Salazar et al., *Cogent Business & Management* (2018), 5: 1409685
https://doi.org/10.1080/23311975.2017.1409685

cogent business & management

MANAGEMENT | RESEARCH ARTICLE

A game analysis of MNC CSR in China

Ronald J. Salazar[1]*, Jifu Wang[1], Rupak Rauniar[2] and Xiuli Wang[3]

Received: 11 August 2017
Accepted: 20 November 2017

*Corresponding author: Ronald J. Salazar, University of Houston, Victoria, TX, USA
E-mail: salazarr@uhv.edu

Reviewing editor:
Milena Ratajczak-Mrozek, Poznań University of Economics and Business, Poland

Additional information is available at the end of the article

Abstract: Weakening multinational corporation (MNC) commitment to corporate social responsibility (CSR) has caused increasing concern in China. What motivates MNC's to diminish their commitment to CSR? This paper applies game theory to attempt to answer this important question for the Chinese context. The aim of this paper is to characterize the decision choices MNC managers face using game theory and to evaluate whether game theory, based on cost–benefit analysis, can contribute to a better understanding of the tendency to diminish CSR. Public opinion, political legitimacy, competing priorities, stage of market development, short-term orientation, and stakeholder activism each influence manager's choices. Despite the widespread recognition that CSR is important in business, the costs of CSR implementation are implicitly weighed against the benefits of favorable CSR outcomes. We demonstrate how the weakening observed in China exhibits properties amenable to analysis in a game-theoretic sense rather than dominance and how the trend might be reversed. The findings of this study provide useful insights into the consequences of stakeholder behavior for CSR outcomes. Researchers will find the results helpful in further exploring how specific stakeholder activities influence CSR. Investors, managers, regulators, and stakeholders will find the results expository of some underlying forces influencing managerial decision-making in MNCs.

ABOUT THE AUTHORS

Ronald J. Salazar (PhD from the University of Texas at Austin) is an associate professor and an associate provost at the University of Houston – Victoria. His recent research addressing value creation strategies and technology management has appeared in numerous leading academic journals such as the *British Journal of Management, Journal of Applied Business Research, and The International Journal of Applied Business Research.*

Jifu Wang (PhD from Auburn University) is a professor and an associate dean at University of Houston, Victoria. His research interest includes global strategy and organizational change, and has published numerous refereed articles, a book and several book chapters in global strategy with focus on core competence and capable organizations.

Rupak Rauniar (PhD from University of Toledo) is an associate professor of Management at The University of Houston, Downtown. His research interests are in absorptive capacity and technology transfer. His significant research publications have appeared in the *Decision Sciences Journal*, *International Journal of Production Research,* and the *International Journal of Logistics: Research and Applications.*

PUBLIC INTEREST STATEMENT

Consumers expect businesses to behave as good corporate citizens. We know that weakening corporate commitment to corporate social responsibility (CSR) has caused increasing concern in China. The motivations and actions of corporations have tremendous potential for improving or damaging those they affect. Corporations act to pursue advantage within existing conditions. This means pursuing a strong image through corporate social responsibility. Sometimes conditions "back home" are different from those found "elsewhere." We wrote this paper to describe how conditions in China might influence corporations to behave differently than they might at home.

We decided to try to understand why this might be so. Our study uses game theory and cost–benefit analysis to appraise the desirability of different choices. We built scenarios that show that decisions like these are influenced by local conditions and that sometimes making the "right" decision might a mean reduced commitment to corporate social responsibility.

Subjects: Strategic Management; Corporate Governance; Corporate Social Responsibility & Business Ethics; International Business; Organizational Studies

Keywords: multinational corporation subsidiary in China; corporate social responsibility; game theory

1. Introduction

Growing attention from academics and top executives has been paid to corporate social responsibility (CSR) strategies in China (Cheng, Ioannou, & Serafeim, 2014; Lam, 2014). The aim of this paper is to characterize the decision choices MNC managers face using game theory and to evaluate whether game theory, based on cost–benefit analysis, can contribute to a better understanding of the tendency to diminish CSR in China. The Chinese context is an important one, in part, since its population is 1.34 billion residents (National Bureau of Statistics of China, 2017), its land mass is roughly equivalent to the US, and its economy is projected to eclipse the US before 2050 (PWC Global, The World in 2050, 2017). The context is also important because of well-publicized CSR failures (Li-Wen, 2010). There is a lack of understanding of MNC CSR in China. This paper responds to the call by Samuelson (2016) to apply game theory to aggregate individual motivations to understand important complex phenomena. This paper illustrates a novel approach to the study of CSR in China and produces findings that increase understanding of CSR activities in the Chinese context. Although the sensibilities of customers in developed countries play an important role in promoting CSR in emerging markets such as China (Cheung, Kong, Tan, & Wang, 2015), often CSR efforts lag in a foreign context. CSR refers to corporate social or environmental behavior that goes beyond the legal or regulatory requirements of markets and economies (Kitzmueller & Shimshack, 2012). From the point of view of stakeholders and the theory of global corporate citizenship (Post, 2002), CSR refers to those activities assumed by a multinational corporation in the way of their economic, legal, ethical, and charitable interests as "corporate citizens."

Multinational enterprises (MNEs) doing business in China face an array of challenges in deploying strategies for CSR (Graafland & Zhang, 2014). The motivation for CSR has been attributed to both corporate nationality and the cultural orientation of the firm (Choi, Chang, Li, & Jang, 2016) or based on the quest for political legitimacy (Zhao, 2012). The success or failure of CSR initiatives depends, in part, on consumers' viewpoints (Cheung et al., 2015). Some research has shown that consumers in different countries have different expectations of CSR (Han, 2015). Stakeholder groups play an important role in directing or bolstering the firm's commitment to social responsibility. The role of such groups is dynamic and depends on the host country context (Belyaeva & Kazakov, 2015).

