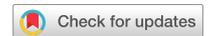




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Exploring the factors affecting the implementation of corporate social responsibility from a strategic perspective

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In general, the objective of a company is to pursue higher returns for its shareholders. Corporate social responsibility (CSR) is an ethical practice that seems to be contrary to the objectives of companies; as a result, companies lack sufficient motivation to implement CSR. Academics and practitioners have recently begun considering CSR from a strategic perspective. However, the definition and scope of strategic CSR have not been clearly defined or discussed in previous studies. This study uses the strategic triangle perspective as a theoretical basis to explore the key factors affecting the implementation of strategic CSR. Three main factors and ten sub-factors were summarized to form a hierarchical network structure based on a literature review. The weights of each factor and sub-factor were then prioritized using the analytic network process (ANP). The results of this study show that “company” is the most important main factor, while “corporate image”, “innovation ability”, “reputation risk”, “financial capacity”, and “investment intention” are the top five important sub-factors. The hierarchical network structure and critical factors suggested in this study contribute to implementing strategic CSR. The findings of this study will also help the theoretical development in the field of CSR.

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Introduction

The purpose of businesses is to produce products or services that meet consumer demand. However, with the depletion of resources and environmental pollution, people have gradually realized the importance of sustainable development. Furthermore, with better living standards, people pay attention to social issues such as health and human rights. Various factors have led to higher expectations regarding the role of businesses in society (Huang, 2014). In addition to their growth, companies need to consider the overall well-being of society and make moral contributions beyond economic and legal aspects. Enterprises are not only economic entities that operate for profit but also exist to create an ideal society (Carroll and Shabana, 2010). Therefore, corporate social responsibility (CSR) has become an important research topic in recent years (Yuan et al., 2020).

The motivation for CSR implementation changes with the social environment (Bergquist, 2017). The goal of an enterprise is to make profits and maximize shareholder value. Thus, it is necessary to establish formal regulations to enforce the implementation of environmental protection and social issues by enterprises. Nevertheless, if CSR is merely a response to legal requirements, companies will not realize the value and benefits of this action. For organizations such as businesses that pursue economic benefits, implementing CSR may be viewed as a cost. This reactive motivation prevents companies from effectively implementing CSR (Bansal, 2022).

Social responsibility and corporate benefits do not conflict. This means that companies should not treat CSR as an expense incurred by contributions to fulfill public interest. Instead, companies should transform CSR from an ethical practice to one of their strategies (Porter and Kramer, 2006). If CSR is combined with a company's strengths and strategies, its potential will maximize the benefits to society and the company (Branco and Rodrigues, 2006; Yuan et al., 2020). A strategic vision of CSR will allow companies to avoid seeing it as a cost or expense when implementing CSR, but will instead consider the relationship between CSR and the company's core business and how to help the company achieve its strategic goals (Lepoutre and Heene, 2006; Manasakis, 2018). Strategic CSR can help companies achieve a win-win situation regarding economic benefits and social responsibility.

To implement strategic CSR, companies must identify the capabilities and resources that influence their social responsibility (Branco and Rodrigues, 2006). In addition, resources are limited to businesses, so selection and prioritization are important parts of strategic thinking (Porter, 2008). Identifying the key factors affecting the implementation of strategic CSR and recognizing the relative importance of these factors will help companies plan their strategic CSR activities. Therefore, it is important to explore the key factors that influence the implementation of strategic CSR. According to the strategic triangle perspective proposed by Ohmae (1982), the strategic thinking of a business is mainly based on company, customer, and competitor aspects. From the company aspect, the main description is the importance of internal resources in implementing a strategy. The customer aspect focuses on how a company uses its resources to provide attractive products and services to satisfy its customers. The principle of the competitor aspect is that a company should create as much competitive advantage as possible to enable it to compete with its competitors (Ohmae, 1982; van Vliet, 2009). The strategic triangle perspective can be used to develop a conceptual framework for strategic CSR.

This study aims to explore the key factors affecting the implementation of strategic CSR. Based on a literature review of the CSR concept and the strategic triangle perspective, this study identifies the main factors and sub-factors affecting the implementation of strategic CSR and establishes a hierarchical

network structure for these factors. This study then uses the analytic network process (ANP) method to prioritize the relative weights of each factor and sub-factor in the hierarchical network structure. The results of this study contribute to determining the important factors that influence the implementation of strategic CSR to plan relevant strategies.

Literature review

This study examines the key factors influencing companies' implementation of strategic CSR. In this section, we first review the general altruistic view of CSR. Second, the essence of corporate strategy was discussed within the framework of the strategic triangle. Then, we explain how to incorporate the strategic triangle perspective into the CSR concept to form strategic CSR. Finally, factors affecting the implementation of strategic CSR were selected to build a hierarchical network structure.

