Equity Issued/Repurchased and Dividends, 2010–23



Source: macrotrends (2024)

As Lazonick notes, it is a misnomer on Apple's part to construe stock buybacks as involving either "capital" or a "return" since the shareholders receiving cash through the Capital Returns Program are not in fact "investors" in any meaningful sense (Lazonick 2017a, 2018). In reality, the repurchase program is a transfer of cash to shareholders. This point is reinforced by the fact that at various points Apple has conducted repurchases at levels in excess of free cash flows, relying instead on reserves and borrowing to fund the program (Forbes 2021).[2] Buying Apple shares, in sum, may boost the company's stock and provide a financial return to shareholders. But trading these financial assets does not fund Apple's innovation and production.

Public pension funds are of particular relevance as the dominant institutional shareholder in the United States. US public pension funds hold trillions of dollars of financial assets for the benefit of their current and future retirees. These pooled funds delegate authority to asset managers who then combine and organize these financial assets into new funds, which themselves purchase other financial or real assets, from stocks and bonds to whole companies. These types of asset owners are referred to as

[2] Free cash flow refers to cash flow left over after funds from operating cash flows have been allocated to capital expenditure and changes in net working capital. If positive, this remaining free cash flow is then equivalent to payments to creditors and shareholders (in the form of dividends and repurchases)—otherwise, if negative, it reflects additional net equity and debt financing. According to Compustat, Apple has generated significant free cash flows the past few years, such as $111.4 billion in 2022 and $99.6 billion in 2023. Apple also holds substantial sums of cash, although free cash flows were 2.3 and 1.6 times larger than these reserves in 2022–23. Since 2010, free cash flows have on average been 1.25 times larger than Apple's holdings of cash and short-term investments.

investors because in theory their assets are used to improve the actual productive capacity of nonfinancial companies. Yet the asset appreciation of the funds run by asset managers often is disconnected from a definition of investment that relates to the improvement of the production process, or innovation itself. Instead, asset appreciation is based on value extraction from nonfinancial companies.

In this paper, we first discuss how corporate investment relates to the stock market from several perspectives. Then, we present evidence on how corporate investment is actually financed for companies that trade their equity on the open markets and detail the attenuated relationship between shareholding for the purpose of asset appreciation and real corporate investment in the growing private markets. Finally, we explain why confronting the myth that shareholders are always investors is necessary to building a stronger, more innovative, and more productive economy.

II. Theories of Corporate Investment and Shareholding

In order to interrogate the overlap between shareholding and investing, it is critical to start with a theory of corporate investment grounded in understanding what actually enables innovation within businesses, rather than seeing them as black boxes that mysteriously transform inputs into outputs (Lazonick 2017a). In the *theory of innovative enterprises*, as developed by William Lazonick based on the work of institutional economists over the 20th century, business corporations are entities that bring together inputs to produce goods and services. Businesses are successful and grow over time because they *innovate*—the people working within a business organization figure out how to improve the production process, so that the same sets of inputs can produce more and better products or produce the same products with fewer inputs, either with less human effort or with less physical or technological effort. Both fixed and variable inputs—or *resources*—are not just lying around waiting to be used: The alchemy of innovation is in trying new ways to utilize such resources, even though some new methods will succeed while some will fail. In other words, innovation depends on both resource development and utilization, neither of which can be accomplished once and never again (O'Sullivan 2000). Innovative enterprises shift their cost structure and expand their market share in order to spread fixed costs over higher quantities of product supplied. Rather than accepting a market price and creating a homogenous product—the assumptions that underlie perfectly competitive equilibrium microeconomic models—innovative enterprises create nonhomogeneous goods to hold onto and grow their market share (Penrose 1957). For example, Apple's iPhone enables phone calls, texting, and surfing the web just like other cell phones, but it has unique benefits that make it not interchangeable with a basic cell phone in the eyes of its consumers.

Certain social conditions—including the availability of finance—are necessary for businesses to undertake the risks that result in innovative outcomes. Corporations

require strategy, organization, and finance and depend on a multitude of stakeholders interacting over time to innovate, which is defined as producing higher-quality goods and services at lower costs (Lazonick 2017a; Lazonick and Shin 2020; Kay 2018; O'Sullivan 2000). In other work, we have written about the importance of including constituencies besides shareholders on corporate boards (Palladino 2021b). In this paper, after describing the neoliberal approach to understanding corporations that supports the corporate governance framework of shareholder primacy, we focus on how corporations actually obtain the financial commitment they need to innovate and whether that requires institutional shareholders to have so much control over corporations.

The arguments for shareholder control over corporations are based on the core assumption that they are the source of finance necessary for the innovative process. Shareholder primacy defines the purpose of corporations as maximizing shareholder wealth, rather than producing goods and services for the benefit of multiple stakeholders (Palladino 2021b). According to mainstream law and economic theory that supports shareholder primacy, shareholders should be given power over both decision-making and distribution. Within the competitive markets–based view of corporations, shareholders are hypothesized to be the only stakeholder group contracting within the firm that takes a certain kind of variable risk. In this view, employees, management, and bondholders have a "fixed" contract with a corporation, while shareholders buy corporate equity with no security of returns. Therefore, they have the best incentive to hold management accountable, as they have the most to gain and the most to lose (Jensen and Meckling 1976).

According to mainstream law and economics, the legal institution of limited liability and tradable shares on public markets allowed businesses to "efficiently [raise capital] through the corporate form of organization" (Carlton and Perloff 1999, 14). In these public exchanges, listed firms issue new stock, trading ownership rights for funds in order to invest in physical assets that will allow them to generate profits and make dividend payments to the holders of company stock in later periods. The value of a firm is "based on the future cash flows that they are likely to produce," and the market price of their stock is supposed to "reflect those values with varying degrees of accuracy" (Haeberle 2015). More accurate stock prices allow investors to better allocate their capital, obtain cheaper debt, and earn a better rate of return. This theory underlies the mainstream argument that the stock market is a central force in powering the American economy, rather than a site for financial asset appreciation.

The *efficient market hypothesis*, a core tenet of neoliberal economic theory, predicts that larger and more developed equity markets will produce more optimal results in terms of the financing of investment. As financial markets underwrite the value of these stocks, shareholders conduct trades and attempt to earn returns by purchasing underpriced stocks or selling overpriced stocks. Therefore, greater volumes of stock trading should improve the accuracy of stock market prices in reflecting the true value

of a firm and its expected future stock returns. Of course, forecasts cannot perfectly predict future cash flows, so stock prices will be accurate in this theory only to the extent that "the amount and quality of information about the likely future cash flows associated with ownership of stocks . . . [is] incorporated into their market prices." In other words, "stock prices become increasingly accurate as a byproduct of informed traders' profit-motivated trading" (Haeberle 2015).

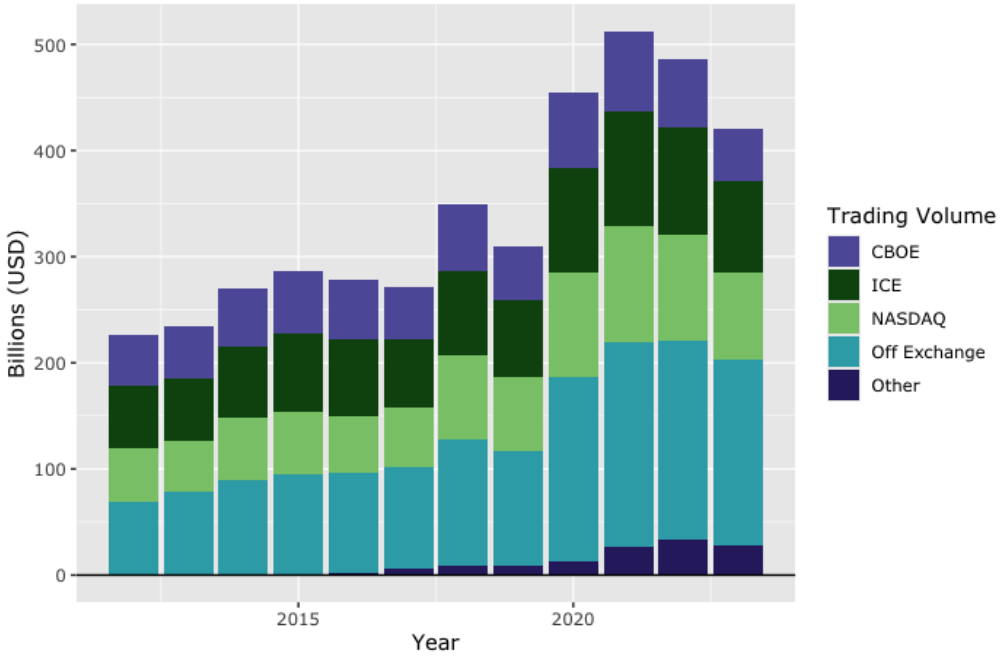
Proponents of shareholder primacy also argue that the price discovery function of the stock market informs the ability of companies to raise debt funds and plays a critical role in corporate governance. In terms of debt, the higher the company's market value as determined by stock price, the cheaper it is to obtain other forms of financing and the more attractive its bonds will be on the open market. The *market for corporate control* theory developed by Henry Manne in 1965 argues that "there exists a high positive correlation between corporate managerial efficiency and the market price of shares of that company," which assumes that shareholders know that when share prices decline, management is failing (Manne 1965). This framework has led to the inverse assumption as well: that share prices rise due to the success of the executive team, rather than due to financial engineering conducted for its own sake. Constantly rising share prices have become a central focus for corporate executives, both because they fear that otherwise activist shareholders will try to disrupt their business and because their own compensation is directly and indirectly tied to the stock price (Palladino 2020; Shilon 2021). Corporate executives such as Jack Welch and Jeff Immelt of GE have famously shifted their attention from productive innovation to financial engineering in pursuit of constant stock price appreciation, leading, in GE's case, to the downfall of a once-venerable US corporate institution (Gelles 2022).

