Research Statement

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I am a Quantitative Macroeconomist whose research examines the link between corporate investment, shareholder preferences, and macroeconomic outcomes. In this research, I model settings with rich, micro-founded household and firm heterogeneity to better explain changes in macroeconomic outcomes. While my general focus is macroeconomics, my research also contributes to the literature on Asset Pricing, the Theory of the Firm, and Incomplete Markets. Below, I summarize my recent projects and outline where I look forward to extending my research in the coming years.

In my job market paper, **Firm Investment with Shareholder Inequality**, I examine how household inequality over income and wealth jointly shape corporate decisions about investment versus dividend payments. Over the last 40 years, household financial wealth relative to GDP has increased 35%, while the capital-output ratio has only increased 5%. At the same time, income inequality has increased significantly, especially in the right tail. Standard models featuring income inequality generate an increase in wealth, but an identical rise in the capital stock always accompanies it. To resolve this, I model saving through a stock market and letting firms own, operate, and invest in capital. However, this presents a difficult technical problem.

With aggregate risk and uninsurable idiosyncratic household labor risk, households value payoffs differently across different future aggregate states. Firms want to maximize shareholder value, but shareholder value is poorly defined when shareholders disagree about the value of future payoffs. I resolve the firm's problem by modeling a mutual fund and an off-equilibrium private equity firm. These institutions jointly incentivize production firms to maximize their net market value (or cum-dividend share price). While this model is written with a representative production sector, it can also extend to a setting with production heterogeneity. This mechanism is a significant contribution to the macrodynamic literature.

With this model and mechanism for evaluating the firm's problem, I find that an increase in wage risk increases capital investment by firms, increases wages, and slightly lowers the volatility of consumption and output over the business cycle. These results are consistent with models where households directly own capital. However, I also explain the disproportionate increase in wealth relative to GDP. In the model, the wealth-GDP ratio increases by 40% (35% in the data), while the capital-output ratio only increases by 20% (5% in the data). The model also explains recent changes to aggregate stock market outcomes. My model explains nearly 100% of the observed decline in both dividend yields and the rise in the price to earnings (PE) ratio.

Finally, I use the model to directly examine the role of wealth inequality by simulating an unanticipated wealth redistribution shock. I find that an unanticipated increase in wealth inequality via a transfer of shares to the wealthy leads to increased investment, higher capital stock, higher wages, higher output, and higher aggregate consumption. However, the strong headline numbers mask much worse outcomes for low-wealth households. The increased capital stock results in lower return rates on savings, making it harder for low-wealth households to save

their way out of poverty. Despite higher wages, poor households are much worse off in an environment with exogenously increased wealth inequality.

Common Ownership and Capital Investment studies the interaction between common ownership and capital investment in the US economy. The common ownership hypothesis suggests that firms owned by a pooled set of shareholders will compete with each other less vigorously to increase their shareholders' portfolio profits. Most papers studying common ownership focus on industry studies, and none study the interaction between common ownership and capital investment.[1]

My paper finds that the interaction between common ownership and capital investment depends on who owns capital. When households own capital and rent it to firms, increased levels of common ownership decreases the price paid for capital and increases equity value. This causes households to put more wealth into equities than capital, and the economy shrinks. On the other hand, if firms own capital, increasing levels of common ownership increases the markup on capital, increasing the effective marginal product of capital. Firms then accumulate more capital, and the economy grows. This result is similar to the findings of Azar and Vives (2021), which finds that common ownership may increase output under specific parameterizations. In contrast, I find that common ownership increases output as long as firms own capital.

Firm Size Distribution and the Increase in Markups (with Rohan Shah) studies the role of firm productivity heterogeneity in shaping aggregate markups. There is a well-documented increase in markups observed in the United States between 1980 and 2016. However, the causes of these increased markups and corporate profits are less well understood. If markups are rising because of collusion or other antitrust failures, the policy response would be very different than if markups are increasing because of changes to technology or the composition of consumption bundles.

We write and calibrate a model to match the observed distribution of firms over productivity between 1986 and 2016. We find that the increase in productivity of the largest firms can explain roughly a third of the rise in markups observed in the data. This finding suggests that the concern about rising markups may be overstated. Policy targeting markups would likely cause inefficiencies by reducing the output of the most productive firms.

Ongoing research and future work. I am currently working on other household heterogeneity and firm behavior projects. I briefly detail two applications below.

I plan on extending my research to understand how **tax policy shapes corporate behavior**. Before this model, the literature did not have a consistent method for valuing the firm when heterogeneous shareholders own it. Therefore, existing models cannot accurately consider the implications of different tax schemes when firms make dynamic choices. Taxing dividends or

[1] The current frontier in this research as it relates to macroeconomic outcomes is from Azar and Vives (2021), which suggests that common ownership's impact on economic outcomes depends on the elasticity of labor supply relative to elasticity of product variety.

corporate profits are interchangeable when there is a representative household. But when there is a meaningful distribution of households who pay a progressive income tax on dividends, the effect of taxation may depend on who owns shares of the firm. The question becomes more complicated if capital gains are taxed differently, and the firm can utilize share buybacks to return profits to shareholders. This line of inquiry has clear policy implications and would fit nicely into my existing research strengths.

The second line of research I am working on examines **who benefits from share repurchases**. The common refrain about share repurchases is that they "return value to shareholders," much in the same way as dividends return cash to investors. However, there is necessarily a distribution over how shareholders receive value. Shareholders who sell get cash, while those who hold the equity get a more significant stake in the company. The finance literature assumes that share repurchases increase management control of a firm and decrease the relative ownership of shareholders who are pessimistic about the firm's value. However, there have not yet been accurate measures of how large these changes are in practice.

I leverage a new dataset of shareholding over the last 20 years to measure who buys, sells, or holds shares when a company repurchases its shares. My initial findings suggest that share repurchases decrease relative shareholding by large financial blockholders (like Fidelity or Blackrock) and increase relative shareholding by managers. Because smaller investors tend to hold financial wealth through institutional investors, share buybacks tend to give cash to small investors and control to large investors. Therefore, financial regulators should be cognizant of the distributional effects of share repurchases when making policy change recommendations.