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THE MACROECONOMICS OF SHAREHOLDER PRESSURE

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***FINANCIAL ECONOMICS and
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ABSTRACT

The Macroeconomics of Shareholder Pressure*

This Paper argues that shareholder activism can be considered as similar to the adoption of increasing returns-to-scale technology by financial institutions. I start from this mechanism to build a model designed to assess the long-run consequences of shareholder pressure. I then use this model to analyse the interaction between shareholder pressure, savings dynamics and growth. The main consequence is that the economy exhibits multiple steady-state equilibria. Two important implications are derived: first, temporary population changes have long-lasting effects. Second, small technology improvements may lead to large changes in welfare. I then feed the model with an additional assumption: managers are employment-friendly. This allows us to study the relation between corporate control, growth and the demand for skill. It also allows us to address concerns raised by the proponents of the stakeholder society in a formal framework. Finally, I provide some empirical evidence that shareholder pressure actually has a macroeconomic impact on growth and labour demand, in line with some of the model predictions.

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*I thank Daniel Cohen for many helpful discussions at an earlier stage of this research.

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The Macroeconomics of Shareholder Pressure*

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April 30, 2001

Abstract

This paper argues that shareholder activism can be considered as similar to the adoption of an increasing returns to scale technology by financial institutions. I start from this mechanism to build a model designed to assess the long run consequences of shareholder pressure. I then use this model to analyze the interaction between shareholder pressure, savings dynamics and growth. The main consequence is that the economy exhibits multiple steady state equilibria. Two important implications are derived: first, temporary population changes have long lasting effects. Second, small technology improvements may lead to large changes in welfare. I then feed the model with an additional assumption: managers are employment friendly. This allows to study the relation between corporate control, growth and the demand for skill. It also allows to address concerns raised by the proponents of the stakeholder society in a formal framework. Finally, I provide some empirical evidence that shareholder pressure actually has a macroeconomic impact on growth and labor demand, in line with some of the model predictions.

1. Introduction

In the absence of close monitoring by the owners of the firm, managers may take actions that can hurt shareholders (for a survey, see Shleifer and Vishny [1997]). They will try to avoid painful restructuring, are prone to engage in empire building, to consume corporate assets as perks, and, in some cases, simply

*I thank Daniel Cohen for many helpful discussions at an earlier stage of this research.

steal from the company. This conflict of interest between owners and managers (Jensen and Meckling [1976]) gives rise to the issue of "corporate governance", which is the design of institutions, corporate charters, and contracts that permit the alignment of managers' and shareholders' objectives.

During the past twenty years, the managements of large corporations in the United States have been put under growing pressure by their shareholders to solve this problem of governance and improve corporate performance and profits (Shleifer and Vishny [1997], Tirole [2001]). Part of the reason for this is the rising role played by institutional investors like pension and mutual funds (see Friedman [1995]): both types of investors accounted for 42% of total equity holdings in 1999, against only 13% back in 1970. By pooling large amounts of savings, these investors are in a position to imposing their view to the management. By owning large blocks of corporate equity, they internalize the benefits of corporate governance provisions (Coffee [1993]). By having large stakes in a firm success, they will not oppose a takeover aimed at improving the quality of its management (Shleifer and Vishny [1986]). After decades of passivity and impotence, shareholders therefore became large enough to compell reluctant managers to adopt more profitable technologies/organizations.

The importance of large shareholders suggests that corporate control behaves much like the adoption of an increasing returns to scale technology. Firm monitoring and auditing, the promotion of shareholder activism in the media, or the organization of a takeover or a LBO are all fixed costs, that depend little on corporate capitalization. Payment of these fixed costs in turn improves stock returns and private benefits from better governance depend on how much stocks the institution owns.

This paper explores theoretically the macroeconomic implications of this mechanism. The emergence of large shareholders is thus made endogenous to the level of savings in the economy. In turn, such large investors are in a position to influence the wage bill, which is tomorrow's savings. This paper considers the dynamics of such an economy. More specifically, I construct a simple OLG model, where suppliers of labor are the young and suppliers of capital the old. The old put their money into projects, that use both capital and labor. The problem is that managers of these projects do not spontaneously maximize profits. But if shareholders take control of corporations, they are in a position to impose profit maximizing effort to their managers. The obtention of corporate control therefore improves savings returns, but requires the payment of a fixed cost. This is were financial intermediaries play a role. By pooling enough savings, they are in a position to

pay for these fixed costs. At this point, a second assumption is needed: to pay for these fixed costs of improved governance, institution derive quasi rents from monopoly power. They derive such a monopoly power from selling assets that are not perfectly substitutable to their competitors. This model thus has two core assumption: (1) *corporate control is an IRS technology* and (2) *there are limits to arbitrage between financial assets*. All in all, the emergence of large investors is made endogenous in the fashion of Murphy et al. [1989]. Large shareholders emerge if the costs of monitoring are balanced by the benefits from greater profit of control. Corporate control impacts productivity and therefore not only savings returns, but also wages, which will be next period's savings.

What are the dynamics of such an economy ? I show that it has multiple long run equilibria, and initial condition matter in determining which steady state the economy will end in. If initial wealth is too low, the economy may be trapped in a long run equilibrium where savings and consumption are too low. There are two potentially important implications of this multiplicity: first, a *temporary* population increase (baby boom) may have a *persistent* impact on growth and asset prices. Second, a *small* improvement in technology is likely to trigger *large* long run effects. I then apply these insights to address two issues: the past shift in the demand for skill and the potentially perverse effects of shareholder control. To do this I introduce the assumption that managers are *employment friendly*. In this case, a small change in technology is likely to have large effects on the distribution of output between labor and capital, and the "activist" equilibrium may not be optimal. Moreover, in the presence of skill capital complementarities, inequalities widen following the shareholder revolution: the rise in skill labor demand may therefore be naturally rooted in shareholder activism, itself triggered by the baby boom or a slight improvement in the monitoring technology of managements.

This paper builds on two strands of recent macroeconomic research. The main litterature this paper borrows from is the macroeconomic litterature on financial intermediation, and more precisely two recent papers by Acemoglu and Zilibotti [1997] and Martin and Rey [2000]. In these papers, financial intermediaries supply assets that provide returns in different states of the world, such that they are not perfectly substitutable for risk averse agents. What is novel here is the endogenization of the financial intermediation technology in such a context (activism versus shareholder passivity). Furthermore, I look at its impact on technology adoption and labor demand. This second aspect of the paper is related to a second stream of literature on directed technology adoption. Blanchard [1997] looks at endogenous capital/labor substitution when labor becomes too expensive. Caballero and

Hammour [1999] consider the impact of potential hold up of relation specific assets in the relation between labor and capital. Since the supply of capital is less elastic in the short run, capital is likely to be held up. While this is first beneficial to labor's share, this hold up problem compells firms to adopt labor saving technologies, which decrease the wage bill in the long run. Both papers seek to explain the decrease in labor's share in continental Europe during the 1980s. Acemoglu [1998,1999] considers long run impacts of the possibility to direct technical change toward one input or the other (skilled/unskilled labor, or capital/labor). These papers however assume profit maximizing behavior from the corporate sector to derive the consequence technology adoption. There is therefore no room for the issue of corporate control.

Section 2 discusses evidence and timing of the "shareholder revolution", i.e. the process through which shareholders took over the control of US corporations in the 1980s. Using macro data and existing pieces of empirical research, I show this process may be credibly related to the emergence of institutional investors in the US financial landscape. Section 3 lays down the basic set-up and discusses the main hypotheses. The main result is that savings dynamics has multiple long run equilibria. Section 4 discusses the main implications of the model and two extensions. In section 5, I provide a preliminary empirical investigation of the macroeconomic impact of shareholder pressure, along the lines of the theoretical analysis. While preliminary findings are encouraging, a more thorough empirical investigation is clearly needed. Section 6 concludes on this point.

2. The Shareholder Revolution: The Role of Large Investors

The "shareholder revolution" is the process through which shareholders started to recover corporate control in the early 1980s in the US. Until then, most listed corporations were run by independant managers, whose aim was not profit maximization but personnal well being. Dispersed share ownership had long been acknowledged to be the reason for the survival of such inefficient arrangements since Veblen [1904] and the empirical work by Berles and Means [1932]. The residual claimant was an absent owner, and the manager an omnipotent bureaucrat (Galbraith [1967]).

The revolution that put an end to this situation has taken several forms, now documented in an extensive empirical literature. Start with the takeover channel: listed US corporations experienced a dramatic wave of takeovers in the 1980s. Kaplan [1997] notes that between 1982 and 1989, 30% of large US corporations were

either the target of a hostile takeover, or restructured in response to an explicit takeover threat. Baghat, Shleifer and Vishny [1989] record 67 hostile takeovers with purchase price above 50 million dollars between 1984 and 1986. They find that the motivation of these actions was excessive corporate diversification in the 1960s and the 1970s. All in all, these takeovers increased the pressure on managers to choose value enhancing projects (instead of privately beneficial) and profits. In many cases though, restructuring took place in the absence of explicit takeover threat. Commitment to such actions was obtained through swapping debt and equity in the firm's capital structure. The intuition is that debt acts as a stronger commitment device than equity, since it has to be paid for in all states of nature except bankruptcy (Jensen [1986]). Leveraged buyouts (the act of buying equity with borrowed money) activity has been so active in the late 1980s that net equity issues was negative each year between 1984 and 1990 (Kaplan [1997]).

