Why Lower Drug Prices Benefit Institutional Investors  
(Working Draft, Comments Welcome)  

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Abstract  
Changes in prescription drug prices have broad ripple effects across the diverse portfolios that most institutional investors hold. Lower prices cut into pharmaceutical company profits, but improve the overall productivity and profitability of other investable sectors of the economy. This paper considers the net impact of cuts in drug prices on investor portfolios. We find that falls in pharmaceutical company profits resulting from price cuts would be largely if not fully offset by a combination of health plan cost-savings and increases in consumer spending power. Furthermore, falling drug prices benefit investors through the dynamic benefits from a healthier workforce with greater access to prescription drugs. We conclude that, from the perspective of the broadly diversified “universal investor,” support for lower drug prices is consistent with a fiduciary duty to seek attractive long-term returns at the portfolio level. 

Executive Summary  
Prescription medicines represent the fastest-growing segment of healthcare costs in the United States.³ Calls to stem increasing drug prices have come from a wide range of advocacy groups, policymakers, and also an unexpected source: institutional investors that hold shares of pharmaceutical companies and presumably benefit from profits generated by high prices. For instance, support for a shareholder proposal calling on Pfizer to report “on measures our company is taking to contain the price increases of its most-prescribed drugs to levels equal to or below the annual rate of inflation” from 5 percent in 2004 to 11 percent in 2005. Twenty-three percent of Wyeth’s shareholders 

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supported a 2005 proposal calling on the company to not constrain the re-importation of prescription drugs into the U.S.

To help institutional investors better understand whether supporting such proposals is consistent with their responsibilities as fiduciaries, this paper seeks to answer the question:

“What impact does pharmaceutical pricing have on the profitability of American business, and what are the implications for ‘universal owners’ invested broadly in the U.S. stock market?”

That question is particularly relevant since the vast majority of institutional investors follow investment strategies that provide broad exposure to U.S. equities, with index investing alone accounting for 30% of U.S. equity and bond investments. Despite trends towards universal ownership, we are not aware of past efforts to consider the impact of pharmaceutical price constraints on the portfolios of universal shareholders, and seek to fill that gap.

In the first instance, lower drug prices could reduce drug manufacturers’ profits and thus reduce their share prices. However some analysts suggest that increased volumes of drug sales resulting from lower prices would mitigate reduced margins and could even boost drug manufacturers’ profits. Still, assuming drug profits are impinged by lower prices, offsetting gains could accrue elsewhere in the economy from savings to companies, governments, and individuals purchasing prescription drugs. High healthcare costs are a major drag on the profitability of many U.S. companies, and savings from lower drug prices would benefit firms providing employee healthcare coverage. More affordable prescription drugs would also provide individual consumers with additional discretionary income to spend or invest in other sectors of the economy. Greater access to prescription drugs could reduce employee absenteeism and improve health and productivity. Even assuming a zero-sum outcome, where there are no net benefits of lower drug prices, any lost profits from drug makers represent gains for other sectors of the economy. As such, even if pharmaceutical profits decline, lower drug prices would have offsetting gains for
a broad portfolio representing the entire economy – exactly the type of portfolio most institutional investors hold.

However, lower prescription drug prices might not simply shift profits around within an investment portfolio. There would likely be additional dynamic implications, leading to net financial benefits for investments held by universal owners. Lower drug prices might lead to increased utilization of necessary drugs, and a healthier and more productive U.S. workforce. And despite pharmaceutical company arguments, we found little evidence to suggest lower drug prices would reduce investment in research & development. Research has actually been declining as a percentage of sales even as drug prices have dramatically increased. (Instead, spending on marketing, particularly direct-to-consumer marketing, has increased as prices have increased.)

In short, the impact of lower drug prices on investors heavily exposed to pharmaceuticals could be negative, with some lesser offsetting benefits from the increased demand for drugs as a result of lower prices. However, for universal institutional investors broadly exposed to all market sectors, the impact of lower drug prices is likely to be neutral at worst, and could very well be positive on a net basis. In addition, institutions such as public pension funds that purchase health care services for their beneficiaries may see additional benefits from lower drug prices. For the majority of institutional investors, then, the downside risk of pursuing lower drug prices is minimal and likely to be exceeded by the potential upside. These findings suggest that investor action to reduce prescription drug prices is likely to have a neutral or positive impact on their overall portfolios and represents a responsible exercise of fiduciary duty.
Section 1: 
Introduction

How much health care costs in America, who pays for it, and who gets care, are some of today’s most pressing public policy issues. Healthcare spending is now 16.0% of GDP, up from only 13.6% ten years ago. All elements of healthcare costs have risen dramatically, with the cost of prescription medicines consistently among the fastest-growing segments.