The concept of CSR. With the rise in sustainable development, CSR has become a popular topic. CSR means that enterprises are responsible for promoting social interests while pursuing their benefits (Carroll and Shabana, 2010; Josiah and Akpuh, 2022). The concept of CSR is a company's response to social welfare and its responsibility to stakeholders affected by its development (Chang et al., 2014). CSR is strongly related to customers, investors, the government, and other stakeholders. Companies with social responsibility balance the needs of the company and stakeholders when making decisions so that they can contribute to society and stakeholders while pursuing profits (Hopkins, 2012). CSR mainly focuses on the positive actions of enterprises on social and environmental issues while paying attention to the rights and interests of stakeholders. However, it is difficult to link the ethical behavior of these companies to their own operations (Sheh, 2022). The traditional concept of CSR focuses on public interest but ignores the necessity of continuous profitability of companies (Matytsin et al., 2023). Companies must learn to integrate CSR actions into their operations rather than viewing CSR as additional philanthropy (Zollo, 2004). The current meaning of CSR is that companies must voluntarily incorporate social and environmental issues and interactions with stakeholders into their operations (Commission of the European Communities, 2001). Therefore, companies must consider both social responsibilities and operational performance, as well as their complementary strengths.

Strategic perspective and CSR. The purpose of strategy is to efficiently achieve the specific goal of an individual or organization, given the resources and capabilities. Strategic thinking integrates internal and external resources to achieve a competitive advantage in an uncertain and high-risk environment (Khalifa, 2020). In other words, the execution of strategy considers not only the current state within the company but also the situation of the external environment to choose the most appropriate way to achieve the goal (Hambrick and Fredrickson, 2005). Furthermore, Ohmae (1982) suggests a strategic triangle perspective and indicates that enterprises should focus on three factors when formulating their strategies, including the company, customer, and competitor. Companies must consider their own conditions and customer needs to provide products or services that are consistently better than those of their competitors and consider the interrelationships among the three factors.

In general, companies play a passive role in CSR implementation (Lindgreen et al., 2009). The main reason is that companies lack the motivation to implement CSR. The altruistic behavior of a company does not necessarily bring benefits to the company, and even the implementation of CSR conflicts with corporate

profitability (Sprinkle and Maines, 2010). In this context, CSR is more of a moral act implemented by a company based on social expectations after making a profit. Even when CSR is linked to business operations, companies do not know how to convert it into business value and competitive advantage. If long-term investment in CSR does not give a company a competitive advantage, CSR will likely be seen as the cost of doing business. Companies tend to lack the motivation to implement CSR, which is not conducive to long-term sustainable development. In fact, companies rarely implement social responsibility purely from an altruistic perspective (Wang et al., 2016). The core concept of a company is to pursue performance; therefore, companies should rethink CSR through strategic thinking and select social issues or goals that enable them to fully utilize their core competencies to implement CSR (Porter and Kramer, 2006). In this way, companies can turn social responsibility issues into business opportunities, creating more benefits and competitive advantages (Drucker, 1984; Padgett and Galan, 2010; Manasakis, 2018).

Previous studies have mentioned that it is necessary to use a strategic perspective to examine CSR (Porter and Kramer, 2006; Wang et al., 2016). When thinking strategically, companies usually need to consider how they are positioned against their competitors and how they can use their resources and capabilities to achieve their goals (Porter and Kramer, 2002). In other words, companies must assess their internal resources and capabilities, evaluate the stakeholders and competitors involved, and develop appropriate strategies to achieve the desired CSR outcomes (Husted and de Jesus Salazar, 2006). Nevertheless, strategic CSR remains a relatively abstract concept requiring further exploration of its specific elements and components.

Therefore, the strategic triangle perspective can be used to establish the structure of strategic CSR and to form a precise concept. From a strategic triangle perspective, companies must take stock of their core competencies and resources, and then consider how to meet the needs of their customers. By integrating this perspective into CSR, strategic CSR can impact customers and stakeholders related to the company. Based on the above discussion, this study explicitly focuses the concept of strategic CSR on three main factors, including company, stakeholder, and competitor. The company factor refers to the resources and assets owned by the company, the stakeholder factor refers to stakeholders who interact with the business, and the competitor factor refers to the competitive advantage over competitors (Husted and Allen, 2007). The three main factors that affect the implementation of strategic CSR and the sub-factors within these main factors were discussed below.

Company. From a strategic triangle perspective, the resources within a company can be considered the basis for strategy execution. According to the resource-based theory, valuable resources are the main source of a company's competitive advantage (Barney, 1991). Promoting CSR is not only the responsibility of senior management or specific departments but also the recognition and participation of all employees in the company. Hence, human resources play an important role in CSR implementation (Arnaud and Wasieleski, 2014). Adequate professional manpower is a condition for companies to implement CSR (Meyer, 1999; Cohen et al., 2010). It ensures that sustainability-related strategies and proposals are sufficiently driven to help organizations achieve their goals and ultimately improve their effectiveness (Paillé et al., 2014; Voegtlin and Greenwood, 2016).

In addition to human resources, companies with sufficient financial resources to support the execution of operational strategies can significantly increase their likelihood of achieving their goals. Similarly, CSR implementation requires sufficient financial capacity (Branco and Rodrigues, 2006; Lepoutre and Heene, 2006). Moreover, the Fortune 500 spent \$19.9 billion on CSR-related activities (Business Backs Education, 2015). This not only shows the

importance that companies attach to CSR but also reflects that the implementation of CSR requires considerable financial resources.

