complements (so that $\partial v(t)/\partial p_t > 0$). The optimality condition for the firm's output price is then given by the following Euler equation:

$$(1-\tau_t)\left\{q(t)+\mu_t\left[p_t-\frac{\partial c(t)}{\partial q_t}-\frac{\partial h(t)}{\partial q_t}\right]\right\}$$

$$-E_t\beta_{t,t+1}(1-\tau_{t+1})\left\{\mu_t\frac{\partial h(t+1)}{\partial q_t}+\frac{\partial i(t+1)}{\partial(p_tq_t)}[q(t)+\mu_tp_t]b_t\right\}=0 \qquad (5)$$

Equation (5) states that along the optimal path marginal benefits and marginal costs of changing the output price must offset each other. First of all, note that a price change affects the firm's production level via the product demand as given in (1). We allow for strategic considerations in that the firm's price affects demand also via the impact upon the rivals' price (see (4)). According to (5) costs include the marginal production cost and the marginal cost of adjusting output today triggered by a price change; benefits comprise marginal revenue, the saving in adjustment cost due to not having to adjust output tomorrow, and the lower interest payments due to spreading a given amount of debt on a larger firm's size (recall that this effect is negative). Let us now define the following variable:

$$\lambda_t=\left(\frac{\partial D(t)}{\partial v_t}\frac{\partial v_t}{\partial p_t}\right)\bigg/\frac{\partial D(t)}{\partial p_t} \qquad (6)$$

In view of the assumptions made about the components of (4) λ_t is non positive.[6] In the case of a monopolistic firm $\lambda_t=0$. More generally the size of λ_t will depend on the size of the strategic effect compared to that of the direct effect, the former depending in turn on the degree of product differentiation, measured by $\partial D(t)/\partial v_t$, and on the tightness of price competition, measured by $\partial v_t/\partial p_t$.

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[6] Clearly, μ in (4) and λ in (6) are related, as $\mu_t=(1+\lambda_t)(\partial D(t)/\partial p_t)$.