

Taiwan Cement Corp. (1101)

Construction Materials | TW

Improvement in board practices; strong labor and safety management practices

MSCI
ESG RATINGS



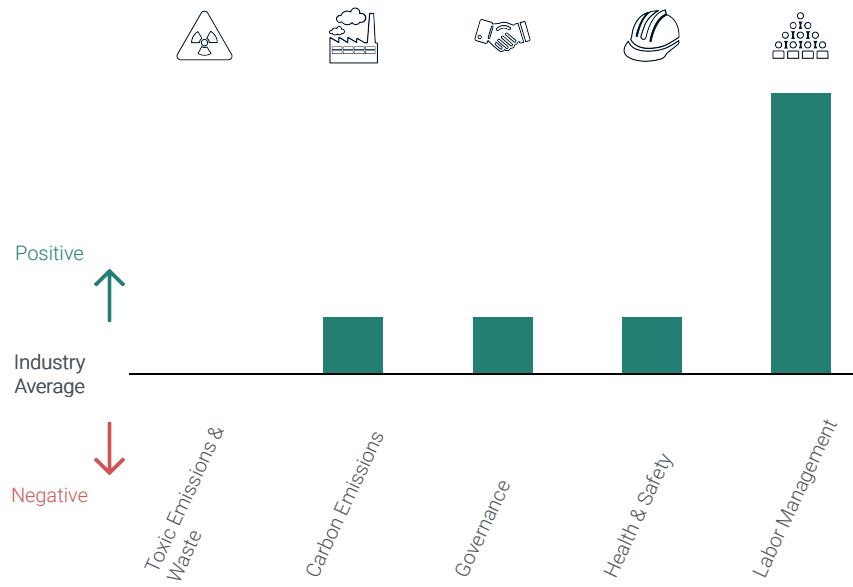
CCC B BB BBB A AA AAA

RATING ACTION DATE: December 05, 2022

LAST REPORT UPDATE: February 14, 2023

Score attribution by key issue

This chart highlights the company's positioning relative to the industry average for each Key Issue that contributed to its ESG Rating as of February 14, 2023.



Last ESG Rating action

Rating action date: December 05, 2022

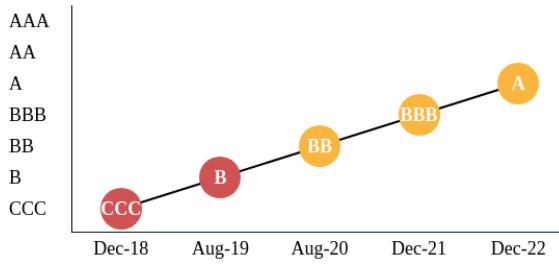
Taiwan Cement has been upgraded to 'A' from 'BBB'.

The removal of a key metric derived from accounting ratios (Revenue Recognition) in the Governance assessment is a key contributor to the company's upgrade due to its relatively low accounting risk compared to home market peers. Additionally, its executive board members are no longer overboarded, supporting the upgrade. However, owing to limited disclosures on executive pay practices and due to cross-shareholdings, the company trails home market and global peers on overall corporate governance.

- The labor-intensive nature of cement manufacturing exposes companies such as Taiwan Cement to risks of workflow disruptions in the event of labor unrest. Our assessment indicates the company leads peers on programs to mitigate these risks. Like leading peers, it provides stock plans and non-pay benefits to all employees. Further it conducts annual engagement surveys to gauge job satisfaction levels.
- Cement manufacturing activities typically expose the workforce to risk of workplace accidents. Taiwan Cement's employee safety programs include groupwide safety policies, safety training for employees and periodic audits. We note it has set targets to reduce its LTIR and TRIR rates by 35% by FY 2023 vs. baseline of FY 2016.
- As part of its climate mitigation programs, Taiwan Cement has introduced ecofriendly cement and energy storage systems. It also focuses on circular economy to reduce waste generation. We note it has set targets to reduce carbon emission intensity by 20% and 31% in China and Taiwan, respectively, by 2030.

Analysts: Ajay Lobo, Margarita Grabert

ESG Rating history



ESG Rating history shows five most recent rating actions

ESG Rating distribution

Universe: MSCI ACWI Index constituents, Construction Materials, n=23



Key scores

| | Weight | Score (0-10) |
|---|--------|--------------|
| Industry-Adjusted Score (Last Updated: December 05, 2022) | | 6.3 |
| Weighted-Average Key Issue Score (Last updated: December 05, 2022) | | 4.8 |
| Environmental Pillar Score | 39% | 3.8 |
| Social Pillar Score | 28% | 6.5 |
| Governance Pillar Score | 33% | 4.5 |

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What is an ESG Rating? MSCI ESG Ratings aim to measure a company's resilience to long-term ESG risks. Companies are scored on an industry-relative AAA-CCC scale across the most relevant Key Issues based on a company's business model.



ESG Rating scorecard

As of February 14, 2023

| KEY ISSUE | WEIGHT | INDUSTRY AVERAGE | SCORE (0-10) | CHANGE | EXPLANATION |
|---|------------|------------------|--------------|-------------|---|
| Weighted-Average Key Issue Score | | 4.1 | 4.8 | | |
| > ENVIRONMENT | 39% | 3.8 | 3.8 | ▼0.5 | |
| <u>Carbon Emissions</u> | 20% | 3.9 | 4.2 | ▼0.5 | <ul style="list-style-type: none"> Carbon Intensity 71% lower than industry average |
| <u>Toxic Emissions & Waste</u> | 19% | 3.3 | 3.3 | ▼0.6 | <ul style="list-style-type: none"> Initiatives to reduce toxic emissions and waste include aggressive targets |
| > SOCIAL | 28% | 4.3 | 6.5 | ▲1.5 | |
| <u>Health & Safety</u> | 14% | 3.9 | 4.7 | ▲1.1 | <ul style="list-style-type: none"> Incident reduction targets for both employees and contractors |
| <u>Labor Management</u> | 14% | 4.6 | 8.3 | ▲2.0 | <ul style="list-style-type: none"> Limited risk of operational disruptions, employment litigation or reduced productivity relative to peers Robust compensation practices compared to peers, including stock-based awards |
| > GOVERNANCE | 33% | 4.3 | 4.5 | ▲0.9 | |
| <u>Corporate Governance</u> | | 5.4 | 4.6 | ▲1.0 | <ul style="list-style-type: none"> The company falls into the lower scoring range relative to global peers, reflecting key areas of concern related to executive pay. |
| <u>Corporate Behavior</u> | | 4.7 | 6.6 | | <ul style="list-style-type: none"> Evidence of detailed policies on business ethics and corruption |

* denotes company-specific Key Issue

This table shows the Key Issue scores and weights contributing to the company's ESG Rating and any changes to those scores since the last ESG Rating action. The range of possible scores is 0-10, where 10 is best and 0 is worst.

Rating model details

Taiwan Cement was rated based on a standard version of the Construction Materials Industry ESG Rating Model.

Company Data Feedback response

Data feedback in last 12 months? _____ No
Date of last feedback _____ Dec 2021



Recent developments affecting ESG scores

This table shows the last 10 score changes* and rating actions that have occurred in the past 12 months.

| Date ▲ | Type | Score (0-10) | Change | Explanation |
|--------------|--|--------------|--------|--|
| | Current Weighted-Average Key Issue Score | 4.8 | | |
| Dec 05, 2022 | ESG Rating action | 4.8 | ▲0.2 | Taiwan Cement has been upgraded to 'A' from 'BBB'. |
| Dec 05, 2022 | Data Update: Carbon | | | Decrease in performance score, management score |
| Jul 08, 2022 | Data Update: Corporate Governance | | ▲0.1 | Flags Added: Revenue Recognition, Revenue Recognition, Revenue Recognition Flags Removed: No Nomination Committee Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition, Asset-Liability Valuation, Expense Recognition, Asset-Liability Valuation, Expense Recognition |
| Jun 13, 2022 | Methodology Update: ESG Ratings | 4.5 | ▲0.1 | Methodology Enhancements: scores recalculated to reflect enhancements to the ESG Ratings model. |
| Apr 29, 2022 | Data Update: Corporate Governance | | ▲0.2 | Flags Removed: Overboarded Exec Directors |
| Apr 26, 2022 | Data Update: Exposure | | ▼0.1 | Change in exposure score for the following Key Issue(s): Corporate Behavior, Labor Management, |
| Mar 11, 2022 | Data Update: Corporate Governance | | ▼0.1 | Governance Score changed based on the listed Key Metric(s): Cross Shareholdings |
| Mar 04, 2022 | Data Update: Corporate Governance | | ▲0.1 | Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition, Cross Shareholdings |
| Dec 17, 2021 | ESG Rating action | 4.3 | ▲0.1 | Taiwan Cement has been upgraded to 'BBB' from 'BB'. |
| Dec 07, 2021 | Data Update: Carbon | | ▼0.1 | Decrease in performance score, management score |

This table outlines the latest changes to specific data points that have occurred, the trigger for change (e.g. issuer feedback, data update or methodology enhancements) and the overall impact on the company's Weighted Average Key Issue Score. Companies are monitored on a continuous basis and significant score changes may trigger an ESG Rating action.

[View additional recent developments affecting the ESG score](#)

Most recent controversies

There are no recent new controversies or updates to ongoing controversies for this company.



Corporate governance summary



Board of directors

Board type: Unitary Board



Board diversity



Ownership summary

| | | |
|------------------------------|-------------------------|--|
| Capital structure | Multiple Equity Classes | Top shareholders |
| Ownership classification | Principal Shareholder | Koo Family and Chang Family - 10.95% (Chinatrust Investment Co., Ltd. -3.95% via Tian-Yi Huo - 0.14% Chia Hsin Cement Corporation-3.56% via Kang-Lung Chang, Chia Hsin International -1.74 via Kang-Lung Chang International CSRC Investment Holdings Co - 1.69%, via Kung-Yi Koo - 0.01) |
| Key Owner Types | Family Firm | |
| Complex Ownership Structures | Cross Shareholdings | |

CEO

Name: An Ping Chang

Total realized pay*:N/A

Tenure: 3 Years

Total summary pay*:N/A

*CEO pay figures are sourced from listed company annual reports and proxy filings. When a new CEO is named the pay figures for the previous CEO will be displayed until this information has been updated for the new CEO

Peer benchmarking

| LARGEST 5 INDUSTRY PEERS (CONSTRUCTION MATERIALS) | Carbon Emissions | Toxic Emissions & Waste | Health & Safety | Labor Management | Corporate Governance | Corporate Behaviour | Rating & Trend |
|---|------------------|-------------------------|-----------------|------------------|----------------------|---------------------|----------------|
| CRH PUBLIC LIMITED COMPANY | ● ● ● | ● ● ● ● | ● ● ● ● | ● ● ● | ● ● ● ● | ● ● ● ● | AAA ▲ ▲ |
| Holcim AG | ● ● ● | ● ● ● | ● ● | ● | ● ● ● ● | ● | AA ▲ |
| MARTIN MARIETTA MATERIALS, INC. | ● ● ● | ● ● ● ● | ● ● ● | ● ● ● ● | ● ● ● ● | ● ● ● ● | A ▲ ▲ |
| Taiwan Cement Corp. | ● ● ● | ● ● ● | ● ● ● | ● ● ● ● | ● ● | ● ● ● ● | A ▲ |
| VULCAN MATERIALS COMPANY | ● ● | ● ● ● ● | ● ● ● | ● ● ● | ● ● ● | ● ● ● ● | BBB ▲ ▲ |
| ULTRATECH CEMENT LIMITED | ● ● | ● | ● ● | ● ● | ● | ● | B ▲ ▲ |

QUARTILE KEY : Bottom Quartile ● Top Quartile ● ● ● ●

RATING TREND KEY : Maintain ▲ ▲ Upgrade ▲ Upgrade by two or more notches ▲▲ Downgrade ▼ Downgrade by two or more notches ▼▼

This table shows the company's positioning relative to five of its 23 industry peers. Industry peers are constituents of the MSCI ACWI Index in the ESG Ratings Industry classified as Construction Materials, as of February 14, 2023. The selection of five industry peers in this distribution is based on market capitalization, sorted by ESG Ratings (best to worst).



Analyst insights

- With Engie EPS acquisition, Taiwan Cement Corporation positions for entry into battery storage opportunities

August 02, 2021
Mathew Lee

Engie finalized the sale of its 60.5% stake in subsidiary Engie EPS to Taiwan Cement Corporation (TCC) in a deal worth EUR 132 million at EUR 17.10 per share (July 2021). Engie EPS will rebrand as New Horizons Ahead (NHOA). NHOA's portfolio of storage solutions positions the company well to capitalize on opportunities related to transport electrification and renewable energy.

TCC subsidiary TCC Green Energy Corp has developed both the first large-scale Battery Energy Storage System (BESS) and combined solar and wind power plant in Taiwan, where regulatory requirements set a 10% minimum of renewables consumption for heavy industry. NHOA's project development experience with storage solutions (300 MWh installed and 600 MWh under development globally) could help increase the viability of renewables to supply TCC's heavy industry operations in cement production that our research indicates account for over 85% of its business revenue. As other heavy industries in Taiwan seek to comply with regulatory requirements, TCC could be tapping into a growing market that recently saw Taiwan Semiconductor Manufacturing Company (TSMC) sign the world's largest corporate Power Purchase Agreement (PPA) for 920 MW of wind energy in June 2020.

TCC subsidiary E-One Moli Energy Corp (Modicel), the largest lithium battery manufacturer in Taiwan announced in April 2021 a USD 350 million dollar investment towards building a battery factory that can supply the equivalent of long-distances batteries for the production of 24,000 electric vehicles a year. NHOA's joint venture Free2Move eSolutions with automotive manufacturer Stellantis aims to build 35,000 fast chargers over 9,000 locations throughout Southern Europe by 2030, hoping to capitalize on the European Commission's proposed Fit for 55 emissions reduction policies calling for 100% zero emission cars by 2035 and regular electric charging intervals every 60km of highway. Modicel and NHOA thus give TCC exposure to rising demand for both electric vehicles and charging infrastructure.

- Brother-in-law holds onto chairmanship until Koo's successors are named

October 19, 2020
Sophia Cheng

In 2017, Leslie Koo, the third-generation Taiwanese cement scion, passed away from injuries sustained from a fall at age of 62. Following his sudden death, his brother-in-law Nelson Chang was appointed to be the acting chairman of Taiwan Cement Corp (TCC), the island's top cement maker founded by Koo's family. The family controls Taiwan Cement Group and its 17 affiliate companies across various sectors, including construction, biotech and chemical products. TCC is the group's flagship company, in which the family holds 9.8% voting rights.

The family has delegated Leslie Koo's responsibilities to other family members but a succession plan is still not apparent. Chang officially became the chairman and CEO of TCC, while Koo's nephew Koo Kung-yi, from the family's fourth generation, became the deputy chairman after the company's annual general meeting in June 2018. Koo Kung-yi was also appointed as chairman of two other affiliated companies in the TCC Group, China Synthetic Rubber Corp. and Taiwan Prosperity Chemical Corp. While it appears that some of the family's fourth generation has been given key roles in the companies, Koo's family has not announced a succession plan for TCC yet. (Leslie Koo's son Koo Gung-kai and daughter Koo Hsuan-hui, both in their 30s, do not hold any positions at TCC.) Besides, TCC has an entrenched board, based on MSCI's definition, with 26% of the board directors' tenure over 15 years and six out of 19 board members over age 70. TCC has the most directors older than 70 among the MSCI ACWI Taiwan Index constituents. In January 2020, the younger-generation Koo Kung-yi resigned as deputy chairman of TCC, citing too many work commitments. This led to speculation that this potential succession candidate would rather focus on the other two TCC Group companies where he serves. As a result of his resignation, his uncle, Chang, who has served on TCC's board for more than 26 years, is expected to continue to lead the board for the foreseeable future.



ESG Rating drill down

| Description | As of prior rating action date: Dec 17, 2021 | | As of last rating action date: Dec 05, 2022 | | As of last report update date: Feb 14, 2023 | | Difference | |
|--|---|--------|--|--------|--|--------|------------|--------|
| | Score | Weight | Score | Weight | Score | Weight | Score | Weight |
| ESG Rating Letter Grade | BBB | | A | | A | | - | - |
| Industry Adjusted Score | 5.7 | | 6.3 | | 6.3 | | - | - |
| Industry Minimum Score | 1.5 | | 1.5 | | 1.5 | | - | - |
| Industry Maximum Score | 6.4 | | 6.7 | | 6.7 | | - | - |
| Weighted Average Key Issue Score | 4.3 | | 4.8 | | 4.8 | | - | - |
| Environmental Pillar Score | 4.3 | 39.0% | 3.8 | 39.0% | 3.8 | 39.0% | - | - |
| Carbon Emissions Key Issue Score | 4.7 | 20.0% | 4.2 | 20.0% | 4.2 | 20.0% | - | - |
| Exposure Score | 10.0 | | 10.0 | | 10.0 | | - | - |
| Business Segment Exposure Score | 9.2 | | 9.5 | | 9.5 | | - | - |
| Geographic Exposure Score | 5.9 | | 5.9 | | 5.9 | | - | - |
| Management Score | 7.7 | | 7.2 | | 7.2 | | - | - |
| Management Score - Excluding Controversies | 7.7 | | 7.2 | | 7.2 | | - | - |
| Practices Score | 8.5 | | 8.5 | | 8.5 | | - | - |
| Performance Score | 6.0 | | 4.5 | | 4.5 | | - | - |
| Toxic Emissions & Waste Key Issue Score | 3.9 | 19.0% | 3.3 | 19.0% | 3.3 | 19.0% | - | - |
| Exposure Score | 9.4 | | 9.4 | | 9.4 | | - | - |
| Business Segment Exposure Score | 9.4 | | 9.4 | | 9.4 | | - | - |
| Management Score | 6.3 | | 5.7 | | 5.7 | | - | - |
| Management Score - Excluding Controversies | 6.3 | | 5.7 | | 5.7 | | - | - |
| Practices Score | 6.9 | | 6.5 | | 6.5 | | - | - |
| Performance Score | 5.0 | | 4.1 | | 4.1 | | - | - |
| Controversy Deduction | 0.0 | | 0.0 | | 0.0 | | - | - |
| Social Pillar Score | 5.0 | 28.0% | 6.5 | 28.0% | 6.5 | 28.0% | - | - |
| Health & Safety Key Issue Score | 3.6 | 14.0% | 4.7 | 14.0% | 4.7 | 14.0% | - | - |
| Exposure Score | 8.3 | | 8.3 | | 8.3 | | - | - |
| Business Segment Exposure Score | 7.1 | | 7.2 | | 7.2 | | - | - |
| Geographic Exposure Score | 6.7 | | 6.5 | | 6.5 | | - | - |
| Management Score | 4.9 | | 6.0 | | 6.0 | | - | - |
| Management Score - Excluding Controversies | 4.9 | | 6.0 | | 6.0 | | - | - |
| Practices Score | 4.9 | | 6.5 | | 6.5 | | - | - |
| Performance Score | 5.0 | | 5.0 | | 5.0 | | - | - |
| Controversy Deduction | 0.0 | | 0.0 | | 0.0 | | - | - |
| Labor Management Key Issue Score | 6.3 | 14.0% | 8.3 | 14.0% | 8.3 | 14.0% | - | - |
| Exposure Score | 6.1 | | 6.2 | | 6.2 | | - | - |
| Business Segment Exposure Score | 7.1 | | 7.2 | | 7.2 | | - | - |
| Geographic Exposure Score | 6.2 | | 6.3 | | 6.3 | | - | - |
| Company-Specific Exposure Score | 3.8 | | 3.8 | | 3.8 | | - | - |
| Management Score | 5.4 | | 7.5 | | 7.5 | | - | - |
| Management Score - Excluding Controversies | 5.4 | | 7.5 | | 7.5 | | - | - |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

| Description | As of prior rating action date: Dec 17, 2021 | | As of last rating action date: Dec 05, 2022 | | As of last report update date: Feb 14, 2023 | | Difference | |
|---------------------------------------|---|--------------|--|--------------|--|--------------|------------|----------|
| | Score | Weight | Score | Weight | Score | Weight | Score | Weight |
| Practices Score | 5.4 | | 7.5 | | 7.5 | | - | |
| Controversy Deduction | 0.0 | | 0.0 | | 0.0 | | - | |
| Governance Pillar Score* | 3.6 | 33.0% | 4.5 | 33.0% | 4.5 | 33.0% | - | - |
| Governance Pillar Deductions** | -6.4 | | -5.5 | | -5.5 | | - | - |
| Corporate Governance Deductions | -5.0 | | -4.2 | | -4.2 | | - | - |
| Board | -2.2 | | -1.8 | | -1.8 | | - | - |
| Pay | -1.3 | | -1.3 | | -1.3 | | - | - |
| Ownership & Control | -0.9 | | -1.0 | | -1.0 | | - | - |
| Accounting | -0.7 | | -0.1 | | -0.1 | | - | - |
| Corporate Behavior Deductions | -1.3 | | -1.3 | | -1.3 | | - | - |
| Business Ethics | -1.3 | | -1.3 | | -1.3 | | - | - |
| Tax Transparency | 0.0 | | 0.0 | | 0.0 | | - | - |

**Beginning November 2020, the Environmental Pillar Score and Social Pillar Score are calculated based on the weighted average of underlying Key Issue Scores, while the Governance Pillar Score is calculated based on 10 minus the sum of Corporate Governance and Corporate Behavior deductions. In the ESG Rating drill-down, deductions are scaled to indicate impact on the overall Governance Pillar Score. In subsequent sections of the report, deductions are scaled to show impact on the Corporate Behavior and Corporate Governance Theme Scores.