Beside these purely financial mechanisms, a second engine of the shareholder revolution has been the emergence of institutional investors in the US financial landscape. The rise in individualised pension funding indeed permitted the emergence of large financial institutions whose activity is to pool savings and invest the collected capital in securities (Mutual Funds, Pension Funds and Life Insurances). These new actors have tended to invest not only in corporate debt (bonds) but also in equity. Figure 2.1 draws the evolution of the share of Pension Funds and Mutual Funds holding in total corporate equity, as computed by the Federal Reserve Board (Flow of Funds Accounts). The rise in mutual and pension funds started in the 1950s, but really accelerated in the 1970s. Their went up from 13% of total equity in 1970 to 42% in 1999.

As large investors were substituted to atomistic ones, residual claimants became in a position to demand higher returns on equity (Holmstrom and Kaplan [2000]). There are indeed strong incentives for large investors to improve corporate governance: they are able to internalize a greater part of the benefits of control (Shleifer and Vishny [1986,1997]). Moreover, the large blocks they hold tend to be illiquid, so that they cannot just walk away if the firm is badly managed (Coffee [1993])¹. Finally, the indexing strategy of many institutional investors prevents them from selling underperformers and therefore represents a powerful stimulus to engage in corporate governance (Gillan and Stark [2000]).

As a result, shareholder activism from institutional investors has become stronger.

¹See Maug [1998] for an alternative view. Maug argues that liquidity *increases* the likelihood for institutional investors to monitor. The reason is that in a liquid market, institutional investors may benefit more from their superior information.

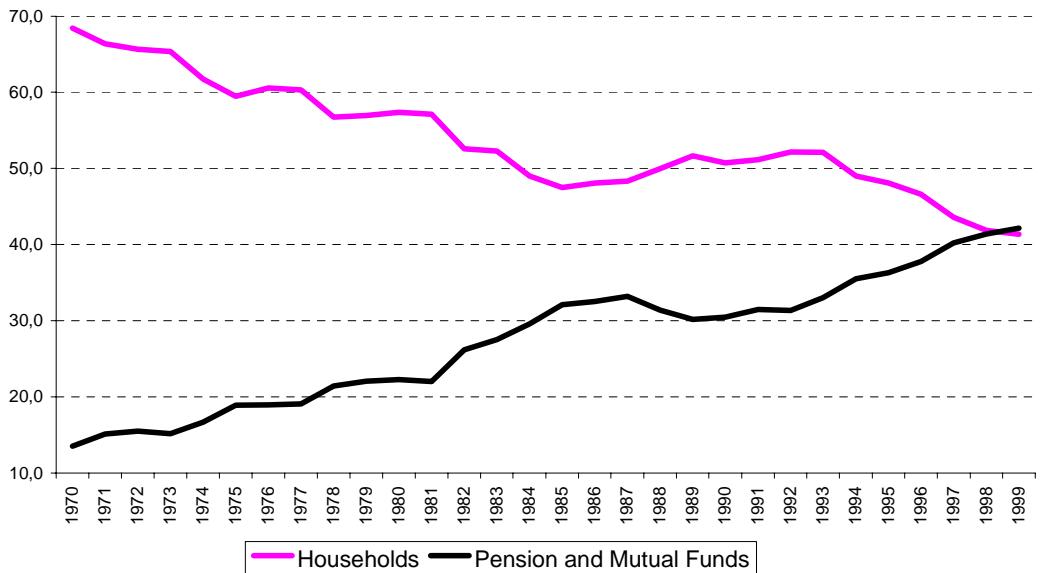


Figure 2.1: Share of Funds and Households in Total Equity Holdings: 1970 - 1999

Gillan and Stark [2000] show that shareholder proposals under the SEC rule 14a-8 have been particularly numerous across the 1987-1994 period. CalPers, a californian pension fund, has advertised a list of 37 "principles of good practice for a corporate board" and subsequently put pressure on managements to adhere to them. Other activist pension funds include the LENS fund and Michael Price's Mutual Share. The Council of Institutional Investors allows institutional investors to unit forces to improve corporate governance in some selected targets. Existing empirical studies tend to find weak evidence of the impact of shareholder activism on shareholder value (Black [1998]). However, shareholder activism may also go through informal communication that is not reported in proxy statement. Moreover, share prices may not be an accurate measure of corporate restructuring: Gillan and Stark [2000] find a positive effect of shareholder proposals on voting outcomes and - depending on the sponsor identity - a modest stock market reaction.

Three recent contributions attempt to evaluate the effect of shareholder pressure on corporate performance. First, corporate governance matters. Gompers et al [2001] construct a corporate governance index based on information on takeover

defences, management protection and shareholder influence at the firm level. They take advantage of the fact that firms have a wide latitude in adopting such corporate governance provisions. Using this variability, they show that the impact of shareholder oriented corporate governance provision is sizeable on stock returns and corporate performance. Mitchell and Mulherin [1996] provide direct evidence of corporate restructuring in response to shareholder pressure. In their sample of large, listed corporations, they find that more than 30% of firms were restructured because of takeovers, takeovers threats, or simply large blocks trade. To be more specific, they show that takeover targets tended to belong to sectors that experienced mismanaged productivity shocks in the late 1970s: deregulation, import competition, energy shocks. Finally, Gompers and Metrick [2000] focus on the role institutional investors. They find a sizeable relation between equity returns and institutional investors holdings at the firm level: taken at face value, their regression estimates (table V, second column) suggest that an increase by 40 points in institutional ownership of total equity (figure 2.1) should increase average annual stock returns by 6 points. This is sizeable, considering that average annual returns stood around 14 percent over the period. Institutional ownership is therefore in a position to make up the difference between annual growth in nominal GDP and annual returns to stocks over the period. Furthermore, Gompers and Metrick show that such a difference cannot be attributed to large investors being "wiser" than individuals, since equity prices tend to rise *subsequently* to institutional purchase. They interpret this relation as a decline in asset liquidity: returns increase because higher demand drives prices up. However, the evidence they present is perfectly consistent with the "institutional activism" hypothesis: large institutions holds large blocks, improve corporate governance and therefore future cash flows. Indeed, they find a positive and significant correlation between institutional ownership² and not only prices but also stock yields (their table III). A closer look at the relation between cahs flows and institutional ownership would allow to discriminate between their interpretation and ours.

Evidence from the flow of funds accounts seems to corroborate the "improved corporate governance hypothesis". Figure 2.2 displays the evolution of the share of profits devoted to dividend payments, which nearly doubled between the late 1970s and the late 1990s. This piece of evidence is robust to the inclusion or the exclusion of tax in the definition of profits. All in all, and given the slight increase in the capital share shown in BEA data over the period, the share of dividends in

²The share of total stock held by large institutions.

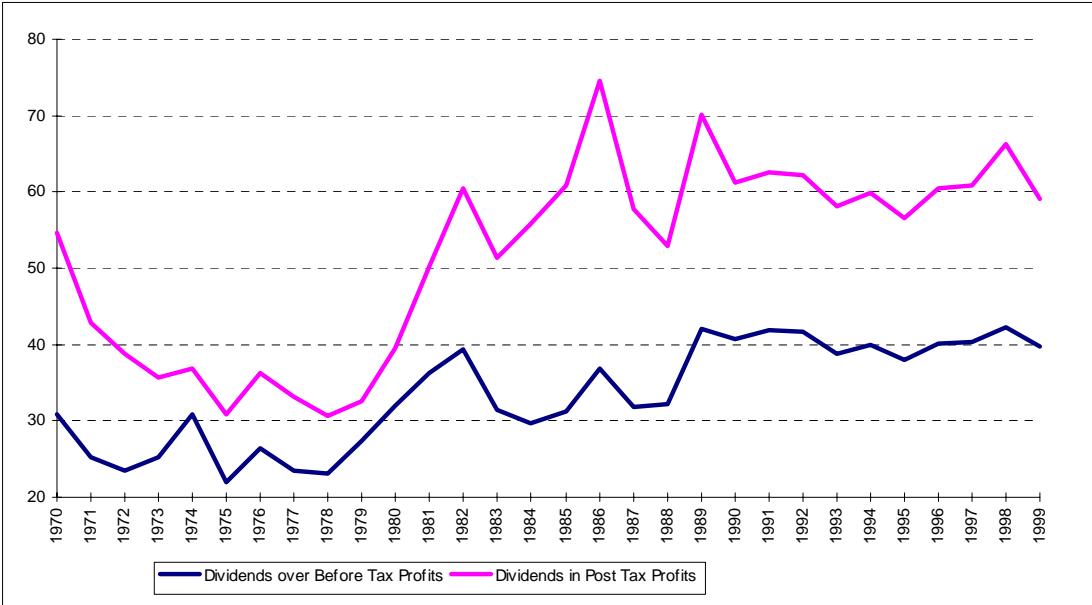


Figure 2.2: Share of Profits Distributed as Dividends

national income nearly doubled and rose from 3 to 5%.³

The view held in this paper is therefore that the rise in institutional investors has triggered improvements in corporate governance of US corporations (a view also shared by Holmstrom and Kaplan [2000]). Directly, as institutions have become activist and engaged in corporate monitoring. But also, indirectly, as increased demand for valuable assets created the scope for a more active market of corporate control.

