6 December 2021 Australia

EQUITIES IntellectualProperty

Australian ESG Equity Strategy
Macquarie's 2021 ESG Ratings Report

Key points

- Our proprietary ESG ratings survey on 256 Australian listed companies shows that high scorers continue to deliver risk adjusted returns.
- The basket of companies with the highest scores has seen relative outperformance of 6.0% annualised over the bottom basket since 2011.
- Companies that perform well on ESG ratings & analyst recommendations in the ASX100 include: MGR, CSL, COH, MFG, REA and NXT.

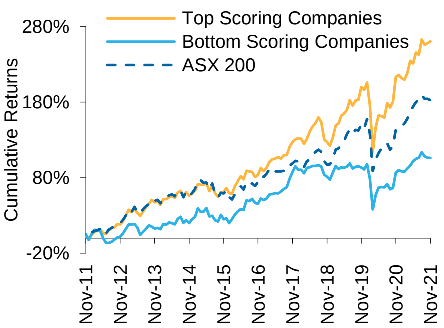
Event

- We update our proprietary ESG Ratings on 256 Australian-listed companies for 2021 disclosures, covering 92% of the ASX300 by market capitalisation.

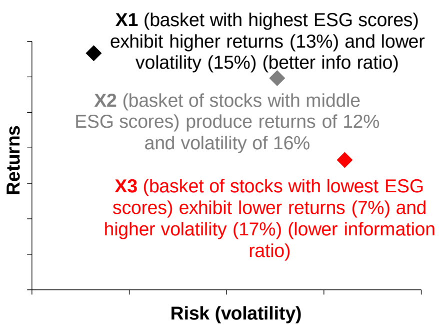
Impact

- **High ESG scorers continue to deliver higher risk-adjusted returns.** The basket of companies with the highest ESG scores has outperformed the bottom basket since the inception of our survey in 2011. The relative outperformance is **6.0%** on an annualised basis, an increase from the **5.1%** outperformance seen in 2020. There is also a strong relationship between revisions to ESG scores as a signal for future performance. Companies with the largest positive revisions to their ESG scores have delivered better returns than those with negative revisions, by **4.5%** on an annualised basis.
- **ESG scores can help manage risk in a portfolio.** This relative outperformance is superior on a risk-adjusted basis, as shown in Fig 2. X1, the basket of stocks with the highest ESG scores, exhibits higher returns and lower volatility. This provides portfolio managers with the dual benefits of managing risk and enhancing returns when compared to X3, the basket of stocks with the lowest ESG scores.
- **Governance remains the most powerful indicator, large-cap companies with high Social scores outperform while the Environmental signal is strengthening.** We have disaggregated the scores between E, S and G to test which of these factors generates excess returns. Our analysis suggests a strong relationship between **G** and performance. Companies with high **G** scores consistently provide superior returns to companies with low G scores; generating a **6.2%** excess return pa over the past 5yrs. We continue to see a relationship between large cap companies with higher **S** scores and superior returns to those with negative **S** scores; generating a cumulative return of 42% in comparison to -32% since 2011.
- **Combining analyst recommendations with ESG scores.** Companies that perform well on both ESG ratings and analyst recommendations in the ASX100 include **MGR, CSL, COH, MFG, REA** and **NXT.** Companies that don't perform well on both ESG ratings and analyst recommendation screens include **Z1P, NSR** and **A2M**.
- **Using Macquarie's proprietary ESG ratings.** Our findings provide a compelling argument for **integrating ESG factors within broader investment analysis**. ESG scores can also provide a snapshot of performance to be built upon with deeper analysis, additional factors to build into quantitative/ valuation models, or for corporate engagement. *Company scores available upon request.*

Companies with high ESG scores outperform those with low ESG scores

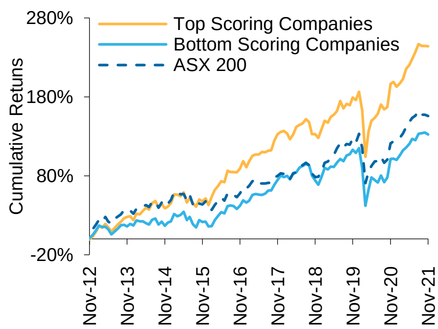


Companies with high ESG scores provide a better risk-return profile



X1 = basket of stocks with highest ESG scores
X2 = basket of stocks with middle ESG scores
X3 = basket of stocks with lowest ESG scores
All baskets are equally sized

Companies with high positive revisions outperform those with negative revisions



Source (All charts): Macquarie Research, December 2021

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Macquarie's ESG ratings system

Companies with high ESG scores have outperformed

Our research shows that stocks with higher ESG scores have historically provided a better risk-adjusted returns when compared to stocks with low ESG scores. In this analysis, the companies with historic scores are separated into three equal sized baskets based on their ESG scores. Each stock is equally-weighted in the portfolio.

The portfolio performance back-testing outlined below is based on a dynamic portfolio, adjusted year-on-year based on the ESG scoring. Therefore, this year's portfolio performance is based on the ESG scoring in 2020. This provides a clearer test of the factor strength of ESG factors.

The findings conclude that there is a relationship between Macquarie's ESG ratings system and share price performance.

