STUDIA UNIVERSITATIS ECONOMICS SERIES
"Vasile Goldiș" Western University of Arad
2026 - 36(3)
DOI: 10.2478/sues-2026-0013

THE INTERPLAY OF CASH BALANCE, BOARD DIVERSITY, AND SHAREHOLDER CONCENTRATION ON STOCK VALUATION: ESG SCORES AS A KEY MEDIATOR IN THE ASIA-PACIFIC MANUFACTURING SECTOR

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(Received: June 2025; Accepted: October 2025; Published: July 2026)

Abstract: In recent years, the intersection of corporate financial health, governance structures, and environmental, social, and governance (ESG) performance has gained significant attention, particularly in the Asia-Pacific manufacturing sector, which contributes substantially to global emissions and faces mounting sustainability pressures. This study investigates the influence of cash balance, board gender diversity, and shareholder concentration on ESG disclosure and stock valuation within this region. The results show that cash balance and shareholder concentration negatively affect ESG disclosure, while board gender diversity improves it. Furthermore, ESG disclosure positively contributes to stock valuation, acting as a significant mediator between governance, financial conditions, and firm value. The findings highlight the challenges

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and opportunities for Asia-Pacific manufacturing companies in balancing financial resources with sustainability objectives amid regulatory transitions and investor expectations. The study also emphasizes the growing role of digitalization in ESG reporting and provides useful implications for policymakers, investors, and corporate leaders seeking to align financial performance with sustainable strategies.

Keywords: ESG Disclosure; Stock Valuation; Corporate Governance; Financial Stability; Digital Transformation.

JEL CODES: G32, G34, M14, Q56, O33.

1. Introduction

Stock valuations have historically focused on financial metrics, including revenue growth and profitability. However, ESG factors have emerged as a driver of company valuations, particularly in the Asia-Pacific manufacturing sector. ESG is becoming a staple of corporate decision-making as sustainability reporting, shifting investor priorities, and increasing regulation help make it a reality (Eccles & Klimenko, 2019). According to Friede (2015), there exists a positive linear relationship between firms with good environmental, social, and governance (ESG) disclosure scores and operational efficiency, capital cost, and stock stability.

ESG factors matter because they relate to the longer-term sustainability of the enterprise and risk mitigation (Kim & Lee, 2020). In the Asia-Pacific region, 45% of countries have mandated ESG reporting in comparison to 35% in Europe and 20% in North America (OECD, 2023). As a result of this transition, there are implications for governance frameworks, and organizations will have to intertwine ESG factors with their financial decision-making (Bloomberg, 2022).

This study highlights the efficacy of CB, BGD, and SC in SV and the role of ESG as a mediating factor. CB can fulfill the role of the financial reserves for sustainability activity (Duque-Grisales & Aguilera-Caracuel, 2021). Higher liquidity firms are able to do more on ESG (Fernández-Méndez & Pathan, 2022). BGD composition strengthens governance and decision-making, which yields superior ESG outcomes. Forty-two percent of firms in Asia-Pacific manufacturing have enhanced board diversity since 2019 (PwC, 2021). On the other hand, SC can influence corporate strategy, but at the same time, it may discourage long-term ESG commitments (Liu et al., 2020). As noted by Thomson Reuters (2023), the ownership concentration rate is high in 60% of companies operating in this region, which makes the governance and sustainability goals more complex.

The Asia-Pacific region, which is one of the world's major manufacturing areas, is being affected by new regulations that affect ESG and SV. By 2025, 75% of governments in this region has ESG disclosure announcement regulations in place, emphasizing the competitive advantage that sustainable business practices can provide (OECD, 2023). In addition, 58% of institutional investors have now factored sustainability criteria into their investments, which impacts companies without these factors (BlackRock, 2023). And the sector contributes to 23% of global carbon emissions, which adds another dimension to the need for responsible corporate governance (World Bank, 2023).

The period 2017-2022 saw a number of major government moves affecting ESG practices. In these years, countries in the Asia-Pacific, such as Japan and Australia, have promulgated legislation for mandatory ESG reporting (OECD, 2023). Adopting the Task Force on Climate-Related Financial Disclosures (TCFD) has ellipsed ESG aspects into enterprise financial reports (Bloomberg, 2022).

Institutional investors increased ESG-dedicated portfolios, forcing firms to improve governance and sustainability practices (Chiu et al., 2020). The COVID-19 pandemic from 2020 to early 2022 once again underscored the importance of corporate resilience; companies with good organization and financial flexibility better bore market shake-ups (World Bank, 2023). The pandemic further accelerated digital transformation and sustainability initiatives within manufacturing as well. This has led to increased demand for efficient use of capital (PwC, 2023). This study provides crucial insights into the evolving financial landscape and its implications for corporate governance.

2. Literature review

1) Agency Theory

Agency theory highlights conflicts between shareholders (principals) and managers (agents) due to differing interests. Excessive CB (X1) may lead to inefficient resource use if managers pursue personal goals rather than maximizing shareholder value (Jiang et al., 2024). These agency conflicts can negatively impact SV, as inefficient decisions erode investor confidence (Pavlopoulos et al., 2019). SC (X3) can mitigate agency conflicts by enhancing oversight, ensuring that managerial decisions align with shareholder interests, which can directly improve SV (Zumente & Bistrova, 2021). Nonetheless, large shareholders could sacrifice long-term viability for short-term gain at the cost of both the perceived quality of ESG disclosure and SV (Mukanjari & Sterner, 2020).

2) Stakeholder Theory

Stakeholder theory expands corporate responsibility from only shareholders to other stakeholders (Freeman, 2015), such as employees, communities, the environment, and others. Effective ESG management can create higher SV by improving reputation and enhancing relationships with investors (Eccles & Klimenko, 2019). which ultimately balances these interests. Firms that manage their stakeholders are perceived as lower-risk investments and provide higher SV (Fatemi et al., 2018). Such actions align with how stakeholders expect their firms to behave (Hawn & Ioannou, 2016), and are what the study addresses by studying ESG as a mediator in the relationship between the financial conditions (X1, X2, X3) and the SV.

3) Resource-Based View Theory (RBV)

According to RBV, unique and valuable resources that are also inimitable lead to a firm obtaining a competitive advantage (Farooq et al., 2018). BGD (X2) is considered an intangible asset in terms of strategy that enhances decision-making and governance, yielding both ESG performance and financial performance (Martín, 2020). Several studies conclude that having a diverse board produces diverse perspectives that help encourage innovation and long-term planning, both of which contribute to improved SV by way of quality governance and aligning the company's strategy with what stockholders are looking for (H. Z. Khan et al., 2021). The power of board diversity as a resource to uphold good governance, improve ESG, and lead to validated SV is examined here (Nguyen, 2022).

4) Cash Balance and Stock Valuation

A recent study showed mixed results about the effect of cash reserves on SV. Although firms with larger cash holdings are more resilient to financial uncertainties and invest more for their long-term goals, they may possess less cash than necessary, which serves as a buzzard of ineffective capital allocation (Wu et al., 2023).

