Heterogeneous firms and Corporate Social Responsibility: an analysis in times of crisis

Luisa Giallonardo - Marcella Mulino

UNIVERSITY OF L'AQUILA

Abstract

We set out a model that considers the concept of strategic CSR, and focuses on the role of consumers' demand for CSR products, according to the so called "bottom up pressure", that is consumers' initiative in appreciating CSR. We enrich the above approach with the idea that CSR is a specific feature of goods improving their "quality". In this way, we are able to consider it as a novel type of product differentiation based on the adoption of socially and environmentally responsible practices; as a consequence, our model builds on the literature based on heterogeneous firms in monopolistic competition (starting from the recent "new-new" trade theory pioneered by Mélitz, 2003), that incorporates quality product differentiation. In a closed economy with CSR option in production, we analyze the link between heterogeneity in productivity and CSR intensity, by letting the optimal level of ethical standards to be endogenously determined by each firm.

We then consider the need for external financing, finding that the latter may lead intra-marginal firms to exit production, as well as to a reduction in the optimal level of CSR of surviving firms. The latter outcome is especially relevant for the study of the relation between CSR and economic crisis. We identify some negative effects: a decline in consumers' income has a negative impact on the demand of higher CSR intensity goods, whereas a tightening in external financing conditions leads to a decrease in the optimal level of CSR. On the other hand, external investors may attribute a positive value to the CSR effort of firms, as the latter may be seen as a positive reputational signal. We take into account that creditors attribute a specific weight to CSR activities in judging corporate attention for stakeholders, by assuming that firms' exogenous probability of enforcing the financial contract is deemed to be higher when investors care about firms' ethical efforts; at the same time, the share of tangible assets CSR firms are required to vow as collateral is assumed to be lower. We thus study the conditions which may make the reputational effect to mitigate the impact of the crisis on firms' optimal level of CSR.

Introduction

The increasing interest for Corporate Social Responsibility (CSR) among scholars in different scientific fields has influenced economic research, too; economists started facing several challenges, dealing with economic issues emerging from individuals and firms ethical behavior.

Economists, on the whole, have taken a skeptical view of CSR. For example, Baumol (1991) argues that CSR requires firms to sacrifice profits which is not viable when competition is intense. Previously, Friedman (1977) stated that "there is one and only one social responsibility of business - to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud". In considering the role of managers, Friedman underlined that they are elected by the shareholders in order to reach positive results in terms of profits. As CSR has a cost, managers would not be allowed to pay for purposes other than profit maximization. Managers would not "pursue morally valuable social causes" and "tamper prices" (Sacconi, 2005), without considering the reactions of markets and consumers to their behavior. In such a context, the hypothesis of firms' altruism is not realistic, as it entails actions involving a decrease in profits. Accordingly, CSR is not justified on economic grounds when it is not directed to the main objective of the firm: profit maximization.

Following the above statement, a new perspective in the analysis of CSR behavior of firms has been provided by the so called "strategic CSR", which is, by now, the leading theory in this field. According to such strand of literature, "responsibility as social purpose consists of the research of profit and CSR activities are a consequence of incentives coming from the markets (goods, work, capital), where the firm is located" (Sacco-Viviani, 2005). Thus, CSR is not judged an altruistic practice for firms, but a way to let production become more profitable. The idea is that firms choose CSR because the benefits accruing to a CSR firm are able to offset the extra costs it has to face. Such benefits (Becchetti *et al*, 2010) may refer to enhanced workers' productivity due to the stimulus of intrinsic motivations associated to the reduced gap between workers' ideals and corporate goals.[1] Otherwise, they may be linked to the impulse toward innovation activities (i.e. in developing more efficient energy saving processes), thereby creating a technological leadership. Alternatively, CSR may be a signal of

---

[1] A recent empirical test on this benefit of CSR policies has been performed by Edmans (2009) for US companies.

product quality in a framework of asymmetric information, given that one of the main stakeholder categories to which CSR refers is that of consumers. Along this line of research, Fisman *et al.* (2006) indicate that firms use CSR activities to signal their product quality, especially those that operate in highly competitive market, thus differentiating their product and gaining market power.[2] Thus, CSR firms may obtain the favor of "concerned" consumers who are willing to pay for the CSR intangible values incorporated in the products and services sold by the firm.[3]

In the paper we accept the above idea of "strategic CSR", that views social responsibility as part of rational decisions that managers and shareholders of a firm take, since it is positively related to firm profits. We focus in particular on the role of consumers' demand for CSR products,[4] according to the so called "bottom up pressure", that is, to taste-based preferences of consumers to purchase products from companies with high ethical standards. Firms recognize that consumers are sensitive to social responsibility: since consumers' demand depends on CSR, the latter becomes relevant for firms' profit maximization.

In such a context, the paper tries to compose different strands of literature. The first one refers to "strategic CSR", in the sense stated above; we contribute to the literature on CSR by considering social responsibility to be a specific feature of goods improving the "quality" of firms' products. In this way, we are able to consider it as a novel type of product differentiation; as a consequence, our model builds on the literature of monopolistic competition that incorporates quality product differentiation. Models referring to the latter strand of literature have been applied to a different context, namely to international trade, in a setting where consumers' demand depends on relative quality as well as on relative prices of goods. In this vein, starting from the recent "new-new" trade theory (Mélitz, 2003), which emphasizes both firms' heterogeneity and the relevance of sunk entry costs, recent developments consider two levels of differentiation among firms, with reference both to productivity and quality, with the optimal level of quality assumed to be endogenously determined by profit maximizing firms.[5]

---

[2] For some evidence supporting the product-signaling hypothesis see Harjoto and Jo (2011) who find that firms in more competitive markets, measured by higher advertising ratios, are more likely to engage in CSR.

[3] For empirical tests on the willingness to pay for intangible social and environmental values of products revealed in consumer purchases see Becchetti *et al.* (2006), Fisman *et al.* (2006), Becchetti and Rosati (2007).

[4] Obviously we define CSR products as the goods produced by firms undertaking CSR.

[5] Among the others, see Antoniades (2008), Johnson (2008), Heble-Okubo (2008), Hallak-Sivadastan (2009).

Given our interpretation of CSR as a form of product differentiation based on the adoption of socially and environmentally responsible practices we set out a model that builds on the above contributions, that is, we consider the concept of strategic CSR, and follow a CSR-based product differentiation approach in a context of heterogeneous firms and monopolistic competition, with the optimal level of CSR being endogenously determined.

