

## **CAN PRIVATE BUSINESSES REALLY BUILD PROFITABLE AND SUSTAINABLE BUSINESS MODELS AT THE BASE-OF-THE-PYRAMID?**

### **INTRODUCTION**

There is an increasing amount of research on the opportunities for the private sector to do business with low-income people. This line of research is also known as “base-of-the-pyramid” and “bottom-of-the-pyramid”. The base-of-the-pyramid (BoP) refers to a socioeconomic group of deprived people that forms the “underclass” of society (e.g., London and Hart, 2004; Prahalad, 2005). It has often been defined in economic terms, i.e., as all people who live on a purchasing power parity of \$2 a day or less—which is more than half of the world population (World Bank, 2006).

Proponents of the BoP idea assert that the BoP its size, unique characteristics, and underdeveloped economic activity can offer the private sector opportunities for growth, innovation, and profit (e.g., de Soto, 2000; Hart and Christensen, 2002; Prahalad and Hammond, 2002). And indeed we see that firms increasingly look at the BoP as a business opportunity and as part of their internationalization strategy. Equally, the idea of private sector involvement in the BoP has caught the attention of leading international organizations such as UNDP (e.g., UN Global Compact) and the World Bank (e.g., IFC), think tanks (e.g., WBCSD and NextBillion), NGOs, as well as of the political agenda, evidenced by the role attributed to the private sector in the attainment of the Millennium Development Goals (Pearce, 2005; Sachs, 2005a). Such an interest from outside the private sector can largely be attributed to the belief that fundamental business skills—such as conducting market research, value chain management, risk assessment,

and scaling up businesses—are vital not only for business success but *also* for the economic development of those living in poverty (Prahalad and Hammond, 2002; Rangan, Quelch, Herrero, and Barton, 2007; World Bank, 2005). Indeed, profitable business initiatives can stimulate new investments, innovation targeted at the BoP, and scaling up. Consequently, the private sector can generate employment opportunities, builds local capacity, and augments choice for poor consumers with innovative products and services. This has resulted in the belief that the private sector has an important contribution to make to poverty alleviation, particularly considering that other actors such as NGOs and governmental organizations are criticized for their lack of business skills and their lack of efficiency, bureaucracy, and limited sustainability.

This has resulted in the assertion that there is the potential of a win-win situation at the BoP, i.e., that low-income people as well as the private sector benefit from the private sector building businesses around low-income people (e.g., Hammond *et al.*, 2007; Hart, 2005; Letelier, Flores, and Spinosa, 2003; London and Hart, 2004; Prahalad, 2005; Rangan *et al.*, 2007; Seelos and Mair, 2007; Viswanathan *et al.*, 2007; WBCSD, 1997, 2004). More formally, the central postulate underlying the BoP literature states that *for-profit firms at the BoP develop business model qualities that not only generate profits but firms' profit motive also motivates them to create social and environmental value at the BoP, thereby creating sustainable business models*. This central postulate is also referred to as the “doing well by doing good by means of their business model” proposition (e.g., Karnani, 2007a).

Yet the private sector is an underdeveloped actor in the arena of poverty alleviation—in terms of investment as well as innovation (World Bank, 2005)—and firm-level research on the private sector in the BoP has equally remained largely limited to case studies. Indeed, most research has been published in the popular literature while there has not been much work on the

role of the private sector at the BoP in the premier academic journals (London and Hart (2004) and Karnani (2007a) being notable exceptions). Moreover, there is a weak link between the theoretical arguments and empirical evidence in the BoP literature (Walsh, Kress, and Beyerchen, 2005), and a systematic analysis of underlying conceptual issues is still in formative stages (Ricart *et al.*, 2004). As a result, there has been concern and criticism about the validity of the claims made within the BoP literature such as the size of the BoP market in terms of number of people as well as their purchasing power, romanticization of the BoP as resilient and creative entrepreneurs, its overemphasis on the poor as consumers as well as an unjustified assumption of the poor being value conscious consumers, its lack of attention for the role of SMEs but also its overemphasis on creating small-scale entrepreneurs out of the BoP (e.g., by means of microcredit)—which lack economies of scale and hardly create employment opportunities—its potential profitability, its overemphasis on the role of the market at the cost of insufficient attention for governmental responsibilities, and a slant toward Western ideals of success and development (e.g., Jenkins, 2005; Karnani, 2007a, 2007b; Landrum, 2007; Walsh *et al.*, 2005). Most importantly, the validity of the central postulate within the BoP literature is being questioned (Karnani, 2007a, 2007b; Landrum, 2007; Walsh *et al.*, 2005), the rejection of which would question the value of the BoP research stream. And indeed, an empirical examination of this postulate has not been forthcoming nor has the conceptual development of the postulate received the appropriate attention in the literature. As a result, the postulate has been theoretically ill-defined. Therefore, for the further theoretical development of the BoP literature, more explication and validation of the central postulate are essential.

In response, we conceptually advance and empirically test the central postulate in the BoP literature that for-profit firms at the BoP develop business model qualities that not only generate

profits but firms' profit motive also motivates them to create social and environmental value at the BoP, thereby creating sustainable business models. To this end, we proceed as follows. In the next section we conceptually specify the central postulate by addressing the question of how to define business model qualities in the BoP. This results in hypotheses on the relationships between the business model qualities and their performance implications within the context of for-profit firms at the BoP. Next, the methodology section provides details of the procedures, data collection, and measurement. In the analysis section, we use structural equation modeling to test our theoretical framework. We find partial support for the central postulate underlying the BoP literature. We conclude with a discussion of the findings and provide a basis for further theoretical and empirical work in this emerging area of inquiry.

## **THEORY AND HYPOTHESES DEVELOPMENT**

There are two assumptions underlying the central postulate in the BoP literature. The first assumption is that financial, social, and environmental performance at the BoP are inextricably bound up with each other (e.g., Chambers, 1997; Hart, 1997, 2005; Prahalad and Hart, 2002; Sen, 1999; World Bank, 2001). It is assumed that financial performance depends on a positive social and environmental performance and the private sector's profit motive thus stimulates rather than discourages a positive social and environmental impact at the BoP. In the words of Hart (2005: 3): "Properly focused, the profit motive [of the private sector] can *accelerate* (not inhibit) the transformation toward global sustainability" (original emphasis). This assumption suggests that a win-win situation exists for low-income people and the private sector. Moreover, it suggests that the private sector can approach poverty alleviation, or at least poverty alleviation at a micro level, as a business strategy, making poverty alleviation core business instead of a disconnected philanthropic activity.

The second assumption is that the business model concept is the appropriate management construct for research within the BoP context (e.g., Arnold and Quelch, 1998; Chesbrough *et al.*, 2006; Dawar and Chattopadhyay, 2002; Hart, 2005: 138; London and Hart, 2004; Seelos and Mair, 2007). The reason is that the characteristics of the poor and the challenging circumstances in which firms operate generate business challenges specific to the BoP context (e.g., Banerjee and Duflo, 2007; Hammond *et al.*, 2007). In response, success at the BoP requires innovative business approaches from firms of which the logic significantly differs from that at other tiers of the pyramid. Prahalad (2005: 25) for example suggests that “quantum jumps in price performance are required to cater to BoP markets” and cost structures that are much lower than at the top-of-the-pyramid. But also disruptive innovations in, amongst others, distribution, value chain management, payment schemes, customer education, and human resources management can be necessary. Hence, success at the BoP requires disruptive innovation of multiple aspects of the ways firms do business and thus “it seems highly unlikely that a single theoretical perspective may be able to explain strategic decisions” in the BoP and “an integrated approach that brings together various theories may be more fruitful” (Wright *et al.*, 2005: 11). Because the business model concept takes such a holistic, multi-theoretical approach (Klein, 2007), which is necessary for firms to reevaluate the full logic of how they do business, the business model concept is argued to be the right unit of analysis for firms in the BoP. Next, we conceptually advance the business model concept for the BoP context.

### **Business model concept for the BoP**

“A business model is a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets” (Morris, Schindehutte, and Allen, 2005:

727). This suggests a strong link between the quality of a business model and a firm's competitive advantage (cf. Afuah, 2004; Magretta, 2002). Nevertheless, the business model describes how the components of the business model *address* the creation of competitive advantage, which means that business models can be either effective or ineffective in creating sustainable competitive advantage.

Existing explications of business model qualities (e.g., Zott and Amit, 2007) particularly stress quality qualities focused on static situations. However, such an approach insufficiently accounts for the need for firms to deal with the dynamics of high environmental uncertainty at the BoP. For example, red tape (de Soto, 2000) and weak institutional infrastructures and legal frameworks (Globberman and Shapiro, 2003; Wright *et al.*, 2005) create uncertainty. Furthermore, changeability of market conditions is high, especially in transition economies (Hoskisson *et al.*, 2000). Similarly, there is high heterogeneity in consumers and producers (Letelier *et al.*, 2003) as well as in infrastructure (Dawar and Chattopadhyay, 2002). Therefore, our theoretical model includes qualities that together capture the static as well as dynamic requirements on firms' business models. More specifically, external fit is included as to capture the static quality of the business model, while robustness and flexibility are included to capture the dynamic quality of being able to deal with differences and change in local circumstances and dynamics. Put differently, the dynamic business model qualities allow the business model to maintain its static fit with BoP environment. Our theoretical model is summarized in Figure 1. We expand our arguments below.

---

Figure 1 goes about here

---

### **External fit of the business model qualities at the BoP**

Nadler and Tushman (1980: 40) define congruence or fit as “the degree to which the needs, demands, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component”. External fit refers to the extent to which the business model fits its external business environment—i.e., the degree to which the business model is adapted to, suited for, and optimally utilizes its business environment (Hannan and Freeman, 1984; Venkatraman, 1989). More external fit thus means that the firm’s business model will be valued higher by the business environment as well as that the firm’s business model makes better use of this environment. Therefore, the higher the external fit, the more effective and efficient a firm will be able to accomplish its goals (Nadler and Tushman, 1980; Venkatraman, 1989).

