CESifo, the International Platform of the Ifo Institute of Economic Research and the Center for Economic Studies of Ludwig-Maximilians University

CESifo Venice Summer Institute

19 - 24 July 2010

"Ethics and Economics"

to be held on **19 - 20 July 2010**
on the island of San Servolo in the Bay of Venice, Italy

Principals' Preferences for Agents with Social Preferences

Daniel G. Arce

VIU
Venice
International
University

Principals' Preferences for Agents with Social Preferences

Daniel G. Arce
Professor of Economics and Program Head
University of Texas at Dallas, GR 31
2601 N. Floyd Road
Richardson, TX 75083-0688
USA
darce@utdallas.edu
Phone: 1-972-883-6725
Fax: 1-972-883-6297

June 2010

Abstract

This study explores a nested representation of ethical, moral, social identity, reciprocating, motivated and opportunistic agent preferences to characterize screening contracts in a principal-agent model under adverse selection. This leads to a ranking of the type of social preferences that principals should seek in agents, based upon the information rents associated with each agent type. When moral hazard is introduced the ranking further depends upon the interaction of limited liability with self-selection. The results are discussed within the context of unprincipled corporate behavior during 'The Noughties' (2000-2009).

JEL L14, D23, G30, M14

1. Introduction

The decade 2000-2009 has come to be regarded as 'The Noughties;' primarily for the economic and financial crises brought on by a breakdown in corporate ethics, laissez-faire regulation and limited liability in leveraged securitization. A rogue's gallery of corporate misbehavior in this era would likely include executives at Adelphia, Enron, Fannie Mae, Freddy Mac, Lehman, Madoff Investments, Tyco and WorldCom. It is instructive to note that those who were convicted of corporate wrongdoing received sentences that are far longer than the average number of years given for a murder conviction in the US. Personal consequences aside, the crises of the early and late Noughties brought on the destruction of untold wealth and two major recessions.

The canonical approach to the study of corporate governance in financial economics – agency theory – was created in recognition of the potential for opportunistic behavior in organizations characterized by principal-agent relationships. Yet (rightly or wrongly) the conventional wisdom is that high powered compensation packages based on this theory were at the root cause of unprincipled behavior such as revenue smoothing; backdating options; mark-to-magic accounting; the lend-to-securitize criterion for subprime mortgages; and conflicts of interest in the rating of credit default swaps. Indeed, this has led to new developments in public policy, ranging from the passage of Sarbanes-Oxley to a compensation czar for those firms that were bailed out by the US government.

The critique of agency theory comes from many directions. To briefly summarize, empirical tests of agency theory find very little support that incentive pay substantially affects effort (Barkema 1995) or incentivizes actions in-line with shareholder interests (Tosi *et al* 2000). Indeed, Bebchuck and Fried (2004) argue that the implementation of incentive pay creates another agency problem that arises as a form of financial incest given that top executives and board members determine each others' pay. Moreover, Blinder (2009) contends that the combination of high-powered incentives and limited liability in newly securitized markets led to agency problems that *created* systemic risk. Indeed, with the context of the early Noughties in mind, a founding father of the agency-theoretic approach to corporate governance, Michael Jensen (2007), has identified agent *integrity* as a key element for successfully operationalizing the agency framework. For example, Jensen points out that without integrity agents with stock options that are in the money would have little reason to report the truth when their firm's stock is currently overvalued.

Pro-management advocates (e.g., Brennan 1994, Donaldson 2002, Osterloh and Frey 2004, Ferraro *et al* 2005, Khurana 2007) argue that framing corporate governance in terms of agent opportunism leads to a self-confirming theory. Given agency theory is the "official story" underpinning the theory of corporate governance in financial economics (Bebchuck and Fried 2004), MBAs are overwhelmingly educated in it and, once employed, can act on its dictates in ways that affect corporate culture. This allows for the tight coupling that is necessary for a self-confirming theory (Ferraro *et al* 2009).[1] In an interview Michael Jensen states, "I was a defender of the move toward stock options and more liberal rewards for CEOs. But now I'm a critic of where we got to," adding, "Once you train managers by penalizing them for telling the truth and rewarding them for lying, then that kind of unethical behavior gets extended to all sorts of things" (Cassidy 2002: 75).

