AN EXPLORATORY STUDY OF CORPORATE SOCIAL AND ENVIRONMENTAL RESPONSIBILITY PRACTICES AMONG APARTMENT DEVELOPERS IN CHINA

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ABSTRACT

In China corporate social and environmental responsibility (CSER) has gained increasing attention within industry and government. Evidence exists for significant attempts to promote CSER by the Chinese government. As a critical ‘pillar’ industrial sector, urban residential apartment development has been a major contributor to China’s national gross domestic product. This industry has also profoundly influenced social and environmental issues in the country. Thus, apartment developers in China have felt increased pressures to implement CSER practices. Little research has sought to investigate CSER in this industry, whether in China or globally. The objective of this paper is to empirically investigate, using a surveyed sample of 92 apartment development companies, CSER practices in this industrial sector. In the empirical analysis we find that CSER practices can be grouped into basic, environmentally-related and extended practices. We further compare these groupings of CSER practices among different sizes of apartment developers using multivariate analysis of variance and Scheffe multiple analysis tests. We also apply one-way analysis of variance and t-tests for comparisons of CSER practices among apartment developers from different cities and with different ownership structures. The results show that apartment developers generally implement environmentally-related and extended CSER practices at higher levels. Residential apartment development is occurring in more developed cities, and thus apartment developers in these cities face more pressures for CSER practices. Joint ventures are more likely to implement environmentally-related CSER practices. Research and managerial implications, and future research directions are also presented in this work.

KEY WORDS
corporate social responsibility, environmental responsibility, apartment development, construction, China, sustainability

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INTRODUCTION

Corporate social responsibility (CSR) has received increased attention from both practitioners and researchers. Many flagship organizations such as 64 of the Fortune Global 100 published CSR reports in 2007. Even with this increased attention, a consensus definition for CSR is still allusive (Dahlsrud, 2008). CSR basically includes responsibilities to key corporate stakeholders such as owners, employees, suppliers, community and customers (Panapanaan, 2003). The government, local communities, and top management leadership are key influencing factors for CSR practices (Setthasakko, 2007).

In developed nations, CSR has typically included both social/human and environmental dimensions (Heslin and Ochoa, 2008). In addition to responsibilities to stakeholders, sustainability, especially environmentally related dimensions, has become key elements of CSR (Rondinelli and Berry, 2000; Malovics et al., 2008). As a result, the term of corporate social and environmental responsibility (CSER) has been popularly used to avoid narrow definitions of corporate responsibility (Lynes and Andrachuk, 2008). Learning from the previous literature (Babin and Nicholson, 2009; Lynes and Andrachuk, 2008), we use the concept of CSER to clearly accentuate the dimension of environmental responsibility.

In China, CSER has also been promoted by regulatory agencies and governments. For example, on December 29, 2007, the State-Owned Asset Supervision and Administration Commission of the State Council publicized a guideline on how to implement CSER among state-owned companies. As a result, many state-owned companies have developed and publicized their CSER reports. Similar to developed countries, social components such as charity have been main elements of CSER in China. In response to environmental and resource conservation pressures, China has also included the environmental dimension to CSER (Tang and Li, 2009). Besides basic social and environmental responsibilities, China also has unique CSER dimensions. For example, product quality and safety crises have also caused China to focus on quality/operational and safety dimensions as core, if not the primary, aspects of CSER (Jia et al., 2009; Wu et al., 2009). Chinese companies have also met extended responsibilities from governments to ease national employment pressure (Xu and Yang, 2010).

Increasing industrialization and urbanization within China have been economic and social upheavals resulting in requirements for larger and better residential apartments. Urban residential apartment development has been a critical (pillar) and profitable industry. Given this visibility, increased pressures from the public and government, and the industry’s influences on social and environmental issues, CSER practices have become necessary for residential apartment developer organizations. Apartment developers, especially large organizations located in developed cities, have initiated CSER practices.

We utilize a broad-based empirical survey among apartment developers in China to understand and clarify the issues and practices of CSER in this industry. We aim to compare CSER practices among apartment developers with different scales (organizational size), locations, and ownership characteristics. In our exploratory empirical study we introduce items to measure CSER practices based on stakeholder theory, including consumer, government, competitor, partner, public, non-governmental external stakeholders and internal employee stakeholders.

This study is one of the first to focus on CSER in the built environment or construction industrial sector. Our results provide additional contribution for understanding CSER within the Chinese residential apartment development industrial sector, and possibly in China overall. Further descriptive analysis and comparisons amongst various characteristics of apartment developers also can help this Chinese industrial sector develop CSER practice benchmarks.
CORPORATE SOCIAL AND ENVIRONMENTAL RESPONSIBILITY

In this section we provide a general overview of CSR and CSER to set the stage for the focus of this manuscript on CSR/CSER in China’s apartment building industrial sector. CSR is defined as those actions not required by law but furthering social good and extending beyond the explicit, transactional interests of an organization (McWilliams and Siegel, 2001). Stakeholders can assert moral attributes to an organization’s social responsibility actions but corporate social responsibility is both voluntary and discretionary.