One way that enhanced effectiveness and efficiency come about in the BoP context is that external fit advances firms’ ability to deal with market imperfections in the BoP business environment thereby stimulating financial performance. As argued by Viswanathan *et al.* (2007), assumptions that hold for markets at the top-of-the-pyramid may not hold at the BoP. These include the absence of information asymmetries, the absence of market frictions, government expenditure being in the best interest of the constituents, and well-developed and upheld legal codes. Therefore, a firm’s financial performance depends directly on the extent to which its business model is capable of dealing with these market imperfections. Dealing with these market imperfections requires personal relationships (Viswanathan *et al.*, 2007). Indeed, such ability depends on a firm’s external fit because external fit stimulates a positive attitude from actors in the external business environment toward the firm, thereby enabling firms to become embedded within the local landscape and within social networks in which economic transactions at the BoP

are blend (Iyer *et al.*, 2005; Narayan and Pritchett, 2000; Sánchez, Rodriguez, and Ricart, 2005; Tsai and Ghoshal, 1998). Such embeddedness enables firms to deal with market imperfections in the BoP business environment as it enhances legitimacy and trust—which may function as a governance mechanism (Nooteboom, Berger, and Noorderhaven, 1997; Petersen and Pedersen, 2002; Zaheer, 1995) and can be a substitute for legal contracts (Granovetter, 1985)—and enables firms to build transaction capacity together with the local business ecosystem (Hart, 2005; Letelier *et al.*, 2003; Miller, 1996a). This includes building transaction transparency, a shared set of values, fairness and equality in transactions, and respect for agreements, irrespective whether these are explicit or implicit and whether they are legal or social (Hart, 2005; Prahalad, 2005). Hence, we expect that the higher the external fit, the higher the financial performance at the BoP.

*Hypothesis 1a. The degree of external fit of a firm's business model is positively related to the firm's financial performance at the BoP.*

In the BoP, firms' goals are not only financial in nature but are also likely to have a social component. The reason for this is that the business environment of firms at the BoP is likely to value propositions with a social component (London and Hart, 2004). The living standard of the people at the BoP is very low, making their needs first and foremost social in nature (cf. Banerjee and Duflo, 2007; Hammond *et al.*, 2007). Moreover, people from the BoP often organize in social networks, and social behavior within these networks (Iyer, Kitson, and Toh, 2005) provides a buffer to economic uncertainties, which in the BoP business environment may have dramatic effects on everyday life (De Souza Briggs, 1998). Indeed, (internal) solidarity plays a dominant role within society at the BoP (Udry, 1990) as do personal relationships in contrast to formal contracts (de Soto 2000). To engage in economic actions with the BoP implies



also to engage in social value creation. The BoP does not see value creation at these different levels as isolated spheres of activity. For example, Viswanathan *et al.* (2007) discuss how economic exchanges and social relationships are blurred. A “shared sense of facing adversity” creates a “1-1 environment with strong word of mouth effects” and a central role for fairness and trust, making “individuals respond to fairness in relationships at a human level rather than at the level of abstract notions of competition, reflecting their immediate needs and life circumstances” (Viswanathan *et al.*, 2007: 5). Consequently, legitimacy and support necessitate firms to conform to the social and cultural pressures to follow such social behavior, as this is the norm and rule in BoP communities (e.g., Scott, 1995). Thus, fitting the needs of such an environment and building upon the strengths of its social networks—i.e., the establishment of external fit—includes social behavior, which is likely to generate a positive social impact.

*Hypothesis 1b. The degree of external fit of a firm’s business model is positively related to the firm’s social performance at the BoP.*

In addition, the natural environment may be of concern to the people at the BoP (e.g., Hart, 1997, 2005; Prahalad, 2005; Sachs, 2005b). The environment is a daily lifeline for the poor. “Harvests from forests, fisheries, and farm fields are a primary source of rural income, and a fall-back when other sources of employment falter (World Resources Institute *et al.*, 2005: 3). “As subsistence and small-scale farmers and fishermen, they [the BoP] are uniquely vulnerable to destruction of the natural resources they depend on” (Hammond *et al.*, 2007: 5). Furthermore, because of the vast size of the BoP, even a small increase in demand at the BoP can lead to serious environmental problems (Hart and Milstein, 2005; World Resources Institute *et al.*, 2005). Environmental concerns may therefore be of critical importance to stakeholders in the

business environment (Hart, 1997, 2005). Indeed, because of limited natural resources, it is difficult to imagine the BoP being included in the formal market system with business models with similar resource usage to that of existing business models that are targeted at the rich. Already, the richest 20% of the world population consume between 60% (Hedenus and Azar, 2005) and 86% (Human Development Report, 1999) of all resources. Because of the potential environmental problems, limited natural resources, the widening gap between poor and rich, and the intrinsic value of nature, growth at the expense of the environment is likely to encounter vigorous resistance (Hart and Christensen, 2002). Fitting the needs of such a business environment—i.e., the establishment of external fit—thus calls for behavior that addresses environmental concerns, something which is likely to generate a positive environmental impact. Hence, realizing external fit at the BoP requires behavior from firms that addresses social and environmental concerns. Therefore, we hypothesize:

*Hypothesis 1c. The degree of external fit of a firm's business model is positively related to the firm's environmental performance at the BoP.*

### **Dynamic business model qualities at the BoP**

We have hypothesized that external fit of the business model at the BoP enhances firms' financial, social, and environmental performance. However, external fit is a state that exists at some moment in time and may also differ from one place to another (Wright and Snell, 1998). Indeed, as the business environment changes, the external fit may also change. Consequently, the BoP context, in which environmental uncertainty and heterogeneity are significant (e.g., Dawar and Chattopadhyay 2002; Hoskisson *et al.*, 2000), calls for a longer-term dynamic perspective that assesses the ability to *maintain* external fit within a broad range of business environments.

Differences within the business environment from one context to another and from one moment in time to another may challenge firms' business models and possibly change their external fit from one context/moment to another (Uhlenbruck, Meyer, and Hitt, 2003; Wright *et al.*, 2005). The majority of the BoP lives in developing and emerging countries. In these contexts, particularly in emerging countries, market conditions may change from day to day as a result of economic and political instabilities (Hoskisson *et al.*, 2000; Jenkins and Thomas, 2002). Moreover, there is high heterogeneity in consumers and producers—such as a strong but diverse orientation on culture, traditions, and possibly religion (Letelier *et al.*, 2003)—as well as in infrastructure, with large differences between the distant rural areas and the large and densely populated cities (Dawar and Chattopadhyay, 2002). Environmental uncertainties within the BoP—such as regularly changing business regulations, limited law enforcement, scarcity of market data, widespread product counterfeiting, and opaque power and loyalty structures—also contribute to changing external fit (Arnold and Quelch, 1998; Globberman and Shapiro, 2003).

Because external fit is only a snapshot and uncertainty and heterogeneity within the BoP business environment are substantial, it is important to explore the mechanisms that capture the ability to maintain external fit over time as the external environment changes. We distinguish between two such dynamic mechanisms or capabilities through which firms can preserve external fit under changing environmental conditions: flexibility and robustness (cf. Zajac, Kraatz, and Bresser, 2000).

Teece, Pisano, and Shuen (1997: 521) describe flexibility as a dynamic capability to “scan the environment, to evaluate markets and competitors, and to quickly accomplish reconfiguration and transformation ahead of competition”. Hence, a flexible business model is one that is able to adjust promptly to a broad range of business environments (Grewal and Tansuhaj, 2001;

Volberda, 1996). This allows a firm to maintain external fit by modifying its business model in response to environmental change (Evans, 1991; Sanchez, 1995).

Robustness is another dynamic capability through which firms are able to deal with environmental change. A robust business model is one that is “not threatened by shifting contingencies” (Zajac *et al.*, 2000: 434). This may be due to the possession of “resources that offset external pressures for change”, something also argued by Selznick (1957), or “its local environment may shelter it from larger changes in its industry” (Zajac *et al.*, 2000: 434). Similar arguments are presented by Hofer and Schendel (1978: 144) who suggested that exceptional resources can “parry the threats that [a firm] faces in its external environment” and thus mitigate its need for strategic adaptation to achieve external fit (cf. Zajac *et al.*, 2000). Such a business model is an intrinsically stable whole, the external fit of which is insensitive to external changes, and is thus resistant to external perturbations, fluctuations, and noise without a qualitative structural change (Jen, 2003). Therefore, while a flexible business model maintains external fit by adjusting in response to environmental uncertainty and heterogeneity, a robust business model maintains external fit through the ability to buffer environmental uncertainty and heterogeneity.

Maintaining external fit of the business model may thus occur through both the dynamic capabilities of flexibility and robustness. In sum, we hypothesize that the external fit of firms’ business models in the BoP is greater for firms with business models with a high degree of robustness and flexibility:

*Hypothesis 2a. The degree of robustness of a firm’s business model is positively related to the business model’s external fit at the BoP.*

*Hypothesis 2b. The degree of flexibility of a firm’s business model is positively related to the business model’s external fit at the BoP.*

The BoP context is characterized by heterogeneity in, amongst others, culture, traditions, infrastructure, and group and organizational influences, creating many small, fragmented, and diverse markets (Dawar and Chattopadhyay, 2002; Letelier *et al.*, 2003; Viswanathan *et al.*, 2007). Such fragmentation and diversity may inhibit the realization of economies of scale (Karnani, 2007b), except if firms operate with business models that are insensitive to such diversity in the BoP business environment. Indeed, because of their ability to buffer external changes, robust business models are easier to scale up to different business environments than less robust designs.

The more components act together and reinforce each other, the “stronger” and more effective the business model and therefore the greater the business model’s ability to parry external changes (Nilsson and Rapp, 2005). Because reinforcement and collaboration between business model components creates robustness (cf. Klein, 2007; Porter, 1996; Porter and Siggelkow, 2007), such business models are causally ambiguous in nature because of the internal interdependencies (Nelson and Winter, 1982).<sup>1</sup> This makes robust business models less prone to imitation by competitors (Reed and DeFillippi, 1990). Indeed, except for copying the whole or at least complete subsystems of business models (Miller, 1996b), imitation of parts of a robust business model by competitors is likely to be unsuccessful since even small changes in the business model can produce avalanches of changes with unpredictable consequences (Mrela, 1980). Business models with less integrated and thus less robust designs, on the other hand, are

---

<sup>1</sup> This applies to a robust business model that results from the interdependencies between business model components that offset external pressures for change, rather than robustness that results from building or selecting a local environment that shelters the business model from larger changes in its business environment.

easier to copy since less consideration of connections between business model components is necessary. In many BoP markets, there are no well-functioning legal systems that can protect proprietary firms' knowledge and processes—something suggested to be an important inhibitor of entrepreneurship (Rodrik, 2004)—making the difficulty with which competitors can copy a firm's business model particularly important in the BoP context.