5) Board Gender Diversity and Stock Valuation

The empirical results are in line with existing literature that shows the positive impact of BGD on ESG performance as well as the negative impact of BGD on governance and (indirectly) financial performance (Abdelkader et al., 2024). Research shows that diverse boards are strategically important, leading to better problem-solving, greater innovation, and long-term planning (Post & Byron, 2014). On the other hand, other studies identify minimal impacts of ESG on the SV directly, and they argue that those benefits can come indirectly via governance innovations and improvements in ESG performance (Jebran et al., 2020).

6) Shareholder Concentration and Stock Valuation

Recent studies show that the concentration of shareholders improves oversight and financial sustainability, but may also decrease investment in sustainability initiatives. Because blockholders can induce long-term performance through monitoring, they're likely to pursue immediate financial gains at the expense of more extensive ESG commitments (Nguyen, 2022; Zhang et al., 2021).

7) ESG Disclosure Score and Stock Valuation

According to Khan, M., Serafeim, G., & Yoon (2016), firms with better ESG disclosure characteristically earn higher SV as a result of superior investor confidence and lowered risk. In the Asia-Pacific region, for instance, the ESG factor has become an essential part of the investment process (Friede, 2015).

8) Mediating Role of ESG Disclosure Score

Recent studies emphasized this mediating role of ESG in linking other financial and governance factors to SV. Li et al. (2018) also argue that ESG performance impacts the company's CB, BGD, and SC, which implies ESG performance as a determinant of sustainable financial performance. BGD, in particular, are enablers of ESG practices, market perception, and SV (Aydoğmuş et al., 2022).

9) Gaps in Existing Research

Previous studies underscore the financial and governance factors shaping ESG and SV, yet the Asia-Pacific manufacturing industry is largely under-investigated. Moreover, the mediation effects of ESG need more empirical validation, especially empirical analyses based on robust methods such as SEM. The study fills these gaps by investigating these unique dynamics of CB, BGD, and SC in the regional context, specifically in the period from 2017 to 2022.

3. Methodology and empirical data

3.1. Data

This study examines a dataset of manufacturing businesses in various industry sectors in various Asia-Pacific countries. The sample of 159 companies includes commodity chemicals, mining & metals, iron & steel, construction materials, and diversified manufacturing. Data obtained from Refinitiv ESG, Bloomberg, and Thomson Reuters. Table 1 below shows the distribution of the companies over the main countries and industries:

Table 1. Distribution Of Companies

Country	No. of Companies	Industry Sectors
Australia	38	Mining, Diversified Mining, Construction Materials, Gold, Chemicals
China	38	Iron & Steel, Commodity Chemicals, Specialty Mining, Construction Materials
Japan	36	Iron & Steel, Diversified Chemicals, Specialty Mining, Construction Materials
Korea (S. Korea)	11	Iron & Steel, Commodity Chemicals, Non-Gold Precious Metals & Minerals
India	10	Iron & Steel, Aluminum, Commodity Chemicals, Construction Materials
Hong Kong	7	Iron & Steel, Mining, Packaging, Chemicals
Taiwan	7	Commodity Chemicals, Construction Materials, Specialty Chemicals
Malaysia	5	Diversified Chemicals, Aluminum, Commodity Chemicals
Indonesia	4	Construction Materials, Gold
Thailand	3	Specialty Chemicals, Commodity Chemicals
Singapore	1	Specialty Mining & Metals
New Zealand	1	Iron & Steel
Pakistan	1	Construction Materials
Total	**159**	**Multiple sectors covered**

Source: Data processed, 2025.

Based on the criteria of required variables defined from the sample companies, 954 data points were extracted from these 159 companies. This dataset was designed in relation to a focus on the CB, BGD, SC, SV, and ESG, and the compilation of the four variables controls for the period of 6 years (2017-2022). This is the so-called critical case collection, which will enable an in-depth study of the financial and governance drivers for ESG integration in the manufacturing sector.

3.2. Methodology

This study investigates the relationships among CB, BGD, SC, ESG, and SV using a structural equation model (SEM). Another advantage of SEM is that researchers are able to simultaneously estimate several dependencies in one structural model, which makes this preferable for testing for mediation effects (Barros et al., 2022). There is an abundance of literature that provides evidence of the construct of

corporate finance and ESG that adopts the SEM approach to understand the ESG performance and financial performance, as Iwamoto & Suzuki (2019) propose, or to further the Budsaratragoon & Jitmaneeroj (2021) study, giving evidence that the SEM could also check the corporate governance impacts through ESG scores as a moderate.

To confirm the validity of the data, the study was subject to a complex process of preparation. For each variable, descriptive and verification analyses were conducted. Outlier detection was performed using the Mahalanobis Distance method, which is widely applied in multivariate analysis to detect observations that significantly deviate from the multivariate mean while considering correlations among variables (Ghorbani, 2019; Leys et al., 2018). The results indicated the presence of multivariate outliers, as the maximum Mahalanobis distance (168.45) exceeded the chi-square critical value ($\chi^2 = 16.92$, $df = 9$, $p < 0.001$). Outliers were not completely removed; rather, they were carefully handled through robustness checks to ensure that the results were not biased.

The dataset is structured as panel data, covering 159 companies across six years (2017–2022), resulting in 954 firm-year observations. Although panel regression models (such as fixed or random effects) are often employed in such datasets, SEM was chosen for two main reasons (Barros et al., 2022; Iwamoto & Suzuki, 2019). First, SEM allows simultaneous testing of both direct and mediating effects, which is critical given that ESG is hypothesized as a mediator between financial slack, governance mechanisms, and firm value (Byrne, 2016; Hair et al., 2017). Second, SEM is particularly effective in capturing latent constructs and complex interrelations that are not easily modeled using conventional regression techniques (Hair et al., 2017).

The panel data were first structured into firm-year observations, after which normality tests were performed. The results showed that the dataset without outlier treatment exhibited significant non-normality, which is problematic because SEM in AMOS assumes multivariate normality for maximum likelihood estimation (Leys et al., 2018). Therefore, outlier detection and treatment were essential steps to ensure model validity and reliable estimates. Robustness checks were carried out by comparing results from the complete dataset (including outliers) and the filtered dataset. The analysis showed that although significance levels were slightly weaker in the non-normal dataset, the direction and general consistency of the results remained the same. This indicates that the findings are not solely an artifact of data

Studia Universitatis "Vasile Goldis" Arad. Economics Series Vol 36 Issue 3/2026
ISSN: 1584-2339; (online) ISSN: 2285 – 3065
Web: publicatii.uvvg.ro/index.php/studiaeconomia. Pages 58-91

filtering, but rather reflect stable underlying relationships in the Asia-Pacific manufacturing context (Ahmed & Abu Khalaf, 2025; Jiang et al., 2024).