On the other hand, corporate image is more abstract than other tangible resources because it is an overall performance composed of many factors related to a company (Moon, 2007). It is most widely defined as the reputation of a company, the overall impression of the company in the public's minds (Agyei et al., 2014; Huang et al., 2014; Li et al., 2022). A great corporate image can be built based on a company's ability, that is, the reputation that a company has built by consistently providing high-quality products or services. Thus, corporate image can also be derived from a company's contribution to CSR (Vo et al., 2019). The image formed by CSR refers to the subjective feelings, attitudes, and evaluation of the public towards the social responsibility implemented by the company (Berens et al., 2005; Pérez and Rodríguez del Bosque, 2013). By engaging in charitable activities, such as protecting the environment, caring for community issues, and making charitable donations, a company can strengthen its public perception. A company's image can be used as intangible capital for future public relations strategies to help it gain a competitive advantage.

Accordingly, human resources, financial capacity, and corporate image were adopted as sub-factors within the main factor of company in this study.

Stakeholder. In conventional business operations, a company operates by meeting its customers' needs, and the results are ultimately reflected in its performance. As the external environment becomes more complex, the actual operation of a company will involve not only customers but also individuals or groups such as investors, media, and governments, all of whom will be affected by the company's actions or influence its decisions (Freeman, 1984). In general, business strategy mainly focuses on the customer aspect, but strategic CSR affects a wider group of people than traditional strategies. According to previous studies, CSR has a significant relationship with corporate performance and stakeholder responsiveness (Alniacik et al., 2011; Ansu-Mensah et al., 2021). This means that companies can communicate with more stakeholders through CSR implementation (Manasakis, 2018). Several stakeholders that may influence CSR implementation, such as consumers, inventors, media, and governments, were discussed below.

First, Bhattacharya and Sen (2004) suggest that consumers consider a company's actions towards the environment and society when making purchase decisions and state that CSR actions can increase consumers' willingness to purchase a company's products or services. When a company focuses on and contributes to a specific issue, consumers will likely translate their support for the issue into a willingness to buy its products (Thi et al., 2020; Zhang, 2022). Companies can choose to invest in CSR because consumers will respond to their efforts on social and environmental issues with a higher willingness to buy (Bhattacharya and Sen, 2004; Walker et al., 2021).

Second, investors must consider various factors when selecting investment targets. The reason why investors are willing to invest their capital in a company depends mainly on its profitability (Lin et al., 2018). Companies that contribute to CSR can manage their relationships with employees, suppliers, and other stakeholders, resulting in more stable operational and financial performance (Platonova et al., 2018). Moreover, companies that do not integrate environmental and social issues into their business models have a higher chance of being sanctioned by the government or law, including fines and litigation dilemmas, as well as loss of profits due to revelations of corporate misconduct or the outbreak of major industrial and environmental accidents (Brown, 1997). A Company that integrates CSR into its business strategy is less susceptible to negative events, convincing investors that it is a better investment target than its competitors.

Third, with the boom in information technology and media, the public has much faster and easier access to information than in the past, and both positive and negative news can be disclosed at the first opportunity (Dh embo et al., 2021; Fortunato and Pecoraro, 2022). The more prestigious a company, the more likely it is to receive media attention and be maliciously attacked by negative media. Companies that are good at preventing reputation risks use the media as a stakeholder to avoid damaging their reputation and improve their ability to respond to external events by voluntarily implementing CSR (Diageo, 2005; Unerman, 2008). In addition, by evaluating the results of their investments in social and environmental issues, companies can diagnose the potential risks that may arise in their operations and formulate timely improvement plans to avoid reputational damage (GRI, 2002).

Finally, the government is an important stakeholder that can force companies to implement CSR (Zueva and Fairbrass, 2021). From a strategic perspective, CSR is more than a passive response to regulatory pressure. By proactively engaging in CSR, companies can build bridges and maintain good relationships with the public sector, thereby increasing their influence on public decision-making. CSR increases trust between businesses and the government; helps companies obtain licenses, permissions, and other official documents faster and more smoothly; and avoids redundant bureaucratic costs (Mathis, 2008).

Based on these arguments, this study includes purchase intention, investment intention, reputation risk, and government relations as sub-factors within the main factor stakeholder in the hierarchical network structure.

Competitor. According to the strategic triangle perspective, companies achieve superior financial performance by leveraging their strengths to satisfy their customers while creating a relative advantage over their competitors (Ohmae, 1982). In the competitor aspect, the factor that affects a company's profitability is the price of product relative to the competitor. CSR is an important evaluation criterion for consumers when making purchases. Companies can make consumers perceive that they are concerned about social issues through CSR, which affects consumers' perceptions of products (Bhattacharya and Sen, 2004). Even though not everyone is willing to pay a higher price for the products of companies that implement CSR, for advocates of social and environmental issues, paying a price premium can symbolize their concern and support for a particular issue and serve as a reward for responsible companies (McGoldrick and Freestone, 2008). Accordingly, companies can use this feature to set higher product prices (Danko and Nifatova, 2022).

Companies that have already established positions in a specific industry must protect themselves from potential competitors and maintain their market share. From a traditional strategic perspective, companies usually adopt cost-cutting strategies to take advantage of price wars to defeat competitors or invest more resources in research and development to build barriers to entry into the industry (Porter, 2008). Furthermore, Buccella and Wojna (2017) suggest that incumbent companies in the industry can regard CSR as a moat against potential competitors and turn it into a weapon to maintain their market position.