Thus, because robust business models can deal with the many differences in the BoP business environment more efficiently than flexible business models and are easier to protect from imitation without the need for a well-developed legal system, we hypothesize:

*Hypothesis 2c. The degree of robustness of a firm's business model is positively related to the firm's financial performance at the BoP.*

### **Sustainable firm performance at the BoP**

Social needs are pressing at the BoP because of the low standard of living (cf. Banerjee and Duflo, 2007; Hammond *et al.*, 2007). There where the standard of living is low, people can be expected to choose value propositions with a large social component—such as those value propositions that contribute to employment opportunities, the development of public services, the accessibility of primary life necessities, etc.—over value propositions that contribute less to their standard of living (Chambers, 1997; Hart and Milstein, 2003; Sen, 1999). Indeed, they are in the first place looking for offerings that make a social contribution to their lives and are willing to pay for such offerings because social value is a prevailing and pressing need. Moreover, there is already distrust of actors beyond the small circle of the extended family, such as the private sector (Banerjee and Duflo, 2007), and not following the social expectations at the BoP would only exacerbate such distrust thereby negatively affecting financial performance. Therefore,

although firms can create external fit in many ways, as external fit comprises many aspects, we contend that the creation of external fit by addressing social concerns is a particularly effective, i.e., financially profitable, strategy.

Furthermore, growth at the expense of the poor may encounter vigorous resistance (Stiglitz, 2002). Indeed, potential partners at the BoP, such as NGO's and local community groups, have a strong social orientation and may call for such an orientation from the private sector as well (Chambers, 1997; London and Hart, 2004). Stakeholder theory argues that "failure to meet the expectations of various nonshareowner constituencies will generate market fears, which, in turn, will increase a company's risk premium and ultimately result in higher costs and/or lost profit opportunities" (Preston and O'Bannon, 1997: 421; Cornell and Shapiro, 1987). Catering to the needs of stakeholder constituencies, on the other hand, can positively add to the relationships with these stakeholders and, amongst others, augment a firm's reputation (Fombrun and Shanley, 1990), establish legitimacy (Ahlstrom and Bruton, 2001), create social capital (Narayan and Pritchett, 2000), and consequently contribute to firms' financial performance (Donaldson and Preston 1995; Jones, 1995).

Furthermore, value propositions with a social component are more likely to increase the productivity of people at the BoP (e.g., by improving people's health and abilities or people's sense of purpose and motivation), which is something from which firms can also benefit (e.g., from increased demand or increased labor productivity) and thus contributes to firms' financial success. These arguments produce the following hypothesis:

*Hypothesis 3a. A firm's social performance is positively related to the firm's financial performance at the BoP.*

The central postulate in the BoP literature also hypothesizes environmental performance to augment financial performance. Indeed, nonshareowner constituencies monitor and value not only firms' social impact but also their impact on the environment—thereby influencing firms' reputation, legitimacy, and social capital (Sharma and Vredenburg, 1998). In addition, natural resources such as water, energy, and transportation are scarce and expensive. Consequently, environmental performance may improve firms' cost efficiency—for example, through reducing energy needs and enhancing renewability and durability of products—and thereby contribute to firms' financial performance (Hart, 2005; Porter and Van der Linde, 1995).

Moreover, as also argued for Hypothesis 1, the livelihoods of many people at the BoP depend directly on the natural environment, one of few assets that low-income people have. For example, small-scale fisheries are of great value to the poor, providing an inexpensive source of protein and supplemental income. Thus, while everyone is affected by ecosystem degradation, the poor suffer the harmful effects disproportionately. (World Resources Institute *et al.*, 2005). The burning of 10 million hectares of Indonesia's forests in 1997-8 resulted in additional health care costs of US\$9.3 billion and affected some 20 million people (Millenium Ecosystem Assessment, 2005a:2, 13, 51, 57, 62). Thus, more than in high-income markets, ecosystem degradation has very real human and financial costs.

Therefore, one would expect the BoP to choose value propositions with a more positive environmental performance over those that have a negative environmental impact. However, those living in poverty may also hinder care for the environment, as they may need to inflict great habitat damage to ensure a minimum income (Roper Organization, 1990; World Resources Institute *et al.*, 2005). They might not be in a position to take care of their natural surroundings if doing so damages their livelihood, even if it is in their best interest in the long term. Hammond *et*



*al.* (2007) therefore speak of subsistence as a “poverty trap”. Hence, care for the environment may form a brake on economic development at the BoP, yet it is also valued by various nonshareowner constituencies and a necessity at the macro-level. Meeting the challenge of this situation requires creativity and imagination. To this end, firms are increasingly “recognizing that listening to the voices of the poor and disenfranchised can be a source of creativity and innovation” (Hart and Milstein, 2003: 63). Through such creative processes, firms engage in innovation and develop new capabilities that lower risks (Hart and Milstein, 2003), generate a source of differentiation (WBCSD, 1997), improve managerial practices, speed up regulatory approvals, enhance employee morale, and at the bottom line contribute to a firm’s competitiveness (Porter and Van der Linde, 1995; Russo and Fouts, 1997; Sharma and Vredenburg, 1998). In fact, Sharma and Vredenburg empirically demonstrate how environmentally proactive firms outperform competitors with regard to the development of capabilities in stakeholder integration, higher-order learning, and continuous innovation, leading to a competitive advantage for environmentally proactive firms.

Environmental resource constraints can easily intensify at the BoP because inclusion of such a large group of people may have a large impact on the limited available environmental resources. If not responding appropriately, this may augment costs, something that the BoP cannot afford to pay for. Therefore, firms that proactively deal with these environmental constraints will improve their financial performance. Although there are arguments why care for the environment may not translate into financial performance, there are strong strategic arguments that support the central postulate in the BoP literature. Therefore, we formulate the following final hypothesis:

*Hypothesis 3b. A firm's environmental performance is positively related to the firm's financial performance at the BoP.*

## **DATA AND METHODS**

### **Study data**

We conducted a survey amongst firms that have built their business model focused at the BoP. That is, the firms' focal group of customers, employees, suppliers, or distributors have an average daily purchasing power of \$2 or less. Hence, the sample includes firms targeted at the poor as consumers as well as firm targeted at the poor as producers (or both). In addition, we exclusively focused on for-profit businesses—i.e., firms intending to be profitable or at least self-financing through revenue generation. Philanthropic enterprises were thus excluded. Firms can be Western as well as local in origin and we included SMEs as well as initiatives by multinationals. An additional criterion was that firms should have at least 10 employees. This criterion ensured that the business model is indeed a central construct for the firm. Respondents themselves held a general strategic position within the firm. To ensure a clear unit of analysis, the respondent was instructed to fill in the questionnaire for a single enterprise, which should fit the above criteria (e.g., a specific business unit, a specific joint venture, etc., or the entire firm if the firm did not consist of multiple clearly distinguishable enterprises).

Fourteen organizations<sup>2</sup> cooperated in this study and provided the contact details, including contact person, of 518 firms that they believed to fit the above criteria. The diversity in the focus of these fourteen organizations (different industries, different countries, national as well as international organizations, SMEs as well as multinationals), differences in origin (western as well as nonwestern), and the different types of organizations (NGOs such as business networks, governmental organizations such as development organizations, and micro finance institutions) facilitated the creation of a representative sample.

We followed the survey procedures as laid out by Dillman (2000). Five days after we sent respondents a pre-notice letter, we sent them a questionnaire, together with a cover letter from us, a letter of support by the sponsor who had provided the contact details, and a reply envelope with an international business reply number printed on it. Subsequently, a week later we sent a thank-you/reminder postcard and after some time—depending on the estimated delivery time of the postal service—we sent an email if the firm had not yet responded. We followed these actions by a replacement questionnaire and, as a last reminder, a telephone call. Respondents were assured confidentiality.

Five organizations added steps to the above procedure because they expected difficulties in the delivery of questionnaires, they wanted to enhance the response rate, and/or they wanted to ensure that respondents with minor or no English skills were included. These five organizations visited the firms to request their participation and three of these organizations arranged for an

---

<sup>2</sup> World Business Council for Sustainable Development (WBCSD); Enterprise Ethiopia and Enterprise Uganda as part of UNCTAD-Empretec; SNV Cameroon Development Organisation and SNV Honduras Development Organisation as part of SNV International Development Organisation; Agency for International Business and Cooperation (EVD) (PSOM program); Business in Development (BiD) / NCDO; African Institute of Corporate Citizenship (AICC); Instituto Ethos de Empresas e Responsabilidade Social; PRIDE Tanzania as a partner of FMO; Cordaid; Oxfam Novib; and ICCO. In addition, the World Resources Institute gave us permission to use the contact details on its website.

interviewer to be present to help respondents fill in the questionnaire. One organization also translated the questionnaire. These steps helped us ensure that respondents understood the questionnaire correctly and enabled the inclusion of respondents who did not speak English.

Of the 518 firms, 84 responded that they did not fit the study's profile criteria, 14 pre-notice letters were returned as undeliverable, and nine firms responded that their level of English was insufficient to participate (while we did not have a participating organization in that region to assist them with the questionnaire). Of the remaining 411 firms, a total of 162 questionnaires were returned. Nineteen of these questionnaires were deemed of insufficient quality by both authors. This resulted in 143 usable questionnaires for the analyses, which corresponds to an effective response rate of 34.8%.

To test for nonresponse bias, we examined differences between early and late respondents (median split) (Armstrong and Overton, 1977). We did not find any significant differences ( $p > 0.35$ ) between the two groups based on the number of employees, industry, firm tenure, or any of the model variables.

### **Measurement and validation of constructs**

We undertook several measures to ensure the reliability and validity of the data (Churchill, 1999). On the basis of a literature study, continuous discussions with peers, and conversations with managers from organizations that work closely with firms at the BoP, we developed questions and generated pools of items for each construct. Where possible, we used existing items with proven validity. We pre-tested the questionnaire by seeking comments from academics and managers from organizations that focus on supporting firms that operate at the BoP. Then, we conducted six in-depth face-to-face interviews, which lasted between one hour and three-and-a-half hours, during which a senior manager of a firm at the BoP was asked to

complete the questionnaire, indicate any ambiguity, and elaborate on the story behind his or her answers and was invited to suggest improvements to the questionnaire. After the fourth interview almost no further changes were necessary, and after the last two interviews we made no changes to the questionnaire. Finally, we conducted a pilot study amongst 70 firms, which are included in the total sample size of 518; we made no changes to the questionnaire after this pilot study.