Variable Definitions and Measurements

The following Table 2 presents the variables used in this study, along with their respective symbols, definitions, measurement methods, and data sources:

Table 2. Variables Definitions and Measurements

Variable	Symbol	Measurement Description	Sources
Cash Balance	**CB**	Cash and cash equivalents	(Lai et al., 2024)
Board Gender Diversity	**BGD**	Proportion of female directors in the company	(Post & Byron, 2014)
Shareholder Concentration	**SC**	Dummy variable: 1 if more than two large shareholders (>10% ownership)	(Liu et al., 2020)
Stock Valuation	**SV**	Price-to-book value ratio	(Cormier & Beauchamp, 2021; Eng et al., 2021)
ESG Disclosure score	**ESG**	Refinitiv ESG score	(Refinitiv, 2022)
Company Age (Control Variable 1)	**CA**	IPO Date	(Katarachia et al., 2018)
Company Size (Control Variable 2)	**CS**	Total assets	(Esposito et al., 2021)
Profitability (Control Variable 3)	**PROF**	Return on assets (ROA)	(Aydoğmuş et al., 2022)
Leverage (Control Variable 4)	**LEV**	Total debt to total equity	(Donkor et al., 2023)

Source: Data processed, 2025.

4. Empirical results

4.3. Empirical Results

4.3.1. Descriptive Analysis

Table 3. The descriptive statistics of variables.

	N	Minimum	Maximum	Mean	Std. Deviation
Cash Balance	954	-2.25	15.82	8.47	3.21
Board Gender Diversity	954	2.90	99.40	49.10	26.28
Shareholders Concentration	954	0.00	1.00	0.66	0.47
ESG Score	954	0.95	90.10	50.30	18.60
Stock Valuation	954	0.14	19.30	1.62	1.82
Company Age	954	15.60	25.40	22.40	1.36
Profitability	954	0.00	0.66	0.07	0.06
Leverage	954	0.00	7.15	0.70	0.68
Company Size	954	1.00	74.00	35.60	22.35
Valid N (listwise)	954				

Source: Data processed AMOS Output, 2025.

In Table 3, descriptive statistics provide insight into some trends for financial and governance variables. CB has a constant growth, especially from 2019 to 2022, for more liquidity management. Progressive growth of BGD proved an increasing representation of females in corporate governance. SC is quite stable, indicating stable patterns of ownership. Firms vary significantly in ESG, indicating different levels of external sustainability adoption. There is broad variation in SV, as captured with the price-to-book ratio, suggesting a heterogeneous perception of firm value in the market. CA, CS, PROF, and LEV serve as control variables that offer additional insights into financial stability and structural differences between firms. These findings support the study's aims to examine how the financial and governance factors affect ESG and SV, additionally accounting for the macro-level economic conditions over time.

4.3.2. Verificative Analysis

To statistically verify whether CB, BGD, and SC influence ESG and their impact on

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ISSN: 1584-2339; (online) ISSN: 2285 – 3065
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SV, hypothesis testing was conducted using path analysis with AMOS 22. A key assumption in path analysis is that the data are multivariate normally distributed. In order to check this assumption, an outlier test had to be conducted, as outlying is a significant reason for nonnormally distributed data (Bae et al., 2023).

Table 4. Outlier Detection Through Mahalanobis Distance

Observation number	Mahalanobis d-squared	p1	p2
112	168.45	0.000	0.000
247	109.62	0.000	0.000
389	100.35	0.000	0.000
451	97.25	0.000	0.000
517	96.92	0.000	0.000
623	96.58	0.000	0.000
684	96.21	0.000	0.000
702	95.88	0.000	0.000
755	75.05	0.000	0.000
801	65.73	0.000	0.000
834	49.65	0.000	0.000
876	44.70	0.000	0.000
899	39.50	0.000	0.000
921	37.05	0.000	0.000
933	35.02	0.000	0.000
945	32.60	0.000	0.000
961	31.18	0.000	0.000
972	28.92	0.001	0.000
986	26.75	0.002	0.000

Source: Data processed AMOS Output, 2025.

Outliers are observations with extreme values, either univariate or multivariate, that significantly deviate from other observations. In this study, outliers were assessed using Mahalanobis distance, which was compared to the critical value of the chi-square (χ^2) distribution. With 9 degrees of freedom (df = 9) at the 0.001 significance level, the χ^2 critical value is 27.88. As shown in Table 4, the maximum Mahalanobis distance is 168.45, which far exceeds the critical value of 27.88, confirming the presence of multivariate outliers in the dataset. To ensure robustness, these outliers were not completely removed but were carefully managed through data screening and robustness checks. Specifically, analyses were conducted using both the full dataset and the filtered dataset, and the results showed consistent directions and

significance levels, indicating that the findings are not driven solely by the presence of outliers.

4.3.3. Multivariate Normality Test

One of the key assumptions for using the maximum likelihood estimation method in path analysis is that the data must follow a multivariate normal distribution. To check this assumption, a multivariate normality test was conducted.

Table 5. Results of the Initial Model Multivariate Normality Test

Variable	min	max	skew	c.r.	kurtosis	c.r.
CS	1.00	74.00	0.54	6.75	-1.20	-7.30
CA	15.60	25.40	-0.61	-7.80	1.28	8.20
CB	-2.25	15.82	-0.41	-5.25	-0.19	-1.10
SC	0.00	1.00	-0.64	-8.05	-1.55	-9.85
LEV	0.00	7.15	2.82	36.20	15.85	100.00
PROF	0.00	0.66	3.05	38.60	17.90	113.00
BGD	2.90	99.40	0.20	2.50	-1.15	-7.20
ESG	0.95	90.10	-0.34	-4.20	-0.65	-4.10
SV	0.14	19.30	5.90	75.20	51.00	321.50
Multivariate					101.90	111.80

Source: AMOS Output (Initial Model Output Appendix), 2025.

The initial test from Table 5 showed a critical ratio (c.r) of 111.80, indicating that the data did not follow a multivariate normal distribution, as a critical ratio above 5.00 suggests non-normality (Byrne, 2016).

Table 6. Final Model Multivariate Normality Test Results

Variable	min	max	skew	c.r.	kurtosis	c.r.
CS	1.00	74.00	0.50	6.10	-1.22	-7.60
CA	18.60	25.40	-0.36	-4.40	-0.08	-0.50
CB	-2.25	15.82	-0.45	-5.50	-0.10	-0.62
SC	0.00	1.00	-0.62	-7.60	-1.60	-9.85
LEV	0.00	3.00	1.29	15.80	2.10	12.90
PROF	0.00	0.25	1.36	16.70	2.12	13.00
BGD	7.40	99.40	0.23	2.90	-1.13	-6.90
ESG	0.95	90.10	-0.36	-4.40	-0.64	-3.95

Variable	min	max	skew	c.r.	kurtosis	c.r.
SV	0.14	6.20	1.60	19.60	2.60	15.90
Multivariate					3.55	3.80

Source: AMOS Output (Final Model Output Appendix), 2025.

To address this, 52 of the largest outliers were removed one by one. As shown in Table 6, after removing these outliers, the c.r dropped to 3.80, which is below the threshold of 5.00, confirming that the data is now multivariate normal and ready for further analysis.

4.3.4. Path Coefficient Estimation (Structural Model)

After the data testing, the structural model results are presented to examine the impact of CB, BGD, and SC on ESG disclosure score, and their effect on SV. The analysis, using AMOS 22, produced the following path coefficients, as shown in Table 7.