On the other hand, a company's growth is driven by the continuous development of new products or the improvement of existing business models. Innovation ability has become one of the most important strategic considerations in companies' decisions (Chkir et al., 2021). Innovation ability is the driving force behind the implementation of CSR if companies can integrate CSR thinking into their products (Padgett and Galan, 2010). Companies that implement CSR are better able than their competitors to use efficient processes for product development and manufacturing (Husted and Allen, 2007).

Based on the above points, this study summarizes price premium, entry barrier, and innovation ability as sub-factors within the main factor competitor.

Methodology

The hierarchical network structure. When applying ANP, the decision problem needs to be clearly structured, and the inter-relationships between the factors must be presented in a network manner. The hierarchical network structure can be established mainly through the literature review and the opinions of experts in the field, which contains goal, main factors, and sub-factors (Saaty, 2005). This goal indicates that a decision problem must be resolved. The main factors, sub-factors, and interdependencies among factors can be obtained by reviewing the literature and collecting expert opinions on the decision problem (Saaty, 2004).

This study aims to identify the factors that may affect the implementation of strategic CSR. Based on the literature review, three main factors and ten sub-factors were obtained to construct the hierarchy. The main factors contain company, stakeholder, and competitor. Company consists of three sub-factors, including financial capacity, human resources, and corporate image. Stakeholder has four sub-factors, including purchase intention, investment intention, reputation risk, and government relations. Competitor has three sub-factors, including entry barrier, price premium, and innovation ability. Then, this study collects expert opinions on the interdependence of factors through questionnaires to form a network structure based on Ngeru et al. (2011). To ensure that the experts are sufficiently professional and to improve the quality of the data collected, they were selected from among professionals with experience in the field of CSR. A total of twelve experts have an average of 10 years of experience in public relations, consulting, manufacturing, and financial industries, and they are all engaged in CSR-related work in these industries. Twelve questionnaires were distributed and collected, with a 100% return rate. Finally, a hierarchical network structure, including the interrelationships among factors, was established, as shown in Fig. 1. The operational definitions of the three main factors and ten sub-factors were described in Tables 1 and 2.

The procedure of ANP. ANP is a scientific approach to decision-making when factors have dependencies and feedbacks, and is an extension of analytic hierarchy process (AHP) (Saaty, 2004). One of the assumptions of AHP is that the factors are independent of each other (Stein and Ahmad, 2009). However, in reality, many decision problems cannot be structured hierarchically because elements in the hierarchy involve many interactions and interdependencies. Therefore, the structure of ANP usually includes many networks of elements with interdependent relationships, which makes analysis results more realistic (Lee and Lee, 2012). The reason for adopting ANP in this study is that it addresses the complexities of implementing strategic CSR and provides best possible outcome for decision-making. The specific steps of ANP were shown as follows (Chung et al., 2005).

Step 1: Constructing the pairwise comparison matrix. In this step, a series of pairwise comparisons were conducted to determine the relative importance of factors. Paired comparisons are two-by-two comparisons of factors based on ANP questionnaire, which uses a scale of one to nine as proposed by Saaty (2005). As shown in Table 3, a score of 1 means that two factors are equally important to each other, while a score of 9 means that one factor is extremely important compared to the other. And then, the experts in the given field were asked to judge the relative importance between factors in the questionnaire.

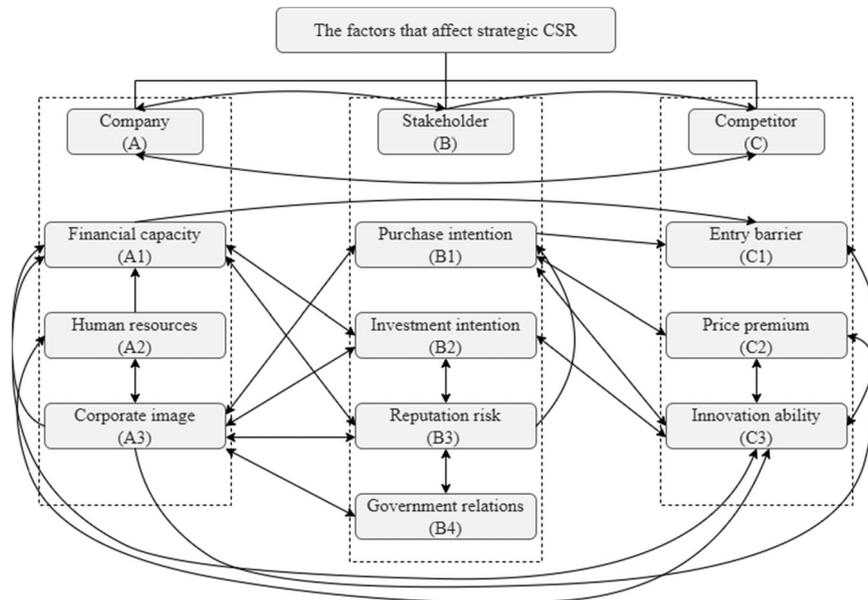


Fig. 1 The hierarchical network structure of this study. It includes three main factors, ten sub-factors, and the interdependence of factors.

Table 1 Definition of main factors.