To examine reliability issues associated with single-informant data, we surveyed additional members of randomly selected responding firms. Nine firms provided additional informants: three firms provided one additional informant, another three firms provided two additional informants, and three firms provided respectively three, four, and five additional informants. We calculated an interrater agreement score ( $r_{wg}$ ) for each variable (James, Demaree, and Wolf, 1993). The median interrater agreement ranged from 0.62 to 0.92, suggesting adequate agreement for aggregation as it exceeds the generally accepted cut-off point of 0.60 (Glick, 1985). In addition, examination of intra-class correlations revealed a strong level of interrater reliability, as correlations were consistently significant at the 0.001 level (Jones *et al.*, 1983).

#### *Common method bias*

To examine whether common method bias may augment relationships, we first performed Harman's one-factor test on the self-reported items of the latent constructs included in our study. The hypothesis of one general factor underlying the relationships was rejected ( $\chi^2_{39} = 234.43$ ,  $p < 0.01$ ). In addition, we found multiple factors and the first factor did not account for the majority of the variance. However, as explained by Podsakoff *et al.* (2003), this test has several limitations and other methods may be better suited to identify common method bias. Therefore, we conducted several additional tests. First, the smallest observed correlation among the model variables can function as a proxy for common method bias (Lindell and Brandt, 2000). Table 3

shows a value of .06 to be the smallest correlation between the model variables, which shows no evidence of common method bias. Second, we performed a partial correlation method (Podsakoff and Organ, 1986). The highest factor between an unrelated set of items and each predictor variable was added to the model. These factors did not produce a significant change in variance explained in any of the three dependent variables ( $p > 0.16$ ), again suggesting no substantial common method bias. Three, we constructed a marker variable (BoP involvement), which is theoretically unrelated to the study's principal constructs (Podsakoff *et al*, 2003). We examined the correlations among any of the items of the study's principal constructs and BoP involvement (Lindell and Whitney, 2001). Since the average correlation among BoP involvement and the items of the principal constructs was  $r = 0.02$  (average  $p$ -value = 0.43), this test indicates that common bias is not a problem. In sum, we conclude that the evidence supports the assumption that common method bias does not account for the study's results.

#### *Measurement model*

We measured all items on seven-point Likert scales. We first factor analyzed all reflective scales (Robustness, Flexibility, External fit), using principal component analysis and varimax rotation. We analyzed the different dimensions of the scales to assess their unidimensionality and factor structure. We checked items if they satisfied the following criteria: (1) items should have communality higher than 0.3; (2) dominant loadings should be greater than 0.5; (3) cross-loadings should be lower than 0.3; and (4) the scree plot criterion should be satisfied (Briggs and Cheek, 1988; DeVellis, 1991). Seven items did not satisfy these criteria and were removed. This resulted in a pool of 16 items and three factors: Robustness of the business model, Flexibility of the business model, and External fit of the business model. Each item loaded on the construct for which it was developed. We assessed the reliabilities of the constructs by means of

Cronbach's alpha coefficient. The alphas are 0.69 (Robustness, four items), 0.73 (Flexibility, five items), and 0.79 (External fit, seven items). Furthermore, all items have significant correlations with their respective constructs, which suggests satisfactory item reliability (Hulland, 1999).

---

Table 1 goes about here

---

We used structural equation modeling (SEM) with EQS version 6.1 to further explore the validity of the scales by adding constraints to the measurement model (Table 1). The measurement model obtained a satisfactory fit. The ratio of chi-square to degrees of freedom is 1.52; a value of less than 3.0 for the ratio indicates a good fit (Carmines and McIver, 1981). The CFI is 0.95 while a CFI value above 0.9 is considered an indication of good fit, and the RMSEA of 0.06 indicates good model fit because it does not exceed the critical value of 0.08 (Bentler and Bonett, 1980). We also used robust estimate techniques to assess the sensitivity to the normality assumption and found again a satisfactory fit ( $\chi^2/df = 1.07$ , CFI = 0.99, RMSEA = 0.02). Remaining item loadings were as proposed and were significant ( $p < 0.05$ ), providing evidence for convergent validity. Composite reliabilities are all above the 0.60 commonly used threshold value for exploratory research (Nunnally, 1967). We verified the discriminant validity of the scales by comparing the highest shared variance between any two constructs and the variance extracted from each of the constructs (Hair *et al.*, 1998). In all cases, each construct's average variance extracted (AVE) is larger than its correlations with other constructs, supporting the discriminant validity of the measurement model (Fornell and Larcker, 1981). Finally, none of the confidence intervals of the correlation coefficients between any two constructs contained 1.0 (Anderson and Gerbing, 1988). Thus, overall, the measurement model is acceptable, given this variety of supportive indices.

Multicollinearity among the independent variables was not a serious issue since all VIF scores were below 3 and the matrix decomposition resulted in condition numbers with values under 30. With the higher condition numbers there were factor proportions found with values higher than 0.5. Similarly, no evidence of heteroscedasticity was detected. Finally, no significant outliers were found.

### *Performance measures*

For social and environmental performance, we developed formative scales (cf. Jarvis, MacKenzie, and Podsakoff, 2003) for which the respondent indicated on a seven-point Likert scale (ranging from “large negative impact” to “large positive impact”) the impact of their firm on the communities in which it operates. Respondents were instructed to focus only on the impact of their core business and thus exclude the impact from philanthropic activities. Thus, we excluded the impact that firms realize through their non-core activities, such as philanthropic initiatives. This makes it less likely that financial performance is a driver of social and environmental performance, instead of the other way around. Therefore, this enabled us to omit arrows in Figure 1 from financial performance to social and environmental performance, which would make the model statistically underidentified and thus impossible to estimate. Moreover, without this constraint we would not be able to test the central postulate as the central postulate refers to effect on financial performance of activities with a profit motive. For *social performance*, we adapted items from the AtKisson Compass, which builds on the Global Reporting Initiative (GRI) and the Dow Jones Sustainability Group Index (DJSI) (AtKisson and Hatcher, 2001), and complemented these with adapted items from the International Association for Impact Assessment (IAIA). For *environmental performance*, we adapted items from the Environmental Sustainability Index (ESI) (Esty *et al.*, 2005) and the AtKisson



Compass. Social performance and environmental performance are respectively represented by five and two dimensions, with a total of respectively 16 and 10 items.<sup>3</sup>

We measured *financial performance* using perceptual measures as well as accounting data on financial performance. We included the net profit margin to collect accounting data on financial performance. Accounting data were too often unavailable to include in the structural equation model. Nevertheless, perceptual measures have been found to be useful alternatives and have been found to correlate highly with accounting measures (Dess and Robinson, 1984; Venkatraman and Ramanujam, 1987; Wall *et al.*, 2004). Indeed, we did find a positive correlation ( $r = 0.21$ ;  $p < 0.01$ ) between the perceptual performance and the net profit margin. To capture the multidimensional character of financial performance (Venkatraman and Ramanujam, 1986), data were collected on seven dimensions: (1) sales growth; (2) customer satisfaction; (3) return on capital employed; (4) profitability and return on investment; (5) financial stability; (6) future prospects; and (7) overall performance (e.g., Gupta and Govindarajan, 1984; Lumpkin and Dess, 1995; Prahalad and Hammond, 2002). On each of these dimensions, the respondent was asked to rank their firm's performance compared with similar firms in their industry on a seven-point Likert scale (ranging from "very poor" to "outstanding").

### *Control variables*

We also included questions to enable us to control for firms' age, industry, and size. Industry was measured using a categorical variable. Answer options were adjusted from the North American Industry Classification System (NAICS). For firm size, a categorical variable was

---

<sup>3</sup> A reviewers supplement is added at the end of the document with all the performance items.

included for the total number of persons employed. Firm age was measured by asking for the year the BoP firm had its initial commercial sales.

## **ANALYSES AND RESULTS**

Table 2 provides a summary of the sample, while the descriptive statistics of the variables as well as a correlation matrix can be found in Table 3. Amongst the respondents are firms from industries such as farming, healthcare, retail, financial services, private schools, and the energy sector. Respondents have an average tenure of 6.9 years in their current position and 11.3 years in their respective industries. Twenty-nine percent of them are the owner or partner and 45% are the CEO, director, or general manager. The average age of the enterprises is 14.3 years.

---

Table 2 and Table 3 go about here

---

### **Hypothesis testing: Structural equation model**

To investigate the full set of relationships posited by our hypotheses, we performed structural equation modeling using EQS version 6.1. Structural equation modeling is appropriate since it allows us to test a full system of structural equations, where a dependent variable in one relationship becomes an independent variable in another relationship. We used a listwise procedure and 12 cases with missing values were removed from the analysis. Table 4 presents the structural paths from the SEM model, using Maximum Likelihood, with standard errors in parentheses. Robustness and flexibility as well as the error terms of social performance and environmental performance were allowed to co-vary. The overall model is insignificant ( $\chi^2_5 = 5.57, p > 0.35$ ), which indicates that the model is not significantly different from the underlying data. Moreover, the CFI (0.99) and RMSEA (0.03) suggest that the standardized structural model

fits the data well (Byrne, 1994). We also conducted a Lagrange multiplier test and found that no alternative specification of the parameters would have led to a model that better represented the data.

---

Table 4 goes about here

---

The results of the SEM analysis are provided in Table 4. As predicted by H1, external fit of the business model was positively and significantly related to financial ( $\beta_1 = 0.18, p < 0.05$ ), social ( $\beta_2 = 0.31, p < 0.01$ ), and environmental ( $\beta_3 = 0.29, p < 0.01$ ) performance. Also, in support of H2a and H2b, robustness ( $\beta_4 = 0.18, p < 0.01$ ) and flexibility ( $\beta_5 = 0.49, p < 0.01$ ) of the business model were positively and significantly related to external fit. Furthermore, in support of H2c, robustness was positively and significantly related to financial performance ( $\beta_6 = 0.31, p < 0.01$ ). Finally, in support of H3a, social performance was positively and significantly related to financial performance ( $\beta_7 = 0.19, p < 0.05$ ). In contrast to H3b, the evidence does not support that environmental performance positively affects financial performance ( $\beta_8 = -0.10, ns$ ). However, investigation of alternative functional forms of the relationship indicates that the relationship is curvilinear with a highly significant positive second order term ( $p < 0.01$ ). This relationship suggests that both negative and positive environmental performance has a positive impact on financial performance, whereas environmentally neutral firms have the lowest performance.