Historically, the scope of corporate social responsibility has evolved from legalistic requirements where social responsibility of business is “to use its resources and engage in activities to increase its profits so long as it stays within the rules of the game . . . engaging in open and free competition, without deception or fraud” Friedman (1962). Others state that the economic and legal duties of the companies should be extended by certain responsibilities to society (McWilliams et al., 2006). Social responsibility definitions have included economic, legal, ethical and discretionary expectations that society has for a company. Arguably, there are contingencies in when social responsibility can be a feasible strategy such as in less competitive markets (Carroll and Shabana, 2010). Stakeholder theory and corporate social responsibility have also been used for companies to frame their attitudes, strategies and relationships with stakeholders (i.e., investors, employees, communities) within a popular acceptable concept while addressing ethical values, economic well-being, and compliance with legal requirements (Du, et al., 2010). Various researchers have underlined differing aspects of CSR. For example, Matten et al. (2003), focus on the centrality of the ethical and philanthropic areas of responsibility to the study of corporate social responsibility because of the differentiation they allow to establish between voluntary corporate behavior and mere compliance. Wood and Jones (1995) use a stakeholder framework of corporate social performance as principles, processes, and outcomes. They define the outcomes as internal stakeholder effects, external stakeholder effects, and external institutional effects. Studies have also suggested that corporate social responsibility protects and insures corporate financial performance (Graafland, Eijffinger, & Smid, 2004; Prisch, Gupta, and Grau, 2007).

Overall, the growth and breadth of CSR has made the study of the field dispersed, as different dimensions are continuously being considered. CSR contingency is also dependent on the culture of the social norms within a region, adding more complexity to its evaluation. Helping to further understand what CSR means in a developing country context would be useful for advancing research in this area.

Environmental aspects of corporate social responsibility have also received increased attention as the topic of sustainability has gained importance (Jenkins and Yakoleva, 2006; Lynes and Andrachuk, 2008). Sustainability has started to overlap greatly with CSR as exemplified by its ‘triple bottom-line’ focus on social, economic and environmental dimensions. These social, economic, and environmental issues in this model need to be balanced (Hahn et al., 2010). But, sustainability also has a focus on intergenerational value and ethics. CSR has not typically fallen within or addressed this domain of sustainability, but, with the explicit consideration of environmental principles of CSER, it gets closer to a broader sustainability discussion. At this time, we focus on environmental and social aspects in the narrower definition of CSR, rather than intergenerational definitions of sustainability.

Investigation of CSR and CSER in developed countries has been addressed and developed in the literature, yet focus on developing countries has only started to receive attention (e.g. Jamali and Mishak, 2007). The issue of CSR in the building and construction sector has not
seen as much research and emphasis, although CSR in this sector can be quite influential in how it is managed and regulated by communities and governments.

In the next section we provide further detail in the specific research environment, China and the apartment building sector, as well as justification for investigation into CSR in this environment.

THE RESIDENTIAL INDUSTRIAL SECTOR AND CORPORATE SOCIAL AND ENVIRONMENTAL RESPONSIBILITY IN CHINA

The Residential industrial sector in China

Urban residential apartment development has been on an upsurge in China since 1980. This industrial sector has accounted for over 5% of the country’s Gross Domestic Product (GDP) and has seen over 11% of annual increased contribution to GDP (Zhou, 2009). The history of urban apartment development in China can be divided into five stages (Zhou, 2009):

Stage 1 was from 1980 to 1986. From 1980, China began to promote commercialization of residential apartments as demonstration projects in Shenzhen and Guangzhou. In 1984, the residential industrial sector became a relatively independent sector, and enjoyed its first surge in economic and industry development and growth.

Stage 2 was from 1987 to 1991. In 1988, a Constitutional Amendment within China clearly stated that land can be legally transferred. Thus, residential apartments can be bought, transferred and sold, which highly promoted the residential sector and proved to be an additional catalyst for the growth in this sector. The Chinese land market became more liberalized, and commercial apartment development was at the forefront of this growth (Hu and Kaplan, 2001).

Stage 3 was from 1992 to 1996. In this stage volatility in the industrial sector came along with growth. The residential building industrial sector experienced big challenges in the 1990’s. The residential built environment sector attracted significant entrepreneurial investment influx, especially in 1992 and 1993. However, such development was chaotic due to lack of effective monitoring, regulations and management. In 1994, Chinese governments at various levels refined and further developed industrial sector regulations.

Stage 4 was from 1997–2007. With the continuous economic development and China’s entry into the World Trade Organization, an increasing number of the Chinese population began to have larger apartments. The growth rates for apartment sales and needs are higher than the growth rates of apartment development and investment. Apartment development was highly profitable, but apartment developers began to experience pressure to take on social responsibility dimensions and planning.

Stage 5 was from 2008. Apartment prices fell in 2008 after a decade of continuous increase. Greater unemployment due to a world-wide economic crisis and providing the basic living conditions for low income people became two main challenges within China. Even with less profitability, apartment developers have been required to be even more socially responsible by governmental regulations and policies.

China’s population in 2010 was approximately 1.339 Billion people. Between 2000 and 2010 the percentage of people who lived in urban areas increased by 13.5% (China Post, 2011). This number represents an increase of approximately 50,000 people per day in Chi-
In response to this increased urbanization, China’s residential construction market has burgeoned to an estimated 186 million square meters of new building per year. Assuming that a typical 10 story apartment building has 10,000 sq. meters, that makes about 18000 new apartment buildings per year in China (Living Steel, 2011).

**CSER among apartment developers in China**

Apartment development, even with the recent economic crisis, is a relatively high profit margin industry. Chinese apartment developers have also realized the importance of adopting CSER practices to maintain economically sustainable business. For example, many Chinese apartment developers have been active in charity such as donating to the Hope Project (a non-governmental project, sponsored by the Communist Youth League Central Committee and the China Youth Development Foundation, supporting young dropouts in poverty-stricken areas) and providing job opportunities for the unemployed with reasonable salary.

The Chinese governments (at various jurisdictional levels) have promote energy saving and emission reduction since 2005 or earlier. Three national laws have been implemented, such as the Cleaner Production Promotion Law of China enacted on January 1 of 2003, Energy Saving Law of China enacted on April 1 of 2008, and Circular Economy Promotion Law enacted on January 1 of 2009. Under such laws, one regulation and one administrative measure related to apartment development were also publicized. Administrative Measures on Levy and Use of Special Fund for New Wall Materials was publicized on December 27 of 2007 to promote the use of environmental materials in apartments. Regulation on Energy Saving for Residential Buildings was enacted on October 1 of 2008 to promote energy saving of apartments.