As a first result, we obtain that the optimal CSR increases with firms' productivity, since investing in CSR is costly and only more productive firms are able to engage in higher levels of CSR; in addition, optimal CSR increases with consumers' income. The latter result points to the fact that CSR can be considered a luxury characteristic of the goods produced, valued and purchased to a greater extent by richer consumers which tend to evaluate other product characteristics than price, whereas poorer consumers are likely to be more price sensitive.[6]

We then add in the model a financial variable, that is the need to apply for external financing to start production; we find that the recourse to credit leads some firms to exit production, as well as to a reduction in the optimal level of CSR. The latter outcome is especially relevant for the study of the relation between CSR and economic cycles. In particular we address the effects of a global crisis on CSR choices. We identify some negative effects: a reduction in consumers' income has a negative impact on the demand of higher quality CSR goods; a tightening of external finance conditions leads to a decrease in the optimal level of CSR. On the other hand, external investors may attribute a positive value to CSR engagement of firms, as the latter may be seen as a positive reputational signal, leading to a softening of the financial constraint. We thus study the conditions which may make the latter effect to mitigate the impact of the crisis on the level of CSR.

The paper is organized as follows. The next section deals with the parallel we draw between the CSR feature and the quality embodied in products, given consumers' appreciation for CSR and quality content of the goods demanded. In section two we put forward a monopolistic competition model with heterogeneous firms operating in no-SR or in SR industries; on such a basis, we endogenously derive the optimal level of CSR content resulting from a profit maximization problem. In section three we incorporate the need for external financing of sunk and CSR costs, and derive the new cut-off

---

[6] For instance, McWilliams-Siegel (2001) argue that income determines consumers' demand for CSR products, since more affluent consumers tend to be less price sensitive and therefore more inclined to pay higher prices for CSR-differentiated products.

conditions as well as the new (lower) optimal level of CSR of credit constrained firms. Section four analyses the possibility that credit conditions may be softened for SR-firms when a positive reputational signal is attached to ethical standards in production.

1. CSR and product quality

The literature dealing with CSR puts forward a crucial distinction between horizontal and vertical differentiation criteria, on the basis of consumers' preference for CSR. In the first case consumers don't necessarily prefer to have a higher share of CSR than a lower one, since they define *a priori* their optimal quantity of CSR. On the contrary in the second case a higher quantity of CSR entails a higher utility for the consumer.

Theorists of the horizontal differentiation approach justify the existence of consumers not having a preference for CSR with the possibility that they are not willing to pay for it on the ground that CSR is believed to be a feature external to the firm. Consumers belonging to this category regard the price firms pursuing ethical standards would require as excessive, when ethical standards pursued by the firm are higher than theirs. Instead, such consumers judge that public institutions are to be taken responsible for enforcing and safeguarding ethical values. This point of view goes back to the neoclassical theory and the opinions of Friedman (1977), according to which CSR may be considered among firms' strategic variables if and only if it contributes to increase profits. In addition, supporters of CSR horizontal differentiation models believe that firms do not have either the competence or the capability to engage in socially responsible initiatives, so that the latter would not have a relevant impact on the sustainability objectives of the whole community. This may lead to a poor demand for products with ethical contents.

In contrast, supporters of the vertical differentiation approach believe that consumers value the CSR content of goods; besides preferring – for a given price – a product with higher CSR related product characteristics with respect to a lower CSR good, they are disposed to pay a higher price for a higher ethical content, according to their preferences. In other words, such an approach assumes that "concerned" consumers are willing to pay for the CSR intangible values incorporated in products. This view is confirmed by empirical analyses that find evidence of a widespread consumers' preference for firms' ethical effort (Becchetti *et al.*, 2006, Becchetti-Rosati, 2007).

An intermediate position accepts the vertical differentiation approach as described above, admitting however the existence of heterogeneous consumers; for instance, Becchetti-Giallonardo-Tessitore (2007) consider that consumers are distributed along an ethical segment of differentiation, whereas Besley-Ghatak (2007) assume consumers to be divided into two groups, where only the group of socially responsible consumers appreciates the CSR content of goods.

We follow the latter "polar" approach, since in our model we assume the simultaneous presence of two types of consumers: one group of socially responsible consumers appreciating the CSR intangible values incorporated in the products, and another group of consumers not deriving additional utility from consuming goods with a SR content. Differently from Besley-Ghatak (2007), however, in our analysis the "preference" for CSR of socially responsible consumers is differentiated among households, since it is positively linked to consumers' income, on the assumption that CSR can be considered a luxury characteristic of the goods, that is valued to a greater extent by richer consumers.

Our model is built on the belief that the vertical differentiation approach to CSR, referring to the vertical differentiation of consumers' preferences, may be integrated with several features of the analyses concerning quality product differentiation in production (also defined as vertical product differentiation, according to Grossman-Helpman, 1991). In fact, considering CSR as a characteristic that increases the value of the good consumed is analogous to considering it as a "quality" attribute of the product.

Indeed, CSR and "quality" present several similarities. "Quality" is related to "several product characteristics, such as product performance, durability, reliability, and consistency with specifications".[7] It represents the result of a rational choice of firms which invest resources in research and development, obtain stochastically an increase in the qualitative characteristics of the product and thus conquer market shares, given consumers' demand. The latter derives from consumers' preferences that positively value the quality embodied in the products; accordingly, consumers' demand depends not on relative prices, but on quality-weighted relative prices. In turn, CSR includes a number of actions with social characteristics that a firm can undertake, some of which represents product features. McWilliams *et al.* (2005) recognize that a socially responsible firm will produce "incorporating social characteristics or features into products". Therefore, products of socially responsible firms include specific attributes

---

[7] See Boehe-Barin Cruz (2010).

that can be regarded as features improving the "quality" of goods. As long as ethical features enter into consumers' utility function so that households are willing to pay for it, firms may find it profitable to invest resources in order to produce goods that incorporate social characteristics; in this way, socially responsible firms are able to manufacture goods embodying "quality" elements that increase the products' value.

A somewhat different line of reasoning is in Becchetti-Ciciretti (2010) where product quality is among the main criteria of social responsibility. In other words, socially responsible firms produce higher quality goods. According to such a vision, quality appears to be considered a component of CSR.