A commonly invoked defense of the assumption of agent opportunism is that not all agents are opportunistic, but one has to account for those agents who are. Such an accounting therefore connotes adverse selection in agent types. For the purposes of this study, agents with social preferences are a logical alternative to opportunistic agents, as it is well-understood that behavior within a firm reflects both market forces and social norms. In particular, (business) ethics is about how an agent's actions transcend narrow self-interest. That is, ethics involves self-regulating behavior with reference to social criteria. Suggested forms of social preferences include ethical or moral (Casadesus-Masanell 2004, Stevens and Thevaranjan 2010); mission-oriented (Besley and Ghatak 2005); reciprocal (MacLeod 2007); and social identity (Akerlof and Kranton 2008). These studies focus on the contractual implications of social preferences under moral hazard, even though adverse selection is a natural context for accounting for agents with (non-)opportunistic preferences. Indeed, uncertainty over an agent's type introduces contractual distortions even in the absence of moral hazard. Moreover, the fixed component of a contract reduces the opportunity cost of ethical behavior (Osterloh and Frey 2004, Arce 2010). Yet the role of fixed pay is often left unaddressed in the literature on agency with social preferences even though social preferences generally reduce the size of the variable component of incentive pay. By contrast, Treasury Department pay czar Kenneth Feinberg has unilaterally cut incentive compensation in favor of raising the fixed (salary) component of pay (Enrich and Solomon 2009).

The analysis proceeds as follows. Section 2 introduces a nested characterization of the

[1] Arce (2007) and Harris and Bromily (2007) are examples of the literature that formally examines the (un)ethical consequences of agency theory.

social preferences listed above. Screening contracts for each type of agent (versus an opportunistic one) are derived in section 3 for the case of pure adverse selection. In contrast to analyses involving pure moral hazard, these contracts are not nested. In section 4 the fixed component of pay is discussed in a mixed setting involving both moral hazard and adverse selection. This is followed by a discussion of our results and brief concluding remarks.

2. A unifying model

Consider a contracting environment where both the agent (i) and principal (j) are risk-neutral. Risk neutrality facilitates an investigation of the implications of agents' social preferences independent of the issue of risk aversion. Under adverse selection risk neutrality does not guarantee a first-best solution because agent type uncertainty distorts the menu of contacts independently of the issue of risk aversion. When moral hazard is addressed, agents will be subject to a limited liability constraint; consequently, the agency problem is again present.

An agent exerts effort, e_{ij}. Two potential states result from the agent's effort: high (S) and low (s), where $1 \geq S > s = 0$. State S is generated with probability $e_{ij} \in [0, 1]$. The principal has no direct control over e_{ij} but can design a contract that induces the agent to exert a desired level of effort. Such a contract is given by $f_j b_j$, where f_j is the fixed portion and B_j is the incentive portion corresponding to the agent's bonus when state S occurs. We consider a bonus contract in order to rule out the potential for unbounded risk taking by risk-neutral agents under limited liability; a phenomenon that can occur under linear contracts. Furthermore, a bonus structure allows us to address current criticism of high powered incentives. The principal is assumed to have sufficient reserves so that limited liability applies to the agent only. Hence, the agent's actions do not reflect a concern with the principal's ability to cover f_j in state s.

DEFINITION: An *agent with social preferences* has the following utility function:

$$U_i\left(e_{ij}, f_j B_j\right) = f_j + B_j e_{ij} - \tfrac{1}{2} e_{ij}^2 - \theta_{ij}\left(e^* - e_{ij}\right) \tag{1}$$

where: e^* is the social standard (norm) for effort; and

θ_{ij} is the pressure felt by agent i to abide by the standard.

The agent preferences in (1) satisfy the definition of *morality* in Stevens and Thevaranjan (2010) and are the risk-neutral analog of *ethical preferences* (Casadesus-Masanell, 2004). When $\theta_{ij} > 0$ the agent is *moral*/*ethical* and feels *guilty* if it does not meet the standard, e^*, set by the

principal. The term θ_{ij} is the social pressure that the agent feels to adhere to e^*.[2] If $\theta_{ij} < 0$ the agent is *unethical* and $\theta_{ij} = 0$ for opportunistic agents.

Akerlof and Kranton (2008) consider agents with *preferences for social identity*:

$$U_i\left(e_{ij}, f_j B_j\right) = f_j + B_j e_{ij} - \tfrac{1}{2} e_{ij}^2 - \theta_{ij}\left|e^* - e_{ij}\right|, \tag{2}$$

where θ_{ij} is an identity term that scales the loss of utility from deviating from e^*. Clearly, if $e_{ij} < e^*$ then the preferences in (1) and (2) coincide. This inequality holds if agents see themselves as outsiders relative to principals or the principal sets e^* at first-best under conditions of moral hazard. We maintain the assumption $e_{ij} < e^*$ throughout and classify agents with either ethical or social identity preferences under the umbrella of *norm-based* agent preferences. In this approach agents' identity is defined by the social pressure ($\theta_{ij} > 0$) they feel to adhere to ethical norm e^*. Norm-based agents are called *N*-types.