3. Basic Model

The above evidence has tried to motivate the empirical relevance of shareholder pressure as a determinant of both labor market and corporate performance in the past 20 years. Cross section, sector based evidence suggests that shareholder pressure's macroeconomic impact may be large. Consistently with this, the following

³There is now a debate on the size of the recent increase in capital's share of national income. Recent papers by Abram et al. [1999] and Krueger [1999] provide some evidence that the decline in labor's share is likely to be underestimated in BEA data by some 3-4 points.

section embeds endogenous shareholder pressure in a basic model of growth.

3.1. Preferences and Technology

Consider a standard OLG model. Each agent lives for two periods. When young, agents work and earn w ; they work in firms who rent capital from financial intermediaries. These financial intermediaries collect savings from the old (more on this below). Agents do not consume in the first period of their life. Once they become old, they save through buying assets sold by financial intermediaries. Once they get returns on their savings, they consume the proceeds and get utility $u(c) = \log(c)$.

In what follows, we will need that asset suppliers may enjoy monopoly rents, in order to be able to pay for the fixed costs of activism. We therefore assume that assets are not perfectly substitutable because they provide returns in different states of the world (Acemoglu and Zilibotti [1997], Martin and Rey [2000]). This assumption of imperfect substitutability is realistic.⁴ There is a continuum $[0; 1]$ of projects. Each project i has a manager. The manager hires labor from the youth labor force l_i , uses capital x_i to produce

$$Y_i = e_i Z_i [(x_i)^\rho + l_i^\rho]^{1/\rho} \quad (3.1)$$

where e_i stands for managerial effort in firm i . Effort is assumed to be costly to the manager. For simplicity, we assume that managerial effort can only take discrete values: $e_i \in \{1, e\}^2$, with $e > 1$. Z_i measure total factor productivity - or product specific world demand in an open economy. ρ is assumed to be positive, such that capital and labor are in principle substitutes in production. For example, working on French macro data, Caballero and Hammour indeed find that ρ is indeed very close to one (they settle for $\rho = 0.8$ in their calibration exercises). Such a high elasticity of labor-capital substitution is to be found in the long run; in the short run, both inputs tend to be gross complements. Since we think of generations, our horizon is however much more long run.

Z_i is stochastic: projects earn returns that depend on an ex ante unknown state of the world. Once all projects have been financed, Nature draws a state $i \in [0; 1]$. In state i , project i has TFP $Z_i = Z$, while all other projects $j \neq i$ have $Z_j = 0$. Agents do not directly buy shares of the projects. They buy shares from financial intermediaries, which then invest in the various projects. The timing is

⁴This assumption is a particular case of limited arbitrage, whose empirical relevance is more thoroughly discussed by Shleifer [2000].

the following. First, each financial intermediary operating in sector i sells shares that provide r_i units of consumptions in state i , and 0 in state $j \neq i$. The collected savings are then invested in technology i described in equation (3.1). We assume that within a sector financial intermediaries compete à la Bertrand in returns r_i to collect capital from savers. Second, these financial intermediaries decide whether they wish to take control of the corporation or not. Management effort costs c in terms of final good.

This reduced form may have several theoretical motivations in a principal-agent framework with moral hazard. First, as effort is costly to the manager, the manager's *participation* constraint has to be satisfied, such that the management has to be compensated for extra effort. A second interpretation is that c measures agency costs: if effort is not observable to the shareholder, *incentive* compatible contracts need to leave a rent to risk averse managers. A third interpretation is *monitoring* costs: a priori unobserved management effort may be audited. The threat of being audited has a positive effect on management effort, and agency costs are paid to a third party: the auditors.

In practice, costs of shareholder activism will take several forms. First, good corporate governance includes well designed management compensation packages, often based on stock options. However granting stock options to managers may be costly. On the one hand, as they are immune to downside risks, managers may be willing to undertake too risky projects (standard rent left to risk averse agents). On the other hand, they may be able to use their insider knowledge of the corporations to manipulate equity prices (multitasking). Often too, shareholder activism relies on close auditing and analysis of the management decisions (interference with management), which is also costly. Managerial effort may also be promoted through issuing codes of good behavior: CalPers - a US pension fund - has earned a reputation of shareholder activism by delivering its "37 principles of the good practice for a corporate board" (Tirole [2001]). Interpreted otherwise, c may be thought of as the cost of committing to sound management: Kaplan [1997] documents how Leveraged Buy Outs in the 1980s helped to reduce agency costs of bad corporate governance. The intuition is that debt acts as a stronger discipline device than equity (Jensen [1986]). Finally, c can also be thought of as the cost of taking over control. Baghat et al. [1990] document the 1980s wave hostile takeovers on US corporations. In many cases, takeovers have acted as disciplining devices of entrenched managers (and many LBOs have been set up in response to a takeover attempt). A takeover is however not undertaken for free, as it requires very expansive financial expertise and reputation.

Next to the capitalistic sector, we assume that there exists an alternative sector that has constant returns to scale technology, and uses labor and no capital (say self employment, cottage production, or unemployment benefits). This sector produces the same final good - whose price is normalized to one - as capitalistic sectors with the following technology:

$$Y = BL$$

where $1 < \alpha < 0$. This specification makes equilibrium wages unresponsive to changes in demand resulting from corporate control.⁵ This allows us to focus on the relation between savings dynamics and corporate control.

To close the model, we specify how agents make their savings decisions. They maximize their expected utility. For a given savings level S , the representative (old) agent then solves:

$$\begin{aligned} \max_{x_i} & \left(\int_0^1 \log(r_i x_i) di - \log \delta \right) \\ \text{s.t. } & \int_0^1 x_i di \leq S \end{aligned}$$

where δ is disutility from working, positive in the capitalistic sector, and 1 in self employment. Whatever the menu of returns proposed, we always have: $x_i = S$. Such a specification greatly clarifies exposition as it removes strategic interactions between financial intermediaries *across* sectors. It helps to concentrate on the interplay between savings and shareholder pressure.

3.2. Main Properties

If Nature draws the state i , labor is hired in this sector. Project i , endowed with capital x_i , will make profits:

$$\pi_i = \frac{Ze_i}{(1 - (Ze_i/w)^{\rho/(1-\rho)})^{(1-\rho)/\rho}} \cdot x_i$$

where w is the wage rate, equal to δB in equilibrium (enough to compensate the disutility of work in the capitalistic sector). Since investors may not influence

⁵Indeed, in our model only one capitalistic sector produces after uncertainty is resolved. In such a framework, internal consistency requires financial intermediaries to anticipate the impact of their decision on future wages to compute their returns. To avoid such effects, we fix wages by introducing the unemployed sector. Relaxing this assumption would not affect our results.

asset demand (it is always equal to S), the outcome of Bertrand competition is simply to drive returns up to:

$$r_i = \frac{Ze_i}{(1 - (Ze_i/w)^{\rho/(1-\rho)})^{(1-\rho)/\rho}} - \frac{C(e_i)}{S} \quad (3.2)$$

Of course, the investor that "wins" the competition is the one that manages to deliver the highest returns. Hence, e_i are chosen so as to maximize r_i . Let $e(S)$ be the optimal effort for a given level of savings. In this case, shareholder activism is the right thing to do if:

$$S > \frac{c}{Z} \cdot \left[e \left(1 - \left(\frac{Ze}{\delta B} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho} - \left(1 - \left(\frac{Z}{\delta B} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho} \right]^{-1} = S^*$$

while the financial intermediary will be passive if $S < S^*$. Hence, $e(S) = e$ if $S > S^*$ and $e(S) = 1$ else. Competition among financial intermediaries ensures that $e(\cdot)$ is increasing in S : larger savings increase the benefits of corporate control, while costs are fixed.