### *Sensitivity analyses*

We conducted sensitivity analyses for our results by estimating structural equation models that included industry dummies, firm age, and firm size as control variables. The model as presented

in Table 4 and the above results were robust to the inclusion of these controls. In addition, we tested the model while controlling for a direct relationship between flexibility and financial performance. This relationship proved insignificant and the model as presented in Table 4 and the above results were robust to the inclusion of this relationship. Furthermore, although we would expect robustness and flexibility to negatively covary, the findings show a positive covariation between the two. A possible explanation might be that the majority of firms are unable to develop the desirable amount of robustness and flexibility given the high environmental uncertainty and heterogeneity at the BoP. Therefore, each firm will build the maximum amount of flexibility and robustness that it is able to build. As a result, firms with better management abilities will be better at building robustness *and* at building flexibility than less able firms and will thus build more of both.

### *Limitations*

Conclusions from the estimation results should consider some of its limitations. First, our data were self-reported assessments of senior managers (or directors/owners). Although we took several steps both in the design and testing phases to limit concerns regarding single-informant data, the issues of key informant bias and common method bias may still have influenced the results. However, a strong inter-rater agreement and inter-rater reliability, together with the confidentiality that was assured for respondents reduced our concerns that respondents biased their responses. Additionally, several tests provided strong evidence against the presence of common method bias. Second, the data employed in this study were cross-sectional. Although our results are largely consistent with the theoretical predictions, further longitudinal research should empirically establish the causal claims of our model. Third, the representativeness of the sample is unknown as there are no external data with which to benchmark our sample. However,

we took several steps to limit concerns regarding sample representativeness. Most importantly, the large number of organizations that provided the contact details and their diversity in focus, type, and origin provide assurance that the sample is representative for firms at the BoP. And even though the sample does not purposely include extralegal firms, which make up an important portion of the economies in which most members of the BoP reside, these firms are likely to have fewer than 10 employees (de Soto, 2000) and are therefore not the focus of this study. In addition, we tested for nonresponse bias and did not find any problems there. Fourth, we used perceptual measures for social and environmental performance. The extent to which respondents take into account their firm's indirect effects is unknown. For example, micro credit has been suggested to have positive but also negative effects on domestic violence if only the woman of the family is able to obtain micro credit. Although perceptual measures for financial performance have been found to be useful alternatives and have been found to be highly correlated with accounting measures (Dess and Robinson, 1984; Venkatraman and Ramanujam, 1987; Wall *et al.*, 2004), future research might want to examine the validity of perceptual measures for social and environmental performance—e.g., by comparing management-based perceptions with community-based perceptions by tracking BoP initiatives in the field.

## **Discussion**

A central postulate in the BoP literature is that for-profit firms at the BoP develop business model qualities that not only generate profits but firms' profit motive also motivates them to create social and environmental value at the BoP, thereby creating sustainable business models. Our findings contribute to the BoP literature by empirically testing this postulate and by further explicating its relationships. To this end, we conceptualized business model qualities (external

fit, robustness, and flexibility) that explain sustainable firm performance of firms whose focal group of customers, employees, suppliers, or distributors have an average daily purchasing power of \$2 or less. The results demonstrate that flexibility is positively related to the external fit of the business model at the BoP, whereas robustness of the business model has an indirect effect, mediated by external fit, as well as a direct effect on financial performance. External fit is positively related to financial, social, and environmental performance and, overall, business model qualities explained about one-fifth of the firm's above-normal financial performance at the BoP. Social performance is also positively related to financial performance; however, in contrast to a widely held assumption in the BoP literature, environmental performance is not linearly related to financial performance. Collectively, these results support the central postulate underlying the BoP literature for as far as social performance is concerned, but not with regard to environmental performance.

## **Implications**

### *Dynamic business model qualities: Robustness and flexibility*

The findings suggest that external fit of the business model can be managed by the robustness and flexibility of the business model. Although flexibility contributes more to external fit, robustness also has a direct relationship with financial performance. Indeed, our results indicate that external fit has a smaller impact on financial performance than robustness has. Thus, *it may be more effective for firms at the BoP to develop robust business models rather than to rely on flexibility to deal with uncertainty and heterogeneity in the BoP context.* The fragmented, diverse, and uncertain BoP business environment may not reward high responsiveness to local differences as it inhibits the realization of economies of scale from such a business model. It is the ability to buffer rather than the ability to adapt to environmental changes that explains

success at the BoP. However, although robustness of the business model may be an efficient way to deal with diversity and change in the BoP business environment, it may also be a source of business model inertia, similar to the risks of core competencies becoming core rigidities (Leonard-Barton, 1992; Siggelkow, 2001). Financial performance as measured in the present cross-sectional study may not capture these long-term effects. Further longitudinal research of firms at the BoP may search for mechanisms by which firms at the BoP can balance over the long run the quality of the business model in buffering environmental changes and the quality of adjusting to changes within the external business environment.

#### *External fit of the business model*

The findings suggest that financial, social, and environmental performance can be managed through external fit. This supports the idea that the three types of performance are being bound together through a common denominator as suggested by the first assumption underlying the central postulate. In addition, the positive relationships of external fit with social performance and with environmental performance suggest that *the BoP business environment values firms that address social and environmental issues*. Indeed, it suggests that the BoP values firms that develop blends of value that go beyond economic value.

#### *Sustainable firm performance*

Social performance not only has a significant and positive relationship with external fit but also with financial performance. Therefore, firms aiming to make a profit at the BoP do well by creating a business model that has a positive social impact on the communities in which they operate. This supports the idea of the central postulate in the BoP literature that *firms' profit motive motivates firms to do well by doing socially good*. Furthermore, it suggests that inclusive markets—i.e., a private sector that includes the poor as producers and consumers and offers them

opportunities of products, services, and entrepreneurship—can be built and poverty can be alleviated through the private sector’s profit motive.

For firms these findings imply that integrating social value into a firm’s business model facilitates (financial) success at the BoP and *addressing social issues is thus not adjacent, but central, to strategy at the BoP*. Such integration could, for example, enhance a firm’s embeddedness in local communities, thereby augmenting the firm’s ability to co-discover and co-create new business opportunities and business models with local stakeholders from low-income communities (Hart, 2005; Hitt, Li, and Worthington IV, 2005).

However, for the external fit of a firm’s business model to be enhanced by the embedding of social value in a firm’s business model, the social issues addressed need to be valued by the business environment. Therefore, future research might want to examine the kinds of social impacts that are valued by the business environment at the BoP and the circumstances under which they are valued. In addition, future research might want to examine how firms can create a “sense of community”—i.e., how firms can get in touch with the local concerns and create a blend of value beyond the economic based on these concerns (Sarason, 1974).

However, pro-poor economic growth is only truly sustainable if environmental sustainability is also ensured. The results of this study indicate that external fit of the business model is strongly related to environmental performance; however, there are financial incentives for a profit-seeking firm to operate in an environmentally unsustainable way as well. Hence, *although the BoP seems to value environmental performance, firms may also choose negative environmental performance into profits*. One reason might be that the BoP might be unable to penalize low environmental performance due to a lack of monitoring mechanisms. Indeed, the BoP may be voiceless. Although their livelihood depends “directly on natural resources, they



have little say in how those resources are used, but suffer the consequences when the decisions are corrupt and the use is destructive (World Resources Institute *et al.*, 2005: 4). Therefore, the profit-motive is insufficient to ensure environmental safe-keeping. Consequently, for private sector growth to be sustainable at the BoP, additional incentives are needed for firms to operate in an environmentally responsible way, in addition to the existing profit motive.

Institutional mechanisms at the BoP seem to fail to force firms to incur the costs of their negative environmental performance. Developing regulatory frameworks and effective enforcement capabilities may improve the institutional mechanisms for imposing the environmental costs on firms. NGOs and other civil society groups may also have a particularly important role to play in critically monitoring the activities of BoP firms and firms' compliance with environmental regulations. Indeed, governments, especially in countries where most of the BoP resides, may not always have the capacity to monitor the private sector effectively (Globerman and Shapiro, 2003; North, 1990; Wright *et al.*, 2005). The lower observability of environmental performance may also explain why negative environmental performance positively affects financial performance. This may particularly be a problem if activities take place in remote areas, such as in mining, exploitation of forests, or exploitation of natural resources at sea, thereby not being visible to the public.

Other incentives may take the form of self-regulation, particularly because corporate social responsibility increasingly seems to take a central role on the managerial agenda. Managers indeed need to be aware that in the long run they may lose their legitimacy if they operate in an environmentally unfriendly way as business cannot succeed in the long run in a world that fails (Diamond, 2005; Hart, 2005). Self-regulation and encouragement of environmental stewardship amongst themselves therefore seem to be appropriate as care for the environment is also in firms'

long-term interest. For example, the parent company or financial institutions, if involved, may set requirements for investments in its BoP enterprises. Governments could develop such regulation, but industries could also self-organize and develop certification regulation.

The results also demonstrate a necessity for change in management thinking (Hart, 1997) since previous case studies suggest that it is possible to augment financial performance through a positive environmental impact (e.g., Hart, 2005; Holliday, Schmidheiny, and Watts, 2002; WBCSD, 1997). The question is whether such a positive relationship for these firms is the result of mere chance or the result of specific conditions. Future research might want to examine specific conditions under which it is possible to purposefully create financial performance through environmental performance and look at additional variables to include in the model proposed in this study, such as how firms may develop capabilities, from environmental performance, for higher-order learning and innovation in the specific institutional context of the BoP (Sharma and Vredenburg, 1998).

We hope that future research will further critically examine, test, and extend the model we have proposed in this study. Doing so will help ensure that research of the BoP deepens our understanding of competitive advantage in diverse and dynamic business environments—which is increasingly important at the top-of-the-pyramid—while contributing to poverty alleviation through profitable and sustainable business development at the BoP.