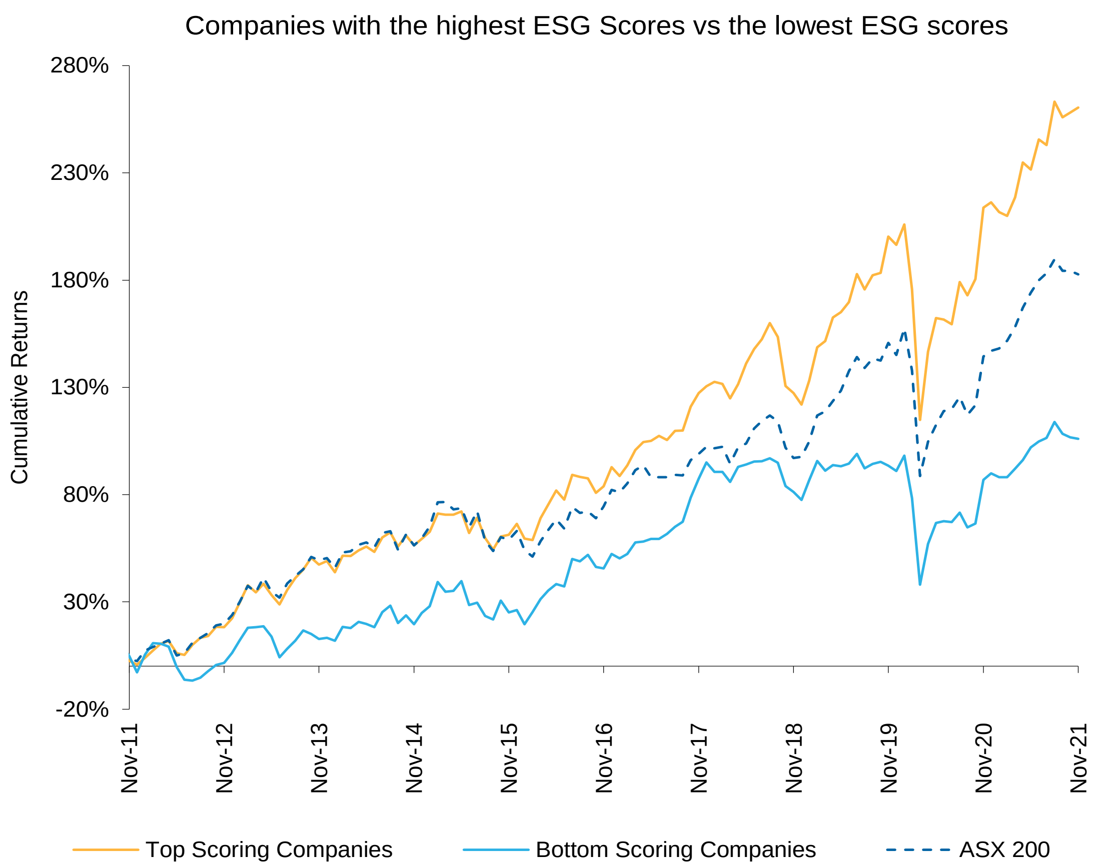
Our key findings from our quant analysis are:

- The basket of companies with the *highest* ESG scores has delivered an annualised return of 6.0% in excess of the return for the basket with the *lowest* ESG scores.
- The basket of companies with the *lowest* ESG scores, has underperformed relative to both the highest and middle basket of companies.

Based on the relative performance outcomes, we conclude that Macquarie's ESG scores can be used as a screen for improving the selectivity of both outperforming and underperforming stocks.

The chart below illustrates a strong relationship between ESG scores and cumulative total returns over time.

Fig 1 Macquarie's ESG scores are a useful predictive signal for total returns



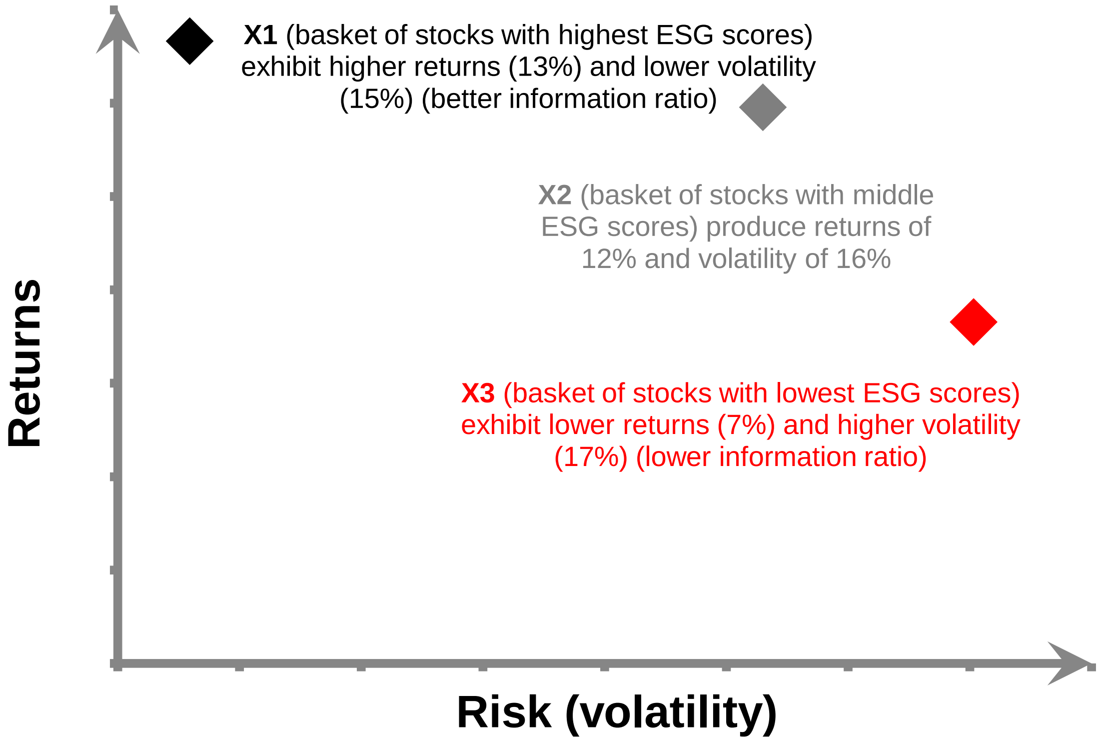
Source: Macquarie Research, December 2021

As shown above, the basket of companies with the highest ESG scores ("Top Scoring Companies") outperform the basket of companies with the lowest ESG scores ("Bottom Scoring Companies").

This relative outperformance is superior on a risk-adjusted basis, as shown in the chart below. **X1**, the basket of stocks with the highest ESG scores, exhibits higher returns and lower volatility. This is significant given the need to manage risk and enhance returns in portfolio management.

As illustrated in the chart below, ESG scores can also be used to manage portfolio volatility – a necessary approach in managing and constructing a portfolio. **X1** companies produce better risk-adjusted returns when compared to **X3** companies.

Fig 2 Using ESG scores in a portfolio to manage risk and reward, X1 (basket of companies with highest ESG scores) exhibit higher returns and lower volatility



Source: Macquarie Research, December 2021

The quantitative output chart below shows that the strategy has achieved consistently higher returns on a risk-adjusted basis. The information ratio for long X1, short X3 is 0.4 and the return spread for this trade is 6.0%, illustrating that Macquarie's ESG scores can be an efficient way to generate better risk-adjusted returns.

Fig 3 Portfolio construction illustrates better return spread on a risk-adjusted basis

	X1	X2	X3	Comment
Volatility	15%	16%	17%	X1 stocks provide a better risk-adjusted return compared to X2 and X3 stocks
Returns	13%	12%	7%	

Long-short	X1 - X3	X2 - X3	Comment
Return spread	6.0%	4.6%	Information ratio shows long X1 and short X3 is an efficient way to generate excess returns
Information ratio	0.4	0.3	

X1 = stocks with highest scores, X2 = middle basket, X3 = stocks with lowest scores. Equal weighted portfolios.
Source: Macquarie Research, December 2021

The ESG momentum factor: Changes in scores are linked to shareholder returns

Changes in Macquarie's ESG scores are also an important signal for investors, with revisions to ESG scores providing a strong predictor of returns. Our research shows that stocks with positive revisions to ESG scores have outperformed those stocks with negative revisions.