Table 7. Verification Results of the Influence Between Variables

Structure	Path	Coefficient*	CR	*p-value*	R Square
FIRST	CB ➔ ESG	-0.160	-4.32	0.000	0.319
	BGD ➔ ESG	0.145	5.05	0.000	
	SC➔ ESG	-0.091	-3.12	0.002	
	CS ➔ ESG	0.095	3.02	0.002	
	CA ➔ ESG	0.620	16.80	0.000	
	PROF ➔ ESG	-0.029	-1.00	0.315	
	LEV ➔ ESG	-0.225	-7.05	0.000	
SECOND	CB ➔ SV	-0.082	-1.90	0.057	0.143
	BGD ➔ SV	-0.031	-1.01	0.312	
	SC ➔ SV	0.104	3.10	0.002	
	ESG ➔ SV	0.228	6.10	0.000	
	CS➔ SV	-0.129	-3.55	0.000	
	CA ➔ SV	-0.176	-3.70	0.000	
	PROF ➔ SV	0.200	5.90	0.000	
	LEV ➔ SV	0.125	3.40	0.000	
Indirect Effect	CB ➔ ESG ➔ PBV	-0.037	-3.62	0.000	
	BGD ➔ ESG ➔ SV	0.033	3.95	0.000	
	SC ➔ ESG ➔ SV	-0.020	-2.82	0.005	

Structure	Path	Coefficient*	CR	*p-value*	R Square
	CS ➔ ESG ➔ SV	0.021	2.75	0.006	
	CA ➔ ESG ➔ SV	0.142	6.05	0.000	
	PROF ➔ ESG ➔ SV	-0.007	-1.00	0.319	
	LEV ➔ ESG ➔ SV	-0.051	-4.78	0.000	

*standardized regression weight
Source: AMOS Output (Final Model Output Appendix), 2025.

The R-Square value shows that CB, BGD, and SC together explain 31.9% of the variation in ESG, with CA, CS, PROF, and LEV as control variables. Additionally, these three variables, along with the ESG disclosure score as a mediator, explain 14.3% of the variation in SV, using the same control variables.

4.3.5. Structural Model and Equation Formulation

The structural model is visually represented in Figure 1, with equations formulated to depict the interactions between key variables. These methodological steps reinforce the robustness of this study, ensuring an accurate assessment of governance and financial factors' impact on ESG disclosure score and SV.

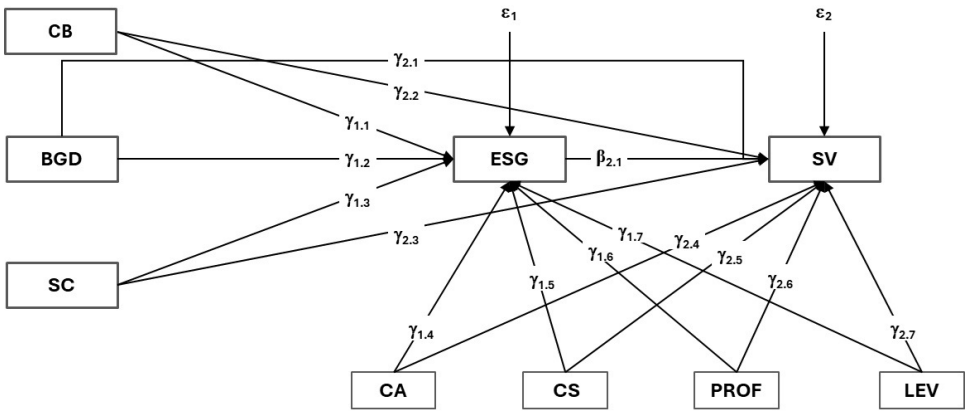

Figure 1. Research Model
Source: Data processed, 2025.

The path diagram as presented in Figure 1 above can be formulated into 2 forms of structural equations as follows:

a. ESG Score Model (Z):

$$ESG = \gamma_{1.1} CB + \gamma_{1.2} BGD + \gamma_{1.3} MLS + \gamma_{1.4} CS + \gamma_{1.5} CA + \gamma_{1.6} ROA + \gamma_{1.7} DER + \varepsilon_1$$

b. Stock Valuation Model (Y):

$$SV = \beta_{2.1} ESG + \gamma_{2.1} CB + \gamma_{2.2} BGD + \gamma_{2.3} MLS + \gamma_{2.4} CS + \gamma_{2.5} CA + \gamma_{2.6} ROA + \gamma_{2.7} DER + \varepsilon_2$$

4.3.6. Hypothesis Testing

The study aims to examine the impact of CB (X1), BGD (X2), and SC (X3) on SV (Y) and ESG (Z). Control variables such as CA, CS, PROF, and LEV were also included. The analysis was conducted on 159 manufacturing companies in the Asia-Pacific region over the 2017-2022 period, resulting in 954 data points. The analysis is structured as follows:

- Figure 2 summarizes the results of testing the direct influence of CB, BGD, and SC on ESG.

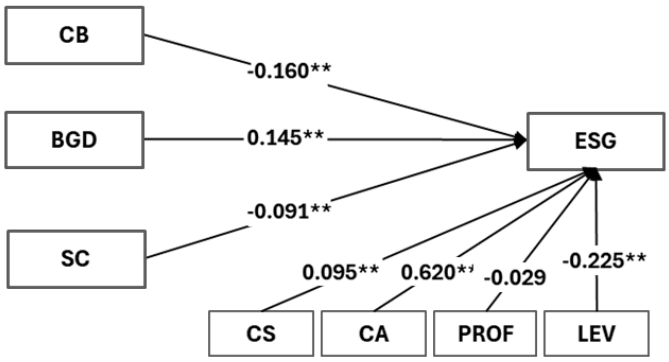

Figure 2. Path diagram of the direct influence hypotheses on ESG.
Notes: **significant at 1% level; *significant at 5% level
Source: Data processed, 2025.

i. **Cash Balance → ESG Disclosure Score**: Results indicate that companies with smaller CB tend to reveal increased ESG information due to resource limitations by showing a statistically significant negative impact (β = -0.160, CR = -4.371, $p < 0.001$).

ii. **Board Gender Diversity → ESG Disclosure Score**: The quality of ESG improves with BGD because diverse boards construct better governance systems for sustainability practices (β = 0.145, CR = 5.028, $p < 0.001$).

iii. **Shareholder Concentration → ESG Disclosure Score**: The effect of SC exhibiting statistical significance shows that having concentrated shareholders results in a decrease of ESG sensitivity (β = -0.091, p = 0.002).

- Figure 3 summarizes the results of testing the direct influence of CB, BGD, and SC on SV.