Overflow table: Recent developments affecting ESG scores

| Date ▲ | Type | Score (0-10) | Change | Explanation |
|--------------|--|--------------|--------|--|
| | Current Weighted-Average Key Issue Score | 4.8 | | |
| Dec 05, 2022 | ESG Rating action | 4.8 | ▲0.2 | Taiwan Cement has been upgraded to 'A' from 'BBB'. |
| Dec 05, 2022 | Data Update: Carbon | | | Decrease in performance score, management score |
| Jul 08, 2022 | Data Update: Corporate Governance | | ▲0.1 | Flags Added: Revenue Recognition, Revenue Recognition, Revenue Recognition Flags Removed: No Nomination Committee Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition, Asset-Liability Valuation, Expense Recognition, Asset-Liability Valuation, Expense Recognition |
| Jun 13, 2022 | Methodology Update: ESG Ratings | 4.5 | ▲0.1 | Methodology Enhancements: scores recalculated to reflect enhancements to the ESG Ratings model. |
| Apr 29, 2022 | Data Update: Corporate Governance | | ▲0.2 | Flags Removed: Overboarded Exec Directors |
| Apr 26, 2022 | Data Update: Exposure | | ▼0.1 | Change in exposure score for the following Key Issue(s): Corporate Behavior, Labor Management, |
| Mar 11, 2022 | Data Update: Corporate Governance | | ▼0.1 | Governance Score changed based on the listed Key Metric(s): Cross Shareholdings |
| Mar 04, 2022 | Data Update: Corporate Governance | | ▲0.1 | Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition, Cross Shareholdings |
| Dec 17, 2021 | ESG Rating action | 4.3 | ▲0.1 | Taiwan Cement has been upgraded to 'BBB' from 'BB'. |
| Dec 07, 2021 | Data Update: Carbon | | ▼0.1 | Decrease in performance score, management score |
| Nov 19, 2021 | Data Update: Corporate Governance | | ▼0.1 | Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition, Revenue Recognition |
| Oct 22, 2021 | Data Update: Corporate Governance | | ▼0.1 | Flags Added: CEO Equity Policy, Combined CEO/Chair |
| Oct 20, 2021 | Data Update: Controversies | | ▲0.2 | Minor controversy case(s): (1) China: CNY 300,000 SAMR penalty for the alleged failure to declare joint venture with OYAK |
| Sep 28, 2021 | Issuer Verification: ESG | | ▲0.3 | Feedback provided on Health & Safety, Labor Management and Toxic Emissions & Waste |
| Sep 28, 2021 | Issuer Verification: ESG | | ▲0.3 | Feedback provided on Health & Safety, Labor Management and Toxic Emissions & Waste |



| | | | | |
|--------------|-----------------------------------|-----|------|--|
| Aug 10, 2021 | Data Update: Corporate Governance | | ▼0.2 | Governance Score changed based on the listed Key Metric(s): Revenue Recognition, Asset-Liability Valuation, Entrenched Board |
| Jun 18, 2021 | Data Update: Corporate Governance | | ▲0.2 | Flags Removed: Multiple Equity Classes with Different Voting Rights Governance Score changed based on the listed Key Metric(s): Related Party Transactions |
| Jun 11, 2021 | Data Update: Corporate Governance | | ▼0.2 | Flags Added: Multiple Equity Classes with Different Voting Rights Flags Removed: Business Combination Provision Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition, Revenue Recognition, Cross Shareholdings |
| Mar 05, 2021 | Data Update: Corporate Governance | | ▼0.1 | Flags Added: Overboarded Exec Directors |
| Feb 10, 2021 | Issuer Verification: ESG | | ▲0.1 | Feedback provided on Health & Safety and Toxic Emissions & Waste |
| Nov 05, 2020 | Methodology Update: ESG Ratings | 3.6 | ▼0.4 | Methodology Enhancements: scores recalculated to reflect enhancements to the ESG Ratings model. |
| Oct 23, 2020 | Data Update: Governance | | ▲0.1 | Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition, Revenue Recognition |
| Aug 31, 2020 | ESG Rating action | 3.9 | ▲0.1 | Taiwan Cement has been upgraded to 'BB' from 'B'. |
| Aug 31, 2020 | Data Update: Governance | | | Flags Added: Revenue Recognition Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition |
| Aug 18, 2020 | Data Update: Carbon | | ▲0.3 | Increase in practices score, management score, exposure score |
| Aug 14, 2020 | Data Update: Governance | | ▲0.2 | Flags Removed: Revenue Recognition Governance Score changed based on the listed Key Metric(s): Asset-Liability Valuation, Expense Recognition |
| Jun 26, 2020 | Data Update: Governance | | ▼0.1 | Flags Removed: Asset-Liability Valuation, Expense Recognition Governance Score changed based on the listed Key Metric(s): Revenue Recognition |
| Jun 23, 2020 | Data Update: Governance | | ▲0.2 | Flags Added: Asset-Liability Valuation, Expense Recognition Flags Removed: Leadership Concerns Governance Score changed based on the listed Key Metric(s): Revenue Recognition |
| Jun 19, 2020 | Data Update: Governance | | ▼0.1 | Flags Added: Leadership Concerns |
| Jun 16, 2020 | Data Update: Governance | | ▲0.1 | Flags Added: Audit Committee Industry Expert, Business Combination Provision, Combined CEO/Chair Flags Removed: Director Removal Without Cause, Leadership Concerns Governance Score changed based on the listed Key Metric(s): Cross Shareholdings, Asset-Liability Valuation, Expense Recognition, Revenue Recognition |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

Dec 20, 2019

Data Update: Governance

▼0.3

Flags Added: Overboarded Audit Committee Members,
Overboarded Non-Exec Directors
Governance Score changed based on the listed Key Metric(s):
Related Party Transactions

Aug 05, 2019

ESG Rating action

3.1

Taiwan Cement has been upgraded to 'B' from 'CCC'.

Corporate Governance



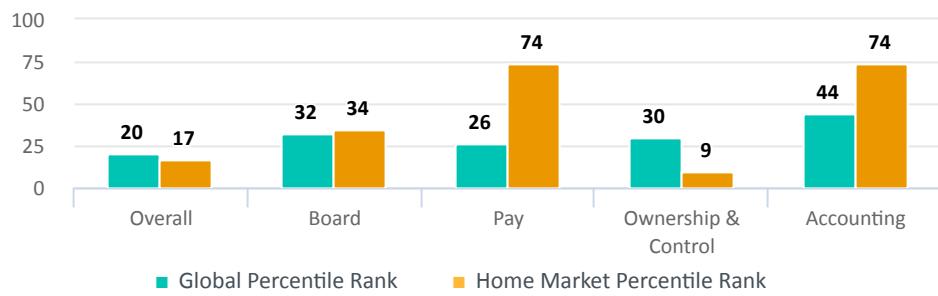
Market Cap: 8,748,040,180 USD

Home Market: Taiwan

| Score | Change (since rating) | Quartile | Last score change date |
|-------|-----------------------|----------|------------------------|
| 4.6 | ▲ 1.0 | •• | Sep 05, 2022 |

Sep 05, 2022

GOVERNANCE THEMES AND RANKINGS



SUMMARY

Taiwan Cement falls into the lower scoring range for all the companies we assess relative to global peers, indicating the presence of significant risks in one or more areas. The key areas of concern relate to: executive pay.

Last Data Update:

Sep 05, 2022

KEY DATES

| | |
|--------------------|--------------|
| Financial Year End | December 31 |
| Annual Filing Date | Apr 30, 2022 |
| AGM Date | May 26, 2022 |

WEBSITE

<https://www.taiwancement.com/>

*Key areas of concern include flagged key metrics within the three sub-issues that represent the largest scoring deductions. Please review the full report to see the complete set of flagged key metrics.

KEY AREAS OF CONCERN*

SCORING DEDUCTIONS

Pay Figures

(-1.20)

🚩 Executive Pay Disclosure

Ownership Structure

(-1.00)

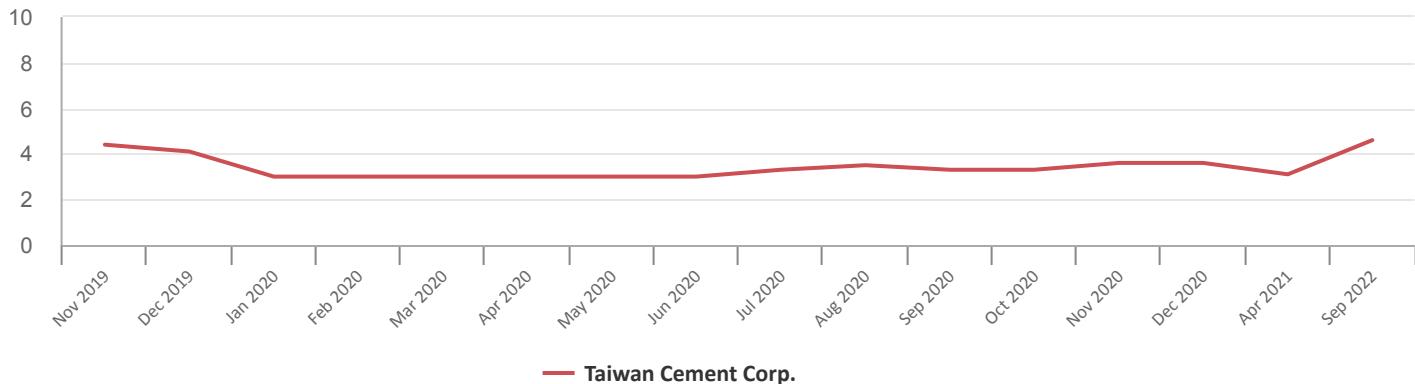
🚩 Cross Shareholdings

Board Effectiveness

(-0.50)

🚩 Overboarded Non-Exec Directors

CORPORATE GOVERNANCE SCORE HISTORY



CHANGES TO FLAGGED KEY METRICS (SINCE OCTOBER 2021)

| Key Metric | Key Metric Change | Date | Score Change* | Change Notes |
|---|-------------------|--------------|---------------|---|
| Nomination Committee Chair Independence | Flag Added | Sep 21, 2022 | -0.10 | Non-independent nomination committee chair identified |
| No Nomination Committee | Flag Removed | Jul 07, 2022 | 0.30 | Nomination committee function disclosed |
| Revenue Recognition | Flag Removed | Jun 12, 2022 | 0.53 | Methodology enhancements |
| No Nomination Committee | Flag Added | Jun 12, 2022 | -0.30 | Methodology enhancements |
| Board Majority Independent of Other Interests | Flag Added | Jun 12, 2022 | -0.30 | Methodology enhancements |
| Overboarded Exec Directors | Flag Removed | Apr 27, 2022 | 0.50 | |
| Combined CEO/Chair | Flag Added | Oct 18, 2021 | -0.20 | |
| CEO Equity Policy | Flag Added | Oct 18, 2021 | -0.20 | |

Note: A full list of score changes (including where there is no Key Metric Change) is included in the Appendix.
 *Score change available in respect of changes dated on or after 13 December 2017.



CCC B BB BBB A AA AAA

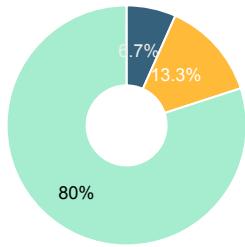
RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

BOARD OVERVIEW

Board Type: Unitary Board

Board of Directors

| | | |
|-------|------------------------|---------------------|
| Chair | An Ping (Nelson) Chang | Since: Jan 24, 2017 |
| CEO | An Ping (Nelson) Chang | Since: Jul 17, 2019 |



Executive Leadership

| | | |
|-----|----------|---------------------|
| CFO | Randy Yu | Since: Sep 13, 2022 |
|-----|----------|---------------------|

■Executive ■Links to Management ■Independent of Management



CCC | B | BB | BBB | **A** | AA | AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

BOARD

The policies and practices of the Taiwan Cement board fall within the average scoring range relative to global peers. We have flagged this board for potential concerns regarding the presence of certain related party transactions and some non-executives may have too many other public board commitments.

| 0-10 Score | Global Percentile Rank | Home Market Percentile Rank |
|------------|------------------------|-----------------------------|
| 6.0 | 32nd (Average) | 34th (Average) |

KEY METRICS SCORING

Deduction

AUDIT OVERSIGHT

- ☒ Audit Committee Industry Expert -0.10
- ☒ Overboarded Audit Committee Members -0.10

BOARD EFFECTIVENESS

- ☒ Overboarded Non-Exec Directors -0.50

BOARD INDEPENDENCE

- ☒ Related Party Transactions -0.20
- ☒ Board Majority Independent of Other Interests -0.30

BOARD LEADERSHIP

- ☒ Combined CEO/Chair -0.20
- ☒ Independent Chair -0.10
- ☒ Chair not Independent & No Independent Lead Director -0.10

BOARD SKILLS & DIVERSITY

- ☒ Risk Management Expertise -0.20
- ☒ Not 30% Female Directors -0.10

NOMINATION PROCESS OVERSIGHT

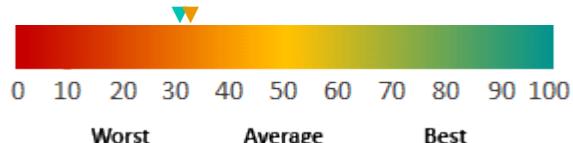
- ☒ Nomination Committee Chair Independence -0.10

PAY OVERSIGHT

- ☒ Pay Committee Concerns -0.30

BOARD PERFORMANCE VS.

▼ Global ▼ Home Market





LEADERSHIP

CHIEF EXECUTIVE OFFICER

| History | CEO Since | Until | Name | Gender | Age |
|---------|-----------|-------|------------------------|--------|-----|
| Current | Jul 2019 | | An Ping (Nelson) Chang | M | |

CHIEF FINANCIAL OFFICER

| History | CFO Since | Until | Name | Gender | Age |
|---------|-----------|-------|----------|--------|-----|
| Current | Sep 2022 | | Randy Yu | M | |

CHAIR

| History | Chair Since | Until | Name | Gender | Age |
|---------|-------------|-------|------------------------|--------|-----|
| Current | Jan 2017 | | An Ping (Nelson) Chang | M | |

BOARD OF DIRECTORS

The Taiwan Cement board currently has an independent majority, which enables it to more effectively fulfill its critical function of overseeing management on behalf of shareholders.

Number of Board Meetings: 13

Non-executives meet in absence of Executives: No

| Name | M/F | Age | Tenure (Years) | Boards | Independent of Mgmt | Independent of Other Interests | Management Link/Designation Reason | Nationality |
|---|-------|---------|----------------|--------|---------------------|--------------------------------|---|---------------|
| An Ping (Nelson) Chang <small>COB CEO I \$</small> | M | | 28 | 2 | No | No | Family Firm Director; Executive | Taiwan |
| Chi Chia Hsieh | M | | 6 | 2 | Yes | No | Special Shareholder Representative | Taiwan |
| Chi-Te Chen | M | | 1 | 2 | Yes | No | Special Shareholder Representative | Not Disclosed |
| Chien (James) Wen <small>\$</small> | M | | 4 | 1 | Yes | No | Special Shareholder Representative | Taiwan |
| Chun Ying Liu | F | 47 | 4 | 1 | Yes | No | Special Shareholder Representative | Taiwan |
| Kang Lung (Jason) Chang | M | | 10 | 1 | No | No | Family relationship; Family Firm Director | Taiwan |
| Kenneth C.M. Lo <small>\$</small> | M | | 17 | 1 | Yes | No | Special Shareholder Representative | Taiwan |
| Kung Yi Koo | M | | 4 | 1 | No | No | Non-Executive Employee; Family relationship; Family Firm Director | Taiwan |
| Ling Tai (Lynette) Chou <small>\$</small> | F | | 4 | 1 | Yes | Yes | | Taiwan |
| Mei-Hwa Lin | F | | 1 | 1 | Yes | Yes | | Not Disclosed |
| Por-yuan Wang | M | | 13 | 1 | Yes | No | Special Shareholder Representative | Taiwan |
| Shiou-Ling (Sherry) Lin | F | | 1 | 2 | Yes | Yes | | Taiwan |
| Sun-Te (Eric) Chen <small>\$</small> | M | 67 | < 1 | 2 | Yes | No | Special Shareholder Representative | China |
| Victor Wang <small>\$</small> | M | | 10 | 1 | Yes | Yes | | Taiwan |
| Yu-Cheng (Arthur) Chiao | M | | 10 | 5 | Yes | Yes | | Taiwan |
| | F | # >= 70 | # >= 15 yrs | # >= 4 | | | | |
| Total (of 15) | 4 | 0 | 2 | 1 | 12 | 5 | | |
| Percentage | 26.7% | 0% | 13.3% | 6.7% | 80% | 33.3% | | |

Note: Board count includes the membership of this board.