This rapid increase in both drug prices and expenditures has not gone unnoticed. Drug prices are one of the most visible health care expenditures to consumers and have become a hot political issue. For example, a 2005 Kaiser Family Foundation poll found almost two-thirds (65%) of Americans support more government regulation of prescription drug prices. California faced dueling ballot initiatives on prescription drug access in November 2005, sponsored by drug makers and by consumer advocates (voters defeated both measures). The National Conference of State Legislatures reported that in 2005 more than 600 separate bills and resolutions in all 50 states were proposed to address policies affecting access, affordability and control of prescription drug spending. In short, rising healthcare expenditures and lack of access to care has sparked debate among policymakers at all levels.

\(^4\) Catherine Arnst, “More Money, Less Care: Ever higher outlays aren't getting the U.S. a better health-care system, but the pols aren't doing much to redress this miserable equation”, *Business Week*, INDUSTRY OUTLOOK: LIFE SCIENCES: HEALTH CARE: CO; Pg. 115 Vol. 3915, January 10, 2005.
In addition, concerns about rising drug prices have emerged from an unexpected source: institutional investors. These investors hold drug company stocks and presumably benefit from profits generated by high prices. Nonetheless, a diverse set of public pension funds, religious institutions, and labor funds have filed a wide variety of shareholder resolutions addressing high drug prices.\textsuperscript{10}

\textit{Scope Of This Paper}

We intend this paper to help inform decisions by institutional investors about whether to support shareholder resolutions to address high drug prices, within the bounds of their responsibility as fiduciaries. In particular, we seek to answer the question:

\textit{“What impact does pharmaceutical pricing have on the profitability of American business, and what are the implications for ‘universal owners’ that are invested broadly in the U.S. stock market?”}

The vast majority of institutional investors pursues broad diversification, and hence are “universal owners,” with extensive exposure to all major sectors of the equity market. Institutional investors, in aggregate, also hold the controlling interest in virtually all U.S. publicly traded corporations. We are not aware of past efforts to evaluate the impact of pharmaceutical price constraints on the portfolios of universal shareholders. We seek to fill this gap.

We limit our scope of analysis to the U.S. pharmaceutical market and impacts on publicly traded U.S. companies only. As we explain in Section 2, our analyses rest on research which suggests that lower drug prices will yield social benefits from increased rational utilization of pharmaceuticals and that price reductions need not impact other social goods such as private-sector research and development. Drawing on the existing research literature and basic economic theory, we examine the effects of lower drug prices on the

profitability of U.S. businesses under two sets of assumptions: a static case which introduces the major potential winners and losers from falling drug prices (Section 3), and a dynamic case which reviews some of the broader beneficial impacts of lower drug prices (Section 4). These thought experiments lead us to conclude that the impact of lower drug prices on investors broadly exposed to the U.S. stock market will range from neutral to modestly beneficial.

Finally, we provide some implications for trustees of investment institutions, the boards of pharmaceutical companies, and U.S. businesses as a whole based on our findings.

Recent Actions by Institutional Investors

A growing number of institutional investors are comfortable pressing pharmaceutical companies to boost affordability of prescription drugs. For example, support for a shareholder proposal calling on Pfizer to report on efforts to contain price increases of its most-prescribed drugs to levels at or below inflation doubled from 5 percent in 2004 to 11 percent in 2005. In 2004, Governor Tim Pawlenty (R-MN) traveled to Pfizer’s annual stockholder’s meeting to speak for the resolution, arguing “the current price structure for prescription medicines is unsustainable. As shareholders, it's appropriate that we ask how business strategies can be changed and improved to address the current reality.”

Shareholder proposals calling on various drug makers to not constrain the re-importation of prescription drugs into the U.S. by limiting the supply of drugs in foreign markets were sponsored by the American Federation of State, County & Municipal Employees, the Maine State Treasurer, the New York City Employees Retirement System, the New York State Common Retirement Fund, Ohio Public Employees’ Retirement System, Vermont State Employees’ Retirement System and Vermont State Teachers’ Retirement

11 Interfaith Center on Corporate Responsibility website. http://www.iccr.org/shareholder
12 “Governor Pawlenty’s Remarks to the Pfizer Inc. Shareholders Meeting—April 22, 2004” http://www.governor.state.mn.us/Tpaw_View_Article.asp?artid=895. One of us (Rosan) also attended the meeting.
System. These funds have combined assets of $183 billion. The proposal received a high water mark of 23% support at Wyeth, while a similar proposal that called for a report on the risks of fighting re-importation filed by the Minnesota State Board of Investment received the support of 28.5% of Pfizer shareholders.

