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THE WELFARE CONSEQUENCES OF TRANSACTIONS COSTS IN FINANCIAL MARKETS

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Abstract: Efficient financial markets induce cost differences which permit output restriction and welfare losses in product markets. The nature of these losses is discussed, and policy conclusions are drawn.

Responsibility for errors is, as usual, my own.

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Just because you're paranoid doesn't mean no one is following you.

60's saying

I. Introduction

The notion of differences in the cost of financial capital is an essential element of the structure-conduct-performance school theory of entry barriers as market characteristics which distinguish actual from potential competition and which make market structure a factor in determining market performance.

Critics of the view that financial markets are a source of entry barriers have in some cases argued that financial markets cannot be a source of cost differences between actual and potential competitors. In other cases, they have taken the position that such cost of capital differences as are imposed by financial markets are an efficient response to the imperfect or incomplete state of knowledge which exists in real-world financial markets. Following the generally accepted view that a barrier to entry is a market characteristic which impedes entry and which has adverse welfare effects, they suggest that cost differences imposed by financial markets should not be treated as a barrier to entry.

I argue that the literature has obscured the distinction between performance in financial markets and performance in product markets. Although the cost-of-capital differences imposed by financial markets may be an efficient response to the state of information in financial markets, incumbent firms can be expected to respond to those cost differences in ways which result in social welfare losses.

II. Capital Costs as a Barrier to Entry

A. Mainstream

It is riskier to loan money to a small, new firm than to a large, established firm. Financial markets will, therefore, impose a higher cost of capital on small, new firms, than on large, established firms. The former, therefore, will be at a cost disadvantage vis-à-vis the latter. This will create a cost difference between established and entrant firms which the incumbents may exploit, strategically, if they find it profitable to do so.

This is the essence of the mainstream view that financial markets are a source of barriers to entry. Although associated with Bain [1956, p. 145], the argument has long widespread (see, for example, Stigler [1951]).

B. The Efficiency Response (I)

The classic denial that financial markets were a source of cost differences came in a discussion of the impact of vertical integration on entry conditions (Bork [1954, p. 195]):[1]

> ...the theory that vertical integration prolongs monopoly by imposing greater capital requirements upon potential entrants is still confidently advanced in the literature as though it, too, had not been badly shaken. Of course, vertical integration could affect entry only if two levels or stages of operation were monopolized by the integrated firm or cartel, so that entrants would have to come in on both levels at once. This would indeed require greater capital than would entrance upon one level. If there are greater-than-competitive profits being made in the industry, however, there seems no reason why the increased capital necessary for entry would not be forthcoming, unless there are impediments in the capital market that prevent capital from flowing to areas where it can most profitably be employed. Until such impediments have been shown to exist, the fact that increased capital is required for vertical integration must be assumed to have no adverse effect upon entry into monopolized markets.

1. Footnote omitted. See also Bork [1978, pp. 320-324].

This argument continues to be made from time to time, as though it, too, had not been badly shaken (McGee [1980, p. 297]; Easterbrook [1981, pp. 269-270]).

C. Transaction Costs in Financial Markets (Williamson)

The theory of transactions costs in financial markets provides an explanation for impediments to capital flows of the kind discussed by Bork. Because information is imperfect, lenders will assess a risk premium which depends on the likelihood of bankruptcy. Every borrower will pay a risk premium, but incumbents will benefit from the reputation they have established in past dealings with financial markets. New firms or firms seeking to greatly expand their scale of operation will pay a larger risk premium than established firms. Entrants, as a class, will suffer a greater cost of capital than incumbents.[2]

D. The Efficiency Response (II)

Even severe critics of the concept of barriers to entry have conceded that the argument that transaction costs in financial markets are a source of such barriers is "moderately persuasive" (Posner [1976, 93]). The discussion of financial markets as a source of entry barriers has lately pursued another path. Interest rate differentials are an efficient response to the actual (imperfect) state of information in financial markets. Thus (Stigler [1967, pp. 290-291]):

2. Williamson [1974]. For a formal model, see Martin [1988].

> ...an efficient market...permits all exchange which the traders prefer to non-exchange. If we assume away all costs of trading, the efficient market will achieve every desired exchange for homogeneous goods when there is only one price. ...
>
> The careless and overpopular use of imperfections-in-the-capital-market stems from the application of this simple theory to inappropriate conditions. ...
>
> Transportation costs are the prototype of all trading costs: costs of acquiring knowledge....There is no "imperfection" in a market possessing incomplete knowledge if it would not be remunerative to acquire (produce) complete knowledge.

And in the same vein (Demsetz [1982, p. 50])

> Larger, older firms generally will be able to borrow more cheaply than smaller, younger firms. It is not large capital "requirements," but the histories of successful firms, in a world in which information is costly to acquire, that constitute the source of such interest rate differentials.