This paper begins with a review of the literature related to CSR and the Chinese context and adopts cost–benefit analysis (McWilliams & Siegel, 2001) to illustrate the choices for MNCs and stakeholders in CSR behavior. As Mc Williams and Siegel have pointed out, managers are continually under pressure to devote corporate resources to CSR. In doing so they implicitly seek an equilibrium condition, that permits CSR as a steady state. Yet, in China CSR seems to be in decline (Williams & Aguilera, 2008). We respond to Samuelson's call (2016) for broader application of game theory to explain important phenomena by making deliberate approximations of behavior we observe in this context. We take a game-theoretic approach to explore why firms weaken CSR commitment in the Chinese context and how this trend might be reversed. First, we develop two cost–benefit formulations representing the trade-off relationships faced by MNCs and by CSR stakeholders. In the first formulation, we illustrate that firms pursuing CSR incur direct costs, while benefitting from the corresponding economic rents. We observe that the more stakeholders value the cost of MNCs weakening the social responsibility, the higher the probability that stakeholders will respond actively and the higher the likely degree of regulation to follow. Next, we develop a new game-theoretic framework to produce a payoff matrix to explain the downward pressure on CSR in China. The results clarify how MNC's in emerging economies respond to pressure or indifference from stakeholders. Since prior research has not addressed the problem of decreasing CSR in China directly, we contribute by opening the door to further empirical investigation based on our findings.

2. Theory development

The motives of firms in fulfilling their social responsibilities are complex. Such motives may include the rewards associated with open and transparency requirements of enterprises for investors, regulators and public interest groups reflected in press releases and annual reports, as well as implicit incorporation of the public, regulators or shareholders' wish that enterprises grapple with complex socioeconomic problems (Rondinelli & Berry, 1997, 2000). A firm's level of commitment to CSR will bring corresponding benefits, including opportunities to gain access to capital, the reduction of unexpected compliance costs, improved financial performance, and increases in positive brand awareness (Husted, Allen, & Kock, 2015; Mohammed, 2015; Ni & Li, 2012; Williams & Aguilera, 2008; Yin & Zhang, 2012) or political legitimacy (Zhao, 2012). Such benefits may vary depending on context (Cavaco & Crifo, 2014). Similarly, firms' commitment to CSR involves cost–benefit trade-offs. Thus, decision preferences are formulated to assess social responsibility activities based on market-based interest (Jing & Graham, 2008; Lozano, 2011; Wirl, 2014). Research into CSR practices in China is in its infancy (Moon & Shen, 2010). In China, MNCs incur direct costs when bearing new CSR, and benefits often lag in the short term. This leads some to view their relationships in China and stakeholders in transactional terms (Xu & Yang, 2010) and view CSR activities as expenses rather than investments in the future. Such pressures might contribute to a firm's intentional breach of CSR such as hiring child labor, using non-environmental production equipment and methods, and even tax evasion (Christmann, 2004; Toshihiro & Akira, 2014). These phenomena of weak or absent social responsibility practices may be more serious in developing countries where the regulatory environment may be weak or corrupt. In such contexts, while firms bring benefits to such as improvements to infrastructure, employment, political stability, local income-earning opportunities, skills training, and increases to tax revenues, they also bring social and environmental costs, such as the consumed resources, little interest in treating employees in an equitable manner, and damage to local traditions and customs (Bird & Smucker, 2007).

Weak social responsibility of firms in developing countries is generally reflected in two ways. First, the practice of CSR most common in the home countries is sometimes not actively pursued in the host country. In such instances, the culture of the host country gives way to the parent country culture to the detriment of the host. Second, there is a "dual standard" in environmental protection, consumer responsibility, and other CSR roles (Cheung et al., 2015). That is, firms commit to CSR in a way that includes lower standards than they might employ in the home country. In China, one might observe cases in which the social costs of weak CSR include corruption, illegal business practices, illegal tax evasion, collusion, low labor, and product safety standards (Lam, 2014). In a national comparative sense, MNC subsidiaries in China frequently make a nominal commitment to social responsibility, but may do less in practice, especially in protecting the environment (Yin & Jamali, 2016). Most of CSR practices employed relate to social benefits (health insurance, pension insurance, kindergartens, nurseries, and paid holidays), charitable donations, charity events, and educational practices designed for public image development and reputation strengthening, and stakeholders' relations enhancement. The humane care of the employees, the protection of the rights and interests of laborers, after-sales service, communication with stakeholders, disclosure of social responsibility information and other aspects, MNC subsidiaries in China often do not undertake and innovate as actively as they do in home country (Yin & Zhang, 2012). Husted and David (2006) propose that the pressure to manage or increase CSR originates primarily from system pressure such as government regulations, corporate policies, institutional arrangements, etc. This view in contrast with one that would argue that the cause of social responsibility weakening emerges from an unsound regulatory environment including the government's overreaching policies to protect, and ineffective supervision by stakeholders (Wu & Keke, 2009). The institutional setting on China with its unique characteristics has been seen as determinative of MNC CSR behavior (Hoffman et al., 2017) and as constraining that behavior to one of two forms. Yin (2017) argues that in China, firms are "embedded in multiple layers of institutional environment and corporate social decisions making depend on the institutions within which they operate." Some scholars analyze weakening mechanisms from a game-theoretic perspective and establish corresponding game models, but these games have heretofore focused mainly between MNCs and the government, without considering other stakeholders or other firms. (Jing & Graham, 2008; Wei & Tang, 2013). Stevens (2007) conceptualized the problem as two- and three-person ultimatum game bargaining models. In his formulation, the ultimatum game consists of a positive amount of money, which can be distributed among the three players in the presence of zero-sum conditions. Ni and Li (2012) have employed a game-theoretic approach to analyze cooperative social benefits between supply chain members, where a downstream firm (F) and an upstream supplier (S), interact with each other with respect to CSR behavior and analyze the impact of exogenous parameters. Wu and Keke (2009) propose that MNEs should be responsible for all the stakeholders between which there is a cooperative and mutually beneficial relationship, and this relationship forms a dynamic game. Samuelson (2016) suggests that game theory promises important insights where it can be applied to approximations of conditions rather than to their literal representations. The literature has yet to produce specific robust and flexible mathematical model for the relationships between various stakeholders and MNCs.