We follow a diverse, broader approach: as in McWilliams *et al*. (2005) and Barin Cruz-Boehe (2010), we consider CSR as a novel type of product differentiation, that is, a component of goods' quality. For instance, CSR firms may be certified 'fair labor' companies, may employ inputs purchased on a fair trade basis, or may use environmentally responsible technologies. In so doing, they differentiate their products from the ones of traditional firms. As a consequence, our model merge CSR vertical differentiation with quality product differentiation in a monopolistic competition setting. In our analysis, CSR plays a role similar to the one performed by quality differentiation: it creates a competitive advantage for the firm. The latter derives from the building up of a reputation as a socially responsible firm, that can be seen as an intangible resource that increases the value customers perceive in consuming firm's products.

2. The model

We consider a closed economy with heterogeneous firms which show firm level productivity differences. The heterogeneity in productivity concerns the capability to realize different levels of output at equal cost or the same output at higher costs; so the productivity differences are independent of product differentiation. We assume a monopolistic competition context and vertical differentiation in CSR.

Demand

Households have a preference for diversity and therefore derive utility from the consumption of all available differentiated varieties of products, which substitute imperfectly for each other.

We assume the existence of two types of consumers, differentiated according to their appreciation of the ethical content of goods: one group of socially responsible

7

consumers (whom we refer to as *caring*) valuing the quality of goods, in terms of SR, and other group not deriving additional utility from consuming goods with a SR content (whom we refer to as *neutral*).[8] Consumers self-select according to their valuation of goods; to simplify our analysis, we assume the composition of population in the two classes to be fixed through time.

Preferences among the varieties of no-SR products of a type-*n* (*neutral*) consumer indexed by *h* are described by the following constant elasticity of substitution (CES) utility function:

$$U_h^n = \left[\sum_z (C_z)^{\frac{\theta-1}{\theta}} \right]^{\frac{\theta}{\theta-1}} \tag{1}$$

where C_z is the quantity consumed of variety *z* of the bundle of no-SR goods, measured in physical units, and $\theta > 1$ is the elasticity of substitution between varieties.

Differently, an additional product-specific CSR parameter enters in the CES utility function describing preferences of a type-c (*caring*) consumer, indexed by *i*:

$$U_i^c = \left[\sum_j \left(s_j^\lambda C_j \right)^{\frac{\theta-1}{\theta}} \right]^{\frac{\theta}{\theta-1}} \tag{2}$$

where s_j is the CSR content, assumed to be observable to all, of variety *j* of the bundle of SR goods, measured in utility per physical unit, with $s_j > 1$, and C_j is the quantity consumed of variety *j*. The parameter $\lambda > 0$ captures the intensity of the consumers' desire for the CSR content of goods.[9] The CSR content of each product *j* is a demand shifter: higher CSR goods yield higher consumption utility per unit consumed. For the sake of simplicity, we assume the elasticity of substitution between varieties to be the same for all types of consumers.

The representative "neutral" household earns labour income w_i by supplying inelastically her labour endowment *L* in a competitive labour market; in addition, we assume that consumers own an equal share of each no-SR firm, so that firms profits will be equally distributed among all consumers: a profit flow π_i accrues to each household.

The representative consumer obtains her demand function for a particular variety κ ($\kappa = z, j$) following an utility maximization process; we obtain aggregate demand for

---

[8] The above denominations for the two types of consumers are drawn from Besley-Ghatak (2007).

[9] Following Hallak (2006), λ may be assumed to be positively linked to the consumer's real income.

each variety by summing all consumers' demands for the same variety. Thus, we get the following demand function for a particular variety z:

$$C_z = \left(\frac{p_z}{P_z}\right)^{-\theta} \frac{R_n}{P_z} \tag{3}$$

where R_n is n-type consumers' aggregate income, p_z is the price of variety z and P_z is the aggregate price index of no-SR goods, defined as[10]:

$$P_z = \left[\sum_z (p_z)^{(1-\theta)}\right]^{\frac{1}{1-\theta}} \tag{4}$$

Correspondingly, utility maximisation by the representative type-c consumer leads to the following demand function for a particular variety j:

$$C_j = \left(\frac{p_j}{P_j}\right)^{-\theta} s_j^{\lambda(\theta-1)} \frac{R_c}{P_j} \tag{5}$$

where R_c is c-type consumers' aggregate income derived on the basis of hypotheses on the labour supply and the distribution of SR-firms' profits analogous to those made for n-type consumers, p_j is the price of variety j and P_j is the aggregate quality-adjusted price index of SR goods, defined as:

$$P_j = \left[\sum_j \left(p_j / s_j^{\lambda}\right)^{(1-\theta)}\right]^{\frac{1}{1-\theta}} \tag{6}$$

Equation (3) shows that aggregate demand for variety z is a function of relative prices, with elasticity θ, and *neutral* consumers' real income, with unitary elasticity. On the other hand, the solution of the *caring* consumers' maximization problem determines their aggregate demand (equation (5)) as a function of the intensity of the consumers' desire for the CSR content of goods, as well: c-type consumers choose the variety j with the lowest CSR adjusted price, $\dfrac{p_j}{s_j^{\lambda}}$.

Production

Each variety κ (with $\kappa = z, j$) of the differentiated goods is produced by a single monopolistically competitive firm, so that κ also indexes firms. Firms are

---

[10] Since $\theta > 1$, the price index P_z is inversely related to product prices; accordingly, higher (lower) prices imply a lower (higher) value of P_z. Thus, P_z can be thought of as an index of the toughness of competition in the market: a higher P_z implies a tougher competitive market. The same applies to the price index of the SR industry, P_j.

heterogeneous in an exogenously fixed productivity parameter which can be interpreted as entrepreneurial ability or technical knowhow. Following standard models of heterogeneous firms,[11] firms face some initial uncertainty concerning their future productivity when making a costly and irreversible investment decision prior to entry. Upon paying a fixed fee F_e required for entry, firms are endowed with a firm-specific productivity parameter a_κ that is randomly drawn from a continuous probability distribution $G(a)$. Once the sunk entry cost is paid, firms that can cover their marginal cost survive and produce. All other firms exit the industry. Surviving firms maximize their profits by taking the number of firms as given.

We first consider the no-SR industry. We assume that production exhibits constant returns to scale, with homogenous labour the only factor of production; yet, productivity may raise physical output for a given level of labour input. Upon entry, the production of physical units is

$$Y_z = a_z l_z \tag{7}$$

The above entails that the cost of producing one unit of output for a firm with a labour productivity level a_z is $c_z = \dfrac{w}{a_z}$, which is lower in more productive firms. Profit maximization subject to technological and demand constraints yields the standard result that equilibrium prices are a constant mark-up over marginal cost, with the size of the mark-up depending on the elasticity of substitution between varieties:

$$p_z = \frac{\theta}{\theta-1}\frac{w}{a_z} \tag{8}$$

Given the above pricing strategy, more productive firms are able to charge lower prices, capture a larger market share, and generate larger profits.