Simultaneously, due to evolving regulatory standards for environmental elements of CSER, apartment developers have adopted sustainability components of CSER such as energy saving and indoor-air-quality measures (Wang et al., 2004). Carbon and smoke emission, for example, remains an important environmental issue in China, much of these emissions are generated by from residential consumption (Streets et al., 2001). Energy efficiency and the use of renewable energy are two core issues in Chinese residential built environment industry (Yao et al., 2005). Apartment developers have introduced innovative ways for energy saving such as developing district heating systems (Xu et al., 2009) and solar systems (Wang and Zhai, 2009) as well as using dual airflow windows (Wei et al., 2010). Due to consumers’ preference, Chinese apartment developers have also tried to improve outdoor environmental quality (Jim and Chen, 2007) besides indoor air environment (Zhao et al., 2004).

Chinese governments have also developed regulations to promote employees’ rights. The Labor Contract Law of China was publicized on June 29 of 2007, and enacted from January 1 of 2008. In addition, implementation regulation for this law was enacted on September 18 of 2008. As a result, apartment developers have experienced pressure to implement CSER practices related to workers’ rights.

Given these major socio-economic and environmental issues that are faced by the urban residential apartment developers industry, it is surprising that little is understood about organizational CSER practices. Thus, research in this field and for this industry in China is timely and very much necessary. Understanding where China’s industry stands is necessary to see where they need to further develop. Our research is now described with results analyzed.
METHODOLOGY

CSER Factors and Questionnaire Items Development

CSER aims to meet and balance requirements from a variety of stakeholders. Thus, stakeholder theory is used as the theoretical lens to help develop CSER items. There are five key stakeholders for apartment developers, including governments, the public and non-governmental organizations, employees, consumers, and partner companies. The items developed are meant to address targeted CSER concerns for each stakeholder. The items are shown in Table 1. Questions were answered using a Likert-type five-point scale about level of implementation (from 1 = not considering it to 5 = implementing successfully).

As mentioned above, CSER has been promoted by Chinese governments, the strongest stakeholder for Chinese apartments to implement CSER practices. Compared to Western countries, China does contain some unique CSER practices dimensions, for example providing increased job opportunities (Xu and Yang, 2010), which may not be viewed as CSER items in more developed countries. Thus, we first develop two CSER items that basically address governmental requirements, they are, creating more job opportunities, and constructing cheap apartments for low-income residents.

The public and non-governmental organizations are key stakeholders for CSER. Thus, we develop five items, which include supporting the Hope project, donating finances to help low-income children with educational opportunities, providing jobs for low-income people, providing funds and services for charitable activities, and donating resources for disaster relief.

Employees are another CSER stakeholder for apartment developers. In China, most employees of apartment developers are workers from rural areas. One basic CSER practice is to guarantee workers’ safety and security. Thus, the CSER items for this practice are defined as providing the necessary insurance and security for the employees; and improving the work environment for employees. Another important aspect of CSER for the worker is children education, thus, the second item is supporting employee’s children’s education.

Consumers are important stakeholders for apartment developers. With increasing environmental awareness, Chinese consumers have paid increasing attention to environmental aspects of apartments. Thus, two items are developed from a consumer stakeholder perspective, they are, (1) using environmental materials as priorities, and (2) producing apartments with low consumption of energy and water. These two items may not only address environmental, but also health issues for apartment consumers.

To implement CSER practices or achieve related goals, apartment developers have to work with other companies. We include another two CSER partner company related practices, promoting green construction, and promoting eco-design to improve resource (energy and water) efficiency in apartments.

Samples and data collection

Due to difficulties in data collection, a convenience sampling approach was utilized to improve response rates and quantities. First, surveys were completed in the city of Dalian. Dalian is a northeastern coastal city. Due to a mild climate and healthy living environment, Dalian has attracted many people from throughout Northeast China to move to this city. Thus, the apartment industry in this city has developed quite rapidly and accounted for about 40% of the local GDP in recent years. Additional data from two other general areas within China were also collected for comparison purposes. The typical cities are chosen mainly according to
newly built residential dwelling prices publicized by the Chinese Real Estate Information Systems (CREIS, 2010). The first selected region was a developed region which included Beijing, Shanghai, Shenzhen and Guangzhou. The other region was less developed and included some inner urban cities such as Chengdu, Wuhan, Chongqing and Shenyang.

Data collection was completed from September of 2009 to March of 2010, and ninety-two questionnaires were gathered in on-site visits to various apartment development companies. Among the 92 questionnaires, 44 are from small companies with less than 100 workers, 25 are from medium-sized companies with between 100 and 500 workers, and 23 are from large companies with over 500 workers. During the data collection phase, we also consider the distribution of areas and ownerships. Forty-four are from Dalian, 21 are from developed cities, and 27 are from developing cities. Eighteen are state-owned companies, 55 are domestic private companies and 19 are joint ventures.