Total employee compensation is equal to future savings. Hence, savings dynamics are given by:

$$S_{t+1} = BL + Z \cdot e(S_t) \cdot \left(1 - \frac{1}{\delta} \right) \cdot \frac{(Z \cdot e(S_t) / \delta B)^{\rho/(1-\rho)}}{\left(1 - (Z \cdot e(S_t) / \delta B)^{\rho/(1-\rho)} \right)^{1/\rho}} S_t \quad (3.3)$$

This equation shows that first, S_{t+1} increases in S_t since higher savings make more capital, which increases employment in the capitalistic sector. As wages are larger in this sector, current wage bill increases. Second, S_{t+1} however also depends on S through shareholder activism, as larger savings yield to increased manager effort $e(S)$. Given that $e(S)$ has been computed above, we get the full dynamics of the economy:

$$S_{t+1} = BL + \begin{cases} Z \left(1 - \frac{1}{\delta} \right) \cdot \frac{(Z / \delta B)^{\rho/(1-\rho)}}{\left(1 - (Z / \delta B)^{\rho/(1-\rho)} \right)^{1/\rho}} S_t & \text{if } S_t < S^* \\ Ze \cdot \left(1 - \frac{1}{\delta} \right) \cdot \frac{(Ze / \delta B)^{\rho/(1-\rho)}}{\left(1 - (Ze / \delta B)^{\rho/(1-\rho)} \right)^{1/\rho}} S_t & \text{if } S_t > S^* \end{cases}$$

Before stating the main results concerning the dynamics of this economy, we need to make the following assumption:

Assumption 1 We posit that:

$$Z \cdot \left(1 - \frac{1}{\delta}\right) \cdot \frac{(Ze/\delta B)^{\rho/(1-\rho)}}{\left(1 - (Ze/\delta B)^{\rho/(1-\rho)}\right)^{1/\rho}} < 1$$

This assumption ensures that equilibria, if they exist, are stable. This inequality prevents savings from growing too much, even in the activist regime ($e(S) = e$). Equilibrium characterization requires that we introduce the two following bounds for L .

$$\begin{aligned} \bar{L} &= \frac{1}{B} \left(1 - Z \left(1 - \frac{1}{\delta}\right) \cdot \frac{(Z/\delta B)^{\rho/(1-\rho)}}{\left(1 - (Z/\delta B)^{\rho/(1-\rho)}\right)^{1/\rho}} \right) S^* \\ \underline{L} &= \frac{1}{B} \left(1 - Ze \left(1 - \frac{1}{\delta}\right) \cdot \frac{(Ze/\delta B)^{\rho/(1-\rho)}}{\left(1 - (Ze/\delta B)^{\rho/(1-\rho)}\right)^{1/\rho}} \right) S^* \end{aligned}$$

The following proposition states the formal (and straightforward) result:

Proposition 3.1. *(Equilibrium characterization) Two steady state equilibria may coexist. More precisely:*

1. If $L < \underline{L}$, there exists only one steady state equilibrium. In this equilibrium, shareholder are passive: $e^* = 1$
2. If $L > \bar{L}$, there exists only one steady state equilibrium. This equilibrium exhibits corporate control: $e^* = e$
3. If $\bar{L} > L > \underline{L}$, both "active" and "passive" steady state equilibria coexist.

An example of dynamics are depicted in figure 3.1. In this case, L stands between \underline{L} and \bar{L} . S_{t+1} crosses the 45° degree line two times, which means that fundamentals in our economy are consistent with tow LR equilibria. Multiplicity arises in this set up because there are increasing returns to scale in the monitoring technology. This creates an externality of current savings decisions on future wages. This intertemporal externality is formally the same as the one occurring in Murphy et al [1989]'s static framework. In their framework, industrialization tends to increase overall income, and therefore demand, which makes industrialization

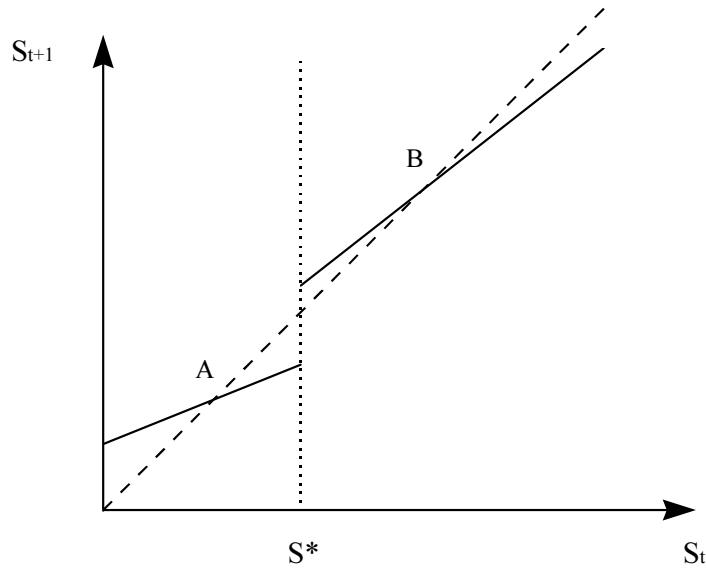


Figure 3.1: Corporate Control and Savings Dynamics

worthwhile for all sectors. In our set-up, corporate control makes future labor income larger, which in turn makes future corporate control possible. Agents have very short horizons, but in the absence of increasing returns to scale of corporate control, the intertemporal equilibrium would be *fully efficient*. Hence, our multiplicity result owes little to the traditional intertemporal externality of OLG models.⁶

These LR equilibria are Pareto ranked. The high savings/activist equilibrium provides the largest stream of consumption and is first best optimal: although workers are indifferent between working in the self employed and the capitalistic

⁶It should also be noted that this multiplicity does not arise from our assumption that e may only take discrete values. Assume for example that $e \in [1; \bar{e}]$. Then marginal profit from increasing e is given by:

$$\frac{\partial r_i}{\partial e} = \frac{Z}{\left(1 - (Ze/w)^{\rho/(1-\rho)}\right)^{1/\rho}} S - \frac{\partial C}{\partial e}$$

which at maximum delivers a maximand $e(S)$ that is increasing in S . Equation (3.3) then guarantees that S_{t+1} is - for some value of S_t - a convex function. The resulting dynamic system may have one, or three long run equilibria.

sectors, they earn larger returns on their savings, which improves their consumption for a given level of savings. The equilibrium that does not exhibit corporate control is not efficient. Indeed, increasing returns of corporate control and finite horizon make the economy prone to suboptimal equilibria, but in the absence of these market imperfections, the equilibrium would be *fully efficient*. In spite of its OLG structure, this model does not exhibit the traditional generational externality⁷: as consumption when young is set to zero, savings behavior is exogenous here. Endogenizing savings behavior - through imposing consumption in both periods - would only reinforce our effect, since the old would not take into account the fact that they are in a position to improve the consumption of future generations by saving more today.

History matters for determining the long run equilibrium. For initial savings $S_0 < S^*$, the economy starts with too little savings. Financial intermediaries never find it profitable to be "activists". Corporations remain uncontrolled, delivering poor returns on capital and little wage incomes. Next generation therefore cannot afford the costs of corporate control. In the long run, the economy remains stuck in the low savings, low consumption equilibrium. If $S^* < S_0$, corporate control is taken over by financial intermediaries. They implement productivity enhancing managerial effort. Overall wage bill is stimulated and the economy ends up in the high savings, high consumption equilibrium.

Finally, it is worth to note that the central role played by history in determining which equilibrium is chosen is clearly a consequence of our agents having finite horizons. Since the old die tomorrow, they do not care about sacrificing some of their returns on savings to obtain corporate control. Short term unprofitable corporate control, however, would improve future wage bill and profitability of corporate control. Assume now that agents live indefinitely: at each date, they trade off current and future consumption. In this case, expectations - not history - will clearly matter. If all agents expect corporate control to take place sooner or later, they will be willing to postpone current consumption, and enjoy the benefits of future, but high return savings. If however, they expect that shareholders will remain passive, they prefer to consume right now, save less, which will make the prophecy self fulfilling. The important role played by expectations in such an intertemporal context has been highlighted by Murphy et al.[1989]'s section 4 and Krugman [1993].

⁷Young generation consume too much and do not internalize the fact that their savings improve tomorrow's youngs productivity and wealth.

4. Discussion

4.1. Comparative statics: Technology Shock and Baby Boom

We are now well armed to perform various comparative static exercises. First, consider a temporary increase in population. Assume that the economy starts in the low equilibrium: there is no corporate control because financial institutions cannot pool enough savings to afford it. For one generation, L increases, such that the dotted $S_{t+1}(S_t)$ curve drawn in figure 4.1 shifts upwards. If the increase in population is large enough, the "passive" equilibrium ceases to be a feasible outcome. Aggregate wage bill go up, since wages do not respond to increased labor supply.⁸ Then, assume total population L goes back to its previous level. In the example depicted, savings are now large enough to make corporate control affordable ($S > S^*$). After a few generations, the economy ends up in the high savings long run equilibrium. Multiple equilibria in this set-up make *permanent* the effect of a *temporary* population increase. If however, the population increase is too small, the economy comes back to the "passive equilibrium".

Another interesting permanent effect is the rise in asset prices. In the past two decades, US stocks have increased at an annual rate of some 13%, well above nominal growth of GDP. Many economists have put forward that stock supply is relatively inelastic, while the need for funding the pensions of the baby boom generation has increased demand (Gompers and Metrick [2001] for an example). Stockmarket growth rate therefore reflects higher demand for future consumption rather than a rise of expectation of future returns. On the basis of times series from US, Canada and the UK, Poterba [2001] finds however little evidence of a link between demography and asset demand. Our model suggests another explanation also based on demographics, but consistent with Poterba's evidence. The recent temporary increase in population has allowed to improve asset returns durably because it has permitted the economy to reach a critical mass beyond which good corporate governance is affordable and asset returns are improved.