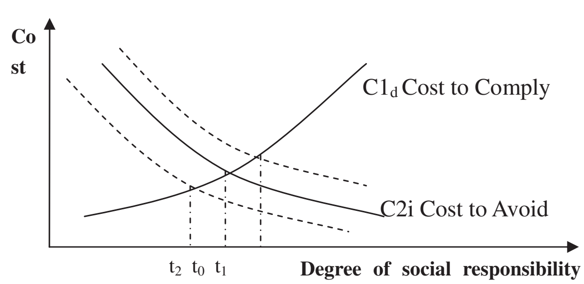
Based on our review of the literature and in particular, Samuelson (2016) and Belyaeva and Kazakov (2015), we propose a game-theoretic model of the interaction between firms and various stakeholders. The model we derive is taken from the perspective of general cost analysis. We then establish a corrected game model based on analyzing the direct and indirect costs in order to achieve better generalizability.

2.1. Cost–benefit analysis of MNCs CSR

The stakeholders of MNC subsidiaries in China include international organizations, the Chinese Government at each level, suppliers, and local residents. We take the perspective that managers wish to enhance shareholder wealth and can therefore be thought of as rational actors (Simon, 1959). Firms fulfilling their CSR must pay the direct costs, while benefitting from the corresponding economic rents. In like fashion, we take the view that stakeholders wish to maximize their benefits from CSR while minimizing costs. Stakeholders incur regulatory costs to encourage social responsibility, while gaining corresponding benefits because of firms' activities in CSR. Therefore, stakeholders as well as firms can be thought to balance the costs and benefits of their activities and to recognize both as they assume their roles. Each seeks equilibrium. MNC subsidiaries in China pay certain direct costs to behave in socially responsible ways. Countervailing costs exist if MNCs weaken their CSR efforts since they are subject to increasing pressure from multiple stakeholders, and will eventually pay associated indirect costs. The more firms commit to CSR, the more direct costs they pay, at the same time, the lower are the indirect costs from regulation. Adding to the direct economic costs for violation of relevant laws and regulations are the potential opportunity costs incurred. These include government restrictions on investments in the host country and market losses due to decline in the company's reputation for not behaving in a socially responsible manner. Therefore, the more firms neglect CSR, the less they pay in direct costs, and the more they pay in indirect costs due to regulation. Thus, firms choose between strengthening and weakening their CSR activities. In an economic sense, then, in addition to cultural- or market-related phenomena, the basis for selection of a strategy for CSR involves comparison of direct and indirect costs. If the direct costs are higher than indirect costs, firms will tend to choose to reduce the intensity of CSR. If indirect costs are higher than the direct costs, firms will tend to increase its CSR activities. Ultimately, because of the pursuit of profitability, MNCs choose to assume the level of CSR where minimum total cost is achieved, i.e. where direct and indirect costs are minimized. The graph in Figure 1 illustrates

Figure 1. Cost of social responsibility for MNC.

Source: Adapted from McWilliams and Siegel (2001).



the cost relationships in a cost–benefit sense (McWilliams & Siegel, 2001; Wolfe, 1929) with respect to social responsibility of MNC: $C1_d$ represents direct costs, $C2_i$ represents the indirect costs, and T_0 represents the point of the best choice where MNCs commit to social responsibility is at equilibrium. If stakeholders increase regulation of social responsibility, it will inevitably bring a rise in indirect costs, then $C2_i$ curve moves upward. MNCs will have to increase social responsibility efforts to T_1. If stakeholders decrease regulation of social responsibility, it will inevitably bring a decline in indirect costs, then $C2_i$ moves downward. MNCs will surely choose to weaken social responsibility to T_2. Therefore, the key determinants of MNCs' choice as to whether to maintain or modify CSR depends on whether the various stakeholders increase pressure on the behavior of MNCs by increasing the intensity of regulation.

2.2. Cost–benefit analysis of stakeholders' regulatory utility

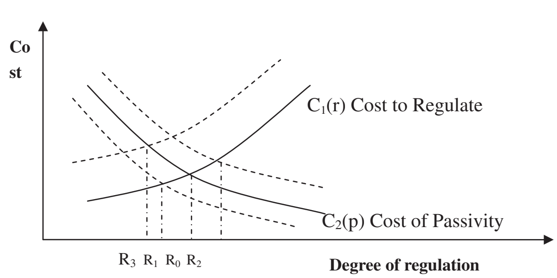
Stakeholder groups have similar cost–benefit trade-offs. The relationship between regulatory cost and costs to stakeholders is presented in Figure 2. As stakeholders deal actively, regulation will increase as will direct costs. Conversely, a passive stakeholder bears the associated indirect costs. Eventually, stakeholders minimize the total cost and make the indirect cost equal to direct costs. $C_1(r)$ represents direct costs, $C_2(p)$ represents indirect costs; r_0 is the best degree of regulation of stakeholders. If the degree that MNCs are required to fulfill social responsibility is increased, $C_2(p)$ moves downward, and the degree of regulation by stakeholders falls to $R1$. Similarly, if the MNC itself does not assume enough social responsibility, but stakeholders underestimate their indirect costs, it will lead to a decline in $C_2(p)$, causing the degree of regulation to drop with stakeholders dealing in a passive way. Conversely, if the degree that MNCs fulfill the social responsibility decreases, $C_2(p)$ will move upward, and the degree of regulation by stakeholders will tend to rise to r_2. Similarly, the more stakeholders value or overestimate the cost of MNCs weakening the social responsibility, the higher the probability that stakeholders will respond actively and the higher the likely degree of regulation.