**Factor analysis**

An exploratory factor analysis, a basic and widely used technique, was conducted to derive groupings of CSER practices among apartment developers from the survey data and help in data reduction. Factors were extracted using the maximum likelihood method, followed by a varimax rotation. The Kaiser criterion (eigenvalues > 1) was employed in conjunction with an evaluation of scree plots. With the KMO of 0.89, both the scree test and initial eigenvalue test suggested the presence of three factors for CSER practices. This factor analysis empirically grouped the scale items of CSER practices into three factors (see Table 1). The three CSER factors explain 71.6% of the inherent variation in their items, 36.1% for the first factor, 20.2% for the second factor and 15.3% for the third factor. Further analysis confirms the

| Stakeholders                        | Survey items                                           | Factors |
|-------------------------------------|--------------------------------------------------------|---------|
|                                     |                                                        | 1       | 2       | 3       |
| Governments                         | Create more job opportunities                          | 0.68    | 0.36    | 0.15    |
|                                     | Construct cheap apartments for low-income residents    | 0.80    | 0.16    | 0.17    |
| Public and non-governmental         | Support hope project such as donating hope schools     | 0.71    | 0.14    | 0.39    |
| organizations                       | Support low-income children receive an education       | 0.82    | 0.02    | 0.23    |
|                                     | Provide jobs for low-income people                     | 0.70    | 0.39    | 0.16    |
|                                     | Providing funds and services for charitable activities  | 0.64    | 0.28    | 0.29    |
|                                     | Donate resources for disaster relief                   | 0.40    | 0.15    | 0.71    |
| Employees                           | Support education for workers’ children                | 0.69    | 0.44    | 0.00    |
|                                     | Provide enough/on-time security and health insurance   | 0.02    | 0.10    | 0.81    |
|                                     | for workers                                           |         |         |         |
|                                     | Improve working environment for workers                | 0.25    | 0.47    | 0.62    |
| Consumers                           | Use environmental materials as priority                | 0.24    | 0.80    | 0.34    |
|                                     | Produce apartments with low consumption of energy and water | 0.30 | 0.75 | 0.17 |
| Competitive and cooperative         | Promote green construction                            | 0.28    | 0.83    | 0.17    |
| companies                           | Promote eco-design to improve resource efficiency in apartments | 0.32 | 0.81 | 0.19 |
reliability of these three factors with Cronbach’s alphas of 0.89, 0.91 and 0.74, respectively. Instead of using the stakeholder groupings that we initially targeted, the factors are more in line with general CSER practices. According to characteristics of each group of items, we labeled the three factors as basic CSR, environmentally-related CSR and extended CSR. All Cronbach’s alpha values are well above the limit of 0.70 established by Nunnally (1978) to ensure the constructs’ internal consistency and validity.

Items for each factor on CSER practices as well as other descriptive data, including minimum values, maximum values, means, standard deviations, are shown in Table 2.

Comparisons
CSER practice implementation may be affected by scale, location and ownership of apartment developers (Zhang et al., 2009). Thus, we completed comparisons according to these three characteristics.

1) Comparison among apartment developers with different scales
Previous studies among developed countries show differences among companies with different scales. For example, small, medium-sized and large companies in the UK implement basic and extended CSR practices differently (Preuss and Perschke, 2010), while small and medium-sized US wine enterprise implement environmental-related CSR practices differently.

| Factors/Items | Minimum | Maximum | Mean | S. D. |
|---------------|---------|---------|------|-------|
| **Basic CSR** |         |         |      |       |
| Create more job opportunities | 1       | 5       | 3.33 | 1.25  |
| Construct cheap apartments for low-income residents | 1       | 5       | 2.48 | 1.44  |
| Support hope project such as donating hope schools | 1       | 5       | 2.92 | 1.46  |
| Support low-income children receive an education | 1       | 5       | 2.93 | 1.41  |
| Provide jobs for low-income people | 1       | 5       | 2.78 | 1.41  |
| Providing funds and services for charitable activities | 1       | 5       | 3.07 | 1.42  |
| Support education for workers’ children | 1       | 5       | 2.74 | 1.29  |
| **Environmental-related CSR** |         |         |      |       |
| Use environmental materials as priority | 1       | 5       | 3.75 | .95   |
| Produce apartments with low consumption of energy and water | 1       | 5       | 3.43 | 1.06  |
| Promote green construction | 1       | 5       | 3.55 | 1.09  |
| Promote eco-design to improve resource efficiency in apartments | 1       | 5       | 3.40 | 1.09  |
| **Extended CSR** |         |         |      |       |
| Donate resources for disaster relief | 1       | 5       | 3.59 | 1.33  |
| Provide enough/on-time security and health insurance for workers | 1       | 5       | 4.23 | .76   |
| Improve working environment for workers | 1       | 5       | 3.82 | .95   |
compared to larger enterprises (Cordano et al., 2010). To test whether the implementation of CSER practices is significantly different among different scales of apartment developers, we completed a multivariate analysis of variance (MANOVA) and the results are summarized in Table 3. We used number of employees to designate company size. We group apartment developers into small companies if they have less than 100 employees, medium-sized companies have between 100 and 500 employees, and large companies have over 500 employees. We found differences for the implementation of CSER practices among the different apartment developer company sizes, with a Pillai’s trace value of 0.24 (p=0.002) and a Wilks’ lambda value of 0.76 (p=0.001). The results of F values shown in Table 3 indicate that all the CSER practices are significantly different (at the 0.05 level) for the three organizational size groupings of apartment developers.

In determining if the different size groupings of apartment developers are distinct in terms of implementing CSER practices, we applied the Scheffe’s method as a post hoc test of significance to examine the differences among the types of apartment developers. As shown in Tables 4, 5 pairs out of 9 possible combinations of the three CSER practices across the three different apartment developer sizes are significantly different (p<0.05).