## References

- Afuah A. 2004. *Business models: A strategic management approach*. McGraw-Hill/Irwin: Boston.
- Ahlstrom D, Bruton GD. 2001. Learning from successful local private firms in China: Establishing legitimacy. *Academy of Management Executive* 15(4): 72–83.
- Anderson JC, Gerbing DW. 1988. Structural equation modeling in practice: A review and recommended two step approach. *Psychological Bulletin* **103**(3): 411–423.
- Armstrong JS, Overton T. 1977. Estimating nonresponse bias in mail surveys. *Journal of Marketing Research* **14**(August): 396–402.
- Arnold DJ, Quelch JA. 1998. New strategies in emerging markets. *Sloan Management Review* **40**(1): 7–20.
- AtKisson A, Hatcher RL. 2001. The compass index of sustainability: Prototype for a comprehensive sustainability information system. *Journal of Environmental Assessment Policy and Management* **3**(4): 509–532.
- Banerjee A, Duflo E. 2007. The economic lives of the poor. *Journal of Economic Perspectives* **21**(1): 141–167.
- Bentler PM, Bonett DG. 1980. Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin* **88**(3): 588–606.
- Briggs SR, Cheek JM. 1988. On the nature of self-monitoring: Problems with assessment, problems with validity. *Journal of Personality and Social Psychology* **54**(4): 663–678.

- Byrne B. 1994. *Structural equation modeling with EQS and EQS/Windows*. Sage: Thousand Oaks, CA.
- Carmines EG, McIver J. 1981. Analysing models with unobserved variables: Analysis of covariance structures. In *Social Measurement: Current Issues*, Bohrnstedt GW, Borgatta EF (eds). Sage: Beverly Hills, CA; 65–115.
- Chambers R. 1997. *Whose reality counts? Putting the first last*. ITDG Publishing: London.
- Chesbrough H, Ahern S, Finn M, Guerraz S. 2006. Business models for technology in the developing world: The role of non-governmental organizations. *California Management Review* **48**(3): 48–61.
- Churchill GA. 1999. *Marketing research: Methodological foundations*. Dryden Press: Fort Worth, TX.
- Cornell B, Shapiro AC. 1987. Corporate stakeholders and corporate finance. *Financial Management* **16**(1): 5–14.
- Dawar N, Chattopadhyay A. 2002. Rethinking marketing programs for emerging markets. *Long Range Planning* **35**(5): 457–474.
- de Soto H. 2000. *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else*. Basic Books: New York.
- De Souza Briggs X. 1998. Brown kids in white suburbs: Housing mobility and the many faces of social capital. *Housing Policy Debate* **9**(1): 177–221.
- Dess GG, Robinson RB. 1984. Measuring organizational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit. *Strategic Management Journal* **5**(3): 265–273.

- DeVellis R. 1991. *Scale development*. Sage Publications: Newbury Park, NJ.
- Diamond J. 2005. *Collapse: How societies choose to fail or survive*. Penguin/Allen Lane: London.
- Dillman DA. 2000. *Mail and Internet surveys: The tailored design method*. Wiley: New York.
- Donaldson T, Preston LE. 1995. The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review* **20**(1): 65–91.
- Esty DC, Levy M, Srebotnjak T, de Sherbinin A. 2005. *2005 Environmental Sustainability Index: Benchmarking national environmental stewardship*. Yale Center for Environmental Law & Policy: New Haven, CT.
- Evans SJ. 1991. Strategic flexibility for high technology maneuvers: A conceptual framework. *Journal of Management Studies* **28**(January): 69–89.
- Fombrun C, Shanley M. 1990. What's in a name: Reputation building and corporate strategy. *Academy of Management Journal* **33**(2): 233–258.
- Fornell C, Larcker DF. 1981. Evaluating structural equation models with observable variables and measurement error. *Journal of Marketing Research* **18**(1): 39–50.
- Gibson CB, Birksinshaw J. 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal* **47**(2): 209–226.
- Glick WH. 1985. Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research. *Academy of Management Review* **10**(3): 601–616.
- Globerman S, Shapiro D. 2003. Governance infrastructure and US foreign direct investment. *Journal of International Business Studies* **34**(1): 19–39.

Granovetter MS. 1985. Economic action and social structure: The problem of embeddedness.

*American Journal of Sociology* **91**(3): 481–510.

Grewal R, Tansuhaj P. 2001. Building organizational capabilities for managing economic crisis:

The role of market orientation and strategic flexibility. *Journal of Marketing* **65**(2): 67–80.

Gupta AK, Govindarajan V. 1984. Business unit strategy, managerial characteristics, and

business unit effectiveness as strategy implementation. *Academy of Management Journal* **27**(1): 25–41.

Hair JF, Anderson RE, Tatham RL, Black WC. 1998. *Multivariate data analysis*. Fifth edition.

Prentice Hall: Upper Saddle River, NJ.

Hammond AL, Kramer WJ, Katz RS, Tran JT, Walker C. 2007. *The next 4 billion: Market size*

*and business strategy at the base of the pyramid*. World Resources Institute: Washington, DC.

Hannan MT, Freeman JH. 1984. Structural inertia and organizational change. *American*

*Sociological Review* **49**(2): 149–164.

Hart SL. 1997. Beyond greening: Strategies for a sustainable world. *Harvard Business Review*

**75**(1): 66–76.

Hart SL. 2005. *Capitalism at the crossroads: The unlimited business opportunities in solving the*

*world's most difficult problems*. Wharton School Publishing: Upper Saddle River, NJ.

Hart SL, Christensen CM. 2002. The great leap: Driving innovation from the base of the

pyramid. *Sloan Management Review* **44**(1): 51–56.

Hart SL, Milstein MB. 2003. Creating sustainable value. *Academy of Management Executive*

**17**(2): 56–67.

- Hedenus F, Azar C. 2005. Estimates of trends in global income and resource inequalities. *Ecological Economics* **55**(3): 351–364.
- Hitt MA, Li H, Worthington IV WJ. 2005. Emerging markets as learning laboratories: Learning behaviors of local firms and foreign entrants in different institutional contexts. *Management and Organization Review* **1**(3): 353–380.
- Hofer C, Schendel DE. 1978. *Strategy formulation: Analytical concepts*. West: St. Paul, MN.
- Holliday C, Schmidheiny S, Watts P. 2002. *Walking the talk: The business case for sustainable development*. Greenleaf Publishing: Sheffield.
- Hoskisson RE, Eden L, Lau CM, Wright M. 2000. Strategy in emerging economies. *Academy of Management Journal* **43**(3): 249–267.
- Hulland J. 1999. Use of partial least squares in strategic management research: A review of four recent studies. *Strategic Management Journal* **20**(2): 195–204.
- Human Development Report. 1999. *Human development report*. Oxford University Press: New York.
- Iyer S, Kitson M, Toh B. 2005. Social capital, economic growth and regional development. *Regional Studies* **39**(8): 1015–1040.
- James LR, Demaree RG, Wolf G. 1993.  $R_{wg}$ : An assessment of within-group interrater agreement. *Journal of Applied Psychology* **78**(2): 306–309.
- Jarvis CB, MacKenzie, SB, Podsakoff PM. 2003. A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research* **30**(2): 199–218.

- Jen E. 2003. Stable or robust? What's the difference? *Complexity* **8**(3): 12–18.
- Jenkins C, Thomas L. 2002. *Foreign direct investment in Southern Africa: Determinants, characteristics, and implications for economic growth and poverty alleviation*. CSAE Report REP/2002-02. Centre for the Study of African Economies: Oxford.
- Jenkins R. 2005. Globalization, corporate social responsibility and poverty. *International Affairs* **81**(3): 525–540.
- Jones AP, Johnson LA, Butler MC, Main DS. 1983. Apples and oranges: An empirical comparison of commonly used indices of interrater agreement. *Academy of Management Journal* **26**(3): 507–519.
- Jones TM. 1995. Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review* **20**(2): 404–437.
- Karnani A. 2007a. Doing well by doing good—Case study: 'Fair & Lovely' whitening cream. *Strategic Management Journal* **28**(13): 1351–1357.
- Karnani A. 2007b. The mirage of marketing to the bottom of the pyramid: How the private sector can help alleviate poverty. *California Management Review* **49**(4): 90–111.
- Klein MH. 2007. *The business model concept: A strategic management approach*. Paper presented at the annual meeting of the Academy of Management, Philadelphia, USA.
- Landrum NE. 2007 Advancing the “Base of the Pyramid” debate. *Strategic Management Review* **1**(1): 1–12.
- Leonard-Barton D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal* **13**(Summer): 111–125.



- Letelier MF, Flores F, Spinoso C. 2003. Developing productive customers in emerging markets. *California Management Review* **45**(4): 77–103.
- Lindell MK, Brandt CJ. 2000. Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes. *Journal of Applied Psychology* **85**(3): 331–348.
- Lindell MK, Whitney DJ. 2001. Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology* **86**(1): 114–121.
- London T, Hart SL. 2004. Reinventing strategies for emerging markets: Beyond the transnational model. *Journal of International Business Studies* **35**(5): 350–370.
- Lumpkin GT, Dess GG. 1995. Simplicity as a strategy making process: The effects of stage of organizational development and environment on performance. *Academy of Management Journal* **38**(5): 1386–1407.
- Magretta J. 2002. Why business models matter. *Harvard Business Review* **80**(5): 3–8.
- Miller D. 1996a. Commentary: The embeddedness of corporate strategy: Isomorphism vs. differentiation. In *Advances in strategic management*, Baum JAC, Dutton JE (eds). JAI Press: Greenwich, CT; vol. 13.
- Miller D. 1996b. Configurations revisited. *Strategic Management Journal* **17**(7): 505–512.
- Morris M, Schindehutte M, Allen J. 2005. The entrepreneur's business model: Toward a unified perspective. *Journal of Business Research* **58**(6): 726–735.
- Mreła K. 1980. The coherence of organizational structure as an entity. *International Studies of Management & Organization* **10**(3): 70–90.

