NBER WORKING PAPER SERIES

# WHAT DO SHAREHOLDERS WANT?
# CONSUMER WELFARE AND THE OBJECTIVE OF THE FIRM

Keith Marzilli Ericson

Working Paper 32064
http://www.nber.org/papers/w32064

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
January 2024, Revised March 2024

I thank Angie Acquatella, Ryan Bubb, Florian Ederer, Tal Gross, Michael Kopel, Nalin Kulatilaka, Megan MacGarvie, Jim Rebitzer, Michael Salinger, and Amanda Starc for helpful conversations. I thank Boston University's Impact Measurement and Allocation Program for funding. The views expressed herein are those of the author and do not necessarily reflect the views of the National Bureau of Economic Research.

What Do Shareholders Want? Consumer Welfare and the Objective of the Firm
Keith Marzilli Ericson
NBER Working Paper No. 32064
January 2024, Revised March 2024
JEL No. D21,D91,G30,L21,M14

**ABSTRACT**

Shareholders want a firm's objective function to place some weight on consumer welfare, motivated by both self-interest and altruism. Firms have a unique technology for improving consumer welfare: lowering inefficient price markups. Optimal pricing formulas can account for shareholders' marginal rate of substitution between profits and consumer welfare. Calibrations show shareholders should place non-trivial weights on consumers. A survey experiment with a representative sample shows how shareholders would vote on resolutions giving strategic guidance to firms. Only 7% would vote for pure profit maximization. The median individual is indifferent between $0.44 in profits or $1 in consumer surplus.

Keith Marzilli Ericson
Boston University Questrom School of Business
595 Commonwealth Avenue
Boston, MA 02215
and NBER
kericson@bu.edu

A data appendix is available at http://www.nber.org/data-appendix/w32064

# 1 Introduction

What should firms maximize? Maximizing profits, or shareholder financial value, is often assumed to be the objective of the firm, with Friedman (1970) classically arguing that "the social responsibility of business is to increase its profits." However, corporate social responsibility advocates argue that firms should have other environmental, social, and governance (ESG) objectives, and still others argue that firms should consider the interests of various stakeholders in addition to shareholders.

Most economic theory assumes shareholders want to maximize financial value (e.g. Shleifer and Vishny (1988)).[1] However, shareholders have various motivations, and may care directly about various environmental, social, and governance outcomes. Thus, Hart and Zingales (2017) argue that firms should maximize shareholder *welfare* instead. To act in the interest of shareholders requires understanding shareholders' objectives.[2]

This paper examines the role of consumer welfare in the objective of the firm. I begin by developing a model showing why shareholders may place some weight on consumer welfare. First, shareholders are often consumers themselves who benefit directly from lower prices. The importance a shareholder places on consumer welfare relative to profits depends, in part, on the ratio of the share of the firm's output they consume to the share of the firm that they own. Second, shareholders may directly value the welfare of other consumers, as a large literature on social preferences indicates that people care about others and increasing the total pie for everyone (e.g. Fisman et al. (2007), Rotemberg (2014)). More altruistic social preferences also increase shareholders' desired weight on consumer welfare.

Including a weight on consumer welfare in the firm's objective function changes how to optimally set prices in imperfectly competitive markets. The key parameter is the marginal rate of substitution between profits and consumer welfare in the firm's objective function, which I term $\lambda$. I show that a firm that was previously profit-maximizing can implement optimal pricing accounting for the weight on consumer welfare by reducing the Lerner index (markups as a percentage of price) by approximately $\lambda$ percent. For instance, if a \$1 increase in profits is equivalent to a \$10 increase in consumer welfare in the shareholders' desired objective function, then the weight $\lambda = 0.1$, and markups as a percentage of price should be about 10% lower relative to the profit-maximizing level.

The structure of profit and utility maximization, together with estimates of the own-

[1] This assumption builds on the Fisher separation theorem (Fisher 1930) and subsequent literature showing conditions under which shareholders would unanimously prefer firms to maximize profits (Radner 1974; Dreze 1974; Grossman and Hart 1979; DeAngelo 1981).

[2] Even in the stakeholder theory of the firm (Freeman 1984; Donaldson and Preston 1995; Magill et al. 2015), the preferences of shareholders are relevant, although other stakeholders' interests would also be considered.

price elasticity of demand, allows us to derive the resulting impact on profits and consumer surplus. When firms reduce markups they both transfer money to existing consumers and induce new, socially efficient, purchases. As a result, the gain in consumer welfare is larger than the loss in profits. The gain, relative to the loss, is particularly large when considering changes near the profit-maximizing price, where a small reduction in price has no first-order impact on profits (because it induces more sales) but does have a first-order impact on consumer welfare. Thus, the model shows why shareholders would want to achieve their objectives via firms, rather than taking profits and donating to charity: firms have access to a unique technology for improving consumer welfare: lowering inefficient markups.[3]

Numerical calibrations in a stylized model show that implementing $\lambda = 0.01$ in imperfectly competitive markets would increase consumer surplus by about 2% of profits, while lowering profits by only about 0.01%. I provide estimates of the gains to consumer surplus and cost in lost profits under varying elasticities of demand and desired $\lambda$. For instance, using Allcott et al. (2023)'s estimates of average elasticities for grocery chains, I estimate that implementing $\lambda = 0.1$ would reduce profits by 1% but increase consumer surplus by 21% of original profits.

I first show plausible weights that a non-altruistic shareholder might attach to consumer welfare using aggregate data on consumption and stock ownership. The levels are substantial for most shareholders, though since stockholding is more concentrated than consumption (Gans et al. (2019)), average $\lambda$ weighted by share ownership is less than the simple average across people. Under stylized assumptions of a diversified portfolio and diversified consumption, a representative individual from the highest income decile would have $\lambda = 0.38$. Lower income deciles would have much higher $\lambda$.

I then use choice experiments to directly elicit shareholders' desired weights on consumer welfare. I ask how shareholders would vote on resolutions giving strategic guidance to firms about what objective function to pursue. Specifically, I elicit how they tradeoff profits versus two other objectives: consumer surplus and environmental benefits. These types of resolutions give general guidance to firms, and do not require specific knowledge from shareholders about the relative costs and benefits of particular actions. In contrast, existing shareholder resolutions typically ask firms to take some specific action, such as releasing information about environmental impact, improving working conditions, or reducing managerial rent-seeking (see Renneboog and Szilagyi (2011)). These require some knowledge of issue-specific costs and benefits for shareholder votes to effectively express their preferences.

I examine an approximately representative sample of Americans recruited from the

[3] A second reason shareholders would want to act via the firm is that increasing consumer welfare has aspects of public goods provision, as many individuals benefit. Free riding will lead to underprovision of public goods, but when the firm reduces profits to contribute to the public good, it effectively commits all shareholders to contribute (Morgan and Tumlinson 2019).

RAND American Life Panel. Participants indicate how they, as shareholders, would vote in a choice between different pricing strategies: a pricing strategy that maximizes profits, and a pricing strategy that yields lower profits but varying amounts of gains to consumers.[4] The median desired weight on consumer surplus is about $\lambda = 0.44$, with substantial heterogeneity across individuals. Of people identified as owning stock, the median $\lambda = 0.27$. Only 7% of participants vote for firms to be purely profit maximizing. These values are notable, as implementing even much smaller values $\lambda$ would entail large benefits to consumers. To put these estimates in context, I also give participants a similar choice between reducing environmental harms versus increasing profits. The resulting estimates show that the desired weight on consumer welfare and the environment is similar for stockholders, but that non-stockholders place a higher weight on environmental benefits.

Even though consumer welfare has not played a prominent role in the literature on corporate social responsibility, these results indicate that how firms affect consumers is a key dimension of corporate impact, and that shareholders care about that impact. This research is complementary to recent research by Allcott et al. (2023), which for various firms and industries, examines externalities, internalities, and impact on consumer surplus if a firm were to exit the industry. They conclude that consumer welfare is one of the most important dimensions of corporate impact. Their work is complementary to this paper: they show that profit-maximizing firms have a major impact on consumers, while this paper shows how shareholders would like firms to behave toward consumers and that firms can deliver large benefits to consumers at low costs in terms of profits.[5]

These results open new questions. Though consumer welfare is valued by shareholders, it unclear whether firms currently account for this preference in their pricing. The active debate over whether shareholder financial value or shareholder utility should be the firm's objective ((Hart and Zingales 2017; Bartlett and Bubb 2023)), as well as over what is legally permissible, could limit the willingness of firm to implement such preferences. These questions about whether firms do and should implement shareholder preferences echo those raised by the common ownership literature, which notes shareholders should want firms to broaden their focus from maximizing their own profits to maximizing the profits of their owners' entire portfolio. There is active research into the extent to which common ownership

[4] While choices were unincentivized, they did not require participants to acquire data but express their own objectives. Individuals are also unlikely to be the pivotal voter in actual votes.

[5] Ederer and Pellegrino (2023) also model how managers behave when they consume some of the goods that their firms produce, which would lead them to place some weight on consumer surplus.

affects prices[6] as well as into proposed legal and regulatory responses.[7]

## 1.1 Related Literature

This paper builds on Hart and Zingales (2017, 2022), which argue that shareholder welfare, rather than financial value, is the legitimate objective of the firm. Morgan and Tumlinson (2019) also examine theoretically the implications of maximizing shareholder welfare, but in the general context of public goods provision.[8] The theoretical results in this paper focus on how firms affect consumer welfare through prices. In contrast to the unknown structure of various public good provision technologies, the structure of profit and utility maximization allows me to derive sharper results on how implementing shareholder preferences affects consumers and profits. In particular, I identify a shareholder preference parameter and use that to provide pricing guidance to the firm.

My model of shareholders builds on previous literature that examined self-interested owners as consumers. Classically, Farrell (1985) showed that self-interested shareholders would want firms to set prices to maximize social welfare in an egalitarian economy that has homogeneous consumers all owning an equal share of all firms. Gans et al. (2019) extended these results to include consumer heterogeneity in ownership share and showed conditions on the largest ownership share that would induce the median shareholder to vote to set the socially efficient price. I further extend these results to include both social preferences and heterogeneity in how much individuals consume.