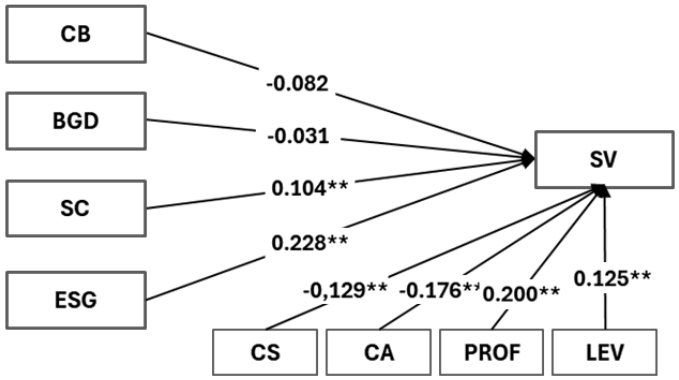

Figure 3. Path diagram of the direct influence hypotheses on SV
Notes: **significant at 1% level; *significant at 5% level
Source: Data processed, 2025.

iv. **Cash Balance → Stock Valuation**: This negative statistical association (β = -0.082, p = 0.056) indicates that CB does not impact SV.

v. **Board Gender Diversity → Stock Valuation**: No significant effect (β = -0.031, p = 0.311) was found between BGD and SV, indicating no direct link in this study.

vi. **Shareholder Concentration → Stock Valuation**: The analysis demonstrates that SC achieves higher SV when they apply pressure on management to generate financial returns (β = 0.104, p = 0.002).

vii. **ESG Disclosure Score → Stock Valuation**: SV is positively influenced by strong ESG practices of companies (β = 0.228, p < 0.001).

- Figure 4 summarizes the results from testing the direct influence of CB, BGD, and SC on SV, with ESG acting as a mediating factor.

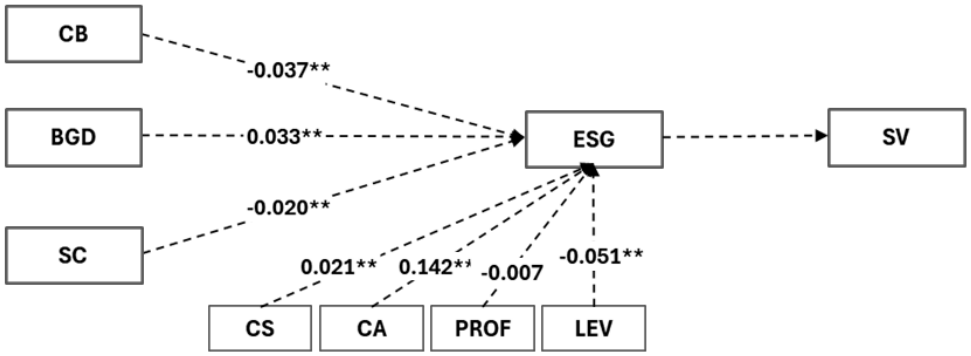

Figure 4. Path Diagram of Hypotheses for Indirect Effects
Notes: **significant at 1% level; *significant at 5% level
Source: Data processed, 2025.

viii. **Cash Balance → Stock Valuation through ESG**: Lower CB creates positive impacts on SV by improving ESG, which results in significant positive relationships.

ix. **Board Gender Diversity → Stock Valuation through ESG**: The study findings indicate that higher BGD enhances SV because of improved ESG.

x. **Shareholder Concentration → Stock Valuation through ESG**: SV suffers from negative indirect effects because SC deteriorates ESG, thus reducing SV.

- **Control Variables:**

i. **Company Age (IPO Date)**: A company on the older side when going public (IPO date) consistently exhibits both lower ESG scores and a positive SV effect through market establishment experience.

ii. **Company Size (Total Assets)**: Bigger companies exhibit higher ESG scores and earn better SV based on their total assets.

iii. **Profitability (Return on Assets)**: This outcome shows a positive correlation , as financially successful firms have a better capacity to invest in sustainability initiatives.

iv. **Leverage (Total Debt to Total Equity)**: High leverage among companies creates lower ESG scores, although they can sustain SV through financial management.

4.4. Discussion

The findings of this study offer insights into how corporate governance practices, financial condition, and shareholder structure impact ESG and SV. In this discussion, we will discuss the major implications of these results in the context of the literature.

i. Cash Balance and ESG Disclosure Score

This negative relationship between CB and ESG shows that firms with lower holdings of cash are likely to make their ESG reporting efficient to keep optimistic investors happy for future financing. According to the Resource-Based View (RBV), firms with limited resources adopt a selective approach in their non-financial disclosures, such as ESG disclosures, in order to attract socially responsible investors and mitigate the agency problem (Ahmed & Abu Khalaf, 2025). Prior studies have indicated that financially constrained firms try to be clearer through ESG disclosure for better perspectives from stakeholders and to attract investment (Pereira et al., 2021). In the manufacturing sector, this is a very strategic approach to mitigating risk and keeping the wheels turning, especially when funds are tight.

ii. Board Gender Diversity and ESG Disclosure Score

The positive influence of BGD on ESG in Asia-Pacific manufacturing aligns with findings that highlight the governance and sustainability advantages of boardroom diversity. Having women on boards brings different perspectives that research has shown enhance collaboration and emphasize long-term viability (Centinaio, 2024). According to Agency Theory and RBV, gender diverse boards reduce agency cost through more effective decisions (Jamil et al., 2021). Finally, a study shows that boards with gender diversity are more likely to revise governance processes and pursue integrated ESG (which means that they integrate ESG factors) reporting that results in an improvement in long-run performance (Abdelkader et al., 2024). These behaviours are also in line with corporate fairer practices that support inclusive leadership through diversity to cultivate greater transparency and governance in the processes of manufacturing.

iii. Shareholder Concentration and ESG Disclosure Score

The negative relationship between SC and ESG disclosure in the Asia-Pacific manufacturing sector highlights how concentrated ownership can hinder long-term sustainability efforts. Shareholders' concentration, focused on maximizing short-term financial returns, may deprioritize investments in ESG activities (Seckin-Halac et al., 2021). This finding is consistent with Agency Theory because higher ownership concentration reduces institutional focus on long-run goals such as ESG due to larger shareholders' preference for short-run gains (Loh et al., 2017). In the manufacturing industry, this phenomenon limits the company's capacity to invest in socially responsible practices, often sacrificing long-term sustainability in favor of short-term gains.

Studia Universitatis "Vasile Goldis" Arad. Economics Series Vol 36 Issue 3/2026
ISSN: 1584-2339; (online) ISSN: 2285 – 3065
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iv. Cash Balance and Stock Valuation

There is no direct relationship between CB and SV, and holding large cash does not lead to higher SV. However, according to Agency Theory, higher CB can also be a sign of ineffectiveness or fewer profitable investment opportunities, which investors may view negatively (Islam et al., 2021). This is particularly the case in manufacturing, where it is anticipated that firms will deploy CB towards growth and innovation. Research has shown that investors consider large CB stagnation and higher stagnation than average (Bansal et al., 2021). Additionally, SV can be a challenge for cash-flush companies if investors believe that the company lacks an aggressive growth strategy.

v. Board Gender Diversity and Stock Valuation

The findings suggest that BGD does not provide sufficient incentives for SV and suggest that although implementing gender diversity on boards of directors is a good step towards governance, its long-term positive effects may take time to be reflected in the company's financial performance. In addition, according to Agency Theory, potential long-term benefits of having a diverse board, such as improved governance and sustainability, are not always reflected in SV, which are sensitive to short-term financial performance (Post & Byron, 2014). Such findings are in line with previous research indicating that the beneficial effects of gender diversity take time to materialize in terms of firm performance (Casonato et al., 2019). Investors, who do not tend to invest for the long term, are slow to recognize board diversity's description-demanded contribution to SV.