Entry in the differentiated product industry is costly as each firm incurs a production startup cost F_e of units of labour, equal for all firms. Upon drawing their productivity parameters, firms with low productivity cannot cover the overhead costs and are not able to survive. The "cut-off" firm is characterized by operating profits equal to total post-entry fixed costs: $p_z Y_z - w l_z = F_e$, where Y_z is firm's output, w is the wage rate, identical across firms and between industries, and l_z is labour input. As standard in heterogeneous firms' models *à la* Mélitz, the cut-off condition depends on the

---

[11] A huge body of literature followed the seminal paper by Mélitz (2003). Just to mention a few papers: Baldwin (2005), Mélitz-Ottaviano (2005), Yeaple (2005), Bernard *et al*. (2006), Bernard *et al*. (2007).

productivity parameter: the higher the productivity level a_z, the greater the operating profit.

By positing $p_z Y_z - \dfrac{w}{a_z} Y_z = F_e$ and substituting in it equations (7) and (8) we find the minimum level of a_z necessary for a firm to start production, i.e., necessary to obtain operating profits equal to total post-entry fixed costs:

$$\underline{a}_z = \frac{\theta}{\theta-1} \frac{w}{P_z} \left(\frac{F_e \theta}{R_n} \right)^{\frac{1}{\theta-1}} \tag{9}$$

Albeit firms are heterogeneous with respect to productivity, all firms with an $a_z > \overline{a}_z$ survive because of the imperfect nature of competition. In fact, as long as the elasticity of substitution between varieties, θ, is finite, lower productivity firms are sheltered from competition and may survive.

In the SR industry there are two sources of heterogeneity among firms: they differ in productivity and in CSR content of goods. Besides the production startup cost F_e of units of labour, equal for all firms, we assume that firms pursue ethical standards in production: to achieve a given CSR content of output, firms incur in additional costs associated with the resources that must be allocated for this aim. Therefore, we add a fixed cost in units of labour for pursuing ethical standards $, F_s$, and a cost that varies positively with respect to the level of SR[12] the firm chooses to undertake, $f s_j^{\delta}$, with $f > 0$ a constant parameter and $\delta > 0$.

As in the no-SR industry, upon drawing their productivity parameters, SR firms with low productivity exit the market. Yet, the "cut-off" firm is now characterized by operating profits equal to total post-entry fixed costs, the latter including total costs of CSR: $p_j Y_j - wl_j = F_e + F_s + f s_j^{\delta}$ where Y_j is firm's output and l_j is labour input. We maintain the assumption that surviving firms maximize their profits by taking the number of firms as given. By solving its profit maximization problem, each firm chooses simultaneously its optimal price and the CSR content of the good it produces, subject to CSR additional costs. The production function of ethical goods is given by

---

[12] Yet, $f s_j^{\delta}$ is fixed with respect to the quantity produced.

$$Y_j = \frac{a_j l_j}{s_j^{\eta}} \tag{10}$$

where η is a parameter that represents the elasticity of output with respect to the level of SR. We assume $0 < \eta < 1$, so that when the firm increases the level of ethical content in the good it produces there is a less than proportional increase in the unitary cost. The corresponding marginal cost is:

$$c_j = \frac{w}{a_j} s_j^{\eta} \tag{11}$$

whereas total costs are $TC_j = wl_j + F_e + f s_j^{\delta} + F_s$. Thus, profits are given by the following expression: $\pi_j = p_j Y_j - \frac{w}{a_j} s^{\eta} Y_i - F_e - f s_j^{\delta} - F_s$.

Profit maximization subject to technological and demand constraints yields the standard result that equilibrium prices are a constant mark-up over marginal cost, with the size of the mark-up depending on the elasticity of substitution between varieties:

$$p_j = \frac{\theta}{\theta - 1} \frac{w}{a_j} s_j^{\eta} \tag{12}$$

Again, we are able to we find the cut-off level of the labour coefficient to start production:

$$\underline{a}_j = \frac{\theta}{\theta - 1} \frac{w}{P_j} \left[\frac{\left(F_e + F_s + f s_j^{\delta} \right) \theta}{R_c} \right]^{\frac{1}{\theta - 1}} s_j^{\lambda - \eta} \tag{13}$$

As usual, the cut-off condition depends on the productivity parameter: the lower a_j, the greater the operating profit. Yet, by comparing equations (9) and (13), we find that $\underline{a}_j > \underline{a}_z$: given higher sunk costs, as well as the cost linked to the level of SR, the minimum level of a_j necessary to trigger production in the SR-industry is higher with respect to the one required in an industry without CSR.

Optimal CSR level choice

Upon starting production, SR firms endogenously choose the level of CSR resulting from a profit maximization problem.

As a consequence we are able to state the following proposition:

Proposition 1: If $\eta < \lambda$ and $0 < (\theta-1)(\lambda-\eta) < \delta$, heterogeneous firms facing a consumers' demand that is sensible to CSR and a cost structure described by eq. (11) choose an optimal level of CSR s_j^* given by the following

$$s_j^* = \left\{ \left(\frac{w}{a_j P_j} \right)^{1-\theta} \left(\frac{\theta-1}{\theta} \right)^{\theta} (\lambda - \eta) \frac{R_c}{\delta f} \right\}^{\frac{1}{\delta-(\theta-1)(\lambda-\eta)}} \tag{14}$$

Proof:

The optimal value of s_j^* is the solution to the following maximization problem

$$
\begin{cases}
\max \pi_j = p_j Y_j - \dfrac{w}{a_j} s_j^{\eta} Y_i - F_e - f s_j^{\delta} - F_s \\[2mm]
\text{s.t.} \quad Y_j = C_j \\[2mm]
\qquad C_j = \left(\dfrac{p_j}{P_j} \right)^{-\theta} s_j^{\lambda(\theta-1)} \dfrac{R_c}{P_j} \\[2mm]
\qquad p_j = \dfrac{\theta}{\theta-1} \dfrac{w}{a_j} s_j^{\eta}
\end{cases}
\tag{15}
$$

The solution, given by equation (14), is positive if the following conditions hold: $\lambda > \eta$ and $0 < (\theta-1)(\lambda-\eta) < \delta$. The former condition entails that a rise in s_j makes unitary costs to increase to a lesser extent with respect to the increase in consumers' utility, implying that "CSR pays," i.e. consumer's marginal valuation of CSR exceeds the marginal cost of CSR to producers. As to the latter condition, it states that the elasticity of substitution θ must not be so high to create benefits of CSR "overwhelming" the cost of CSR. Both conditions assure that the solution in terms of the level of CSR exists and is positive.