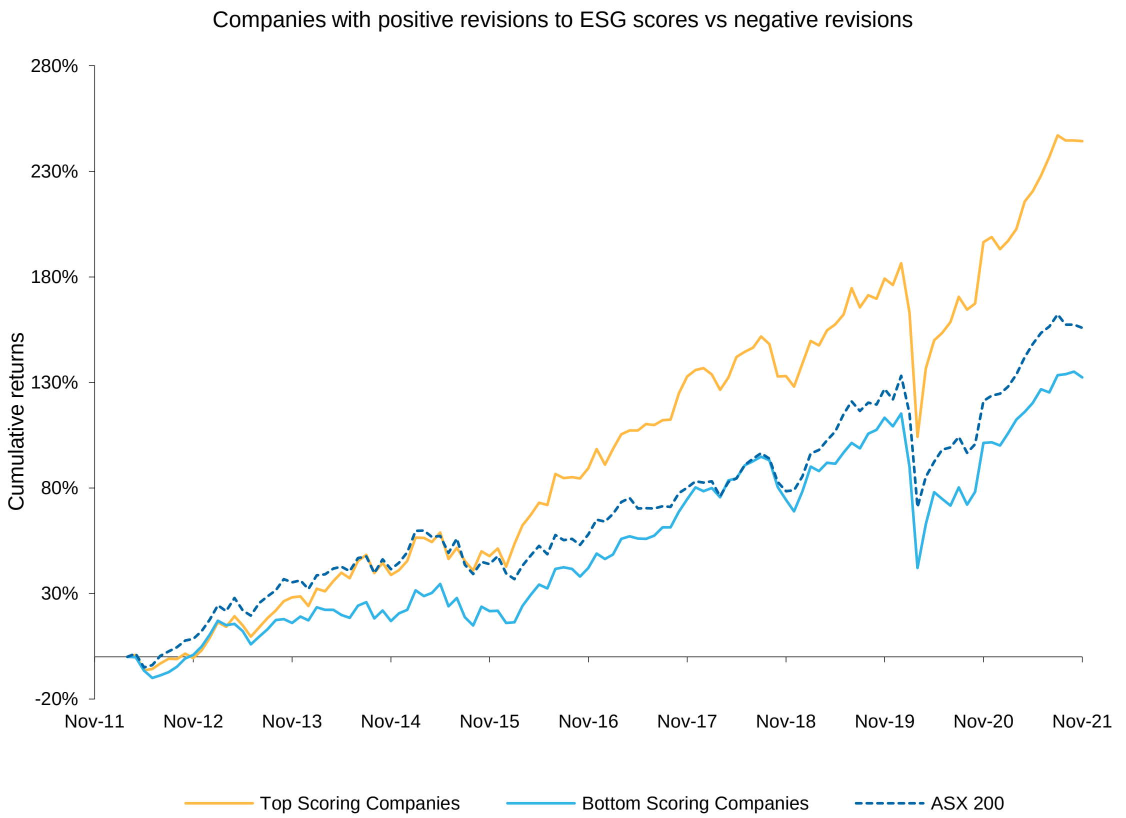
In this analysis, we divide companies into three equal-weighted portfolios. Basket 1 comprises stocks with the highest positive revisions and Basket 3 contains stocks with the highest negative revisions to their ESG score. The remaining stocks are in Basket 2 ("Middle").

The findings conclude that there is a strong relationship between revisions to ESG scores and share price performance.

Our key findings from our quantitative analysis are:

- The basket of companies with the highest *positive* revisions to Macquarie ESG scores have delivered an annualised return of 4.5% in excess of the return for the basket of companies with the highest *negative* revisions; and also modestly outperformed (0.3%) the middle basket of companies.
- The basket with the highest *negative* revisions has underperformed relative to both the highest and middle basket of companies.

Fig 4 Companies with positive revisions to their ESG scores outperform companies with negative revisions to their ESG scores



Source: Macquarie Research, December 2021

Governance – the strongest overall link to performance

Finally, we disaggregate the ESG scores – between E, S, and G – to test which of these factors generate excess returns.

Governance: We again find a consistent relationship between shareholder returns and governance scores, measured both on the basis of revisions to scores and absolute scores.

- Companies with high **G** (governance) scores have consistently provided superior returns to the market; generating 2.4% pa excess returns over the last five years.
- Companies with higher **G** scores have consistently provided superior returns compared to those with low **G** scores; outperforming by 6.2% pa over the past five years.
- Companies with positive revisions to **G** scores have also provided superior returns to the market; generating 4.1% pa excess returns since 2011.
- Companies with positive revisions to **G** scores have also provided superior returns to those with negative revisions to **G** scores; outperforming by 9.8% pa over the last five years.

These findings support our other research that the most quantifiable dimension is corporate governance as a means to assess the quality, credibility and trust in management, and we find it offers the greatest potential for investors again here.