vi. Shareholder Concentration and Stock Valuation

The positive relationship between SC and SV indicates that concentrated ownership is beneficial for firm performance by mitigating agency problems and improving corporate governance. Larger shareholders not only have the motivation but also the capacity to mitigate the issue of financial mismanagement that can result in a rise in profit and SV. This supports Agency Theory, which holds that with large shareholders, monitoring management and influencing management decisions to benefit shareholders is a good thing (Al Farooque & Ahulu, 2017). In the manufacturing sector, concentrated ownership engenders stability, which helps the long-term SV performance by aligning the interests of management with shareholders.

vii. ESG Disclosure Score and Stock Valuation

The relationship between ESG and SV being positively significant highlights the increasing relevance of sustainability to investment decisions, especially in the Asia-Pacific manufacturing sector. Companies with better ESG disclosure attract more

institutional investors to be engaged, which leads to higher SV. That shows organizations can create value for not just the shareholders but all stakeholders. This finding is consistent with recent literature that provides evidence that companies with good ESG practices do better in the financial markets, as investors incorporate ESG matters into their valuation models (Eccles & Klimenko, 2019). This research, with sustainability playing a significant role in investment decisions, indicates the rising importance of ESG practices to long-term corporate performance.

viii. Mediating Role of ESG in Stock Valuation

The positive indirect relationship among CB, BGD, SC, and SV through ESG indicates that sustainability factors are vital in determining financial performance. CB negatively affects SV through ESG, as excessive cash holdings may signal inefficiency, limiting investment in ESG initiatives (Duque-Grisales & Aguilera-Caracuel, 2021). BGD has a positive impact on SV via ESG, as BGD enhances governance and sustainable practices that ensure SV performance (Arayssi et al., 2016). Conversely, SC negatively influences SV through ESG, as large shareholders may prioritize short-term returns at the cost of diminishing the company's commitment to ESG initiatives, ultimately harming its valuation (Lee et al., 2022). These results provide evidence that there is an important mediating effect of ESG on SV between governance and financial strategies.

The results highlight the distinct dynamics of ESG and governance in Asia-Pacific compared to Europe and the United States. In developed economies, ESG and board gender diversity have long been institutionalized, but their impact on firm value has been debated, often producing mixed evidence (Fatemi et al., 2018; Friede, 2015). By contrast, in Asia-Pacific manufacturing, ESG adoption and gender diversity are relatively recent developments, often spurred by regulatory mandates and investor pressure (OECD, 2023).

When distinguishing between developed Asia-Pacific economies (Australia, Japan, South Korea, New Zealand) and emerging economies (China, India, Indonesia, Malaysia), regulatory and institutional differences become evident. In developed markets, stricter ESG disclosure rules (e.g., Japan's TCFD adoption) and stronger investor activism contribute to clearer positive relationships between ESG practices and firm valuation (Dilts et al., 2024). Conversely, in emerging economies, weaker enforcement and concentrated ownership structures sometimes dilute ESG's signaling effect, leading to slower market recognition of sustainability performance (Loh et al., 2017; Seckin-Halac et al., 2021).

This regional divergence underscores the role of institutional context. In emerging

Studia Universitatis "Vasile Goldis" Arad. Economics Series Vol 36 Issue 3/2026
ISSN: 1584-2339; (online) ISSN: 2285 – 3065
Web: publicatii.uvvg.ro/index.php/studiaeconomia. Pages 58-91

Asia, large shareholders may prioritize short-term gains, hindering ESG commitment, while in developed Asia, regulatory alignment with global sustainability frameworks amplifies ESG's contribution to valuation. Thus, the Asia-Pacific region provides a unique laboratory for observing how governance, resources, and institutional maturity shape the ESG firm value nexus. These findings suggest that policy harmonization and stronger enforcement in emerging economies could accelerate ESG integration and narrow the gap with developed peers.

5. Conclusions

The empirical result of financial and governance factors positively correlating to ESG disclosure and stock valuation strengthens the interconnected foundation of Agency Theory, Stakeholder Theory, and Resource-Based View (RBV) in the context of the Asia-Pacific manufacturing sector.

The Agency Theory perspective demonstrates that important aspects of the findings were the positive impact of shareholder concentration on board diversity, thereby reducing agency conflicts and motivating the management to align the firm's actions with the interests of investors, ensuring a better ESG performance and stock valuation model outcome. The Stakeholder Theory perspective shows that stronger ESG disclosure leads to investor confidence, enhances corporate reputation, and promotes sustainable long-term value creation by showing that companies are acting transparently and responsibly. RBV Theory perspective also complements those findings, showing that BGD and ESG lead to operational efficiency and market differentiation, which can be seen as strategic resources leading firms to success through sustainability-driven markets in the long run.

Specifically, a higher cash balance has a direct and positive influence on a firm's ability to pursue sustainable practices, which manifests in higher ESG scores, increasing the valuation of the firm. Board gender diversity brings diverse perspectives that drive better governance and social responsibility, positively impacting ESG disclosure and attracting higher investor confidence. Ultimately, a decentralized ownership structure helps in transparency and accountability, thereby encouraging high ESG standards and increasing stock valuation.

In the Asia-Pacific manufacturing sector, regulatory pressures and sustainability commitments have ramped up, and these findings underscore the need for firms to embrace governance-driven ESG initiatives in a bid to stay competitive and to match global standards. Unique challenges exist in the region's manufacturing sector, managing environmental regulations and investor expectations, which require the incorporation of ESG principles to drive financial resilience and sustainable growth.

Future research could examine the effects of digitalization on ESG application, as well as its impact on risk-taking and capital budgeting choices. As companies increasingly introduce digital tools like artificial intelligence (AI) and blockchain for ESG reporting and governance, understanding their effects on SV and investor confidence becomes essential. These findings will further deepen understanding of the evolving role of ESG in corporate finance and governance in the digital economy.

Acknowledgements
The authors would like to express their sincere gratitude to Universitas Padjadjaran for providing institutional support and facilitating global data access through Refinitiv, which was essential for conducting this study. The authors also acknowledge the Faculty of Economics and Business for creating a supportive academic environment that enabled this research to be completed.

Funding
This research received no external funding.

Author Contributions
- Azwani Aulia: Conceptualization, formal analysis, investigation, methodology, writing-original draft, writing-review & editing.
- Citra Sukmadilaga: Conceptualization, investigation, methodology, supervision, validation.
- Ilya Avianti: Conceptualization, formal analysis, methodology, supervision, and validation.
- Dini Rosdini: Conceptualization, formal analysis, methodology, supervision, and validation.

Disclosure Statement
The authors declare no conflict of interest.

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Appendix A. List of Companies Included in the Study

The following table provides the list of manufacturing companies analyzed in this study, including their country of origin and industrial sector.