These theoretical assumptions of neoliberal economics—that shareholders are the core actors financing the private sector—are refuted by the institutional structure of financial markets in the 21st century and by the evidence of how corporations finance themselves. Today's shareholders are largely organized through pooled funds, such as mutual funds or pension funds, and the rise of index funds has dramatically changed the relationship of those of us holding shares to corporations themselves (Wigglesworth 2021). Households largely do not "take a chance" based on knowledge of industry or business prospects—the dominance of index funds and theories of safety based on diversified portfolios means that no one but the extremely wealthy, or those gambling on Robinhood, has any idea what publicly traded corporate stock they own. However, this framework is perpetuated by asset managers such as BlackRock CEO Larry Fink, who claims that "index investors are the ultimate long-term investors—providing patient capital for companies to grow and prosper," even though in reality BlackRock mainly buys and sells securities through index funds on secondary markets (Fink 2018).

The volume of stock trading in secondary markets (i.e., stock trading between different shareholders, rather than purchases made when companies issue stock) has increased

by 86 percent over the past decade. Figure 2 below shows the average daily dollar trading volume of US corporate equities from 2012 to 2023, taken from the Securities Industry and Financial Markets Association (SIFMA) and expressed in real values with 2017 as the base year. This accounts for corporate equity that is traded on exchanges, such as the Chicago Board Options Exchange (CBOE), the Intercontinental Exchange (ICE), or the NASDAQ, as well as off-exchange trades that occur through retail investment platforms such as Webull or Robinhood. As evidenced in the figure, the average trading volume of US equities has increased from $226 billion in 2012 to almost $421 billion by the end of 2023. Put another way, this is an average daily trading volume worth 1.3 percent and 1.9 percent of GDP, respectively. Its peak in 2021 represented $512 billion, or 2.4 percent of GDP.[3] Unfortunately, this increase in trading volume has not translated into increased capacity for productive innovation by nonfinancial corporations, nor is that the purpose of trading by institutional shareholders. Instead, they are trading to secure financial asset appreciation.

Figure 2: Average Daily Trading Dollar Volume (2012–23)



Source: SIFMA Research. US Equity and Related Statistics. Values expressed in real terms (2017 dollars) using the Bureau of Economic Analysis (BEA)'s GDP implicit price deflator. Data is categorized by exchange platform. Intercontinetal Exchange (ICE) includes NYSE, Arca, National, Chicago, American. NASDAQ also includes BX, PHLX. Chicago Board Options Exchange (CBOE) includes BZX, BYX, EDGX, and EDGA. Other includes 2008–10 ISE, 2016–19 IEX, 2020+ IEX, MIAX, and MEMX.

[3] Much of the post-2019 increase has come from other exchange platforms (rather than CBOE, ICE, or NASDAQ) as well as off-exchange platforms. For example, in 2019 the main three exchange platforms constituted 62 percent of all trading activity, with other exchange platforms accounting for 3 percent and off-exchange platforms for 35 percent. In 2020 this adjusted to 59 percent, 3 percent, and 38 percent, respectively. In 2021, other exchange platforms' share jumped to a little over 5 percent. By 2023 other exchange platforms had grown to 6.5 percent and off-exchange platforms to 42 percent, with the main three only constituting about 51.5 percent of total trading (SIFMA 2024). In other words, off-exchange platforms have increased their share of trading by 7 percentage points, while other exchange platforms increased their share by 3.5 percentage points (more than double their share in 2019).

Institutional economists have long held the view that the purpose of the stock market is primarily about asset appreciation rather than productive investment. According to William Lazonick (2017b), stock markets are traditionally "insignificant suppliers of capital for corporations." Stock markets serve at least five discernable functions:

1. Allocating ownership rights and control of a company to new shareholders
2. Generating cash for a company to finance projects and other needs
3. Creating new firms via initial public offerings
4. Financing mergers and acquisitions
5. Using equities as a source of compensation for a company's management and employees

Lazonick refers to these categories as control, cash, creation, combination, and compensation, respectively. What's noteworthy is that only categories 2 and 3, or cash and creation, serve a straightforward role in terms of financing investment. In other words, it's possible that most stock market activity does not improve the economy by providing additional funds for investment but rather serves the other three functions of control, combination, and compensation. This view of the stock market as primarily for trade and speculation rather than funding production for goods-and-services companies is not new: Adolf Berle and Hyman Minsky both held this perspective (Bratton and Wachter 2008; Minsky 1986). Yet the myth of stock markets funding production persists, incorrectly strengthening claims for shareholder primacy.

III. Uses of Financial Assets

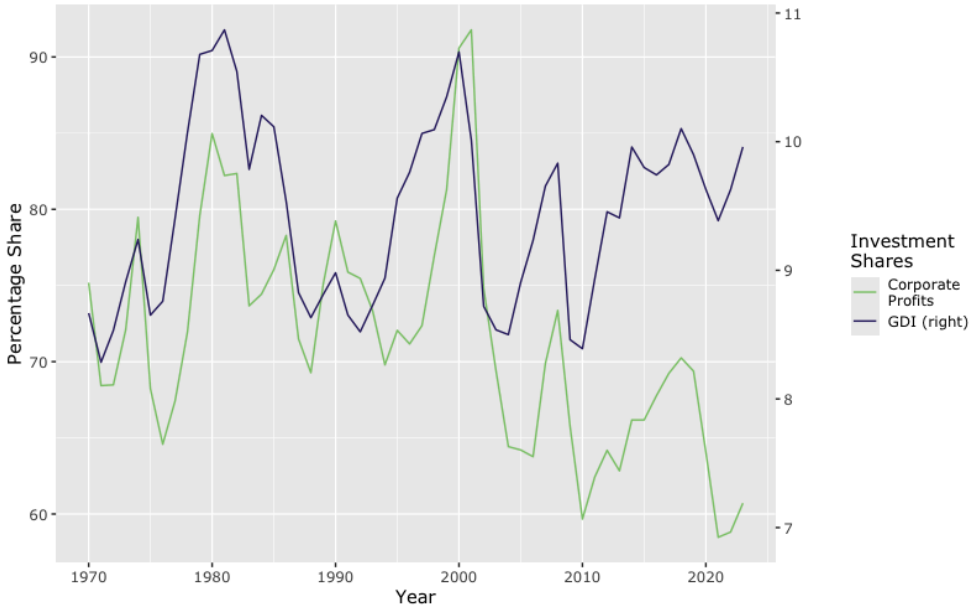
Shareholding and Investment for Companies with Publicly Traded Equity

If the purpose of an efficient and highly active stock market is in part to finance the investment activities of publicly traded corporations, it is not clear at all that this occurs. Figure 3 shows gross fixed investment as a share of either corporate profits or gross domestic income (GDI). By both measures, the rise in stock market trading volumes over the past decade has not coincided with any substantial rise in investment shares. Instead, there is a clear drop in the level of investment over corporate profits and a stagnation over GDI compared to previous decades. In the 1980s, investment shares averaged 76.2 percent of corporate profits and 9.63 percent of GDI. This drops to 66.2 percent of corporate profits and holds steady at 9.67 percent of GDI by the 2010s, with the investment share of GDI hitting its lowest level of 9.02 percent in the 2000s.