Fig 5 The Governance differential

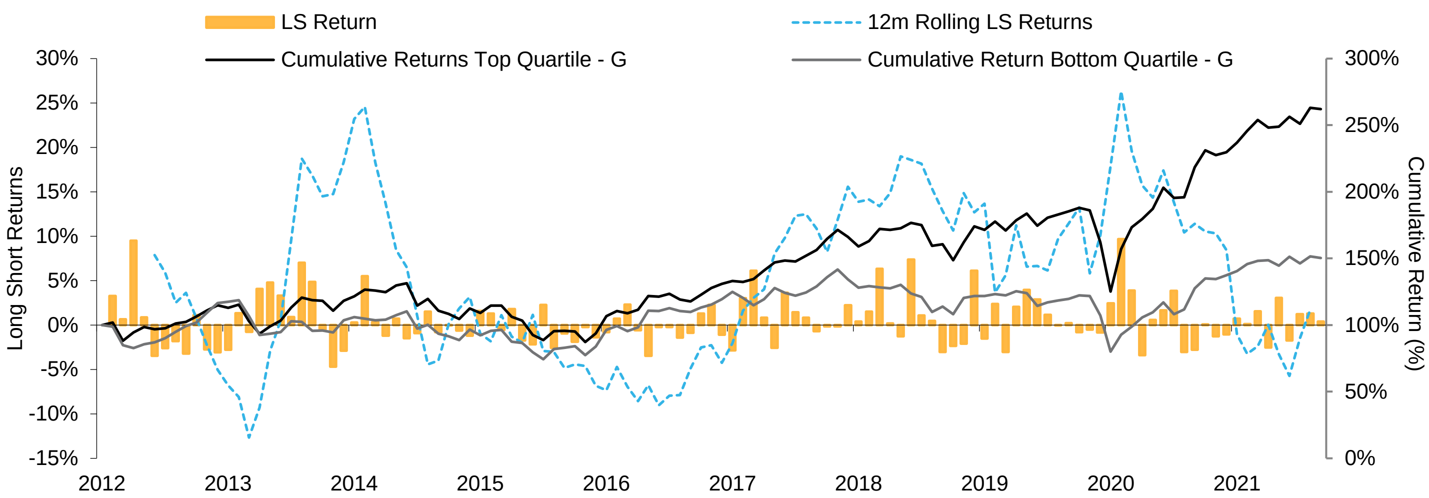


Fig 6 Cumulative return differential

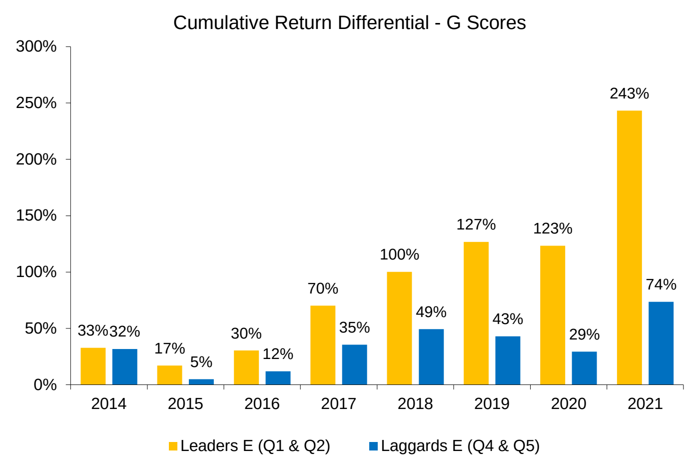
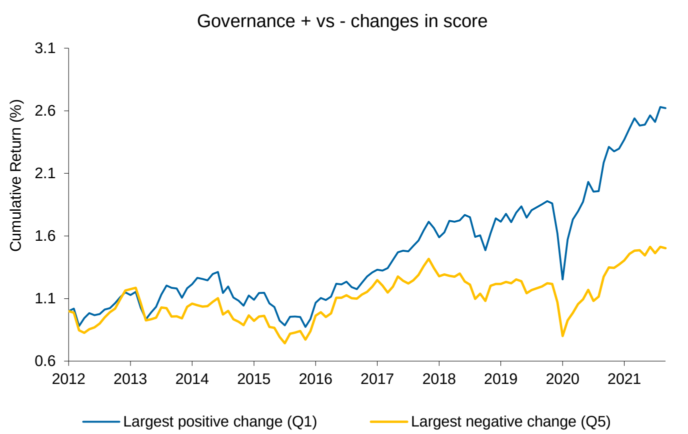


Fig 7 Positive Governance changes = excess returns



Source: Macquarie Research, December 2021

Social – a big alpha differential in large caps and for score momentum

Social: With **S** (social), we find a strong positive relationship with excess returns for large companies but no statistical differentiation for small companies. We believe this is likely to reflect the greater materiality of social issues to larger cap companies.

For instance, generally they will have larger workforces for which human capital management factors will be a bigger differential, a larger corporate footprint with communities, more complex supply chain risk and greater scrutiny of conduct from regulators.

This means to us that large companies that better manage their staff engagement, safety, have a positive relationship with its regulator, or other social metrics will tend to outperform. This is supported by our review of HCM factors in *People Power*, with the dynamic HCM Leaders portfolio (companies with a net positive score) outperforming the portfolio that contains companies with a net negative score by 1.2% pa since inception.

- Large cap companies with higher **S** scores have provided superior returns to those with negative S scores; generating a cumulative return of 42% in comparison to -32% since 2011.
- Companies with positive revisions in S scores have provided superior returns to those with negative revisions; outperforming by 4.0% pa since 2011.