**TABLE 3.** MANOVA analysis for apartment developers by size.

| CSER practices | Small companies (n=44) | Medium-size companies (n=25) | Large companies (n=23) | F   |
|----------------|------------------------|-----------------------------|-----------------------|-----|
| Basic          | 2.67 (1.00)            | 3.11 (0.64)                 | 3.87 (0.93)           | 11.36*** |
| Environmental-related | 3.32 (0.67)            | 3.59 (0.74)                 | 4.25 (0.43)           | 8.30*** |
| Extended       | 3.62 (0.96)            | 3.87 (0.64)                 | 4.30 (0.65)           | 4.48*  |
| Tests          | Value                  | F                           | Between groups d.f.   | Significance of statistic, p |
|                | Pillai’s Trace         | 0.24                        | 3.59                  | 6    | 0.002**  |
|                | Wilks’ Lambda          | 0.76                        | 3.82                  | 6    | 0.001*** |
| CSER practices | Sum of square          | d.f.                        | Mean square           | F   |
| Basic          | 18.86                  | 2                           | 9.43                  | 11.36*** |
| Environmental-related | 11.18                  | 2                           | 5.59                  | 8.02*** |
| Extended       | 5.22                   | 2                           | 4.08                  | 4.08*  |

Note: (1) Significance tests *P<0.01; ***P

**TABLE 4.** Scheffe Multiple Comparison Test Results for CE practices

| Factors               | Clusters | Level of significance |
|-----------------------|----------|-----------------------|
|                       | 2        | 3                     |
| Basic                 |          |                       |
| 1                     | -0.44    | -1.20***              |
| 2                     | -0.70*   |                       |
| Environmental-related |          |                       |
| 1                     | -0.27    | -0.93***              |
| 2                     | -0.66*   |                       |
| Extended              |          |                       |
| 1                     | -0.25    | -0.68*                |
| 2                     | -0.42    |                       |

Note: ***<0.05
(2) Comparison among apartment developers from different regions

We compare CSER practices among apartment developers from our three designated socio-geographical regions within China.

To evaluate if significant differences exist in the CSER practices among apartment developers from the three regional locations, a one-way analysis of variance (ANOVA) was performed. Since no significant F values were found, we did not do further MANOVA analysis. However, we do compare if apartment developers in one region implement certain CSER practices at higher levels than those from the other two areas using two-tailed independent samples t-tests. As an exploratory analysis, we only compared three general factors. Results are shown in Table 5. In these results we find that Dalian is significantly different than the more developed city locations and only minor differences from the developing city locations. The implication is that apartment developers in Dalian, even though a modern city, is still more comparable to developing city status with respect to adoption of CSER practices.

| CSER practices | Dalian (n=44) | Developed cities (n=21) | Developing cities (n=27) | F | T-tests* |
|----------------|---------------|------------------------|-------------------------|---|---------|
| Basic          | 3.00 (1.02)   | 3.36 (1.19)            | 2.96 (0.85)             | 1.16 | 1.23+   |
| Environmental-related | 3.52 (0.93) | 3.79 (0.97)            | 3.61 (0.73)             | 0.66 | 1.06+   |
| Extended       | 3.77 (0.82)   | 4.10 (1.05)            | 3.89 (0.81)             | 0.93 | 1.15+   |

Note: (1) Standard errors are in brackets; (2) * +p<0.1

(3) Comparison among apartment developers with different ownerships

Most apartment developers are domestic privately owned and operated. However, due to the high profit margins in this industrial sector, some state-owned companies have also entered this industrial sector. This industrial sector is protected by the Chinese government, and thus foreign companies cannot enter it independently, only as joint ventures. Thus, different ownership characteristics may result in different implementation levels of CSER practices. We now compare CSER practices of apartment developers with different ownership characteristics including: state-owned, domestic private, and joint venture ownership categories.

Similar to comparison of apartment developers from different regions, we apply an ANOVA analysis first. No significant F values are found, and thus no further MANOVA analysis is completed. Instead, we do further comparison using two-tailed independent samples t-tests. These results are shown in Table 6. The only major differences amongst the ownership groupings are found in the environmental-related CSER practices. These differences are obvious for each ownership category comparison with state-owned having the least implementation levels of environmentally related CSER practices and joint ventures the greatest implementation levels.

| CSER practices | State-owned (n=18) | Domestic private (n=55) | Joint ventures (n=19) | F | T-tests* |
|----------------|---------------------|------------------------|-----------------------|---|---------|
| Basic          | 2.85 (0.93)         | 3.10 (1.03)            | 3.18 (1.03)           | 0.24 | 0.78     |
| Environmental-related | 3.25 (0.89) | 3.68 (0.94)            | 3.91 (0.73)           | 1.24 | 1.83+    |
| Extended       | 3.83 (0.56)         | 3.88 (0.88)            | 4.00 (0.85)           | 0.20 | 0.86     |

Note: (1) Standard errors are in brackets; (2) *p<0.05, +p<0.1
RESULTS AND DISCUSSIONS
We now delve more deeply into the results found and also provide some additional interpretation.

**General results and findings**
Table 2 shows general results of CSER practices among Chinese apartment developers. Chinese apartment developers generally consider three CSER practices and are somewhat agreeable to implementing CSER practices, with means of 3.06, 3.60, and 3.88 for basic CSR practices, environmental-related practices, and extended CSR practices.

Surprisingly, basic CSR has the lowest mean of 3.06. Only two basic CSR practices have means over 3.00, they are, 3.33 for creating more job opportunities, and 3.07 for providing fund and service for charity activities. All other five basic CSR practices have means between 2.00 and 3.00 (with less overall agreement on implementing these practices). These basic CSR practices are mainly related to governments as well as non-governmental organizations. All these CSR practices are voluntary and not required to be implemented. Although basic CSR practices should be initially implemented, apartment developers have only very little on implementation of these practices. One main reason can be that such voluntary practices do not have either the teeth of enforcement from governments or the potential benefits of improved image amongst other stakeholders.

Environmentally-related CSR practices are relatively more seriously considered. All environmentally-related CSR practices have means over 3.43. These mean scores are much higher than those of basic CSR practices. Environmental energy and resource efficiencies may also contain significant economic payback to the consumers and managers of these apartment buildings and thus may be seen as profitable characteristics of these practices.