No.	Identifier	Company Name	Country of Headquarters	TRBC Industry Name
1	012630. KS	HDC Holdings Co Ltd	Korea, Republic (S. Korea)	Commodity Chemicals
2	5726.T	Osaka Titanium Technologies Co Ltd	Japan	Specialty Mining & Metals
3	1MC.AX	Morella Corporation Ltd	Australia	Specialty Mining & Metals
4	001230. KS	DongkukHoldings Co Ltd	Korea, Republic (S. Korea)	Iron & Steel
5	600352.SS	Zhejiang Longsheng Group Co Ltd	China	Specialty Chemicals
6	5463.T	Maruichi Steel Tube Ltd	Japan	Iron & Steel
7	000709. SZ	HBIS Co Ltd	China	Iron & Steel
8	AIS.AX	Aeris Resources Ltd	Australia	Diversified Mining
9	RED.AX	RED 5 Limited	Australia	Gold
10	OMH.AX	OM Holdings Ltd	Singapore	Specialty Mining & Metals
11	AWC.AX	Alumina Ltd	Australia	Aluminum

12	0297.HK	Sinofert Holdings Ltd	Hong Kong	Agricultural Chemicals
13	600111.SS	China Northern Rare Earth Group High-Tech Co Ltd	China	Non-Gold Precious Metals & Minerals
14	000629. SZ	Pangang Group Vanadium & Titanium Resources Co Ltd	China	Specialty Mining & Metals
15	LUKC.PSX	Lucky Cement Ltd	Pakistan	Construction Materials
16	010130. KS	Korea Zinc Inc	Korea, Republic (S. Korea)	Non-Gold Precious Metals & Minerals
17	002493. SZ	Rongsheng Petrochemical Co Ltd	China	Commodity Chemicals
18	STU.NZ	Steel & Tube Holdings Ltd	New Zealand	Iron & Steel
19	2015. TW	Feng Hsin Steel Co Ltd	Taiwan	Iron & Steel
20	GRR.AX	Grange Resources Ltd	Australia	Iron & Steel
21	600346.SS	Hengli Petrochemical Co Ltd	China	Commodity Chemicals
22	3983.HK	China BlueChemical Ltd	China	Agricultural Chemicals
23	000012. SZ	CSG Holding Co Ltd	China	Commodity Chemicals
24	000630. SZ	Tongling Nonferrous Metals Group Co Ltd	China	Specialty Mining & Metals
25	601992.SS	BBMG Corp	China	Construction Materials
26	5727.T	Toho Titanium Co Ltd	Japan	Specialty Mining & Metals
27	0639.HK	Shougang Fushan Resources Group Ltd	Hong Kong	Iron & Steel
28	WGX.AX	Westgold Resources Ltd	Australia	Gold
29	IMD.AX	Imdex Ltd	Australia	Mining Support Services & Equipment
30	PLS.AX	Pilbara Minerals Ltd	Australia	Diversified Mining
31	4088.T	Air Water Inc	Japan	Commodity Chemicals

Studia Universitatis "Vasile Goldis" Arad. Economics Series Vol 36 Issue 3/2026
ISSN: 1584-2339; (online) ISSN: 2285 – 3065
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32	PGH.AX	Pact Group Holdings Ltd	Australia	Non-Paper Containers & Packaging
33	600010.SS	Inner Mongolia BaoTou Steel Union Co Ltd	China	Iron & Steel
34	4272.T	Nippon Kayaku Co Ltd	Japan	Diversified Chemicals
35	4042.T	Tosoh Corp	Japan	Diversified Chemicals
36	0189.HK	Dongyue Group Ltd	China	Specialty Chemicals
37	0581.HK	China Oriental Group Co Ltd	Hong Kong	Iron & Steel
38	5232.T	Sumitomo Osaka Cement Co Ltd	Japan	Construction Materials
39	0691.HK	China Shanshui Cement Group Ltd	China	Construction Materials
40	2689.HK	Nine Dragons Paper (Holdings) Ltd	Hong Kong	Paper Packaging
41	MAH.AX	Macmahon Holdings Ltd	Australia	Mining Support Services & Equipment
42	000060. SZ	Shenzhen Zhongjin Lingnan Nonfemet Co Ltd	China	Specialty Mining & Metals
43	BFRG.NS	Bharat Forge Ltd	India	Iron & Steel
44	4612.T	Nippon Paint Holdings Co Ltd	Japan	Commodity Chemicals
45	5471.T	Daido Steel Co Ltd	Japan	Iron & Steel
46	4091.T	Nippon Sanso Holdings Corp	Japan	Commodity Chemicals
47	EVN.AX	Evolution Mining Ltd	Australia	Gold
48	1313.HK	China Resources Cement Holdings Ltd	Hong Kong	Construction Materials
49	2314.HK	Lee & Man Paper Manufacturing Ltd	Hong Kong	Paper Packaging
50	5901.T	Toyo Seikan Group Holdings Ltd	Japan	Non-Paper Containers & Packaging
51	RRL.AX	Regis Resources Ltd	Australia	Gold

52	603799.SS	Zhejiang Huayou Cobalt Co Ltd	China	Specialty Mining & Metals
53	600309.SS	Wanhua Chemical Group Co Ltd	China	Commodity Chemicals
54	NST.AX	Northern Star Resources Ltd	Australia	Gold
55	4118.T	Kaneka Corp	Japan	Commodity Chemicals
56	1717. TW	Eternal Materials Co Ltd	Taiwan	Commodity Chemicals
57	002466. SZ	Tianqi Lithium Corp	China	Commodity Chemicals
58	600547.SS	Shandong Gold Mining Co Ltd	China	Gold
59	5233.T	Taiheiyo Cement Corp	Japan	Construction Materials
60	1378.HK	China Hongqiao Group Ltd	China	Aluminum
61	4043.T	Tokuyama Corp	Japan	Commodity Chemicals
62	000210. KS	DL Holdings Co Ltd	Korea, Republic (S. Korea)	Commodity Chemicals
63	1301. TW	Formosa Plastics Corp	Taiwan	Commodity Chemicals
64	4613.T	Kansai Paint Co Ltd	Japan	Commodity Chemicals
65	3101.T	Toyobo Co Ltd	Japan	Commodity Chemicals
66	1818.HK	Zhaojin Mining Industry Co Ltd	China	Gold
67	PRN.AX	Perenti Ltd	Australia	Mining Support Services & Equipment
68	SAIL.NS	Steel Authority of India Ltd	India	Iron & Steel
69	SYR.AX	Syrah Resources Ltd	Australia	Diversified Mining
70	PCGB.KL	Petronas Chemicals Group Bhd	Malaysia	Commodity Chemicals
71	ABC.AX	Adbri Ltd	Australia	Construction