The above result shows that higher productivity firms optimally choose to produce goods with a higher ethical content: in fact, CSR increases in the productivity parameter a_j, since a higher productivity causes a reduction of costs and prices, thus inducing firms to attain higher levels of CSR, as they are able to pay more for it. CSR obviously increases with λ, the intensity of ethical features in consumers' demand. It decreases with η and δ, that indicate the incidence of CSR on total variable and sunk costs, respectively. Finally, the optimal amount of CSR increases with consumers' aggregate income. The latter result points to the fact that CSR can be considered a luxury characteristic of the goods produced, that is valued to a greater extent by richer consumers.

13

3. CSR and financial variables

In this section we incorporate a financial variable in the model.[13] Entering the market, firms incur into sunk costs, which can be seen as a form of investment, one which is likely to be affected by financial variables. We simply suppose that all firms need to raise outside capital for a fraction of their fixed entry costs. In addition, we assume that firms in the SR industry need outside capital to cover also a part of the additional CSR fixed and variable costs. For the sake of simplicity, we adopt the hypothesis that the fraction of costs financed through external sources is the same in the two industries and equal to d, with $0 < d < 1$.

To get access to outside finance, firms vow tangible assets as collateral. As stated above, all firms make a costly and irreversible investment decision prior to entry into the industry; in addition, SR firms incur in additional costs associated to CSR-specific investments in capacity or in setting up distribution networks. Therefore, entry sunk costs as well as CSR costs represent in part tangible assets. We assume that a fraction t, with $0 < t < 1$, of the above costs goes towards collateralizable assets, such as plant and equipment. This fraction is taken to be equal for firms in all industries.

All firms are expected to be able to enforce the financial contract with an exogenous probability[14] γ: in such a case, no-SR firms will repay an amount $H(z) = (1 + r)dF_e$, where r represents the rate of interest, taken to be equal for all firms, whereas SR firms will refund an amount $H(j) = (1 + r)d(F_e + F_s + f s_j^\delta)$, with $H(j) > H(z)$. Correspondingly, with probability $(1 - \gamma)$ firms are not able to enforce the financial contract and the creditor claims the collateral.

To enforce the financial contract, entrepreneurs are able to offer the creditor at most their net revenues. So we have, for no-SR firms

$$p_z Y_z - \frac{w}{a_z} Y_z - (1 - d)F_e \geq (1 + r)dF_e \tag{16}$$

and for SR-firms

$$p_j Y_j - \frac{w}{a_j} s^\eta Y_j - (1 - d)(F_e + F_s + f s_j^\delta) \geq (1 + r)d(F_e + F_s + f s_j^\delta) \tag{17}$$

In turn, creditors only extend finance to firms if they expect to at least break even. Thus, for credit extended to both types of firms, the net return to the investor, in the hypothesis that she may gain the same interest rate from her outside option, is

$$\left[-d + \gamma(1+r)d + (1-\gamma)t\right] \geq (1+r)d \tag{18}$$

For simplicity, we assume competitive credit markets, so that all investors make zero expected net profits (over the market interest rate); hence, equation (18) holds with the sign of equality.

The existence of entry and CSR-specific costs brings about the question of the financing of such expenditures that, by their very nature, are not matched by contemporaneous revenues. In the presence of financial market imperfections, only those firms that can successfully overcome this financial problem become producers; thus, a new productivity cut-off for producing governs firms' decisions. This productivity cut-off is given by the usual condition that operating profits be equal to total post-entry fixed costs, with the additional hypothesis that the "cut-off" firm is just able to repay its debt, amounting to assuming that equations (16) and (17) hold with the sign of equality.

From standard results of CES demand we have that operative profits are equal to the ratio of firm revenue to the elasticity of substitution θ. We first consider the industry without CSR, where we have:

$$\frac{p_z C_z}{\theta} = \left[(1-d) + (1+r)d\right]F_e \tag{19}$$

By substituting in it equations (3), (8) and taking into account condition (18), we get the cut-off level for a_z:

$$\hat{\underline{a}}_z = \frac{\theta}{\theta - 1} \frac{w}{P_z} \left\{ \frac{1}{\gamma}\left[d(1-\gamma) + t\gamma + d(1+r) - t\right] \frac{F_e \theta}{R_n} \right\}^{\frac{1}{\theta - 1}} \tag{20}$$

Following the same procedure for the SR industry, on the basis of the analogous cut-off condition

$$\frac{p_j C_j}{\theta} = \left[(1-d) + (1+r)d\right]\left(F_e + F_s + fs_j^\delta\right) \tag{21}$$

we get the corresponding cut-off level for a_j:

$$\hat{\underline{a}}_j = \frac{\theta}{\theta - 1} \frac{w}{P_j} \left\{ \frac{1}{\gamma}\left[d(1-\gamma) + t\gamma + d(1+r) - t\right]\left(F_e + F_s + fs_j^\delta\right)\frac{\theta}{R_c} \right\}^{\frac{1}{\theta - 1}} s_j^{\lambda - \eta} \tag{22}$$

It appears that $\hat{\underline{a}}_z > \underline{a}_z$ and $\hat{\underline{a}}_j > \underline{a}_j$, that is, the productivity cut-off is strictly higher when firms face external financing. The above is clearly verified if $d(1+r) \geq t$. The straightforward meaning of the latter condition is that credit conditions affect market entry decision when the debt repayment is higher than the amount firms offer in the form of collateral, which is the standard situation in a credit contract. When the above condition holds, some firms that could profitably produce with the availability of sufficient internal liquidity, are not profitable enough to obtain adequate outside finance and exit the industry. In line with a large body of literature in corporate finance,[15] the model predicts that more productive firms are less likely to be credit constrained. Besides, as in the previous non-credit model of section 2, we find that $\hat{a}_j > \hat{a}_z$: the minimum level of a_j necessary for a SR-firm to start production is higher with respect to the productivity coefficient a_z for non SR-firms; thus the financial constraint appears to be more binding for CSR firms, as they must record a higher labour productivity value in order to operate in the market.