The literature on corporate social responsibility (CSR) is vast. In the taxonomy of Kitzmueller and Shimshack (2012), a firm can engage in CSR activities because they have strategic motivations to do so (e.g. these activities may raise profits by increasing consumer demand or lowering the cost of attracting employees), agency problems (managers pursue objectives other than profits over the wishes of shareholders), or not-for-profit motivations (shareholders desire the firm to undertake CSR activities independently from their impact on profits).[9] This paper's model examines firms engaged in not-for-profit CSR, as shareholders

[6]For instance, Azar et al. (2018) and Backus et al. (2021), building on the framework of Rotemberg (1984), argue that overlapping ownership leads firms to include profits of other firms in their objective function. Antón et al. (2023) find that indeed, top managers experience lower performance incentives with more common ownership. Azar and Vives (2021) examine how ownership structure will affect employment in imperfectly competitive labor markets. For a more detailed review of the literature on common ownership, see Schmalz (2018).

[7]See discussion in US Submission to OECD Hearing (2017) and proposals in Posner et al. (2016).

[8]Also related are Magill et al. (2015) and Fleurbaey and Ponthière (2023), who examine firms run in the interest of stakeholders (rather than solely shareholders) and show that such a firm will not fully exploit its market power.

[9]Yet another literature examines the strategic incorporation of CSR motives into the objective function–essentially how committing to CSR might strategically benefit the firm. For instance, both Planer-Friedrich

deliberately choose to sacrifice profits to promote consumer welfare, or what Benabou and Tirole (2010) describe as "the delegated exercise of prosocial behaviour on behalf of stakeholders".

Other work has examined the goals of stockholders in corporate governance. Existing data on voting is not very informative about individual shareholder preferences towards consumer welfare, as I am unaware of any shareholder votes on the extent to which firms should promote *consumer* welfare alongside profits, rather than other environmental, social, or governance objectives. Moreover, few individual shareholders actively vote and information provision is low. Institutional investors such as mutual funds vote, but may have objectives that differ from those of the ultimate individual account owners, or may not know their ultimate asset owners' preferences.[10] However, Bubb and Catan (2022) document how different mutual funds vote their shares, showing variation in objectives between funds and identifying a subset of funds that vote for corporate governance reform. However, it is unclear whether these funds or other institutional investors are representing their individual shareholders' preferences. Similarly, Agrawal (2012) shows that union pension funds appear to promote the interest of union labor objectives over and above shareholder welfare alone, but it is unclear whether that is consistent with the preferences of individual claimants on those pension funds.

This paper focuses on the preferences of how shareholders would like the firms they currently own to behave, which is distinct from the portfolio choice decision: what firms individuals choose to invest in. Broccardo et al. (2022) develop a model that compares the relative efficacy of these two methods (votes versus exit) of shareholder influence. Empirically, Riedl and Smeets (2017) find that investors hold socially responsible mutual funds for both social preferences and reputational reasons, and that investors are willing to forgo financial performance to invest in accordance with their social preferences, suggesting there is a role for "non-profit" CSR motives. Hartzmark and Sussman (2019) find that low sustainability rankings of mutual funds led to an outflow of investment. Finally, Bonnefon et al. (2022), Heeb et al. (2023), and Hirst et al. (2023) conduct lab experiments examining how investors value attributes of investments apart from their financial return.

and Sahm (2020); Wirl et al. (2013) examine how firms would choose to commit to including CSR motives in their objective function before engaging in competition. An empirical debate also exists over the extent to which social components are instrumentally useful in predicting firms' financial performance. See Edmans (2011) on employee satisfaction, Edmans et al. (2023) on diversity, and Berchicci and King (2022) and Khan et al. (2016) on sustainability.

[10]For a discussion of shareholder voting see Yermack (2010). Hart and Zingales (2022) discuss the legal challenges shareholders face in getting management to implement their preferences.

# 2 Simple Model

In this section, I develop a simple one-period model with a single monopolistically competitive firm and heterogeneous individuals who are potentially both shareholders and consumers of the firm's product. Individuals care about their own consumption utility, and hence benefit from higher firm profits via increased budgets, as in Farrell (1985). However, individuals also may care about other individuals and have social preferences in the form of altruism.

## 2.1 Individuals: Shareholders and Consumers

There is a large number $N$ of individuals. Each individual $i$ owns fraction $\alpha_i$ of the firm, with ownership shares summing to one: $\sum_i \alpha_i = 1$ and $\alpha_i \geq 0$.

Individuals have consumption utility that is quasi-linear in the good produced by the firm and the numeraire. Hence, consumption utility for individual $i$ is given by $x_i + v_i(q_i)$ where $x_i$ is their consumption of the numeraire, $q_i$ is their quantity of the good consumed, and $v_i()$ their valuation of the good. The function $v_i$ can be heterogeneous across individuals and is continuous, increasing, and concave. Consumption is funded from background income $y$ (which we can normalize to be zero without any loss of generality) and their share of the firm's profits, $\alpha_i \Pi$. Facing price $p$ for the good produced by the firm, the budget constraint is $pq_i + x_i \leq y + \alpha_i \Pi$. For simplicity, assume that the individual does not account for the effect of their choice on profits when choosing how much to consume.

Individuals may also have social preferences, which here takes the form of some weight $\theta_i \geq 0$ that they place on the consumption utility of other individuals– a form of altruism. This altruism weight attaches to other consumers' surplus from consuming both the firm's good and the numeraire (and hence profits).[11]

Define the individual $i's$ consumer surplus from purchasing the firm's good as $CS_i = v_i(q_i) - pq_i$, and then total consumer surplus as $CS = \sum_i CS_i$. Then, let $\gamma_i = \frac{CS_i}{CS}$ be individual $i$'s share of consumer welfare. The social preference component of utility is then $\theta_i(\Pi + CS)$.[12]

An individual's utility can then be expressed as the sum of their weights on profits and on consumer surplus, which depends on their ownership share $\alpha_i$, their share of consumer

[11]Social preferences can take many different forms (see e.g. Charness and Rabin (2002)). The weight placed on others' utility can depend on who the others are, actions they have taken, and the context in which they interact. Social preferences may also take the form of choosing to adhere to context-specific norms. For a review of various models of caring about the welfare of others see Rotemberg (2014).

[12]This assumes that $\theta_i$ multiplies all of consumer surplus, rather than $CS - CS_i$, which simplifies the expression and is a good approximation with a large $N$ of consumers.

surplus $\gamma_i$ and their social preferences $\theta_i$ as follows:

$$u_i = (\alpha_i + \theta_i)\Pi + (\gamma_i + \theta_i)CS \tag{1}$$

Thus, an individual is indifferent between \$1 of additional consumer surplus and $\$\lambda_i \equiv \frac{\gamma_i+\theta_i}{\alpha_i+\theta_i}$ of additional profits.[13] This parameter $\lambda$ is what will govern shareholders' preferences about how firms should tradeoff profits versus consumer surplus.

Note that for self-interested individuals ($\theta = 0$), when an individual's ownership share equals their consumer surplus share ($\alpha_i = \gamma_i$), then $\lambda_i = 1$ and they treat profits and consumer surplus equally, a result established by Farrell (1985) and Gans et al. (2019). However, note that $\lambda$ can also approach 1 as the weight $\theta_i$ on social preferences gets larger relative to ownership share $\alpha_i$.

## 2.2 Shareholder Heterogeneity

Each shareholder would like firms to optimize a weighted sum of profits and consumer surplus, but, as shown in Equation 1, that weight varies between shareholders. Given this heterogeneity, there will be disagreement about the desired weight on consumer surplus in the firm's objective function.

I assume that shareholders induce some marginal rate of substitution between profits and consumer surplus $\lambda$ in the firm's objective function, but do not take a stand on what that value is. It could simply be that of the median voter among the shareholders. However, shareholders can use a variety of forms of influence, such as lobbying, to affect a firm's strategic direction. A common alternative to the median voter model is to assume that the firm resolves disagreements among shareholders as a social choice problem, by placing Pareto weights (often assumed to be proportional to ownership share) on the profits of each investor and maximizing the weighted sum of their investors' profits. (E.g. Backus et al. (2021)). Regardless of what value is chosen, as in Morgan and Tumlinson (2019), I assume that the shareholders write a contract to incentivize managers to maximize their preferred objective function.

[13] Note that the theory assumes $\lambda$ does not vary depending on the firm's choice of price $p$. Ownership share $\alpha_i$ does not depend on $p$, and $\theta$ also will not vary with $p$ in most social preference models. An individual's share of consumer welfare $\gamma_i$ may depend on price depending on the form of preference heterogeneity. $\frac{d\gamma_i}{dp} = \frac{1}{CS}[-q_i + \gamma_i \sum_i q_i]$, which equals zero so long as the individual's share of consumer welfare is also their consumption share.

## 2.3 The Firm

The firm chooses linear price per unit $p$. It faces a demand curve $Q(p)$ derived from individual demand, and has a constant marginal cost $c > 0$ but no fixed costs. Profits are given by $\Pi = (p - c)Q(p)$.

The firm sets price to maximize the objective function:

$$\widetilde{\Pi} = \Pi + \lambda CS \tag{2}$$

for some marginal rate of substitution $\lambda$, where the firm is indifferent between \$$\lambda$ of additional profits and \$1 of additional consumer surplus. I assume that that demand $Q$ is continuous and gives a unique optimum price for each $\lambda \in [0, 1]$, and that the second order conditions are satisfied. The elasticity of demand at a point is denoted by $\eta \equiv -\frac{Q'}{Q}p$.

## 2.4 Results and Implications

### Price Setting Behavior Implemented by Shareholders

The following proposition shows that the optimal price shareholders will want firms to choose is a modification of standard markup pricing.

**Proposition 1.** *The price that maximizes the objective function in Equation 2 is* $p^* = c + (1 - \lambda)\frac{Q(p^*)}{-Q'(p^*)}$*, implying that the Lerner index at the optimal price is*

$$\frac{p^* - c}{p^*} = (1 - \lambda)\frac{1}{\eta}. \tag{3}$$

*Proof.* The first order condition is $\frac{d\Pi}{dp} + \lambda\frac{dCS}{dp} = 0$. We have $\frac{dCS}{dp} = -Q$, as $\frac{dCS}{dp} = \sum_i v_i' q_i' - q_i - pq_i'$, and by the envelope theorem, we know that $v_i' - p_i = 0$ for each individual $i$. Then, the FOC becomes $\frac{d\Pi}{dp} = \lambda Q$, which then gives $p^*$. A simple rearrangement yields the Lerner index. $\square$

The formula for optimal price in Equation 3 nests the profit maximizing case when $\lambda = 0$. On the other end of the spectrum, when $\lambda = 1$, the firm engages in socially efficient marginal cost pricing. Note also that the impact of implementing $\lambda$ on markups is larger the more inelastic demand is.