Main factors	Operational definition	References
Company (A)	Tangible resources and intangible assets within the company that can serve as the basis for strategy implementation.	Ohmae (1982); Barney (1991); van Vliet (2009)
Stakeholder (B)	A group of people who are directly or indirectly affected by the company's operations or who can influence the company's actions.	Ohmae (1982); Freeman (1984); van Vliet (2009)
Competitor (C)	The relative competitive advantage between the company itself and its competitors.	Ohmae (1982); van Vliet (2009)

Table 2 Definition of sub-factors.

Main factors	Sub-factors	Operational definition	References
Company (A)	Financial capacity (A1)	The financial resources that can be used to invest in CSR.	Branco and Rodrigues (2006); Lepoutre and Heene (2006)
	Human resources (A2)	Professionals who are able to assist companies in promoting CSR.	Paillé et al. (2014); Voegtlin and Greenwood (2016)
	Corporate image (A3)	Corporate image is an abstract concept that reflects the general evaluation of the company by the public.	Agyei et al. (2014); Huang et al. (2014); Li et al. (2022)
Stakeholder (B)	Purchase intention (B1)	The likelihood that a consumer will purchase a product based on his or her perception of the company during the decision-making process.	Bhattacharya and Sen (2004); Thi et al. (2020); Zhang (2022)
	Investment intention (B2)	The likelihood that investors invest their capital in a business based on profitability, risk aversion, and other factors.	Lin et al. (2018)
	Reputation risk (B3)	Potential economic damage to the reputation of business due to failure to meet social expectations.	Unerman (2008); Diageo (2005); GRI (2002)
	Government relations (B4)	Through proactive CSR practices, companies enhance their relationships with the public sector, increase their influence in the government's decision-making process, and reduce bureaucratic costs.	Mathis (2008)
Competitor (C)	Entry barrier (C1)	The industry has elements that can deter potential competitors.	Buccella and Wojna (2017)
	Price premium (C2)	Companies set higher prices for their products based on public concerns about social and environmental issues.	McGoldrick and Freestone (2008); Danko and Nifatova (2022)
	Innovation ability (C3)	By integrating CSR into their products, companies gain the creativity and imagination of their products and services.	Husted and Allen (2007); Porter and Kramer (2006)

The pairwise comparison matrix was obtained by the judgments of experts using ANP questionnaire. If pairwise comparison matrix M is an $n \times n$ matrix, then $n(n - 1)/2$ ratings should be calculated. The matrix M was established as below (Saaty, 2004).

$$M = [b_{ij}]_{n \times n} = \begin{bmatrix} b_{11} & b_{12} & \dots & b_{1n} \\ b_{21} & b_{22} & \dots & b_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ b_{n1} & b_{n2} & \dots & b_{nn} \end{bmatrix} \quad (1)$$

where b_{ij} is the comparison value of factor i and factor j for one expert, $b_{ij} > 0$; $b_{ji} = 1/b_{ij}$; $i, j = 1, 2, \dots, n$.

Step 2: Calculating priority vector and eigenvalue. The priority vector (also called eigenvector) and eigenvalue of each pairwise comparison matrix in ANP can be derived as in AHP by solving the following formula (Saaty, 2005).

$$Mw = \lambda_{\max} w \quad (2)$$

where M represents a pairwise comparison matrix, w is the

Table 3 Saaty's scale for ANP questionnaire.

Intensity of importance	Definition	Explanation
1	Equal importance	Two factors have the same level of importance
3	Moderate importance	The judgment slightly favors one factor over another
5	Strong importance	The judgment strongly favors one factor over another
7	Very strong importance	A factor is favored very strongly over another
9	Extreme importance	A factor is favored extremely over another
2, 4, 6, 8	Median value	The relative preference of two factors is between the two scales

Source: Saaty (2005).

priority vector (eigenvector), and λ_{max} is the largest eigenvalue of M . The priority vector w and the eigenvalue λ_{max} can be computed by the following sub-steps (Al-Harbi, 2001).

Step 2-1: Dividing each comparison value of matrix M by the sum of its column to produce the normalized pairwise comparison matrix.

Step 2-2: The priority vector w can be calculated by dividing the sum of each row in the normalized pairwise comparison matrix by the number of factors in the matrix.

Step 2-3: Firstly, multiplying matrix M by priority vector w to generate the vector Mw . And then, divide the values of the vector Mw by their respective values of priority vector. Finally, the eigenvalue λ_{max} can be calculated by averaging the values generated above.

Step 3: Consistency test. The consistency test must be implemented to ensure that there are no logical fallacies in the judgments. The consistency index (CI) and consistency ratio (CR) can be utilized to check the consistency of each matrix. The CI was formulated as follows (Saaty, 2005).

$$CI = \frac{\lambda_{max} - n}{n - 1} \tag{3}$$

where n is the number of factors.

And then, the CR of each matrix can be computed as below (Saaty, 2005).

$$CR = \frac{CI}{RI} \tag{4}$$

where the random index RI represents the random consistency of various size of matrices. The values of RI were shown as Table 4. If CR is less than a threshold value, then the matrix has acceptable consistency. The thresholds value proposed by Saaty (2005) is 0.1.

Step 4: Building the supermatrix. To address the dependencies between factors in the research framework, ANP uses supermatrix to calculate the relative weights of factors. A supermatrix consists of a combination of sub-matrices, each of which contains dependencies of elements within each cluster and is compared cross-cluster with elements from other clusters. If there is no correlation between the elements, the pairwise comparisons in the sub-matrices are equal to zero (Saaty, 2005). In this study, the main factors represent clusters and the sub-factors represent elements.