Considering B allows to have a short discussion on the effects of minimum wages or unemployment benefits. A temporary increase in B tends to both shift the $S_{t+1}(S_t)$ curve upwards, and to move the boundary S^* to the right. It thus has an ambiguous effect on the likelihood of equilibria. On the one hand, it re-

⁸The non responsiveness of wages to labor supply shifts stems from the existence of a CRS sector. It maximizes the effect of a baby boom, because aggregate wage bill would not increase as much if total labor demand was elastic. This assumption is however not necessary to our results, and has been chosen for expositional simplicity.

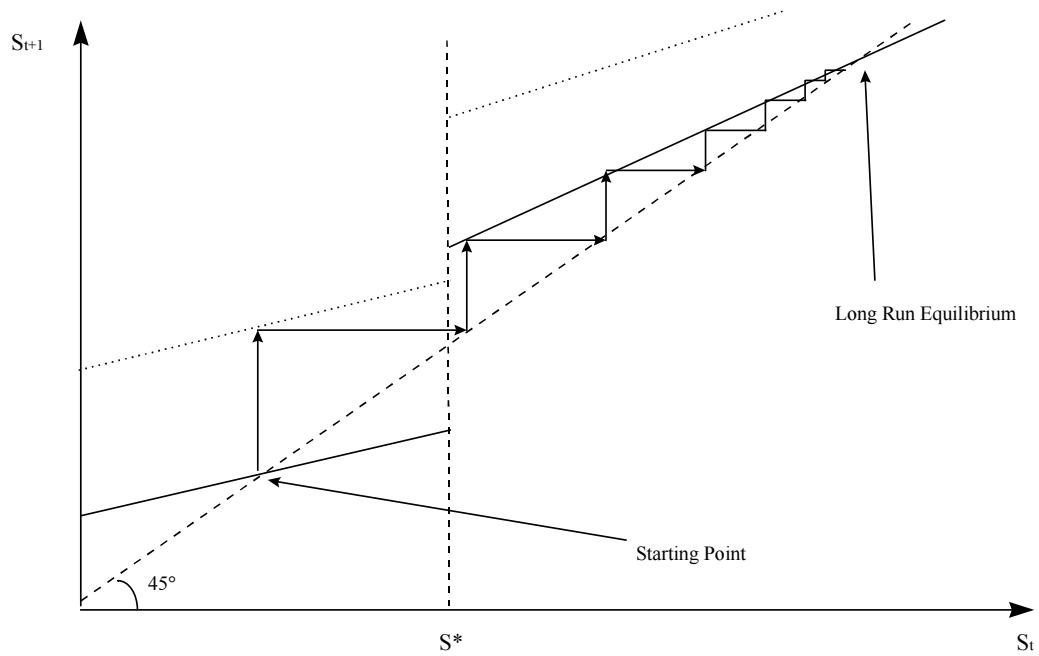


Figure 4.1: Baby Boom

duces returns on capital, makes corporate control less of a profitable business, and decreases the likelihood of the "activist" equilibrium. On the other, it increases savings, and therefore the sustainability of shareholder activism. Hence, an increase in social benefits given to a generation may be used by the social planner wishing to trigger the shareholder revolution. The resulting debt is then repaid by taxing future generations.

The second important implication of multiple steady state equilibria concerns the large sensitivity of the long run equilibrium with respect to the model's parameters. Small changes in technology may for example have a large and brutal impact on the "regime" of the economy in general, and on future growth in particular. Assume for example that the $S_{t+1}(S_t)$ curve has two LR equilibria, but that the lower equilibrium has S^1 very close to S^* . Assume furthermore that the economy finds itself in the lower equilibrium. A technology improvement could impact our model economy through many channels. It could act through Z , the aggregate productivity, or c , the supervision technology available to financial intermediaries. A small rise in TFP makes the "lower" equilibrium unsustainable ($S^1 > S^*$), because it (1) augments the wage bill for a given level of savings ($S_{t+1}(S_t)$ curve shifts upwards) and (2) increase the returns of corporate control for a given level of savings (S^* goes down). A decline in the monitoring technology (be it through financial innovations, exogenous accounting standard improvement, government backed transparency reforms or more generally improvement in information processing technology) merely shifts S^* to the left, but has no impact on the wage bill. All in all, a slight technological improvement will make the equilibrium unique and efficient. The economy will switch suddenly to shareholder activism and growth accelerates.

4.2. The Stakeholder Society

Activist shareholders maximize profits. In doing so, they will however fail to internalize the effect of their decisions on the rest of the economy. For example, a "cleaner" technology may be safer for the environment but its adoption costs have to be borne by shareholders (taken out from profits). In the presence of such externalities, shareholder value is not the optimal guide to reach economic well being. In France, such concerns have been widely voiced by journalists and politicians, in particular in Europe. Tirole [2001] echoed these views and devotes more than half of his essay on corporate governance to the concept of "stakeholder value" and to the design of incentive compatible mechanisms to maximize it.

This section attempts to shed some light on this issue. Before proceeding, let us start by putting by the question differently: why would corporate actions have more external effects under shareholder control than under management control ? In the example given above, there is indeed no apparent reason why a manager would be more environment friendly than shareholders. This could be the case however, if (1) manager's were reluctant to take labor saving decision and (2) employment had *external* effects on the rest of the economy. This is indeed - in particular for the second hypothesis - , what many observers have in mind.⁹

There may be reasons to think that managers may have a preference for employment. For example, Shleifer and Summers [1989] argue that managerial discipline imposed by hostile takeovers allows to breach the implicit contract that exists between senior workers and the manager. These implicit contracts incite workers to invest in firm specific human capital and work hard. The manager may however be unwilling to deliver the value of these contracts to the shareholders, since she would then have to substitute her own effort to the effort of discouraged workers. More generally speaking, the manager may be unwilling to adjust employment downwards in times of downturn, or when the firm belongs to a declining sector, in order to avoid conflict against the unions. In particular, as unskilled workers in declining sectors tend to be more unionized than the average, there may be significant unskilled labor productivity gains from imposing managerial discipline. Looking at the wave of hostile takeovers in the 1980s, Baghat et al. [1990] document that on average 20% of the takeover premium could be attributed to employment reductions (though mostly white collar workers were laid off in their sample).

Another way to say to talk about management preferences for employment is to document the poor use of existing capital, and more unuseful new capital accumulation under managerial discretion. As recalled by Shleifer and Vishny

⁹At the time this paper is written, the French popular press, along with many politicians, focuses on job destructions in Danone's cookie factories LU and in Marks and Spencer retail stores. However, the number of jobs at stake is small with respect to total yearly job creation destructions in the French labor market (some two millions jobs are destroyed and created in year in that country). Moreover, such mass layoffs are often - at least in the case of Danone - accompanied with *plan sociaux*, i.e. proposals of new jobs and generous severance payments to displaced workers. More than the direct effects, what seems to be at stake here is the indirect effect of such layoffs on the rest of the economy, in particular in terms of human capital losses, induced negative demand shocks and the financing of the social safety net. Some politicians highlighted the "social role" of the business enterprise, and that it should not only maximize "shareholder value" in choosing its employment level.

[1997], the case study literature abounds with cases of managers using the firm's cash flows to fund "pet projects", with poor returns to capital. For example, excess diversification in the 1970s is usually seen as a major source of X-inefficiencies affecting large US companies in the 1980s. Investigating the causes of the wave of takeovers in the 1980s, Baghat et al. [1990] found that in many cases the takeover premium could be almost fully explained by the target posterior refocusing on its core activity (some 70% of the average premium). To motivate his theory about the agency costs of free cash flows, Jensen [1986] recalls how oil companies went on prospecting for new oil fields even though oil price were very low.

The second issue is external effects of employment. These may come from several sources. First, the social safety net is financed through taxation. Assume furthermore that it is in shareholders interests to reduce employment. Laid off workers will be entitled to claim unemployment benefits, and in some cases, early retirement benefits. Shareholders will not internalize this effect, unless they are the only ones to finance these benefits. If these transfers are financed by broad based taxation, layoffs will decrease all agents post tax incomes through the balanced budget condition of public transfers. Second, the possibility for shareholders to layoff workers in bad states of the world put firms in a position to hold up firm specific investments in human capital from workers. Because of such a hold up problem, shareholder control will discourage workers from accumulating firm specific human capital. Third, large employment reductions may hit intergenerational human capital transmission. If households are credit constrained, fired workers will be in a bad position to finance their kids' education. If layoffs are concentrated in a particular area, and labor is not mobile, widespread unemployment will create the conditions for "perverse peer effects".