An interesting and unexpected finding is that the extended CSR practices category has the highest mean of 3.88. One of the extended CSR practices, providing enough and on-time security and health insurance to employees, is the only CSR practice with a mean over 4.00, which indicates that this practice is highly implemented by apartment developers. Such a result could be related to labor rights regulations. Chinese labor policies and practices have evolved and affected the nature of hiring and termination practices among Chinese companies (Keister, 2002). Chinese government’s stricter labor regulations to improve the condition of employers have also been implemented. One of main targets of these labor right regulations is to protect rural employees traveling to urban locales for work in the residential built environment industry. Though such regulations do not clearly require companies to implement CSR practices related to workers, apartment developers have experienced pressure to better guarantee workers’ rights. It is also true for other extended CSR practices, improving working environment for workers, which has the second largest mean of 3.82 among all CSR practices.

**Comparisons among different apartment developers**
Tables 3 and 4 show that larger apartment developers are more amenable to adoption of all three groupings of CSER practices. Large apartment developers have strongly supported implementation of environmental-related CSR and extended CSR practices, with means of 4.25 and 4.30, respectively. Large apartment developers are slightly more supportive of basic CSR practices implementation, with a mean of 3.87 which is also significantly higher than that of medium-sized and small apartment developers (see results in Tables 3 and 4). Medium-sized apartment developers are somewhat agreeable to implementation of environmentally-related
CSR and extended CSR practices with two means of 3.59 and 3.87, respectively. But these medium-sized apartment developers are relatively neutral on the implementation of basic CSR practices. Small apartment developers have relatively lower scores for all types of CSR practices than medium-sized apartment developers. However, Table 4 shows that the difference of implementation levels for all three types of CSER practices is not significant between small and medium-sized apartment developers.

Table 5 shows that apartment developers in developed areas are more supportive of each of the three types of CSER practices than those in the other two regions identified in this study. Apartment developers in developed areas are relatively supportive of extended CSR practices with a mean of 4.10, significantly higher than both the northeast coastal city of Dalian and developing cities. Apartment developers in developed cities are weakly supportive of basic CSR practices with a mean of 3.36 while apartment developers both in Dalian and developing cities are less supportive with means of 3.00 and 2.96, respectively. For environmentally-related CSR practices, all apartment developers have similar scores, with three means of 3.79, 3.52 and 3.61 for developed cities, Dalian and developing cities.

No differences have been found for implementation levels of both basic and extended CSR practices among apartment developers with different ownership structures. However, significant differences exist for environmentally-related CSR practices. Joint ventures have the largest support for environmental-related CSR practices with the highest mean of 3.91. Domestic private apartment developers have weaker support, but still relatively strong for environmentally-related CSR practices with the mean of 3.68. State-owned apartment developers are the least supportive for environmentally-related CSR practices with the lowest mean of 3.25. CSER should contribute the sustainability such as the use of natural resources and the environment (Malovics et al., 2006). This practice and understanding has been adopted by joint ventures but need further consideration and awareness amongst Chinese apartment developers. Possible international influences and expectations may be playing a role in these results and further investigation is warranted.

CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

Summary and conclusions
This study is one of the first to investigate CSER in the built environment and also within China overall. It is the first to specifically consider and investigate CSER practices within China’s built environment. This early exploratory analysis provides us with an important snapshot in a developing country that is facing unprecedented urbanization. This urbanization will rely heavily on China’s apartment development industry, as more privatization for apartment development occurs within China. The industry itself has significant social and environmental influences, and this empirical survey aims to explore some of the characteristics of how organizations within this industry manage some of these influences.

In our findings we observe that Chinese urban residential apartment developers are knowledgeable of and supportive of a variety of CSER practices. However, it seems that additional pressures, motivations, or incentives are necessary (e.g. greater environmental regulatory requirements) for apartment developers to be more supportive of implementing CSER practices. For basic CSR practices, which are generally voluntary, apartment developers are not supportive in implementing such practices. Alternatively, Chinese legislation for both environmentally-related and extended CSR practices are more extensive, and thus CSER practices
in response are implemented at relatively higher levels by all categorizations of apartment developers. From an image perspective, Chinese companies seem to emphasize extended CSR practices such as on donations for disaster relief (Wang and Chaudhri, 2009). But, support of this practice may be due to the timing of recent major disasters, e.g. earthquake in Central China, (Zhang et al., 2009), and evaluation of future support for this practice when there is a lull in natural disasters with great damage would need to be investigated. Overall, Chinese government pressure will need to play a significant role in driving apartment developers to implement basic CSR practices as well as environmentally-related practices as requirements.

Larger apartment developers, apartment developers from developed cities, and joint ventures, have generally implemented all three kinds of CSER practices at higher levels. Large apartment developers have initiated both environmentally-related CSR practices and extended CSR practices. Both apartment developers in developed cities and joint ventures have initiated extended CSR practices. Though foreign investment on the residential industry is controlled and limited in China, joint ventures of this industry contribute better performance such as in Shanghai (Jiang et al., 2008). Small apartment developers and those state-owned apartment developers are much less supportive of even basic CSR practices. Chinese and global companies have different CSER principals due to their different relations with major Chinese and global stakeholders (Tang and Li, 2009). Learning from and communicating with joint ventures can be ways of diffusing awareness for Chinese apartment developers to better implement CSER practices.

**Implications**

Our studies have implications for all levels of governments and apartment developers.

Governments should provide more encouragement through regulatory policy (which can be effective through both voluntary and mandatory regulations). In China, lack of consumer awareness and rights are limits on what consumer stakeholder pressures can provide for adoption of broader CSER practices in this industry. Non-governmental organizations are not powerful in China. In this case, as one of key stakeholders, governments should take the key role to promote CSER practices among apartment developers. In the longer run, governments should improve consumers’ awareness through propaganda and training as well as allow less restrictive situations for non-governmental organizations and even foster their development if the goal for this industry is to take on more CSER practices.

