Effective leadership and the pressure for decisive action

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Abstract

We study the role of chief executives in motivating employees to follow their initiatives for strategic change. In our model, leaders can be effective or ineffective. Effective leaders are able to make changes because employees will voluntarily agree to follow them. Ineffective leaders are unable to make changes because employees will be unwilling to follow and will tacitly resist and block plans for change. In our model, employees and leaders share the same objectives for the firm’s success, but employees will be unwilling to follow a leader if they do not believe he is likely to have a high chance of devising a successful strategy. Since we assume that incompetent leaders are less likely to generate workable strategies, delay in proposing change is viewed as procrastination and lack of strategic vision. This implies that leaders must initiate change within a limited time horizon, or become lame ducks who are merely marking time until their replacement.

1 Introduction

Strategic leadership is the ability to influence others to voluntarily make day to day decisions that enhance the long-term viability of the organization (Rowe, 2001)

In this paper we study leadership and the process of strategic change. We assume that a leader is someone who holds a position of authority at the head of an organization. However, while this authority enables him or her potentially to initiate strategic change, unlike any of his subordinates, it does not follow that he can carry out this role effectively. Even assuming, as we do, that leader and employees share the same criteria for organizational success it may be that the employees do not trust the leader’s competence. In that case initiatives for strategic change will simply be met by indifference and implicit resistance that doom them to failure. On the other hand, effective leaders will attract followers because employees will believe they have the ability to judge the right moment and devise a plan with a good chance of success.
We also assume that the leadership position is characterised by entrenchment. If followers cease to trust their leader, they cannot immediately remove him or her from office. Instead, they must simply endure an ineffective leader for some period of time.

The primary application we have in mind is to a CEO who is appointed to lead a company in need of change, although one can also consider a military application. A country is considering whether to launch a pre-emptive attack on a threatening neighbour. A good leader will be more likely to judge the correct moment and to devise a battle plan with a high chance of success. He may however, want to pass up some opportunities and wait until a really excellent opportunity arrives. On the other hand a poor leader is unlikely to find an opportunity with any chance of success although as soon as he does find one with a small chance, he will rush until to battle. So long as the effect of the underlying differences in ability is not outweighed by the differences in the propensity to wait, as time goes without an attack being launched it becomes less and less likely that the leader is competent. Eventually, confidence will fall to the point that the leader is believed to be (with very high probability) incompetent and so the population would not follow a leader who declared an attack after this time. Any leader who waited this long would be a lame duck, remaining in office but unable to exercise authority.

(We also show that, compared to a situation where he can be replaced at will, the CEO’s entrenchment may be in the firm’s interests ex ante, as it will cause him to be more discriminating before taking action.)

Economic theory has not often addressed the problem of leadership\(^1\). Agency theory, for example, has been used extensively to model CEO behaviour, but the CEO is assumed to have a fixed ability to influence the outcome (modelled as a given function from effort levels to probability distributions over firm value). Hermalin (1998) is the closest to our analysis, since he assumes that leaders must attract voluntary followers by signalling their ability. We agree and consider this to be a fundamental attribute of leadership. A key difference, however, is that we assume that only the chief executive has the power to potentially become a leader, hence leadership requires both formal and effective authority. In contrast, Hermalin assumes that anybody can become the leader. As he puts it “In many academic departments the true leaders are often not the department chairs.” The case considered here, in our view, is more descriptive

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\(^1\)We searched all journal articles on ECONLIT that contain the words “leader” or “leadership” in the title, and found exactly four articles in economics and financial journals that use these words in roughly the same sense used here (i.e. excluding “Stackelberg leader,” “price leader,” etc.). Kuehl (1977) and Shea (1999), although published in what may be considered an economics journal, are both empirical tests of cognitive theory, while Shacar and Nalebuff (1999) is a paper on voter participation in elections. The fourth paper is the study by Hermalin discussed in the text.
of CEOs. In our paper only the nominal leader can lead, but he may or may not be effective as a leader.\(^2\)