Note that the elasticity of demand will not generally be constant. That is, $\eta$ evaluated at $p^*$ will not generally be the same as $\eta$ evaluated at the profit maximizing price. However, in the special case of (or approximation with) constant elasticities, Proposition 2 provides a simple way of describing how to implement shareholders' desired objective function: a firm that was previously setting the profit maximizing price should "lower its markup as a percentage of price by $\lambda$".

**Proposition 2.** *Consider a firm that was formerly profit-maximizing but now implements $\lambda > 0$ in its pricing as in Proposition 1. Suppose the elasticity is constant in the region between the profit maximizing price $p^*_{\lambda=0}$ and $p^*$. Then, the change in the Lerner index is*

$$\frac{p^* - c}{p^*} - \frac{p^*_{\lambda=0} - c}{p^*_{\lambda=0}} = -\lambda \frac{1}{\eta}.$$

*and the change in price as a percentage of the profit maximizing price is given by*

$$\frac{\Delta p}{p^*_{\lambda=0}} = \left( -\frac{\lambda}{\lambda + (\eta - 1))} \right)$$

*Proof.* The change in the Lerner index follows immediately from Proposition 1 given a constant $\eta$. To calculate $\Delta p$, note that Proposition 1 also implies that that for any $\lambda$, $p^* = c\frac{\eta}{\eta-1+\lambda}$. Then, $\Delta p = c\left(\frac{\eta}{\eta-1+\lambda} - \frac{\eta}{\eta-1}\right)$, which gives $\frac{\Delta p}{p} = \left(-\frac{\lambda}{\lambda+(\eta-1))}\right)$. $\square$

The proposition also shows that the percentage change in prices (and hence quantities) is a function of the elasticity $\eta$, with smaller percentage changes in markets where the elasticity is higher and hence markups were lower to begin with.

**How costly is it to account for shareholder utility?**

The next proposition shows if we begin from profit maximization, adding some weight on consumer welfare has no first order effect on profits. However, doing so yields a first order increase in consumer welfare.[14] That is, there are gains to all shareholders (so long as they have some positive $\gamma_i$ or $\theta_i$) from lowering markups slightly relative to the profit-maximizing level.

**Proposition 3.** *Adding a small amount of weight on consumer surplus (moving from $\lambda = 0$ to $\lambda$ positive) has no first order effect on profits, but does create a first order improvement on consumer welfare.*

*Proof.* The absence of a first order effect on profits follows from the envelope theorem. Define optimally chosen $p^*$ as a function of $\lambda$, so $\frac{d\Pi}{d\lambda} = \frac{d\Pi}{dp}\frac{dp}{d\lambda}$. Recall that $\frac{d\Pi}{dp} = 0$ when evaluated at the profit maximizing price. We can sign $\frac{dp}{d\lambda} < 0$ by taking the first order condition that defines $p$ in Proposition 1 and differentiating with respect to $\lambda$, giving $\frac{dp}{d\lambda} = \frac{Q}{(p-c)Q''+(2-\lambda)Q'}$, where the denominator is the second order condition for the firm's objective function, which is negative. Finally, note that $\frac{dCS}{d\lambda} = \frac{dCS}{dp}\frac{dp}{d\lambda} = -Q(p)\frac{dp}{d\lambda} > 0$. $\square$

[14] This is similar in spirit to Akerlof and Yellen (1985) result on near-optimality of firm price setting.

**Robustness**

The optimal pricing results, here developed for a simple static setting, can be extended to other models. First, consider a multi-period model in which the profit-maximizing firm's price in the current period is below the static profit-maximizing price. For instance, the firm could be engaging in invest-then-harvest pricing and pricing low to increase future market share (Klemperer (1995); Ericson (2014)), or the firm could be engaging in limit pricing and pricing low to deter entry (e.g. Milgrom and Roberts (1982); Wilson (1992)). Appendix Section A.1 lays out a general form of such a model, in which a profit maximizing firm maximizes present discounted profits, accounting for both how current price affects extraction of profit today and expected future profits. Firms face no first order loss in the present discounted value of profits from small declines in price, just as in the static model. When the firm places a weight $\lambda > 0$ on consumer surplus, the optimal price markup over consists of two components: the standard markup term, multiplied by $(1 - \lambda)$ as in Proposition 1, plus a new term accounting for the effect of today's price on expected future profits and expected future consumer surplus.

Second, take a model in which the firm invests today to create a new product (e.g. pharmaceutical development). Appendix Section A.2 develops a simple such model in which a firm chooses both investment and price. The results for optimal price follow those in Proposition 1; however the level of investment with $\lambda > 0$ can be higher or lower than under profit-maximization depending on how the firm values the creation of consumer surplus from the invention of the new product.

## 2.5 Illustration: Effect of Implementing $\lambda$ on Profits

The theoretical results show that the impact of implementing $\lambda > 0$ at a formerly profit-maximizing firm depends on the elasticity of demand faced by the firm. To illustrate these results, I take elasticity estimates for two industries from Allcott et al. (2023), which estimate own-price elasticities for various firms. The average automobile maker in their data has an $\eta = 3.6$, while the average grocery chain has $\eta = 1.9$.

I assume a constant elasticity of demand curve $Q(p) = \left(\frac{p}{1-1/\eta}\right)^{-\eta}$, and use this demand curve to calculate the exact change in quantity. I calculate the change in consumer surplus approximated with a linear demand curve for the familiar triangle form: $\Delta CS = -\Delta p Q - \frac{1}{2}\Delta p \Delta Q$, where $Q$ is the profit maximizing quantity and $\Delta Q$ the change in quantity between that and $Q(p^*)$. As in the model, firms have constant marginal costs and no fixed costs.[15]

[15] Adding fixed costs would change the level of profits but would not change the ratio of lost profits to gains to consumers for a given price change.

Based on this set up, percentage changes in prices, quantity, profits, and consumer surplus do not depend on the scale of the industry or the level of marginal costs.

Table 1 summarizes the results. In each case, implementing $\lambda$ entails that same percentage decline in the Lerner index (e.g. a $\lambda = 0.1$ entails a 10% decline in the Lerner index relative to that of profit maximization). The percentage change in price also depends on the elasticity of demand, can be calculated using Proposition 2, and is shown in the table. The demand system then gives the corresponding change in quantity.

Consistent with Proposition 3, the impact of a small $\lambda = 0.01$ has minimal effects on profits (about a 0.01% decline) regardless of the elasticity of demand, and has an impact on consumer surplus that is two orders of magnitude higher (1.4-2.1% of original profits, depending on the elasticity). Note that the firm sets the tradeoff between consumer surplus and profits to be $\lambda$ at the margin. However, the overall ratio of the increase in consumer welfare relative to profits is much larger, as the early price increases deliver large social benefits for small profit costs.

A larger $\lambda = 0.1$ is more costly in terms of profits (about a 1% decline), but delivers much larger consumer benefits (14-21% of original profits). The absolute social welfare gain is larger, though the ratio of consumer gains to profit loss is only about 20.

Finally, $\lambda = 0.25$ would entail a decline in profits of about 4.8% to 6.5% but consumer surplus would increase by 38%-54% of original profits. For both industries, the ratio of consumer gain to lost profits is about 8 for this value of $\lambda$.

## 2.6 Discussion: Calibrating Values of $\lambda$

Before turning to survey experiments to elicit shareholders' desired rate of transformation between profits and consumer surplus, theory plus existing data can illuminate what types of values for $\lambda$ are plausible based on the underlying distribution of ownership shares, consumption shares, and social preferences.

I make rough assumptions that provide a reasonable approximation for how an owner of a diversified index fund owning the entire economy might instruct the fund manager to vote on their behalf. First, to calibrate ownership share $\alpha$, I implicitly assume that individuals are fully diversified and each share $\alpha_i$ of each firm.

To calibrate $\gamma$, I assume shareholders vote on a general weight on consumer welfare, rather than a product-specific pricing strategy, and so examine individuals' overall share of consumption.[16]

[16] The value of $\gamma$ will depend on the degree of specificity with which shareholders express their preference. A self-interested shareholder would only like to include consumer welfare in the objective function for the particular products they purchase. However, the ways in which shareholders induce the firm to change its

In the absence of any social preference motivations, $\lambda = \frac{\gamma_i}{\alpha_i}$. To hone in on who might be close to the median stockholder, I consider a representative individual from the top decile of income. The top decile of income owns 60% of stock (2019 Survey of Consumer Finances, see Appendix Table A1 for details). The best proxy for $\gamma_i$ is not income but consumption. While the Survey of Consumer Finances does not measure total consumption, we can get estimates from the 2019 Consumer Expenditure Survey. Appendix Table A1 shows that the top decile of income consumes 23.3 percent of total consumption.

Under very stylized assumptions that individuals spread their stock holdings and consumption equally across all firms, and that individuals in the top decile are homogeneous, this would give $\alpha = 0.6$,$\gamma = 0.23$ and estimate of $\lambda = \frac{0.23}{0.60} = 0.38$ even in the absence of any social preference motivation.

Next, turn to the value of $\theta$. What weight might an individual place on other's outcomes relative to their own? A recent estimate comes from Ottoni-Wilhelm et al. (2017), who estimate a structural model from lab experiment decisions and find an altruism weight of about 0.6 (plus additional weights on the warm glow of giving). However, social preference motivations depend on a variety of factors, including social connection to the recipient, decision stakes, saliency of the decision, and availability of excuses. Hence, there is concern that lab-based estimates might overestimate social preference motives in the field. Conservatively adjusting that weight downward to $\theta = 0.2$, such that an individual is indifferent on the margin between \$1 of personal benefits and \$5 of social benefits, we have $\lambda = \frac{0.23+0.20}{0.60+0.20}$, yielding an $\lambda = 0.54$ for the top decile of income.

Finally, consider lower-income individuals. Since the distribution of stock holding is more skewed than the distribution of consumption (Gans et al. 2019), this means that many individuals will find their consumer role more important than their owner role and have $\gamma_i > \alpha_i$ and so a desired $\lambda > 1$. The 40th-60th percentile of income has about 6% of total stock ownership and 17% of total consumption, giving their self-interested desired $\lambda = 2.9$, in which they prefer firms to transfer profits to consumers.

While these calculations are only rough approximations, they show that the weights that shareholders might place on consumer welfare are not trivially small. Moreover, these results show the large degree of shareholder heterogeneity.