\$ - Financial Expert (6) I - Industry Expert CEO - Chief Executive Officer COB - Chair of the Board

RELATED PARTY TRANSACTIONS

The risk to minority shareholders arising from related party transactions is a function of the nature of the related party, the relative size of the transaction and the pricing of the transaction. The board, and in particular the independent directors or audit committee, play a key role in the protection of minority shareholders' interests, and monitoring and managing potential conflicts of interest of management, board members and shareholders.



Reported Transactions

RPT with affiliated companies, major investors, merged company with significant influence includes operating income and expenses and interest expenses.

For the two most recently reported fiscal years, these value of these transactions can be summarised as follows :

| Fiscal Year | Related Party Types | Aggregate Transaction Value | | Type |
|--------------|---------------------|-----------------------------|-------------------------|--|
| | | Value (CUR) | % of Total | |
| Dec 31, 2021 | Other | 3,067,087 TWD | 0.003% of Total Revenue | Recurring income from related party |
| | | 5,468,566 TWD | 0.006% of Expenses | Recurring purchases from related party |
| Dec 31, 2020 | Other | 2,629,691 TWD | 0.002% of Total Revenue | Recurring income from related party |
| | | 4,939,026 TWD | 0.006% of Expenses | Recurring purchases from related party |

Sources : AR 2020 p. 155-158, 2021 AR pg 78

BOARD EFFECTIVENESS

There appears to be director overboarding on this board, with at least one non-executive director sitting on too many boards. MSCI ESG Research considers a non-executive director to be overboarded when they sit on three or more additional boards (i.e. four total boards, including the rated company) in MSCI ESG Research's corporate governance research universe. For CEOs and other executive directors, we have established a limit of two additional boards (i.e. three boards including the rated company).

Nomination Committee

| Name | M/F | Age | Board Tenure (Years) | Independent of Mgmt | of Other Interests | Committee Status |
|--|-----|-----|----------------------|---------------------|--------------------|------------------|
| An Ping (Nelson) Chang \$ I | M | | 28 | No | No | Chair |
| Kenneth C.M. Lo \$ | M | | 17 | Yes | No | Member |
| Ling Tai (Lynette) Chou \$ | F | | 4 | Yes | Yes | Member |
| Shiou-Ling (Sherry) Lin | F | | 1 | Yes | Yes | Member |
| Yu-Cheng (Arthur) Chiao | M | | 10 | Yes | Yes | Member |

\$ - Financial Expert (3) I - Industry Expert

BOARD SKILLS & DIVERSITY

We have flagged the Taiwan Cement board for gender diversity concerns.

A board with one or more active CEOs and overboarded directors may not be able to provide effective oversight of management. Their other roles may limit the time and attention required to fulfill their fiduciary duties. The company's 'Below Average' rating for pay may be an indication of a management-friendly board due to the presence of one or more active CEOs on the board, which may be magnified by the apparent entrenchment of the board.



AUDIT OVERSIGHT

Audit Committee - Number Of Meetings: 12

The Taiwan Cement board of directors includes a fully independent audit committee and at least one member of that committee meets our standards for financial expertise.

| Name | M/F | Age | Board Tenure (Years) | Boards | Independent of Mgmt | Independent of Other Interests | Committee Status |
|--|-----|-----|----------------------|--------|---------------------|--------------------------------|------------------|
| Ling Tai (Lynette) Chou \$ | F | | 4 | 1 | Yes | Yes | Member |
| Mei-Hwa Lin | F | | 1 | 1 | Yes | Yes | Member |
| Shiou-Ling (Sherry) Lin | F | | 1 | 2 | Yes | Yes | Member |
| Victor Wang \$ | M | | 10 | 1 | Yes | Yes | Chair |
| Yu-Cheng (Arthur) Chiao | M | | 10 | 5 | Yes | Yes | Member |

\$ - Financial Expert (2)

Risk Committee - Number Of Meetings: 2

| Name | M/F | Age | Board Tenure (Years) | Independent of Mgmt | Independent of Other Interests | Committee Status |
|--|-----|-----|----------------------|---------------------|--------------------------------|------------------|
| Ling Tai (Lynette) Chou \$ | F | | 4 | Yes | Yes | Member |
| Shiou-Ling (Sherry) Lin | F | | 1 | Yes | Yes | Chair |
| Victor Wang \$ | M | | 10 | Yes | Yes | Member |

\$ - Financial Expert (2)

PAY OVERSIGHT

Pay Committee - Number Of Meetings: 4

The Taiwan Cement board includes an independent pay committee, which is considered best practice for oversight of executive pay according to international corporate governance standards.

| Name | M/F | Age | Board Tenure (Years) | Independent of Mgmt | Independent of Other Interests | CEO Role? | Committee Status |
|--|-----|-----|----------------------|---------------------|--------------------------------|-----------|------------------|
| Ling Tai (Lynette) Chou \$ | F | | 4 | Yes | Yes | | Member |
| Mei-Hwa Lin | F | | 1 | Yes | Yes | | Member |
| Shiou-Ling (Sherry) Lin | F | | 1 | Yes | Yes | | Member |
| Victor Wang \$ | M | | 10 | Yes | Yes | | Member |
| Yu-Cheng (Arthur) Chiao | M | | 10 | Yes | Yes | Active | Chair |

\$ - Financial Expert (2)



CCC | B | BB | BBB | **A** | AA | AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

CONTROVERSIES & EVENTS

No major relevant controversies have been uncovered.



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

PAY

Executive pay practices at Taiwan Cement fall into the average scoring range relative to global peers. Areas of particular concern include poor disclosure in relation to executive pay.

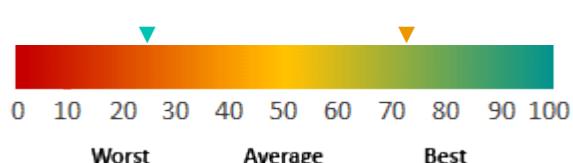
| 0-10 Score | Global Percentile Rank | Home Market Percentile Rank |
|------------|------------------------|-----------------------------|
| 2.3 | 26th (Below Average) | 74th (Average) |

KEY METRICS SCORING

| Deduction | |
|-----------------------------------|-------|
| NON-EXECUTIVE DIRECTOR PAY | |
| 🚩 Director Equity Policy | -0.10 |
| PAY FIGURES | |
| 🚩 Executive Pay Disclosure | -1.20 |
| PAY PERFORMANCE ALIGNMENT | |
| 🚩 CEO Equity Policy | -0.20 |
| 🚩 Clawbacks & Malus | -0.20 |

PAY PERFORMANCE VS.

▼ Global ▼ Home Market



Worst

Average

Best

PAY FIGURES

DISCLOSURE

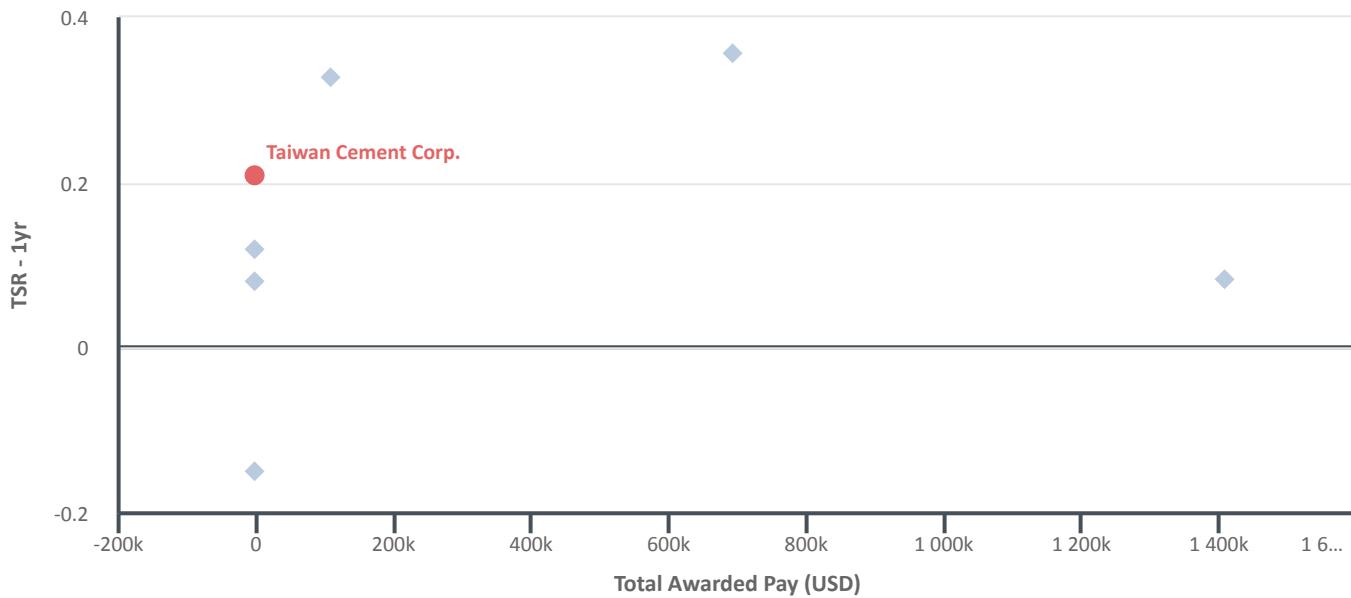
Disclosure should include, at minimum, pay for each executive member of the Board of Directors (or Management Board for companies with a two-tier board structure) on an individualized basis or in cases where there are no executive members, the CEO. The individualized disclosure should include separate information on the amount of each of the following (where such a component is provided): salary, short-term Incentives, long-term Incentives, pensions, benefits, and any one-off payments (such as recruitment or retention awards).

PAY PEER GROUP

MIDCAP - EMERGING - CONSTRUCTION MATERIALS (7 COMPANIES)

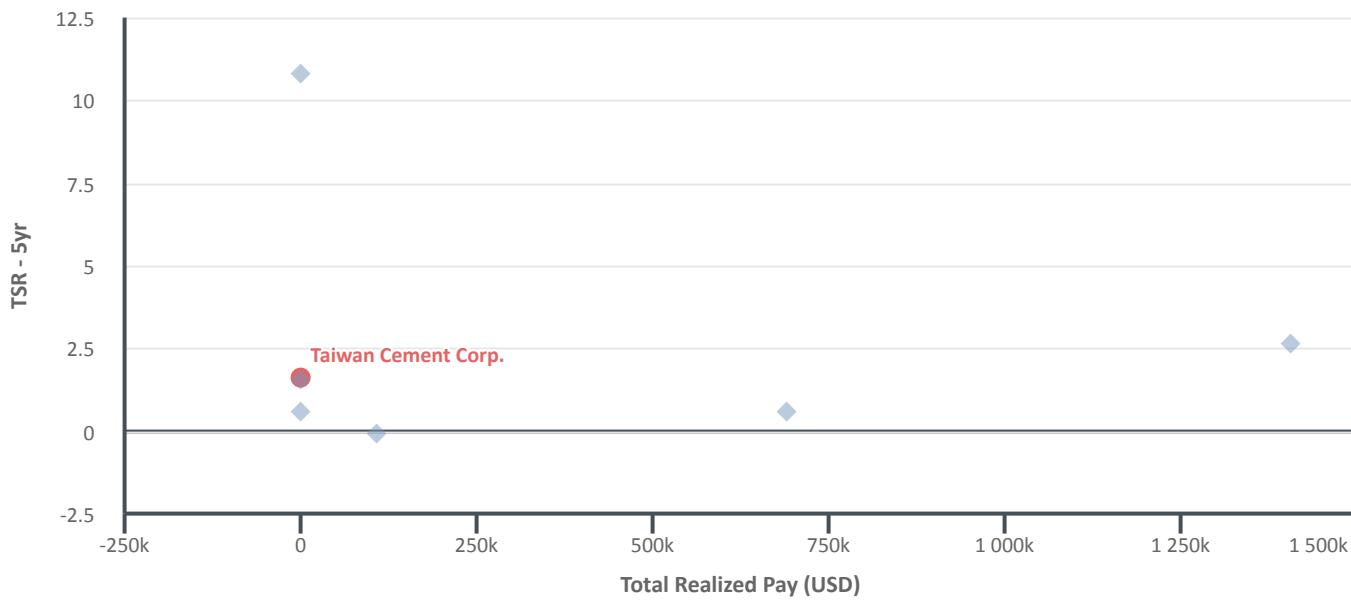
| Company | Home Market | Market Cap (USD m) | Pay Year | 1 Yr TSR | Total CEO Annual Pay (USD) | CEO Name | CEO Since |
|-------------------------|-------------|--------------------|----------|----------|----------------------------|-------------------|-----------|
| CHINA JUSHI CO., LTD | China | 6,704 | 2021 | 0.08% | 1,408,804 | Zhang | Mar 2005 |
| ACC LIMITED | India | 5,368 | 2021 | 0.36% | 692,804 | Balakrishnan | Feb 2020 |
| CEMEX, S.A.B. de C.V. | Mexico | 7,876 | 2021 | 0.33% | 108,771 | Gonzalez Olivieri | May 2014 |
| BUA Cement PLC | Frontier | 7,430 | 2021 | -0.15% | | Binji | Dec 2019 |
| DANGOTE CEMENT PLC | Frontier | 9,185 | 2021 | 0.08% | | Puchercos | Feb 2020 |
| Asia Cement Corporation | Taiwan | 4,982 | 2021 | 0.12% | | Lee | Aug 2000 |
| Taiwan Cement Corp. | Taiwan | 7,850 | 2021 | 0.21% | | Chang | Jul 2019 |

CEO TOTAL AWARDED PAY VERSUS PAY PEER GROUP



Pay Peers (♦) are used in the calculation of the Key Metric CEO Pay Total Summary and selected as set out in the MSCI Governance Metrics Methodology Document.

CEO TOTAL REALIZED PAY VERSUS PAY PEER GROUP



Pay Peers (♦) are used in the calculation of the Key Metric CEO Pay Total Summary and selected as set out in the MSCI Governance Metrics Methodology Document.

PAY PERFORMANCE ALIGNMENT

CEO & EXECUTIVE EQUITY

No effective stock ownership guidelines have been identified.



No CEO equity policy found.

| Executive | Tenure (Years) | Shares Held | YoY % Change | Shareholding As % of Salary |
|--|----------------|-------------|--------------|-----------------------------|
| An Ping (Nelson) Chang ! \$ | 28 | 2,188,553 | 0.00% | |
| Jong-Peir (John) Li ! \$ | N/A (Resigned) | 786,542 | | |

\$ - Financial Expert (2) ! - Industry Expert (2)

CLAWBACK & MALUS

No clawback or malus provisions have been identified.

NON-EXECUTIVE DIRECTOR PAY

NON-EXECUTIVE EQUITY

| Director | Tenure (Years) | Shares Held |
|---|----------------|-------------|
| Chi Chia Hsieh | 6 | 494,397 |
| Chi-Te Chen | 1 | 67,906 |
| Chi-Wen Chang \$ | N/A (Resigned) | 3,376,895 |
| Chin Jen Sheng | N/A (Resigned) | 2,100 |
| Kung Yi Koo | 4 | 561,815 |
| Ling Tai (Lynette) Chou \$ | 4 | 200,001 |
| Nan-Chou Lin | N/A (Resigned) | 2,897,442 |
| Tung Sheng (Eric) Wu | N/A (Resigned) | 74,686 |

\$ - Financial Expert (2)

NON-EXECUTIVE PAY TABLES

There are insufficient disclosures available to present non-executive pay data.

CONTROVERSIES & EVENTS

No major relevant controversies have been uncovered.



OWNERSHIP & CONTROL

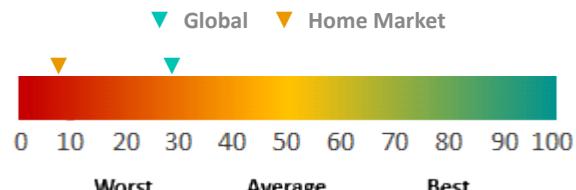
The company's ownership structure and shareholder rights at Taiwan Cement fall within the average scoring relative to global peers.

| 0-10 Score | Global Percentile Rank | Home Market Percentile Rank |
|------------|------------------------|-----------------------------|
| 5.5 | 30th (Average) | 9th (Below Average) |

KEY METRICS SCORING

| | Deduction |
|--------------------------------|-----------|
| DIRECTOR ELECTIONS | |
| Flag Annual Director Elections | -0.10 |
| Flag Majority Voting | -0.10 |
| OWNERSHIP STRUCTURE | |
| Flag Cross Shareholdings | -1.00 |
| SHAREHOLDER RIGHTS | |
| Flag Say on Pay Policy | -0.10 |

OWNERSHIP & CONTROL PERFORMANCE VS.



CORPORATE STRUCTURE

Public Company

CAPITAL STRUCTURE

| Capital Type | Votes Per Share | Shares Outstanding |
|------------------|-----------------|--------------------|
| ordinary shares | 1.0 | 6,116,173,002 |
| preferred shares | 0.0 | 200,000,000 |

Ordinary shares and Preferred shares

AR 2021 page 73/383

OWNERSHIP STRUCTURE

OWNERSHIP CATEGORIES

- Principal Shareholder
- Family Firm

NOTABLE SHAREHOLDERS

Koo Family and Chang Family - 10.95% (Chinatrust Investment Co., Ltd. 11%
-3.95% via Tian-Yi Huo - 0.14% Chia Hsin Cement Corporation-3.56% via
Kang-Lung Chang, Chia Hsin International -1.74 via Kang-Lung Chang
International CSRC Investment Holdings Co - 1.69%, via Kung-Yi Koo - 0.01)



| | |
|---|-----|
| 5%+ shareholders - Aggregate Voting Power | 0% |
| Insider Voting Power | 11% |

We note that despite being classified as a family firm/founder firm, the company does not have a controlling shareholder. The company does not have a special capital structure, thus one vote right is afforded per common share. This principle of 'one share one vote' helps align economic and voting power and ensures that no class of shareholders has more voting power than economic exposure.

CROSS SHAREHOLDINGS

The company has been flagged for being involved in a series of cross-shareholdings with other (related or unrelated) companies. Cross shareholdings can lead to double counting, whereby the equity of each company is counted twice when determining value. Cross-shareholdings are rare in the Taiwan markets, with only 9% of the companies being flagged for this.

Chinatrust Investment Co., Ltd. holds 3.95 % of Taiwan Cement Corp., Taiwan Cement Corp holds 9.36% of Chinatrust Investment Co., Ltd.

Chia Hsin Cement Corp. holds 3.56% of Taiwan Cement Corp, Taiwan Cement Corp holds 3.54% of Chia Hsin Cement Corp.