An alternative expression of preferences that is not norm-based holds when $e^* = 0$:

$$U_i\left(e_i, f_j B_j\right) = f_j + \left(B_j + \theta_{ij}\right) e_{ij} - \tfrac{1}{2} e_{ij}^2; \tag{3}$$

which is the utility function for Besley and Ghatak's (2005) *motivated agents*. The term θ_{ij} corresponds to the degree to which agent *i* intrinsically values state *S* when its preferences align with the *mission* of principal *j*. Preferences and missions are aligned when $i = j$, implying $\theta_{ij} = \theta > 0$; otherwise, $\theta_{ij} = 0$ (and agents act opportunistically). Besley and Ghatak give the example of motivated agents in markets with for-profit and non-profit firms (e.g., hospitals or education). In an academic context, motivated research assistants are those who not only care about their stipend, but are also interested in enhancing the quality of their supervising professor's research. Motivated agents are denoted as *M*-types.

Finally, the participation constraint (PC) for agents with social preferences is

$$f_j + B_j e_{ij} - \tfrac{1}{2} e_{ij}^2 \geq \theta_{ij}\left(e^* - e_{ij}\right), \tag{4}$$ (PC)

where the agent's outside option has been normalized to zero. The left-hand side of (4) corresponds to the payoff for opportunistic agents and the right-hand side can be interpreted as the disutility for underperformance relative to $e^* > 0$. MacLeod (2007) introduces this as a reciprocity constraint,

[2]Both Casadesus-Masanell (2004) and Stevens-Thevaranjan (2010) examine agents with a constant absolute risk aversion (CARA) utility function. The final term in (1) is precisely that given in Stevens-Thevaranjan and also allows our risk-neutral formulation to be consistent with Casadesus-Masanell's finding that – when the participation constraint does not bind – the incentive portion of the optimal contract is independent of the standard/norm for effort, e^*, but depends upon the pressure (θ_{ij}) agents feel to adhere to e^*.

which our model captures through the PC for *N*-types. Intuitively, the disutility from deviating from a social norm can be equivalently represented through a moral constraint on the same activity.

3. Screening contracts under adverse selection

In this section we examine whether it is possible to screen for agents with social preferences given the presence of opportunistic agents within the population. Let $\mu \in (0, 1)$ be the principal's prior that an agent has social preferences and $1-\mu$ be the prior that the agent is opportunistic. In the absence of moral hazard the principal need only consider offering a menu of contracts specifying the *variable* payment associated with an effort level: $\left(\left(B_j, e_j\right), \left(B_O, e_O\right)\right)$, $j \in \{M, N\}$; where when $j = M$ a mission-oriented principal is screening for a motivated agent and when $j = N$ the principal is screening for norm-based agents. Each menu is designed so that opportunistic agents (*O*-types) self-select into contract $\left(B_O, e_O\right)$.

From (4) when $f_j = 0 \,\forall j$ the respective participation constraints under successful screening ($i = j \in \{N, M\}$) are:

(5) $B_i e_i - \tfrac{1}{2} e_i^2 \geq \theta\left(e^* - e_i\right)$; and (PC$_i$)

(6) $B_O e_O - \tfrac{1}{2} e_O^2 \geq 0$, (PC$_O$)

where e_{ii} is written in shorthand notation as e_i and $\theta_{ii} = \theta > 0, \theta_{i \neq j} = \theta_{Oj} = 0$. Under the revelation principle the self-selection (truth-telling) constraint (SS) for agents with social preferences is:

(7) $B_i e_i - \tfrac{1}{2} e_i^2 - \theta\left(e^* - e_i\right) \geq B_O e_O - \tfrac{1}{2} e_O^2 - \theta\left(e^* - e_O\right)$, (SS)

which reduces to

(8) $\left(B_i + \theta\right) e_i - \tfrac{1}{2} e_i^2 \geq \left(B_O + \theta\right) e_O - \tfrac{1}{2} e_O^2$. (SS$_i$)

The self-selection constraint for *O*-types is:

(9) $B_O e_O - \tfrac{1}{2} e_O^2 \geq B_i e_i - \tfrac{1}{2} e_i^2$. (SS$_O$)

In aggregate, the (PC) and (SS) constraints imply

(10) $\left(B_i + \theta\right) e_i - \tfrac{1}{2} e_i^2 \geq \left(B_O + \theta\right) e_O - \tfrac{1}{2} e_O^2 > B_O e_O - \tfrac{1}{2} e_O^2 \geq B_i e_i - \tfrac{1}{2} e_i^2 \geq \theta\left(e^* - e_i\right)$.