## 2.7 Extension: Price Setting and Environmental Externalities

This section discusses how consumer welfare concerns interact with environmental concerns that are often part of corporate social responsibility initiatives. Enrich the previous section's

objective function are not this specific, and individuals will have uncertainty about what they will buy and thus what share of their expenditure is at a particular firm.

model to include an externality[17] that increases linearly in total quantity $Q$, and that reduces each individual's utility by $e$. Allow the firm to engage in abatement activities that reduce damage by $a$ per unit produced at cost $s(a)$ per unit, with $s' \geq 0, s'' > 0$. That is, there is a convex cost of abatement per unit. Shareholders may care about the externality due to both altrusitic and self-interest reasons.

Shareholders can then induce the firm to maximize an objective function that also now includes a concern for the negative externality (weighted by $\omega$) in addition to profits and consumer surplus. That is, the firm chooses price and the level of abatement to maximize: $\Pi + \lambda CS - \omega(e-a)Q$, where $\Pi = (p - c - s(a))Q$.

Given this objective function, the optimal choice of price $p^*$, given optimal abatement $a^*$, will be:

$$p^* = c + s(a^*) + \omega(e - a^*) + (1-\lambda)\frac{Q}{-Q'}$$

The additional pollution externality acts like a cost shifter: the harm net of abatement is treated raises price by $\omega$ , and the costs of abatement are also accounted for.

This simple model allows some new insights. First, in the absence of abatement technology, prices should be set below the profit-maximizing level if and only if the weighted impact of harm from externalities is less than that of markups: $\omega e < \lambda \frac{Q}{-Q'}$. Whether this condition holds depends not merely on shareholder attitudes to consumer surplus versus environmental harm, but also on the harm of externalities relative to markups.

Second, unless a firm has access to a zero marginal cost abatement opportunity, a profit maximizing firm ($\lambda = 0$) will respond to a new small weight placed on externalities ($\omega > 0$) by raising prices, not by abatement. Just as in Proposition 3, small changes in prices have no first order effect on profits, but will have first order benefits in reducing the externalities. There is a zero cost way of addressing some small amount of concern about externalities: raising price. Firms are already engaged in various CSR activities aimed at accounting for environmental factors. It is unclear whether they have responded by intentionally increasing price above the profit-maximizing level for products with negative externalities.

Finally, if a firm is accounting for externalities in price setting ($\omega > 0$) but has thus far not accounted for consumer surplus ($\lambda = 0$), then adding some concern about consumer surplus would actually *increase* profits. To see this, note that when $\lambda = 0$, the first order condition for price setting implies $\frac{d\Pi}{dp} = \omega(e-a)Q' < 0$: on the margin, reducing prices increases profits. When we induce $\lambda > 0$, prices go down, hence profits would increase.

[17]The externality $e$ is relative to any externality produced by the outside option (the numeraire consumption good).

# 3 Survey Experiment

## 3.1 Design

I design a survey experiment to elicit shareholders' preferences regarding the objective function they would want a firm to maximize. To infer the weight shareholders place on consumer surplus relative to firm profits, participants were asked how they would vote as a stockholder in one of the companies they owned stock in. (If they did not own stock, they were asked to suppose they owned \$100 worth of stock in a company.) The crucial question asked participants to:

> Consider a shareholder vote on pricing strategy.
>
> Prices could be set to maximize the firm's overall present and future profits.
>
> Alternatively, prices could be set lower. This would reduce profits. However, it would benefit consumers, who would pay lower prices and who might buy more.

Participants then chose between voting to "Set prices to maximize profits" or to "Set prices lower. Give up \$1 million in profits, but gain $\$x$ for consumers".

The value of $x$ was initialized at \$64 million and iteratively updated based on their choices to produce an estimate of their indifference point $x^*$. Participants saw 8 questions about this tradeoff. The question gives shareholders a choice of what the firm should optimize: profits, or profits plus some weight on consumer welfare, as in Equation 2. Their indifference point implies $\lambda = \frac{1}{x^*}$.

Participants were also asked to choose between profit maximization and a more traditional ESG-related topic. The scenario asked about a shareholder vote on environmental strategy:

> The firm's production could be designed to maximize its overall present and future profits, while complying with all relevant environmental laws.
>
> Alternatively, the firm could use more environmentally friendly processes, which would lower profits. However, individuals would benefit via reduced exposure to pollution and reduced carbon emissions.

Participants then choose between voting to "Design production to maximize profits" or to "Make production more environmentally friendly. Give up \$1 million in profits but gain $\$x$ in environmental benefits to individuals".

Again, $x$ was varied over 8 questions using the same methodology as for the previous question. Just like for the original question, choices here allow us to infer a weight $\omega$ on environmental benefits relative to profit maximization.

While these survey results are not incentivized, shareholder votes are also not heavily incentivized, since an individual shareholder is unlikely to be pivotal when voting. Of course, actual votes may be influenced by debate, lobbying, information acquisition, and context-specific factors. Nonetheless, these questions should be reasonable guides to how shareholders would vote if presented with a similar resolution.

## 3.2 Iterative Procedure

To identify the indifference point $x^*$, we use a binary search over the interval $x_{min} = \$0$, $x_{max} = \$128$ million and present a series of choices that narrow the range between $x_{min}$ and $x_{max}$. The choice of the interval was informed by pilot survey data and calibrations. The choice of binary search algorithm was determined by technological constraints of the survey implementation.

If a participant's indifference point $x^*$ is located between 0 and 128, we can identify it within 0.5 million based on their choices– we assign $x^*$ to be the midpoint of the remaining interval. We then calculate $\lambda$ as $\frac{1}{x^*}$. If a participant always chooses to maximize profits, $x^* = 128$ and we impute $\lambda = 0$. If a participant never chooses to maximize profits, our estimate of $x^* = 0.25$ and we impute $\lambda = 4$ when calculating means. An identical procedure is used to calculate individual values of $\omega$ from choices about trading off profits versus environmental benefits.

## 3.3 Survey Deployment

In Fall 2023, the survey was released via the RAND American Life Panel, targeting approximately 500 participants drawn from a representative sample of Americans.[18] For more on the RAND American Life Panel, see Pollard and Baird (2017). The full text of the survey questions is available in the Appendix. Participants first answered a series of demographic questions. Additional demographic characteristics, including income, gender, race, and age are provided by the American Life Panel.

Participants then answered questions about whether they owned stock. These questions aim to identify both direct stockholding as well as indirect stockholding (such as stock held in a mutual fund, ETF, or retirement account). Participants were categorized as stockholders if they said yes to any of the following: having "any investments in stocks or mutual funds that are not in a retirement plan", having ever invested in "stocks, mutual funds, or index

[18] The survey was also given to another, unrepresentative, group of individuals who had previously participated in a finance-related survey. Moreover, a pilot survey, with a slightly different design, was fielded in May 2023 on a sample recruited from Prolific.

funds," or if they participated in a defined contribution retirement plan (which typically contains some allocation to equities). These questions were designed as a simplified version of the Survey of Consumer Finances questions measuring direct and indirect stockholding.

Participants then saw the key questions that elicited their preferred tradeoff between profits and either consumer welfare or the environment. The order of seeing consumer welfare or environmental questions was counterbalanced between participants.

Participants then answered questions about what strategic pricing strategies would win in a majority vote of shareholders. That is, they answered a set of 8 questions about which option they believe would win in a vote between profit maximization and a lower price strategy that would gain $\$x$ for consumers. They also answered the same questions about what would win in a vote between profits and environmental benefits. This series of questions allows us to estimate what values of $\lambda$ and $\omega$ shareholders predict would be implemented if actively considered.

To ensure high-quality responses, the study included an attention screener. The analysis excludes the 17% of participants who failed that check. Participants are also excluded if they either took longer than 2 hours or shorter than 3 minutes to complete the survey. This leaves a total of 436 participants, who comprise the analysis sample.

The RAND ALP provides a sample weight for each observation to enable researchers to obtain estimates representative of the US population. These weights are constructed using age, gender, ethnicity, household income, and education. For more details, see Pollard and Baird (2017). The main text presents weighted estimates. The unweighted values of $\lambda$ are slightly lower (see Appendix Table A2, with the unweighted sample more likely to own stock and more likely to have a higher education.

Table 2 provides descriptive statistics of the analysis sample. Approximately 47% of the sample is identified as owning stock. By comparison, in the 2022 Survey of Consumer Finances, about 58% of Americans are identified as owning stock either directly or indirectly, a number that has increased over time (Aladangady et al. 2023). Compared to the US population, the weighted analysis sample is slightly more likely to be women, but has a similar racial distribution, educational attainment, and family income. Political affiliation varies over time, but the sample underrepresents individuals who identify as Republican.

## 3.4 Main Results

Figure 1 presents the distribution of the estimated value of $\lambda$, split by stock ownership. Appendix Figure A1 shows the distribution of $\omega$, which is similar but with more mass on values greater than 1. Note there is substantial heterogeneity in desired weights relative to profits.

**Result 1: Most individuals do not want firms to purely maximize profits**. Only 7.3% of the sample votes for zero weight on consumer surplus ($\lambda = 0$) in the firm's objective function, with another 3.6% voting for a weight between 0 and 0.01. Only 6.9% vote for zero weight on environmental benefits ($\omega = 0$).

**Result 2: A substantial fraction of the sample (42%) has a preferred value of $\lambda$ above 1.** This implies they would be willing to forgo \$1 of profits for less than \$1 of consumer benefits, which does not promote efficiency in a social welfare function that equally weights profits and consumer surplus. As the theory model showed, $\lambda > 1$ can result from self-interested concerns, where a small shareholder receives little to no benefit from profits, but may receive benefits from lower prices. These preferences could also result from participants' distributional concerns, as the average consumer likely has lower income than the average stockholder. Legal, ethical, and practical constraints may limit implemented $\lambda$ to be less than 1.

Values of $\lambda$ above 1 are more likely among those who do not own stock than those who do own stock (50% versus 32%), but are still quite common among stockholders. Conditional on having $\lambda > 1$, 70% of those participants always favor consumers over firms, regardless of the amount. We impute $\lambda = 4$ for these individuals, but also discuss results in which $\lambda$ is top-coded at 1. However, we will focus on sample medians, which are less affected by extreme values of $\lambda$.