Smaller apartment developers and those from developing cities could learn from larger apartment developers and those from developed cities. Companies taking more CESR can improve their public image, and thus in the end bring benefits in the longer term (Heslin and Ochoa, 2008). More consideration of consumers’ need on environmental elements can help to increase the price of apartments (Jim and Chen, 2006). Companies in developed countries considered external relationships with external stakeholders to address social problems, while at the same time they extended their concerns to environmental management as part of their CSER practices (Rondinelli and Berry, 2000). CSER practices are predominantly motivated by social and stakeholder obligation, but such CSER practices can bring additional benefits such as a better image, and even getting support from governments (Barraclough and Marrow, 2008). Chinese enterprises with higher CSER practices enjoy better profitability (Su and He, 2010). Apartment developers should consider those leading ones in the industry as their benchmarks, and try to gain more acceptance by the public.
**Limitations and future research**

Due to data collection difficulties, we used convenience samples in this study. We tried to avoid potential bias through anonymity, but larger and random surveys are needed for future research. Moreover, we only examine CSER practices and do comparisons among different kinds of apartment developers. Many research directions with varying comparisons can be explored from our study.

First, how to motivate apartment developers to adopt more CSER practices remains unclear. What are roles for different stakeholders such as governments, consumers, non-governmental organizations, and employees? What are suitable drivers is still a debate for CSER studies (Waldman and Siegel, 2008). Generally speaking, non-governmental organizations should need higher profile role for CSER adoption by industry in China. However, due to the current stage or several future stages in China, how to effectively promote apartment developers to implement higher level of CSER practices need an evolutionary mechanism.

Second, what are the barriers for apartment developers to implement CSER practices? Do they have external pressure or drivers for CSER practices? Do they lack internal resources or capabilities? Do CSER practices really improve public image or even bring long-term benefits? All these questions need to be answered. CSER practices generally improve costs, and thus cost assessment is needed for apartment developers to make decisions on CSER practices (Tsai and Hsu, 2008). Can win-win results exist for social, environmental and economic performance?

Third, we develop CSER items based on the stakeholder theory. However, the boundaries of CSER have evolved (Warhurst, 2005). Moreover, contents from different stakeholders have also changed. How to better define or adjust CSER among apartment developers also requires future research.

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**REFERENCES**

Babin, R. and B. Nicholson: 2009, ‘Corporate Social and Environmental Responsibility and Global It Outsourcing’, *Mis Quarterly Executive*, 8 (4), 203-212.

Barraclough, S. and M. Morrow: 2008, ‘A Grim Contradiction: The Practice and Consequences of Corporate Social Responsibility by British American Tobacco in Malaysia’, *Social Science & Medicine*, 66, 1784-1796.

Carroll, A.B. and K.M. Shabana: 2010. The business case for corporate social responsibility: A review of concepts, research and practice. *International Journal of Management Reviews*, 12(1), 85-105.

ChinaPost: 2011, ‘China’s population aging, moving to cities’, (http://www.chinapost.com.tw/china/national-news/2011/04/29/300469/Chinas-population.htm, Last Accessed May, 2011.

Chinese Real Estate Information Systems (CREIS): 2010, The residential prices among 100 top Chinese cities in July of 2010, accessed on March 14, 2011.

Cordano, M., R.S. Marshall and M, Silveman: 2010, ‘How do Small and Medium Enterprises Go ‘green’? A Study of Environmental Management Programs in the U.S. Wine Industry’, *Journal of Business Ethics*, 92, 463-478.

Dahlsrud, A.: 2008, ‘How corporate social responsibility is defined: an analysis of 37 definitions’, *Corporate Social Responsibility and Environmental Management*, 15(1), 1-13.

Du, S., C.B. Bhattacharya and S. Sen: 2010, ‘Maximizing business returns to corporate social responsibility (CSR): The role of CSR communication. *International Journal of Management Reviews*, 12(1), 8-19.
Friedman, M. and R. Friedman: 1962, *Capitalism and Freedom*. Chicago: University of Chicago Press.

Graafland, J. J., S.C.W. Eijffinger and J. Smidjohan: 2004, ‘Benchmarking of corporate social responsibility: Methodological problems and robustness’, *Journal of Business Ethics*, 53(1-2), 137-152.

Hahn, T., F. Pigge, J. Pinke and L. Preuss: 2010, ‘Trade-offs in corporate sustainability: You can’t have your cake and eat it’, Business Strategy and the Environment, 19, 217-229.

Heslin, P.A. and J.D. Ochoa: 2008, ‘Understanding and Developing Strategic Corporate Social Responsibility’, *Organizational Dynamics*, 37(2), 125-144.

Hu, X., and D.H. Kaplan: 2001, ‘The Emergence of Affluence in Beijing: Residential Social Stratification in China’s Capital City’, *Urban Geography*, 22(1), 54-77.

Jamali, D. and R. Mirshak: 2007, ‘Corporate social responsibility (CSR): Theory and practice in a developing country context’, *Journal of Business Ethics*, 72(3), 243-262.

Jenkins, H. and N. Yakovleva: 2006, ‘Corporate social responsibility in the mining industry: Exploring trends in social and environmental disclosure’, *Journal of Cleaner Production*, 14(3-4), 271-284.

Jia, X.D., N. Li, Z.T. Wang, Y.F. Zhao, Y.N. Wu, and W.X. Yan: 2009, ‘Assessment on Dietary Melamine Exposure from Tainted Infant Formula’, *Biomedical and Environmental Science*, 22, 100-103.

Jiang, D., J.J. Chen and D. Isaac: 1998, ‘The Effect of Foreign Investment on the Real Estate Industry in China’, *Urban Studies*, 35(11), 2101-2110.