The analytical frameworks we present suggest these and other shareholder efforts to constrain pharmaceutical price increases are not in conflict with institutional investors’ responsibilities as fiduciaries. In fact, they can be seen as an exercise of their fiduciary duty.

**Section 2:**

**Foundations of Our Analysis: Background on the Pharmaceutical Market and on Institutional Investors as Universal Owners**

In this section, we explain key aspects of the pharmaceutical industry and of institutional investing which underlie our analyses.

**The Special Nature of the Pharmaceutical Market**

The first dose of a drug produced by a pharmaceutical company as part of a commercial batch costs an immense amount of time and money. A commonly cited 2001 study by the Tufts Center for the Study of Drug Development estimates that on average, it costs about $802 million and takes 12 years to bring a new drug to market, whereas the marginal cost of producing an additional tablet or pill is often mere nickels. The fixed costs associated with developing a new pill include basic research, animal testing, human clinical trials, and regulatory approval. In addition, manufacturers have to develop facilities to ensure that each pill is exactly the same. After spending the hundreds of millions it typically takes to manufacture and market the first pill, the second pill is essentially free.

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13 Author’s calculations based on latest available annual reports.
14 Investor Responsibility Research Center, “Voting Results: 2005”.
Of course, that is an overstatement. But the marginal cost of production of pharmaceuticals is quite low, and bears very little relation to the cost of the product. In this way, drugs are similar to software, music, movies, or video games. In all intellectual property industries, getting to the first product is very difficult and costly, but the marginal cost of production of additional products approaches zero.

Incentives to Innovate

Drug companies undertake this exercise because of the incentive system created by patents. Patents are one of a variety of ways to create government-sponsored incentives for innovation. Patents on drugs create a trade-off: companies disclose how the drug works and its formula, and in exchange the government prevents any other party from selling the drug during the patent life. A patent’s duration is 20 years from the date of filing with The United States Patent and Trademark Office. Patents are granted prior to market approval by the Food and Drug Administration, however, so companies typically get about 12-14 years of market exclusivity.

Pharmaceutical companies therefore are able – indeed, encouraged – to charge monopoly prices during the patent life to attract the investment capital necessary to fund the initial research and development costs associated with developing a new drug.

Drug Pricing

Once a drug is on the market, companies take additional steps to maximize profit as part of a series of negotiations with healthcare purchasers. Drug companies may sell their products to pharmacies, to intermediaries such as wholesalers, to pharmacy benefit managers, to employers, to governments, or to insurance companies. Before a drug reaches a patient it is ‘touched’ by several of those players.

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18 http://www.fda.gov/cder/about/smallbiz/patent_term.htm
In 2005, domestic US demand for pharmaceuticals was $223.5 billion, according to the Centers for Medicare and Medicaid. Of that amount, private insurance paid 47%, with out-of-pocket costs financing an additional 29%. Government programs paid 24%. We expect the new Medicare Part D benefit which came into force in 2006 will increase government expenditures on prescription drugs and reduce out-of-pocket costs and private health insurance.

Drug manufacturers price discriminate because of the pharmaceutical market’s structure. Patents give drug makers market exclusivity. They negotiate different prices among diverse buyer groups with varying elasticities of demand. For instance, third-party buyers who represent large groups of consumers and have high price elasticity have their own negotiating tools. Buyers demand discounts or rebate schemes in exchange for volume sales. They use formularies – a list of approved medications – to negotiate. Insurance companies and benefits managers typically have a “two-tier” or “three-tier” method to contain pharmaceutical spending, charging consumers a low co-payment for a generic drug and a higher co-payment for a brand-name drug, and in some cases not covering certain branded drugs. Therefore, inclusion in formularies represents a substantial market advantage. For brands which are not included, patients pay higher out-of-pocket expenses and are likely to switch to a competing product. Governments, insurance companies, and pharmacy benefits managers all negotiate in this way. Despite these tools, the drug makers’ monopoly position gives them an advantage, as evidenced by continually rising drug prices.

In contrast to bulk purchasers, uninsured individual buyers have low price elasticity and limited power to influence pricing. They cannot go elsewhere or forgo taking essential drugs, and are consequently charged higher prices. Many buyers fall in between these

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endpoints, with negotiating power determined by their potential sales volume. Price discrimination yields higher profits because drug makers sell products at a different price to each segment according to its buying power and price sensitivity.\textsuperscript{22}

The complex nature of pharmaceutical consumers also hinders market transparency and favors differential pricing. Indeed, no other consumer product we know of is picked by one player (the doctor or nurse practitioner) consumed by a second player (the patient) and funded by a third player (the health care purchaser).