Since standard economic theory claims that finance is better allocated and corporations are better governed when financial markets are efficient, why haven't we seen a significant rise in the relative level of investment alongside the growth and development of markets in equity finance? Much has been said about the

"financialization" of the economy (van Treeck 2009; Epstein 2015). Some of the financialization literature has directly linked the rise of shareholder primacy to the decline in gross fixed investment by nonfinancial corporations, leading to a host of scandals and inefficiencies in corporate governance (Lazonick and O'Sullivan 2000; Admati 2017; Davis 2017). If such a financialization-investment linkage exists, what role stock markets actually play in the investment decisions of a corporation needs to be examined more closely.

Figure 3: US Nonfinancial Corporations Investment Shares (1970–2023)



Source: Z.1 Financial Accounts of the United States, Table F.103. BEA. Figures taken as gross investment over GDI or corporate profits, adjusted for inventory valuation adjustment and capital consumption adjustment

To better understand the role of stock markets, we have to investigate what role equity finance plays in sourcing funds for investment by nonfinancial corporations. Beyond this narrow question concerning the direct link to investment, we also have to see what other uses a firm may have for equity instruments, as well as how financial managers take positions with equity in their portfolios and to what extent this should be called an "investment" that results in the production of real economic value. This requires a broader discussion of the capital structure of firms, the potential uses of internal and external sources of funds for investment, what goals these instruments help corporations achieve, and to what degree we can say that stock prices reflect the fundamentals, or true value, of a firm.

Capital Structure and the Financing of Corporate Investment

How the financial structure of firms impacts the real investment behavior of the economy overall has long been a subject of debate. Earlier theories, such as those proposed by Franco Modigliani and Merton H. Miller (1958), asserted that, under certain assumptions regarding the representative firm and efficient capital markets, capital

structure was irrelevant to the value of a company and investors' portfolios. By extension, this would imply that internal and external funds are perfect substitutes and that the financial institutions an economy has should have no significant impact on what investment projects companies pursue. Later work, however, has shown an empirical link between financing constraints and investment behavior, which brings into doubt that the distinction between internal and external funds is unimportant or that the capital structure of a firm is irrelevant to its value and the decisions of investors (Fazzari, Hubbard, and Petersen 1987; Asker, Farre-Mensa, and Ljungqvist 2014; Davis 2017).

The theory of corporate finance ultimately has to explain why a company will select for the capital structure it has. Differences between firms in various countries, such as those described as having market-based (equity) or bank-based (debt) financial systems, are supposed to occur because of differences in institutional factors such as tax regimes, property and contract law, interest rates and financial market development, or anything imposing or lessening agency costs firms may encounter when trying to secure funding through particular financial instruments. In effect, the theory needs to explain why a firm would prefer issuing securities over taking a loan from a bank, or financing debt through corporate bonds, in order to undertake any investment project that is worthwhile.

If a company chooses to use equity to finance real investment, there are three options for sources of financing: (1) private placements outside of the stock market, (2) an IPO on an exchange, or (3) seasoned equity offerings (SEO) on an exchange. These options closely correspond with the stages of equity financing of which there are four), with the first two describing off-exchange equity finance. The first stage starts with the initial investors or entrepreneurs and usually includes only a handful of individuals. The second stage of equity financing is reached once this initial group brings in additional investors, possibly through venture capital firms. The third stage occurs once this company has developed to the point that it can be listed on an exchange and conduct an IPO after significant underwriting. The fourth stage occurs when a listed firm opts to issue SEOs periodically, if at all (Tirole 2006, 90–92).

In terms of agency cost, the first route is the most intensive. Private equity offerings are solicited from venture capitalists who often require significant conditionalities and stipulations for financing on an ongoing basis. For example, firms seeking equity finance in this way often have a detailed breakdown of their financing needs for each stage of their development and only receive exactly as much funding as they need at those stages. These agreements also often have extensive clauses allowing investors to exit, either once the new firm goes public or if the venture capitalist unilaterally decides to cease funding the enterprise. This form of equity financing—venture capital—is what is most commonly imagined as the primary role of the public stock market. However, an IPO is the third stage of equity financing. Therefore, though Michael C. Jensen and William H. Meckling (1976) state that an IPO imposes significant

agency costs on a firm and its investors, these kinds of dynamics occur at most stages in the life cycle of a firm in modern capitalist economies, and they have a more severe impact on the investment decisions of firms in the second stage of equity financing, not the third (i.e., there is usually already a division between ownership and management before an IPO).

Corporate financial disclosures, required for companies that trade their equity on public markets, can reveal exactly what role in percentage terms equity finance plays in sourcing funds for modern corporations. Colin Mayer conducted some of the earliest work to examine sources of funds for corporations as a percentage of their physical investment in industrialized countries from 1970 to 1985. His findings demonstrated that retained earnings, or internal funds, constituted the largest source of funds, with equity representing the smallest source of funds. This was even more true in the Anglo-American context, despite it being the home of market-based financial systems. In Mayer's (1988) words, "Despite being the most highly developed [financially] . . . [their] stock markets have made the lowest net funding contributions" by comparison. For example, he finds that equity financing represents 5 percent of financing for France, 1 percent for Germany, 4 percent for Japan, -4 percent for the UK, and -3 percent for the US.

Many studies followed corroborating these results (Rajan and Zingales 1995, 2003; Corbett and Jenkinson 1996, 2002). A repeated finding was that sources of external financing other than equity constituted a larger source of funds. For example, Raghuram G. Rajan and Luigi Zingales (1995) found that, for the US from 1987 to 1991, equity financing represented -2 percent of investment while net-debt issuance was 102 percent of those needs. Rajan and Zingales (2003) also found that equity financing played a greater role earlier in the 20th century compared to now. In the US, equity was 38 percent of investment in 1929 but dropped to 1 percent by 1938 and only rose to 12 percent by 1999—the highest it had been since 1929.

Over time, equity financing has become increasingly negative as a net source of funds. Jenny Corbett and Tim Jenkinson examined the evolution of capital structure for firms from 1970 to 1994, using a net-flow method looking at national income accounts. Again, they found that net-equity issuance represented a small net source of financing in all countries, with only Japan and Germany showing a positive contribution from equity equivalent to 3.5 percent and 0.1 percent of gross fixed investment, respectively. The US showed the largest negative source of financing at -7.6 percent (Corbett and Jenkinson 2002). Further corroborating the other studies in almost every financing category, internal funds represented the largest source of financing for all countries, ranging from 69.9 percent in Japan to 96.1 percent in the US. Corporate bonds represented the second largest source of funds in the US at 15.4 percent.

Corbett and Jenkinson also break down the evolution of net-flow sources of finance in the countries they examined. It's useful to look at the change in these net sources of

finance in the US to get a sense of what institutional and historical developments may be driving the trajectory of each category. For example, Corbett and Jenkinson suggest that the surprisingly high numbers for bond financing in the US were driven by the use of junk bonds (below–investment grade bonds) in the 1980s, which corresponded with a drop in equity financing at the same time. Further, they suggest that the net-negative figures for equity are in part driven by an explosion of merger and acquisition (M&A) activity during the same period. These figures are updated in Table 2 for the US using the same net-flow method described by them (Corbett and Jenkinson 2002) and reestimated as five-year averages for 1970–2020 and 2020–23.[4] Here we also see the significant drop in equity financing in the 1985–89 period alongside a jump in bond and bank financing. Internal funds remain a significant net source of funds for all periods, only becoming more significant over time. Equity financing has remained negative moving into the 21st century, with the largest outflows of funds through equity in 1995–99 and 2005–9.