- Nadler D, Tushman M. 1980. A diagnostic model for organizational behavior. In *Perspectives on Behavior in Organizations*, Ford JK (ed). McGraw-Hill: New York; 83–100.
- Narayan D, Pritchett L. 2000. Social capital: evidence and implications. In *Social Capital: A Multifaceted Perspective*, Dasgupta P, Serageldin I. (eds). World Bank: Washington, DC; 269–295.
- Nelson RR, Winter SG. 1982. *An evolutionary theory of economic change*. Belknap Press: Cambridge, MA.
- Nilsson F, Rapp B. 2005. *Understanding competitive advantage: The importance of strategic congruence and integrated control*. Springer: Berlin.
- Nooteboom B, Berger J, Noorderhaven NG. 1997. Effects of trust and governance on relational risk. *Academy of Management Journal* **40**(2): 308–338.
- North DC. 1990. *Institutions, institutional change and economic performance*. Cambridge University Press: New York.
- Nunnally J. 1967. *Psychometric theory*. McGraw-Hill: New York.
- Pearce JL. 2005. Organizational scholarship and the eradication of global poverty. *Academy of Management Journal* **48**(6): 970–972.
- Petersen B., Pedersen T. 2002. Coping with liability of foreignness: Different learning engagements of entrant firms. *Journal of International Management* 8: 339–350.
- Podsakoff PM, McKenzie SB, Lee JY, Podsakoff NP. 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology* **88**(5): 879–903.

- Podsakoff PM, Organ DW. 1986. Self-reports in organizational research: Problems and prospects. *Journal of Management* 12(4): 531–542.
- Porter ME. 1996. What is strategy? *Harvard Business Review* 74(6): 61–78.
- Porter ME, Siggelkow N. 2007. Contextual interactions within activity systems and sustainable competitive advantage. Working Paper. Harvard Business School: Boston, MA.
- Porter ME, Van der Linde C. 1995. Toward a new conception of the environment–competitiveness relationship. *Journal of Economic Perspectives* 9(4): 97–118.
- Prahalad CK. 2005. *The fortune at the bottom of the pyramid: Eradicating poverty through profits*. Wharton School Publishing: Upper Saddle River, NJ.
- Prahalad CK, Hammond A. 2002. Serving the world’s poor, profitably. *Harvard Business Review* 80(9): 48–57.
- Prahalad CK, Hart SL. 2002. The fortune at the bottom of the pyramid. *Strategy+Business* 26(First Quarter): 2–14.
- Preston LE, O’Bannon DP. 1997. The corporate social–financial performance relationship: A typology and analysis. *Business & Society* 36(4): 419–429.
- Rangan VK, Quelch JA, Herrero G, Barton B. 2007. (eds). *Business solutions for the global poor: Creating social and economic value*. San Francisco: Jossey-Bass.
- Reed R, DeFillippi RJ. 1990. Causal ambiguity, barriers to imitation and sustainable competitive advantage. *Academy of Management Review* 15(1): 88–102.
- Ricart JE, Enright MJ, Ghemawat P, Hart SL, Khanna T. 2004. New frontiers in international strategy. *Journal of International Business Studies* 35(3): 175–200.

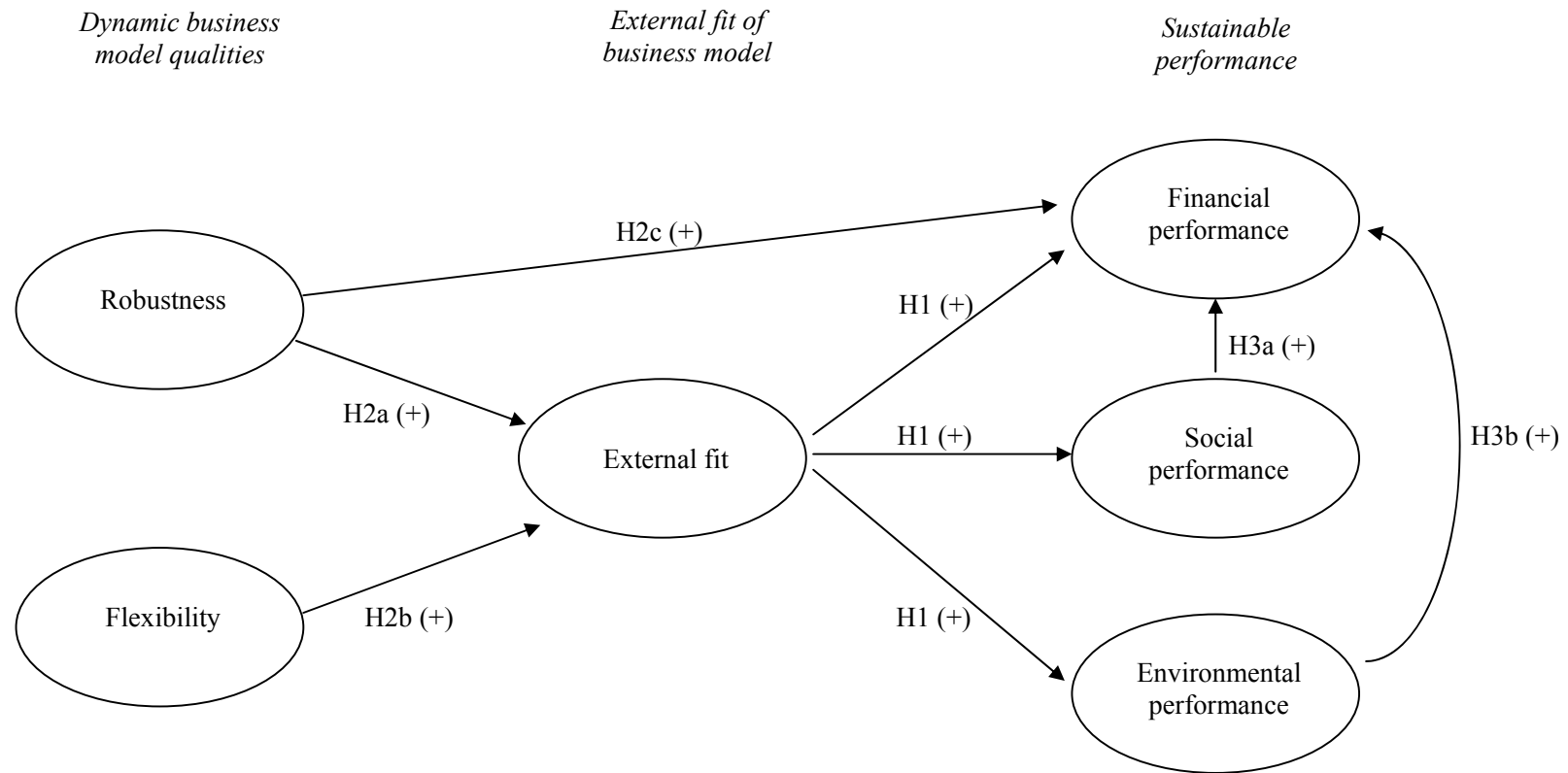
- Rodrik D. 2004. *Industrial policy for the 21st century*. Mimeo, Harvard University.
- Roper Organization. 1990. *The environment: Public attitudes and individual behavior*. S.C. Johnson & Son: Racine, WI.
- Russo MV, Fouts PA. 1997. A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal* **40**(3): 534–559.
- Sachs JD. 2005a. *Investing in development: A practical plan to achieve the Millennium Development Goals*. UN Millennium Project:  
<http://www.unmillenniumproject.org/reports/fullreport.htm>.
- Sachs JD. 2005b. *The end of poverty: Economic possibilities for our time*. The Penguin Press: New York.
- Saini A, Johnson JL. 2005. Organizational capabilities in e-commerce: An empirical investigation of e-brokerage service providers. *Journal of the Academy of Marketing Science* **33**(3): 360–375.
- Sanchez R. 1995. Strategic flexibility in product competition. *Strategic Management Journal* **16**:135–159.
- Sánchez P, Rodriguez MA, Ricart JE. 2005. *Social embeddedness in low-income markets: Influential factors and positive outcomes*. IESE Business School Working Paper No. 594. Available at SSRN: <http://ssrn.com/abstract=875591>.
- Sarason SB. 1974. *The psychological sense of community: Prospects for a community psychology*. Jossey-Bass: San Francisco.
- Scott WR. 1995. *Institutions and organizations*. Sage: Thousand Oaks, CA.

- Seelos C, Mair J. 2007. Profitable business models and market creation in the context of deep poverty: A strategic view. *Academy of Management Perspectives* **21**(4): 49–63.
- Selznick P. 1957. *Leadership in administration*. Harper & Row: New York.
- Sen A. 1999. *Development as freedom*. Anchor Books: New York.
- Sharma S, Vredenburg H. 1998. Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities. *Strategic Management Journal* **19**(8): 729–753.
- Siggelkow N. 2001. Change in the presence of fit: The rise, the fall, and the renaissance of Liz Claiborne. *Academy of Management Journal* **44**: 838–857.
- Stiglitz JE. 2002. *Globalization and its discontents*. W.W. Norton & Company: New York.
- Teece DJ, Pisano G, Shuen A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal* **18**: 509–533.
- Tsai W, Ghoshal S. 1998. Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal* **41**: 464–476.
- Udry C. 1990. Credit markets in Northern Nigeria: Credit as insurance in a rural economy. *World Bank Economic Review* **4**(3): 251–269.
- Uhlenbruck K, Meyer KE, Hitt MA. 2003. Organizational transformation in transition economies: Resource-based and organizational learning perspectives. *Journal of Management Studies* **40**(2): 257–282.
- Venkatraman N, Ramanujam V. 1986. Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review* **1**(4): 801–814.

- Venkatraman N, Ramanujam V. 1987. Measurement of business economic performance: An examination of method convergence. *Journal of Management* **13**(1): 109–122.
- Venkatraman N. 1989. The concept of fit in strategy research: Toward a verbal and statistical correspondence. *Academy of Management Review* 14: 423–444.
- Viswanathan M, Seth A, Gau R, Chaturvedi A. 2007. *Doing well by doing good: Pursuing commercial success by internalizing social good in subsistence markets*. Best Paper Proceedings of the Annual Meeting of the Academy of Management, Philadelphia, USA.
- Volberda HW. 1996. Toward the flexible form: How to remain vital in hypercompetitive environments. *Organization Science* **7**(4): 359–374.
- Wall TD, Michie J, Patterson M, Wood SJ, Sheehan M, Clegg CW, West M. 2004. On the validity of subjective measures of company performance. *Personnel Psychology* **57**(1): 95–118.
- Walsh JP, Kress JC, Beyerchen KW. 2005. Book review essay: Promises and perils at the bottom of the pyramid. *Administrative Science Quarterly* **50**(3): 473–482.
- WBCSD. 1997. *Environmental performance and shareholder value*. World Business Council for Sustainable Development: Geneva.
- WBCSD. 2004. *Doing business with the poor: A field guide*. World Business Council for Sustainable Development: Geneva.
- World Bank. 2001. *World Development Report 2000/2001: Attacking poverty*. Oxford University Press: Oxford.
- World Bank. 2005. *Business action for the MDGs: Private sector involvement as a vital factor in achieving the Millennium Development Goals*. World Bank Institute: Washington, DC.