Reading from the left, the first inequality stems from (SS$_i$); the strict inequality holds because $\theta > 0$; the third inequality is implied by (SS$_O$) and the fourth inequality by (PC$_i$).

Lemma 1: PC_O does not bind when screening for *N*-types ($e^* > e_i \geq 0$) but can bind when screening for *M*-types ($e^* = 0$).

Proof: when PC_O binds the last two inequalities in (10) become $0 \geq B_i e_i - \frac{1}{2}e_i^2 \geq \theta\left(e^* - e_i\right)$; which cannot hold when $e^* > e \geq 0$, but is not contradicted for $e^* = 0$.■

Lemma 2: PC_i can bind when screening for *N*-types but cannot bind when screening for *O*-types.

Proof: PC_i implies that $B_i e_i - \frac{1}{2}e_i^2 = \theta\left(e^* - e_i\right)$. Substituting this value into the first term of (10) and focusing on the relation between the first and last terms in (10) yields $\theta e^* > \theta\left(e^* - e_i\right)$. This inequality cannot hold if $\theta = 0$, but it is not contradicted for $\theta > 0$ and $e^* > e \geq 0$.■

When the participation constraint binds for one type of agent then the screening contract is characterized when the self-selection constraint binds for the other agent type (Cooper 1984). Consequently, these lemmas imply the novel result that the characterizations of the optimal screening contracts for *N*- and *M*-types correspond to *different* combinations of self-selection and participation constraints even though these social preferences are nested. This is because the nesting of preferences is not equivalent to the nesting of agent "efficiency" (cost of effort). Social preferences differentially affect the agent's cost of effort *and* willingness to work.

Result 1: the screening contract for agents with social preferences is characterized when

(a) PC_N and SS_O bind when screening for *N*-types versus *O*-types; and

(b) PC_O and SS_M bind when screening for *M*-types versus *O*-types.

It is straightforward to verify that when PC_N and SS_O bind then both PC_O and SS_N hold with strict (>) inequality under the characterization given below. Similarly, when PC_O and SS_M bind then PC_M and SS_N hold with strict inequality.

The following assumptions are made in order to ensure interior solutions/profitability:

(11) $S > \max\left\{\frac{\mu}{1-\mu}\theta, \frac{1}{\mu}\theta\right\};\ S - \frac{\mu}{1-\mu}\theta, S + \frac{1}{\mu}\theta \in (0,1)$.

Prior to deriving the screening contracts the first-best solution is characterized for each type as a benchmark. Under complete information a principal facing an *N*-type derives the first-best solution by selecting $\hat{e}_N$ to maximize $\Pi_N + U_N = \left(S - \hat{B}_N\right)\hat{e}_N + \hat{B}_N\hat{e}_N - \frac{1}{2}\hat{e}_N^2 - \theta\left(e^* - \hat{e}_N\right)$. This yields $\hat{e}_N = S + \theta;$ implying that $\hat{e}_M = S + \theta$ for *M*-types (e^*=0) and $\hat{e}_O = S$ for *O*-types (θ=0).

When screening for *N*-types a binding PC_N implies $B_N e_N = \tfrac{1}{2}e_N^2 + \theta(e^* - e_N)$ and SS_O implies $B_O e_O = \tfrac{1}{2}e_O^2 + B_N e_N - \tfrac{1}{2}e_N^2$. Substituting the value for $B_N e_N$ into $B_O e_O$ implies the latter reduces to $B_O e_O = \tfrac{1}{2}e_O^2 + \theta(e^* - e_N)$. The principal selects e_N and e_M to maximize

(12) $\quad \Pi_N = \mu\left[(S - B_N)e_N\right] + (1-\mu)\left[(S - B_O)e_O\right].$

Substituting in the values for $B_N e_N$ and $B_O e_O$, the optimal values are $e_N = S + \frac{1}{\mu}\theta$ and $e_O = S$. Incomplete information does not cause a distortion in the opportunistic level of effort, which remains first-best. By contrast, incomplete information distorts the contract offered to *N*-types who must raise their level of effort relative to *O*-types in order to separate themselves. Indeed, e_N is an increasing function of θ and because $\partial e_N / \partial \theta = 1/\mu \geq 1$ there is a multiplier effect à la Fischer and Huddart (2008) associated with the uncertainty about *N*-types. The more certain the principal is that she is facing an *N*-type ($\mu \to 1$) the lower this multiplier needs to be to screen for *N*-types.