Table 2. Net Sources of Financing for US Nonfinancial Corporations

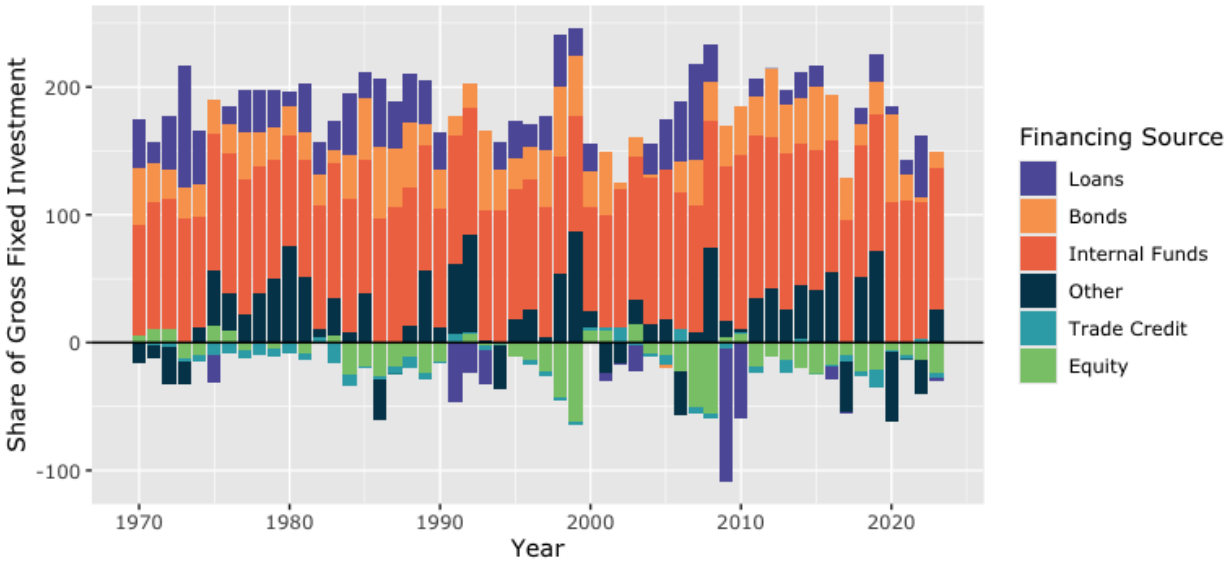
Period	Internal Funds	Equity	Bonds	Loans	Trade Credit	Other
1970–74	95.97	2.96	29.36	37.50	-3.85	-2.74
1975–79	98.64	-0.37	26.95	27.05	-7.80	43.23
1980–84	100.56	-9.48	27.65	34.91	-5.37	26.88
1985–89	100.76	-18.71	39.69	39.56	-4.67	9.73
1990–94	101.07	-1.45	30.83	-8.27	0.65	23.40
1995–99	93.70	-26.20	39.65	25.34	-2.10	36.60
2000–04	107.79	0.77	13.77	7.58	0.52	2.84
2005–09	112.95	-23.20	31.66	-3.39	-0.54	12.52
2010–14	117.54	-17.87	41.48	13.33	-2.40	37.16
2015–19	103.74	-15.66	35.93	5.97	-4.83	16.52
2020–23	109.96	-15.82	11.93	20.80	-1.24	-0.94

Source: Z.1 Financial Accounts of the United States, Table F.103. Authors' calculations. These are aggregate net flows over gross fixed investment and will not sum to unity. For methodology see Corbett and Jenkinson (2002) and Appendix II.

[4] The net-flow methodology used by us and Corbett and Jenkinson (2002) works with sources and uses of funds, taken from the Z.1 Financial Accounts of the United States, representing flows within the noncorporate business sector (Table F.103). All sources of funds for a given category (for example, bonds) have uses subtracted. In this context, liabilities are a *source* while assets are a *use* of funds and their difference represents the net inflow of financing (i.e., subtracting bonds purchased as assets from the bonds issued as liabilities for a given period). This difference is then divided by fixed gross investment to get a sense of how much of this investment could have been covered by these net flows. Appendix II explains the construction of these net flows.

These net sources of funds are shown annually over the same time span in Figure 4. From this perspective, and the averages provided in Table 2, we observe a few stylized facts regarding the financing of investment by US corporations.[5] Internal funds have been a positive net source of financing for investment every year since 1970 and are in almost every period the largest net source. Trade credit is at no time a significant net source of funds for investment. Both categories of debt finance represent persistently positive net sources of funds, with bank lending showing an average net outflow of funds only during the 1990–94 and 2005–9 periods and bonds never generating an average net outflow of funds. Although both bonds and bank lending represent a sizable net source of funds for gross fixed investment, they never surpass internal funds on a net-flow basis. The *Other* category of financing here represents the difference generated from corporate dealings in commercial paper, miscellaneous assets and liabilities, foreign direct investment (FDI), and intercompany debt. This generates a positive net source of funds in most periods. Finally, equity financing represents a persistently negative net source of funds, with only some years showing a positive contribution that is always smaller than the other major net sources (retentions, bonds, and loans).

Figure 4: Net Flow Financing of Gross Fixed Investment (1970–2023)



Source: Z.1 Financial Accounts of the United States, Table F.103. Figures are calculated as net flows, subtracting all uses of funds from sources of funds. These are aggregate net flows over gross fixed investment and will not sum to unity. For methodology see Corbett and Jenkinson (2002).

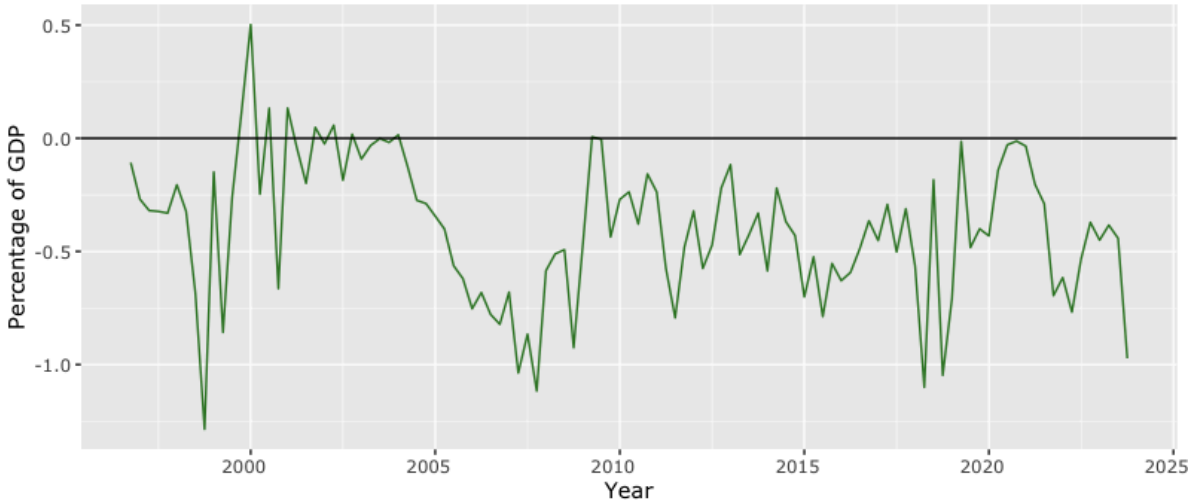
The immediate temptation from such stylized facts is to conclude that only retentions or internal funds matter as a net source of funds for gross fixed investment. While this conclusion is perhaps compelling on a net-flow basis, such an analysis only works with aggregate, cross-sector financial flows and may be different from looking at how an individual company specifically goes about financing an investment project over a fiscal year, quarter by quarter, on their balance sheets, and through cash-flow management.

[5] For a more extensive survey of this literature, see Tirole 2006, 75–110.

However, the use of gross flows may overstate the significance of a particular financing source, among other complications, which merits the use of net flows to assess the possible extent of financing by net source (Hackethal and Schmidt 2004; Corbett et al. 2004).

Other studies that examine the capital structure of firms around relative increases in capital expenditure do in fact demonstrate that external sources of funds play a role in financing investment (Mayer and Sussman 2004; Elsas, Flannery, and Garfinkel 2006). For example, Colin Mayer and Oren Sussman (2004) find that firms rely on external financing around investment spikes but that the source of external funds varies by firm size. Large and medium-sized firms prefer debt, while smaller firms rely more heavily on equity. Indeed, larger firms tend to repurchase equity around investment spikes instead of issuing new equity. Notably, external sources of funds cover less of the total bill for investments the larger the firm is. Ralf Elsas, Mark J. Flannery, and Jon A. Garfinkel (2006) corroborate these results and further suggest that larger firms issue equity after debt financing an investment in order to achieve a target leverage ratio after the fact. Concerning equity performance, firms that finance investment largely out of internal funds experience an insignificant abnormal return after the investment period, while firms that are externally financed (particularly with debt) see significant mean underperformance over the next year. All of this suggests that the dynamics of linking corporate finance with investment are much more complicated than appear on a net-flow basis, while still demonstrating that equity finance is not the primary means by which large and medium-sized firms operate and is rather a small/new firm financing source.