**Result 3: The median value of $\lambda$ is substantial.** Table 3 Panel A provides summaries of the elicited values of $\lambda$ and $\omega$, split by whether the participant owns stock or not. Overall, the median value of $\lambda$ is 0.44. Stockholders and non-stockholders differ in their values of $\lambda$, with non-stockholders having a higher median (0.80 v 0.27) as well as higher means. The mean estimated value of $\lambda$ is 1.55, but this is affected by individuals with extreme values, and the mean of $min\{\lambda, 1\}$ is 0.52.[19]

**Result 4: Political affiliation is an important predictor of $\lambda$.** Appendix Table A3 shows regressions that predict $\lambda$ and $\omega$ based on demographic characteristics including income, education, gender, race, and political affiliation. Higher-income individuals have lower $\lambda$, with a weaker relationship for $\omega$. Conditional on other factors, owning stock doesn't significantly predict $\lambda$, with an imprecisely estimated positive 0.08 coefficient in

[19]Unrepresentative samples show a lower median $\lambda$ but are still consistent with most individuals placing a positive value on consumer surplus. A pilot survey on Prolific had a sample that was more educated and more likely to stock than the representative sample. The median value was lower at 0.10, but still, only 11% wanted $\lambda$=0. A different, unrepresentative sample of RAND American Life Panel participants recruited from individuals who had participated in a previous finance-related study and had said they owned stock yielded a median $\lambda$ of 0.08, with only 19% preferring $\lambda = 0$.

the regressions. Political affiliation, however, is quite important, with Republicans having significantly lower $\lambda$ (by 0.99) than independents. Democrats have a higher weight on the environment than either Republicans or independents.

**Result 5: Stockholders place similar weight on consumer welfare and the environment.** A comparison to the weight placed on environmental factors provides another way to assess the magnitude of $\lambda$. For stockholders, the elicited median values for $\lambda$ and $\omega$ are in fact identical, with quite similar means as well. In contrast, non-stockholders place a much higher value on environmental factors, with more than half the sample never identifying an amount of profits that they prefer to avoidance of environmental damage (and thus being imputed $\omega = 4$). Individuals who place more weight on consumer welfare are also more likely to place more weight on environmental concerns: $\omega$ and $\lambda$ are positively correlated at 0.57. Appendix Figure A2 shows a scatterplot of $\omega$ and $\lambda$.

While the main analysis focuses on strategic guidance for the firm's objective function, Appendix Figure A3 shows the result of questions that asked participants to rate (on a scale of 1 to 5) their perceived importance in investing in firms with various characteristics. Consumer welfare motivations (as measured by the importance of investing in "Firms that act in the interest of consumers as well as stockholders") are valued similarly to environmental stability.

## 3.5 Beliefs About Firms and Consumer Welfare

**Result 6: The median individual expects firms to implement a much lower $\lambda$ than they prefer.** Finally, we turn to Table 3 Panel B, which shows what participants *believe* would win in a majority vote among shareholders. The median participant does not believe that firms will implement much weight on consumers or the environment, with a belief of about 0.02 for the value of $\lambda$ and $\omega$ that would win in a shareholder election. However, the mean belief is substantially higher, at about 0.6 for $\lambda$ and $\omega$. The divergence between predicted winning values and the average values in this sample could result from participants not correctly knowing others' preferences, from a belief that shareholder voting would not reflect this population's preferences, or due to compositional differences between this sample and who owns stock or who votes in elections. Nonetheless, Table 1 showed that even a small value of $\lambda = 0.01$ increases consumer welfare by about 1.5 to 2% of profits, 200 times the cost in lost profits.

**Result 7: Many participants do not perceive social gains from lower prices.** Participants were also asked about what would happen if "a typical firm chose to lower prices relative to the amount that would maximize profits." They were asked to choose the category that was their best estimate for how much consumers would gain if the firm lost $1 million. Figure 2 shows that perceived social gains from lower prices are low. It is notable 40% of the sample did not anticipate any substantial social gain from lower prices: 23% said consumers would gain $0.5 million or less, and 17% said consumers would gain $1 million (which, given coarse response options, could be consistent with beliefs of gains up to $2 million). It is difficult to determine a 'right' answer to the question, as beliefs could vary about whether the price change is small or large, and markups vary substantially between firms. Nonetheless, the calculations in section 2.5 suggested a large ratio of consumer gains to lost profits: 200 for $\lambda = 0.01$ and still 8 times for $\lambda = 0.25$. The evidence suggests that participants underestimate the social gains to lower prices. While the strategic questions about the firm's objective function used to elicit $\lambda$ do not require accurate beliefs about the impact of any particular change, beliefs that the social gain from lower prices is small to non-existent could help explain the limited role consumer welfare has played in the discussion of ESG investing.

# 4 Conclusion

Theory shows that firms maximizing shareholder welfare will place some weight on consumer welfare when setting price, because shareholders may receive a direct benefit from lower prices or have altruistic preferences. Firms can implement shareholder preferences when setting prices by lowering their markups as a percentage of price by approximately $\lambda$. Theory and simulations show that the gains to consumers, relative to the costs in profits, can be substantial. Both calibrations and survey experiments show that the desired weight on consumer welfare is non-trivial and that there is substantial heterogeneity across shareholders. Few participants are consistent with a pure profit maximization motive.

The impact of a 0.25 weight on consumer welfare relative to profits (the median value among stockholders) would be substantial. Simple calculations in a stylized model suggest that, if implemented, the resulting decline in prices would lower profits by approximately 5% but raise consumer surplus by 8 times that amount. Of course, the model is simple and omits various complex issues, such as equilibrium interactions with other firms. Moreover, stockholders who are common owners of other firms may have countervailing preferences for higher prices.

The methodology for estimating shareholder preferences developed here is general. It can be used by index funds and pension funds seeking to represent the ultimate owners' interests. Though the impact of accounting for consumer welfare will vary by firm and context, this method does not require shareholders to have knowledge of the business situation the firm faces. Moreover, is not particular to the domain of consumer welfare. The paper also examines preferences toward the environment, but it can be extended to consider, for instance, how firms treat employees.

Eliciting this strategic guidance may be more informative than investment decisions for how shareholders would like firms to behave. Investment decisions reflect both preferences and beliefs about what firms will do and how that will impact returns. Given critiques that many firms are "greenwashing" and give wide disagreement among ESG ratings (Berg et al. 2022), an individual may still choose to invest without regard to firms' purported social responsibility but still wish to shape the objective function of the firm. Nonetheless, future work can examine whether investors account for how firms affect consumer welfare when making investment decisions, as investors' portfolio decisions will affect firms' incentives to pursue different objectives.

There seems to be a disconnect between shareholders' desire for firms to consider consumer welfare and the absence of a discussion of consumer welfare in the various ESG investing and CSR movements. Given the similar magnitude of shareholder concern for consumer welfare and the environment, this paper's results, along with those of (Allcott et al. 2023), suggest that the impact of firms on consumers should receive more attention when assessing the social impact of investing. Part of an explanation for this disconnect is that many participants do not perceive large social gains from lowered prices.

If shareholders become more informed and engage in discussion about the consumer welfare impact of firms, their preferences may evolve. The expression of preferences will also be affected by beliefs about the social gain of lowering price markups, as this affects the perceived gain of engaging in costly lobbying for firms to consider consumer benefits. Moreover, many people are conditionally cooperative (Fischbacher et al. 2001), such that their willingness to contribute to public goods depends on the behavior of others. As a result, the preferences of shareholders for placing weight on consumer welfare may depend on what other shareholders vote for and what other firms choose to do.

# References

**Agrawal, Ashwini K.**, "Corporate Governance Objectives of Labor Union Shareholders: Evidence from Proxy Voting," *The Review of Financial Studies*, January 2012, *25* (1), 187–226.

**Akerlof, George A. and Janet L. Yellen**, "A Near-Rational Model of the Business Cycle, With Wage and Price Inertia," *The Quarterly Journal of Economics*, 1985, *100*, 823–838.

Publisher: Oxford University Press.

**Aladangady, Aditya, Jesse Bricker, Andrew C. Chang, Sarena Goodman, Jacob Krimmel, Kevin B. Moore, Sarah Reber, Alice Henriques Volz, and Richard A. Windle**, "Changes in U.S. Family Finances from 2019 to 2022: Evidence from the Survey of Consumer Finances," *Washington: Board of Governors of the Federal Reserve System*, 2023.

**Allcott, Hunt, Giovanni Montanari, Bora Ozaltun, and Brandon Tan**, "An Economic View of Corporate Social Impact," Working Paper 31803, National Bureau of Economic Research 2023.

**Antón, Miguel, Florian Ederer, Mireia Giné, and Martin Schmalz**, "Common ownership, competition, and top management incentives," *Journal of Political Economy*, 2023, *131* (5), 1294–1355.

**Azar, José and Xavier Vives**, "General equilibrium oligopoly and ownership structure," *Econometrica*, 2021, *89* (3), 999–1048.

**Azar, Jose, Martin C. Schmalz, and Isabel Tecu**, "Anticompetitive Effects of Common Ownership," *The Journal of Finance*, 2018, *73* (4), 1513–1565.

**Backus, Matthew, Christopher Conlon, and Michael Sinkinson**, "Common Ownership in America: 1980–2017," *American Economic Journal: Microeconomics*, August 2021, *13* (3), 273–308.

**Bartlett, Robert P and Ryan Bubb**, "Corporate Social Responsibility through Shareholder Governance," *Available at SSRN 4354220*, 2023.

**Benabou, Roland and Jean Tirole**, "Individual and Corporate Social Responsibility," *Economica*, 2010, *77* (305), 1–19.

**Berchicci, Luca and Andrew King**, "Corporate sustainability: A model uncertainty analysis of materiality," *Journal of Financial Reporting*, 2022.

**Berg, Florian, Julian F Koelbel, and Roberto Rigobon**, "Aggregate confusion: The divergence of ESG ratings," *Review of Finance*, 2022, *26* (6), 1315–1344.

**Bonnefon, Jean-François, Augustin Landier, Parinitha R Sastry, and David Thesmar**, "The moral preferences of investors: Experimental evidence," *National Bureau of Economic Research Working Paper 29647*, 2022.

**Broccardo, Eleonora, Oliver Hart, and Luigi Zingales**, "Exit versus voice," *Journal of Political Economy*, 2022, *130* (12), 3101–3145.

**Bubb, Ryan and Emiliano M Catan**, "The Party Structure of Mutual Funds," *The Review of Financial Studies*, June 2022, *35* (6), 2839–2878.

**Charness, Gary and Matthew Rabin**, "Understanding Social Preferences with Simple Tests," *The Quarterly Journal of Economics*, August 2002, *117* (3), 817–869.