Besides the economics literature, there are, of course, a great many studies of leadership in business, psychology, military history, etc\(^3\). These studies consider many different aspects of leadership, including psychological traits, leadership styles, and contingency theory. One of the main themes of these studies is the distinction between the managerial leader, or administrator, versus the visionary or strategic leader (Zaleznik (1977) is the seminal article, and Rowe (2001) gives a contemporary overview). The managerial leader is capable of effective administration of routine tasks in a stable environment, but is not able to catalyze the organization into radical change. On the other hand, the visionary leader may not have the ability or the patience to provide effective management of day to day matters, but is able to formulate strategic plans for discrete organizational transformation and inspire members of the organization to make those plans succeed. Our analysis is closer to visionary or strategic leadership.

\section{The model}

Leaders can be talented (able) or untalented. By “talented” we mean that the CEO has superior strategic ability, specifically, that he or she has superior potential to formulate a strategy that describes when the moment is right for the firm to embark on a programme of change, as well as how to change. We model this by assuming that each period, the leader may receive a signal describing a strategy for how to change the firm in that period. Without a signal, the leader has no strategy and is certain to fail if he attempts to implement change. But, in any case, the leader can only succeed if the employees of the firm choose to follow him; otherwise he is certain to lose.

We assume that a new CEO is a random draw from a population with fraction $\gamma$ talented, and $(1 - \gamma)$ untalented. An untalented leader receives a weak signal with probability $\varepsilon$: if he attempts to carry out change on receipt of this signal, and the employees choose to follow him, the chance of succeeding is $p_w$. A talented leader is more likely to receive a signal, and his signal will be stronger: he has a chance $\sigma$ ($\sigma \geq \varepsilon$) of receiving a signal and if he implements a programme of change and the employees follow him, the chance of success is $p$, where $\hat{p}$ has a distribution function (cdf) $F(\hat{p})$. We shall assume that $\hat{p}$ is

\(^2\)It is also worth mentioning Rotenberg and Saloner (1993) who study the way leaders can signal that they have their followers’ interests at heart by taking actions that would otherwise be very costly to them. Hence, followers infer that their own utilities enter into the leader’s utility function, and are accordingly willing to follow him. This is different to our approach because we assume from the beginning that leaders and followers have (essentially) the same objectives. What a leader needs to prove, in our analysis, is not his caring for followers’ welfare, it is his competence as a leader.

\(^3\)Goffee and Jones (2000) state that in 1999 over 2000 books on leadership were published.
normally distributed on the interval \([p_w, 1]\), so that \(F(p) = \frac{1}{1 - p} \) on \([p_w, 1]\).\(^4\)

If the leader does not act in a given period, the game continues to the next period. A leader who acts and is followed can either succeed or fail; in either case the game ends. A leader who acts to implement change, without being followed is immediately sacked, and the game continues with a new CEO drawn from the population.

Before the next period starts, two events may occur. First, the firm may be overtaken by events: technology or market conditions change adversely and the firm fails and becomes worthless. This happens with probability \(\alpha\), in which case leader and followers lose and the game ends. Second, the leader may be removed for exogenous reasons, for example he may suffer sudden health problems, or a change in domestic circumstances requiring a move to a new location, or simply receive an offer of a better job. This occurs with probability \(\delta\), in which case he is replaced by a new leader. The game is repeated indefinitely until it ends as a result of one of the eventualities described above.

The leader’s utility is 1 if he wins, 0 otherwise. However, he has a lexicographic preference for quitting his job for exogenous reasons, rather than because the firm has failed (whether as a result of a failed attempt to change, or as a result of adverse market conditions). The employees’ utility is 1 if the firm successfully changes, 0 if it fails (whether as a result of following a change programme that fails, or as a result of adverse market conditions).