Corollary 1A: under the screening contract for norm-based versus opportunistic agents,
(i) Opportunistic agents exert their first-best level of effort and earn information rents because their participation constraint holds with strict inequality.
(ii) Norm-based agents' effort is distorted upward as a function of the pressure to adhere to the social norm (θ) and type uncertainty multiplies this effect. The greater the proportion of *N*-types within the population (μ) the lower is this distortion. Norm-based agents earn no information rents (their participation constraint holds with equality).

When screening for *M*-types versus *O*-types PC_O implies $B_O e_O = \tfrac{1}{2}e_O^2$ and SS_M implies $B_M e_M = \tfrac{1}{2}e_M^2 + B_O e_O - \tfrac{1}{2}e_O^2 - \theta(e_M - e_O)$. Substituting in the value for $B_O e_O$ yields $B_M e_M = \tfrac{1}{2}e_M^2 - \theta(e_M - e_O)$. A mission-oriented principal uses these values to select e_M and e_O to maximize $\Pi_M = \mu\left[(S - B_M)e_M\right] + (1-\mu)\left[(S - B_O)e_O\right]$. The optimal contract specifies effort levels $e_M = S + \theta$ and $e_O = S - \frac{\mu}{1-\mu}\theta$, respectively.

Corollary 1B: under the screening contract for motivated versus opportunistic agents,
(i) Opportunistic agents' effort is distorted downward and they earn no information rents.
(ii) Motivated agents exert their first-best level of effort and earn information rents.

The agency costs of adverse selection are defined by the information rents paid by the principal relative to first-best. Consequently, norm-based agents are preferred to motivated agents because *N*-types exert greater effort and accrue no information rents. Intuitively, it is more difficult for an organization to be mission-oriented, which calls for an alignment of the organization's culture with the preferences of motivated agents. By contrast, within the context of pure moral hazard motivated agents are preferred because their agency costs are lower in that the gross surplus required to profitably hire motivated agents, *S*, is lower than that required to profitably hire norm-based agents (Arce 2010). Under both adverse selection and moral hazard the principal designs the menu of contracts subject to the participation constraint. The difference therefore lies in the implications of incentive compatibility versus self-selection. Under moral hazard the incentive compatibility constraints are nested according to agents' social preferences (shown below) whereas they are not nested in terms of the principal's cost of screening under adverse selection.

In the literature the sorting of agents with social preferences most often occurs via an appeal to efficient (and assortative) matching.[3] What we have shown is that screening can alternatively occur. There are two caveats to this finding. First, matching is used within the context of moral hazard, a phenomenon we address in the following section. Second, screening *cannot* occur between the different types of social preferences considered within this study. When the self-selection constraints are written for *M*- versus *N*-types, taken together they reduce to the equality: $(B_M + \theta)e_M - \tfrac{1}{2}e_M^2 = (B_N + \theta)e_N - \tfrac{1}{2}e_N^2$, leading to identical (bonus, effort) contracts because this equality implies perfect substitutability between participation constraints as well.

4. Moral hazard and adverse selection

Consider the extension where the effort level is not contractible so that both adverse selection and moral hazard arise. Given moral hazard, the agent's incentive compatibility constraint is derived by differentiating the agent's utility function in (1) with respect to e_{ij}, noting that the assumptions in (11) guarantee an interior solution. The incentive compatibility (IC) constraint for each type of agent is:

(13) $e_{ij} = B_j + \theta_{ij}$. (IC)

Under moral hazard limited liability implies that the optimal contract may contain a fixed

[3] For example, in Besley and Ghatak (2006) the matching process is exogenously given whereas in Arce (2009) it is endogenously characterized through a multi-level evolutionary process.

component, f_j, in addition to the variable component, B_j. Recall that it has been assumed that the principal has sufficient capital to cover f_j. The agent's limited liability (LL) constraint is:

(14) $B_j + f_j,\ f_j \geq 0.$ (LL)