In a fashion similar to the preceding analysis, if the various stakeholders conclude that the direct costs are greater than the indirect ones, then the stakeholders will choose a passive response. If they think that the indirect costs are greater than the direct ones, the various stakeholders will choose to increase active regulation in response. Eventually, stakeholders are sure to choose a regulation degree that minimizes the total cost and makes the indirect cost equal to direct costs.

Our observations from Figures 1 and 2 identify the cases when the decision-making of MNCs and various stakeholders rely on judgments relating to the costs and benefits of their behaviors. MNCs decide to fulfill the social responsibility or to weaken it according to the degree of stakeholders' active regulation. Stakeholders decide to deal in either an active or a passive way based on the comparison between the indirect costs caused by MNC's actions related to CSR and direct costs caused by the regulation of social responsibility. Game theory is ideal to study decisions where decision-making subjects' behaviors interact directly with each other and equilibrium problems inherent in decisions such as these. The subjects of decision-making in the game will consider every possible decision of the opponents comprehensively, and rationally choose the most reasonable and effective decision for themselves. Therefore, we can say that, it is the best selection of the game between MNC subsidiaries in China and various stakeholders that MNC subsidiaries in China choose to weaken their social responsibility.

Figure 2: Regulatory Costs to Stakeholders.

Source: Adapted from McWilliams and Siegel (2001).



Adopting such an approach, we next consider the mathematical form of the behavioral interactions to be observed among the competing stakeholders. Following Belyeava and Kazakov (2015), we adapt their model to the present context. Thus, there are payoff matrices $A = (a_{ij})$, $B = (b_{ij})$ … that characterize the game's value to the players in all admissible situations. The goal for each player is to maximize value, while others' value is irrelevant.

$$aij + bij \to |aii - bij| \to \min$$

The well-studied antagonistic matrix zero-sum game is useless for our purpose, considering that, having players whose interests are opposite (although not identical); the classical approach does not allow formalizing a CSR approach. A zero-sum polymatrix graphical game Nash equilibrium can be computed in polynomial time, by simply solving a two-player zero-sum game and rounding off the equilibrium; another possible way would be to apply bimatrix games (Govindan & Wilson, 2002). We chose the stakeholders pair games, following Belyaeva and Kazakov (2015), assuming that there are two players who can choose different strategies of interaction. Of course, considering only pairwise interactions of the interested parties simplifies the real situation, but modeling a game that is not a zero sum enables finding an indirect way to balance the interests of other players. Priorities could be calculated with indicators affecting each stakeholder considered. We consider numeric evaluation indicators as r_i, $i = 1, \ldots, n$, so the corresponding maximum value is:

$r_i^{\max}$, $i = 1, \ldots, n$; m_1 is the number of first player's strategies; m_2 is the number of second player's strategies, $m = m_1 + m_2$ where

$\alpha_i^j \geq 0$, I = 1, …, n; $j = 1, \ldots, m$

is a weighted indicator for the chosen strategy j for the first player

$\beta_i^j \geq 0$, $I = 1, \ldots, n$; $j = 1, \ldots, m$

is a weighted indicator for the chosen strategy j for the second player.

We assume that $\sum_{j=1}^{m} \alpha_i^j = 1, \sum_{j=1}^{m} \beta_i^j$ for all $i = 1, \ldots, n$. Then, the first player's outcomes in strategies $k - l\ a_k$, $(l - m1)$ is:

$$\alpha_k, \ (l - ml) \sum_{i=1}^{n} \frac{(\alpha_i^k + \alpha_l^i) r_i}{r_i^{\max}}$$

This makes the second player's outcomes:

$$\beta_k, \ (l - ml) \sum_{i=1}^{n} \frac{(\beta_i^k + \beta_i^l) r_i}{r_i^{\max}}$$

3. Nash equilibrium strategy

The preceding formulation leads us to the conclusion that diminishing CSR represents the logical Nash equilibrium strategy for an MNC given the conditions that exist in China. Recall that Nash (1951) argued that any finite non-cooperative game will yield an equilibrium strategy. Through cost–benefit analysis, we conclude that although cooperation and mutual benefit exist between MNE subsidiaries in China and various stakeholders along certain dimensions goal conflict exists in the economic interests imbedded in CSR. Thus, the two sides become game subjects on CSR. Consider a game involving two players: the MNC subsidiary in China and international organizations. Although MNC subsidiaries in China and international organizations have common interests in the balanced development of global economy, non-performance by MNCs or interest in CSR has gradually degenerated into a worldwide social problem. International organizations seek to develop a series of norms to urge multinational companies to fulfill their social responsibilities, to achieve stability of international practices and standards. Due to differences in national circumstances, standards and policies, however, there is a paucity of binding principles to guide MNC strategies, of uniform and enforceable standards on social responsibility, as well as a lack of powerful environmental groups with international scope. In this game context, MNCs can easily avoid or minimize penalties, resulting in multinational companies choosing to weaken CSR in order to maximize their own economic benefits.

3.1. A game between MNC subsidiaries in China and Chinese Government

The performance evaluation of local government generally takes economic growth rate as the evaluation index, resulting in the prevalence of vicious competition between localities, local protectionism and investment preferential policies, which provides MNC subsidiaries a bargaining advantage (Yin & Zhang, 2012). Relying on the support of the local government, the MNCs sometimes ignore CSR by engaging in activities such as polluting the environment, reducing wages, the use of child labor, and production of substandard products (Yin & Zhang, 2012). In the face of weakening of CSR, local governments often fear dampening multinational foreign direct investment. In time this leads to a lax environment and some localities even harbor some violations. Even if there are punishments, the MNC incurs less punishment than in the home country due to China's incomplete and lower standard laws and regulations. Therefore, in a game with various local governments taken singly, MNCs in China choose their dominant strategies of weakening commitment to CSR.