A strategy for the employees is a decision to follow or not, in the event the leader acts. We assume this depends only on their belief about the leader’s type. A strategy for a leader is a decision on whether to act as a function of his type, his tenure in office, and (in the case of a strong leader) the quality of his signal. We consider pure strategies only.

The main interest of this structure lies in the fact that the leader knows his type (talented or untalented), while the employees do not. Hence, they will make inferences about the leader’s ability as time goes by. Notice that although their payoff functions are very similar, there is nevertheless a divergence of interests between leader and employees because the leader may leave while the employees continue with a new leader. This is the key to our results.

We will compare this model to two benchmark cases. In the “known-type” benchmark, the leader’s type is public knowledge. In the “agency” benchmark, the leader’s type is known only to himself, but there is a principal who can replace the leader at any time with a new leader (whose type is drawn from the population).

\(^4\) In most of the analysis we will concentrate on the case where 
\[ \varepsilon < \sigma(1 - F(p')) \]
where the parameter \(p'\) is defined below in the subsection on the known-type benchmark case. The interpretation of this case is that untalented leaders are significantly less likely than talented leaders to receive signals on strategic change.
2.1 Known-type benchmark case

Consider first the case where the leader is known to be untalented. There are two possibilities: the employees may have a policy of following an untalented leader, or they may prefer not to. We will consider this decision, and then place restrictions on the exogenous parameters ensuring they choose not to follow. Define $V_{ku}^f$ to be the value function of the followers at the start of the period before the leader decides whether to act or not, if the leader is known to be untalented (similarly $V_{kt}^f$ represents their value function if the leader is known to be talented). The payoff to the employees from following an untalented leader is $p_w$. On the other hand, if they do not follow, the leader’s planned change will fail and he will be sacked: the employees will obtain payoff:

$$(1 - \alpha) \left[ \gamma V_{kt}^f + (1 - \gamma) V_{ku}^f \right]$$

Assuming they prefer not to follow, the leader will simply sit out his period of tenure without taking any action to try to change the firm. Then the employees’ value $V_{ku}^f$ is determined by the following possibilities: if the firm does survive to the next period (probability $(1 - \alpha)$), the manager may remain in place (probability $1 - \delta$) in which case their situation next period is unchanged and they re-obtain value $V_{kt}^f$, or with probability $\delta$ he will be forced to leave for exogenous reasons and the employees will obtain a new manager. Hence:

$$V_{ku}^f = (1 - \alpha) \left\{ (1 - \delta) V_{kt}^f + \delta \left[ \gamma V_{kt}^f + (1 - \gamma) V_{ku}^f \right] \right\}$$

If they know him to be talented, and always follow him, the leader will be able to wait until he judges the moment to be propitious for action. His payoff from acting with signal $p$ is simply $p$, while his payoff from waiting is:

$$(1 - \alpha)(1 - \delta) V_{kt}^f$$

where $V_{kt}^f$ represents the leader’s value function at the start of next period, before he discovers whether he has a signal or not. This is a stationary problem where, at the start of each period, the leader will face the same situation. It is a standard problem of optimal stopping without recall (see De Groot (1970) for a textbook exposition) and its solution will be characterized by a reservation value $p'$ such that, when he receives signal $\tilde{p} = p'$, he will be indifferent between acting and waiting, when $\tilde{p} > p'$ he will act, and when $\tilde{p} < p'$ he will wait. It follows that

$$p' = (1 - \delta)(1 - \alpha) V_{kt}^f$$

and

$$V_{kt}^f = [\sigma(1 - F(p')) E[\tilde{p} | \tilde{p} > p'] + [1 - \sigma + \sigma F(p')] (1 - \delta)(1 - \alpha) V_{kt}^f$$