Finally, other players in the pharmaceutical value chain, such as pharmacists and wholesalers, add surcharges onto the initial drug prices. Different patients find considerable variation in drug prices, depending on the nature and presence of insurance coverage, place of purchase, and the structure of particular pharmacy benefit plans.\textsuperscript{23} In 1999, the Department of Health and Human Services calculated that the median price difference between cash payers and third-party payers for the 200 most commonly prescribed drugs was 14.6%.\textsuperscript{24}

\textit{Pricing Transparency}

The low marginal cost of production and the high sunk capital costs of drug development incentivizes manufacturers to make a sale even if revenue is relatively low, as long as revenue remains above the marginal cost of production. Obviously, pharmaceutical manufacturers do not want other customers to know they have done so, because that reduces their ability to segment the market. The lack of pricing transparency is thus an important element of maintaining high prices.

\textsuperscript{22} Richard G. Frank, “Prescription Drug Prices: Why Do Some Pay More Than Others Do?: An accurate understanding of price differences is essential to the crafting of sound prescription drug policies”, \textit{Health Affairs} March-April 2001.
\textsuperscript{24} U.S. Department of Health and Human Services, Report to the President: Prescription Drug Coverage, Spending, and Prices (Washington: DHHS, April 2000).
Drug companies do report a wide variety of price points to government regulators, but because of the complicated system described above, they bear little resemblance to the actual payments made by health care purchasers (currently a source of a great deal of litigation). Therefore, the industry lacks the pricing transparency that is an essential foundation for well-functioning free markets.

Products such as cholesterol drugs like Lipitor, Zocor, and Crestor, which have comparable quality, safety and efficacy profiles, operate in a tight oligopoly in which firms compete on the basis on advertising, marketing and relatively minor differentiating attributes, rather than on price. This allows for the continuation of non-competitive pricing and oligopolistic profits.

**Relationship of Prices to Research & Development**

Pharmaceutical managers justify high prescription medicine prices to policymakers and the public by pointing to their significant research and development costs. Often drug makers and their surrogates claim that lower prices would stifle innovation and the development of new “breakthrough” drugs, and would ultimately harm to patients.\(^{25}\) While draconian price reductions could eventually impact research, the relationship between price, profitability and R&D is not so straightforward, for five reasons.

First, when prices and profits have been at historic highs, pharmaceutical company research productivity has been low. There does not appear to be a correlation between profitability and research productivity in a given year. For instance, while retail prescription prices increased an average of 8.3 percent a year from 1994-2004 (triple the annual inflation rate of 2.5 percent), manufacturing R&D spending as a percentage of sales actually fell from 17.3 percent in 1994 to 15.9 percent in 2004.\(^{26}\) Further, analysts have not found higher rates of R&D investment or levels of innovation among U.S. based

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\(^{25}\) Pharmaceutical Research and Manufacturers of America (PhRMA), Pharmaceutical Industry Profile 2003 (Washington, D.C., PhRMA 2003), p. 6.

drug manufacturers versus those based in countries where drug prices are significantly lower than in the U.S.\textsuperscript{27}

Second, companies commit greater resources to marketing, sales, and administration than they do to research and development. In 2002, Fortune 500 drug companies channeled 17 percent of revenue into profits, 14.1 percent into research and development, and 30.8 percent into marketing and administration.\textsuperscript{28} The Kaiser Family Foundation reports that in 2004, drug makers spent a total of $38.8 billion on R&D, versus $11.9 billion for advertising and another $15.9 billion on the retail value of drug samples.\textsuperscript{29} Direct-to-consumer advertising reached $4 billion in spending, 15 times greater than ten years earlier.\textsuperscript{30}

Third, much of pharmaceutical company investment is dedicated to “me-too,” or “follow-on” drugs. Research and development is devoted to copying blockbuster drugs rather than addressing unmet medical needs. Less investment is required to develop follow-on drugs because they are modifications of existing drugs.\textsuperscript{31} We do not discount the value of research into follow-on drugs; these drugs produce clinical and economic benefits, including reducing side effects and improving efficacy profiles, reduction in adverse drug reactions and drug-to-drug interactions, different dosing schedules and delivery systems.\textsuperscript{32} However, the notion that all research and development is spent on cutting-edge therapies is simply wrong.