Figure 5: Net Equity Issuance as Percentage of GDP (1996:Q4–2023:Q3)

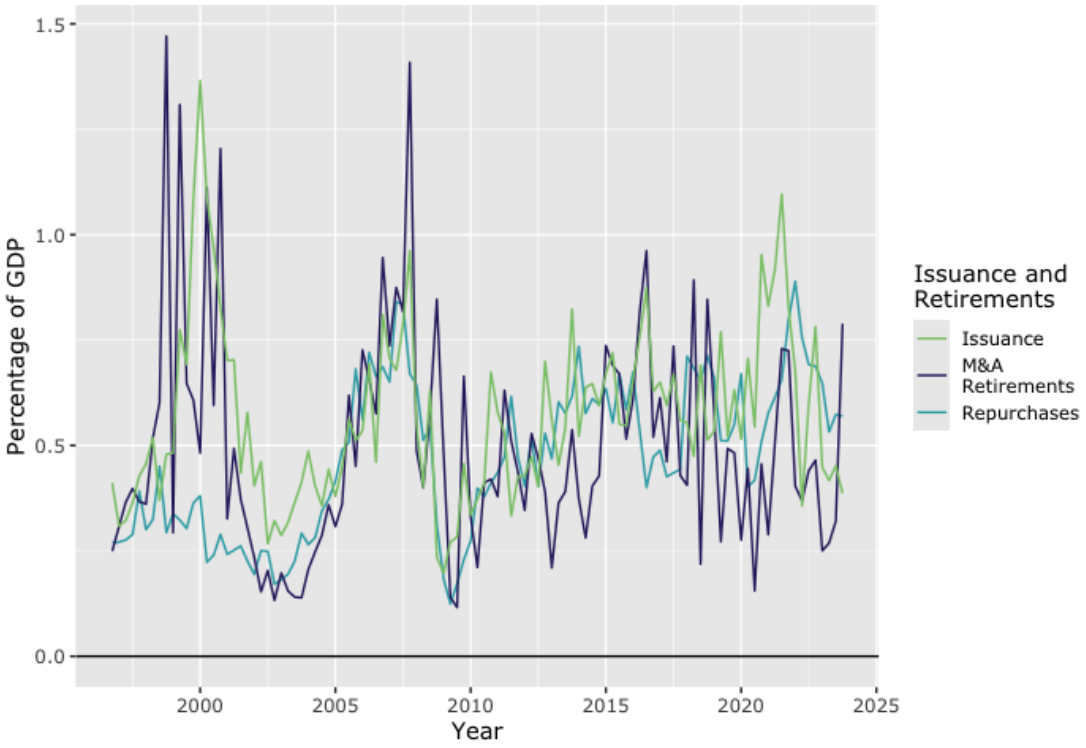


Source: Z.1 Financial Accounts of the United States. Enhanced Financial Accounts. Equity issuance and retirement. This is based off quarterly issuance-retirement of equity reported in Table F.103. Retirements are for equity repurchases and M&A activity.

Rather than being a significant source of financing for real investment, equity has served as a net outflow of funds from the publicly traded corporate sector to financial

markets as a percentage of GDP. Barring the first two stages of equity finance (primarily because that data is proprietary and we have to rely on public markets data), we can look at the extent of net-equity issuances over the past few decades in the US to get a better picture of what constitutes typical behavior. Figure 5 shows us quarterly data on the net-equity issuance of US nonfinancial corporations provided by the Federal Reserve. Over the past decade, from 2013:Q2 to 2023:Q2, this outflow represented on average a sum equivalent to -0.43 percent of GDP. The only time over this period that equity represented a net source of funds for investment in the corporate sector was 2019:Q2, at which point this figure was 0.01 percent of GDP.

Figure 6: Equity Activity as Percentage of GDP (1996:Q4–2023:Q3)

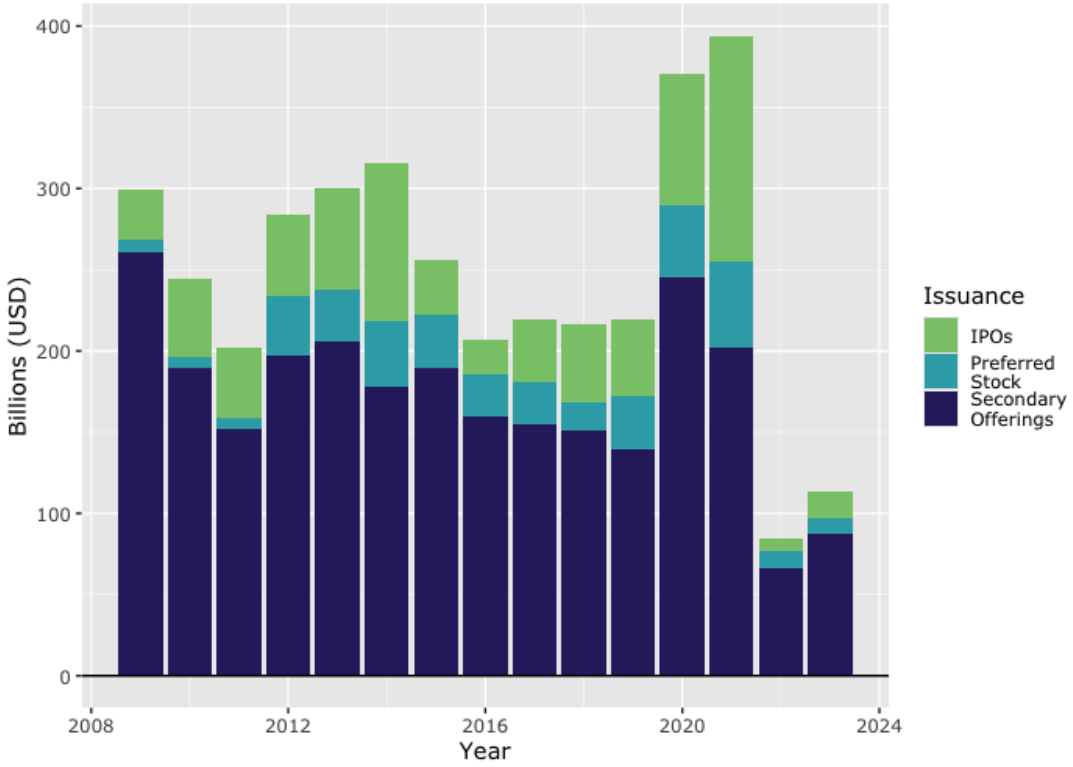


Source: Z.1 Financial Accounts of the United States, Enhanced Financial Accounts. This is based off quarterly issuance-retirement of equity reported in Table F.103. Retirements are for equity repurchases and M&A activity.

We can also examine what role repurchases and equity retirements are playing for larger corporations, such that we see these large negative net outflows. Figure 6 breaks down the extent of new issues, repurchases, and M&A retirements as a percentage of GDP, disaggregating the components shown in net terms in Figure 5. Looking at the specific movements of different uses of equity allows us to explain, in part, why net-equity issuance has been so persistently negative. The late 1990s to early 2000s saw a significant spike in M&A activity alongside increasing share issuances but stagnant levels of share repurchases, which allowed for a positive net-equity inflow in the year 2000. In contrast, a spike in M&A activity between 2005 and 2010 also corresponded with a spike in share repurchases, dwarfing the rise in share issuances and creating negative net-equity outflows. Post-2010 it appears that M&A activity has

largely subsided, while share issuances and repurchases have generally moved together. In almost every period, the issuance of new equity is not enough to counteract the combined negative outflows produced by repurchases and M&A retirements. All of this further suggests that corporate equity is an instrument for managing cash flow, leverage ratios, and corporate consolidations rather than injecting new funds for investment per se.

Figure 7: Annual Issuance of Corporate Equity (2009–23)



Source: SIFMA Research. Capital Markets Fact Book, 2024. Values expressed in real terms (2017 dollars) using the BEA's GDP implicit price deflator. Shown as total issuance of initial public offerings (IPOs), secondary offerings (SEOs), and preferred stock.

The stock market has increasingly been a source of equity financing for newly listed smaller firms in particular. Eugene F. Fama and Kenneth R. French (2004) find that new listings on US stock markets rose from 156 firms per year in the 1973–79 period to 549 per year in the 1980–2001 period. These new listings have also performed worse in their first- and third-year profitability during later time periods examined, leading to greater reductions in the survival rates of listed firms. However, and as shown in Figure 7, the issuance of SEOs is substantially larger than IPOs for any given year. So while equity finance may play an important role in the growth of smaller enterprises (and, as Fama and French argue, may occur because of a decreasing cost of equity), the use of equity instruments by large and medium-sized firms explains most of the new issuances we observe on exchanges. There were substantial new issuances in the form of SEOs over the 2020–21 COVID pandemic period, which corresponded with all-time highs in stock market trading. However, as seen in Figure 3, this did not increase investment shares out of corporate profits or GDI for those years.

In summary, we can establish a few stylized facts concerning corporate finance and investment for publicly traded corporations, particularly when it comes to equity financing. First, on a net-flow basis the predominant source of funds for a firm is internal funds (retained earnings). Second, external financing does provide a positive source of funds for a company's investment, but this is only really true with bond and bank financing when looking at net flows. Equity financing has been a persistently small and negative net source of funds for US nonfinancial corporations over the past few decades. Third, moving away from aggregate measures, micro-firm–level approaches demonstrate the importance of external financing for investment spikes, but debt prevails as the primary source of external financing, with only smaller firms and new listings relying most heavily on equity over debt financing. And finally, fourth, even the use of equity financing by new listings through IPOs is dwarfed by the volume of SEOs from larger firms, with share repurchases and M&A retirements representing the largest uses of equity instruments on stock exchanges by these mature companies. This results in the negative net-equity issuance we have seen over the past few decades. The implication is that equity is more often used as a financial tool to manage cash flows, maintain target leverage ratios, and aid in corporate consolidations rather than to finance real investment. This means that household shareholders' impression that they are contributing necessary funds for productive innovation is largely untrue for publicly traded companies and that the justification for shareholder primacy in corporate governance has fallen apart in the 21st century.