Substituting for $V_{kt}^f$, we have:

$$\frac{p'}{(1 - \delta)(1 - \alpha)} = [\sigma(1 - F(p')) E[\tilde{p} | \tilde{p} > p'] + [1 - \sigma(1 - F(p'))] p'$$
This can be used to compute the solution. Since $\tilde{p} \sim U[p_w,1]$, we can substitute for $F(p')$ and $E(\tilde{p}\tilde{p} > p')$ to obtain:

$$\frac{p'}{(1-\delta)(1-\alpha)} = \frac{\sigma}{2(1-p_w)} \frac{(1-p')(1+p')}{1-p_w}$$

or

$$p' \left[ \frac{1}{(1-\delta)(1-\alpha)} - 1 \right] = \frac{\sigma}{2(1-p_w)} (1-p')^2$$

A plot of the LHS versus the RHS shows that there is a unique solution for $p'$ in the unit interval. Given $p'$, we can derive the value function for the employees of the talented leader.

$$V_{kt}^f = [\sigma(1-F(p'))E(\tilde{p}\tilde{p} > p') + [1-\sigma(1-F(p'))(1-\alpha)(1-\delta)V_{kt}^f + [1-\sigma(1-F(p'))(1-\alpha)\delta \gamma V_{kt}^u + (1-\gamma)V_{ku}^f]=$$

Together with equation ..., this gives us two straight lines in two unknowns for $V_{ku}^f$ and $V_{kt}^f$. (bit missing ... verify condition that refuse to follow weak leader....) Note that the solution for $p'$ depends on $\delta, \alpha, \sigma$ and $p_w$, which are all exogenous parameters of the model, but does not depend on $\varepsilon$. As noted above, we make the assumption that

$$\varepsilon < \sigma(1-F(p')),$$

which means that when the talented manager operates in a situation where his type is publicly known and hence there is no pressure to perform, the probability of him acting is higher than the probability that an untalented manager receives a signal. For given values of the other exogenous parameters, this condition will obtain so long as $\varepsilon$ is small enough. This condition is important because it means that in our model with uncertainty about managers’ types, taking action will be a signal of a talented manager.

### 2.2 Agency benchmark case

We now introduce a benchmark of a standard agency problem. Suppose that, instead, the leader (agent) is hired by a principal who is able to replace him at will. To derive the solution, suppose that the principal replaces the agent after $\tau$ periods of inactivity (there is no loss of generality in assuming the replacement rule is of this form, since the agent’s length of tenure summarises all relevant aspects of the model’s history). It is clearly a dominant strategy for the untalented leader to act as soon as he gets a signal. Hence, he will remain in office until either he receives a weak signal $p_w$ and then initiates a strategy for change (whether successful or not), or his tenure is ended by exogenous events or by the principal sacking him after $\tau$ periods. The talented leader on the other hand decides to act depending on the quality of signal $p$ and the length of time
remaining before he will face the sack: he faces a problem of optimal stopping without recall but with an upper bound $\tau$ on the sampling size (DeGroot (1970)). The key difference between the analysis in our paper and a standard stopping problem is that we will embed the stopping problem studied in the textbook in an economic model where the sample size is endogenised in equilibrium, while in a stopping problem this is taken as given). We now describe the solution for this problem, using the standard methods in DeGroot (1970)). In period $\tau$ if he receives a signal he will always act, since this gives him payoff $p$ while waiting gives him payoff 0. In period $\tau-1$ he will follow a “reservation value” strategy, acting if he receives a signal whose quality exceeds a value $p_{\tau-1}$ determined by indifference between acting and waiting. Similarly, in any previous period $t$ he will use a reservation value $p_t$. Define $V_t(t)$, the value function for time $t$ for the strong leader, at the start of the period, before he knows whether or not he will receive a signal or how good it will be. Then his reservation value $p_t$ is characterized by indifference between acting and waiting:

$$p_t = (1-\delta)(1-\alpha)V_t(t+1).$$

Then,

$$V_t(t) = \sigma[\Pr(\bar{p} > p_t)E(\bar{p}|\bar{p} > p_t) + \Pr(\bar{p} \leq p_t)(1-\delta)(1-\alpha)V_t(t+1)]$$

$$+ (1-\sigma)(1-\delta)(1-\alpha)V_t(t+1)$$

$$= \sigma E \max\{\bar{p}, p_t\} + (1-\sigma)(1-\delta)(1-\alpha)V_t(t+1)$$

$$= \sigma E \max\{\bar{p}, p_t\} + (1-\sigma)p_t.$$

Hence

$$p_t = (1-\delta)(1-\alpha)[\sigma E \max\{\bar{p}, p_{t+1}\} + (1-\sigma)p_{t+1}]$$