Optimal CSR choice with external financing

After entry, SR firms endogenously choose the level of CSR resulting from the profit maximization problem. We are thus able to state the following proposition:

Proposition 2: In the presence of a credit constraint, when firms finance through external sources a share d *of costs and devote a share* t *of them to collateralizable assets, given $\eta < \lambda$ and $0 < (\theta-1)(\lambda-\eta) < \delta$, the optimal level of CSR s_j^* of Proposition 1 changes as follows*

$$\hat{s}_j^* = \left\{ \left(\frac{w}{a_j P_j} \right)^{1-\theta} \left(\frac{\theta-1}{\theta} \right)^{\theta} \frac{(\lambda-\eta)}{[1-d+\gamma d(1+r)+(1-\gamma)t]} \frac{R_c}{\delta f} \right\}^{\frac{1}{\delta-(\theta-1)(\lambda-\eta)}} \tag{23}$$

Proof:

The optimal value of $\hat{s}_j^*$ is the solution to the following maximization problem

---

[15] See, for example, Beck *et al.* (2005) and Forbes (2007).

$$
\begin{cases}
\max \hat{\pi}_j = p_j Y_j - \dfrac{w}{a_j} s_j^{\eta} Y_j - \left(F_e + F_s + f s_j^{\delta} \right)\left(1 - d + \gamma d (1+r) + (1-\gamma)t \right) \\[2mm]
\text{s.t. } Y_j = C_j \\[2mm]
C_j = \left(\dfrac{p_j}{P_j} \right)^{-\theta} s_j^{\lambda(\theta-1)} \dfrac{R_c}{P_j} \\[2mm]
p_j = \dfrac{\theta}{\theta-1} \dfrac{w}{a_j} s_j^{\eta} \\[2mm]
p_j Y_j - \dfrac{w}{a_j} s_j^{\eta} Y_j - (1-d)\left(F_e + F_s + f s_j^{\delta} \right) \geq (1+r) d \left(F_e + F_s + f s_j^{\delta} \right) \\[2mm]
\left[-d + \gamma d (1+r) + (1-\gamma)t \right] \geq (1+r) d
\end{cases}
$$

(24)

By confronting equations (14) and (23), and given that the last constraint of the maximization problem implies

$$
\left[1 - d + \gamma d (1+r) + (1-\gamma)t \right] \geq 1 \tag{25}
$$

it appears that $\hat{s}_j^{*} < s_j^{*}$, that is, the optimal level of CSR is lower when firms have to recur to external finance.

The above result follows from the additional costs, given by the left-hand side of equation (25), that firms have to pay when they have to raise outside capital. In fact, equation (25) shows that by summing internally financed costs and the amount firms are expected to pay to creditors (the repayment due in case of enforcement of the financial contract and the collateral otherwise), we obtain that total fixed costs are higher than in the case firms need not to access financial markets. Thus, ethical firms maximize their profits by choosing a lower level of CSR.

In addition, equation (23) indicates that the optimal level of CSR increases with the share d of costs financed through external sources, as the probability of repayment is $0 < \gamma < 1$ so that externally financed costs weigh on firms' total costs only for a fraction. By the same reasoning, the optimal level of CSR decreases with the probability to enforce the financial contract, γ. Formally we have

$$
\frac{\partial \hat{s}_j^{*}}{\partial d} > 0 \qquad \text{and} \qquad \frac{\partial \hat{s}_j^{*}}{\partial \gamma} < 0
$$

Overall, we find that the need of external financing leads some firms to exit production, since the productivity cut-off condition is strictly higher when firms face external financing, as well as to a reduction in the optimal level of CSR. The latter outcome is

especially relevant for the study of the relation between CSR and the current financial crisis, which is the object of the next section.

4. The effects of the crisis

After recent financial scandals and collapses of large corporations, attention to CSR has grown significantly. However, studies on the level of CSR projects in times of financial crisis are rather limited. It is generally assumed that, during financial crisis, as firms' behavior becomes more conservative and defensive, the conflicting benefits among stakeholders and corporations may lead the latter to choose not to engage in CSR projects. Recently, Njoroge (2009) has studied the effects of the financial crisis on CSR projects. His paper shows that companies agree that the financial crisis affects social projects, in the sense that it results in stalling of the projects, postponement, or cancellation of the social projects. The above results are confirmed by Karaibrahimoglu (2010), who finds that there was a significant decrease in the CSR projects of Fortune 500 companies in 2008. The dilemma is that while the financial crisis demands more CSR projects (Becchetti, 2009), it seems that companies engage in such activities less rather than more in the present crisis.

The importance of ethical standards in corporate governance appears clearly in the present crisis. Karaibrahimoglu (2010) reaches the conclusion that, according to corporate governance principles issued by OECD (2004), CSR is highly associated with good corporate governance: given that periods of financial crisis are likely to be characterized by uncertain business environment, the latter feature appears to be of the outmost importance. In this respect, Becchetti *et al.*, 2010 analyze the stock market's reaction to the Lehman Brothers' event, and find that the latter may have led investors to reassess the value of the stocks by increasing the weight attributed to specific CSR information. In a framework of asymmetric information, investors seem to have recognized, after Lehman Brothers' bankruptcy, that CSR ratings perform an significant role in financial markets by providing informations on corporate performance which is not captured by traditional financial rating indicators.

In this section we examine the effects of the financial crisis on SR-firms' choices from a theoretical point of view, by modifying our credit-based model. In particular, we wonder whether in times of crisis SR-firms reduce their engagement in terms of CSR or increase it. We assume that, when a financial shock hits the economy, creditors try to

discern among borrowing firms. Investors seek all available informations on firms' creditworthiness: following the empirical findings of Becchetti *et al.* (2010), we consider that firms' CSR activities are regarded as a signal of trustworthiness in the presence of incomplete contracts and asymmetric information.[16] As a consequence, such activities provide some general information on corporate performance that affect investors' expected net return. We take into account that creditors attribute a specific weight to CSR activities in judging corporate attention for stakeholders by assuming that SR-firms' exogenous probability of enforcing the financial contract is deemed to be higher when investors care about firms' ethical efforts; at the same time, the share of tangible assets CSR firms are required to vow as collateral is lower. We thus have: $\gamma_s > \gamma$ and $t_s < t$, where the subscript s refers to the values of γ and t when firms' CSR activities are taken into account.