We focus here on macro economic effects of shareholder activism, and therefore make two important deviations with respect to the basic model. Firstly, we model external effects of employment by positing that next period human capital is an increasing, concave function of aggregate employment in the capitalistic sector:

$$L_{t+1} = g(L_t^{capitalistic})$$

where g is a concave, increasing function of the number of agents employed in the capitalistic sector in the current period (this assumption ensures existence and stability of a steady state). This specification is designed to capture the positive impact of capitalistic sector employment on aggregate human capital accumulation. As the existence of interindustry differentials becomes unnecessary to highlight the main effects at work, we posit that $\delta = 1$.

Secondly, we assume that managers have a preference for employment. To be more specific, we start refining our specification of the production technology given in (3.1):

$$Y_i = Z_i [(e_{iK}x_i)^\rho + (e_{iL}l_i)^\rho]^{1/\rho}$$

Once again, effort can only take discrete values $e_i \in \{1, e\}$, with its high value being costly to the manager. The difference now is that corporate control may be *directed* toward improving the productivity of labor *or* capital. In this framework, it is assumed that managers will spontaneously take actions that favor employees. Under this assumption, $e_L = e$ and $e_K = 1$ in an uncontrolled corporation. Control allows to redirect management effort toward capital: $e_K = e$ and $e_L = 1$, if it is worth it, but at the expense of a fixed cost c .

Returns to capital now write:

$$Ze_K \left(1 - \left(\frac{Ze_L}{w} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho}$$

For the adoption of a capital saving technology/organization to be profitable, labor has to be expansive enough to make capital directed effort more profitable than labor directed one:

Assumption 1 *Wages and productivity satisfy:*

$$B > Z \cdot \left(\frac{e^{\rho^2/(1-\rho)^2} - 1}{e^{\rho/(1-\rho)} - 1} \right)^{(1-\rho)/\rho}$$

In this case, it is profitable, for some level of saving, to take over corporate control and impose capital enhancing managerial effort. It is the case if:

$$S > S^* = \frac{c}{Z} \cdot \left[e \left(1 - \left(\frac{Z}{\delta B} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho} - \left(1 - \left(\frac{eZ}{\delta B} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho} \right]^{-1}$$

where assumption 1 ensures that $S^* > 0$. The dynamic system is governed by the following relation:

$$S_{t+1} = \begin{cases} Bg \left(\frac{(Ze/B)^{\rho/(1-\rho)}}{\left(1-(Ze/B)^{\rho/(1-\rho)}\right)^{1/\rho}} \cdot \frac{Z}{B} S_t \right) & \text{if } S_t < S^* \\ Bg \left(\frac{(Z/B)^{\rho/(1-\rho)}}{\left(1-(Z/B)^{\rho/(1-\rho)}\right)^{1/\rho}} \cdot \frac{Z}{B} e S_t \right) & \text{if } S_t > S^* \end{cases}$$

Long run dynamics of this model economy will depend on how employment in the capitalistic sector reacts to corporate control. Two effects are important here. First, as the shareholder forces the manager to adopt an organization that is less favorable to employment, the productivity of this input goes down, and so does labor demand. But on the other hand, the new organization is more appropriate, which increases output and therefore labor and capital demands. Which effect dominates depends on the elasticity of substitution. If $\rho > 1/2$, more efficient capital is easily substituted to labor, and the overall effect on employment is negative. If $0 < \rho < 1/2$, capital is not so easy to substitute to labor, and increased demand also favors labor demand¹⁰, though to a lesser extent than capital demand.

Let us first discuss the second case. If substitution is difficult, corporate control is accompanied with an increase in the wage bill. As in section 3, multiple LR equilibria may emerge (an example is provided in figure 4.2). Depending on whether the economy starts with a low or high savings level, it will end up in the "passive" or "activist" equilibrium. With respect to the previous model, the "activist" equilibrium has a new property: labor's share of total income in the capitalistic sector is lower in the activist equilibrium. Indeed:

$$\left(\frac{wL}{Y}\right)^{\text{capitalistic}} = (Ze/B)^{\rho/(1-\rho)}$$

as shareholder take over corporate control, they find it more profitable to direct managerial effort toward capital, which reduces labor's share. The assumption that managers and workers have to some extent the same preferences is the driving force of this result.

As we have seen, an important consequence of the multiplicity property is that small changes may lead to large shifts in the distribution of income between labor and capital. Assume that in figure 4.2, equilibrium A is very close to S^* . A small improvement in the technology c of monitoring would decrease S^* , and make the "passive" equilibrium unsustainable. Suddenly, the economy shifts into the

¹⁰In fact, in this case, the overall effect of corporate control on employment also depends on the cost of labor, which has to satisfy:

$$B > Z \cdot \left(\frac{e^{\rho+\rho/(1-\rho)} - e^{\rho^2/(1-\rho)}}{e^\rho - e^{\rho/(1-\rho)}} \right)^{1-\rho/\rho}$$

a condition which holds as long as assumption 1 is satisfied.

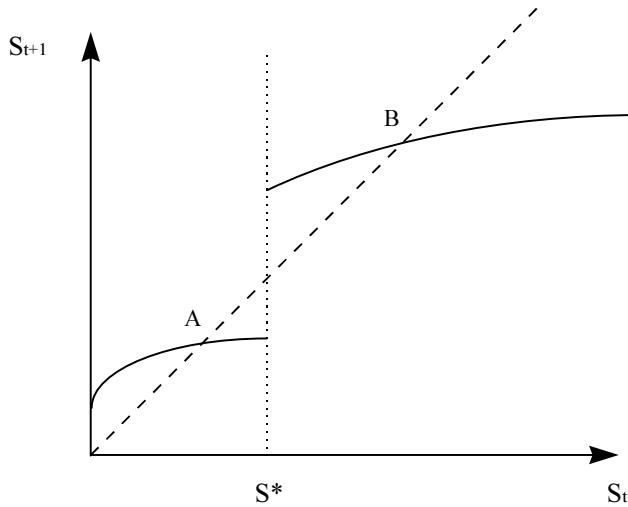


Figure 4.2: Savings Dynamics under limited capital labor substitution

"activist" equilibrium. As soon as $S_t > S^*$, labor's share decreases sharply. Total wage bill however increases, as overall production improves. This last property (which comes from ρ being less than $1/2$) ensures the sustainability of effective corporate control.

Hence, in our model economy, even though it is triggered by small technological change, the shareholder revolution may be brutal. It is accompanied by a sharp growth acceleration, but much of the resulting increase in output is redistributed to capital owners.¹¹

Let us now turn to the $\rho > 1/2$ case. Capital to labor substitution is now easy, such that corporate control comes along with a *decrease* in employment. In this case, if a passive equilibrium is sustainable, shareholder control is unsustainable

¹¹It must be noted that this property owes nothing to our assumption that manager effort is discrete: the important assumptions here are (1) there are increasing returns to corporate control and (2) managers have preferences for employment. Assume temporarily that effort e is continuous, and that it may be directed toward employment or capital. Technology (3.1) now writes:

$$Y_i = Z_i [(ex_i)^\rho + (E - e)^\rho \cdot (l_i)^\rho]^{1/\rho}$$

Provided assumption 1 still holds, the optimal e will still be an increasing function of S , as stronger financial intermediaries will be able to afford closer management watch. This will make S_{t+1} a convex, increasing function of S_t , which ensures that non ergodicities remain possible.

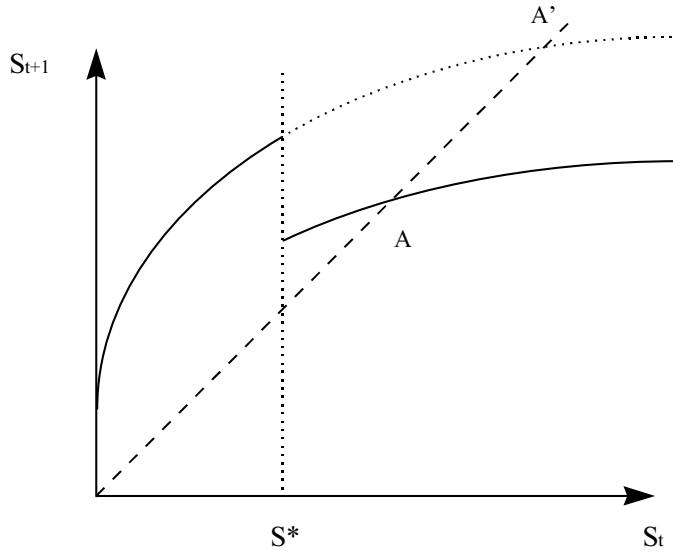


Figure 4.3: Savings Dynamics under high Capital Labor Substitution

in the long run, since corporate control has a depressing effect on future savings. On the other hand, if an "activist" equilibrium is sustainable, savings will be lower in this equilibrium than in the "passive", employment friendly equilibrium. This means that the "passive" equilibrium will produce enough savings to make corporate control sustainable: it can therefore not be an equilibrium. If $\rho > 1/2$ therefore, equilibrium multiplicity disappears.

