

# Governance, Competition, and Welfare

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# 1 Introduction

The superiority of free market economies has been demonstrated by the inefficiency and recent collapse of centrally planned ones. However, the optimality of decentralized exchange is guaranteed by the fundamental theorems of welfare economics only in the case of perfect competition. Unfortunately, few real world industries are even somewhat close to the definition of perfect competition. Most industries are oligopolistic, and many of them are subject to sophisticated strategic behavior that may lead firms to curb competition and monopolize markets, that is, to maximize industry profits while reducing social welfare.

That this is a fundamental problem of market economies was clear to the founding fathers of economic science from the beginning. The classical reference is from Adam Smith:

“People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the publick, or in some contrivance to raise prices.” (The Wealth of Nations, Book I, Ch. X, Part II.)

A sound competition policy is therefore necessary to avoid the potentially large social welfare losses linked to collusive behavior. And, as any other public policy, to be effective competition policy must be implemented by well informed regulators. Antitrust authorities need to know which factors signal the presence of, or facilitate, such costly market failures.

To this aim, the phenomenon of long term competition in mature oligopolistic industries, and in particular that of tacit collusion between rival firms, has been analyzed in the last thirty years within models of repeated oligopoly games. Supergames are among the best understood parts of game theory, and this led to a very good understanding of many of the factors that enhance firms' ability to support tacit collusive agreements by the credible threat of future retaliation.

To my knowledge, however, all classical supergame-theoretic analyses of tacit collusion confined themselves to the standard assumption of firms' objective function being linear in profits. In the real world many interacting factors determine the actual shape of firms' objective function, thereby determining firms' preferences towards collusive rather than

competitive behavior. And the most important among these factors surely are two central elements of corporate governance: managerial incentives and capital structure.

The managerial theories of the firm stressed early that when ownership is separated from control, firms tend to pursue objectives different from profit-maximization.<sup>1</sup> Also, the work of Thomas Schelling (1960) made clear that contracts with third parties, such as managerial incentive schemes and financial contracts, may have important strategic effects. Therefore, understanding how most commonly adopted managerial incentive schemes and debt contracts might affect oligopolistic firms' competitive attitudes, and thereby social welfare, may be interesting both from a positive and a policy perspective.

Recent empirical work by Nickell et al. (EER 1997) considers the relation between corporate governance variables and competition, showing that effective corporate governance mechanisms and product market competition both improve firms' performance in terms of productivity growth, and that the first could in principle substitute for the second. However, these two forces are potential substitutes only from a productivity point of view. From a general Welfare point of view, we know that in most cases the lack of competition will tend to raise prices, reduce output, and harm consumers.

I have considered the relation from a different point of view. I have looked at how most commonly observed corporate governance mechanisms affect firms objectives, competitive attitudes, hence welfare.

## 2 My Research

By now there is a considerable amount of empirical evidence on both managerial incentives and capital structure available in economics, finance, accounting, and management science journals. Several important studies on the subject were made in the '80s, and the empirical literature on managerial incentives really exploded after Michael Jensen and Kevin Murphy's (1990) famous paper.<sup>2</sup>

Because I wanted to understand how the objectives of real world top managers, as influenced by firms' capital structure, determine firms' competitive attitudes, my mod-

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<sup>1</sup>For example, Herbert Simon (1957); William Baumol (1958); Richard Cyert and James March (1963); Robin Marris (1964); Oliver Williamson (1964); Michael Jensen and William Meckling (1976).

<sup>2</sup>For example, Sherwin Rosen (1992); Steven Kaplan (1994, 1998); Charles Hadlock and Gerald Lumer (1997); Stacey Kole (1997); Brian Hall and Jeffrey Liebman (1998).

elling approach has been “empirical.” I consider the effects of top managers’ incentives schemes, as found in the empirical studies, in supergame-theoretic models of long-term competition and tacit collusion. This approach also provides an explanation for a theoretical puzzle brought up by some recent empirical results on the relation between firms’ capital structure and product market competition.