The timing is such that agents know their types prior to being offered a menu of contracts and exert the level of effort that is individually rational for the contract that an agent accepts. Consequently, when the principal is screening for agents with social preferences (*i*-types) versus *O*-types via contracts f_iB_i and f_OB_O; respectively, the incentive-compatible levels of effort are: $e_{ii} = B_i + \theta$; $e_{iO} = B_O + \theta$; $e_{Oi} = B_i$; and $e_{OO} = B_O$. The participation and self-selection constraints therefore become:

(15) $f_i + \tfrac{1}{2}\left(B_i + \theta\right)^2 \geq \theta e^*$ $\left(PC_i'\right)$

(16) $f_O + \tfrac{1}{2}B_O^2 \geq 0$ $\left(PC_O'\right)$

(17) $f_i + \tfrac{1}{2}\left(B_i + \theta\right)^2 \geq f_O + B_O\left(B_O + \theta\right) - \tfrac{1}{2}\left(B_O + \theta\right)^2$ $\left(SS_i'\right)$

(18) $f_O + \tfrac{1}{2}B_O^2 \geq f_i + \tfrac{1}{2}B_i^2$ $\left(SS_O'\right)$

The sum of $\left(SS_i'\right)$ and $\left(SS_O'\right)$ reduces to $B_i \geq -\theta$. A contract specifying $B_i = -\theta$ excludes the very agent type it is screening for, as incentive compatibility implies $e_{ii} = 0$. Hence, it must be the case that $B_i > -\theta$, implying that at least one of the self-selection constraints is not binding. When combined the SS constraints imply

(19) $\tfrac{1}{2}B_O^2 - \tfrac{1}{2}B_i^2 \geq f_i - f_O \geq -\tfrac{1}{2}\left(B_i + \theta\right)^2 + B_O\left(B_O + \theta\right) - \tfrac{1}{2}\left(B_O + \theta\right)^2$

which reduces to

(20) $\tfrac{1}{2}B_O^2 - \tfrac{1}{2}B_i^2 \geq f_i - f_O \geq \tfrac{1}{2}B_O^2 - \tfrac{1}{2}B_i^2 - \theta^2 - \theta B_i.$

The left-hand side of (20) is strictly greater than the right hand side when $B_i > -\theta$.

Mixed models of moral hazard and adverse selection are solved by considering the compensation-minimizing combinations of binding constraints for the agent types under question. Here, the IC constraint is embedded in the SS and PC constraints in equations (15)-(18). Further, such contracts must satisfy (20). Finally, $B_i \in \left(-\theta, 0\right]$ is preferable to the principal as compared to more costly contracts where $B_i > 0$.

Case 1: $B_i = 0$, implying $e_{ii} = \theta$. By limited liability and $\left(PC_i'\right)$, $f_i = \max\left\{0, \theta\left(e^* - \tfrac{1}{2}\theta\right)\right\}$. The contract cannot be used to screen for *M*-types ($e^* = 0$) because then $B_i = f_i = 0$. Hence, this case corresponds to screening for *N*-types where $e^* > \tfrac{1}{2}\theta$. Without loss of generality we assume f_O

= 0; therefore, a binding (SS'_O) yields $B_O = \sqrt{2 f_i}$. Under these conditions both (PC'_O) and (SS'_N) hold strictly; *O*-types earn informational rents.

Case 2: $B_i \in (-\theta, 0)$, implying $e_{ii} = B_i + \theta > 0$. Limited liability, (SS'_i) and $f_O = 0$ imply

(21) $$f_i = \max\left\{-B_i, -½(B_i+\theta)^2 + B_O(B_O+\theta) - ½(B_O+\theta)^2\right\}.$$

As case 1 pertains to *N*-types we examine *M*-types (e^*=0) in this case. When f_M is equal to the second term in braces in (21), a binding (PC'_M) implies $B_O = \theta$. Both (PC'_O) and (SS'_O) hold with strict inequality, again implying information rents for *O*-types. If, instead, $f_M = -B_M$, then (SS'_O) binding implies $B_O = \sqrt{-2B_M + B_M^2}$.[4] For this contract (SS'_M) and *both* PCs strictly hold, implying that each agent type earns information rents.

The interpretation of the contracts derived for case 2 is that the principal pays the *M*-type a fixed payment, f_M, to run the firm as a mission-oriented operation and the agent pays the principal B_M when state *S* occurs. As the agent receives intrinsic utility, θ, when state *S* occurs this is incentive enough to exert nonzero effort: $e_M = B_M + \theta \in (0, \theta)$. By contrast, an *O*-type is offered a traditional incentive contract where payment B_O is received when *S* occurs.