Assume corporate control is sustained in equilibrium. An example of this is given in figure 4.3. Put in economic terms, the concern raised by proponents of the stakeholder society is whether corporate control is optimal. In the context of figure 4.3, the issue is to know whether consumption is larger in equilibrium A than at point A' , which corresponds to the long run equilibrium of an economy where shareholder activism is forbidden. This is true if:

$$Ze \left(1 - \left(\frac{Z}{B}\right)^{\rho/(1-\rho)}\right)^{-(1-\rho)/\rho} S_A - c > Z \left(1 - \left(\frac{Ze}{B}\right)^{\rho/(1-\rho)}\right)^{-(1-\rho)/\rho} S_{A'}$$

which displays the balance of costs and benefits of corporate control. On the one hand, returns to savings are larger under shareholder activism, but on the other, shareholder activism reduces savings ($S_{A'} > S_A$) because (1) it substitutes

capital to labor and (2) labor has positive, external effects on future growth. The optimality of shareholder control therefore depends on $S_{A'}$ being large enough with respect to S_A , that is, on the relative weight of employment spillovers on growth.

4.3. Skill Biased Restructuring and The Rise in Wage Inequality

The above model may also shed some light on the relation between shareholder activism and the rise in the demand for skill that has been the driving force of the rise in wage inequality in the past 20 years. To do this, we embed two additional assumptions in the model of section 3: (1) skill and capital are complementary inputs in production and (2) managers have a preference for unskilled employment.

Firstly, let us now take a slightly more general form of the production technology described in equation (3.1):

$$Y_i = [(\min \{Ae_K x_i, h_i\})^\rho + (e_L l_i)^\rho]^{1/\rho}$$

where h_i is the quantity of hired skilled labor. This production function has skill and capital as complements, while skilled labor and capital are together a partial substitute to unskilled labor. The CRS sector now hires both skilled and unskilled labor to produce according to the following technology:

$$Y = B(L + H)$$

thus skilled and unskilled have the same productivity is unemployed. However, disutility of work in the capitalistic sector is larger for skilled workers: $\delta_H > \delta_L$.

Secondly, managers will spontaneously take action that favor unskilled employees. A reason for this would be that (1) managers are averse to social conflict, and (2) more unionized unskilled workers have a large capability of generating such conflicts. Another reason could be that CEOs value their image in the popular press and therefore wish to establish a reputation of social managers. Under this assumption, $e_L = e$ and $e_K = 1$ in an uncontrolled corporation. Control allows to redirect management effort toward capital: $e_K = e$ and $e_L = 1$, but at the expense of a fixed cost c .

There is little change with respect to the previous model's solutions. Returns to capital now write:

$$AZe_K \left\{ \left(1 - \left(\frac{Ze_L}{w_L} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho} - w_H \right\}$$

such that demands for labor from the capitalistic sector write:

$$\begin{aligned} H^d &= Ae_K S_t \\ L^d &= \frac{(Ze_L/\delta_L B)^{\rho/(1-\rho)}}{\left(1 - (Ze_L/\delta_L B)^{\rho/(1-\rho)}\right)^{1/\rho}} \cdot \frac{Z}{\delta_L B} Ae_K S_t \end{aligned}$$

Shareholder activism is worth it if:

$$S > S^* = \frac{c}{AZ} \cdot \left[e \left(1 - \left(\frac{Z}{\delta B} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho} - \left(1 - \left(\frac{eZ}{\delta B} \right)^{\rho/(1-\rho)} \right)^{-(1-\rho)/\rho} \right]^{-1}$$

and if an analogue to assumption 1 is satisfied (wages have to be large enough to make capital directed effort worth it such that $S^* > 0$). Savings dynamics are given by:

$$\begin{aligned} S_{t+1} &= B(L + H) \\ &+ \left\{ B(\delta_H - 1)Ae_K + ZAe_K \left(1 - \frac{1}{\delta_L} \right) \left(\frac{Ze_L}{\delta_L B} \right)^{\rho/(1-\rho)} \left(1 - \left(\frac{e_L Z}{\delta_L B} \right)^{\rho/(1-\rho)} \right)^{-1/\rho} \right\} . S_t \end{aligned}$$

where $e_K = e$, and $e_L = 1$ if $S_t > S^*$. $e_K = 1$ and $e_L = e$ if $S_t < S^*$.

We assume that δ_H is large enough when compared to δ_L . This assumption ensures that S_{t+1} is an increasing function of S_t . Even if the unskilled wage bill decreases as e_L goes from e to 1, the skilled wage bill rises enough to compensate. Hence, the overall wage bill increases more when corporations are kept under control. This permits the existence of multiple equilibria for intermediate values of L as in figure 4.4.¹² Furthermore, we assume for simplicity that $\rho > 1/2$.

Armed with this new set up, we will perform two comparative statics exercises. First, compare the two LR equilibria. Equilibrium B has high savings and larger LR consumption. For a given level of savings, corporate control has a positive effect on the skilled wage bill, and a negative one on the unskilled wage bill. Indeed, as corporate control becomes active the share of unskilled labor decreases since more productive capital is substituted to unskilled labor (the $\rho > 1/2$ assumption makes substitution strong enough). The share of skilled labor increases, since

¹²This assumption on δ_H and δ_L is in fact not needed if $\rho < 1/2$. In this case indeed, an increase in capital's productivity also raises the unskilled wage bill, because unskilled and capital are strong complements.

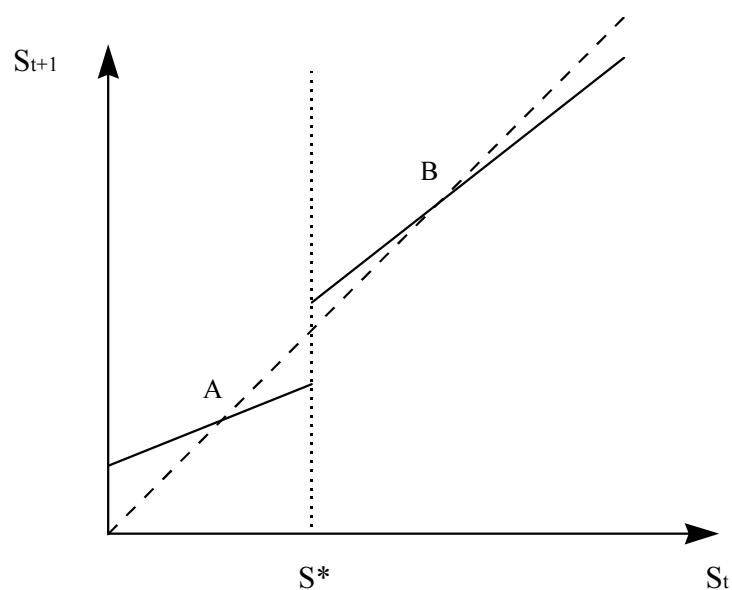


Figure 4.4: Biased Restructuring under the Managerial Human Beingness Hypothesis

more capital raises the demand for skill. In the long run however, since savings are larger in the B equilibrium, it may well be that the net effect of switching from A to B increases unskilled wage bill. It unambiguously rises the skilled wage bill. Both effects taken into account, the skilled / unskilled wage bill ratio increases unambiguously when the economy switches from A to B since:

$$\frac{w_H H^d}{w_L L^d} = \frac{Z}{\delta_H B} \cdot \frac{(Ze_L/\delta_L B)^{\rho/(1-\rho)}}{\left(1 - (Ze_L/\delta_L B)^{\rho/(1-\rho)}\right)^{1/\rho}} \text{ is increasing in } e_L \quad (4.1)$$

Hence, in the corporate control equilibrium, both types of workers benefit from increased savings and employment in the capitalistic sector. Capital is however substituted to unskilled labor only. It seems that this last result could be extended to all cases where skilled workers are less substitutable to capital than unskilled workers - a not unreasonable assumption.

What happens now if there is a temporary upward shock to the S_{t+1} curve (demographic shock for example, or a unemployment benefit shock) ? If it is large enough, the economy may shift from A to B. Corporate control is taken over by financial intermediaries. Skilled labor demand increases as more capital is put into production, while unskilled labor demand first decreases as it is replaced by now more efficient capital. The average skilled wage increases, while the average unskilled wage goes down. There is a change in occupational composition within groups: while unskilled workers reenter the self employed sector, more skilled workers join the capitalistic one. Then, the unskilled labor demand gradually picks up as the economy becomes richer (more savings). In the LR, the average skill wage increases, while the overall effect on the unskilled is ambiguous (richer economy, but less productivity). As equation (4.1) suggests however, the wage differential increases.

It must be noted here that the managerial friendliness to (or fear from) unskilled labor is an important assumption. This assumption of congruence between managerial and workers' interests makes corporate control a detrimental thing to unskilled labor. As it is however, a good thing for skilled labor (here, the assumption that skilled labor is more complementary to capital matters), the "corporate control equilibrium" is also sustainable. Equilibrium multiplicity therefore makes it possible that the rise in the demand for skill could have been triggered by a small technology improvement, or a temporary population increase.