As shown in Eq. (5), W_{ij} is the eigenvectors generated by comparing the element in cluster i with the element in cluster j . If the cluster j has no effect on the cluster i , the value is equal to zero. The structure of supermatrix is generated based on this logic (Saaty, 2004).

$$W_{ij} = C_i \begin{matrix} C_j \\ \begin{bmatrix} w_{i1j_1} & w_{i1j_2} & \dots & w_{i1j_{m_j}} \\ w_{i2j_1} & w_{i2j_2} & \dots & w_{i2j_{m_j}} \\ \vdots & \vdots & \ddots & \vdots \\ w_{in_jj_1} & w_{in_jj_2} & \dots & w_{in_jj_{m_j}} \end{bmatrix} \end{matrix} \tag{5}$$

The standard form for a supermatrix was shown in Eq. (6) (Saaty, 2004). In general, each column of this matrix is not

Table 4 The values of RI.

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49

Source: Saaty (2005).

normalized or equal to one, which makes this matrix an unweighted supermatrix.

$$W = \begin{matrix} & C_1 & C_h & \dots & C_n \\ e_{11} \dots e_{1m_1} & e_{h1} & \dots & e_{hm_h} & \dots & e_{n1} \dots e_{nm_n} \\ C_1 & \begin{bmatrix} e_{11} \\ \vdots \\ e_{1m_1} \end{bmatrix} & \begin{bmatrix} W_{11} & W_{1h} & \dots & W_{1n} \end{bmatrix} \\ C_h & \begin{bmatrix} e_{h1} \\ \vdots \\ e_{hm_h} \end{bmatrix} & \begin{bmatrix} W_{h1} & W_{hh} & \dots & W_{hn} \end{bmatrix} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ C_n & \begin{bmatrix} e_{n1} \\ \vdots \\ e_{nm_n} \end{bmatrix} & \begin{bmatrix} W_{n1} & W_{nh} & \dots & W_{nn} \end{bmatrix} \end{matrix} \tag{6}$$

where C_h is the cluster of a decision system; $h = 1, 2, \dots, n$, and each cluster h has m_h elements, denoted by $e_{h1}, e_{h2}, \dots, e_{hm_h}$.

The supermatrix needs to be column-stochastic in order for convergence to occur. To achieve this, the weighted supermatrix W' was established after the normalization (Saaty, 2004). Furthermore, it is necessary to raise the weighted supermatrix to exponential powers in order to reach stabilization or convergence. The resulting matrix is called limit supermatrix W_{limit} , as shown in Eq. (7) (Saaty, 2005). The form of limit supermatrix is the same as the weighted supermatrix, but each column of the limit supermatrix is the same. Finally, the global weight of each factor can be obtained in the limit supermatrix.

$$W_{limit} = \lim_{x \rightarrow \infty} (W')^x \text{ or } (W')^{2k+1} \tag{7}$$

where k is an arbitrarily large number.

Results

This study examines the important factors for companies to implement strategic CSR. As companies consider many aspects in practice, and each factor may be related, ANP was used to obtain the relative weight of each factor. The weights of factors in the hierarchical network structure were generated according to the steps proposed in the methodology section.

In step 1, a series of pairwise comparisons were conducted to construct pairwise comparison matrices. Paired comparisons are two-by-two comparisons of factors based on ANP questionnaire

using the scale of 1 to 9 shown in Table 3. The experts were asked to make three levels of pairwise comparisons in the questionnaire, including the comparisons between main factors, comparisons between sub-factors within each main factor, and comparisons of dependencies for main factors or sub-factors. A total of fifteen experts working in the field of CSR were selected to fill out the questionnaire. These experts have an average of 12 years of CSR-related experience, with ten from industry and five from academia, as shown in Table 5. After collecting fifteen questionnaires, the data were imported into Excel to form the pairwise comparison matrix of each expert. Next, the pairwise comparison matrices of fifteen experts were integrated into the aggregated pairwise comparison matrices using the geometric mean method, and then imported into Super Decisions V3.2 software for subsequent analysis. Table 6 presents the aggregated pairwise comparison matrix of main factors. Table 7, Table 8, and Table 9 describe the aggregated pairwise comparison matrices of sub-factors within each main factor, respectively.

In step 2, the priority vector and eigenvalue λ_{max} of each pairwise comparison matrix was computed by Eq. (2) using Super Decisions V3.2 software. And then, CR value of each matrix was calculated by Eqs. (3) and (4) in step 3. The priority vector and CR value for each matrix was also shown in Table 6, Table 7, Table 8, and Table 9. Since all CR values are less than 0.1, the consistency of each matrix is acceptable (Saaty, 2005). Finally, the limit supermatrix was generated based on Eqs. (6) and (7) in step 4 and shown in Table 10. Considering the dependencies among factors and sub-factors, the global weights of sub-factors were computed using Super Decisions V3.2 software.