The sequence of $p_t$’s can be computed recursively from this. Note (DeGroot (1970)) that

$$p_t < p'_t,$$

where $p'$ is defined in the previous subsection on the known-type benchmark. Next we can derive $\tau$ by considering the principal’s problem. At any given date $t$ he will obviously replace the leader if and only if his (Bayesian updated) belief $\gamma_t$ that the leader is talented falls below the population average $\gamma$. We now study the evolution of $\gamma_t$.

In the previous period we had a probability of a talented leader of $\gamma_{t-1}$, and a talented leader at $t-1$ had a probability $[(1-\sigma) + \sigma F(p_{t-1})](1-\alpha)(1-\delta)$ of continuing to period $t$, i.e. he did not act in period $t-1$, and he was not replaced for exogenous reasons. Similarly there was a probability $(1-\gamma_{t-1})$ of a weak leader in the previous period, with a probability $(1-\varepsilon)(1-\alpha)(1-\delta)$ of continuing to period $t$. Hence by Bayes’ rule (and cancelling the common factor $(1-\alpha)(1-\delta))$:

$$\gamma_t = \frac{\gamma_{t-1}[(1-\sigma) + \sigma F(p_{t-1})]}{\gamma_{t-1}[(1-\sigma) + \sigma F(p_{t-1})] + (1-\gamma_{t-1})(1-\varepsilon)}$$

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Note that $p_{t-1} < p'$, hence $1 - \varepsilon > 1 - \sigma(1 - F(p_{t-1}))$ by the assumption that $\varepsilon < \sigma(1 - F(p'))$. So

$$
\gamma_t < \frac{\gamma_{t-1}(1 - \varepsilon)}{\gamma_{t-1}(1 - \varepsilon) + (1 - \gamma_{t-1})(1 - \varepsilon)} = \gamma_{t-1}
$$

Obviously, the principal should replace the agent right away after one period unless he acts. Thus $\tau = 1$. This presents an extreme contrast to the known-type scenario: if the manager is known to be talented, he can take as long as he likes to wait for the optimal moment to initiate change. But if he can be fired at will by the owners of the firm, then in our model, he will be under extreme pressure to perform and will be sacked unless he acts right away. (Guembel??).

3 Equilibrium

Having derived these two benchmark cases, we can now turn to the derivation of the equilibrium of our main model. The equilibrium has the property that the followers will follow a leader up to $T$ periods from when he starts, but not after that.

Proposition 1 (i) Employees are willing to follow a leader who acts to initiate change up to (and including) a terminal date $T$ (determined in equilibrium as a function of the model’s parameter values), but not afterwards, and leaders never initiate change after that date. (ii) Untalented leaders act as soon as they receive a signal. (iii) Talented leaders act or wait depending on the strength of their signal. At first they will only act if their information tells them they are highly likely to succeed, but as time goes by and $T$ approaches, they become gradually less demanding.

Proof. (i) It is possible that the parameter values are such that employees, if they knew the leader’s type, would follow him whether he is talented or not. In that case the statement of the proposition holds trivially with $T = \infty$.