Fig 8 Social Score – Big differentiator in Large Caps but not Small Caps

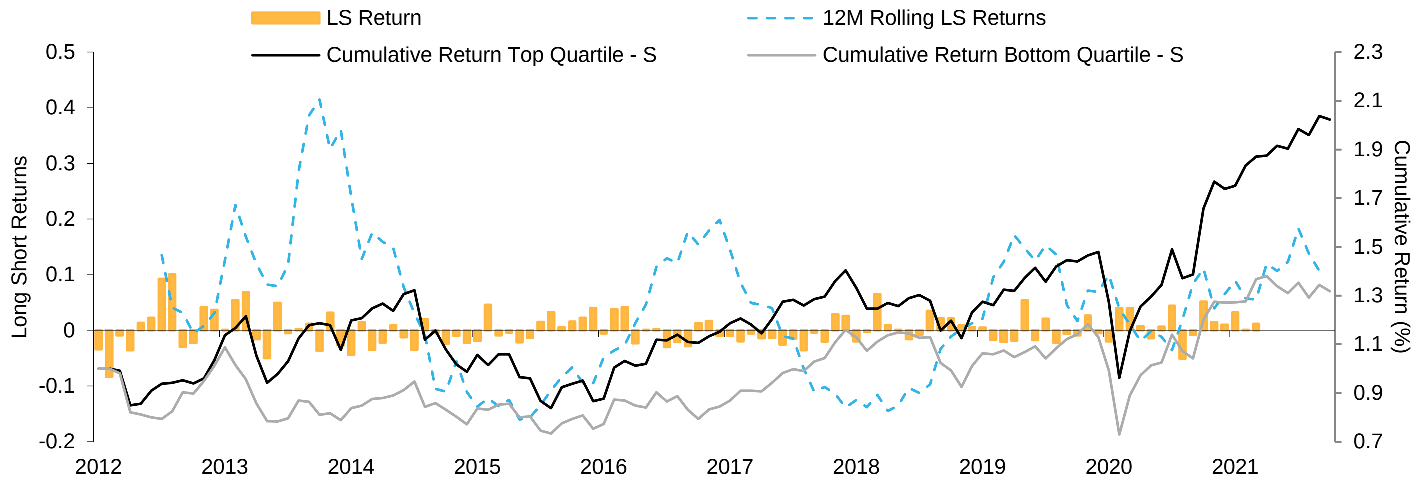


Fig 9 Clear social performance delta in large caps

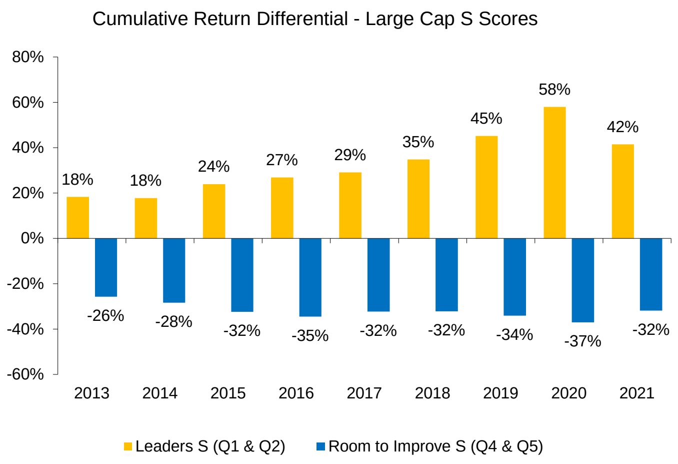
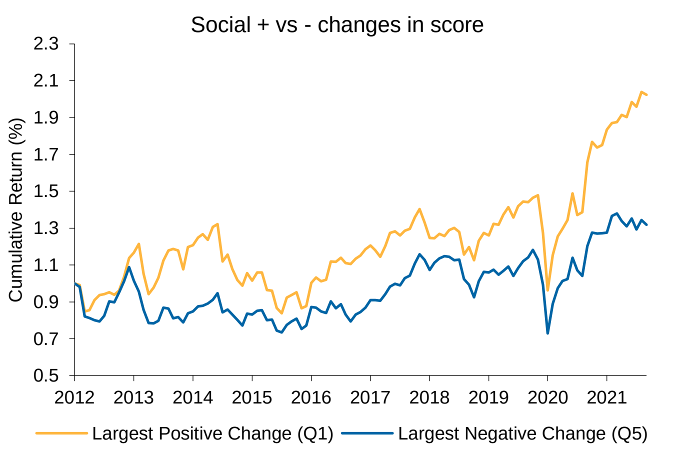


Fig 10 Positive Social changes = excess returns



Source: Macquarie Research, December 2021

Environment – the signal is becoming stronger

The correlation between **E** (environment) scores as a signal for share price performance is starting to become more consistent over the past four years.

- We were unable to identify a consistent or defined pattern with E scores if measured purely on the basis of upper vs bottom quintile. However, if the leader and laggard portfolios are extended to Q1 and Q2 vs Q4 and Q5, the relationship becomes clearer.
- Companies with higher **E** scores (measured as the average of Q1 and Q2) have provided superior returns to those with negative E scores. Over the period since 2011, E score leaders would have generated a cumulative return of 113% vs 91% for the laggards.
- Companies with positive revisions in E scores have provided slightly higher returns to those with negative revisions as seen in figure 13.

Fig 11 Companies with higher E scores still outperforming

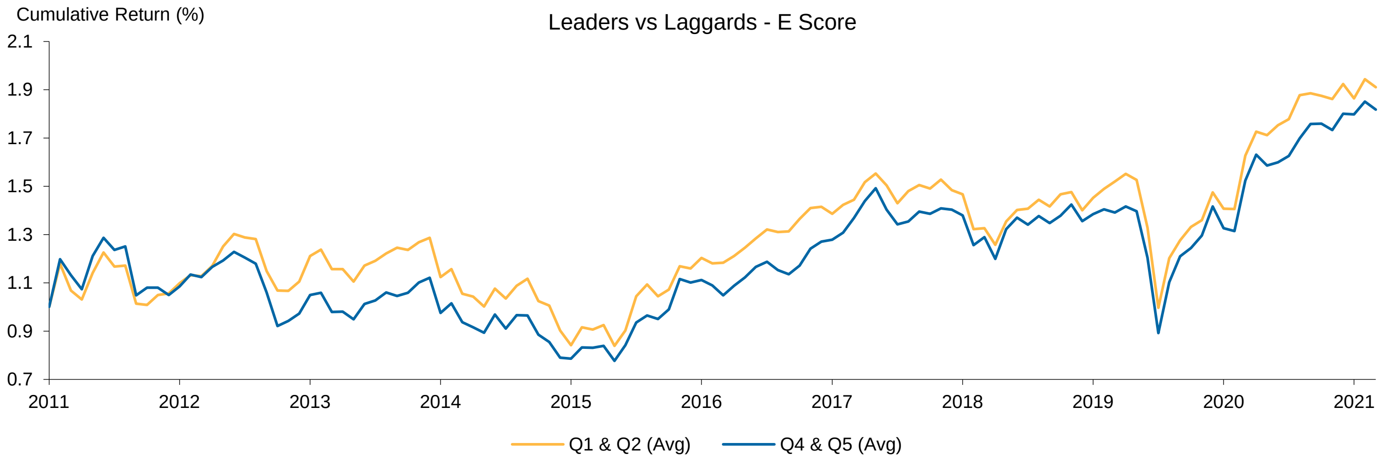


Fig 12 Outperformance evident over 2017 - 2021

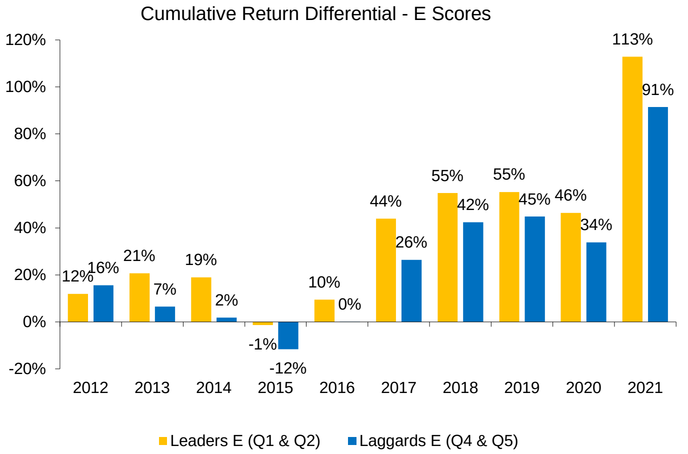
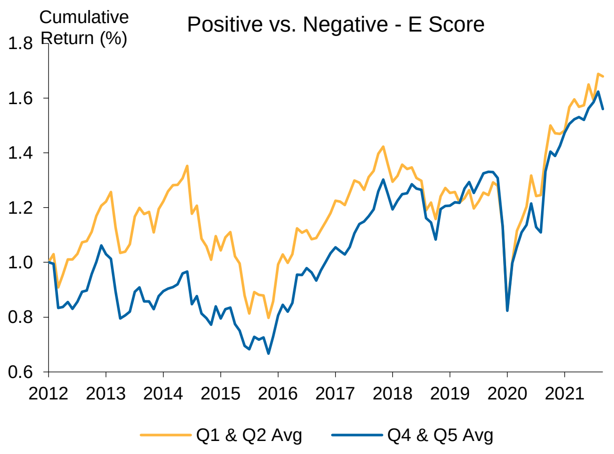


Fig 13 Momentum on positive Environmental performance also provides outperformance



Source: Macquarie Research, December 2021

This outcome illustrates that various characteristics of a company assessment can signal information to investors about quality and in some cases help predict stock returns. However, it is hard to explain whether this is fundamental causation or correlation.