III. Product Market Consequences of Transaction Costs in Financial Markets

A widely accepted view is that a barrier to entry is some market characteristic which imposes a cost on entrants but not incumbents (Stigler [1968, p. 67]) and which reduces welfare (von Weizsäcker [1980]). Whether financial markets are or are not efficient is irrelevant to the welfare consequences of cost differences which arise in financial markets for product market performance. If such cost differences reduce welfare in product markets, then financial markets are a source of entry barriers in this sense.

I therefore examine the product market welfare consequences of cost differences imposed by financial markets. Suppose two firms supply a market with linear (inverse) demand curve

(1) $$p = a - bQ \quad .$$

The two firms have access to the same technology. If they could borrow at a risk-free rate of return, they would have identical marginal and average cost, c per unit. However, financial markets assign a risk premium to each firm. Firm 2 is considered riskier than firm 1. Firm 2 pays a greater risk premium than firm 1, which translates into a greater unit cost:[3]

(2) $$c < c_1 < c_2$$

A. Optimal Production in a Market System, Given Imperfect Information in Financial Markets

In the absence of transaction costs in financial markets, the ideal production arrangement would be to produce $S = \frac{a - c}{b}$ units of output, which would clear the market at a price $p = c$. As information is in fact imperfect, this ideal is infeasible. Given imperfect information in financial markets, the first-best market performance would have firm 1 supply the entire market at price $p = c_1$. This might occur under a regulatory regime, if regulators were sufficiently clever.

The second-best performance would have firm 1 produce $S_2 = \frac{a - c_2}{b}$ units of output, which would clear the market at price $p_2 = c_2$. Such an equilibrium might occur through limit pricing.

3. The relation between unit cost and cost of financial capital depends on capital intensity; see Martin [1988]. One would expect the cost of capital to rise as output, and borrowing, rises. The assumption of constant unit cost is made for simplicity, to focus on the critical issue, which is differences in the cost of capital (Williamson [1974, p. 1460]).

In this case, production would occur as cheaply as possible, given the state of information in financial markets and the organization of production through profit-maximizing firms. Firm 1 would earn an efficiency rent $c_2 - c_1$ per unit of output. This is a return to an asset of firm 1: its reputation. To collect its efficiency rent, firm 1 restricts output and holds price above its own marginal cost. There is, of course, a deadweight welfare loss associated with this output restriction. The deadweight welfare loss reflects the difference between the limit price p_2 and real-world marginal cost, c_1.

B. Performance Under Oligopoly

How would market performance under oligopoly compare with second-best limit pricing? The answer depends, of course, on the kind of oligopoly specified as an alternative to limit pricing. The comparison I make is with Cournot quantity-setting duopoly. This choice is hallowed by precedent.[4] It has the added convenience that it can be easily extended, using the device of conjectural variations, to cover a wide range of oligopolistic interactions.

It is well known that in quantity-setting duopoly, the lower-cost firm has the greater output:[5]

(3) $$q_1 = \frac{S_2}{3} + \frac{2}{3}\,\frac{c_2 - c_1}{b} \qquad q_2 = \frac{S_2}{3} - \frac{1}{3}\,\frac{c_2 - c_1}{b}$$

4. It is the comparison which is usually made to analyze the credibility of strategic threats. For examples, see Dixit [1980] and Schmalensee [1981].

5. The requirement that q_2 be positive imposes a constraint on cost differences; q_2 is positive if and only if

$$a - c_2 > c_2 - c_1 .$$

Total output is

(4) $$q_1 + q_2 = \frac{2}{3}\overline{S} = \frac{2}{3}\,\frac{a - \overline{c}}{b}$$

where $\overline{c} = \frac{1}{2}(c_1 + c_2)$ is average cost and (so long as q_2 is positive) duopoly equilibrium price exceeds c_2:

(5) $$p - c_2 = \frac{1}{3}(a - c_2) - \frac{1}{3}(c_2 - c_1) > 0 .$$

In this equilibrium, (as shown in Figure 2), both firms earn economic profit. Firm 1 additionally earns an efficiency rent, on its reduced output.

Firm 1 will prefer oligopoly to limit pricing if its economic profit $[(p - c_2)q_1]$ under oligopoly exceeds its foregone rent $[(c_2 - c_1)(S_2 - q_1)$ The low-cost firm will prefer oligopoly to limit pricing so long as

(6) $$c_2 - c_1 < \frac{1}{4}(a - c_2).$$

This has an obvious interpretation. The larger is $c_2 - c_1$, the greater the rent which the efficient firm gives up by competing oligopolistically. If $c_2 - c_1$ is sufficiently large, the lower-cost firm will prefer to limit price.