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ISSN: 1584-2339; (online) ISSN: 2285 – 3065
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				Materials
72	BKW.AX	Brickworks Ltd	Australia	Construction Materials
73	ASPN.NS	Asian Paints Ltd	India	Commodity Chemicals
74	4205.T	Zeon Corp	Japan	Commodity Chemicals
75	0631.HK	Sany Heavy Equipment International Holdings Company Ltd	China	Mining Support Services & Equipment
76	INTP.JK	Indocement Tunggal Prakarsa Tbk PT	Indonesia	Construction Materials
77	4208.T	UBE Corp	Japan	Commodity Chemicals
78	3323.HK	China National Building Material Co Ltd	China	Construction Materials
79	SMGR.JK	Semen Indonesia (Persero) Tbk PT	Indonesia	Construction Materials
80	002460. SZ	Ganfeng Lithium Group Co Ltd	China	Commodity Chemicals
81	601899.SS	Zijin Mining Group Co Ltd	China	Gold
82	ORI.AX	Orica Ltd	Australia	Commodity Chemicals
83	4004.T	Resonac Holdings Corp	Japan	Commodity Chemicals
84	KLKK.KL	Kuala Lumpur Kepong Bhd	Malaysia	Diversified Chemicals
85	600019.SS	Baoshan Iron & Steel Co Ltd	China	Iron & Steel
86	UPLL.NS	UPL Ltd	India	Agricultural Chemicals
87	MIN.AX	Mineral Resources Ltd	Australia	Mining Support Services & Equipment
88	2006. TW	Tung Ho Steel Enterprise Corp	Taiwan	Iron & Steel
89	5711.T	Mitsubishi Materials Corp	Japan	Diversified Mining
90	601600.SS	Aluminum Corporation of China Ltd	China	Aluminum

91	5706.T	Mitsui Mining and Smelting Co Ltd	Japan	Specialty Mining & Metals
92	JNSP.NS	Jindal Steel And Power Ltd	India	Iron & Steel
93	ORA.AX	Orora Ltd	Australia	Non-Paper Containers & Packaging
94	JSTL.NS	JSW Steel Ltd	India	Iron & Steel
95	4063.T	Shin-Etsu Chemical Co Ltd	Japan	Diversified Chemicals
96	1314. TW	China Petrochemical Development Corp	Taiwan	Commodity Chemicals
97	000898. SZ	Angang Steel Co Ltd	China	Iron & Steel
98	4182.T	Mitsubishi Gas Chemical Co, Inc	Japan	Commodity Chemicals
99	600808.SS	Maanshan Iron & Steel Co Ltd	China	Iron & Steel
100	4114.T	Nippon Shokubai Co Ltd	Japan	Commodity Chemicals
101	PRU.AX	Perseus Mining Ltd	Australia	Gold
102	1722. TW	Taiwan Fertilizer Co Ltd	Taiwan	Agricultural Chemicals
103	SHCM.NS	Shree Cement Ltd	India	Construction Materials
104	5301.T	Tokai Carbon Co Ltd	Japan	Specialty Chemicals
105	1710. TW	Oriental Union Chemical Corp	Taiwan	Commodity Chemicals
106	SFR.AX	Sandfire Resources Ltd	Australia	Specialty Mining & Metals
107	1102. TW	Asia Cement Corp	Taiwan	Construction Materials
108	002380. KS	KCC Corp	Korea, Republic (S. Korea)	Commodity Chemicals
109	PMET.KL	Press Metal Aluminium Holdings Bhd	Malaysia	Aluminum
110	011170. KS	Lotte Chemical Corp	Korea, Republic (S. Korea)	Commodity Chemicals
111	HALC.NS	Hindalco Industries Ltd	India	Aluminum

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112	AKE.AX	Allkem Ltd	Australia	Specialty Mining & Metals
113	4188.T	Mitsubishi Chemical Group Corp	Japan	Diversified Chemicals
114	4202.T	Daicel Corp	Japan	Commodity Chemicals
115	2002. TW	China Steel Corp	Taiwan	Iron & Steel
116	600362.SS	Jiangxi Copper Co Ltd	China	Specialty Mining & Metals
117	1303. TW	Nan Ya Plastics Corp	Taiwan	Commodity Chemicals
118	4021.T	Nissan Chemical Corp	Japan	Diversified Chemicals
119	010060. KS	OCI Holdings Co Ltd	Korea, Republic (S. Korea)	Commodity Chemicals
120	LYC.AX	Lynas Rare Earths Ltd	Malaysia	Non-Gold Precious Metals & Minerals
121	5411.T	JFE Holdings Inc	Japan	Iron & Steel
122	3405.T	Kuraray Co Ltd	Japan	Commodity Chemicals
123	NCM.AX	Newcrest Mining Ltd	Australia	Gold
124	4061.T	Denka Co Ltd	Japan	Commodity Chemicals
125	ULTC.NS	UltraTech Cement Ltd	India	Construction Materials
126	IPL.AX	Incitec Pivot Ltd	Australia	Diversified Chemicals
127	3861.T	Oji Holdings Corp	Japan	Paper Products
128	IVL.BK	Indorama Ventures PCL	Thailand	Specialty Chemicals
129	TISC.NS	Tata Steel Ltd	India	Iron & Steel
130	BXB.AX	Brambles Ltd	Australia	Non-Paper Containers & Packaging
131	OGC.TO	OceanaGold Corp	Australia	Gold
132	ILU.AX	Iluka Resources Ltd	Australia	Specialty Mining & Metals
133	603993.SS	CMOC Group Ltd	China	Specialty Mining & Metals

134	VDAN.NS	Vedanta Ltd	India	Diversified Mining
135	ANTM.JK	Aneka Tambang Tbk PT	Indonesia	Gold
136	5714.T	DOWA Holdings Co Ltd	Japan	Specialty Mining & Metals
137	SGM.AX	Sims Ltd	Australia	Iron & Steel
138	1101. TW	Taiwan Cement Corp	Taiwan	Construction Materials
139	051910. KS	LG Chem Ltd	Korea, Republic (S. Korea)	Commodity Chemicals
140	FMG.AX	Fortescue Metals Group Ltd	Australia	Iron & Steel
141	S32.AX	South32 Ltd	Australia	Diversified Mining
142	3402.T	Toray Industries Inc	Japan	Commodity Chemicals
143	5406.T	Kobe Steel Ltd	Japan	Iron & Steel
144	IGO.AX	IGO Ltd	Australia	Specialty Mining & Metals
145	3863.T	Nippon Paper Industries Co Ltd	Japan	Paper Products
146	BSL.AX	BlueScope Steel Ltd	Australia	Iron & Steel
147	4183.T	Mitsui Chemicals Inc	Japan	Commodity Chemicals
148	004020. KS	Hyundai Steel Co	Korea, Republic (S. Korea)	Iron & Steel
149	4185.T	JSR Corp	Japan	Specialty Chemicals
150	4005.T	Sumitomo Chemical Co Ltd	Japan	Diversified Chemicals
151	3407.T	Asahi Kasei Corp	Japan	Diversified Chemicals
152	5713.T	Sumitomo Metal Mining Co Ltd	Japan	Specialty Mining & Metals
153	4631.T	DIC Corp	Japan	Specialty Chemicals
154	1326. TW	Formosa Chemicals & Fibre Corp	Taiwan	Commodity Chemicals
155	BLD.AX	Boral Ltd	Australia	Construction Materials

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156	PTTGC.BK	PTT Global Chemical PCL	Thailand	Commodity Chemicals
157	RIO.AX	Rio Tinto Ltd	Australia	Diversified Mining
158	005490. KS	Posco Holdings Inc	Korea, Republic (S. Korea)	Iron & Steel
159	BHP.AX	BHP Group Ltd	Australia	Diversified Mining