Shareholding and Investment for Companies with Privately Held Equity

When the public imagines financial markets, they generally have a picture in their head of open stock markets: the floor of the New York Stock Exchange or logging into Robinhood (depending on their age). Although the largest American companies in the 20th century were those that had their stock traded on open financial markets, in the 21st century companies are increasingly "staying private," meaning that they do not issue stock on the open exchanges and instead obtain financing from the vast universe of private financial institutions that ordinary households do not directly have access to (though, as will be discussed below, many non-wealthy households do participate in such markets through their pooled retirement funds, though they are usually unaware of this fact). While there is some discussion in the media about "unicorns"—companies that are valued at over $1 billion but do not issue stock on open markets—most people are unaware that these private companies are becoming more common than companies whose stock trades on the stock exchanges, and the "private" or "shadow" financial markets—more properly termed *unregulated* financial markets—are becoming central to the overall economy. This section first describes how privately held companies and unregulated financial markets are structured and then discusses the confusion over shareholding and real, substantive investment matters in these markets as well.

The rapid growth of private financial markets potentially represents new systemic risks to the economy at large and for the institutional shareholders participating in these markets in particular (Palladino and Karlewicz 2024). Private financial markets are sites of asset acquisition and trading for purposes of asset appreciation, whether or not the funds used to purchase assets (both real and financial) result in any true productive investment. These financial markets are markets for corporate equity and debt where non-wealthy individuals cannot participate and where the funds and fund managers conducting the transactions do not have to disclose their activity to the same extent as with the transactions in open markets. The securities laws put in place in 1933 and 1934[6] distinguished between financial instruments, funds, and transactions available to all, requiring disclosures from companies seeking to sell equities on the open markets in the name of "investor protection." Private markets were those that were available only to the very wealthy and institutions, who (supposedly) had the sophistication to engage in more opaque financial activity and could bear the increased risks. The public markets were the center of financial activity for much of the 20th century, as successful companies sought to "go public" (issuing stock to the public), and the corporate governance ideology of shareholder primacy predominated (Palladino 2021b). However, in the 2020s, private financial markets are becoming just as important, if not more important, to the vitality of the US economy.

Private markets raise more in equity than public markets: In 2021, new stock issuances resulted in $434.7 billion, while private markets raised $1.73 trillion in committed funds that same year—almost four times as much. Private markets are structured differently: Private asset managers organize into funds as limited partnerships, which shields general managers from liability. The primary dealers in these private markets are venture capital, private equity, private credit funds, and private real asset managers. Institutional shareholders, such as public and private pension funders, endowment plans, and foundations, provide the financial assets that private financial fund managers use to buy portfolio companies and real assets. Institutional shareholders now allocate 28–35 percent of their assets under management to these private fund managers. Pension funds alone currently account for $2.7 trillion in committed funds to private financial markets. (For more detail on the entities in the financial markets, see Appendix I.)

In the 21st century, "public" financial assets—non-wealthy household assets—flow to both public and private companies and funds; the boundary has broken down as a useful principle in understanding how financial markets work and how nonfinancial

[6] The Securities Act of 1933 and the Securities Exchange Act of 1934, the landmark legislation that established the Securities and Exchange Commission's regime of regulation over certain corporate and financial transactions, institutionalized the "public-private divide" in securities markets. The acts established a "highly" regulated public realm and a lightly regulated private realm, based on the premise that "public markets" were the domain of shareholders purchasing and selling corporate shares who did not have expertise and thus needed detailed disclosure of corporate activities (Georgiev 2021).

businesses engage with financial institutions. It is possible today for two virtually identical firms to fall on two sides of the public/private divide. The firm on the "public" side would have to provide public disclosure on a regular basis; the other would not. Private companies can "operate in secrecy, avoid public scrutiny, and eschew the internal governance structures required of public companies." Private markets "are now just as abundant, which renders public company status virtually irrelevant from an access-to-capital point of view" (Georgiev 2021). However, the "public" markets and their institutional structures remain at the center of how policymakers and economists think about the relationship between companies and finance.

Private equity firms and private asset managers use the financial assets of institutional shareholders to set up funds that then purchase companies and real assets (distinct from funds that purchase financial instruments that are traded on open financial markets). The financial firms that undertake this activity largely are buying and selling companies and real assets for the purposes of capital gains—they are engaging in trading activity, rather than investing to improve the innovative capacity of a company. In fact, often the opposite result occurs: The productive capacity of the portfolio company or asset decreases while the financial return to the fund and fund manager increases, in an extractive rather than productive process (Appelbaum and Batt 2014; Ballou 2023; Christophers 2023). The unregulated nature of private financial markets means that the data necessary to analyze how funds are used for investment or capital gains as a result of shareholder trading is more difficult to obtain than for companies operating in the open financial markets, due to disclosure requirements. Descriptive and sectoral or company-specific analyses of the activities of financial actors in the private financial markets still paint a convincing picture that shareholding and share-trading are maximizing capital gains, rather than investing for productive innovation.

A rich literature documents the extractive practices of private equity in nearly all sectors of the economy. Brendan Ballou's (2023, 11) *Plunder* documents extractive practices by private equity firms across the economy, stating succinctly that "these firms take money from productive companies, their employees, and their customers, and redistribute it to themselves," while Eileen Appelbaum and Rosemary Batt's (2014) *Private Equity at Work* shows the particular impact of private equity leveraged buyouts on labor. The purpose of private equity purchases of portfolio companies is to exit the portfolio investments within the timeframe of the fund—often 10 years or less—selling for a high enough price that limited partners (often the institutional shareholders) are compensated and the private equity firm can take its own profit share, alongside the management fees that it charges throughout (Fleischer 2008).

In *Our Lives in Their Portfolios*, Brett Christophers (2023, 45) describes asset managers focused on real assets (as opposed to financial assets) as "pure rentiers": Their purpose is to extract income from assets and prep them for sale. The goal for an asset manager is asset appreciation over a limited period, not the long-term productivity or income

earned from an asset such as housing or infrastructure. This makes asset managers the worst kind of owner for an inherently long-term good or service because they have no incentive to sacrifice in the short term for long-term innovations or even maintenance. In addition, these asset managers are trading "our most essential physical systems and infrastructure" for financial gain, which makes the false narrative that they are investors even more pernicious because many of these assets are socially necessary (Christophers 2023, 17). The purpose of the real-world assets that Christophers focuses on is not, for most of us, capital appreciation—housing and physical infrastructure matter for the quality of our lives and our communities. The problem is that asset managers operating in private markets care about selling, not maintaining, our essential infrastructure; the focus is necessarily short-term given the way that funds holding physical assets are managed through private funds. Purchasing real assets for the sole purpose of selling them for a higher price by reducing costs is not actual investment: How is it investment to buy something that already exists and simply make it worse? The asset manager can control the asset without actually improving it or investing in it in a productive sense. Yet control is not investment. This is clear in the sectors on which Christophers is focused in the distinction between "greenfield/brownfield" assets and "secondary" assets. In the case of the latter, asset managers are simply purchasing existing assets, which does not have a productive impact and should not be seen as investment.

IV. Toward Real Investment

The purpose of this paper is to address the conceptual confusion about the role of shareholders—primarily institutional shareholders—in the innovation process of the US economy. The corporate governance ideology of shareholder primacy has established shareholders as the key decision-makers even though their trading of equities for the purpose of asset appreciation has an attenuated connection to the actual productive activities of any given business. Institutional shareholders are extremely influential in the US political economy, bringing their full weight to bear on how the government regulates businesses and in their engagement across the private sector. Meanwhile, workers, whose activities are central to the success of the production process, have no voice in corporate governance (Palladino 2021b). As Janice Traflet (2013) has shown, financial institutions have deliberately encouraged the "equity culture" that places small shareholders at the center of economic growth in the United States over decades. The rhetoric continues today: The CEO of the American Investment Council, the trade association for unregulated financial institutions, said recently that "private capital is essential for lifesaving innovation, healthcare and jobs in California" (Jacobius 2024). The persistence of shareholder primacy relies on the idea that shareholder financial assets are always necessary for production and innovation to occur.