In order to consider also other features of a financial shock, we suppose that the latter leads to a reduction in households' income ($R_c^{'} < R_c$) and to an increase in the interest rate ($r' > r$). Assuming, for simplicity, that all other assumptions and hypotheses are unchanged, the net return to the investor becomes

$$[-d + \gamma_s(1+r')d + (1-\gamma_s)t_s] = (1+r')d \tag{26}$$

whereas the optimal value of CSR, now labeled $\hat{s}_{sj}^*$, may be written as

$$\hat{s}_{sj}^* = \left\{ \left(\frac{w}{a_j P_j}\right)^{1-\theta} \left(\frac{\theta-1}{\theta}\right)^{\theta} \frac{(\lambda-\eta)}{[1-d+\gamma_s d(1+r')+(1-\gamma_s)t_s]} \frac{R_c^{'}}{\delta f} \right\}^{\frac{1}{\delta-(\theta-1)(\lambda-\eta)}} \tag{27}$$

We are thus able to identify some negative effects on firms' engagement in terms of CSR: a reduction in consumers' income has a negative impact on the demand of higher quality CSR goods, so that the optimal level of CSR decreases, according to the principle of inverted "bottom up pressure". The same happens in the presence of a tightening of external finance conditions, i.e., a rise in the interest rate. Formally, we have:

$$\frac{\partial \hat{s}_j^*}{\partial R_c} > 0 \quad \text{and} \quad \frac{\partial \hat{s}_j^*}{\partial r} < 0 \tag{28}$$

---

[16] Fisman *et al.* (2006) consider ethical activities as a means to signal the firm's product quality. They argue that even CSR expenditures that are unrelated to specific firm's products, but are visible to the consumer, are useful in signaling the firm's trustworthiness in providing (unobservable) product quality.

On the other hand, the impact of firms' ethical efforts on the probability of enforcing the financial contract and the share of collateralizable assets has mixed effects on the optimal level of CSR. Formally, we have:

$$\frac{\partial \hat{s}_j^*}{\partial \gamma} < 0 \quad \text{and} \quad \frac{\partial \hat{s}_j^*}{\partial t} < 0 \tag{29}$$

In order to evaluate the total change in the optimal level of CSR when there is an increase in the probability of repayment and, at the same time, a reduction in the collateral required, we calculate the sign of the change in $\hat{s}_j^*$ when γ increases and t decreases along a generic direction given by the vector $u = (1, -\alpha)$, with $\alpha > 0$. We thus suppose that t decreases by the amount α after a unitary increase in γ. Accordingly, the change in $\hat{s}_j^*$ is:

$$\langle \nabla \hat{s}_j^*, u \rangle = \left\langle \left(\frac{\partial s_j'^*}{\partial \gamma_s}, \frac{\partial s_j'^*}{\partial t_s} \right), (1, -\alpha) \right\rangle =$$

$$\frac{k}{\delta - (\theta - 1)(\lambda - \eta)} \left(\frac{1}{1 - d + \gamma_s d(1 + r) + (1 - \gamma_s)t_s} \right)^{\frac{1 - \delta + (\theta - 1)(\lambda - \eta)}{\delta - (\theta - 1)(\lambda - \eta)} - 2} \left[-d(1 + r) + t_s + \alpha(1 - \gamma_s) \right]$$

$$\tag{30}$$

where $k = \left[\left(\frac{w}{a_j P_j} \right)^{1-\theta} \left(\frac{\theta - 1}{\theta} \right)^{\theta} \frac{R_c}{\delta f}(\lambda - \eta) \right]^{\frac{1}{\delta - (\theta - 1)(\lambda - \eta)}}$.

Given the usual condition $0 < (\theta - 1)(\lambda - \eta) < \delta$, and considering that $[1 - d + \gamma_s d(1 + r) + (1 - \gamma_s)t_s] \geq 1$ from equation (25), the sign of equation (30) is positive when the following holds:

$$-d(1 + r) + t + \alpha(1 - \gamma) > 0 \tag{31}$$

The above condition is verified when the change in the collateral, α, weighted by the probability to be insolvent, is greater than the difference between the debt repayment and the amount firms offer in the form of collateral, $d(1 + r) - t$. Since the amount of the collateral is lower than the repayment of the debt, when equation (31) is satisfied, firms find it optimal to increase their CSR efforts in the direction $u = (d\gamma, dt) = (1, -\alpha)$.

In such a case, we have $\hat{s}^*_{sj} > \hat{s}^*_j$, that is, firms optimally increase their level of CSR when creditors attribute a specific weight to CSR activities, expressed through a higher repayment probability and a lower share of collateralized assets.

Yet, even when condition (31) is satisfied, the overall impact of a financial crisis on firms' engagement in terms of CSR is likely to be negative, given the clear negative impact of both the fall in consumers' demand and the likely tightening of credit conditions, as stated by equation (28). On the other hand, investors' appreciation of CSR efforts on the part of producers may mitigate the impact of the crisis, so that there may be a lesser reduction in the level of CSR than predicted.

Concluding remarks and future developments

On the basis of a "strategic" approach to CSR encouraged by consumers' "bottom up pressure", we built a model of vertical product differentiation that assumes CSR as a "quality" differentiation criterion. The innovative contribution of the model consists in considering a novel type of product differentiation based on the adoption of socially and environmentally responsible practices, and in analyzing firms' ethical engagement in a contest of heterogeneous firms and monopolistic competition. We find that the level of ethical effort firms optimally choose is influenced both by demand- and supply-side variables, as well as by the need for external financing. For instance, we obtain a positive relation between consumers' income and CSR and a negative relation between production costs and CSR. Thus, CSR can be considered a luxury characteristic of the goods produced, which is valued to a greater extent by richer consumers who are willing to pay a higher price for it. In addition, we find that the need of external financing leads firms to reduce their optimal level of CSR.

In such a context, we address the topic of the effects of a global crisis on ethical choices. We identify some negative effects on the optimal level of CSR: a reduction in consumers' income has a negative impact on the demand of higher quality CSR goods; a tightening of external finance conditions leads to a decrease in the optimal level of CSR. On the other hand, external investors may attribute a positive value to the CSR effort of firms, as the latter may be seen as a positive reputational signal, leading to a

softening of the financial constraint. We thus study the conditions which may make the latter effect to mitigate the impact of the crisis on the level of CSR.

Our analysis is not at all exhaustive. For instance, the model may be extended by considering that, in a multi-period analysis, firms may present heterogeneous initial conditions in terms of cash-flow, linked to their different productivity and profits, thus determining a differentiated capacity in accessing the financial market. In such a context, SR-firms are likely to be in a better position, since they have to exhibit a higher labour productivity in order to survive on the market. Another line of development is related to the presence of ethical finance that by definition is directed to socially responsible firms and to the ethical projects of firms.

A last remark refers to the need for CSR in times of crisis. After recent financial scandals and collapses of large corporations, attention to CSR has grown significantly. The financial crisis has raised the question of whether supporting CSR initiatives is a good issue in financially troubled times. The answer is clearly positive: in order to cope with the financial and economic downturn, governments and firms need to focus on providing society's needs; therefore, transparent CSR projects could provide the social support needed to overcome the downturn.