**DeAngelo, Harry**, "Competition and Unanimity," *The American Economic Review*, 1981, *71* (1), 18–27.

**Donaldson, Thomas and Lee E Preston**, "The stakeholder theory of the corporation: Concepts, evidence, and implications," *Academy of management Review*, 1995, *20* (1), 65–91.

**Dreze, Jacques H.**, "Investment Under Private Ownership: Optimality, Equilibrium and Stability," in Jacques H. Dreze, ed., *Allocation under Uncertainty: Equilibrium and Optimality: Proceedings from a Workshop sponsored by the International Economic Association*, International Economic Association Series, London: Palgrave Macmillan UK, 1974, pp. 129–166.

**Ederer, Florian and Bruno Pellegrino**, "A Tale of Two Networks: Common Ownership and Product Market Rivalry," *Working Paper*, 2023.

**Edmans, Alex**, "Does the stock market fully value intangibles? Employee satisfaction and equity prices," *Journal of Financial Economics*, 2011, *101* (3), 621–640.

**_ , Caroline Flammer, and Simon Glossner**, "Diversity, Equity, and Inclusion," 2023.

**Ericson, Keith M Marzilli**, "Consumer inertia and firm pricing in the Medicare Part D prescription drug insurance exchange," *American Economic Journal: Economic Policy*, 2014, *6* (1), 38–64.

**Farrell, Joseph**, "Owner-consumers and efficiency," *Economics Letters*, January 1985, *19* (4), 303–306.

**Fischbacher, Urs, Simon Gächter, and Ernst Fehr**, "Are people conditionally cooperative? Evidence from a public goods experiment," *Economics letters*, 2001, *71* (3), 397–404.

**Fisher, Irving**, "The theory of interest," *New York*, 1930, *43*, 1–19.

**Fisman, Raymond, Shachar Kariv, and Daniel Markovits**, "Individual preferences for giving," *American Economic Review*, 2007, *97* (5), 1858–1876.

**Fleurbaey, Marc and Grégory Ponthière**, "The stakeholder corporation and social welfare," *Journal of Political Economy*, 2023, *131* (9), 2556–2594.

**Freeman, R. Edward**, *Strategic Management: A Stakeholder Approach*, . Boston: Pittman-Ballinger, 1984.

**Friedman, Milton**, "The Social Responsibility Of Business Is to Increase Its Profits," *The New York Times*, September 1970.

**Gans, Joshua, Andrew Leigh, Martin Schmalz, and Adam Triggs**, "Inequality and market concentration, when shareholding is more skewed than consumption," *Oxford Review of Economic Policy*, July 2019, *35* (3), 550–563.

**Grossman, Sanford J. and Oliver D. Hart**, "A Theory of Competitive Equilibrium in Stock Market Economies," *Econometrica*, 1979, *47* (2), 293–329.

**Hart, Oliver and Luigi Zingales**, "Companies Should Maximize Shareholder Welfare Not Market Value," *Journal of Law, Finance, and Accounting*, November 2017, *2* (2), 247–275.

**Hart, Oliver D and Luigi Zingales**, "The New Corporate Governance," *National Bureau of Economic Research Working Paper 29975*, 2022.

**Hartzmark, Samuel M and Abigail B Sussman**, "Do investors value sustainability? A natural experiment examining ranking and fund flows," *The Journal of Finance*, 2019, *74* (6), 2789–2837.

**Heeb, Florian, Julian F Kölbel, Falko Paetzold, and Stefan Zeisberger**, "Do investors care about impact?," *The Review of Financial Studies*, 2023, *36* (5), 1737–1787.

**Hirst, Scott, Kobi Kastiel, and Tamar Kricheli-Katz**, "How Much do Investors Care about Social Responsibility?," *Wis. L. Rev.*, 2023, p. 977.

**Khan, Mozaffar, George Serafeim, and Aaron Yoon**, "Corporate sustainability: First evidence on materiality," *The Accounting Review*, 2016, *91* (6), 1697–1724.

**Kitzmueller, Markus and Jay Shimshack**, "Economic Perspectives on Corporate Social Responsibility," *Journal of Economic Literature*, March 2012, *50* (1), 51–84.

**Klemperer, Paul**, "Competition when consumers have switching costs: An overview with applications to industrial organization, macroeconomics, and international trade," *The review of economic studies*, 1995, *62* (4), 515–539.

**Magill, Michael, Martine Quinzii, and Jean-Charles Rochet**, "A Theory of the Stakeholder Corporation," *Econometrica*, 2015, *83* (5), 1685–1725.

**Milgrom, Paul and John Roberts**, "Limit pricing and entry under incomplete information: An equilibrium analysis," *Econometrica: Journal of the Econometric Society*, 1982, pp. 443–459.

**Morgan, John and Justin Tumlinson**, "Corporate Provision of Public Goods," *Management Science*, October 2019, *65* (10), 4489–4504.

**Ottoni-Wilhelm, Mark, Lise Vesterlund, and Huan Xie**, "Why Do People Give? Testing Pure and Impure Altruism," *American Economic Review*, November 2017, *107* (11), 3617–3633.

**Planer-Friedrich, Lisa and Marco Sahm**, "Strategic corporate social responsibility, imperfect competition, and market concentration," *Journal of Economics*, January 2020, *129* (1), 79–101.

**Pollard, Michael S. and Matthew D. Baird**, "The RAND American Life Panel: Technical Description," Technical Report, RAND Corporation July 2017. https://www.rand.org/pubs/research_reports/RR1651.html.

**Posner, Eric A, Fiona M Scott Morgan, and E Glen Weyl**, "A proposal to limit the anticompetitive power of institutional investors," *Antitrust LJ*, 2016, *81*, 669.

**Radner, Roy**, "A Note on Unanimity of Stockholders' Preferences among Alternative Production Plans: A Reformulation of the Ekern-Wilson Model," *The Bell Journal of Economics and Management Science*, 1974, *5* (1), 181–184.

**Renneboog, Luc and Peter G Szilagyi**, "The role of shareholder proposals in corporate governance," *Journal of Corporate Finance*, 2011, *17* (1), 167–188.

**Riedl, Arno and Paul Smeets**, "Why Do Investors Hold Socially Responsible Mutual Funds?," *The Journal of Finance*, 2017, *72* (6), 2505–2550.

**Rotemberg, Julio**, "Financial transaction costs and industrial performance," 1984. Publisher: Cambridge, Mass.: Massachusetts Institute of Technology.

**Rotemberg, Julio J.**, "Models of Caring, or Acting as if One Cared, About the Welfare of Others," *Annual Review of Economics*, 2014, *6* (1), 129–154.

**Schmalz, Martin C.**, "Common-Ownership Concentration and Corporate Conduct," *Annual Review of Financial Economics*, 2018, *10* (1), 413–448.

**Shleifer, Andrei and Robert W Vishny**, "Value maximization and the acquisition process," *Journal of Economic Perspectives*, 1988, *2* (1), 7–20.

**US Submission to OECD Hearing**, "Hearing on Common Ownership by institutional investors and its impact on competition - Note by the United States," December 2017.

**Wilson, Robert**, "Chapter 10 Strategic models of entry deterrence," in "in," Vol. 1 of *Handbook of Game Theory with Economic Applications*, Elsevier, 1992, pp. 305–329. ISSN: 1574-0005.

**Wirl, Franz, Gustav Feichtinger, and Peter M. Kort**, "Individual firm and market dynamics of CSR activities," *Journal of Economic Behavior & Organization*, February 2013, *86*, 169–182.

**Yermack, David**, "Shareholder Voting and Corporate Governance," *Annual Review of Financial Economics*, 2010, *2* (1), 103–125.

Table 1: Impact of Implementing Weight on Consumer Welfare $\lambda$

| | | *Percent Change in...* | | | *Change in Consumer Surplus* |
|---|---|---|---|---|---|
| | Value of $\lambda$ | *Price* | *Quantity* | *Profits* | *as Percent of Profits* |
| Elasticity of Demand = 1.9 | 0.01 | -1.1 | 2.1 | -0.01 | 2.1 |
| | 0.1 | -10.0 | 22.2 | -1.05 | 21.1 |
| | 0.25 | -21.7 | 59.3 | -6.49 | 53.6 |
| Elasticity of Demand = 3.6 | 0.01 | -0.4 | 1.4 | -0.007 | 1.4 |
| | 0.1 | -3.7 | 14.6 | -0.72 | 14.3 |
| | 0.25 | -8.8 | 39.2 | -4.78 | 37.8 |

*Notes:* Calculations as described in text. Assumes constant elasticity of demand function. Displays percentage changes relative to the profit maximizing amounts. Profits exclude fixed costs (variable profits). Consumer surplus is measured as a percentage change in relative to profits when the firm is profit maximizing.

Table 2: Descriptive Statistics

| | | Percent of Sample |
|---|---|---|
| *Stockholding:* | Owns Stock | 47.3 |
| *Gender:* | Female | 53.9 |
| *Race:* | White Non-Hispanic | 64.4 |
| | White, Hispanic | 10.8 |
| | Black/African American | 13.5 |
| | Asian or Pacific Islander | 4.6 |
| | Other | 6.7 |
| *Education Level:* | High School or Less | 42.5 |
| | College or Some College | 47.4 |
| | Advanced Degree | 10.1 |
| *Family Income Level:* | Under $30k | 18.2 |
| | $30k-$60k | 25.4 |
| | $60k-$100k | 24.5 |
| | Greater than $100k | 32.0 |
| *Political Identification:* | Republican | 19.6 |
| | Democrat | 37.0 |
| | Independent/Other | 43.5 |