In addition, a great deal of funding categorized by drug makers as research and development is used to market drugs to doctors through post-approval studies. Sometimes

\textsuperscript{28} Fortune Magazine, April 17, 2003. Note: Marketing and administrative costs are typically reported together rather than separately by drug companies.
\textsuperscript{29} Kaiser Family Foundation, Prescription Drug Trends Fact Sheet—November, 2005 Update, Publication 3057-04, 2005-11-18,
\textsuperscript{30} Kaiser Family Foundation, Prescription Drug Trends Fact Sheet—November, 2005 Update, Publication 3057-04, 2005-11-18,
\textsuperscript{31} Need citation and example on “me-too” phenomenon and its costs. See National Institute of Health Care Management, “Changing Patterns of Pharmaceutical Innovation,” May 2002.
such studies have clinical value, by for example finding a new application for an existing drug. Often they are motivated at least in part, however, by a desire to engage and compensate doctors for prescribing the drug.33

In addition, companies are forced by the patent system to continually re-invest in research and development because they know, often to the day, when their current level of sales for a given product will plummet. Even companies that cut staff will typically protect research and development. Merck recently announced 7,000 job cuts but specifically informed analysts that R&D funding would be maintained at existing levels.34

Finally, in a capital-constrained environment, companies can plausibly argue that to attract the large concentrations of capital necessary to do research and development, they must provide superior returns. We do not believe the American investment environment to be capital-constrained. Furthermore, in 2004 pharmaceutical companies generated 16% profits as a percentage of revenues compared to 5% for all Fortune 500 firms, suggesting that pharmaceutical companies will likely continue to attract investors even with modestly lower margins on products.35

Industrial organization research has long noted the extraordinary levels of profitability in the pharmaceutical sector, suggestive of the pricing power that comes from less-competitive industries. This indicates ample room for price cuts before profits fall to a normal level (including compensation for research and development). A simulation study by Abbott and Vernon found that significant price cuts (along the order of 50%) would have appreciable impacts on R&D, but that modest cuts on the order of 5-10% would likely have negligible impact.36

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34 Richard Clark, Merck CEO. Conference call with analysts, 28 November 2005.
Drug research and development is a critical social good generated by the private sector. However, modestly lower profits caused by more transparent and competitive pricing has a very low probability of impacting the degree and quality of drug company research and development. Furthermore, reduced company profits are only one of several possible scenarios stemming from lower drug prices.

**Institutional Investors as Universal Owners**

Institutional investors appropriately evaluate their financial performance from the perspective of overall risk and return. No matter how diverse the underlying strategies, an institutional Board or investment committee properly focuses on the overall wealth generation of the whole, as well as its volatility characteristics in the aggregate. Academic theory and empirical research suggests that the primary determinants of these overall financial returns are a Fund’s relative exposures to asset classes such as stocks and bonds, and the long-term returns accruing to those asset classes. Since most institutional investors have the majority of their assets invested in domestic publicly traded equity securities, the long-term total returns of broad-based U.S. stock indices will be a primary driver of fund performance.

The importance to large-scale institutional investors of overall market returns is reflected in their healthy demand for passive, low-cost index investing. Indexed investment funds now account for approximately 30% of bond and equity investments in the U.S. 37 How any one company or industry performs may be of great importance to an active fund manager, but in fact has little influence on the overall financial performance experienced by institutional investors engaged in index investing and other forms of universal ownership.

Given that the long-term total returns generated from the domestic stock market are the most important influence on institutional investor performance, it is important to pay attention to the key driver of those returns, which is the overall profitability of the

economic system. The importance of profits to investors can be seen by breaking the total return from the stock market into its three component parts: 1) the yield from dividends 2) growth in profits and 3) changes in valuation, i.e. a movement up or down in prices for a given level of profits. In the long run the most important of these three drivers of stock market returns is the growth rate of profits, which itself is primarily a function of overall economic expansion.\textsuperscript{38}

This bird’s eye view of institutional investing leads rationally to an emphasis on system-wide, long-term, sustainable profit growth. As some corporate governance experts have argued, “A universal owner owns a small but representative fraction of most of the companies in an economy. Thus its ability to satisfy its fiduciary duties depends heavily on overall macroeconomic efficiency and performance rather than on performance of any particular firm it might own.”\textsuperscript{39}

While fund managers may want to talk to their clients about the prospects for a single company or sector, this in fact should be of little interest to the institutional investor. From the bottom-line perspective of overall fund performance, the profits of any single company or sector are important to the large-scale investor only insofar as they impact on the profits of the whole. As such, the investment consequences of a fall in pharmaceutical company share prices should be approached holistically, incorporating the potentially negative impacts on pharma company profits as well as the potentially positive benefits to the profitability of other publicly traded companies in investors’ portfolios.

Section 3:
Analysis of the Static Case of Drug Price Cuts:
Pharma Pricing as a Zero-Sum Game

In the next two sections we examine the effects of a fall in drug prices on pharmaceutical companies, institutional investors, consumers and employers. While there are several

\textsuperscript{38} See for example, \textit{Triumph of the Optimists}, Dimson, Marsh and Staunton, Princeton University Press: 2002. This is a comprehensive global study of 102 years of asset returns.

prospective outcomes from a reduction in pharmaceutical prices, we find that overall the markdown benefits the universal investor, could have only modest impacts on pharmaceutical profitability and is socially beneficial.