The additional welfare loss under oligopoly, compared with the limit pricing, has two components. The first is the deadweight welfare loss due to restriction of output from S_2 to $q_1 + q_2$.

The second element of welfare loss under oligopoly is the excess cost of production on output produced by firm 2 rather than firm 1. The latter is a product market welfare loss induced by efficient differences in the cost of financial capital.

There is an additional welfare consequence of cost differences in financial markets. Oligopoly output $q_1 + q_2$ is less than optimal feasible output S_2. Under a limit-pricing arrangement, the low-cost firm would collect a rent $c_2 - c_2$ per unit on this output. Under oligopoly, this output is not produced, and the rent is not collected. This represents an income transfer from the low-cost firm to consumers (who presumably spend it in other markets).

IV. Final Remarks[6]

Transactions costs rooted in imperfect information induce differences in the cost of capital across firms. These cost differences permit behavior which induces welfare losses in product markets. Low-cost firms may limit price, collecting efficiency rents and inducing a deadweight welfare loss by holding price above marginal cost. Or low-cost firms may share the market, which induces additional deadweight welfare losses and additional social losses as production is inefficiently shifted to high-cost firms.

6. The focus of this paper is competition policy. The analysis suggests as well that authorities should encourage, as much as possible, the free flow of information in financial markets.

It follows that financial markets are a source of barriers to entry - cost differences between entrants and incumbents which have adverse welfare consequences. The importance of the entry barrier imposed by financial markets depends on the absolute size of the capital investment required for entry. Competitive strategies which have the effect of raising capital requirements or making entry riskier make entry more difficult, and can be expected to worsen market performance because they raise rivals costs.[7]

Examples of the former will include partial and complete vertical integration. Vertical mergers and vertical contractual relationships which raise capital requirements will have adverse effects on entry conditions and it is appropriate to balance the corresponding welfare cost against any benefits which they may yield.

Examples of the latter include occasional episodes of predatory pricing or "preemptive entry deterrence"[8] Such behavior is likely to increase the risk premium placed upon fringe and entrant firms.

7. Thus the classic analysis of financial markets as a source of entry barriers ties into the more recent literature on raising rivals' costs as a competitive strategy (Salop and Scheffman [1983, 1987]).

8. Scherer [1976, p. 871].

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Figure 1: Limit Pricing Based on Cost Differences From Financial Markets

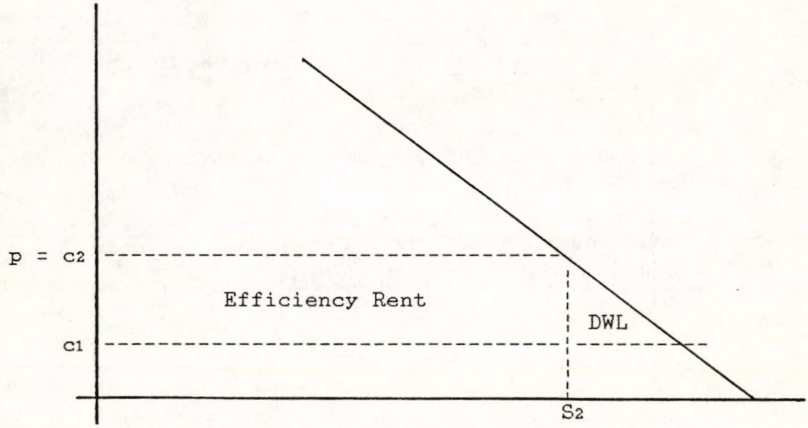
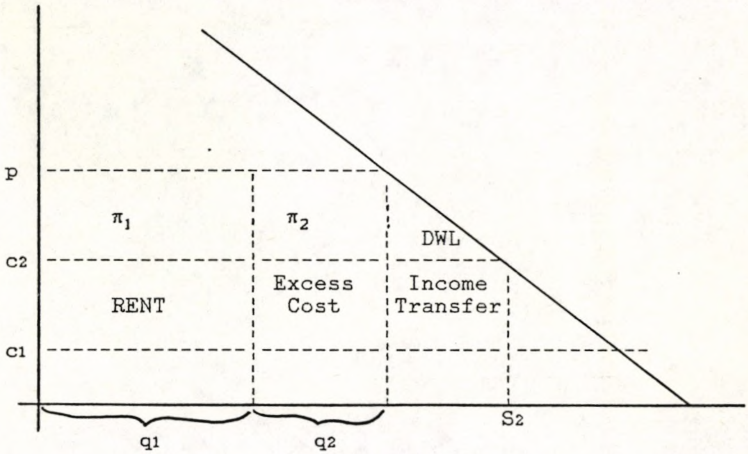


Figure 2: Welfare Losses Under Cournot Duopoly, Based On Cost Differences From Financial Markets



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