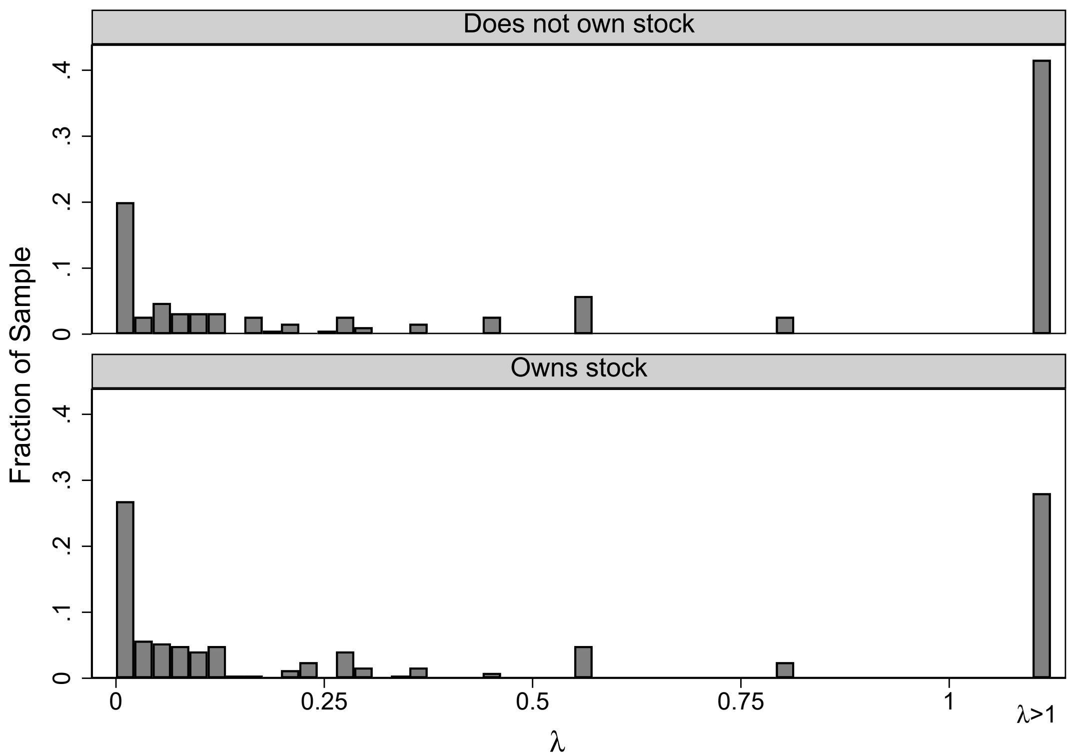
*Notes:* Data: N= 436. Representative Sample, with weights from RAND American Life Panel.

Table 3: Desired Weight on Consumer Welfare ($\lambda$) and Environmental Impact ($\omega$) Relative to Profits

| **Panel A: Elicited Values** | | | | |
|---|---|---|---|---|
| | $\lambda$ (Consumers) | | $\omega$ (Environment) | |
| | Mean | Median | Mean | Median |
| Owns stock | 1.25 | 0.27 | 1.42 | 0.27 |
| | (0.28) | | (0.23) | |
| Does not own stock | 1.81 | 0.80 | 2.29 | 4.00 |
| | (0.39) | | (0.33) | |
| Total | 1.55 | 0.44 | 1.88 | 1.33 |
| | (0.26) | | (0.24) | |
| **Panel B: Predicted Winning Values in Vote** | | | | |
| | $\lambda$ (Consumers) | | $\omega$ (Environment) | |
| | Mean | Median | Mean | Median |
| Owns stock | 0.59 | 0.01 | 0.69 | 0.02 |
| | (0.30) | | (0.69) | |
| Does not own stock | 0.64 | 0.03 | 0.66 | 0.02 |
| | (0.22) | | (0.22) | |
| Total | 0.62 | 0.02 | 0.68 | 0.02 |
| | (0.18) | | (0.18) | |

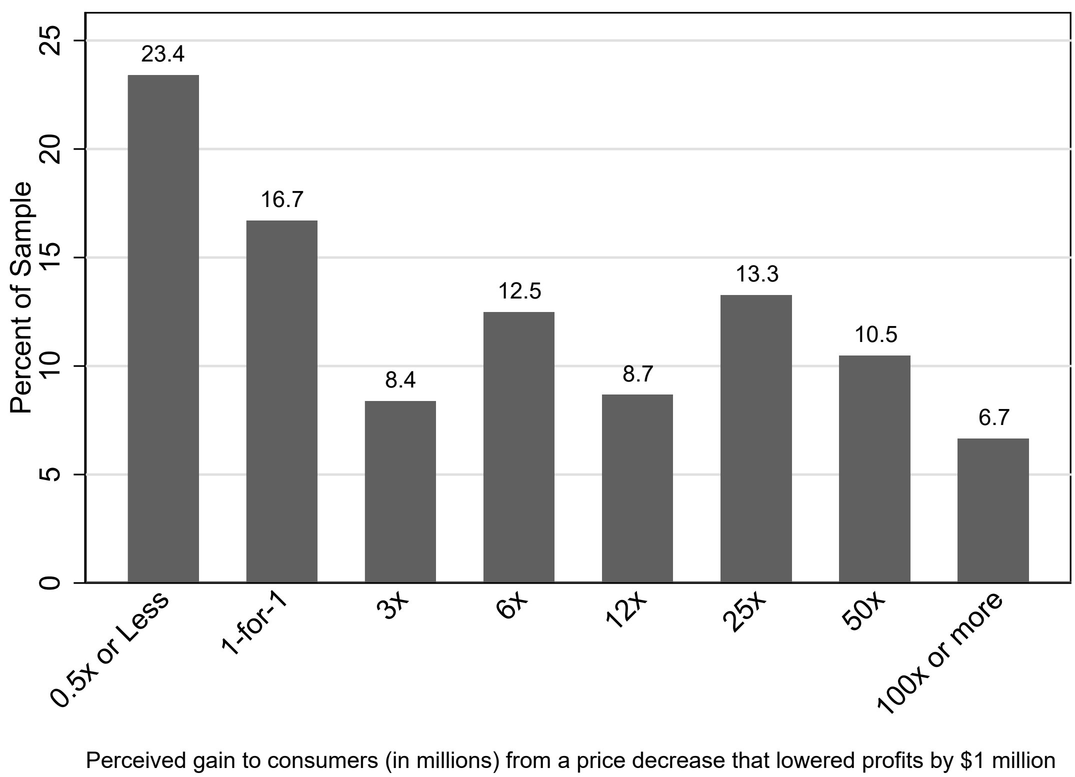
*Notes:* Data: Representative Sample, with weights from RAND American Life Panel. Standard errors of the mean in parentheses.

Figure 1: Distribution of Elicited $\lambda$ by Stockholding Status




*Notes:* Data: Representative Sample, without weighting observations. Grouped into 50 bins. All values of $\lambda$ greater than 1 are grouped in a single bin.

Figure 2: Perceived Ratio of Consumer Gains to Profit Loss from Lower Prices




*Notes:* Data: Representative Sample, with weights from RAND American Life Panel.

# Online Appendix for: What Do Shareholders Want? Consumer Welfare and the Objective of the Firm

**Keith Ericson**

# A Theory Appendix

## A.1 Two-Period Model

This section extends the model in Section 2 to a two period model, in which firms and consumers both discount the future by a common $\delta \in [0, 1]$. We let firms choose $p$ for period 1. We let the firm's objective function be as follows:

$$(p - c)Q(p) + \lambda CS + \delta \left[E\Pi_{t=2}(p) + \lambda ECS_{t=2}(p)\right]$$

where $E\Pi_{t=2}(p)$ is the expected profits in period 2, which can be a function of price in period 1, as well as other actions that can in turn depend on $p$. $ECS_{t=2}(p)$ is expected consumer surplus in period 2, which can also be affected by period 1 price today via its impact on future actions. Assume both $E\Pi_{t=2}$ and $ECS_{t=2}$ are continuously differentiable. Then, the first order condition for the optimal choice of price is:

$$p = c + (1 - \lambda)\frac{Q'}{-Q'} + \frac{\delta}{-Q'}\left(\frac{dE\Pi_{t=2}}{dp} + \lambda\frac{dECS_{t=2}}{dp}\right)$$

The first markup term is the term shown in Proposition 1, though potentially evaluated at a different price. The new term takes into account the impact of a price change today on expected future profits. When $\lambda = 0$, if an increase in $p$ would increase period 1 profits, it must be the case that $\frac{dE\Pi_{t=2}}{dp} < 0$. The sign of $ECS_{t=2}$ is ambiguous. Still, to see that a profit-maximizing firm faces no first-order loss in profits from implementing small $\lambda$ (analogous to Proposition 3), note that the envelope theorem still applies and $\frac{d}{dp}\left((p - c)Q(p) + \delta E\Pi_{t=2}(p)\right) = 0$.

## A.2 New Product Model

This section returns to the model in Section 2, but extends it in a different way intended to capture situations such as pharmaceutical firms developing a new product. In this model, the product the firm will sell does not yet exist. In period 1, firms choose a level of investment $m \geq 0$. With probability $\Phi(m)$ the product will be invented, with that probability increasing in $m$. Assume $\Phi$ is continuously differentiable, with $\Phi'(m) > 0$,$\Phi''(m) < 0$. In period 2, if the product is not invented, the firm makes no profit. If the product is invented, the firm chooses optimal price. Firms and consumers both discount the future by a common $\delta \in (0, 1]$. It is clear that, conditional on the product being invented, the firm will choose optimal price exactly as in Proposition 1: the choice of investment is a sunk cost. Thus, the pricing results from the main text carry through.

A concern for consumer welfare does add novel implications for the choice of investment $m$. Given the optimal choice of price $p^*$ and assuming an interior solution, the first order condition that determines the choice of $m$ is $\Phi'(m) = \frac{1}{(p^*-c)Q+\lambda CS}$. While the choice of optimal price depended on how consumer surplus changed when price changed ($\frac{dCS}{dp}$,which we showed was $-Q$), the choice of investment is affected by the level of consumer surplus created by the existence of the product, which is much harder to estimate (see Hausman and Bresnahan 2009 and Diewert and Feenstra 2022).

# Appendix References


[1] Diewert, W. and Feenstra, R. 2022. "Estimating the Benefits of New Products." In Abraham, K., Jarmin, R., Moyer, B. and Shapiro, M. ed. *Big Data for Twenty-First-Century Economic Statistics*. Chicago: University of Chicago Press, pp. 437-474. `https://doi.org/10.7208/chicago/9780226801391-017`.

[2] Hausman, Jerry A., and Timothy F. Bresnahan. 2008. "Valuation of New Goods under Perfect and Imperfect Competition." In *Valuation of New Goods under Perfect and Imperfect Competition*, 209–48. University of Chicago Press. `https://doi.org/10.7208/9780226074184-007`.