Falling drug prices can be spurred on by changes in supply conditions, shifts in demand, regulatory changes, pressure from stakeholders or the government, or a combination of all of these factors. High levels of profitability in the pharmaceutical sector indicate price-setting power that stems from less-than-competitive markets. Within such markets, cuts in prices spurred on by stakeholders are likely to lead to increases in both supply and demand, as long as prices remain high enough to generate at least a normal level of profit and cover both average and marginal costs. In microeconomic theory, monopolistic pricing creates a “deadweight loss” due to inefficient use of resources. The efficiency benefit from falling prices and higher output leads to greater economy-wide productivity.

We begin our analysis with the simplifying assumption that the drug company responds to stakeholder pressure to cut prices in the context of perfectly inelastic demand, and thus the price cut has no impact on production, investment or on the demand for the drug itself. Under this highly conservative assumption the only immediate impact of a fall in drug prices is to reduce pharmaceutical company revenue and profits. However, that loss of profits represents a direct savings for customers, including the corporate customers that often fund prescription drug benefits. So even with no increase in output, falling prices have broad beneficial impacts.

Under the static and simplifying assumption of finite demand, falling drug prices represent a zero-sum game, where the financial losses to the drug companies are exactly met by the gains to their retail, government, insurance and corporate customers, with no incidental benefits or costs. In Section 4 we provide for greater realism by assuming some price elasticity, and thus explore the potential dynamic impacts of falling drug prices on consumers, producers and – most importantly for this report – investors.
In determining the impact of lower prices on drug manufacturers’ profitability, it is worthwhile reviewing the basic relationships between cost, pricing and profits. As previously noted, prescription drugs have a high fixed cost of development, with a low marginal cost of production. It is in the pharma company’s profit-maximizing interest to expand sales as long as marginal costs are below incremental revenue. Total profits equal total revenue minus the sum of fixed and marginal selling costs. Imagine, for example, that a drug with $1 billion in annual revenue has an annualized amortized cost of development of $200 million, ongoing production/distribution/marketing costs of $300 million, and profits of $500 million. A 10% reduction in prices would, with no impact on supply or demand, reduce revenue and profits by $100 million.

From the narrow perspective of an investor solely exposed to pharmaceutical companies, the pharma company’s management and board, and the pharma stock analyst, this is a clear negative, especially under the static assumption we make in this section that the price cut has no impact on either the supply or demand for prescription drugs. Even assuming no impact on sales or production, however, this narrow perspective on the impact of price reductions is not the end of the story for the broadly diversified institutional investor. Revenues to pharma companies represent costs to consumers who purchase drugs directly, and to the vast majority of publicly traded companies that offer prescription drug benefits. In 2005, approximately 60% of U.S. employers offered health insurance as an employee benefit and 98% of those plans included a prescription drug benefit. Thus a pharma company’s price reduction is mirrored exactly by their customer’s drop in expenses.

The savings from lower drug prices represent additional income elsewhere in the system. If it accrues to insurers, this could benefit investors directly via increased insurance company profitability. If savings are gleaned by the government, the benefits to investors could come via higher levels of consumption, government spending in other non-medical areas, or lower interest rates resulting from smaller federal deficits.

Drug purchases by corporate buyers or their covered employees represent a pure business expense. If $1 billion in purchases becomes $900 million via a price cut, then the impact on business costs and profitability is direct and immediate. Every dollar of lost revenue and profit in the pharma sector becomes a dollar of lowered cost and additional profit for industrial, financial, consumer and technology companies. While profits have been redistributed, the overall profitability of the portfolio has not been negatively impacted, and the impact on the broad-based investor should be nil.

In the case of drugs bought directly by consumers, the dollars saved by lower drug prices have the same impact as a tax cut or a rise in family income. Given the very low savings rates in the United States, this extra discretionary income will largely get recycled as part of consumer demand, again creating revenue and profit within diversified sectors of the American economy. Since only about 15% of American GDP is traded with other countries, most of this income and spending will accrue directly to the US corporate sector. Furthermore, at least some of the leakages abroad would be captured in investor portfolios as revenues and profits accruing to US multinationals or foreign publicly traded corporations.