While assessment of E, S and G risks are an important aspect of investment reviews, it cannot be looked at in isolation at the expense of either financial information or a broader understanding of the economic characteristics of a firm.

Results summary

Macquarie's ESG ratings methodology

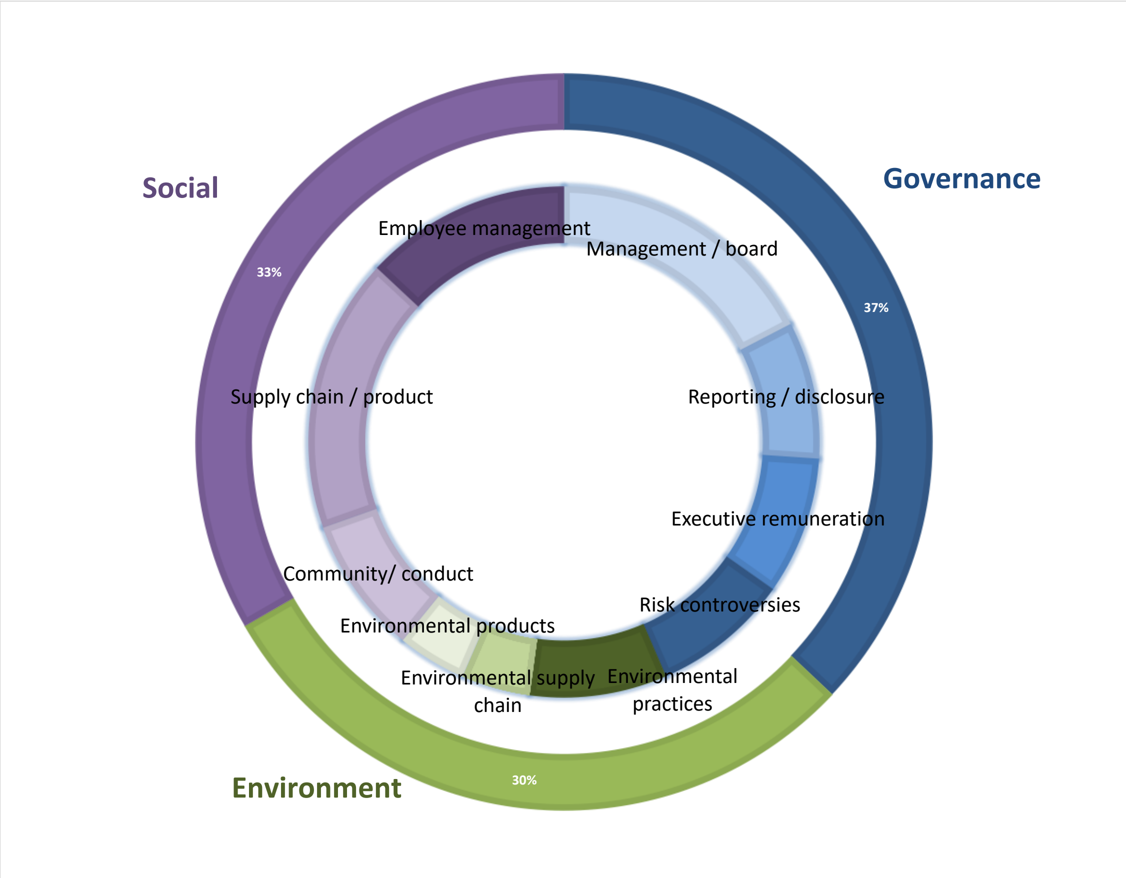
Our ratings system is unique when compared with others in the market as they are compiled by 24 analysts in the Macquarie Equities Research team, with an average of ten stocks per lead analyst. This compares favourably to other global ratings providers, where the average number of companies per analyst is considerably higher.

This year, we have updated our proprietary ESG Ratings for 256 Australian-listed companies[1], covering 92% of the ASX300 by market capitalisation, or 87% of the All Ordinaries.

The chart below shows the ESG issues assessed by our analysts in the review, focussing on the interplay between performance and key ESG factors. The weighting of each of the key ESG criteria will vary depending on the materiality for the sector, as explained in further detail in our ESG Ratings methodology.

There is an emphasis on performance rather than disclosure, with the financial analysts leveraging their skill and knowledge set to rate companies accordingly. This financial materiality contrasts with the methodology employed by most ESG Ratings agencies.

Fig 14 ESG: key factors in Macquarie's ESG ratings methodology



Source: Macquarie Research, December 2021

[1] Macquarie's ESG Ratings Survey includes ASX-listed companies covered by a stock-covering analyst