3.2. A game between MNC subsidiaries in China other groups

The public at large does not pay enough attention to the issue of CSR in China, and there is little overt supervision of CSR such as the media supervision by public opinion as in developed countries (Newman, Nielsen, & Miao, 2015). The public tends to overestimate the cost of the supervision and regulation on social responsibility of the multinational subsidiaries in China, and at the same time underestimate the damage to multinationals' own interests when they weaken their social responsibility (Darigan & Post, 2009). For consumers who are generally from the countryside with low income, their consumptions are price-oriented. They attach great importance to the employment opportunities provided by the MNC, and underrate the contamination of product production processes, post-processing and the damage to their own labor rights and interests. For the suppliers, they are motivated by building good relations with the MNC subsidiaries in China, in order to get longer and more stable contracts. Furthermore, China's non-governmental organizations are strictly limited in qualifications, establishment and operations, and it is difficult for them to have a strong voice in the dialog with large multinational companies in China. Therefore, in the game with residents, consumers, suppliers, and non-governmental organizations, there is no doubt that multinational companies in China are in a dominant position, and they are bound to take double standards inconsistent with the mother country for gain in their own short-term interests.

3.3. A game between MNC subsidiaries in China and the media

Supervision and propaganda of media organizations in Western countries often put a great deal of social pressure on the enterprise. In addition, there is a danger of turning moral hazard into business risk, forcing enterprises to fulfill their CSR. The force of public opinion supervision is relatively weak in China where rights awareness is relatively weak. As the voice of the government, the major media report MNC operating behaviors with national policy guidance (Lin et al., 2010), and do not publish in an objective way, so do not form an effective supervision. In some special cases, the media can even be found to work with the privileged and the business interest groups to help tout the political achievements of local government officers (Darigan & Post, 2009). Therefore, in the game with MNC subsidiary in China, the supervisory role of public opinion and propaganda of the media is not enough, so that the MNC subsidiary in China can avoid the chance of turning moral risk to business risk to some extent. Therefore, they again choose the dominant strategy, which is weakening their CSR for the host country.

3.4. Simple Nash equilibrium model

The above analysis can be described in a simple Nash equilibrium model (Nash, 1950) if we assume, as we have, that each player wishes to maximize utility; that each is rational and that each is of equal bargaining skill. Through the above analysis, we know that the MNCs choose to weaken their social responsibilities mainly because that the rewards are not big enough when carrying out social responsibilities, and the punishment is not big enough when weakening their responsibilities. In addition, the priority strategy of the MNCs is to weaken their social responsibilities. Stakeholders underestimate the social and economic benefits brought by actively responding to the CSR of MNC subsidiaries in China, and overestimate the supervision cost of responding to CSR, which results that various stakeholders choose take little of no action in response to the social responsibility issue of MNC subsidiaries in China.

4. Model one

International organizations, Chinese Government and the public all prefer the MNC subsidiary in China to carry out their social responsibilities. In general, they have the same interest and can be seen as one party of the game, which are the stakeholders. The other party of the game is MNC subsidiary in China. There are two strategies for the MNC subsidiary in China with respect to CSR: one is to carry out their social responsibility, the other is to weaken it. There are also two corresponding strategies for the stakeholders: one is to adopt an activist attitude toward MNEs' CSR, and to strengthen supervision and manage public opinion; the other one is to take a passive attitude toward the MNCs' CSR.

Our model assumes that the MNCs would not receive rewards from the stakeholders when carrying out their social responsibility, and incur scant punishment when weakening CSR. When the MNC fulfills their social responsibilities, and the stakeholders take a passive response, their outcomes are $T1$ and R. When MNCs fulfill their social responsibilities, and the stakeholders take an active role, their corresponding outcomes are $T1$ and $R - C1$, where $C1$ is regulatory cost. When MNCs weaken CSR, and stakeholders take a passive role, their corresponding proceeds are $T1 + T2$ and $R - L$, with L representing the loss to stakeholders when the MNEs weaken CSR and $T2$ represents economic rents MNEs get when weakening CSR. When the MNEs weaken their social responsibilities, and the stakeholders take an active role, their corresponding outcomes are $T1 + T2 - C2$ and $R - C1$, where P is the cost of punishment when the MNEs weaken CSR

4.1. Payoff matrix of the game

The game payoff matrix of both parties is shown as below in Figure 3.

For simplicity's sake, we aggregate stakeholders here as a single player in the game. The other party is the MNE. There are two strategies for the MNE: one is to carry out their social responsibility, and the other is to weaken it. There are also two corresponding strategies for the stakeholders: one is to adopt an activist attitude toward MNEs' CSR, and the other one is to take a passive role. The

Figure 3. Payoff matrix.

Multi-National Corporate Subsidiary in China

Stakeholders Posture	1 \ 2	**Weakening CSR Actions**	**Carrying out CSR Actions**
	Active	R+C1, T1+T2-P	R-C1, T1
	Passive	R-L, T1+T2	R, T1

model assumes that the MNEs are not rewarded for carrying out their social responsibility, but to get scant punishment when weakening CSR. When the MNEs fulfill their social responsibilities, and the stakeholders take a passive response, their outcomes are $T1$ and R. When MNEs fulfill their social responsibilities, and the stakeholders take an active role, their corresponding outcomes are $T1$ and $R - C1$, where $C1$ is regulatory cost. When MNEs weaken CSR, and stakeholders take a passive role, their corresponding proceeds are $T1 + T2$ and $R - L$, with L representing the loss to stakeholders when the MNEs weaken CSR and $T2$ represents economic rents when weakening CSR. When the MNEs weaken their social responsibilities, and the stakeholders take an active role, their corresponding outcomes are $T1 + T2 - C2$ and $R - C1$, where $C2$ is the cost of punishment when the MNEs weaken CSR. Recall that in the payoff matrix, stakeholders underestimate L while overestimating $C1$. Therefore, the stakeholders choose to take a passive role. At the same time, as the result of insufficient penalties, the economic rent $T2$ the MNEs enjoy is far larger than the penalty $C2$, so the Priority selection of the MNEs is to weaken CSR. The final outcome of the Nash equilibrium game is that the MNEs adopt a strategy to weaken CSR, when stakeholders take a passive role.