Table 6 shows the relative importance of three main factors without considering dependencies. “Company” has the highest weight (0.4992), “stakeholder” has a weight of 0.3310, and “competitor” has a weight of 0.1698. Tables 7 to 9 present the relative importance of sub-factors within the main factors of company, stakeholder, and competitor, respectively, regardless of the dependencies. In the “company”, the sub-factor “financial capacity” possesses the highest weight (0.4650). Within the main factor “stakeholder”, “purchase intention” is the most important sub-factor (0.4125). In the main factor “competitor”, the most critical sub-factor is “innovation ability” (0.4783).

The global weights of sub-factors were listed in Table 11. “Corporate image” has the highest weight (0.1779), followed by “innovation ability” at 0.1653, while “reputation risk”, “financial capacity”, and “investment intention” also have higher weights at 0.1282, 0.1264, and 0.1237, respectively. These five sub-factors are key elements that companies need to consider when implementing strategic CSR. In addition, the three sub-factors at the “company” level account for 0.4028 (0.1264 + 0.0985 + 0.1779) of the global weights. The weights of sub-factors in the “stakeholder” adds up to 0.3766 (0.0944 + 0.1237 + 0.1282 + 0.0303). It can be seen that main factors “company” and “stakeholder” account for nearly 80% of the weight, and these two factors have a significant impact on the implementation of strategic CSR.

Discussion

This study aims to identify the key factors affecting the implementation of strategic CSR. First, the main factors and sub-factors affecting the implementation of strategic CSR were selected based on a literature review. Subsequently, a hierarchical network structure was constructed for these factors. The ANP method was then utilized to prioritize the relative weights of each main factor and sub-factor in the hierarchical network structure. Based on the results of analysis, this section discusses three aspects of company, stakeholder, and competitor.

Table 5 The background of experts in this study.

Institutions	Education	Job titles	Seniority (years)
Industry	Master degree	Project Manager	14
Industry	Master degree	CSR Specialist	12
Industry	Master degree	CSR Consultant	10
Industry	Master degree	CSR Consultant	8
Industry	Master degree	CSR Consultant	13
Industry	Bachelor degree	CSR Specialist	9
Industry	Bachelor degree	Board Supervisor	15
Industry	Doctor degree	Supply Chain Manager	13
Industry	Bachelor degree	Sustainability Specialist	11
Industry	Master degree	CSR Consultant	12
Academia	Doctor degree	Assistant Professor	9
Academia	Doctor degree	Professor	20
Academia	Doctor degree	Assistant Professor	8
Academia	Doctor degree	Associate Professor	14
Academia	Doctor degree	Associate Professor	12

Table 6 Aggregated pairwise comparison matrix of main factors.

	Company	Stakeholder	Competitor	Priorities (weights)
Company	1	1.5527	2.8565	0.4992
Stakeholder	0.6440	1	2.0071	0.3310
Competitor	0.3501	0.4982	1	0.1698

CR = 0.0016 < 0.1.

Company. “Company” has the highest weight among all main factors in this study. In this main factor, “corporate image” and “financial capacity” are among the top five sub-factors with the highest weights. Primary, “corporate image” has the highest weight among all sub-factors. This finding confirms previous research that corporate image is an important factor related to CSR (Arendt and Brettel, 2010; Vo et al., 2019). The public’s overall opinion of a company is key to its sustainable operation, and intangible assets such as corporate image can provide the basis for strategic planning. Therefore, building a corporate image is an inevitable incentive for operators when planning CSR strategies.

Furthermore, “financial capacity” is ranked fourth in weighting among all sub-factors. This highlights that the financial resources available to companies impact the implementation of strategic CSR. The result is consistent with previous studies that have made similar arguments about CSR, company size, and financial situation (Branco and Rodrigues, 2006; Choi et al., 2018). Large enterprises typically have more resources, stable financials, and mature business models than start-ups; therefore, they do not need to worry about the impact of implementing CSR on their financial performance, and their solid foundation increases the likelihood that they will invest in CSR (McGuire et al., 1988; Brammer and Millington, 2006). Companies should reserve appropriate budgets for CSR strategies in advance according to their financial situation and formulate corresponding CSR strategies based on the available resources.

Stakeholder. External groups are one of the factors that influence companies when planning CSR strategies. In this study,

Table 7 Aggregated pairwise comparison matrix of sub-factors within main factor “company”.

	Financial capacity	Human resources	Corporate image	Priorities (weights)
Financial capacity	1	2.0460	1.5110	0.4650
Human resources	0.4888	1	0.7370	0.2271
Corporate image	0.6618	1.3568	1	0.3079

CR = 0.0016 < 0.1.

Table 8 Aggregated pairwise comparison matrix of sub-factors within main factor “stakeholder”.

	Purchase intention	Investment intention	Reputation risk	Government relations	Priorities (weights)
Purchase intention	1	1.6043	2.1879	3.3236	0.4125
Investment intention	0.6233	1	1.4349	2.7903	0.2797
Reputation risk	0.4571	0.6969	1	2.1021	0.2015
Government relations	0.3009	0.3584	0.4757	1	0.1063

CR = 0.0009 < 0.1.

Table 9 Aggregated pairwise comparison matrix of sub-factors within main factor “competitor”.

	Entry barrier	Price premium	Innovation ability	Priorities (weights)
Entry barrier	1	1.7007	0.6504	0.3237
Price premium	0.5880	1	0.4304	0.1980
Innovation ability	1.5376	2.3233	1	0.4783

CR = 0.0016 < 0.1.