ESG Ratings results – ESG overlay

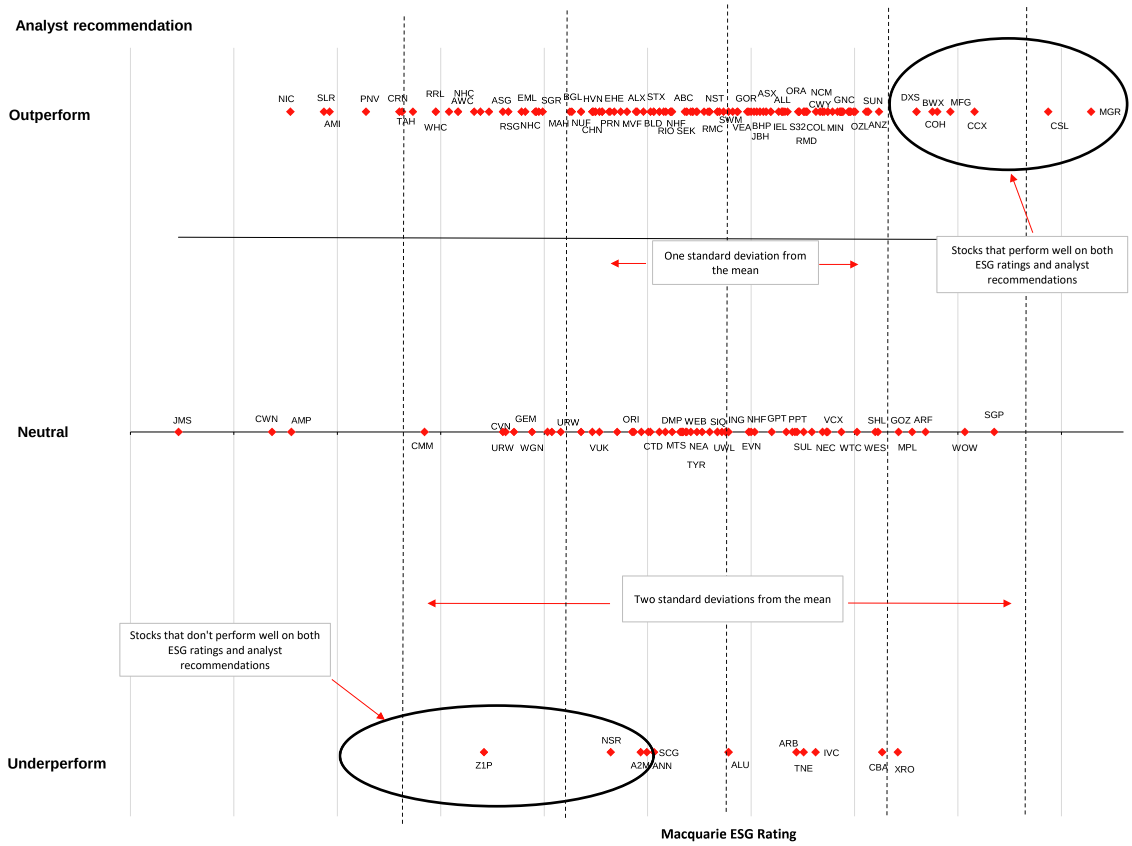
ESG scores can be used as another lens to complement investment analysis, enhance shareholder returns or manage portfolio risk.

As previously discussed, our research shows that stocks with higher ESG scores have provided better risk-adjusted returns compared to stocks with low ESG scores.

Each rating is both a quantitative and qualitative assessment of performance against the criteria summarised in Figure 14.

The chart below plots ESG Ratings against analyst recommendations, an initial screen integrating ESG factors that can be built upon for further analysis.

Fig 15 Integrating ESG Ratings with analyst recommendations



Note: stocks currently on research restriction are not disclosed in this table
Source: Macquarie Research, December 2021

As illustrated, companies that perform well on both ESG ratings and analyst recommendation screens are: **MGR, CSL, CCX, MFG, BWX, COH, REA, NXT, ANZ** and **SUN** amongst others.

Companies that don't perform well on ESG ratings and analyst recommendation screens are: **Z1P, NSR,** and **A2M** amongst others.

The ESG Ratings complement other investment analysis but should not be looked at in isolation at the expense of either financial or valuation information; or a broader understanding of the risks within a firm.

ESG Ratings for the ASX100

The results of combining the responses to each question with the appropriate sectoral weightings in this year's ratings update are summarised below for the Top 100 universe.

Fig 16 ESG Ratings – Top 100 – scores divided into quintiles

1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile
MGR	RHC	NAB	ALU	A2M
CSL	OZL	RMD	BOQ	ALX
SGP	JHX	NCM	QAN	MTS
WOW	FMG	CAR	NST	LLC
MFG	AMC	BEN	ORG	IPL
COH	APT	CWY	BXB	HVN
REA	WTC	BSL	CPU	VUK
MPL	MIN	IEL	DMP	EDV
XRO	GMG	S32	QBE	SGR
CBA	ORA	ASX	WBC	IAG
NXT	CGF	WOR	WPL	AWC
WES	VCX	BHP	SEK	TAH
ANZ	RWC	ALL	RIO	AMP
SUN	NEC	GPT	ANN	CWN
DXS	COL	TCL	DOW	
SHL	REH	EVN	ORI	
CHC	ALQ	JBH	SCG	

Note: stocks currently on research restriction are not disclosed in this table
Source: Macquarie Research, December 2021

For the 2021 assessment, top ESG-rated companies in the Top 100 are: **MGR, CSL, SGP, WOW, MFG, COH, REA** and **MPL**. Companies that have consistently received high rankings in the ESG ratings survey are: **MFG, CSL, REA, MGR** and **COH.**

Companies that have shifted out of the top rankings in the 2021 survey include:

- **ORA** – moved out of the top quintile due to a small decline in governance scores.
- **NEC** – NEC saw a slight reduction in their score due to board composition changes as well as the ransomware attack earlier in 2021
- **ALU** – the company saw a reduction in overall score due to small declines on several governance questions (risks and controls and capital management).

The weakest performers in the 2021 are: **AWC, TAH, AMP** and **CWN**, all of which also received lower scores in the 2020 survey.

Companies that have shifted into the bottom rankings in the 2021 survey include:

- **SGR** – the company experienced a decline in social scores which have been impacted by the gaming inquiry.
- **IAG –** the company experienced a decline in governance scores particularly in relation capital management, appropriate remuneration structures as well as shareholder guidance and disclosure.

Further detail behind the overall ratings is provided in Figures 19 and 20. There are a minimal number of outliers with only 5% of companies outside two standard deviations from the mean, mirroring a "normal distribution". This is a relatively similar outcome to last year's dispersion of scores, demonstrating the relative stability of the scoring process.

ESG Ratings for the ex-100

The 2021 ESG Ratings Survey provides ESG scores for 256 companies, which equates to 87% of the All Ordinaries by market capitalisation, of which 161 are in the ex-100 universe. We apply the same methodology to the ex-100 as for the Top 100.