The above example suggests that lowering drug prices may impact pharma profitability, but within the context of shifting profits from one sector of the economy to the other – in other words it is a classic “zero-sum game” in which losses are largely if not fully offset by gains. If lower drug prices neither spur additional demand nor choke off existing supply, there is likely to be little or no impact on overall corporate profitability in investor portfolios. Given that the buyers of drugs are American corporations and consumers, this is not a surprising result, but one that is generally not considered by investors as they work through the likely impact of lower drug prices on their overall portfolios.

\[\text{\footnotesize\textsuperscript{41}}\text{U.S. Department of Commerce, National Income and Product Accounts, 2004.}\]
Section 4: Analysis of the Dynamic Case for Lower Drug Prices

For simplicity’s sake we assumed in the previous section that lower drug prices would have no impact on consumer demand, but clearly this is not the case. Affordable access to pharmaceuticals is an important public policy issue, and a number of studies have shown that high costs reduce access to drugs – in other words, that demand is sensitive to price. Lower drug prices could modestly increase demand by contributing to reduced co-payments, expanded private insurance coverage, and improvements in state benefits. As the pharma company moves from being a price-maker to a price-taker, output should increase as long as pricing allows for at least a normal rate of profit and remains above marginal and average costs. The economy realizes efficiency gains as the supply of pharmaceuticals expands and the “deadweight” allocation inefficiency from monopolistic pricing is reduced.

Under static assumptions about demand the percentage impact on pharma company revenue from a cut in price from $P_0$ to $P_1$ is $1 - (P_1 / P_0)$. For example, if price went from $10 to $9 then revenue would be reduced by $(1 - .9/10)$, or 10%. If in fact demand grows as prices fall, then profits would not shift from drug companies to other economic sectors on a zero-sum basis. Under the dynamic case the overall impact on revenue is dependent not only on price, but also on demand. Specifically, the percentage impact on revenue is $1 - (P_1 / P_0 * Q_1 / Q_0)$. So if demand rose by 11% as pricing fell by 10%, the impact on overall revenue would be $1 - (.9 * 1.11)$, or 0%. If demand is even more “elastic” than this, then revenues could actually increase as prices fall.

Rex Santerre of the Center of Healthcare and Insurance Studies, University of Connecticut School of Business, found the out-of-pocket own-price elasticity of demand for pharmaceuticals to be inelastic with a point estimate of −0.48. The relatively price-inelastic estimate of −0.48 suggests that a 10 percent decrease in the out-of-pocket real price of prescription drugs increases the quantity demanded of prescription drugs by
about 4.8 percent, *ceteris paribus*. A previous estimate looking solely at elderly populations found an estimated price elasticity of –0.34.

One way that demand could expand as drug prices fall is through a reduction in consumer co-payments. Average co-payments for prescription drugs have risen sharply as employers have responded to steady increases in prices. For instance, between 2000 and 2005, co-payments for preferred drugs rose 69% and those for non-preferred drugs doubled. A reduction in drug prices could stem this trend of higher co-payments, or even lead to lower nominal co-pays over time. As the real cost of co-payments falls as a percentage of employee income, the demand for prescription drugs would increase.

More affordable drugs would also expand access for workers currently left out of the system. The number of companies in labor-intensive industries such as retail offering prescription drug benefits would likely increase. Similarly, coverage within state-sponsored plans might improve. The broader the fall in drug prices, both in terms of companies participating and medicines covered, the more powerful the likely impact on coverage and ultimately demand.

If pharmaceutical companies believed that lower prices would increase their profitability, then they would presumably have already cut prices, and not spend millions of dollars lobbying against government-imposed price cuts. Thus it is unlikely that cuts in pricing would be profit enhancing or even revenue-neutral to the pharmaceutical companies themselves, but it is quite likely that there would be at least some positive revenue impact. This would allow for cuts in drug prices to become a positive-sum game.

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45 See for instance the analysis by Alan Sager and Deborah Soclar that if more than 44.53% of prescription drugs re-imported from Canada to the U.S. are new prescriptions, U.S. drug makers’ profits actually increase from re-importation despite the lower prices paid: Alan Sager and Deborah Soclar, “Do Drug Makers Lose Money on Canadian Imports?” Data Brief Number 6, April 15, 2004.
overall: having a smaller negative impact on drug industry profits than it does on profitability elsewhere in the economy.

The dynamic impacts of lower drug prices could extend well beyond the direct economic benefits of higher utilization. Better access to needed pharmaceuticals would result in a healthier, more productive workforce. The productivity losses from employee health problems are significant, and improved medical care would increase production, revenue and profitability in a broad cross-section of industries.46

It is estimated that the lost economic output resulting from the combination of not working, sick days, and inferior productivity on the job totaled $260 billion in 2003 – roughly 2.4 percent of gross domestic product.47 Unsurprisingly, workers without health benefits or with minimal health benefits are less productive on the job than those with comprehensive benefits.