CROSS-SHAREHOLDINGS

| | Percentage of Voting Rights | Value of Cross Holding in Other Party As % of Market Cap |
|---|---|---|
| Chia Hsin Cement Corp. holds 3.56% of the total voting rights in 'Taiwan Cement Corp.' as part of a cross-shareholding arrangement. Some 2.0% of the market cap of 'Taiwan Cement Corp.' is invested in shares of Chia Hsin Cement Corp. as part of this arrangement. | Votes Held by Chia Hsin Cement Corp. Voting Rights: 3.6 % Others: 96.4 % | Investment by Chia Hsin Cement Corp. Market Cap: 2.0 % Others: 98.0 % |
| Chinatrust Investment Co., Ltd. holds 3.95% of the total voting rights in 'Taiwan Cement Corp.' as part of a cross-shareholding arrangement. Some 17.13% of the market cap of 'Taiwan Cement Corp.' is invested in shares of Chinatrust Investment Co., Ltd. as part of this arrangement. | Votes Held by Chinatrust Investment Co., Ltd. Voting Rights: 4.0 % Others: 96.1 % | Investment by Chinatrust Investment Co., Ltd. Market Cap: 17.1 % Others: 82.9 % |

FAMILY FIRM

Koo family collectively holds 10.95% of company shares through direct and indirect holdings

TAKEOVER PROVISIONS

| Fair Price Provision | Mandatory Bid Provision | Mandatory Bid Ownership Threshold |
|---------------------------------------|-------------------------|-----------------------------------|
| Yes | Yes | 20.0 |
| % of Votes to Approve a Merger | | |
| 67% | | |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
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GOVERNING DOCUMENTS

MAJORITY REQUIREMENTS

| | Bylaws | Charter |
|---|--------|---------|
| Default percentage of votes required to amend a provision | | 67% |

The following matters shall be passed by a special resolution at the general meeting of shareholders. Amendment of the company's articles of association

A special resolution made by the shareholders' general meeting shall be passed by more than 2/3 of the voting rights held by the shareholders (including shareholders' proxies) present at the shareholders' general meeting

SHAREHOLDER RIGHTS

There may be governance risks for investors in relation to shareholder rights and management-controlled takeover defense mechanisms at Taiwan Cement including:

- Limits on the right of shareholders to take action by written consent

SHAREHOLDER MEETINGS & RESOLUTIONS

| | Call Special Meeting | Requisition a Resolution at AGM | Act by Written Consent |
|-------------------------------|----------------------|---------------------------------|------------------------|
| Percentage of shares required | 3% | | 100% |

RESTRICTIONS ON LEGAL ACTION BY SHAREHOLDERS

No exclusive forum provision has been identified.

SAY ON PAY

Despite a global trend towards providing shareholders with the ability to review and approve executive pay practices, the company does not operate in a market which requires regular 'say on pay' votes nor has it extended this right to shareholders.

DIRECTOR ELECTIONS

BOARD RE-ELECTION PROVISIONS

Not all board members are subject to annual re-election. While considered by some governance experts as a means of ensuring board continuity, a classified board structure may limit the ability of shareholders to hold directors accountable and serve as a takeover defense.

| Board Re-election Provisions | |
|-------------------------------------|------|
| Board Re-election Frequency (Years) | 3 |
| % of Board subject to re-election | 100% |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

DIRECTOR ELECTION STANDARD

| Director Election Rules | |
|-------------------------------|-----------|
| Vote Standard | Plurality |
| Immediate Binding Resignation | Yes |

In the election of directors of this Company, candidates who acquire more votes should win the seats of directors. If two or more persons acquire the same number of votes and the number of such persons exceeds the specified seats available, such persons acquiring the same votes shall draw lots to decide who should win the seats available, and the Chairman shall draw lots on behalf of the candidate who is not present



ACCOUNTING

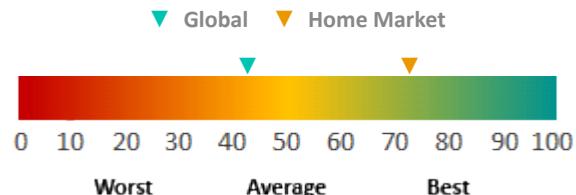
Based on the company's disclosures and other public information, accounting and financial reporting practices at Taiwan Cement appear to be generally appropriate and effective relative to global peers.

| 0-10 Score | Global Percentile Rank | Home Market Percentile Rank |
|------------|------------------------|-----------------------------|
| 9.4 | 44th (Average) | 74th (Average) |

KEY METRICS SCORING

| Deduction | |
|----------------------|-------|
| AUDITOR INDEPENDENCE | |
| Auditor Tenure | -0.10 |

ACCOUNTING PERFORMANCE VS.



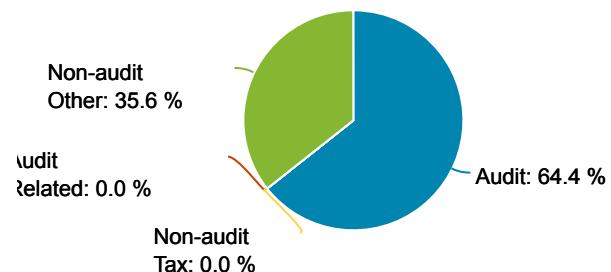
EXTERNAL AUDITORS

| Type | Since | Firm | Most Recent Fiscal Year End Signed Off |
|---------|-------|-------------------|--|
| Primary | | Deloitte & Touche | 2021 |

AUDITOR FEES

Fees paid to: Deloitte & Touche (Primary)

| Fee | Dec 31, 2021 (TWD) | Dec 31, 2020 (TWD) | Dec 31, 2019 (TWD) |
|------------------------------------|--------------------|--------------------|--------------------|
| Audit | 34,652,000 | 24,655,000 | 24,425,000 |
| Audit Related | | | |
| Total Audit + Audit Related | 34,652,000 | 24,655,000 | 24,425,000 |
| Tax Compliance/Advice | | | |
| Other Non-audit Services | 19,185,000 | 11,767,000 | 8,269,000 |
| Total Non-audit Fees | 19,185,000 | 11,767,000 | 8,269,000 |
| Total Fees | 53,837,000 | 36,422,000 | 32,694,000 |





CCC | B | BB | BBB | **A** | AA | AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

AUDITOR'S REPORT

| | Dec 31, 2021 | Dec 31, 2020 | Dec 31, 2019 |
|--------------------|---------------------|---------------------|---------------------|
| Report Disclosed | Yes | Yes | Yes |
| Opinion | Unqualified Opinion | Unqualified Opinion | Unqualified Opinion |
| Emphasis of Matter | No | No | No |

CONTROVERSIES & EVENTS

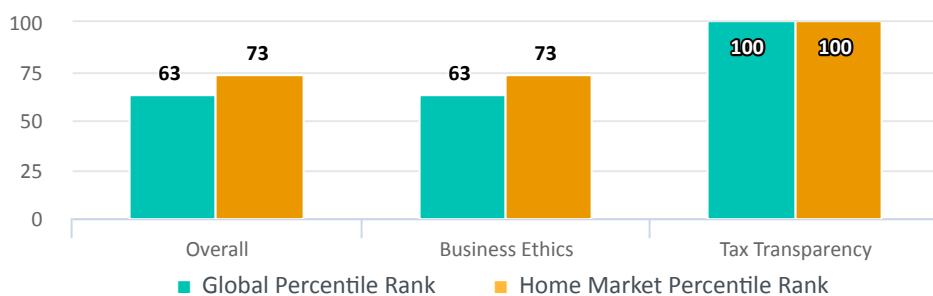
No major relevant controversies have been uncovered.

Corporate Behavior



| 0-10 Score | Change (since rating) | Quartile | Last score change date |
|------------|-----------------------|----------|------------------------|
| 6.6 | 0.0 | ••• | Nov 23, 2022 |

CORPORATE BEHAVIOR THEME AND KEY ISSUE RANKINGS



METHODOLOGY NOTE

This theme evaluates the extent to which companies may face ethics issues such as fraud, executive misconduct, corruption scandals, money laundering, anti-trust violations, or tax-related controversies.

* [For symbols and terms used in this report, refer to the Glossary section at the end of the report]

KEY AREAS OF CONCERN*

SCORING DEDUCTIONS

Business Ethics Policies & Practices

(-1.40)

Oversight for Ethics Issues

Employee Training on Ethical Standards

Business Ethics Risk & Controversies

(-2.00)

Corruption Risk Exposure & Controversies

*Key areas of concern include flagged key metrics that represent the largest scoring deductions. Please review the full report to see a complete set of flagged key metrics.

CORPORATE BEHAVIOR SCORE HISTORY





BUSINESS ETHICS

KEY METRICS SCORING

| | Deduction |
|---|--------------|
| BUSINESS ETHICS POLICIES & PRACTICES | -1.40 |
| Oversight for Ethics Issues | -0.70 |
| Employee Training on Ethical Standards | -0.70 |
| BUSINESS ETHICS RISK & CONTROVERSIES | -2.00 |
| Corruption Risk Exposure & Controversies | -2.00 |

Note: Business Ethics Policies & Practices deductions as well as Business Ethics Risk & Controversies are capped at a maximum of -7.0. Cumulative deductions are capped at 10.

| 0-10 Score | Change (since rating) | Global Percentile Rank | Home Market Percentile Rank |
|------------|-----------------------|------------------------|-----------------------------|
| 6.5 | 0.0 | 63rd (Average) | 73rd (Average) |

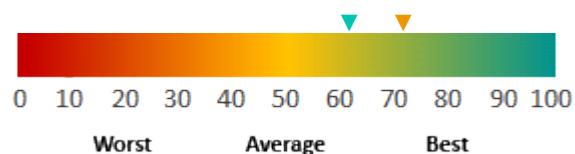
METHODOLOGY NOTE

Companies are evaluated on their oversight and management of business ethics issues such as fraud, executive misconduct, corrupt practices, money laundering, or anti-trust violations.

*[For symbols and terms used in this report, refer to the Glossary section at the end of the report]

BUSINESS ETHICS VS.

▼ Global ▼ Home Market



BUSINESS ETHICS POLICIES & PRACTICES

| Indicators | Company Practice | Best Practice | Deduction |
|---|---|---|-----------|
| Oversight for Ethics Issues | Special task force or risk officer | Board-level committee or C-suite or Executive committee | -0.70 |
| Bribery and Anti-Corruption Policy | Detailed formal policy on bribery and anti-corruption | Detailed formal policy on bribery and anti-corruption | 0.00 |
| Regular Audits of Ethical Standards | Audits of all operations at least once every three years | Audits of all operations at least once every three years | 0.00 |
| Whistleblower Protection | Policy provides whistleblowers with protection from retaliation | Policy provides whistleblowers with protection from retaliation | 0.00 |
| Employee Training on Ethical Standards | Programs covering all permanent employees (excluding part-time and contractors) | Programs covering all employees (including part-time) and contractors | -0.70 |
| Anti-Corruption Policy for Suppliers | NA | All suppliers are required to have anti-corruption policies and programs to verify compliance | 0.00 |
| Policies Related to Anti-Money Laundering | NA | Policy and implementation strategy articulated | 0.00 |

**Business Ethics Policies & Practices deductions are capped at a maximum of -7.0.*



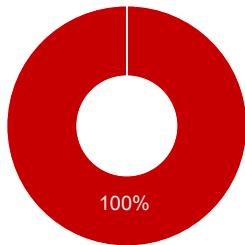
CCC B BB BBB A AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

CORRUPTION RISK EXPOSURE

Exposure to: Regulatory risks or lost market access due to corruption scandals or political and social instability
Business Types : Percentage of operations in business segments perceived most likely to pay or receive bribes

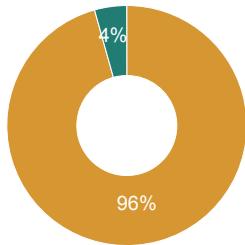
■ High Risk ■ Medium Risk ■ Low Risk



- Cement, Power generation
- No exposure to medium risk segments
- No exposure to low risk segments

Source: Bribe Payers Index (Transparency International); State Capture Index (Transparency International); Refinitiv; MSCI ESG Research; company disclosure

Business Locations : Percentage of operations in countries with high/moderate/low level of corruption and political instability, violence or terrorism



- No operations in markets with high risks
- China, Taiwan
- Europe

Source: Corruption Perceptions Index (Transparency International); World Governance Indicators (World Bank); Refinitiv; MSCI ESG Research; company disclosure

CORRUPTION RISK EXPOSURE SCORING DEDUCTION KEY

| % of operations in medium and high risk geographies | % of operations in high risk business segments | >=20% government ownership | <20% government ownership | No evidence of government ownership |
|---|--|----------------------------|---------------------------|-------------------------------------|
| 20% or more | 50% or more | -4.00 | -2.60 | -2.00 |
| | Less than 50% | -1.20 | -1.20 | -1.20 |
| Less than 20% | 50% or more | -0.60 | -0.60 | -0.60 |
| | Less than 50% | 0.00 | 0.00 | 0.00 |

*The Corruption Risk and Controversies Deduction is based on the maximum of deductions from the corruption risk exposure and corruption controversies category listed below

BUSINESS ETHICS CONTROVERSIES

Controversy Cases

| Category | Assessment | Headline | Status | Last Updated | Deduction |
|---------------------------|------------|---------------------------|--------|--------------|-----------|
| Business Ethics & Fraud | -- | No ongoing controversies. | -- | -- | -- |
| Anticompetitive Practices | -- | No ongoing controversies. | -- | -- | -- |
| Corruption | -- | No ongoing controversies. | -- | -- | -- |

*The maximum deductions from the Anticompetitive Practices and Business Ethics & Fraud categories are summed to arrive at the overall Business Ethics Controversies deduction, which is capped at a maximum of -7.0.



TAX TRANSPARENCY

TAX GAP ASSESSMENT

Indicators

Tax Gap

| | |
|-------------------------------------|---------|
| Estimated Effective Tax Rate | 23.4% |
| Estimated Corporate Income Tax Rate | 23.0% |
| Estimated Tax Gap | (-0.4%) |
| Tax Gap Assessment | Low Gap |

Revenue

| | |
|-----------------|-------|
| Foreign Revenue | 61.0% |
|-----------------|-------|

Confidence

| | |
|--------------------------------|------|
| Confidence Level of Estimation | High |
|--------------------------------|------|

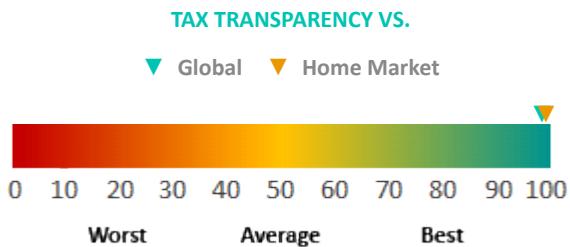
Involvement in Controversies

| 0-10 score | Change (since rating) | Global Percentile Rank | Home Market Percentile Rank |
|------------|-----------------------|------------------------|-----------------------------|
| 10.0 | 0.0 | 100th (Best In Class) | 100th (Best In Class) |

METHODOLOGY NOTE

Companies are evaluated on their estimated corporate tax gap (i.e. gap between estimated effective tax rate and estimated corporate income tax rate) and their involvement in tax-related controversies.

*[For symbols and terms used in this report, refer to the Glossary section at the end of the report]



TAX CONTROVERSIES

Controversy Cases

| Category | Assessment | Headline | Status | Last Updated | Deduction |
|------------------|------------|---------------------------|--------|--------------|-----------|
| Tax Transparency | -- | No ongoing controversies. | -- | -- | -- |

TAX CONTROVERSIES SCORING DEDUCTION KEY

| Involvement in tax controversies | Estimated tax gap | Tax gap assessment | Deduction |
|----------------------------------|-------------------|--------------------|-----------|
| Yes | Below 5% | Low | -0.80 |
| | 5-10% | Moderate | -1.40 |
| | Above 10% | High | -2.00 |
| No | Below 5% | Low | 0.00 |
| | 5-10% | Moderate | 0.00 |
| | Above 10% | High | 0.00 |

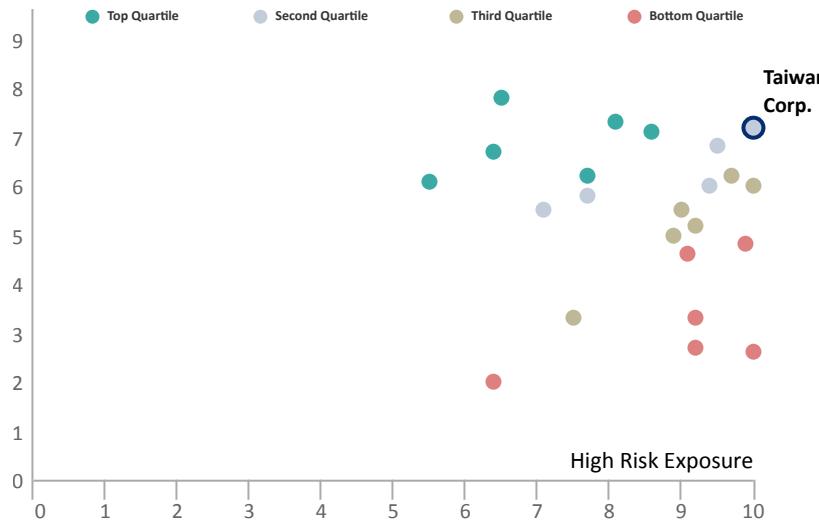
Tax related controversies are not considered for companies in Real Estate Management services or Mortgage REITs industries. Tax gap assessment is effectively low for companies with less than 5% of total revenue categorized as foreign.



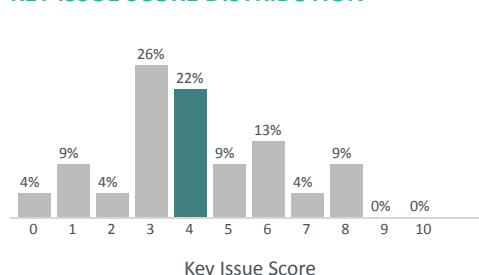
Carbon Emissions

| Score | Change (since rating) | Quartile | Weight | Last score change date |
|-------|-----------------------|----------|--------|------------------------|
| 4.2 | ▼ -0.5 | ••• | 20.0% | Nov 23, 2022 |

Strong Risk Management



KEY ISSUE SCORE DISTRIBUTION *



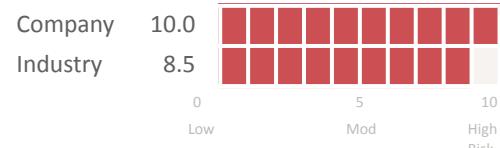
TOP 5 INDUSTRY LEADERS

| | |
|--|-----|
| GRASIM INDUSTRIES LTD | 8.3 |
| The Siam Cement Public Company Limited | 7.6 |
| JAMES HARDIE INDUSTRIES PUBLIC LIMITED COMPANY | 7.3 |
| CEMEX, S.A.B. de C.V. | 6.2 |
| HeidelbergCement AG | 5.5 |

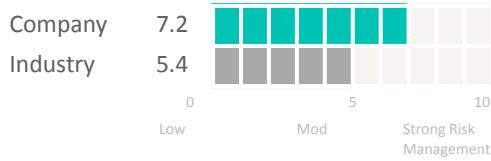
KEY ISSUE ASSESSMENT



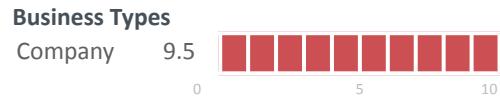
RISK EXPOSURE ASSESSMENT



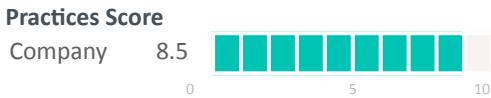
RISK MANAGEMENT ASSESSMENT



Drivers of Risk Exposure



Drivers of Risk Management



Business Types



Practices Score



Business Locations



Performance Score



BOTTOM 5 INDUSTRY LAGGARDS

| | |
|--|-----|
| AMBUJA CEMENTS LIMITED | 2.5 |
| CHINA RESOURCES CEMENT HOLDINGS LIMITED | 1.9 |
| Huaxin Cement Co., Ltd. | 1.1 |
| China National Building Material Company Limited | 0.5 |
| TANGSHAN JIDONG CEMENT CO.,LTD. | 0.0 |

METHODOLOGY NOTE

Companies are evaluated on the carbon intensity of their operations and their efforts to manage climate-related risks and opportunities.