Jim, C.Y. and W.Y. Chen: 2006, ‘Impacts of Urban Environmental Elements on Residential Housing Prices in Guangzhou (China)’, *Landscape and Urban Planning*, 78, 422-434.

Jim, C.Y. and W.Y. Chen: 2007, ‘Consumption Preferences and Environmental Externals: A Hedonic Analysis of the Housing Market in Guangzhou’, *Geoforum*, 38, 414-431.

Kavacs, G.: 2008, ‘Corporate Environmental Responsibility in the Supply Chain’, *Journal of Cleaner Production*, 16, 1571-1578.

Keister, L.: 2002, ‘Corporate Labor Policies and Practices during China’s transition: An exploration of implications for social stratification’, *The Future of Market Transition*, 19, 171-187.

Lynes, J. K. and M. Andrachuk: 2008, ‘Motivations for corporate social and environmental responsibility: A case study of Scandinavian Airlines’, *Journal of International Management*, 14 (4), 377-390.

Malovic, G., N.N. Csigene and S. Kraus: 2008, ‘The Role of Corporate Social Responsibility in Strong Sustainability’, *The Journal of Socio-Economics*, 37, 907-918.

Matten, D. and A. Crane, W. Chapple: 2003, ‘Behind the mask: Revealing the true face of corporate citizenship’, *Journal of Business Ethics*, 45(1), 109-120.

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

McWilliams, A. and D.S. Siegel, P.M. Wright: 2006, ‘Corporate social responsibility: Strategic implications’, *Journal of Management Studies*, 43(1), 1-18.

Panapanaan, V.M., L. Linnanen, M.M. Karvonen and V.T. Phan: 2003, ‘Roadmapping corporate social responsibility in Finnish companies’, *Journal of Business Ethics*, 44 (2), 133-158.

Preuss, L. and J. Perschke: 2010, ‘Slipstreaming the Larger Boats: Social Responsibility in Medium-Sized Business’, *Journal of Business Ethics*, 92, 531-551.

Prisch, J., S. Gupta and S. Grau: 2007, ‘A framework for understanding corporate social responsibility programs as a continuum: An exploratory study’, *Journal of Business Ethics*, 70(2), 125-140.

Rondinelli, D.A. and M.A. Berry: 2000, ‘Environmental Citizenship in Multinational Corporations: Social Responsibility and Sustainable Development’, *European Management Journal*, 18(1), 70-84.

Setthasakko, W.: 2007, ‘Determinants of corporate sustainability: Thai frozen seafood processors’, *British Food Journal*, 109 (2-3), 155-168.

Streets, D.G., S. Gupta, S.T. Waldhoff, M.Q. Wang, T.C. Bond and Y. Bo: 2001, ‘Black Carbon Emissions in China’, *Atmospheric Environment*, 35, 4281-4296.

Su, J. and J. He: 2010, ‘Does Giving Lead to Getting? Evidence from Chinese Private Enterprises’, *Journal of Business Ethics*, 93, 73-90.

Tang, L. and H. Li: 2009, ‘Corporate Social Responsibility Communication of Chinese and Global Corporations in China’, *Public Relations Review*, 35, 199-212.
Tsai, W.H., and J.L. Hsu: 2008, ‘Corporate Social Responsibility Programs Choice and Costs Assessment in the Airline Industry – A Hybrid Model’, Journal of Air Transport Management, 14, 188-196.
Waldman, D. and D. Siegel: 2008, ‘Defining the Socially Responsible Leader’, The Leadership Quarterly, 19, 117-131.
Wang, J. and V. Chaudhri: 2009, ‘Corporate Social Responsibility Engagement and Communication by Chinese Companies’, Public Relations Review, 35, 247-250.
Wang, Z., Z. Bai, H. Yu, J. Zhang and T. Zhu: 2004. ‘Regulatory Standards Related to Building Energy Conservation and Indoor-air-quality during Rapid Urbanization in China’, Energy and Buildings, 36, 1299-1308.
Wang, R.Z. and X.Q. Zhai: 2009, ‘Development of Solar Thermal Technologies in China’, Energy, in press.
Warhurst, A.: 2005, ‘Future Roles of Business in Society: The Expanding Boundaries of Corporate Responsibility and a Compelling Case for Partnership’, Future, 35, 151-168.
Wei, J., J. Zhao and Q. Chen: 2010, ‘Energy Performance of a Dual Airflow Window under Different Climates’, Energy and Buildings, in press.
Wu, Y.N., Y.F. Zhao and J.G. Li: 2009, ‘A Survey on Occurrence of Melamine and its Analogues in Tainted Infant Formula in China’, Biomedical and Environmental Science, 22, 95-99.
Xu, B., L. Fu, and H. Di: 2009, ‘Field Investigation on Consumer Behavior and Hydraulic Performance of a District Heating System in Tianjin, China’, Building and Environment, 44, 249-259.
Xu, S. and R. Yang: 2010, ‘Indigenous Characteristics of Chinese Corporate Social Responsibility Conceptual Paradigm’, Journal of Business Ethics, 93, 321-333.
Yao, R., B. Li and K. Steemers: 2005, ‘Energy Policy and Standard for Built Environment in China’, Renewable Energy, 30, 1973-1988.
Zhang, R., Z. Rezaee and J. Zhu: 2009, ‘Corporate philanthropic disaster response and ownership type: Evidence from Chinese firms’ response to the Sichuan earthquake’, Journal of Business Ethics 91, 51-63.
Zhao, Y., B. Chen, Y. Guo, F. Peng and J. Zhao: 2004, ‘Indoor Air Environment of Residential Buildings in Dalian, China’, Energy and Buildings, 36, 1235-1239.
Zhou, C.Y.: 2009, ‘Several Thoughts for Real Estate Market in our Country’, Price: Theory & Practice, (2), 71-72 (in Chinese).