“stakeholder” is given secondary weight in all main factors. Among all sub-factors, “reputation risk” within the main factor “stakeholders” has the third highest weight, indicating that companies view CSR as a way of risk management. Avoiding reputational damage is one of the main motivations for enterprises to implement CSR (Branco and Rodrigues, 2006; Choi et al., 2018). The reason is that if a company’s long-established reputation is destroyed by media coverage, it will cause a great loss to the company. The best way to deal with this risk is to review and improve the company’s negligence in business processes through CSR so that the media cannot criticize the company’s reputation.

“Investment intention” has the fifth highest weighting of all sub-factors. This indicates that when a company pursues its CSR outcome, it is expected to be seen by investors as a company with greater growth potential and ultimately creates higher value for shareholders. This feature allows companies to obtain more capital from investors to support their operational activities and strategic planning (Malik, 2015). In fact, CSR investment has already made its mark on the financial market. Investors prefer to invest in responsible companies (Brown, 1997; Msiska et al., 2021).

Competitor. Corporate strategy aims to gain a competitive advantage. The second highest weight is given to “innovation ability” among all sub-factors. The result supports the idea that a company’s ability to innovate helps implement CSR strategies and develop more business opportunities by considering the connection to environmental and social issues (Husted and Allen, 2007; Padgett and Galan, 2010). There is already a precedent for companies combining corporate innovation with social

responsibility. Toyota launched a range of innovative vehicles with hybrid fuel and electric engines to address growing environmental concerns and vehicle emissions through product innovation (Iyer and Soberman, 2016).

Conclusions

This study integrates the strategic triangle perspective with the concept of CSR to generate strategic CSR and identify the key factors that affect the implementation of strategic CSR. The strategic CSR proposed in this study emphasizes that companies should take the initiative to integrate social responsibility with their own goals and core business while considering internal resources, stakeholders, and the competitive environment to formulate the most appropriate strategic plan. This enables companies to achieve their strategic goals while fulfilling CSR.

This study has several important managerial implications. First, by integrating strategic thinking into CSR, the scope of social responsibility is not only to fulfill the civic duties of enterprises to benefit society but also to maintain relationships with stakeholders and gain competitive advantages. Second, the hierarchical network structure proposed in this study can help CSR practitioners think about strategic CSR from a holistic perspective so that the concept of CSR can be better integrated into business strategies and become an issue to be considered when companies conduct strategic planning.

Third, the findings of this study will enable CSR practitioners to understand the relatively important factors that influence the implementation of strategic CSR and to invest resources and effort in areas related to these key factors. This enables strategic CSR to be implemented more efficiently and ultimately has the greatest impact. Finally, these results help companies comprehend how the implementation of CSR relates to their own goals and performance, and the benefits it can bring them. In this way, CSR will no longer be seen as a cost or expense but as a strategy that can help companies achieve their goals. From this perspective, companies will be more motivated than ever to fulfill their CSR, leading to better social and economic development.

Concerning its methodological contributions, the ANP method has some advantages. Primarily, ANP is an appropriate technique for solving multi-criteria decision-making problems in which there are dependencies among factors. This can simplify complex problems and effectively identify the key factors that affect the implementation of strategic CSR. Next, by applying the ANP method, which combines both qualitative and

Table 10 The limit supermatrix.

	Goal	A	B	C	A1	A2	A3	B1	B2	B3	B4	C1	C2	C3
Goal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
A1	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264	0.1264
A2	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985
A3	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779	0.1779
B1	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944	0.0944
B2	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237	0.1237
B3	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282	0.1282
B4	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303	0.0303
C1	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216
C2	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337
C3	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653	0.1653

Table 11 The global weight of each sub-factor.

Sub-factors	Global weights	Ranking
Financial capacity	0.1264	4
Human resources	0.0985	6
Corporate image	0.1779	1
Purchase intention	0.0944	7
Investment intention	0.1237	5
Reputation risk	0.1282	3
Government relations	0.0303	9
Entry barrier	0.0216	10
Price premium	0.0337	8
Innovation ability	0.1653	2

quantitative information, a precise hierarchical network structure was proposed to systematically examine these factors. Finally, because ANP uses pairwise comparisons derived from the judgments of experts, accurate weights of the main factors and sub-factors can be generated based on professional considerations.

Nevertheless, this study has some limitations that should be examined in future research. Primarily, the main factors and sub-factors were selected from the literature review, which may have confined the range of factors that could be selected. Future research could combine a literature review with other methods, such as focus group, nominal group technique, and in-depth interviews, to identify additional factors. Furthermore, this study uses ANP as a single method to establish a hierarchical network structure for determining the key factors influencing strategic CSR implementation. Future research could further consider the ambiguity associated with the judgments of experts and incorporate fuzzy numbers into the ANP method to evaluate the relative weights of factors.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Author Contributions

C-CW conceived the study and was responsible for the design and revision of the manuscript. C-CW, F-CC, and D-YS were responsible for collecting data, analyzing data, interpreting results and writing the draft of the manuscript.

Competing interests

The authors declare no competing interests.

Ethical approval

This article does not contain any studies with human participants performed by any of the authors.

Informed consent

This article does not contain any studies with human participants performed by any of the authors.

Additional information

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