# B Empirical Appendix

Appendix Table A1: Stock Ownership, Income, and Consumption Shares for Calibrating $\lambda$

| | Stockholding | | Financial Assets | | Before Tax Income | | Annual Expenditures |
|---|---|---|---|---|---|---|---|
| Percentile of Income | Average ($1000s) | Share of Total | Average ($1000s) | Share of Total | Average ($1000s) | Share of Total | Share of Total |
| Less than 20 | 106.5 | 0.07 | 46.0 | 0.02 | 18.3 | 0.03 | 0.09 |
| 20-39.9 | 58.2 | 0.04 | 57.9 | 0.03 | 41.3 | 0.07 | 0.13 |
| 40-59.9 | 84.9 | 0.06 | 109.5 | 0.05 | 68.3 | 0.11 | 0.17 |
| 60-79.9 | 166.9 | 0.12 | 255.5 | 0.12 | 112.2 | 0.18 | 0.23 |
| 80-89.9 | 332.0 | 0.12 | 530.3 | 0.13 | 178.0 | 0.14 | 0.15 |
| 90-100 | 1720.6 | 0.60 | 2689.8 | 0.65 | 573.4 | 0.47 | 0.23 |

*Notes:* 2019 Survey of Consumer Finances are used to provide Stock holding, Financial Assets, and Before Tax Income columns. Share of annual expenditures comes from 2019 Consumer Expenditure Survey Table 1110.
SCF Interactive Chart: `https://www.federalreserve.gov/econres/scf/dataviz/scf/chart/`.
CES data: `https://www.bls.gov/cex/tables/calendar-year/aggregate-group-share/cu-income-deciles-before-taxes-2019.pdf`

Appendix Table A2: Consumer Welfare ($\lambda$) and Environmental Impact ($\omega$) Relative to Profits, without sample weights

**Panel A: Elicited Values**

| | $\lambda$ | | $\omega$ | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| Owns stock | 1.02 | 0.13 | 1.51 | 0.34 |
| | (0.10) | | (1.51) | |
| Does not own stock | 1.41 | 0.51 | 1.74 | 1.33 |
| | (0.12) | | (0.13) | |
| Total | 1.19 | 0.26 | 1.61 | 0.57 |
| | (0.08) | | (0.09) | |

**Panel B: Predicted Winning Values in Vote**

| | $\lambda$ | | $\omega$ | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| Owns stock | 0.29 | 0.01 | 0.44 | 0.02 |
| | (0.06) | | (0.44) | |
| Does not own stock | 0.56 | 0.03 | 0.61 | 0.03 |
| | (0.09) | | (0.09) | |
| Total | 0.41 | 0.02 | 0.51 | 0.02 |
| | (0.05) | | (0.06) | |

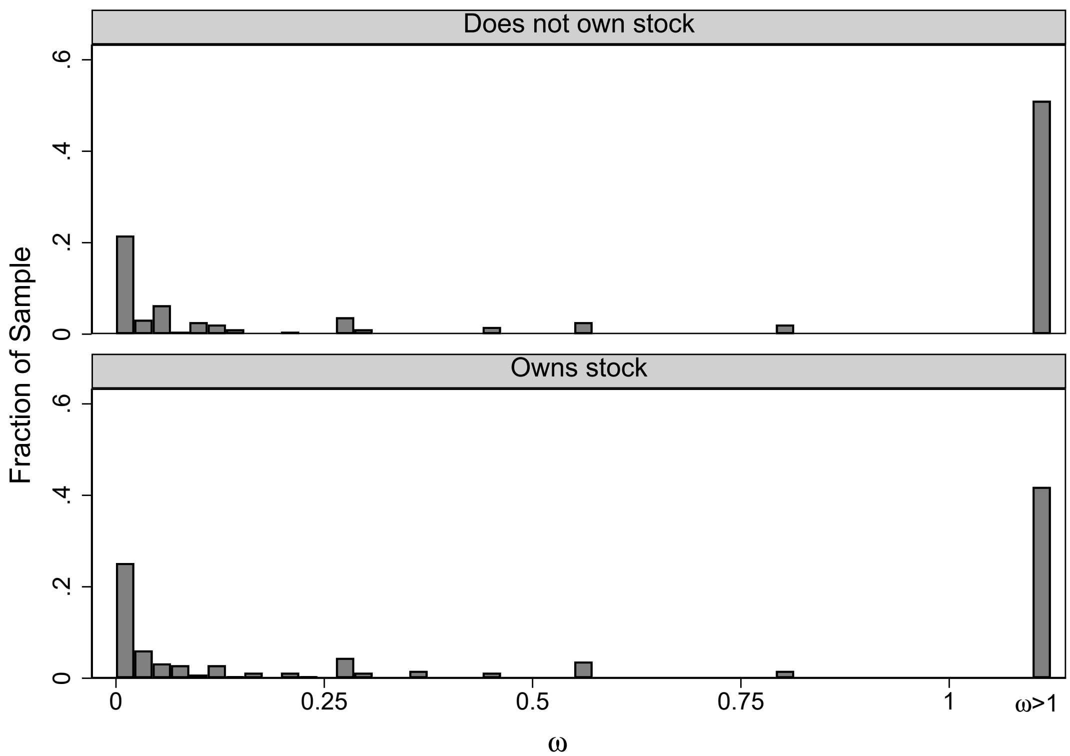
*Notes:* Data: Representative Sample. Standard errors of the mean in parentheses.

Appendix Table A3: Predictors of $\lambda$ and $\omega$

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | $\lambda$ | $\lambda$ | $\lambda$ | $\omega$ | $\omega$ | $\omega$ |
| Income: \$30k-\$60k | -0.252 | | | -0.357 | | |
| | (0.608) | | | (0.560) | | |
| Income: \$60k-\$100k | 0.0545 | | | 0.215 | | |
| | (0.839) | | | (0.746) | | |
| Income: <\$100k | -0.885* | | | -0.451 | | |
| | (0.486) | | | (0.495) | | |
| Income in \$1000s | | -0.00730*** | -0.00533*** | | -0.00432* | -0.00263 |
| | | (0.00219) | (0.00178) | | (0.00236) | (0.00250) |
| Owns Stock | | | 0.0880 | | | -0.743* |
| | | | (0.383) | | | (0.402) |
| College or Some College | | | -0.620 | | | 0.191 |
| | | | (0.389) | | | (0.386) |
| Advanced Degree | | | -0.850* | | | -0.154 |
| | | | (0.485) | | | (0.469) |
| Female | | | 0.208 | | | 0.0376 |
| | | | (0.340) | | | (0.310) |
| Black/African American | | | -0.568 | | | -0.723 |
| | | | (0.593) | | | (0.529) |
| Asian or Pacific Islander | | | -1.260*** | | | -0.215 |
| | | | (0.383) | | | (0.711) |
| Other | | | -0.922* | | | -0.578 |
| | | | (0.525) | | | (0.596) |
| Republican | | | -0.988*** | | | -0.374 |
| | | | (0.320) | | | (0.369) |
| Democrat | | | 0.134 | | | 0.864** |
| | | | (0.432) | | | (0.354) |
| Constant | 1.880*** | 2.147*** | 2.553*** | 2.058*** | 2.232*** | 2.249*** |
| | (0.431) | (0.379) | (0.589) | (0.421) | (0.359) | (0.468) |
| Observations | 436 | 436 | 435 | 436 | 436 | 435 |

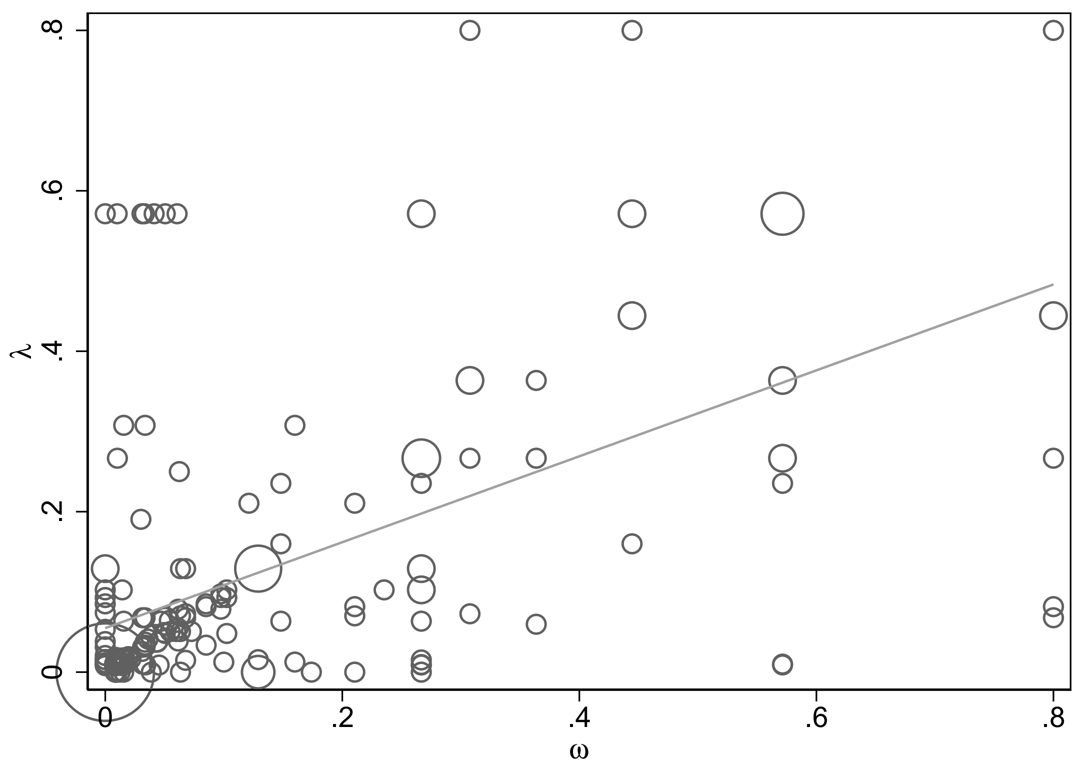
*Notes:* Data: Representative Sample, with weights from RAND American Life Panel.

Appendix Figure A1: Distribution of Elicited $\omega$ by Stockholding Status




*Notes:* Data: Representative Sample, without weighting observations. Grouped into 50 bins. All values of $\omega$ greater than 1 are grouped in a single bin.

Appendix Figure A2: Scatterplot of $\lambda$ and $\omega$




*Notes:* Data: Representative Sample without weighting observations and limited to individuals with $\lambda$ and $\omega$ both less than or equal to 1. Marker size indicates the number of participants at a given value. Best fit linear regression is plotted.

Appendix Figure A3: Perceived Importance of Factors when Investing


*Notes:* Data: Representative Sample, with weights from RAND American Life Panel. 95% confidence intervals shown.