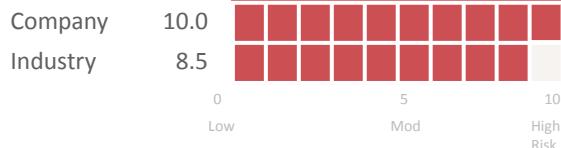
CCC B BB BBB A AA AAA

RATING ACTION DATE: December 05, 2022
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* [For symbols and terms used in this report, refer to the Glossary section at the end of the report]

EXPOSURE

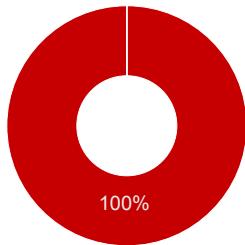
RISK EXPOSURE ASSESSMENT



Key Drivers of Risk Exposure

Exposure to: Risks of having to pay increased compliance costs tied to carbon emissions regulations

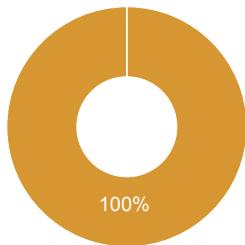
Business Types : Percentage of operations in business segments with high/moderate/low carbon intensity



- Cement, Power generation
- No exposure to medium risk segments
- No exposure to low risk segments

Source: IERS' Comprehensive Environmental Data Archive (CEDA); Air Emissions Accounts (Eurostat); Refinitiv; MSCI ESG Research; company disclosure

Business Locations : Percentage of operations in countries with strengthening or pending carbon emissions regulation

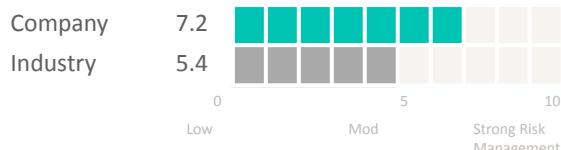


- No operations in markets with high risks
- Europe, China, Taiwan
- No operations in markets with low risks

Source: MSCI ESG Research; Refinitiv; company disclosure

MANAGEMENT

RISK MANAGEMENT ASSESSMENT



| Description | Company Practice | Best Practice | Practices Score ² |
|--|-----------------------------------|--|------------------------------|
| Targets | | | |
| Aggressiveness of the company's reduction target in the context of its current performance | Aggressive target with a low base | Aggressive target with a low base | - LOW MID TOP |
| Carbon Improvement Targets | | | |
| Baseline Year | Target Year | Target Description | Target Reduction (%) |
| | 2030 | Supply chain carbon reduction by 2030 50% | 50.00% |
| | 2030 | Target of a net-zero emissions in Operation Headquarters and offices by 2030 | 100.00% |
| | 2050 | Target of a net-zero emissions in production sites by 2050. | 100.00% |
| 2016 | 2025 | Reduce 11% of Scope 1 carbon emission intensity in Taiwan by 2025 | 11.00% |
| 2016 | 2025 | Reduce 32% of Scope 2 carbon emission intensity in Taiwan by 2025 | 32.00% |
| 2016 | 2030 | Reduce 31% of carbon emission intensity in Taiwan by 2030 | 31.00% |
| 2016 | 2030 | Reduce 20% of carbon emission intensity in Mainland China by 2030 | 20.00% |
| 2016 | 2050 | Carbon neutral concrete products by 2050 | |
| 2016 | 2020 | Reduce energy consumption by over 5% of the 2016-2020 accumulative consumption in 2021 | 5.00% |
| 2016 | 2021 | Reduce carbon emission intensity by 2% of the 2016-2020 accumulative average in 2021 | 2.00% |
| 2013 | 2030 | Reduce emissions by 30% by 2030. | 30.00% |

Mitigation

Strength of Greenhouse Gas Mitigation Strategy (0-10 Score, 0=worst, 10=best) 7.00

Programs or actions to reduce the emissions intensity of core operations

| | | | |
|---|--------------------|--------------------|---------------|
| Use of cleaner sources of energy | Some efforts | Aggressive efforts | - LOW MID TOP |
| Capture GHG emissions | Aggressive efforts | Aggressive efforts | - LOW MID TOP |
| Energy consumption management and operational efficiency enhancements | Some efforts | Aggressive efforts | - LOW MID TOP |
| CDP disclosure | Yes | Yes | - LOW TOP |

Performance

Carbon Emissions Performance Relative to Peers (0-10 Score, 0=worst, 10=best) 4.50

GHG Emissions - metric tons CO2e

| Year | Scope 1 Disclosed | Scope 1 Estimate Key | Scope 2 Disclosed | Scope 2 Estimate Key | Scope 1+2 Disclosed | Scope 3 (upstream) | Scope 3 (downstream) | Scope 3 (undefined) | Scope 1 Estimated | Scope 2 Estimated | Scope 1+2 Estimated | Scope 1+2 Estimate Key | GHG Emissions Details |
|------|-------------------|----------------------|-------------------|----------------------|---------------------|--------------------|----------------------|---------------------|-------------------|-------------------|---------------------|------------------------|-----------------------|
| 2021 | 4,798,945.0 | Reported | 220,392.0 | Reported | 5,019,337.0 | 28,761.0 | | 814.0 | | | | Reported | |
| 2020 | 4,413,285.0 | Reported | 210,612.0 | Reported | 4,623,897.0 | 22,427.0 | | 907.0 | | | | Reported | |
| 2019 | 4,268,620.0 | Reported | 229,346.0 | Reported | 4,497,966.0 | 21,083.0 | | 942.0 | | | | Reported | |
| 2018 | 4,230,680.0 | Reported | 256,018.0 | Reported | 4,486,698.0 | 15,041.0 | | | | | | Reported | |
| 2017 | 4,144,669.0 | Reported | 241,691.0 | Reported | 4,386,360.0 | 8,873.0 | | | | | | Reported | |
| 2016 | 4,396,724.0 | Reported | 253,768.0 | Reported | 4,650,492.0 | | | | | | | Reported | |
| 2015 | 4,614,890.0 | Reported | 281,352.0 | Reported | 4,896,242.0 | | | | | | | Reported | |
| 2014 | 5,097,453.0 | Reported | 284,379.0 | Reported | 5,381,832.0 | | | | | | | Reported | |
| 2013 | 6,545,197.0 | Reported | 306,790.0 | Reported | 6,851,987.0 | | | | | | | Reported | |
| 2012 | | E.CSI | | E.CSI | | | | 6,318,540.0 | 351,160.0 | 6,669,700.0 | E.CSI | April 2018 Estimations | |
| 2011 | | E.CSI | | E.CSI | | | | 6,012,913.0 | 334,174.0 | 6,347,087.0 | E.CSI | April 2018 Estimations | |
| 2010 | | E.CSI | | E.CSI | | | | 5,594,964.0 | 310,946.0 | 5,905,910.0 | E.CSI | April 2018 Estimations | |
| 2009 | | E.CSI | | E.CSI | | | | 4,169,956.0 | 231,750.0 | 4,401,706.0 | E.CSI | April 2018 Estimations | |
| 2008 | | E.CSI | | E.CSI | | | | 3,674,763.0 | 204,229.0 | 3,878,992.0 | E.CSI | April 2018 Estimations | |

GHG Emissions Intensity - metric tons CO2e / USD million sales

| Year | GHG Intensity | GHG Intensity Details | GHG Intensity - Reported | GHG Intensity - Reported Details |
|------|---------------|-----------------------|--------------------------|--|
| 2021 | 1,297.30 | | 0.81 | tCO ₂ /metric ton of cementitious materials |
| 2020 | 1,136.00 | | 0.81 | tons of CO2e per metric ton of cementitious material |
| 2019 | 1,098.20 | | | |
| 2018 | 1,106.90 | | | |
| 2017 | 1,325.70 | | | |
| 2016 | 1,673.40 | | | |
| 2015 | 1,715.90 | | | |
| 2014 | 1,437.30 | | | |
| 2013 | 1,760.70 | | | |
| 2012 | 1,622.20 | | | |
| 2011 | 1,622.20 | | | |
| 2010 | 1,622.20 | | | |
| 2009 | 1,622.20 | | | |
| 2008 | 1,622.20 | | | |

Energy Consumption

| Year | Total energy consumption (reported) | Total energy consumption (MWh) | Energy intensity (reported) | Reported intensity details | Total energy consumption intensity | Energy consumption details |
|------|-------------------------------------|--------------------------------|-----------------------------|----------------------------|------------------------------------|-------------------------------------|
| 2021 | 5,369,331.67 | 5,369,331.67 | | | 1,387.81 | Energy Consumption of Cement Plants |
| 2020 | 4,969,318.62 | 4,969,318.62 | | | 1,220.87 | Energy Consumption of Cement Plants |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

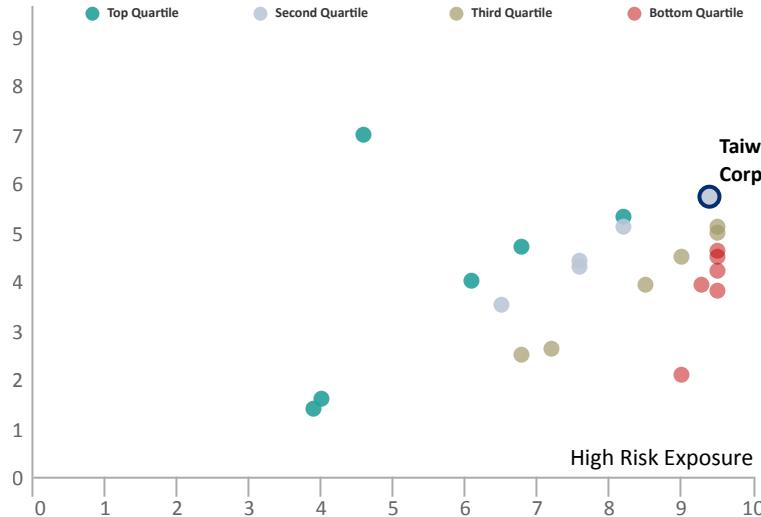
| Year | Total energy consumption (reported) | Total energy consumption (MWh) | Energy intensity (reported) | Reported intensity details | Total energy consumption intensity | Energy consumption details |
|------|-------------------------------------|--------------------------------|-----------------------------|----------------------------|------------------------------------|---|
| 2019 | 4,951,266.39 | 4,951,266.39 | | | 1,208.83 | Annual energy consumption (plants and HQ): coal, diesel and electricity |
| 2018 | 4,860,469.73 | 4,860,469.73 | | | 1,199.06 | Annual energy consumption (plants and HQ): coal, diesel and electricity |
| 2017 | 5,231,866.67 | 5,231,866.67 | | | 1,581.28 | Annual energy consumption (plants and HQ): coal, diesel and electricity |
| 2016 | 5,574,619.73 | 5,574,619.73 | | | 2,005.98 | Annual energy consumption (plants and HQ): coal, diesel and electricity |
| 2015 | 9,524,741.95 | 9,524,741.95 | | | 3,337.96 | Annual energy consumption (plants and HQ): coal, diesel and electricity |
| 2014 | 10,290,800.01 | 10,290,800.01 | | | 2,748.39 | Annual Energy Consumption |
| 2013 | 12,603,016.40 | 12,603,016.40 | | | 3,238.48 | Annual Energy Consumption |



Toxic Emissions & Waste

| Score | Change (since rating) | Quartile | Weight | Last score change date |
|-------|-----------------------|----------|--------|------------------------|
| 3.3 | 0.0 | ••• | 19.0% | Nov 23, 2022 |

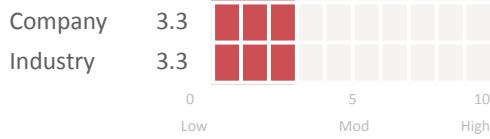
Strong Risk Management



KEY ISSUE SCORE DISTRIBUTION *

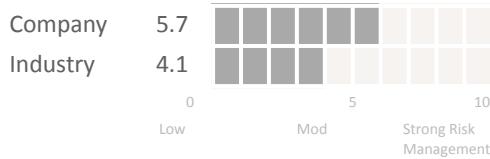
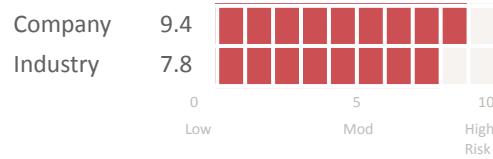


KEY ISSUE ASSESSMENT



RISK EXPOSURE ASSESSMENT

RISK MANAGEMENT ASSESSMENT



Drivers of Risk Exposure

Drivers of Risk Management

Business Types

Practices Score



Performance Score



TOP 5 INDUSTRY LEADERS

| | |
|---------------------------------|-----|
| CRH PUBLIC LIMITED COMPANY | 9.4 |
| CHINA JUSHI CO., LTD | 4.9 |
| HeidelbergCement AG | 4.9 |
| MARTIN MARIETTA MATERIALS, INC. | 4.6 |
| VULCAN MATERIALS COMPANY | 4.5 |

BOTTOM 5 INDUSTRY LAGGARDS

| | |
|----------------------------------|-----|
| SHREE CEMENT LIMITED | 2.0 |
| TANGSHAN JIDONG CEMENT CO.,LTD. | 1.7 |
| ACC LIMITED | 1.6 |
| PT Semen Indonesia (Persero) Tbk | 1.3 |
| Asia Cement Corporation | 0.1 |

METHODOLOGY NOTE

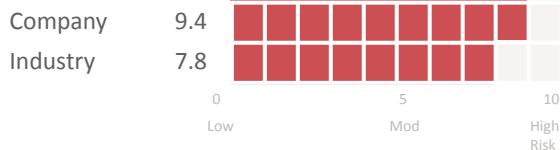
Companies are evaluated on the potential environmental contamination and toxic or carcinogenic emissions arising from their operations and the strength of their environmental management systems.

* [For symbols and terms used in this report, refer to the Glossary section at the end of the report]



EXPOSURE

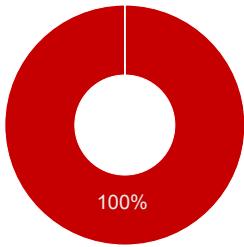
RISK EXPOSURE ASSESSMENT



Key Drivers of Risk Exposure

Exposure to: Risk of increased compliance costs and liabilities associated with damaging health, property; risk of losing access to markets due to community opposition or heightened regulatory hurdles

Business Types : This represents the portion of the company's revenues derived from lines of business that are High Risk (typically generate large amounts of toxic emissions), Medium Risk (typically generate moderate amounts of toxic emissions), and Low Risk (typically generate low amounts of toxic emissions).

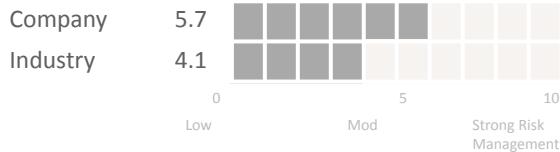


- Cement, Power generation
- No exposure to medium risk segments
- No exposure to low risk segments

Source: Toxics Release Inventory (US Environmental Protection Agency); National Emissions Inventory (US Environmental Protection Agency); Risk-Screening Environmental Indicators (US Environmental Protection Agency); US Economic Census; Refinitiv; MSCI ESG Research; company disclosure

MANAGEMENT

RISK MANAGEMENT ASSESSMENT





CCC B BB BBB A AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

| Description | Company Practice | Best Practice | Practices Score ² |
|---|-------------------------|-------------------------|------------------------------|
| Governance and Strategy | | | |
| Existence of Environmental Management System (EMS) | ISO 14001 or equivalent | ISO 14001 or equivalent | - LOW MID TOP |
| Percentage of sites with hazardous waste guidance that achieved HAZWOPER certification or follow ISO 14001 for waste management | 100.00% | | |
| Disclosure around the number or percentage of sites with HAZWOPER or ISO 14001 certification | Disclosed | Disclosed | - LOW MID TOP |
| Evidence of regular environmental impact audits | Yes | Yes | - LOW TOP |
| Evidence of audits across all locations of operations | Yes | Yes | - LOW TOP |
| Evidence of annual compliance audits | Yes | Yes | - LOW TOP |

Targets

| | | | |
|---|--|----------------------|---------------|
| Aggressiveness of Toxic Emissions Reduction Target (0-10 Score, 0=worst, 10=best) | 8 | | |
| Demonstrated track record of achieving its toxic emissions targets | Mixed record of meeting previous targets | Met previous targets | - LOW MID TOP |

Toxic Emissions and Waste Reduction Targets

| Baseline Year | Target Year | Target Description | Target Reduction (%) |
|---------------|-------------|--|----------------------|
| | 2030 | Assist in processing 1.57 million tonnes of waste by 2030. | |
| 2016 | 2025 | Reduce SOx emissions by 30% vs. 2016 baseline. | 30.00% |
| 2016 | 2025 | Reduce NOx emissions by 50% vs. 2016 baseline. | 50.00% |
| 2016 | 2025 | Reduce TSP (total suspended particles) emissions by 50% vs. 2016 baseline. | 30.00% |
| 2013 | 2030 | Lower 2030 air pollution emissions by 20% compared to the base year. | 20.00% |

Performance

Toxic Releases Performance Relative to Peers (0-10 Score, 0=worst, 10=best) 4.10

Air Emissions: NOx Performance

| | |
|--------------------------------------|--------|
| 3 Year Average Intensity | 4.64 |
| Average Annual % Change in Intensity | 64.62% |

Air Emissions: NOx Performance

| Year | NOx Emissions | NOx Emissions Intensity (tons/ USD million sales) |
|------|---------------|---|
| 2021 | 16,381 | 4.23 |
| 2020 | 18,253 | 4.48 |
| 2019 | 21,361 | 5.22 |
| 2018 | 6,744 | 1.66 |
| 2017 | 7,035 | 2.13 |
| 2016 | 7,331 | 2.64 |
| 2015 | 7,896 | 2.77 |

Air Emissions: SOx Performance

| | |
|--------------------------------------|---------|
| 3 Year Average Intensity | 0.35 |
| Average Annual % Change in Intensity | 619.29% |