5. Shareholder Pressure and Macroeconomics: Some Testable Implications

The above model has shown how shareholder pressure interplays with the growth rate, savings dynamics and the labor market. What is the empirical relevance of such a model ? From the empirical viewpoint, the problem is that not all US corporations are large nor listed firms. To what extent is it possible to say that shareholder pressure really had an impact on (1) the growth rate and (2) labor's share ? To escape the caveats of a pure historical reasoning based on time series analysis, I look here at industry data. I produce some descriptive statistics about the relation between past shareholder pressure and the subsequent growth rate and labor's share among industries of the US economy.

I took the data on shareholder pressure from Mitchell and Mulherin [1996]. From CRSP data, they computed the share of sector equity that has been acquired through takeovers in the 1982 - 1990 period. Such shares range from 6.8% in coal mining industry to 60.4% in food stores. The average share in equity taken over is 27%, which is sizeable. Readers interested in more detail should refer to table 10 of their paper. I did not manage to access easily data on sector based institutional ownership¹³, so I take here takeovers as a proxy for shareholder pressure. Then I matched this information with NIPA tables from the Bureau of Economic Analysis.¹⁴ These tables include annual breakdowns of factor shares across SIC industries. I computed the share of employees compensation in sector value added, and the growth in nominal value added.

To start with, we would like to check that sectors that contained a lot of takeover targets were those that have been the most efficiently run in the 1990s. To investigate the effects of financial pressure, I regressed the 1992-1999 industry cumulative growth rate on the share of equity raided over the 1982-1990 period.¹⁵ Such an approach is little more than a correlation analysis. In fact, it allows to abstract from shocks that would affect takeovers and restructuring *simultaneously*.

¹³Like the data on stock ownership by institutional investors used by Gompers and Metrick [2001] for example.

¹⁴In fact, NIPA tables now use the 1997 SIC codes, while Mitchell and Mulherin's data are based on 1987 SIC industries. To match both informations, we used tables from the census bureau.

¹⁵The evidence is not different when one looks at capital returns (share of profits divided through total capital stock). Such regression were however run on a subsample of this one, that could be matched with the NBER productivity database from Bartel et al. These results are not presented here.



Figure 5.1: 1980s Takeovers and 1990s Growth Rates

However, it cannot establish that takeovers actually *caused* a posterior growth rate increase, since both may be triggered by a specific shock: international trade restriction are removed, industry is deregulated. Figure 5.1 provides a correlation between 1980s takeovers and subsequent industry growth rate.¹⁶ The correlation as implied by the regression line is strongly positive and significant. The regression coefficient is around 1: on average, 10% of industry equity taken over yields 10 points of additional cumulative growth over the 1992-1999 period. Encouragingly enough, takeovers were therefore followed by sizeable accelerations in trend growth in the 1990s.

Let us now turn to labor's share. From our theoretical analysis, we expect shareholder pressure to favor the share of value added distributed to capital suppliers. We discuss this theoretical assertion in section 4. To what extent could we expect this to be true in the data. Figure 5.2 displays the linear relation between the share of equity taken over and subsequent decline in labor's share.

¹⁶Four abnormal industries were removed from the sample: motor vehicle (whose labor share declined by 20 points over the period), movie, entertainment and textile (where the share of equity taken over was more than 60%).

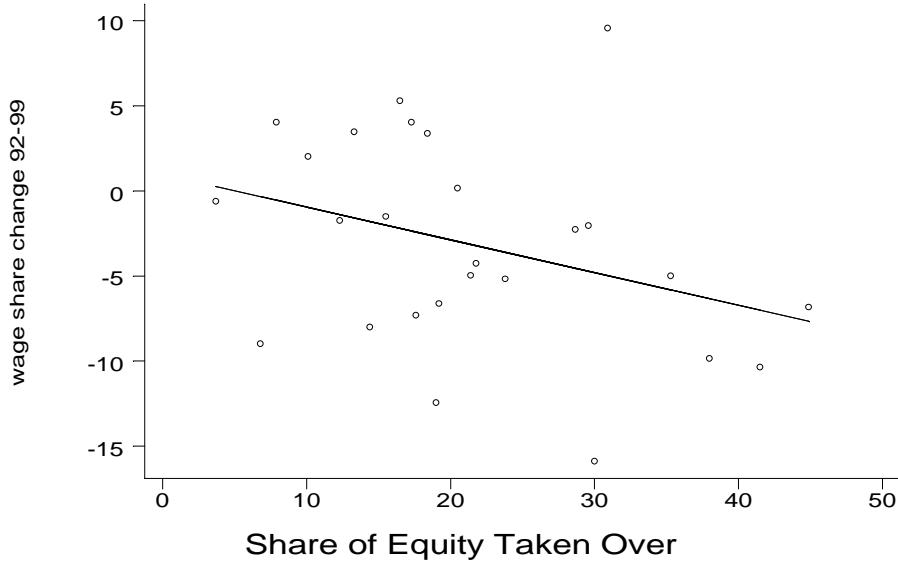


Figure 5.2: 1980s Takeovers and 1990s Labor's Share

The shareholder pressure is clearly accompanied with a subsequent decline in labor's share. The impact is sizeable and given in table 5: for every 10% in equity acquired through takeover, labor's share's decline is roughly *2 points*. To check robustness, table 5 displays three additional regressions. Regression 2 is focused on manufacturing industries, where most of the takeover activity has been concentrated. Regression 3 includes a deregulation dummy, as constructed from Mitchell and Mulherin's table 8 (deregulated industries are: air transport, entertainment, retail trade, health services and natural gas extraction). Regression 4 includes the 1992 share of corporate profits, as a proxy for the need to restructure in the beginning of the 1990s.

Even though the robustness of these results is questionable, they suggest that shareholder cannot be a priori dismissed as a potential determinant of the above selected macro aggregates. At this point, further empirical evidence needs to be gathered. I come back to this issue in the next - and last - section.

Table 1: Takeover and Labor's Share

	Model 1	Model 2	Model 3	Model 4
% Equity	-0.19 (1.5)	-0.17 (1.6)	-0.17 (1.5)	-0.16 (1.5)
Manufacturing Dummy	-	-	-2.3 (1.0)	-1.0 (0.4)
Deregulation Dummy	-	-	-4.4 (1.2)	-3.4 (0.9)
Profit share in 1992	-		-	12.4 (1.4)
Industry	All	Manuf.	All	All
R^2	0.11	0.15	0.19	0.25
Observations	26	17	26	26

Note: All four models use the share of listed equity taken over over the 1982-1990 period as the independant variable. Takeover data from Mitchell and Mulherin [1996]'s table 10. Deregulation dummy equals 1 if the industry has been deregulated in the 1980s as stated in Mitchell and Mulheri's table 8. Profit share in 1992 and labor's share variation over the 1992 1999 period are drawn from the BEA's NIPA tables. Student statitics are in parentheses.

6. Conclusion

This paper has looked at saving dynamics when corporate control is endogenous. To do this, we have constructed an OLG model where efficiency enhancing decisions may be *triggered* by corporate control. The explicit modelling of the corporate control technology is the theoretical innovation of the paper. First, I showed that such an economy admits multiple steady state equilibria. Depending on the initial level of savings, the economy ends up in an equilibrium without shareholder activism, or in an equilibrium with corporate control.

Such multiplicity has interesting implications. First, a temporary increase in the labor force may have permanent effects on growth and asset prices because it allows to switch from the passive to the activist equilibrium. Second, even a slight change in technology may have a large impact as it shifts the economy from one equilibrium to the other. Such impacts are welfare enhancing. The main testable assumption of this theory is that corporate control effectively acts as an increasing returns to scale technology. A testable implication is that sectors with more institutional ownership should grow significantly faster.

Then, we look at issues raised by proponents of the stakeholder society. I assume that (1) labor has positive spillovers on growth, and (2) manager are *employment friendly*. In a first approach, this managerial employment friendliness assumption could be tested through looking at the relation between ownership concentration and employment at the firm level. Such a theory has two lines of implications. If capital and labor are weakly substitutable in production, I argue that a small change in technology may trigger large shifts in the distribution of income between capital and labor. A testable implication is that sectors with more institutional ownership should have a smaller labor's share. If on the contrary, labor and capital are good substitute, shareholder control maybe suboptimal, as it has a detrimental effect on future growth through employment. The empirical issue is then to measure the extent of this externality.

Third, I provide an alternative explanation for the past rise in the demand for skill. If managers are assumed to be unskilled friendly, I show that shareholder activism is accompanied with skilled bias organization change provided skilled labor is more complement to capital than unskilled labor. As multiple equilibria remain in such a model (provided skilled gain more than unskilled lose), a small permanent change in technology or a large temporary change in population are going to have large, long lasting effects on wage inequality and labor's share.

Clearly, this paper is the commencement, rather than the completion of a

research project on the relation between growth, the labor market and corporate control. In particular, the main issue is now empirical, and relies on the use of micro - data on corporate ownership and performance. Such data would allow to evaluate the quantitative impact of shareholder pressure, and its relevance in macroeconomics

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