4.2. Adjusted payoff matrix

Since we have concluded that the Nash equilibrium strategy for MNEs in the face of passivity from stakeholders, we also conclude that if we want MNEs in China to carry out CSR stakeholders must take active roles, with corresponding measures so as to cause MNEs and stakeholders to reach a new Nash equilibrium for the game. The modified game model follows. The modified game model adds two new factors to the former ones. The first is to introduce a new incentive mechanism, namely stakeholders taking an active role, providing MNEs higher rewards for CSR and higher penalties when they weaken CSR. When the stakeholders take an active role, while no rewards accompany CSR, higher penalties are associated with a weakening CSR strategy. The other factor in play might be that stakeholders make more rational judgments with regard to the regulatory costs and benefits. When taking active posture, stakeholders become aware that they will receive the immediate benefits from CSR plus additional returns from future improvements to economic order and to the environment brought on by the regulation of MNCs. Stakeholders benefit from larger rents from an active role than from passivity.

When MNCs carry out CSR and the stakeholders assume a passive role, their respective benefits are $T1$ and R. When MNCs carry out CSR and stakeholders are active, their respective benefits are $T1 + W1$ and $R1 - C1$, in which W1 represents rents to MNCs for CSR. R1 is the benefit to stakeholders when they actively respond which is greater than the benefit R accruing from a passive response. $C1$ is the regulatory cost for stakeholders when they are passive and when MNCs weaken CSR. In this case their respective benefits are $T1 + T2 - W2$ and $R - L$, where $T2$ is economics rents for MNCs, W2 is the penalty and L is the loss to stakeholder. When MNCs weaken CSR and stakeholders take an active role their respective benefits are $T1 + T2 - W2$ and $R1 - C1$.

4.3. Corrected payoff matrix

We next suppose given the rewards and penalties presented that stakeholders come to value social responsibilities more, thus taking active roles. Their benefits $R1$ consist of the current benefits R as well as future extra benefits, so $R1 > R$. Meantime, as they become better informed, they no longer underestimate L or overestimate $C1$, which implies $L > C1$. So, when the MNCs carry out CSR, the total revenue of the stakeholders with positive response $R1 - C1$ is bigger than $R - L$ with a weakening strategy. Meanwhile, when the MNCs weaken their social responsibility, the total revenue of the stakeholders with positive response $R1 - C1$ is larger than R with little stakeholder involvement. Therefore, whatever strategy MNCs take, the dominant strategy of the stakeholders is to take an active role. As stakeholders increase penalties for MNCs weakening social responsibility and increase the rewards for the ones carrying out CSR, the extra benefits $T2 < W2$ when the MNCs weaken their social responsibility. Similarly, the rewards $W1 + T1$ when the MNCs carry out their social responsibility is far bigger than the total revenue $T1 + T2 - W2$ when the MNCs weaken their social responsibility, which makes the final dominant strategy for MNCs to carry out their social responsibility. In the

Figure 4. Adjusted payoff matrix.

MNC Subsidiary in China

Stakeholders Postrure	1 \ 2	**Weakening CSR Actions**	**Carrying out CSR Actions**
	Active	R1-C1, T1+T2-W2	R1-C1, T1+W1
	Passive	R-L, T1+T2-W	R, T1

model, the dominant strategy of the game is that the MNC subsidiaries in China carry out their social responsibility, and the stakeholders take positive response with rewards and punishment mechanism.

The payoff matrix of the parties in the corrected game model is shown as following Figure 4.

5. Conclusions

The aim of this paper has been to characterize the decision choices MNC managers face as a two-person game and explore whether game theory, based on cost–benefit analysis, can contribute to a better understanding of the tendency to diminish CSR. In responding Samuelson's (2016), call to apply game theory to aggregate individual motivations to understand important complex phenomena we took a game-theoretic approach to explore weakened CSR commitment in the Chinese context. We have explored the reasons MNCs in China choose to weaken CSR, and put forward corresponding solution sets for the problem of weakening social responsibility by building a modified Nash Equilibrium game model. Our analysis has employed cost/benefit and game analysis to contribute to the scarce research related to CSR by MNCs in China. In our formulation, the strategies of MNCs and stakeholders are implicitly dependent on their respective cost judgments. A key conclusion is that weakening social responsibility of the MNC subsidiaries in China is the equilibrium strategy of the game with stakeholders, as it exists presently. We further conclude that without a more robust reward and penalty mechanism, MNCs benefit when they weaken CSR. At present, stakeholders are insufficiently engaged to pay enough attention to CSR or to effect change. Therefore, we can also conclude that equilibrium occurs in diminished CSR as long as stakeholders remain passive. Our research makes three unique contributions to the international business, and CSR literature. The conclusions we draw from our framework are relevant to the extent that managers wish to enhance shareholder wealth, we are able to infer important managerial implications. First, we develop two cost–benefit formulations representing the trade-off relationships faced by MNCs and by CSR stakeholders. In the first formulation, we illustrate that firms pursuing CSR incur direct costs, while benefitting from the corresponding economic rents. This formulation also recognizes that countervailing costs exist if MNCs weaken their CSR efforts. We show that stakeholder groups have similar cost–benefit trade-offs. The analysis of regulatory costs for stakeholders shows that where stakeholders deal actively, regulation will increase along with direct costs. We show that the more stakeholders value the cost of MNCs weakening the social responsibility, the higher the probability that stakeholders will respond actively and the higher the likely degree of regulation to follow. A second contribution we make is by developing a new game-theoretic framework that produced a payoff matrix that explains the downward pressure on CSR in China. We integrate stakeholders' desires in our framework, rather than studying CSR in isolation. Our results explain the CSR posture of MNCs in China. The results clarify how MNC's in emerging economies respond to pressure or indifference from stakeholders. Importantly, this finding might provide direction for policy changes. Another game-theoretic contribution comes from our second formulation and its associated payoff matrix. The matrix illustrates that the passivity of stakeholders may explain decreasing CSR and that should stakeholder activism increase, CSR would increase as well. Thirdly, since prior research has not addressed the problem of decreasing CSR in China directly, we contribute by opening the door to further empirical investigation based on our findings. There are limits to our research imposed by the methods we employed. First, the cost analysis of the MNC subsidiaries in China and the stakeholders are quite simple, and need to be further expanded and elaborated in different contexts. In this connection, other elements (like MNC international strategy, type of product, market maturity, culture) also affect the decisions made. Our research has not specifically included those factors. Thus, our results are necessarily limited by this exclusion. Second, the definition of the problem of the weakening social responsibility is complex and changing. MNC subsidiaries in China are addressed here in a general sense. The general findings are interesting. However, other studies addressing disaggregated groupings deserve separate analyses. The comparison of CSR practices at home vs. within the host country deserves more detailed study as well. Future research should focus on social responsibility issues at different periods of China's reform and opening to foreign investment as well as address the different approaches of MNCs from different countries. Third, the static game model illustrated here is relatively simple, and the actual game between the MNC subsidiaries in China and the stakeholders is a dynamic equilibrium process. Future research might focus on dynamic game models, particularly focusing on the dynamic game describing social responsibility between the MNC subsidiaries in China and the Chinese Government. Despite these limitations and shortcomings, the paper makes certain important additions to our understanding of the issue of weakening CSR in China and how their social responsibility role might increase with increased stakeholder involvement.