Dispensing with this myth opens up new apertures to think about how to organize corporate governance (as well as our retirement security system, which is bound up in

the shareholder primacy paradigm). As Peter Drucker proposed in the 1940s, shareholders could be thought of as corporate stakeholders who have economic rights rather than governance rights: the right to the return earned from the appreciation in value of corporate stock. This is analogous to the rights that creditors have to the interest earned on the debt taken on by the company—an interest that does not give creditors any role in corporate governance. Alternatively, shareholders could be one group among several that have a role in corporate governance, alongside other key stakeholders such as the workforce, employees, and the public. Perhaps most importantly, policymakers—free of the distracting assumption that flush stock prices might somehow bring forward productive investment—can refocus on the real work of promoting policies that will actually cause corporations to engage in the innovation process. In particular, policymakers and real investors can move on to support the social conditions of innovative enterprises and encourage collective and cumulative learning across the economy.

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Appendix I: The Institutional Structure of Financial Markets

Tracing the financial intermediation chain requires first understanding the sources of financial assets that are pooled and used for purchasing financial and real assets for the purposes of asset appreciation as well as for productive investment purposes. The financial assets used by asset managers in both open and private financial markets include public and private pension funds, individual funds pooled in mutual funds (both for retirement purposes and not), and other sources of funds such as sovereign wealth funds, family offices, and university and foundation endowments. The key characteristics of the asset managers who then pool these assets and use them to purchase financial and real assets are also explored in this section to contextualize the discussions in Sections III and IV about the uses of funds by asset managers and whether funds are used for asset appreciation or for real productive investment.

Public Pension Funds

Public pension funds are a cornerstone of the US financial system. State and local public pension funds are trusts that hold portfolios of financial assets that are meant to sustain retirees, with the funds collectively holding $5.3 trillion in assets and distributing $334 billion as of 2022 (Public Plans Data). Roughly 5,000 state and locally administered public pension funds in the United States provide retirement security for 12 million current retirees, with 14.9 million future beneficiaries who are currently working—15 percent of the total US workforce (Public Plans Data). Such funds are clearly critical for the retirement security of the public sector workforce and are sometimes analyzed only from the perspective of financial returns. Yet if public pension funds are not proactively addressing social and economic risks, those same public sector workers who are the current and future economic beneficiaries of pension funds will feel their impacts directly.

Public pension funds are part of the complex system of retirement assets in the United States. In the private sector, pensions—meaning an annuity payment that is guaranteed—have largely disappeared for today's workforce, replaced by defined contribution programs and individual savings (even though millions of private-sector retirees still rely on pension commitments made in past decades). However, in the public sector, the workforce has been able to maintain access to pensions, and these funds represent a major source of financial assets invested in financial markets. Public sector workers have maintained pension coverage at much higher rates than private sector workers due to differences in compensation structures and higher unionization. As of 2023, 88 percent of state and local government workers had access to retirement benefits, with 91 percent participating; in the private sector, access was 65 percent and participation was 45 percent (US Bureau of Labor Statistics 2023). Public pension funds

hold publicly traded corporate securities as part of their portfolios, which means that they are bound up in the shareholder primacy paradigm that governs the relationships between production-oriented corporations and the networks of institutions holding and trading equities issued by these companies in the financial markets. Public pension funds increasingly allocate portions of their portfolio to private financial management firms (Palladino and Karlewicz 2024).

Private Pension Funds

Private pension funds are employer-administered retirement plans in which employees aggregate their individual retirement savings and are, in most cases, supplemented by employer contributions. The funds are largely managed by financial institutions, including mutual funds, which pool the employer-administered funds to purchase financial assets. According to the most recent data from 2021, there are 765,100 plans—644,700 of which are 401(k)-type plans—covering 99.5 million active participants (although this number includes those eligible to set up a plan with their employer even if they have not done so). The total amount of assets held by these plans was $13.2 trillion; $1.055 trillion was disbursed in 2021. Early workplace pensions were put in place as part of the move toward welfare capitalism, such as at Kodak in 1929 (Jacoby 1993). However, pension plans accelerated post–World War II as a result of union collective bargaining, after a Supreme Court case in 1949 instituted a requirement that employers bargain with unions over pensions (*Inland v. NLRB*) (Baum and Stiles 1965). Establishing pension funds and using them as a tool in collective bargaining was also beneficial to the employer because they were a form of compensation on which the employer did not have to pay employee taxes. As pensions moved from defined benefit to defined contribution, risk shifted from employer to employee. This supply-side shift tied the interests of workers directly to the financial markets, as workers became "forced capitalists." The consequences of this switch have been severe for private-sector workers because "the employer has no subsequent funding obligation if the plan has no investment success" (Gelter 2013).

Asset Managers, Mutual Funds, and Index Funds

Pooled companies that invest in securities are investment companies, which are regulated under the Investment Companies Act. Mutual funds are open-ended pooled funds, meaning that their shares can be redeemed at any time. Funds are an aggregation mechanism: The seller of their own share of the mutual funds receives a price based on the current value of the firm's portfolio (Fink 2008, 83). The benefits for the underlying shareholders (i.e., the economic beneficiaries) are thought to be instant diversification, professional money management, and easy redemption (Birdthistle 2016). Retirement assets make up a majority of mutual fund assets, which gives mutual funds an interest in the employers who can choose among mutual fund companies to manage their employee retirement funds; 401(k) plan sponsors (employers) must

appoint a trustee who has a fiduciary duty to the plan, which then offers their own funds to the 401(k) plan. William Birdthistle (2016) discusses in detail the different players in the mutual fund industry, in particular the *fund adviser*, who uses the financial assets that make up the shares of the mutual fund to purchase *portfolio securities*, or the stocks and bonds of external companies. The broker and adviser charges fees for the buying and selling of securities (even though often they are part of the same larger financial institution). The fee that is charged is a percentage of assets under management. Since fees are based on expense ratio times assets under management, fees automatically rise as business rises. But the actual effort involved is not linear thanks to economies of scale, so this is clearly an exploitative practice.

Asset managers purchase financial assets with pooled institutional funds. They hold the legal title to the portfolio assets purchased on behalf of the underlying economic beneficiaries, giving them the right to engage in corporate governance as the shareholders of record. In other words, the asset management industry takes some of the decision and responsibility of deciding which funds to invest in away from the individual shareholder and the funds where they place their money. Asset managers have fiduciary duties to those whose assets they hold, though their fiduciary duties have been defined narrowly as solely managing financial risk, rather than taking into account the entire impact of their holdings on the economy and society (Alexander 2018) (see Palladino and Alexander 2021 for a full discussion of the need to reform asset manager fiduciary duties). The concentration in the asset manager industry gives the three large asset managers—Vanguard, State Street, and BlackRock—tremendous power in corporate governance and creates financial risks (Bebchuk and Hirst 2019; Braun 2022; Palladino and Alexander 2021; Palladino 2023).

Index funds constitute a rising proportion of mutual fund assets and the funds of asset managers. Robin Wigglesworth lays out the history of index funds in *Trillions*, describing their rapid rise to the center of the financial system. Index funds "are investment vehicles that simply try to mimic an index of financial securities" (Wigglesworth 2021, 7). Which indices to use is up to the fund manager—many are broadly used, but many boutique indices are also created for one fund or fund family (Petry et al. 2021; Robertson 2019). Index funds have grown in popularity because "roughly speaking, only 10 to 20 percent of active funds beat their benchmarks over any rolling ten-year period" (Wigglesworth 2021, 7). Active managers also charge fees that take away from any gains, as compared to index funds whose fees are extremely low.

Private markets are structured differently from the open financial markets, where constant trading is the norm. Private markets enable fund managers (also referred to as asset managers) to utilize the financial assets of qualified institutions or wealthy individuals, pool them into funds (that are legally separate entities from the fund managers), and use those funds to purchase nonfinancial assets. *Pooled investment vehicles*, or "private funds," raise financial assets from *limited partners* and are managed by investment advisers, who decide how to allocate the funds. These funds are exempt

under the Investment Company Act of 1940 and are known as 3(c)(1) or 3(c)(7) based on the exemptions.[7] The 3(c)(1) exemption is based on the fund having a limit of 100 beneficial owners (or in the case of venture capital, 250 beneficial owners), while 3(c)(7) is exempt because it is limited to investors that are "qualified purchasers."[8]

The main asset owners that allocate funds to exempt pooled investment vehicles—termed the *limited partners* of a given fund, as funds are managed by the *general partner* fund manager—include private and public pension funds, family offices, endowments, insurance companies, and sovereign wealth funds (Ivashina and Lerner 2019). The growth of these entities has enabled the growth of private markets and is described in detail below. Legally, asset (fund) managers are distinct entities from the funds themselves where financial assets of limited partners are held and deployed to purchase nonfinancial assets, which can be nonfinancial businesses or other real assets, including real estate, commodities, or infrastructure (collectively termed the *portfolio* assets, as they are what the funds hold in their portfolios). This legal distinction is critical to the business model in private markets, in which asset managers reap the benefits but avoid the risks that the nonfinancial companies take.