- World Bank. 2006. *World Development Indicators 2006*. World Bank Institute: Washington, DC.
- World Resources Institute, World Bank, United Nations Development Programme, and United Nations Environment Programme. 2005. *World resources report: The wealth of the poor*. World Resources Institute: Washington, DC.
- Wright M, Filatotchev I, Hoskisson RE, Peng MW. 2005. Strategy research in emerging economies: Challenging the conventional wisdom. *Journal of Management Studies* **42**(1): 1–33.
- Wright PM, Snell AS. 1998. Toward a unifying framework for exploring fit and flexibility in strategic human resource management. *Academy of Management Review* **23**(4): 756–772.
- Zaheer S. 1995. Overcoming the liability of foreignness. *Academy of Management Journal* **38**: 341–363.
- Zajac EJ, Kraatz MS, Bresser R. 2000. Modeling the dynamics of strategic fit: A normative approach to strategic change. *Strategic Management Journal* **21**: 429–454.
- Zott C, Amit R. 2007. Business model design and the performance of entrepreneurial firms. *Organization Science* **18**(2): 181–199.

**Figure 1.** Hypothesized structural model





**Table 1. Measurement items and validity assessment**

<i>Overall model fit: <math>\chi^2_{65} = 98.931</math>, <math>p &lt; 0.001</math>; CFI = 0.95; RMSEA = 0.06; 90% confidence interval of RMSEA: 0.04–0.08</i>		Standardized factor loadings
<i>Flexibility: Cronbach's alpha = 0.73, composite reliability = 0.65, average variance extracted = 0.77</i>		
Our management systems encourage employees to challenge outmoded traditions / practices / sacred cows <sup>b</sup>	a	
Our business model is flexible enough to allow us to respond quickly to changes in our markets <sup>c</sup>		0.71
Our business model evolves rapidly in response to shifts in our business priorities <sup>c</sup>		0.82
It is difficult for our organization to change the uses and applications of its resources <sup>d</sup>		0.61
Our organization seeks to derive benefits from diversity in its operating environment(s) <sup>c</sup>		0.49
Our strategy reflects a high level of flexibility in managing risks <sup>c</sup>		0.63
<i>Robustness: Cronbach's alpha = 0.69, composite reliability = 0.64, average variance extracted = 0.83</i>		
Our business model is designed in such a way that changes outside our organization have no effect on the success of our business model	0.67	
Operating successfully in other low-income countries requires adjustments to our business model	a	
The success of our organization depends on managers' correct interpretations of the operating environment	a	
Fluctuations in factors outside our organization would necessitate continuous adjustment of our business model	a	
Our business model is designed in such a way that, without changes, it will also succeed in completely different market circumstances	0.66	
Our business model has a stable structure	0.72	
Our business model is an intrinsically stable whole that can resist external changes, fluctuations, and noise without a qualitative change in its design	0.72	
<i>External fit: Cronbach's alpha = 0.79, composite reliability = 0.74, average variance extracted = 0.74</i>		
Our business model suits the environmental characteristics	0.74	
The benefits we offer our customers are fine-tuned to their specific needs	0.78	
The benefits we offer to our stakeholders fulfill genuine needs of stakeholders	0.65	
Our organization's strategic direction co-develops with changes in our environment	0.65	
Our organization does not take full advantage of the resources that exist in the communities in which we operate	a	
Our business model and that of other organizations that we do business with are mutually adjusted to each other	0.50	
In the communities in which we operate, our organization's business model builds local capacities beyond the products and services of our organization	0.50	
Our organization takes full advantage of the skills and knowledge of the people and organizations in our environment	a	
Our business model is optimally "adapted to" and "suited for" the environment in which we operate	0.61	

<sup>a</sup> Item deleted from further analysis due to low factor loading.

<sup>b</sup> Item adapted from Gibson and Birkinshaw (2004).

<sup>c</sup> Item adapted from Grewal and Tansuhaj (2001).

<sup>d</sup> Item adapted from Saini and Johnson (2005).

**Table 2. Sample description<sup>a</sup>**

<i>Industry</i>		<i>Number of employees</i>	
Trading/wholesale	15	10–25	72
Retail	10	26–50	25
Manufacture/repair	27	51–100	14
Farming/fishing/forestry	14	101–500	16
Building/construction	5	>500	16
Healthcare and social assistance	8		
Educational services	7	<i>Age of the organization (years)</i>	
Financial services	16	≤2	21
Business services	7	3–5	27
Power generation	7	6–10	36
Information	6	11–15	21
Other	21	16–20	10
		21–25	7
		26–30	4
Free-standing enterprise	67	>30	17
Division / line of business of a larger firm	10		
Enterprise owned by a large holding company	12	<i>Location<sup>b</sup></i>	
Partnership/cooperation	27	Sub-Saharan Africa	99
(Part of) a foundation (that is self-sufficient)	11	Europe and Central Asia	18
Other	16	East Asia and The Pacific	27
		South Asia	26
		Middle East and North Africa	17
		Latin America and Caribbean	38

<sup>a</sup> Sample size = 143.<sup>b</sup> Firms can be active in multiple locations.

**Table 3. Means, standard deviations, and correlations<sup>a</sup>**

Variable	Mean	St. dev.	1	2	3	4	5	6	7
1. Age of the enterprise	14.29	21.19							
2. Financial performance	4.92	1.03	0.23						
3. Social performance	5.15	0.63	0.09	0.25					
4. Environmental performance	4.46	0.78	-0.09	0.06	0.41				
5. Robustness	5.82	1.89	-0.02	0.41	0.24	0.11	(0.77)		
6. Flexibility	4.51	0.92	-0.10	0.29	0.23	0.18	0.27	(0.83)	
7. External fit	6.25	1.07	-0.17	0.30	0.32	0.29	0.34	0.54	(0.74)

<sup>a</sup> Sample size = 143. Numbers in parentheses on the diagonal are AVE (Average Variance Extracted) of the latent variables. Correlations above |0.19| are significant at  $p < 0.05$ .

**Table 4. Structural equation model results of the standardized structural paths<sup>a</sup>**

Structural paths / Model fit	$\beta$	Model
H1a: External fit → Financial performance	$\beta_1$	0.18 (0.08) *
H1b: External fit → Social performance	$\beta_2$	0.31 (0.05) **
H1c: External fit → Environmental performance	$\beta_3$	0.29 (0.06) **
H2a: Robustness → External fit	$\beta_4$	0.18 (0.04) **
H2b: Flexibility → External fit	$\beta_5$	0.49 (0.09) **
H2c: Robustness → Financial performance	$\beta_6$	0.31 (0.05) **
H3a: Social performance → Financial performance	$\beta_7$	0.19 (0.14) *
H3b: Environmental performance → Financial performance	$\beta_8$	−0.10 (0.11) ns
<b>Model fit</b>		
$\chi^2_5$		5.57
GFI (absolute fit index)		0.99
CFI (comparative fit index)		0.99
NFI		0.96
RMSEA (absolute fit index)		0.03
90% confidence interval RMSEA		0.00–0.13
<b>R<sup>2</sup></b>		
External fit		0.33
Financial performance		0.22
Social performance		0.09
Environmental performance		0.08

† if  $p < 0.10$ ; \* if  $p < 0.05$ ; \*\* if  $p < 0.01$ .

<sup>a</sup> Sample size = 143.

### Reviewers supplement: Formative items for firm performance

---

#### Financial performance<sup>a</sup>

Please rank your organization's performance compared to similar organizations in your industry using the criteria below. Answer irrespective of the degree of importance you attach to each performance criterion.

1. Sales growth
  2. Customer satisfaction
  3. Return on capital employed
  4. Profitability and return on investment
  5. Financial stability
  6. Future prospects
  7. Overall performance
- 

#### Social and environmental impact<sup>b</sup>

Here we ask your perception of the social and environmental impact of your organization on the communities in which it operates. Impact may be direct or indirect—i.e., the *direct impact* of your organization's operations and the *indirect impact* through other actors.

The questions only refer to the *impact*, not the policies underlying these impacts. In addition, we are only interested in the impact of your organization's *core business*, not the impact of philanthropic activities.

Please indicate the degree to which your organization has a positive or negative impact *on the communities* in which it operates within the areas below.

Social  
performance

#### *Employment and income*

1. Impact on overall employment
2. Impact on overall skill level
3. Impact on livable wages
4. Impact on local entrepreneurship

#### *Safety and security*

5. Impact on physical safety
6. Impact on resistance to natural disasters and climate change (e.g., hurricanes, earthquakes, floods, and the longer-term impact of climate change)

#### *Governance*

7. Impact on the availability of clear and correct information from government agencies
8. Impact on the integrity of the legal system within the community
9. Impact on participation of people in political decision-making

#### *Quality of life*

10. Impact on the infrastructure (housing, transportation, communication)

11. Impact on the availability of primary life necessities (water, air, sanitation, utilities, nutrition, clothing, etc.)
12. Impact on discrimination (e.g., in salary or gender)
13. Impact on human rights (respect for the dignity and worth of all human beings and freedom from fear and want)

*Public services*

14. Impact on the availability of qualitatively good (regular) education
15. Impact on health education
16. Impact on the availability of qualitatively good healthcare services and products

Environmental  
performance

*Health of the environmental systems*

1. Impact on the health of the terrestrial ecosystem, including its biodiversity
2. Impact on the health of the aquatic and marine ecosystem, including its biodiversity
3. Impact on air quality

*Environmental stresses*

4. Impact on the amount of overall material use
5. Impact on the amount of water use
6. Impact on the amount of energy use within the value chain, including customers
7. Impact on the use of sustainable and renewable energy sources
8. Impact on the amount of toxic discharges to the environment
9. Impact on population pressure
10. Impact on natural resource management (e.g., productivity overfishing; percentage of total forest area certified for sustainable management)

---

<sup>a</sup> All items are measured on a seven-point scale ranging from 1 “very poor” to 7 “outstanding”. All levels of the scale had a description.

<sup>b</sup> All items are measured on a seven-point scale ranging from 1 “large negative impact” to 7 “large positive impact”. All levels of the scale had a description.