Now assume this case does not hold and that the employees would follow a leader whom they knew to be talented, but would refuse to follow a known untalented leader. Recall that the employees’ strategy has the form that the action chosen in period $t$ depends only on the belief $\gamma_t$. Consider the statement that “employees are willing to follow a leader who acts to initiate change up to a terminal date $T$.” Suppose this statement does not hold for some possible history of the game. Then the employees’ strategy is such that there exists a period $t$ in which they do not follow a leader, and another period $t' > t$ in which they would follow. This is turn implies that there is a period $s$ in which they would follow, but they would not follow in $s + 1$. But then, so long as Bayes’ rule applies, $\gamma_s = \gamma_{s+1}$. We have ruled this out since strategies specify that actions should depend only on the beliefs, hence $\gamma_s = \gamma_{s+1}$ would imply that followers should either follow at both $s$ and $s + 1$, or refuse to follow in both periods. We can also rule out the case that Bayes’ rule does not apply,
because leaders will never initiate action without receiving a signal, and there is always a positive probability in every period that the leader has not yet received a signal. This shows that the statement holds, i.e. that the terminal date $T$ exists.

(ii) Define $V^u_t(t)$ to be the value function for the untalented leader at the start of period $t$ (before he knows whether he will receive a signal). The payoff if he receives a signal and acts is $p_w$. If he does not act, his payoff is 

$$(1 - \delta)(1 - \alpha)V^u_t(t + 1).$$

Thus

$$V^u_t(t) = \varepsilon \max\{p_w, (1 - \delta)(1 - \alpha)V^u_t(t + 1)\} + (1 - \varepsilon)(1 - \delta)(1 - \alpha)V^u_t(t + 1)$$

Note from this that $V^u_t(T + 1) = 0$, thus $V^u_t(T) = \varepsilon p_w$. Also note that if $V^u_t(t) < p_w$, then $V^u_t(t - 1) < p_w$. It follows that $V^u_t(t) < p_w$ for $t = 1, \ldots, T$. This implies that the leader would prefer to act, receiving payoff $p_w$, rather than wait, receiving payoff $(1 - \delta)(1 - \alpha)V^u_t(t + 1)$.

(iii) A talented leader in period $T$ who receives a signal will always act, since this gives him payoff $\tilde{p}$ while waiting gives him payoff 0. As shown in the “agency benchmark” case above, in previous periods he will follow a “reservation value” strategy, acting in period $t$ if his signal quality exceeds a value $p_t$ determined by indifference between acting and waiting. Define $V^t_t(t)$, the value function for time $t$ as the expected payoff for the talented leader, at the start of the period, before he knows whether or not he will receive a signal or how good it will be. Then as shown in the previous subsection,

$$V^t_t(t) = \sigma E\max\{\tilde{p}, p_t\} + (1 - \sigma)p_t.$$

where the reservation value is determined recursively by

$$p_t = (1 - \delta)(1 - \alpha)[\sigma E\max\{\tilde{p}, p_{t+1}\} + (1 - \sigma)p_{t+1}]$$

Note that this implies $p_t < p_{t-1}$. ■

3.1 Computing the solution

To determine $T$, consider the employees’ decision at an arbitrary period $t$. First consider their payoff if they do follow the leader. Define $\gamma_t$ to be their belief that the leader is talented. Then the payoff from following the leader is:

$$\gamma_t E(\tilde{p}|\tilde{p} > p_t) + (1 - \gamma_t)p_w$$

As above, $V_f(t)$ is the value function of the employees at time $t$, before knowing whether their leader will act. Then their payoff at time $t$ from not following the leader if he acts is

$$(1 - \delta)(1 - \alpha)V_f(t + 1) + \delta(1 - \alpha)V_f(1).$$
Now

\[ V_f(t) = [\gamma_t \sigma (1 - F(p_t)) + (1 - \gamma_t)\varepsilon] \max\{\gamma_t E(\tilde{p} | \tilde{p} > p_t) \]
\[ + (1 - \gamma_t)p_w, (1 - \delta)(1 - \alpha)V_f(t + 1) + \delta(1 - \alpha)V_f(1) \]
\[ + [1 - \gamma_t \sigma (1 - F(p_t)) - (1 - \gamma_t)\varepsilon] \]
\[ \times [(1 - \delta)(1 - \alpha)V_f(t + 1) + \delta(1 - \alpha)V_f(1)] \].