Venture Capital

Venture capital (VC) is the sector of the private markets that seeds new companies that lack collateral (and are therefore unable to obtain bank loans) in search of the next "big thing": "Each year brings a handful of outliers that hit the proverbial grand slam, and the only thing that matters in venture is to own a piece of them" (Mallaby 2022). The financial institutions that organize venture capital funds are focused on finding the outliers that are innovating in their production process and taking chances, rather than allocating funds only to sure bets. The sector is successful in large part due to its own dense network and the expertise that its leaders have in the nonfinancial production processes of the companies that it invests in. Like other private markets, venture capital was able to grow after the Department of Labor changed the rules that enabled pension funds to put financial assets with venture capital. Venture capital leaders tend to focus on the executives running companies and their ability to solve technical problems that will lead to market dominance. During the tech boom, VC seeded the

[7] Minimal reporting requirements do exist for private funds: SEC-registered investment advisers with at least $150 million in private assets under management use Form PF to report information about the private funds that they manage, per Dodd-Frank in 2011. A rule amending Form PF was finalized in May 2023, requiring that certain large hedge funds and private equity fund advisers make current reports on certain events to the SEC (within 72 hours for hedge funds and quarterly from private equity fund advisers). The SEC issued new rules on private fund adviser disclosures on August 23, 2023, under the Investment Advisers Act of 1940 requiring private fund advisers to disclose an itemized report of compensation, fees, expenses, and performance to limited partners.

[8] *Qualified purchasers* are defined in securities laws as individuals who are wealthy enough "to be financially sophisticated and therefore not in need of the protection of state registration when they are offered or sold securities" (US SEC 2001).

growth of companies like Facebook and Google. Facebook's apparent "delay" in conducting its IPO was an important moment for the growth of the private markets as companies realized they could continue to grow while remaining public and still structure exits for employees. This is when the "unicorn" company—private companies with valuations over $1 billion—was born, and "enormous amounts of wealth [were] wrested away from the public stock market for the exclusive benefit of private investors" (Mallaby 2022, 277).

Though the dominant narrative is that venture capital firms are crucial for innovation, Peter Lee (2022) argues that "the ability of VC markets to catalyze innovations is often overstated" (611). First, because the whole sector is built on social ties, those with greater social capital have the highest likelihood of getting funding. Second, "VCs exhibit a surprising degree of herd mentality, investing in trendy technologies while shying away from truly radical innovations." Their focus is on "innovations that promise large returns in a medium time frame with minimal risk," so this sector does not pursue truly risky innovations that would have social value. Lee shows that the VC industry is itself indebted to the support of the federal government, even while the sector prioritizes its own profit-making interests at the expense of transformative social innovations.

Private Equity

Private equity funds purchase nonfinancial companies and hold them as part of their portfolio for the purpose of selling them for capital gains. They largely purchase these companies through leveraged buyouts: borrowing money to buy companies with only the companies themselves as collateral, such that the fund manager sponsoring the private equity fund itself does not use much of its own equity. This means that the company being purchased is itself responsible for the debt used to make the purchase. The strategy of private equity is to "look for companies that produce enough cash to cover the interest on the debt needed to buy them and which also are likely to increase in value" (Carey and Morris 2012, 14). The structure of such deals means that the downside risk is held by the company being purchased, so that if the company fails, the private equity firm does not lose much, but if the company succeeds and the private equity firm sells it at a higher value, the firm's economic gain can be many multiples of the original deal.

Private equity grew from a niche segment of financial markets in the late 1970s to its central position today. Stephen Schwarzman and Peter Peterson left Lehman Brothers to take advantage of the new opportunities of leveraged buyouts in 1985, founding Blackstone and growing it into the dominant entity in leveraged buyouts, fueled by the unraveling of the corporate conglomerates that had become dominant in the 1960s. As the conglomerates started to spin out unrelated business units, buyout firms were able to scale up their purchasing using the newly available corporate instrument of junk bonds. The returns that Kohlberg Kravis Roberts & Co. (KKR) and Blackstone earned in

the early 1980s—"investors in KKR's first five funds saw annual returns of at least 25%"—brought large institutional shareholders into the funds, including public pension funds (Carey and Morris 2012). Since then private equity has grown to a dominant force in the US economy, often with negative consequences for workers and business sustainability (Appelbaum and Batt 2014; Ballou 2023).

Private Credit Funds

Private credit funds lend to businesses with loans that are negotiated directly "to meet the specific needs and objectives of the individual borrower and lender, without the need to comply with traditional regulatory requirements" (Cai and Haque 2024). After Dodd-Frank regulation changed the requirements for regulated banks, "corporate lending has increasingly migrated out of the banking sector. Private debt (PD) funds and collateralized loan obligations (CLOs) are two of the major types of non bank intermediaries that have filled this gap" (Block et al. 2023). These funds now rival other credit markets in size, raising questions about the potential impacts of such unregulated and opaque loan agreements (IMF 2024). The funds themselves are closed-end funds holding the financial assets of the same kinds of limited partners that engage in private equity funds—pension funds, insurance companies, sovereign wealth funds, and other institutional financial pools (Block et al. 2023). Joern Block et al. (2023) define private debt funds as "investors that raise capital commitments through closed-end funds (like private equity) and make senior loans (like banks) directly to, mostly, middle-market firms." The private market for private debt has attracted borrowers who are unable to obtain credit from regulated banks—calling into question their suitability for such transactions in unregulated markets.

Private Asset Managers and Real Assets: Housing and Infrastructure

Another growing area within private markets is asset managers holding real assets such as housing and infrastructure—the focus of asset managers such as Brookfield, Blackstone, and Macquarie (Christophers 2023).[9] This is a growing sector: Infrastructure assets under management worldwide have grown to $1 trillion, more than six times their level in 2008 (Gara 2024). In January 2024, BlackRock acquired Global Infrastructure Partners for $12.5 billion in order to increase its investment in infrastructure by an order of magnitude—its largest takeover since 2009 (Sorkin et al. 2024).

[9] Our data does not include real assets held by fund managers, so we do not discuss this sector in detail.

Appendix II: Definitions of Sources and Uses of Funds

Sources and uses of funds (flows) are taken from the Z.1 Financial Accounts of the United States, Table F.103, which contains information for the nonfinancial corporate business sector. The number next to any source/use of funds indicates which row entry it corresponds to in Table F.103. The net-flow figures used in Table 2 and Figure 4 are constructed by summing the sources of funds per category and subtracting the corresponding summed uses of funds. In other words, we take liabilities as sources (+) and net out assets as uses (-) for a given category j of financing in year t. Dividing by gross fixed investment in any year t obtains the net sources of funds from a given category j that could be used to finance investment in percentage terms for that year. Since this divides a net flow by a gross flow it will not sum to unity, or 100 percent, across all categories j.

$$Net\ Sources_t^j = \frac{Sources_t^j - Uses_t^j}{Gross\ Fixed\ Investment_t}$$

Sources of Funds (+)	Uses of Funds (-)
Internal Funds	
(1) Corporate profits before tax excluding inventory valuation adjustment (IVA) and capital consumption adjustment	(2) Taxes on corporate income
(4) IVA	(3) Net dividends paid
(5) Capital consumption allowance	(7) Net capital transfers paid
(6) Foreign earnings retained abroad	
Bank Finance	
(43) Loans; liability	(16) Private foreign deposits; asset
(44) Depository institution loans not elsewhere classified; liability	(17) Checkable deposits and currency; asset
(45) Other loans and advances; liability	(18) Total time and savings deposits; asset
(46) Total mortgages; liability	(27) Loans; asset
	(28) Total mortgages; asset

Bonds	
(39) Debt securities; liability	(21) Debt securities; asset
(41) Municipal securities; liability	(23) Treasury securities; asset
(42) Corporate bonds; liability	(24) Agency- and government-sponsored-enterprise–backed securities; asset
	(25) Municipal securities; asset
Equity	
(55) Corporate equities; liability	(19) Money market fund shares; asset
	(20) Security repurchase agreements; asset
	(31) Corporate equities; asset
	(34) Mutual fund shares; asset
Trade Credit	
(48) Trade payables; liability	(29) Consumer credit; asset
	(35) Trade receivables; asset
Other Finance	
(40) Commercial paper; liability	(22) Commercial paper; asset
(47) Foreign direct investment in US: intercompany debt; liability (market value)	(30) US direct investment abroad: intercompany debt (market value)
(50) Total miscellaneous liabilities	(32) US direct investment abroad: equity; asset (market value)
(53) Unidentified miscellaneous liabilities	(36) Total miscellaneous assets
(56) Foreign direct investment in US; liability (market value)	

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