Result 2: when screening for an agent with social preferences versus an opportunistic agent under conditions of moral hazard and adverse selection,

(a) the fixed portion of the contract for agents with social preferences, f_i, is positive;
(b) the contract for norm-based agents does not contain a variable/incentive component and these agents do not earn information rents;
(c) if limited liability binds on motivated agents then they earn information rents and pay a return to the principal when state *S* occurs;
(d) norm-based agents exert more effort than motivated agents; and
(e) norm-based agents are preferred to motivated agents in terms of information rents.

An additional contribution of this analysis is that it reconciles the contractual differences between Casadesus-Masanell (2004) and Stevens-Thevaranjan (2010) given that their definitions of ethical/moral behavior are equivalent in the unifying model considered here. Under conditions of agent risk neutrality, ethical/moral preferences augment opportunistic preferences

[4] Recall that $B_M < 0$; hence, the term within the radical sign is positive.

by the term $-\theta_{ij}(e^* - e_{ij})$, as given in (1). Moreover, both analyses are concerned with an environment of pure moral hazard only.[5] Casadesus-Masanell considers the case where state *S* is observable; consequently, the incentive portion of the contract is reduced in order to reduce the opportunity cost of ethical behavior (Arce 2010). In Stevens-Thevaranjan *S* is not observable and a fixed salary (that involves a premium) is sufficient to compensate moral agents for their cost of effort. Yet as Stevens-Thevaranjan recognize, the incentive contract for opportunistic agents involves the opposite extreme where incentive payments are contingent on the observation of *S* and this prevents the possibility of the solution for moral agents. Hence, a direct ranking of moral versus opportunistic agents is not possible in their study. By contrast, we are able to derive and rank both agent types when adverse selection and moral hazard are combined. Once again, the opportunity cost of ethical/moral behavior is reduced as the associated contract involves a fixed component only. In addition, we endogenously demonstrate that the observation of *S* is not necessary in order to screen for ethical/moral agents, precisely because norm-based agents will accept a screening contract involving a fixed component only.

5. Discussion and conclusion

Corporate misbehavior during The Noughties (2000-2009) has focused attention on the role of high-powered incentives that were originally introduced to align the interests of principals and agents. These and other concerns regarding the agency-theoretic approach to corporate governance are behind various proposals to analyze alternatives to opportunistic agent behavior under moral hazard. Such alternatives include ethical, social-identity, mission-oriented, moral and reciprocal agent preferences. These preferences are nested. Once agents are differentiated according to preferences (type) the issue of adverse selection requires the design of a menu of contracts that screen for agents with social versus opportunistic preferences.

The associated screening contracts can be ranked according to the informational rents agents receive. Norm-based agents earn no information rents. This ranking once again holds in an environment with moral hazard and adverse selection, but the form of the screening contract is significantly altered. In particular, we derive the novel result that all of the social preferences considered here require a fixed component in this more general environment. In this way, the variable (bonus) component of the contract is commensurately reduced. This finding is

[5] Furthermore, moral hazard arises due to agent risk aversion, whereas is the present study it is due to limited liability.

consistent with a McKinsey report on pay for performance (Day *et al* 2002) suggesting that weakening incentive structures and fostering an inclusive corporate culture results in a proper distinction between motivation and alignment that is beneficial to firm and employee alike. Hence, we provide a formal analysis in which behavior within the firm is simultaneously market and socially driven.

Given the current reality of pay czars, bonus taxes and say-on-pay shareholder activism, executive compensation is under increased scrutiny. It is unlikely that incentive schemes within affected corporations will result in compensation practices that purely reflect the need to properly incentivize opportunistic agents. Yet affected corporations have almost unilaterally reacted that restrictions and regulations on compensation will make them less attractive for employees and therefore less profitable. What we have shown is that it is possible to successfully screen for non-opportunistic agents who will exert more effort and accept less incentivized compensation as compared to opportunistic agents.

Consider the case of Bank of America, which paid back its $45 billion bailout early, in part so that free from government pay limits it could attract a top-notch CEO from outside (Fitzpatrick and Lublin 2009). Our study suggests that Bank of America shareholders should question the price paid to incentivize CEO pay and whether it is beneficial to attract a CEO with opportunistic preferences. In the end Bank of American hired a current employee, Brian T. Moynihan, to serve as CEO. Hiring inside the firm is another example of screening that partially abrogates the adverse selection problem. As for compensation, Mr. Moynihan received a 19% increase in salary but no bonus for the year that he took over as CEO (Grocer and Corkery 2010), consistent with the screening contract for agents with social preferences characterized above.