I summarize below the results of the two papers I have been working on under the first research grant KKV awarded me.

## 2.1 Stock-Related Compensation and Product-Market Competition

This paper is a follow up of an earlier paper of mine (Spagnolo 1996) showing that when managers have the preference for smooth time-paths of profits – as revealed by the empirical evidence on “income smoothing” – and when they are under most common low-powered incentive contracts – e.g. bonus plans with modest targets and termination contracts with incumbency rents – manager-led firms can sustain collusive agreement much more easily than profit-maximizing ones.

In the last decade the pay-performance sensitivity of top managers’ compensation has increased in the U.S. because of a wave of adoption of stock-related incentives, such as stock options plans, share-performance plans, or bonuses linked to stock price. A movement towards stock-related compensation is now starting in Europe as well. This paper tries to answer the following question: Does this trend towards stock-based incentives induce a more competitive attitude in managers, so that concerns about tacit collusion and social welfare can be abandoned?

The focus is on stock-based compensation plans as they are commonly designed in the real world: relatively liquid plans awarding stock-based bonuses for several consecutive years. These kind of incentives are introduced in a classical model of repeated oligopoly.

It is found that as long as the stock market has perfect foresight, some dividends are distributed, and incentives are paid more than once or are deferred, compensation packages related to stock price greatly facilitate tacit collusion in long-run oligopolies.

Stock-related incentives link managers’ present compensation to the stock market’s expectations about the firms’ future profitability. When a breach from a tacit collusive agreement occurs, the stock market anticipates the negative effect of the breach on

...rms' future profitability linked to the forthcoming punishment phase, and immediately discounts it on the stock price, reducing managers' short-run gains from any deviation.

When stock-based incentives are deferred, the first pro-collusive effect is reinforced by the fact that the already limited beneficial effect of short-run gains from deviation on the stock price may be completely passed at the time the manager receives the bonus. Delegation of control to managers under deferred stock-related compensation is shown to allow owners to support the joint monopoly collusive agreement at any level of the discount factor.

The results are independent of whether managerial contracts are long or short term.

## 2.2 Debt as a (Credible) Collusive Device

The natural implication of the two more established theories on the effects of financial structure on product market competition – the “long purse” or “predation” theory, and the “limited liability” theory – is that debt should lead either the leveraged firms or their competitors to behave more aggressively. Though, recent empirical work has shown that in concentrated industries high leverage tends to have anti-competitive effects on product markets. This paper proposes a theoretical explanation for this evidence based on the interaction between capital structure, managerial incentives, and firms' ability to sustain collusive behavior.

It starts from many authors' observation that by committing to a prudent behavior through “conservative” managers, shareholders can limit the “asset substitution” problem and reduce the ex ante (agency) cost of debt finance. In other words, the two corporate governance variables “managerial incentives” and “capital structure” are not independent, and should be considered jointly.

Such commitment opportunity is introduced in Maksimovic's (1988) model of leveraged oligopoly. It is found that if owners commit against strategic default by hiring a manager with an established reputation – with much to lose from bankruptcy – debt enhances firms' ability to collude with respect to unleveraged firms. Analogous commitments to debtholder-friendly behavior through low-powered managerial incentive schemes have even stronger pro-collusive effects, which add to the effect of managers' reputation. It is then shown that when credit markets are concentrated, colluding lenders can increase their rents by controlling the choice of managers and their incentives in oligopolies.

They can make the choice of prudent managers or of conservative managerial incentives renegotiation-proof through high levels of debt, thereby making commitments to conservative (collusive) product market strategies credible even when secret renegotiation is possible and costless. And even when credit markets are perfectly competitive and firms have multiple lenders, choosing at least one lender in common (or, equivalently, at least two distinct but "allied" lenders) is shown to remain a feasible way by which oligopolistic firms can credibly implement tacit collusive agreements.