As previously derived, the evolution of \( \gamma_t \) follows the equation

\[ \gamma_t = \frac{\gamma_{t-1}[(1 - \sigma) + \sigma F(p_{t-1})]}{\gamma_{t-1}[(1 - \sigma) + \sigma F(p_{t-1})] + (1 - \gamma_{t-1})(1 - \varepsilon)} \]

which, again as previously shown, is decreasing over time. This suggests the following algorithm for computing \( T \): first set \( S_1 = \infty \). Then assuming \( T = S_1 \), compute the reservation values \( p_1, p_2, \ldots \) and from these, compute \( \gamma_t \) and hence \( V_f(t) \). Find the point at which the employees would wish to stop following the leader and set \( S_2 \) equal to this time. Now repeat the operation for \( T = S_2 \) and iterate until a fixed point is reached, as it must be eventually since \( S_i \leq S_{i-1} \) and \( S_i \geq 0 \).

Note that in the computation of the reservation values \( p_t \), since \( \tilde{p} \sim U[p_w, 1] \), then for any parameter \( x \),

\[ E\max\{\tilde{p}, x\} = \frac{\frac{1}{2} + \frac{1}{2}x^2 - xp_w}{1 - p_w} \].

### 3.2 Option to recall previous opportunities for change

Our analysis so far has assumed that a leader’s signals represent opportunities for change in a given period. One could hypothesise instead that such signals represent opportunities for change that are not time-specific and can be used later if desired.

This problem can be modelled as a standard problem of optimal stopping with recall (DeGroot (1970)). First, note that the recall option is worthless when there is an infinite horizon, as in the known-type benchmark case: the analysis for this case will remain unchanged. Define the random variable \( \tilde{\pi_t} \) to be the value of the signal received at time \( t \) in case the leader receives a signal in that period, and \( \tilde{\pi_t} = 0 \) in case he did not receive a signal. Now define the random variable \( \tilde{q_t} = \max\{\tilde{\pi_1}, \ldots, \tilde{\pi}_{t-1}\} \), and \( \pi_t \) and \( q_t \) denote the realisations of \( \tilde{\pi_t} \) and \( \tilde{q_t} \). In the proof of the proposition, the value function of the talented leader becomes

\[ V^t_f(t, q_t) = E\max\{\tilde{\pi}, q_t, p_t\} \]

while the reservation value is determined recursively by

\[ p_t = (1 - \delta)(1 - \alpha)E\max\{\tilde{q_{t+1}}, p_{t+1}\} \].

The remainder of the proof is unchanged.
3.3 Is entrenchment optimal?

Since employees discount at rate \((1 - \alpha)\), while the CEO discounts at rate \((1 - \delta)(1 - \alpha)\), if they knew the CEO were talented they would prefer him to use a higher reservation value than the one he actually does use \((p')\); they would be willing to wait longer for a better plan of action. On the other hand, they can never be sure of his type. Note that since employees are trying to maximise the expected value of the firm, they have identical objectives to the shareholders of the firm.

With the possibility of direct removal of the agent (the agency benchmark case described above), we have shown the manager would always be replaced each period, and hence he would use the lowest possible reservation value \((p_w)\). This low reservation value is clearly not what the employees would want, although they do benefit from the ability to replace often and so generate a higher likelihood of a talented manager. Hence, one could ask whether it is better for the employees and shareholders to allow the manager the degree of entrenchment modelled in our paper, as opposed to retaining the freedom to sack him at will. In fact, this depends on the values of the exogenous parameters but there are indeed values where this is so. The following computation shows that.

Although this result is not the main focus of our paper, it may be contrasted with existing literature on possible reasons for the optimality of managerial entrenchment. In Gorton and Grundy (1997), ????. In Shleifer and Vishny?, ????.

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