Air Emissions: SOx Performance

| Year | SOx Emissions | SOx Emissions Intensity (tons/ USD million sales) |
|------|---------------|---|
| 2021 | 1,110 | 0.29 |
| 2020 | 1,399 | 0.34 |
| 2019 | 1,711 | 0.42 |
| 2018 | 85 | 0.02 |
| 2017 | 82 | 0.02 |
| 2016 | 111 | 0.04 |
| 2015 | 117 | 0.04 |

Air Emissions: Particulate Matter Performance

| | |
|--------------------------------------|--------|
| 3 Year Average Intensity | 0.27 |
| Average Annual % Change in Intensity | 21.70% |

Air Emissions: Particulate Matter Performance

| Year | Quantities | Intensity |
|------|------------|-----------|
| 2021 | 783 | 0.20 |
| 2020 | 1,076 | 0.26 |
| 2019 | 1,356 | 0.33 |
| 2018 | 643 | 0.16 |
| 2017 | 587 | 0.18 |
| 2016 | 433 | 0.16 |
| 2015 | 655 | 0.23 |



CCC | B | BB | BBB | **A** | AA | AAA

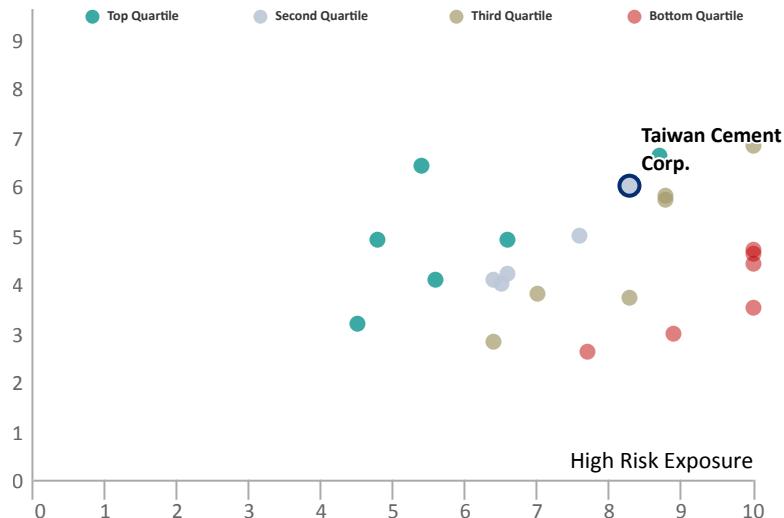
RATING ACTION DATE: December 05, 2022
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CONTROVERSIES

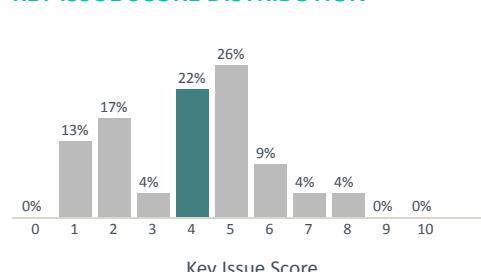
All controversies are assessed as part of the annual review of a company's ESG rating. MSCI ESG Research tracks controversies for all companies on a regular basis. There is no evidence of the Taiwan Cement's current involvement in prominent controversial events or alleged misconduct.



Strong Risk Management



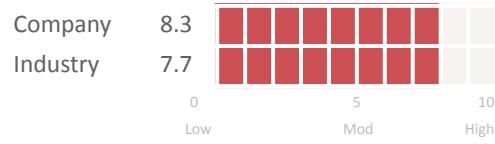
KEY ISSUE SCORE DISTRIBUTION *



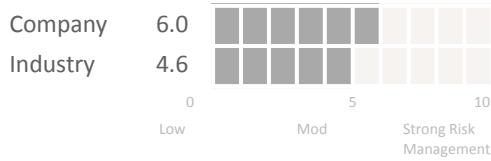
KEY ISSUE ASSESSMENT



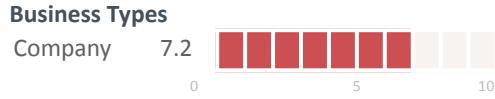
RISK EXPOSURE ASSESSMENT



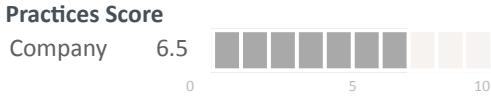
RISK MANAGEMENT ASSESSMENT



Drivers of Risk Exposure



Drivers of Risk Management



Business Types

Practices Score

Business Locations

Performance Score

TOP 5 INDUSTRY LEADERS

| | |
|--|-----|
| CRH PUBLIC LIMITED COMPANY | 8.0 |
| The Siam Cement Public Company Limited | 7.1 |
| CHINA JUSHI CO., LTD | 5.7 |
| JAMES HARDIE INDUSTRIES PUBLIC LIMITED COMPANY | 5.5 |
| CEMEX, S.A.B. de C.V. | 5.3 |

BOTTOM 5 INDUSTRY LAGGARDS

| | |
|---|-----|
| AMBUJA CEMENTS LIMITED | 1.7 |
| CHINA RESOURCES CEMENT HOLDINGS LIMITED | 1.6 |
| ACC LIMITED | 1.4 |
| TANGSHAN JIDONG CEMENT CO.,LTD. | 1.1 |
| SHREE CEMENT LIMITED | 0.5 |

METHODOLOGY NOTE

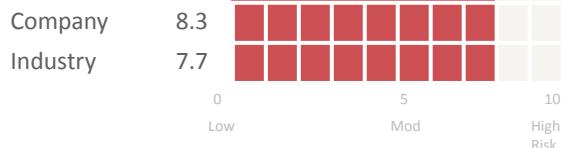
Companies are evaluated on their management of workplace safety and the workplace safety standards in the industries and regions in which they operate.



* [For symbols and terms used in this report, refer to the Glossary section at the end of the report]

EXPOSURE

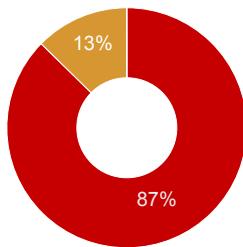
RISK EXPOSURE ASSESSMENT



Key Drivers of Risk Exposure

Exposure to: Risk of accidents that can lead to production disruptions, litigation, and liabilities

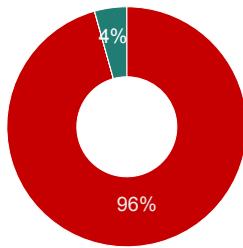
Business Types : Percentage of operations in business segments with high/moderate/low level of fatalities and industrial injuries



- Cement
- Power generation
- No exposure to low risk segments

Source: US Occupational Health & Safety Administration (OSHA); UK Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR); US Bureau of Labor Statistics; Refinitiv; MSCI ESG Research; company disclosure

Business Locations : Percentage of operations in countries with high/moderate/low employee fatality rates (total fatalities per 100,000 employees)

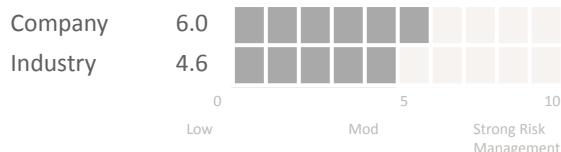


- China, Taiwan
- No operations in markets with medium risks
- Europe

Source: International Labour Organization; Refinitiv; MSCI ESG Research; company disclosure

MANAGEMENT

RISK MANAGEMENT ASSESSMENT





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RATING ACTION DATE: December 05, 2022
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| Description | Company Practice | Best Practice | Practices Score ² | | |
|---|------------------|---------------|------------------------------|-----|-----|
| Governance and Strategy | | | | | |
| Percentage of the company's health & safety system certified to OHSAS 18001 | 100.00% | | | | |
| Evidence of Recognized Certification | Yes | Yes | - | LOW | TOP |

What executive body is responsible for H&S strategy and performance?

| | | | | | |
|---|-----|-----|---|-----|-----|
| H&S strategy and performance is managed by Sustainability Committee, H&S task force or risk officer | Yes | Yes | - | LOW | TOP |
|---|-----|-----|---|-----|-----|

Health & safety policy

| | | | | | |
|-----------------------------------|-----|-----|---|-----|-----|
| H&S policy is group-wide | Yes | Yes | - | LOW | TOP |
| H&S policy applies to contractors | Yes | Yes | - | LOW | TOP |

Targets

| | | | | | | |
|-----------------------------------|--|--|---|-----|-----|-----|
| Target to improve H&S performance | Non-zero target (contractors included) | Non-zero target (contractors included) | - | LOW | MID | TOP |
|-----------------------------------|--|--|---|-----|-----|-----|

Other H&S Metric

| Year (YYYY) | Other Health & Safety Metric Description | Other Health & Safety Metric Value | Details |
|-------------|--|------------------------------------|---------|
| 2021 | Lost Day Rate (LDR) | 1.79 | |
| 2020 | Lost Day Rate (LDR) | 5.08 | |
| 2019 | Lost Day Rate (LDR) | 17.37 | |
| 2018 | Lost Day Rate (LDR) | 4.40 | |
| 2017 | Lost Day Rate (LDR) | 6.23 | |

Operations

Performance on Health & Safety Metrics Relative to Peers (0-10 Score, 0=worst, 10=best) 5.00

Lost Time Incident Rate

| Year | Lost Time Incident Rate | Lost Time Incident Rate (per million hours) | Lost Time Incident Rate Unit | Details |
|------|-------------------------|---|------------------------------|---------|
| 2021 | 0.10 | 0.50 | per 200,000 hours | |
| 2020 | 0.11 | 0.55 | per 200,000 hours | |



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| Year | Lost Time Incident Rate | Lost Time Incident Rate (per million hours) | Lost Time Incident Rate Unit | Details |
|------|-------------------------|---|------------------------------|---------------------------|
| 2019 | 0.24 | 1.20 | per 200,000 hours | only for Taiwan employees |
| 2018 | 0.40 | 2.00 | per 200,000 hours | only for Taiwan employees |
| 2017 | 0.35 | 1.75 | per 200,000 hours | only for Taiwan employees |

Total Recordable Injury Rate

| Year | Total Recordable Injury Rate | Total Recordable Injury Unit | Total Recordable Injury Rate (per million hours) | Details |
|------|------------------------------|------------------------------|--|---------------------------|
| 2021 | 0.10 | per 200,000 hours | 0.50 | |
| 2020 | 0.11 | per 200,000 hours | 0.55 | |
| 2014 | 0.11 | per 200,000 hours | 0.55 | only for Taiwan employees |
| 2013 | 0.76 | per 200,000 hours | 3.80 | only for Taiwan employees |
| 2012 | 0.10 | per 200,000 hours | 0.50 | only for Taiwan employees |

Fatalities

| Year | Contractor Fatalities | Employee Fatalities | Fatalities | Details |
|------|-----------------------|---------------------|------------|---------|
| 2021 | 1 | 0 | 1 | |
| 2020 | 1 | 0 | 1 | |
| 2019 | | | 0 | |
| 2018 | | | 0 | |
| 2017 | | | 0 | |
| 2016 | | | 0 | |

CONTROVERSIES

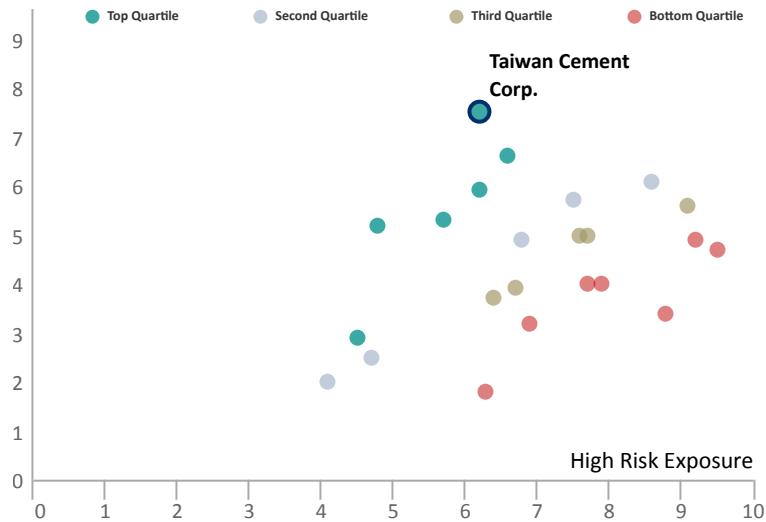
All controversies are assessed as part of the annual review of a company's ESG rating. MSCI ESG Research tracks controversies for all companies on a regular basis. There is no evidence of the Taiwan Cement's current involvement in prominent controversial events or alleged misconduct.



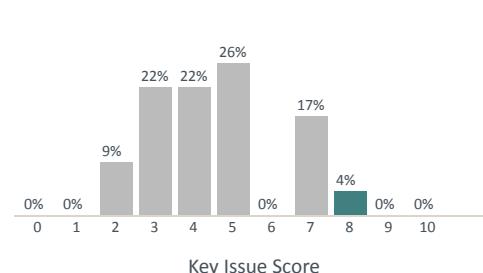
Labor Management



Strong Risk Management



KEY ISSUE SCORE DISTRIBUTION *



TOP 5 INDUSTRY LEADERS

| | |
|--|-----|
| Taiwan Cement Corp. | 8.3 |
| The Siam Cement Public Company Limited | 7.4 |
| CHINA JUSHI CO., LTD | 7.0 |
| POSCO CHEMICAL CO., LTD. | 6.7 |
| Asia Cement Corporation | 6.6 |

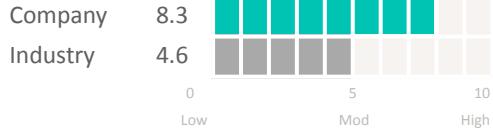
BOTTOM 5 INDUSTRY LAGGARDS

| | |
|--|-----|
| ACC LIMITED | 3.1 |
| China National Building Material Company Limited | 2.7 |
| JAMES HARDIE INDUSTRIES PUBLIC LIMITED COMPANY | 2.5 |
| Holcim AG | 2.2 |
| HeidelbergCement AG | 1.6 |

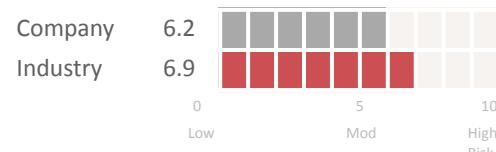
METHODOLOGY NOTE

Companies are evaluated on the complexity of their workforce (size, labor intensity, and regions of operation), employee relations, strength of worker protections, and employee engagement efforts.

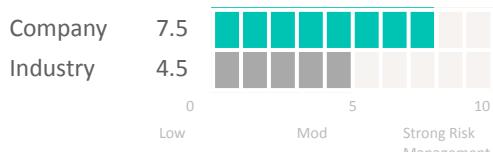
KEY ISSUE ASSESSMENT



RISK EXPOSURE ASSESSMENT



RISK MANAGEMENT ASSESSMENT



Drivers of Risk Exposure

Drivers of Risk Management

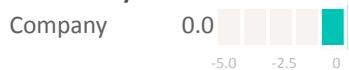
Business Types

Practices Score



Business Locations

Controversy Deduction





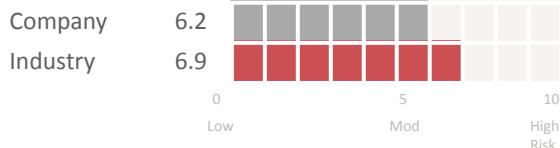
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* [For symbols and terms used in this report, refer to the Glossary section at the end of the report]

EXPOSURE

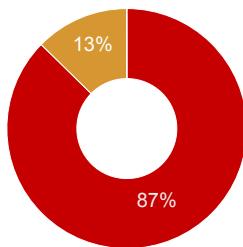
RISK EXPOSURE ASSESSMENT



Key Drivers of Risk Exposure

Exposure to: Risk of workflow disruptions due to labor unrest, or reduced productivity due to poor job satisfaction

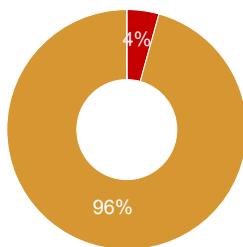
Business Types : Percentage of operations in business segments with high/moderate/low labor intensities, as measured by average sales per employee of industries



- Cement
- Power generation
- No exposure to low risk segments

Source: MSCI ESG Research; Refinitiv; company disclosure

Business Locations : Percentage of operations in countries with high/moderate/low likelihood of labor unrest (based on historic precedent)



- Europe
- China, Taiwan
- No operations in markets with low risks

Source: International Labour Organization; Refinitiv; MSCI ESG Research; company disclosure

Additional Drivers of Exposure

Collective bargaining negotiation expected in next 12 months:

Not Disclosed

Layoffs Events

Major Layoffs:

No

Size and Composition of Workforce

Number of employees:

10,858

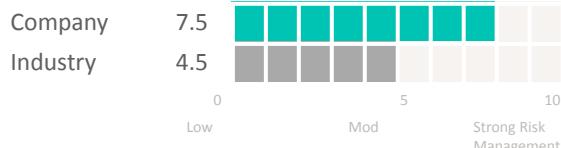


Number of Employees

| Year | Number of employees | Part time workers (%) | Contract or temporary workers (%) | Estimated Part time/contract % |
|------|---------------------|-----------------------|-----------------------------------|--------------------------------|
| 2020 | 10,858 | | | |
| 2019 | 10,618 | | | |
| 2018 | 9,325 | | | |
| 2017 | 9,356 | | | |
| 2016 | 9,609 | | | |
| 2015 | 9,822 | | | |
| 2014 | 8,890 | | | |
| 2013 | 8,448 | | | |
| 2012 | 10,409 | | | |
| 2011 | 9,777 | | | |
| 2010 | 7,129 | | | |
| 2009 | 4,780 | | | |
| 2008 | 4,864 | | | |

MANAGEMENT

RISK MANAGEMENT ASSESSMENT



| Description | Company Practice | Best Practice | Practices Score ² |
|--|---|---|------------------------------|
| Strategy | | | |
| Percentage of workforce covered by trade unions/ collective agreements | 100.00% | | |
| Estimate Key: Percentage of workforce covered by trade unions/ collective agreements | Reported | Reported | - LOW MID TOP |
| Evidence of collective agreements | Yes | Yes | - LOW TOP |
| Employee stock ownership plan (ESOP) or employee stock purchase plan (ESPP) | Sector-leading number of employees eligible for ESOP and/or ESPP | Sector-leading number of employees eligible for ESOP and/or ESPP | - LOW MID TOP |
| Variable performance-based component to pay | Strong performance-based incentive pay structure covers all employees | Strong performance-based incentive pay structure covers all employees | - LOW MID TOP |
| Non-compensation benefits including pension and retirement | Benefits cover all employees | Benefits cover all employees | - LOW MID TOP |



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Performance

| | |
|---|---------------|
| External recognition as employer of choice (last three years) | Not Disclosed |
| Company witnessed strikes / lock-outs in the last three years | No |

Employee turnover

| Year | Annual employee turnover (%) | Details |
|------|------------------------------|---------|
| 2020 | 4.10% | |
| 2019 | 9.28% | |
| 2018 | 11.03% | |
| 2017 | | |

Employee Productivity

| Year | Profit per employee (USD '000) |
|------|--------------------------------|
| 2018 | 0 |

CONTROVERSIES

All controversies are assessed as part of the annual review of a company's ESG rating. MSCI ESG Research tracks controversies for all companies on a regular basis. There is no evidence of the Taiwan Cement's current involvement in prominent controversial events or alleged misconduct.