*Health Economics* reported that the net benefits to employers from having workers take prescription medicines for their chronic illnesses are substantial and result because prescription medications substantially lower absenteeism among chronically ill workers.48 As a more specific example, the *Journal of Occupational and Environmental Medicine* looked at the economic toll of depression. They found it is high relative to that associated with other acute and chronic illnesses, and that this economic burden is disproportionately attributable to indirect costs, such as absenteeism from work. Absence

47 Karen Davis, p. 4.
from work directly impacts both patients and their employers, and treatment of the disease clearly lessens this burden.\textsuperscript{49}

Lowering the price of pharmaceuticals provides consumers and employers an opportunity to allocate more resources towards health, while at the same time diverting resources to other goods and services. This investment has the potential to yield long-term economic payoffs for individuals, families, employers and the economy as a whole due to the improved health and productivity of the workforce.\textsuperscript{50} Affordable prescription pharmaceuticals help guard the health of Americans and sustain a healthy American economy.

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\textbf{Section 5:}\\
\textbf{Implications and Conclusions}
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Institutional investors have an interest in seeing the broad universe of American business increase in profitability, and be well positioned to sustain profits over an extended time horizon. Insofar as that happens, the increase in profitability of any particular holding is less important. Our finding is that lower pharmaceutical costs have the potential to increase the profitability of American business, with varying possible impacts on the pharmaceutical sector. There are a number of implications for institutional investors.

The scenarios above imply that lower drug prices either improve employee access to health care, or reduce corporate health expenditures, or both. Those seem to us fairly safe assumptions. We also note, but did not explore, the knock-on benefit lower drug prices would have for some institutional investors based on their role as health care purchasers. Pension funds and health & welfare plans, for example, would see pharmaceutical spending decrease or coverage for beneficiaries increase. The impact on these types of institutions would be similar to the impact on other purchasers of healthcare such as

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\textsuperscript{50} Ibid.
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corporations. Further research could explore benefits coming to institutions acting as both universal investors and health care purchasers.

But what if the institutional investor is not a health care purchaser, and the impact on pharmaceutical profitability from lower drug prices is negative? (In our analysis, we identify this scenario as one of several possible outcomes). Even in this “worst-case scenario, action to reduce drug prices is nonetheless consistent with the fiduciary duty of institutional investors. Fiduciaries owe no duty to other stockholders, or to the companies in which they invest, but only to their own beneficiaries. And lower drug prices would, as we conclude above, have a neutral or even positive impact on the overall portfolio.

To summarize: the impact of lower drug prices on investors heavily exposed to pharmaceuticals could be slightly negative, or could approach neutral if lower prices boosted demand significantly. The impact of lower drug prices on universal owners is likely to be either neutral or positive, and universal owners who also purchase health care services for their beneficiaries may see additional benefits from lower drug prices. For the majority of institutional investors, then, the downside risk of pursuing lower drug prices is contained, and quite likely to be exceeded by the potential upside.

There are various ways fiduciaries can encourage pharmaceutical firms to move toward drug price restraint. These include:

- Increasing shareholder pressure on pharmaceutical companies to moderate drug prices.
- Improving the governance structure of companies to enhance risk management and long-term planning.
- Taking broader public policy positions which address the profitability drag health care costs represent for American business.

For several years, the authors have been affiliated with the Interfaith Center on Corporate Responsibility (ICCR), which is one of several investor groups practicing active
shareholder strategies. ICCR and several state pension funds have pursued engagement strategies designed to directly or indirectly reform drug pricing. These include seeking reports on pricing from pharma companies, addressing the importation of drugs from Canada or Europe and improving governance performance. Additional institutional investors may want to engage in similar activities and vote proxies in favor of resolutions addressing high drug prices. This would be an opportunity to improve investment performance across their portfolio via changes at pharmaceutical firms.

Institutional investors could also seek improved public health care policy. We have not considered public policy solutions in this article, but we find it puzzling that - given the immense costs health care represents for the private sector - institutional investors have been absent from the public policy arena. Any successful policy solution will accomplish the dual benefits of lowering health care costs and increasing access to health care, with the attendant economic and public health benefits.

We believe that public policy solutions to the health care crisis are urgently needed. As long as corporations are responsible for health care coverage, it is often in the interests of firms to provide the coverage necessary to attract talented employees and keep them productive. However, there is an emerging consensus that health care costs place American firms at a competitive disadvantage. Across the industrialized world, health care coverage is a public sector responsibility. It is in the interests of most firms, and institutional investors, for the United States to reform health care and shift costs from the private to the public sector.

Until then, we conclude fiduciaries can rightly pursue drug price moderation policies at pharmaceutical companies, provided they are following a ‘universal owner’ investment strategy.