Funding
The authors received no direct funding for this research.

Author details
Ronald J. Salazar[1]
E-mail: salazarr@uhv.edu
Jifu Wang[1]
E-mail: wangj@uhv.edu
Rupak Rauniar[2]
E-mail: Rauniarr@uhd.edu
Xiuli Wang[3]
E-mail: ddyinsdu@163.com
[1] University of Houston, Victoria, TX, USA.
[2] University of Houston, Downtown, TX, USA.
[3] Central University of Finance and Economics, China.

Citation information
Cite this article as: A game analysis of MNC CSR in China, Ronald J. Salazar, Jifu Wang, Rupak Rauniar & Xiuli Wang, *Cogent Business & Management* (2018), 5: 1409685.

References

Belyaeva, Z., & Kazakov, A. (2015). Integrated approach to social responsibility: A model of stakeholders interaction in Russia and China. *Systems Research & Behavioral Science, 32*(2), 240–246. https://doi.org/10.1002/sres.v32.2

Bird, F., & Smucker, J. (2007). The social responsibilities of international business firms in developing areas. *Journal of Business Ethics, 73*(1), 1–9. https://doi.org/10.1007/s10551-006-9192-4

Cavaco, S., & Crifo, P. (2014). CSR and financial performance: Complementarity between environmental, social and business behaviours. *Applied Economics, 46*(27), 3323–3338. https://doi.org/10.1080/00036846.2014.927572

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal, 35*(1), 1–23. https://doi.org/10.1002/smj.2014.35.issue-1

Cheung, Y., Kong, D., Tan, W., & Wang, W. (2015). Being good when being international in an emerging economy: The Case of China. *Journal of Business Ethics, 130*(4), 805–817

Choi, J., Chang, Y. K., Li, Y. J., & Jang, M. G. (2016). Doing good in another neighborhood: Attributions of CSR motives depend on corporate nationality and cultural orientation. *Journal of International Marketing, 24*(4), 82–102. doi:10.1509/jim.15.0098

Christmann, P. (2004). Multinational companies and the natural environment: Determinants of global environmental policy standardization. *Academy of Management Journal, 47*(5), 747–760. https://doi.org/10.2307/20159616

Darigan, K. H., & Post, J. E. (2009). Corporate citizenship in China: CSR challenges in the 'Harmonious Society' *Journal of Corporate Citizenship, 2009*(35), 39–53. https://doi.org/10.9774/GLEAF.4700.2009.au.00005

Govindan, S., & Wilson, R. (2002). Maximal stable sets of two-player games. *International Journal of Game Theory, 30*(4), 557. https://doi.org/10.1007/s001820200098

Graafland, J., & Zhang, L. (2014). Corporate social responsibility in China: Implementation and challenges. *Business Ethics: A European Review, 23*(1), 34–49. https://doi.org/10.1111/beer.2014.23.issue-1

Han, C. M. (2015). Consumer expectations of corporate social responsibility of foreign multinationals in Korea. *Emerging Markets Finance & Trade, 51*(2), 293–305. https://doi.org/10.1080/1540496X.2015.1021601

Hoffman, P. S., Moon, J., & Wu, B. (2017). Corporate social responsibility under authoritarian capitalism: Dynamics and prospects of state-led and society-driven CSR. *Business & Society, 56*(5), 651–671.

Husted, B. W., Allen, D. B., & Kock, N. (2015). Value creation through social strategy. *Business & Society, 54*(2), 147–186. https://doi.org/10.1177/0007650312439187

Husted, B. W., & David, B. A. (2006). Corporate social responsibility in the multinational enterprise: Strategic and institutional approaches. *Journal of International Business Studies, 37*, 838–849. https://doi.org/10.1057/palgrave.jibs.8400227

Jing, R., & Graham, J. L. (2008). Values versus regulations: How culture plays its role. *Journal of Business Ethics, 80*(4), 791–806. https://doi.org/10.1007/s10551-007-9469-2

Kitzmueller, M., & Shimshack, J. (2012). Economic perspectives on corporate social responsibility. *Journal of Economic Literature, 50*(1), 51–84. https://doi.org/10.1257/jel.50.1.51

Lam, M. L.-L. (2014). Toward a 'harmonious society' through corporate social responsibility. *Journal of Public Affairs, 14*(2), 105–115.