APPENDIX

CONTENTS

CONTROVERSIES DETAIL

ADDITIONAL CORPORATE GOVERNANCE CONTENT

KEY METRIC & SCORE CHANGES

CEO PAY CHARTS

SHAREHOLDER/MANAGEMENT PROPOSALS

GOVERNANCE STANDARDS

DIRECTOR PROFILES



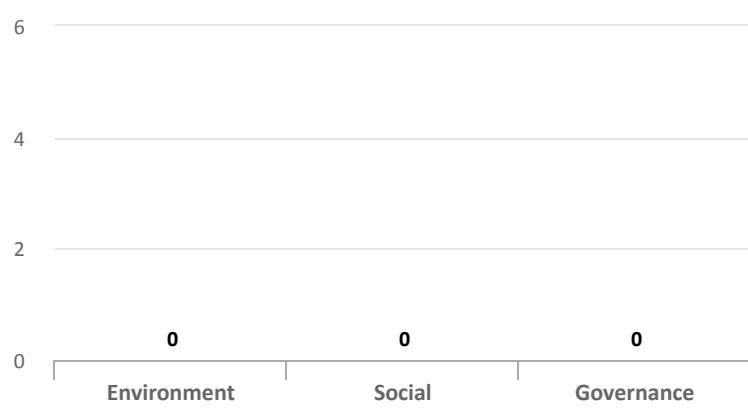
CONTROVERSIES DETAIL

Here you will find the narratives for all controversies relevant to the ESG Ratings issues covered for the company in addition to those controversies that do not map to the ESG Ratings issues.

CONTROVERSY CARD

| | MOST SEVERE CONTROVERSY | CONTROVERSY COUNT |
|-------------------------|-------------------------|-------------------|
| Environment | | |
| Carbon Emissions | None | 0 |
| Toxic Emissions & Waste | None | 0 |
| Social | | |
| Labor Management | None | 0 |
| Health & Safety | None | 0 |
| Governance | | |
| Corporate Governance | None | 0 |
| Corporate Behavior | None | 0 |

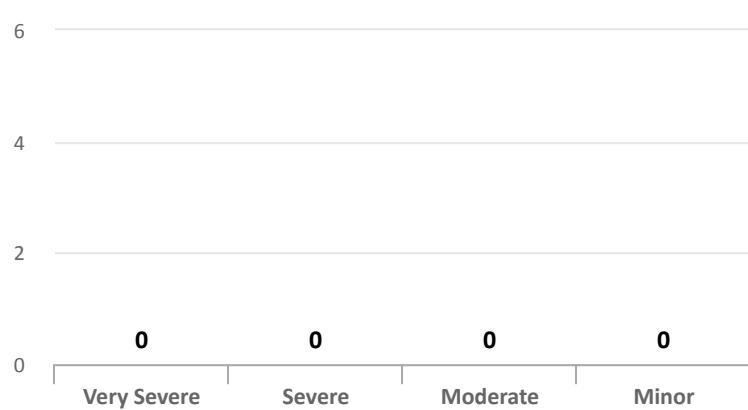
NUMBER OF CONTROVERSIES BY PILLAR



CONTROVERSIES

- **Very Severe:** Indicates an action by a company that results in a very large impact on society and/or the environment.
- **Severe:** Indicates an action by a company that results in a large impact on society and/or the environment.
- **Moderate:** Indicates an action by a company that results in a moderate impact on society and/or the environment.
- **Minor:** Indicates an action by a company that results in a low impact on society and/or the environment.
- **None:** There is no evidence that a company is involved in any controversy.

NUMBER OF CONTROVERSIES BY ASSESSMENT





KEY METRIC & SCORE CHANGES

ALL KEY METRIC & SCORE CHANGES (SINCE OCTOBER 2021)

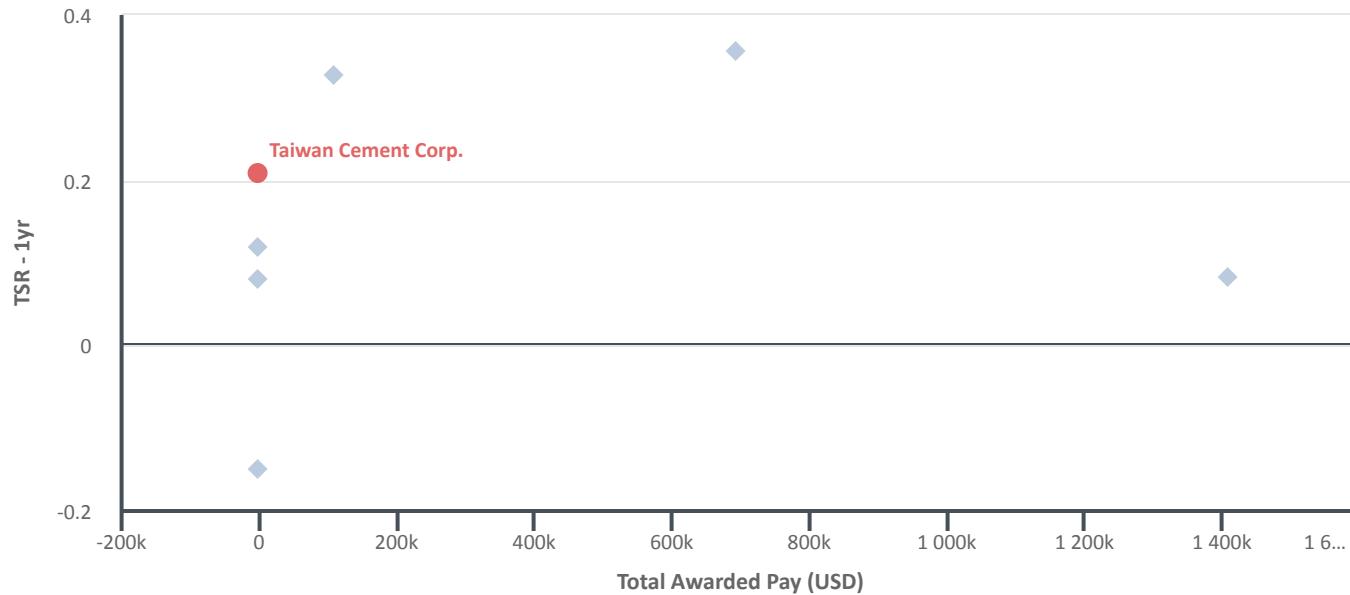
| Key Metric | Key Metric Change | Date | Score Change* | Change Notes |
|---|-------------------|--------------|---------------|---|
| Nomination Committee Chair Independence | Flag Added | Sep 21, 2022 | -0.10 | Non-independent nomination committee chair identified |
| Board Majority Independent of Other Interests | Score Change | Sep 21, 2022 | 0.20 | |
| No Nomination Committee | Flag Removed | Jul 07, 2022 | 0.30 | Nomination committee function disclosed |
| Revenue Recognition | Flag Removed | Jun 12, 2022 | 0.53 | Methodology enhancements |
| No Nomination Committee | Flag Added | Jun 12, 2022 | -0.30 | Methodology enhancements |
| Expense Recognition | Score Change | Jun 12, 2022 | 0.13 | Methodology enhancements |
| Board Majority Independent of Other Interests | Flag Added | Jun 12, 2022 | -0.30 | Methodology enhancements |
| Board Majority Independent of Other Interests | Score Change | Jun 12, 2022 | -0.20 | Methodology enhancements |
| Asset-Liability Valuation | Score Change | Jun 12, 2022 | 0.26 | Methodology enhancements |
| Related Party Transactions | Score Change | Jun 08, 2022 | 0.30 | |
| Cross Shareholdings | Score Change | Jun 08, 2022 | -0.20 | |
| Overboarded Exec Directors | Flag Removed | Apr 27, 2022 | 0.50 | |
| Cross Shareholdings | Score Change | Mar 10, 2022 | -0.40 | |
| Expense Recognition | Score Change | Mar 03, 2022 | 0.02 | Updates to data for accounting peer group member(s) |
| Cross Shareholdings | Score Change | Mar 03, 2022 | 0.40 | |
| Asset-Liability Valuation | Score Change | Mar 03, 2022 | -0.10 | Updates to data for accounting peer group member(s) |
| Revenue Recognition | Score Change | Nov 19, 2021 | -0.09 | Updates to data for accounting peer group member(s) |
| Expense Recognition | Score Change | Nov 19, 2021 | 0.01 | Updates to data for accounting peer group member(s) |
| Asset-Liability Valuation | Score Change | Nov 19, 2021 | -0.16 | Updates to data for accounting peer group member(s) |
| Combined CEO/Chair | Flag Added | Oct 18, 2021 | -0.20 | |
| CEO Equity Policy | Flag Added | Oct 18, 2021 | -0.20 | |

*Score change available in respect of changes dated on or after 13 December 2017.



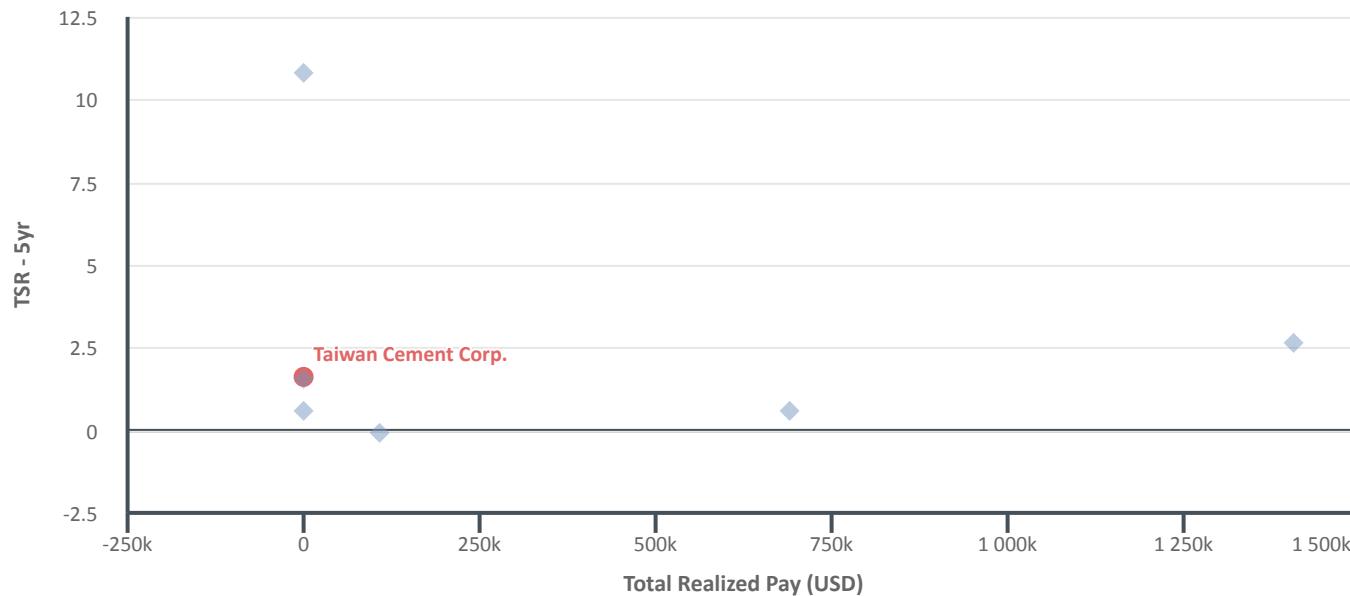
CEO PAY CHARTS

CEO TOTAL AWARDED PAY VERSUS PAY PEER GROUP



Pay Peers (diamonds) are used in the calculation of the Key Metric CEO Pay Total Summary and selected as set out in the MSCI Governance Metrics Methodology Document.

CEO TOTAL REALIZED PAY VERSUS PAY PEER GROUP



Pay Peers (diamonds) are used in the calculation of the Key Metric CEO Pay Total Summary and selected as set out in the MSCI Governance Metrics Methodology Document.



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SHAREHOLDER/MANAGEMENT PROPOSALS

MANAGEMENT PROPOSALS

| Proxy Year | Proposal | Proposal Summary | Outcome | Votes For | Votes Against | Abstain/ Withheld% |
|------------|------------------------------------|--|----------|-----------|---------------|-----------------------|
| | | | | | | |
| 2022 | Other | 1 The 110th Annual Business Report and Financial Statements are hereby acknowledged. | Approved | 93.7% | 0.6% | 5.7% |
| 2022 | Other | 2 The 110th Annual Surplus Distribution Proposal, please acknowledge it. | Approved | 94.5% | 0% | 5.5% |
| 2022 | Stock Issuance | 3 The Company's annual ? annual surplus is converted into capital to issue new shares, which is hereby submitted to a referendum. | Approved | 92.6% | 0% | 7.4% |
| 2022 | Stock Issuance | 4 The company plans to handle the cash capital increase and the issuance of ordinary shares to participate in the issuance of overseas depository receipts | Approved | 92.4% | 0.2% | 7.4% |
| 2022 | Amend Certificate of Incorporation | 5 Amendments to some of the articles of the Company's "Articles of Association" are hereby submitted to a referendum. | Approved | 90.9% | 1.6% | 7.5% |
| 2022 | Other | 6 Amend some of the provisions of the company's "Acquisition or Disposal of Assets Handling Procedures | Approved | 92.6% | 0% | 7.4% |
| 2021 | Other | (I) To approve 2020 Annual Business Report and Financial Statements. | Approved | 93.2% | 0.1% | 6.7% |
| 2021 | Other | (II) The proposal for distribution of 2020 profits | Approved | 93.3% | 0.1% | 6.6% |
| 2021 | Other | (I) To approve the amendments on part of "Rules of Procedures for the Acquisition and Disposal of Assets". | Approved | 86.1% | 0% | 13.9% |
| 2021 | Other | (II) To approve the amendments on part of Rules of Procedure for Annual Shareholders' Meeting. | Approved | 91.9% | 0% | 8.1% |
| 2021 | Other | (III) Proposal to release the newly-elected Directors from non- competition restrictions. | Approved | 85.1% | 0.1% | 14.8% |
| 2020 | Other | (III) To approve the amendments on part of Rules of Procedure for Annual Shareholders' Meeting | Approved | 89.5% | 0% | 10.5% |
| 2020 | Amend Certificate of Incorporation | (II)To approve the amendments on part of Article of Incorporation. | Approved | 89.5% | 0% | 10.5% |
| 2020 | Stock Issuance | (I) Proposal for a new share issue through capitalization of earnings. | Approved | 89.5% | 0% | 10.5% |
| 2020 | Other | (II) The proposal for distribution of 2019 profits | Approved | 91.1% | 0% | 8.9% |
| 2020 | Other | (I) To approve 2019 Annual Business Report and Financial Statements. | Approved | 90.5% | 0.2% | 9.3% |

*For Management Proposals at AGM's held more than three years ago, please refer to the Screener tool on ESG Manager.



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TAIWAN



CURRENCY: TAIWAN NEW DOLLAR (TWD)

The main regulatory and legislative framework for corporate governance in Taiwan is the Company Act, Securities and Exchange Act and the TWSE/TPEx listing rules for relevant companies. There is the Taiwan Corporate Governance for Best Practice Principles, which follows a "comply or explain" approach and the Corporate Governance 3.0: Sustainable Development Roadmap.

There are two types of corporate structures available for public companies in Taiwan: (i) a supervisory system consisting of annual general meeting (AGM), board of directors and a supervisor and (ii) an audit committee system consisting of AGM, board of directors and audit committee. Most companies in Taiwan adopt the two-tier board structure of a supervisory board and a management board (acting as the board of directors).

The board of directors must have at least five members. The number of independent directors must be at least two and no less than one-fifth of the total number of directors. Independent directors cannot concurrently serve as directors in more than five TWSE/TPEx listed companies. The audit committee must consist of at least three members and comprise entirely independent directors. The listing rules require establishing pay and nomination committees and internal risk management mechanisms. There are no board gender diversity requirements.

Related party transactions (RPTs) that reaches 10% or more of the company's total assets must obtain an appraisal report from a professional appraiser or the opinion of a certified public accountant. The law and regulations governing procedure for board directors' meetings of public companies stipulate that interested directors must disclose their interest to the board and must abstain from voting on the issue of the matter.

Company law states that pay of directors and supervisors is determined by the annual general meeting. The Taiwan Corporate Governance Best Practice Principles for public companies requires companies to disclose the directors' pay as well as the pay of supervisors, general managers, and vice general managers for the most recent fiscal year.

Controlled and principal ownership dominates in Taiwan, and families are the most common owner type.

Cross-shareholdings are a common control-maintaining mechanism used by Taiwanese companies. Multiple share classes with unequal voting rights are not permitted, but foreign ownership limits are present in strategic sectors such as telecommunications, shipping and aviation.

The Companies Act provides shareholders with the right to vote, elect and discharge directors and supervisors, determine the pay of directors and supervisors, amending the articles of incorporation, and approving certain transactions. Companies in Taiwan do not generally hold annual elections, since directors are typically elected for a three-year term. Shareholders with at least 1% of outstanding shares can propose agenda items to the annual general meeting. Shareholders owning 3% of the shares can request in writing for the supervisor to initiate an action against a director on behalf of the company.

A mandatory takeover bid is triggered if a bidder intends to purchase 20% or more shares within a period of 50 days.

Public companies must provide their disclosure information subject to both the Company Act and the Securities and Exchange Act. Companies are further required to appoint external auditors. External auditors are subject to a mandatory five-year rotation.



DIRECTOR PROFILES

AN PING (NELSON) CHANG

| | | |
|---------------------|------------|---|
| Age: | Financial: | Yes |
| Gender: M | Risk: | No |
| Nationality: Taiwan | Industry: | Materials - Construction Materials, Consumer Services - Hotels, Restaurants & Leisure |

BIOGRAPHICAL INFORMATION

Synnex Technology International Corp., Source Date:

Zhang Anping has been Independent Director in Synnex Technology International Corp. since June 13, 2012. Zhang is also Chairman of the Board and Director in five other companies. Zhang holds a Master of Business Administration from New York University and a Bachelor's degree in Economics from Princeton University.

Taiwan Cement Corp., Source Date:

Mr. Zhang Anping has been Managing Director in Taiwan Cement Corporation since November 1, 2011. He was Vice Chairman of the Board in the Company. He is also Chairman of the Board, Independent Director and Director in other companies. He holds a Master of Business Administration (MBA) from New York University, the United States. He was Vice Chairman of the Board in another cement company.