References

Antoniades A. (2008), "Heterogeneous Firms, Quality, and Trade", *incomplete draft*, http://www. columbia. edu/aa2182/research. htm.

Baldwin R. (2005), "Heterogeneous firms and trade: Testable and untestable properties of the Mélitz model", *NBER Working Paper* 11471, June.

Barin-Cruz L., Boehe D. M. (2010), "Corporate Social Responsibility, Product Differentiation Strategy and Export Performance", *Journal of Business Ethics*, 91, 325–346.

Baumol W.J. (1991), *Perfect Markets and Easy Virtue: Business Ethics and the Invisible Hand*, Basil Blackwell, Oxford.

Becchetti L. (2009), "Oltre la crisi nella società del rischio: il ruolo dell' economia civile", *AICCON - Università di Bologna*, *Working Paper* n. 62, Marzo.

Becchetti L., Cremonese L., D'Achille E., Meo P., Venturini L. (2006), "Le preferenze e la spesa dei consumatori equosolidali: un'analisi empirica sui consumatori italiani" in Becchetti L., Costantini M. (a cura di), *Il commercio equo e solidale*

alla prova dei fatti: dai consumatori del Nord ai produttori del Sud del mondo, Mondadori, Milano.

Becchetti L., Giallonardo L., Tessitore M.E. (2007), "On Ethical Product Differentiation With Asymmetric Distance Costs", *Rivista di Politica Economica*, settembre-ottobre, 55-81.

Becchetti, L., Rosati F. (2007), "Globalisation and the Death of Distance in Social Preferences and Inequity Aversion: Empirical Evidence from a Pilot Study on Fair Trade Consumers", *The World Economy*, 30 (5), 807-30.

Becchetti L., Ciciretti R. (2010), "L'etica che ci salverà", *Dossier CSR,* n. 48, maggio.

Becchetti L., Cennicola C., Ciciretti R. (2010), "Stock Market Reaction to the Global Financial Crisis: the Role of Corporate Governance and Product Quality Ratings in the Lehman Brothers' Event", *Sustainable Investment and Corporate Governance Working Paper* 10-14.

Beck T., Demirgüç-Kunt A., Maksimovic V. (2005), "Financial and Legal Constraints to Firm Growth: Does Size Matter?", *Journal of Finance*, 60(1), 137-77.

Bernard A.B., Jensen J.B., Schott P.K. (2006), "Trade costs, firms and productivity", *Journal of Monetary Economics*, 53, 917–937.

Bernard A.B., Redding S.J., Schott P.K. (2007), "Comparative Advantage and Heterogeneous Firms", *Review of Economic Studies*, 74(1), 31-66.

Besley T., Ghatak M. (2007), "Retailing public goods: The economics of corporate social responsibility", *Journal of Public Economics*, 91, 1645–1663.

Cavallaro E., Mulino M. (2009), "Technological Catching Up, Competitiveness and Growth", *Journal of International Trade & Economic Development*, 18 (4), 505-525.

Edmans A. (2009), "Does the Stock Market Fully Value Intangibles? Employee Satisfaction and Equity Prices", *Wharton School, University of Pennsylvania Working Paper*.

Fisman R., Heal G., Nair V. (2006), "A Model of Corporate Philanthropy", *Wharton School, University of Pennsylvania Working Paper.*

Forbes K. (2007), "One Cost of the Chilean Capital Controls: Increased Financial Constraints for Smaller Trade Firms." *Journal of International Economics* 71(2), 294-323.

Friedman M. (1977), "The social responsibility of Business is to make profits", in Steiner G.A., Steiner J.F. (Eds.), *Issues in Business and society*, New York, Random House.

Grossman, G., Helpman, E. (1991), *Innovation and growth in the global economy*, Cambridge, Massachusetts, MIT Press.

Hallak J. C. (2006), "Product Quality and the Direction of Trade," *Journal of International Economics*, 68, 238-65.

Hallak J. C., Sivadasan J. (2009), "Firms' exporting behavior under quality constraints", *NBER Working paper No. 14928.*

Harjoto M.A., Jo H. (2011), "Corporate Governance and CSR Nexus", *Journal of Business Ethics*, 100, 45-67.

Heble M., Okubo T. (2008), "Heterogeneous Quality Firms and Trade Costs", *The World Bank, Policy Research Working Paper*, 4550, March.

Hummels D., Klenow P. (2005), "The Variety and Quality of a Nation's Exports", *American Economic Review,* 95(3), 704-723.

Johnson R. (2010), "Trade and prices with heterogeneous firms", Dartmouth College, *University of California at Berkeley, mimeo*.

Karaibrahimoglu Y.Z. (2010), "Corporate Social Responsibility in Times of Financial Crisis", *African Journal of Business Management*, 4, 382-389.

Manova K. (2008), "Credit Constraints, Heterogeneous Firms, and International Trade", *NBER Working Paper* No. 14531, December.

McWilliams A., Siegel D. (2001), "Corporate Social Responsibility: A Theory of the Firm Perspective", *Academy of Management Review*, 26, 117–127.

McWilliams A., Siegel D. S., Wright P.M. (2005), "Corporate Social Responsibility: Strategic Implications", *Rensselaer Working Papers in Economics*, May 2005.

Mélitz M. (2003), "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity", *Econometrica*, 71 (6), 1695-1725.

Mélitz M., Ottaviano G.I.P. (2005), "Market size, trade, and productivity", *NBER Working Paper* 11393, June.

Njoroge J. (2009), "Effects of the global financial crisis on corporate social responsibility in multinational companies in Kenya", *Covalence Intern Analyst Papers*, available at: www.covalence.ch/docs/Kenya-Crisis.pdf.

OECD (2004), *Corporate Governance Principles*, available at: www.oecd.org/dataoecd/32/18/31557724.pdf.

Sacco P.L., Viviani M. (2005), "La Responsabilità Sociale d'Impresa. Un percorso a partire dal dibattito italiano", *AICCON - Università di Bologna*, *Working Paper* n. 11, Aprile.

Sacconi L. (2005), "Etica degli Affari", in Sacconi L. (a cura di), *Guida critica alla Responsabilità Sociale e al governo d'impresa*, cap. 17, Bancaria editrice, Roma.

Yeaple S.R. (2005), "A simple model of firm heterogeneity, international trade, and wages", *Journal of International Economics*, 65, 1–20.