Lin, C., Lyau, N., Tsai, Y., Chen, W., & Chiu, C. (2010). Modeling corporate citizenship and its relationship with organizational citizenship behaviors. *Journal of Business Ethics, 95*(3), 357–372.

Li-Wen, L. (2010). Corporate Social responsibility in China: Window dressing or structural change? *Berkeley Journal of International Law, 28*(1), 64–100.

Lozano, R. (2011). Addressing stakeholders and better contributing to sustainability through game theory. *Journal of Corporate Citizenship, 2011*(43), 45–62. https://doi.org/10.9774/GLEAF.4700.2011.au.00004

McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of Management Review, 26*(1), 117–127.

Mohammed, K. M. (2015). Social responsibility in business organizations: Exploring the investment dimension. *KCA Journal of Business Management, 6*(1), 43–55.

Moon, J., & Shen, X. (2010). CSR in China research: Salience, focus and nature. *Journal of Business Ethics, 94*(4), 613–629. doi:10.1007/s10551-009-0341-4

Nash, J. (1950). The bargaining problem. *Econometrica, 18*(2), 155–162. https://doi.org/10.2307/1907266

Nash, J. (1951). Non-cooperative games. *The Annals of Mathematics, 54*(2), 286–295. https://doi.org/10.2307/1969529

National Bureau of Statistics of China. (2017). *Statistical Communique of the People's Republic of China on the 2016 National Economic and Social Development*. Retrieved from http://www.stats.gov.cn/english/pressrelease/201702/t20170228_1467503.html

Newman, A., Nielsen, I., & Miao, Q. (2015). The impact of employee perceptions of organizational corporate social responsibility practices on job performance and organizational citizenship behavior: Evidence from the Chinese private sector. *The International Journal of Human Resource Management, 26*(9), 1226–1242. https://doi.org/10.1080/09585192.2014.934892

Ni, D., & Li, K. W. (2012). A game-theoretic analysis of social responsibility conduct in two-echelon supply chains. *International Journal of Production Economics, 138*(2), 303–313. https://doi.org/10.1016/j.ijpe.2012.04.002

Post, J. E. (2002). Global corporate citizenship: Principles to live and work by. *Business Ethics Quarterly, 12*(2), 143–153. https://doi.org/10.2307/3857808

PWC Global, The World in 2050. (2017). *The long view: How will the global economic order change by 2050?* Retrieved from http://www.pwc.com/gx/en/issues/economy/the-world-in-2050.html

Rondinelli, D. A., & Berry, M. A. (1997). Industry's role in air quality improvement: Environmental management opportunities for the 21st century. *Environmental Quality Management, 7*(1), 31–44. https://doi.org/10.1002/(ISSN)1520-6483

Rondinelli, D. A., & Berry, M. A. (2000). Environmental citizenship in multinational corporations: Social responsibility and sustainable development. *European Management Journal, 18*(1), 70. https://doi.org/10.1016/S0263-2373(99)00070-5

Samuelson, L. (2016). Game theory in economics and beyond. *Journal of Economic Perspectives, 30*(4), 107–130. doi:10.1257/jep.30.4.107

Simon, H. A. (1959). Theories of decision-making in economics and behavioral science, *American Economic Review, 49*(3), 253–253

Stevens, T. (2007). A game theoretic lens for addressing CSR in central and eastern Europe. *Enterprise in Transition: International Conference Proceedings, 2007*, 211–232.

Toshihiro, M., & Akira, O. (2014). Corporate social responsibility or payoff asymmetry? A study of an endogenous timing game. *Southern Economic Journal, 81*(2), 457–473.

Wei, F., & Tang, Y. (2013). The value of CSR investment measures – based on solow model. *Friends of Accounting*, 95–98.

Williams, C. A., & Aguilera, R. V. (2008). Corporate social responsibility in a comparative perspective. *Oxford handbook of corporate social responsibility*, 452–472.

Wirl, F. (2014). Dynamic corporate social responsibility (CSR) strategies in oligopoly. *OR Spectrum, 36*(1), 229–250. https://doi.org/10.1007/s00291-013-0319-6

Wolfe, A. B. (1929). Rent under increasing returns. *American Economic Review, 19*(4), 580.

Wu, W., & Keke, L. (2009). An empirical examination of the corporate social performance – the financial performance relationship in China based on the different measures perspective. *International Journal of Networking & Virtual Organisations, 6*(4), 1.

Xu, S., & Yang, R. (2010). Indigenous characteristics of chinese corporate social responsibility conceptual paradigm. *Journal of Business Ethics, 93*, 321–333. https://doi.org/10.1007/s10551-009-0224-8

Yin, J. (2017). Institutional drivers for corporate social responsibility in an emerging economy: A mixed-method study of Chinese business executives. *Business and Society, 56*(5), 672–704. https://doi.org/10.1177/0007650315592856

Yin, J., & Jamali, D. (2016). Strategic corporate social responsibility of multinational companies subsidiaries in emerging markets: Evidence from China. *Long Range Planning, 49*(5), 541–558. https://doi.org/10.1016/j.lrp.2015.12.024

Yin, J., & Zhang, Y. (2012). Institutional dynamics and corporate social responsibility (CSR) in an emerging country context: Evidence from China. *Journal of Business Ethics, 111*(2), 301. https://doi.org/10.1007/s10551-012-1243-4

Zhao, M. (2012). CSR-based political legitimacy strategy: Managing the state by doing good in China and Russia. *Journal of Business Ethics, 111*(4), 439. https://doi.org/10.1007/s10551-012-1209-6

Cogent Business & Management **(ISSN: 2331-1975) is published by Cogent OA, part of Taylor & Francis Group.**