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--|--------|--------------|----------|---------------------------|--------------------------------|------------|
| CTCI Corporation | Board Member | 5 | Jun 28, 2017 | | Yes | No | |
| Taiwan Cement Corp. | Executive, Board Member, Chairman, CEO | 28 | Apr 21, 1994 | | No | No | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---------------------|----------------|----------|
| Taiwan Cement Corp. | Nomination | Chair |



CCC | B | BB | BBB | **A** | AA | AAA

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CHI CHIA HSIEH

Age:

Gender: M

Nationality: Taiwan

Financial: No

Risk: No

Industry:

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp., Source Date:

Xie Qijia is Director in Taiwan Cement Corporation. Xie is Vice Chairman of the Board, Chairman of the Board, Independent Director and Director in four other companies. Xie holds a Ph.D in Electrical Engineering from Santa Clara University, the United States.

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 6 | Jun 22, 2016 | | Yes | No | |
| Innolux Corporation | Board Member | 9 | Jun 19, 2013 | | Yes | Yes | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---------------------|----------------|----------|
| Innolux Corporation | Audit | Chair |
| Innolux Corporation | Pay | Chair |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

CHI-TE CHEN

| | |
|--------------|---------------|
| Age: | No |
| Gender: | M |
| Nationality: | Not Disclosed |

Financial: No

Risk: No

Industry: Capital Goods - Construction & Engineering

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Chi-Te Chen is the Director of the Taiwan Cement Corp.MBA, University of California Santa Clara Vice Chairman, Chien Kuo Construction Co., Ltd.; Director, Chia Hsin Cement Corporation; Director, Chia Hsin Property Management and Development Corporation; Chairman, Chien Hwei Investment Co., Ltd.; Chairman, Rock Publishing International; Chairman, Golden Canyon Venture Capital Investment Co., Ltd.; Chairman, Golden Canyon II Venture Capital Investment Co., Ltd.; Director, Silver Shadow Holdings Co., Ltd.; Director, Golden Canyon Co., Ltd.; Director, Chien Kuo Asia Co., Ltd.; Director, China Real Estate Management Corporation; Chairman, Chien Kuo Building Co., Ltd.; Chairman, Chien Huei Cultural & Educational Foundation; Chairman, Chien Kuo Foundation for Arts and Culture and more.

CHIA HSIN CEMENT CORPORATION - Board Member Source Date: 05/19/2022

Chi-Te Chen is a Director at Chia-Hsin Cement Corporation and Vice Chairman of Chien Kuo Construction Co. Ltd.

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|------------------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| CHIA HSIN CEMENT CORPORATION | Board Member | | Jun 14, 2022 | | No | Yes | |
| Taiwan Cement Corp. | Board Member | 1 | Jul 05, 2021 | | Yes | No | |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

CHIEN (JAMES) WEN

| | | |
|---------------------|------------|---|
| Age: | Financial: | Yes |
| Gender: M | Risk: | No |
| Nationality: Taiwan | Industry: | Semiconductors & Semiconductor Equipment - Semiconductors & Semiconductor Equipment |

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Chien, Wen is a member of our board of directors. MBA, The Wharton Business School, University of Pennsylvania; Director, International CSRC Investment Holdings Co., Ltd.; Supervisor, Winbond Electronics Corp.; CFO, Winbond Electronics Corp.; President, Cathay Securities Investment Trust Director, Chinatrust Investment Co., Ltd.; Supervisor, Ta-Ho Maritime Corporation and more

Winbond Electronics Corporation - Audit Board Member Source Date: 05/13/2022

MBA, Wharton School in University of Pennsylvania President of Cathay Securities Investment Trust Co., Ltd.

CFO at Winbond Electronics Corp.

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 4 | Jun 22, 2018 | | Yes | No | |



CCC | B | BB | BBB | **A** | AA | AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

CHUN YING LIU

Age: 47
Gender: F
Nationality: Taiwan

Financial: No
Risk: No
Industry: Commercial & Professional Services - Professional Services

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Chun-Ying, Liu is a member of our board of directors.EMBA, College of Management, National Taiwan University; LLM, Northwestern University; LLB, National Taiwan University Partner, Tsar and Tsai Law Firm; Director, Chinatrust Investment Co., Ltd.; Independent Director, Jarly Technology Co., Ltd. and more

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 4 | Jun 22, 2018 | | Yes | No | |



KANG LUNG (JASON) CHANG

Age: _____
 Gender: M
 Nationality: Taiwan

Financial: No
 Risk: No
 Industry:

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Kang Lung (Jason) Chang is the director of Taiwan Cement Corp.

MS in Management Studies, Sloan School of Management, Massachusetts Institute of Technology; President, Chia Hsin Cement Corporatio

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 10 | Jun 21, 2012 | | No | No | |



CCC | B | BB | BBB | **A** | AA | AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

KENNETH C.M. LO

Age: _____
 Gender: M
 Nationality: Taiwan

Financial: Yes
 Risk: No
 Industry: Banks - Banks

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Kenneth C.M. Lo is a member of our board of directors. MS in Finance, Manderson School of Business, The University of Alabama Managing Director, O-Bank

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 17 | Feb 24, 2005 | | Yes | No | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---------------------|----------------|----------|
| Taiwan Cement Corp. | Nomination | Member |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

KUNG YI KOO

| | | | |
|--------------|--------|------------|---|
| Age: | | Financial: | No |
| Gender: | M | Risk: | No |
| Nationality: | Taiwan | Industry: | Diversified Financials - Diversified Financial Services |

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Kung Yi Koo is the director of the Taiwan Cement Corp. MBA, The Wharton School of University of Pennsylvania; Vice President, Morgan Stanley Investment Banking Department; Vice Chairman, Taiwan Cement Corporation Chairman, International CSRC Investment Holdings Co., Ltd.; Chairman, Linyuan Advanced Materials Technology Co., Ltd.; Chairman, Circular Commitment Company; Chairman, Yun Cheng Investment Corporation; Chairman, Chung Cheng Development Investment Co., Ltd.; Chairman, Consolidated Resource Company; Chairman, Taiwan Transport & Storage Corp.; Chairman, Synpac (North Carolina), Inc.; Chairman, Synpac GP Corporation; Chairman, CCC USA Corp.; Chairman, Continental Carbon Company; Director, CSRC (BVI) Ltd.; Director, CSRC (Singapore) Pte. Ltd.; Director, SYPAC Ltd.; Director, Continental Carbon Nanotechnologies, Inc.; Director, E-One Moli Energy Corp.; Director, TCC Recycle Energy Technology Company; Director, Ho-Ping Power Company; Director, China Steel Chemical Corporation; Director, Yingde Dragon Mountain Cement Co., Ltd.; Director, TCC International Holdings Limited; Director, TCC International Limited; Director, Chiefolk Company Limited; Director, Hong Kong Cement Company Limited; Director, Kong On Cement Holdings Ltd.; Supervisor, TCC New (Hangzhou) Management Company Limited; Manager, Synpac Venture Capital L.P.; Manager, SVC Management, LLC; Manager, SVC Services, LLC and morere

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 4 | Jun 22, 2018 | | No | No | |



LING TAI (LYNETTE) CHOU

Age: _____
 Gender: F
 Nationality: Taiwan

Financial: Yes
 Risk: No
 Industry:

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Lynette Ling-Tai, Chou is an independent director of our company. Ph.D. of Accounting, University of Houston; Master of Accounting, University of Houston; BS in International Business, Department of Commerce, National Taiwan University; Chief of Student Affairs, National Cheng Chi University; Dean, Department of Accounting, National Cheng Chi University; Professor, Guanghua School of Management; Managing Supervisor, Taiwan Public Television Services; Independent Director, F-MStar Co., Ltd. Independent Director, Chief Telecom Co., Ltd.; Emeritus and Tenure Professor Department of Accounting, National Cheng Chi University and more

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 4 | Jun 22, 2018 | | Yes | Yes | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---------------------|----------------|----------|
| Taiwan Cement Corp. | Audit | Member |
| Taiwan Cement Corp. | Pay | Member |
| Taiwan Cement Corp. | Nomination | Member |
| Taiwan Cement Corp. | Risk | Member |



MEI-HWA LIN

Age: _____
 Gender: F
 Nationality: Not Disclosed

Financial: No
 Risk: No
 Industry:

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Mei-Hwa Lin is appointed as director of the company. Ph.D. of Accounting, Drexel University; Dean and Professor, Department of Accounting, National Cheng Chi University Independent Director, Shin Kong Financial Holding Co., Ltd.

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 1 | Jul 05, 2021 | | Yes | Yes | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---------------------|----------------|----------|
| Taiwan Cement Corp. | Audit | Member |
| Taiwan Cement Corp. | Pay | Member |



CCC B BB BBB A AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

POR-YUAN WANG

Age: _____
 Gender: M
 Nationality: Taiwan

Financial: No
 Risk: No
 Industry:

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Wang Por-Yuan is a member of our board of directors. Ph.D., Carnegie Mellon University; Chairman, Taiwan Venture Capital Association; Chairman, Monte Jade Science & Technology Association of Taiwan Chairman, Sercomm Corporation; Chairman, Pacific Venture Partners; Director, Prosperity Dielectrics Co., Ltd.; Independent Director, UPC Technology Corporation; Chairman, K.T. Li Foundation Development of Science and Technology; Vice Chairman, Fairs Winds Foundation and more

TECO ELECTRIC & MACHINERY CO., LTD. - Inactive Source Date: 05/12/2022

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 13 | Jun 19, 2009 | | Yes | No | |



SHIOU-LING (SHERRY) LIN

Age: _____
 Gender: F
 Nationality: Taiwan

Financial: No
 Risk: No
 Industry:

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Ms. Lin Shiou Ling is the independent director of Taiwan Cement Corp

LLB, National Taiwan University; Director, Cathay Financial Holding Co., Ltd.; Director, Tong Lung Metal Industry Co., Ltd.; Independent Director, Accton Technology Corporation; Senior Consultant, Lee and Li, Attorneys-at-Law Special Senior Consultant, Lee and Li, Attorneys-at-Law; Chairman, Bar Koo Investment Corporation; Chairman, Bar Koo Consultation Corporation; Chairman, Cheng Yu Investment Corporation; Chairman, Cheng Yu Financial Consultation Corporation; Chairman, Cheng Yu Sheng Investment Corporation; Independence Director, Cathay Real Estate Development Co., Ltd.; Convener of Risk Management Committee and more

CATHAY REAL ESTATE DEVELOPMENT CO.,LTD. - Board Member Source Date: 05/27/2022

Ms. Shiou-Ling Lin is the Independent director of Cathay Real Estate Development Co Ltd .

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 1 | Jul 05, 2021 | | Yes | Yes | |
| CATHAY REAL ESTATE DEVELOPMENT CO.,LTD. | Board Member | 8 | Jun 06, 2014 | | Yes | Yes | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---|----------------|----------|
| CATHAY REAL ESTATE DEVELOPMENT CO.,LTD. | Audit | Chair |
| CATHAY REAL ESTATE DEVELOPMENT CO.,LTD. | Pay | Chair |
| Taiwan Cement Corp. | Audit | Member |
| Taiwan Cement Corp. | Pay | Member |
| Taiwan Cement Corp. | Nomination | Member |
| Taiwan Cement Corp. | Risk | Chair |



SUN-TE (ERIC) CHEN

Age: 67
Gender: M
Nationality: China

Financial: Yes
Risk: No
Industry: Diversified Financials - Diversified Financial Services

BIOGRAPHICAL INFORMATION

UNI-PRESIDENT CHINA HOLDINGS LTD. - Board Member Source Date: 04/25/2022

Chen Sun-Te, was appointed as an independent non-executive director of the Company in August 2007. Mr. Chen has over 36 years of experience in the banking and financial industry and is currently the Chairman of Taipei Fubon Commercial Bank. He is also an independent director of Lion Travel Services Co., Ltd. and a director of Fubon Financial Holdings. Prior to that, Mr. Chen was an independent director of China Telecom Corporation from March 2012 to July 2019, the president of Fullerton Financial Holdings Pte. Ltd. (North Asia and Greater China regions) between 2005 and 2012, the president of Chinatrust Financial Holdings Co., Ltd. (now known as CTBC Financial Holding Co., Ltd) in 2005, the chairman of Chinatrust Securities Co., Ltd. between 2003 and 2005, the country officer and country head of the corporate bank in Taiwan of Citigroup between 2001 and 2003 and the regional head of financial markets in Asia Pacific of Citigroup between 1998 and 2001. He gained extensive financial management experience from various positions held with Citibank and Citigroup and has acquired general knowledge about the food and beverage industry through dealing with clients in such industry. Mr. Chen holds a master's degree in business administration from University of Missouri, the U.S.A. and a bachelor's degree in political science from National Chengchi University, Taiwan.

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|-----------------------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | | Aug 12, 2022 | | Yes | No | |
| UNI-PRESIDENT CHINA HOLDINGS LTD. | Board Member | 15 | Aug 09, 2007 | | Yes | Yes | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|-----------------------------------|----------------|----------|
| UNI-PRESIDENT CHINA HOLDINGS LTD. | Audit | Member |
| UNI-PRESIDENT CHINA HOLDINGS LTD. | Pay | Chair |

DIRECTOR PAY (all values USD)

| Company | Role | Tenure | Pay Year | Cash Fees | Total Awarded Pay | Shares Held |
|-----------------------------------|---------------|--------|----------|-----------|-------------------|-------------|
| UNI-PRESIDENT CHINA HOLDINGS LTD. | Non-Executive | 15 | 2021 | 36,088 | 39,697 | 0 |



CCC B BB BBB AA AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

VICTOR WANG

Age: **62**
Gender: M
Nationality: Taiwan

Financial: Yes
Risk: No
Industry: Diversified Financials - Diversified Financial Services

BIOGRAPHICAL INFORMATION

Taiwan Cement Corp. - Board Member Source Date: 04/30/2022

Victor Wang is an independent director of our company.BA in Accounting, Soochow University; EMBA, National Taiwan University; Vice Chairman of Auditing Service Division, Deloitte Taiwan Director, Yageo Corporation; Director, YFY Investment Holding Co., Ltd.; Independent Director, Fulin Plastic Industry (Cayman) Holding Co., Ltd.; Independent Director, Taiwan Navigation Co., Ltd.; Independent Director, DACIN Construction Co., Ltd.; Convener of Audit Committee and more

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------|--------------|--------|--------------|----------|---------------------------|--------------------------------|------------|
| Taiwan Cement Corp. | Board Member | 10 | Jun 21, 2012 | | Yes | Yes | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---------------------|----------------|----------|
| Taiwan Cement Corp. | Audit | Chair |
| Taiwan Cement Corp. | Pay | Member |
| Taiwan Cement Corp. | Risk | Member |



YU-CHENG (ARTHUR) CHIAO

Age: **56**
 Gender: M
 Nationality: Taiwan

Financial: No
 Risk: No
 Industry: Semiconductors & Semiconductor Equipment -
 Semiconductors & Semiconductor Equipment

BIOGRAPHICAL INFORMATION

Walsin Lihwa Corp., Source Date:

Mr. Jiao Youjun has been Vice Chairman of the Board and Deputy Chief Executive Officer in Walsin Lihwa Corporation since May 31, 2005. He used to be Chairman of the Board in the Company. He holds a Master's degree in Electrical Engineering from Washington University, the United States. He also serves as Chairman of the Board and Director in other companies, including Baystar Holding Ltd., Marketplace Management Limited, Newfound Asia Corporation and Peaceful River Corporation.

CORPORATE BOARDS

| Company | Role | Tenure | Appointed | Resigned | Independent of Management | Independent of Other Interests | Attendance |
|---------------------------------|--|--------|--------------|----------|---------------------------|--------------------------------|------------|
| WALSIN TECHNOLOGY CORPORATION | Board Member | 6 | Jun 22, 2016 | | No | No | |
| Taiwan Cement Corp. | Board Member | 10 | Jun 21, 2012 | | Yes | Yes | |
| Nuvoton Technology Corporation | Board Member | 14 | Mar 14, 2008 | | No | No | |
| Winbond Electronics Corporation | Executive, Board Member, Chairman, CEO | 35 | Sep 04, 1987 | | No | No | |
| WALSIN LIHWA CORPORATION | Board Member | 41 | Apr 10, 1981 | | No | No | |

BOARD COMMITTEES

| Company | Committee Type | Position |
|---------------------|----------------|----------|
| Taiwan Cement Corp. | Audit | Member |
| Taiwan Cement Corp. | Pay | Chair |
| Taiwan Cement Corp. | Nomination | Member |



GLOSSARY

MSCI ESG RATINGS AND SCORES

FINAL ESG RATING

- Letter ratings are relative within each MSCI ESG Ratings industry. Each Final Industry-Adjusted Company Score is converted to an equivalent rating on the AAA-CCC scale.

ESG PILLARS

- the **Environment Score** represents the weighted average of all Key Issues that fall under the Environment Pillar
- the **Social Score** represents the weighted average of all Key Issues that fall under the Social Pillar
- the **Governance Score** represents the sum of score deductions derived from Key Metrics included in Corporate Governance (including Board, Pay, Ownership & Control, and Accounting) and Corporate Behavior (including Business Ethics and Tax Transparency)
- the **Environment Weight** represents the sum of the weights of all Key Issues that fall under the Environment Pillar
- the **Social Weight** represents the sum of the weights of all Key Issues that fall under the Social Pillar
- the **Governance Weight** represents the sum of the weights of Corporate Governance and Corporate Behavior, with a minimum weight set at 33% for all rated issuers

KEY ISSUES

For each industry and Company-Specific Key Issue that contributes to the final rating:

- Weight** contribution to the final rating
- Exposure Score** (available for companies published since June 2011; excluding Raw Material Sourcing – Environmental)
- Management Score** (available for companies published since June 2011; excluding Raw Material Sourcing – Environmental)
- Overall **Key Issue Score**

WEIGHTED-AVERAGE KEY ISSUE SCORE VS. INDUSTRY RELATIVE SCORE

- the **Weighted-Average Key Issue Score** is dynamic, reflecting changes in any underlying scores as of the Last Update date, while the **Industry Relative Score** is more static and corresponds to the Rating Date. Issues that we determine do not present material risks or opportunities to companies in a given industry receive 0% weight and do not impact the overall ESG rating.

SCORES AND CALCULATION OF AVERAGE, PERCENTILE AND RATING DISTRIBUTION

All averages, percentiles, and rating distributions found in the report are based on companies in the relevant MSCI ESG Ratings Industry that are constituents of the MSCI ACWI and are calculated based on industry scores as of the date of publication of this report.

ESTIMATED CARBON EMISSIONS

Carbon estimates are based on carbon intensity (carbon emissions/sales). The Estimate Key represents the source of the estimated carbon emissions data. E.CSI represents Company-Specific Intensity estimates based on previously disclosed data. E.GICSSI represents estimates based on the GICS Sub-Industry average. For E.GICSSI we set five levels of confidence (High, Moderately High, Moderate, Moderately Low, and Low). The Carbon Estimation Methodology document, available on ESG Manager, describes the estimation model in greater detail.



CCC | B | BB | BBB | **A** | AA | AAA

RATING ACTION DATE: December 05, 2022
LAST REPORT UPDATE: February 14, 2023

GOVERNMENT SUPPORT RATING

We calculate the 'government support rating' for Supranationals and Development Banks based on the weighted average of member countries' Governance scores using the MSCI ESG Government Ratings methodology. These scores are based on measures of political governance (strength of institutions, corruption control, civil liberties, and human rights) and financial accountability.



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