References

Akerlof, G.A. and R.E. Kranton 2008. Identity, Supervision, and Work Groups, *American Economic Review*, *Papers & Proceedings* 98: 212-17.

Arce, Daniel G. 2007. Is Agency Theory Self-Activating? *Economic Inquiry* 45(4) 708-20.

Arce, Daniel G. 2009. Putting Agency and Integrity to the Test. *Southern Economic Journal*, forthcoming.

Arce, Daniel G. 2010. Agency and Social Preferences. UTD Working Paper.

Barkema, Harry G. 1995. Do Executives Work Harder When They Are Monitored? *Kyklos* 48: 19-42.

Bebchuck, L. and J. Fried 2004. *Pay Without Performance*. Cambridge, MA: Harvard University Press.

Besley, T. and M. Ghatak 2005. Competition and Incentives with Motivated Agents, *American Economic Review* 95: 616-636.

Blinder, Alan S. 2009. Crazy Compensation and the Crisis. *Wall Street Journal*, 29 May, A15.

Brennan, Michael J. 1994. Incentives, Rationality and Society. *Bank of America Journal of Applied Corporate Finance* 7(2) 31-39.

Casadesus-Masanell, R. 2004. Trust in Agency. *Journal of Economics & Management Strategy* 13: 375-404.

Cassidy, John 2002. The Greed Cycle. How the Financial System Encouraged Corporations to Go Crazy. *The New Yorker*, 23 September, pp.64-77.

Cooper, Russell 1984. On Allocative Distortions in Problems of Self-Selection. *RAND Journal of Economics* 15(4) 658-577.

Day, Jonathan *et al* 2002. Has Pay for Performance Had Its Day? *McKinsey Quarterly*, Issue 2.

Donaldson, Lex 2002. Damned by Our Own Theories: Contradictions between Management Theories and Management Education. *Academy of Management Learning and Education*, 1: 96-106.

Enrich, David and Deborah Solomon 2009. Pay Czar Increased Base Pay at Firms. *Wall Street Journal*, 28 October, C1.

Ferraro, Fabrizio, Jeffrey Pfeffer and Robert I. Sutton 2005. Economic Language and Assumptions: How Theories Can Become Self-Fulfilling. *Academy of Management Review* 30(1) 8-24.

Ferraro, Fabrizio, Jeffrey Pfeffer and Robert I. Sutton 2009. How and Why Theories Matter.

Organization Science 30(3) 669-675.

Fischer, Paul and Steven Huddart 2008. Optimal Contracting with Endogenous Social Norms. *American Economic Review* 98(4) 1459-1475.

Fitzpatrick, Dan and JoAnn B. Lublin 2009. Bank of American Can't Sign New CEO. *Wall Street Journal Deals Blog*, 16 December, p.27.

Grocer, Stephen and Michael Corkery 2010. Bank CEO Scorecard: Who's Making the Most Dough. *Wall Street Journal Deals Blog*, 5 February.

Harris, Jared D. and Philip Bromily 2007. Incentives to Cheat: The Influence of Executive Compensation and Firm Performance on Financial Misrepresentation. *Organization Science* 18: 350–367.

Innes, R.D. 1990. Limited Liability and Incentive Contracting with Ex Ante Action Choices. *Journal of Economic Theory* 52: 45-67.

Jensen, Michael 2007. Putting Integrity into Finance Theory and Practice: A Positive Approach (PDF of keynote slides), revised version. *Harvard NOM Working Paper No. 06-06*.

Khurana, Rakesh 2007. *From Higher Aims to Hired Hands: The Social Transformation of American Business Schools and Unfulfilled Promise of Management as a Profession*. Princeton: Princeton University Press.

MacLeod, B. 2007. Can Contract Theory Explain Social Preferences? *American Economic Review*, *Papers & Proceedings* 97: 187-92.

Osterloh, Margit and Bruno S. Frey 2004. Corporate Governance for Crooks? The Case for Corporate Virtue. In *Corporate Governance and Firm Organization*, edited by A. Grandori. Oxford: Oxford University Press, pp.191–211.

Stevens, Douglas E. and Alex Thevaranjan 2010. A Moral Solution to the Moral Hazard Problem. *Accounting, Organizations and Society* 35(1) 125-139.

Tosi, H.L., S.P. Katz and L.R. Gomez-Mejia 2000. How Much Does Performance Matter? A Meta-Analysis of CEO Pay Studies. *Journal of Management* 26: 301–339.