Fig 17 ESG Ratings – ex 100 – scores divided into quintiles

1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile
CCX	ARB	RMC	PRU	HUB
BWX	SUL	LFG	BLD	MCR
ARF	CSR	NEA	BKL	CQR
GOZ	PPT	SWM	VRT	MAH
KMD	UMG	HLS	FLT	WGN
PDL	NHF	SIQ	ILU	MGX
JHG	IMD	WEB	PRN	EML
IDX	SGF	GWA	PAN	CVN
NWL	RDY	DDH	BST	RSG
IPH	SXL	TYR	UNI	GEM
ELD	SVW	PPM	BKW	NWH
GNC	GOR	NGI	TPG	URW
AFG	TPW	PGL	NSR	ASG
CCP	BRG	MVF	EHL	Z1P
HUM	VEA	ABP	WGX	NHC
SCP	COE	PSI	APE	AGI
FCL	BVS	MND	LOV	RMS
NCK	BBN	CTD	REG	RRL
CIA	ECX	ASB	NUF	CMM
IVC	APX	BAP	EHE	WHC
GMA	NWS	STX	OGC	CIP
CGC	DHG	DRR	SBM	CRN
TNE	ING	ABC	CHN	PNV
OML	UWL	PGH	KAR	AMI
PMV	SGM	LFS	SRL	SLR
AUB	MHJ	BPT	BGL	NIC
SDF	CKF	PLS	CDA	JMS
PTM	MMS	29M	WAF	

Note: stocks currently on research restriction are not disclosed in this table

Source: Macquarie Research, December 2021

For the 2021 assessment, top rated ex-100 companies are**: CCX, BWX, ARF, GOZ, KMD, PDL, JHG** and **IDX**. Of these, companies that also received high relative rankings in the 2020 assessment are: **CCX, GOZ, PDL** and **JHG.**

The weakest performers in the 2021 assessment are: **WHC**, **CIP, CRN, PNV, AMI, SLR, NIC** and **JMS.** Of these, companies that also received low rankings in the 2020 assessment are: **NIC, JMS** and **CMM**.

Last year, there were no ex-100 companies in the overall Top 10 for the ESG Ratings survey. This year there are three ex-100 company (**CCX, BWX** and **ARF**) in the Top 10 overall rankings in the 2021 survey. This year, seven of the companies in the bottom 10 rankings are ex-100.

Top tier and lower tier ESG scorers in this update

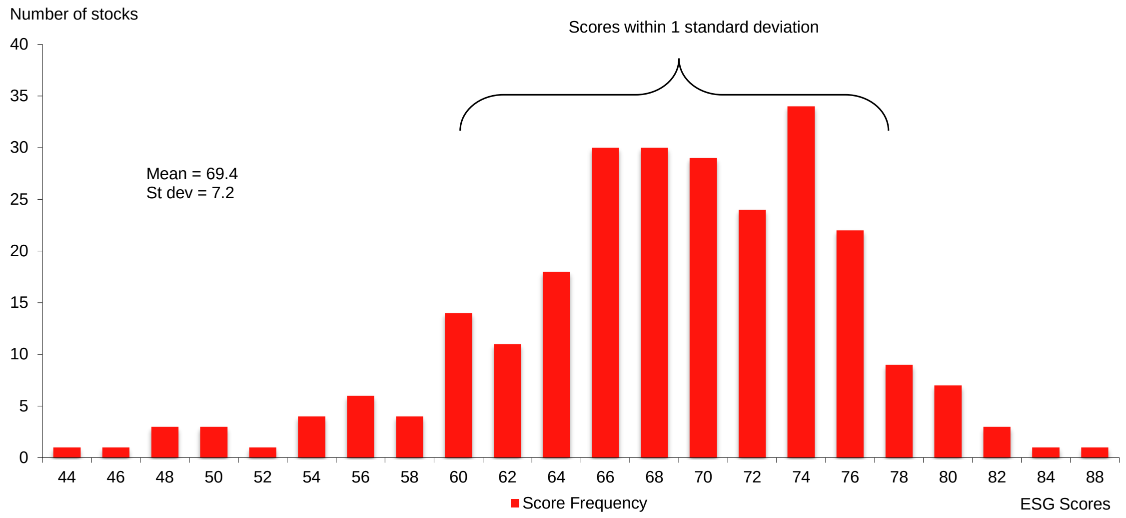
There are 256 companies that have an ESG Rating in this report. This includes 35 companies that are new to the universe, reflecting our dynamic stock coverage and changes to Macquarie's stock coverage universe.

In 2021, the average score increased to 69.4 from 68.0 in the previous assessment. The questions were the same to the 2020 survey, though coverage changes as well as changes in analyst views will have impacted average scores.

The differential between the large caps and the small caps was again evident with the ASX100 average at 71.9 compared to ex-100 at 67.9. This higher average rating for the Top 100 is consistent with the results of the prior year.

The frequency distribution for the ESG scores is shown in the table below.

Fig 18 Frequency distribution of ESG scores



Source: Macquarie Research, December 2021

The distribution of scores is similar to a "normal distribution" (a normal distribution sees ~68% of the data values lie within one standard deviation of the mean, and 95% within two standard deviations of the mean). As can be illustrated in the table below, our data sees 73% of the data fall within one standard deviation of the mean and 95% within two standard deviations of the mean.

Fig 19 Comparing the Top 100 and the ex 100

	Count	High	Low	Avg	Std dev	Bet 60-80%	As %	Within one std dev	Within two std dev
Top 100	94	88.4	48.8	71.9	7.1	80	85%	74%	94%
Ex 100	162	82.8	44.3	67.9	6.9	138	85%	70%	95%
Diff		5.6	4.5	4.0	0.2				
All	**256**	**88.4**	**44.3**	**69.4**	**7.2**	**218**	**85%**	**73%**	**95%**

Source: Macquarie Research, December 2021

The companies that sit more than 2 standard deviations from the mean score are:

- **AMI, AMP, CWN, JMS, NIC, PNV** and **SLR** with the lower scores and,
- **MGR, CSL and SGP** with the higher scores.

As mentioned above, based on the relative performance outcomes of our quant results, the ESG scores can improve selectivity of underperforming stocks, or be used to manage volatility (risk) within a portfolio.

These scores are a result of a number of factors.

There are a number of companies that have consistently ranked in the top or bottom tier of Macquarie's ESG survey (e.g. **MGR, CSL** and **PDL** at the top end; **CWN** and **AMP** at the bottom end of the scoring range).

Given the weighting afforded to both qualitative and quantitative governance factors, governance is a clear differentiator between the above companies but performance and disclosure on E and S characters also play an important role.

The following tables provide insights into why the companies with the highest and lowest ESG Ratings in our survey achieved their scores.

The table below shows the 10 companies with the highest ESG Rating in Macquarie's ESG survey.

Fig 20 Result drivers for top rated ESG stocks in the ASX100

ASX Code	Comment
MGR	Strong scores across the several questions including shareholder communication, environmental initiatives and impact of operating activities relative to peers.
CSL	Consistent high scorer. Strong governance scores for board and executive team, remuneration and capital management.
SGP	Strong governance scores (particularly board and executive team, shareholder communications and capital management)
WOW	Improvement in governance and social scores following the demerger of Endeavour Group in May.
MFG	Consistently well rated. Strong governance scores across several questions (board & executive team), risks and controls and corporate structure.
COH	Strong governance scores across several questions (risks and controls, shareholder communications, board and executive team)
REA	Consistently well rated. Strong governance scores across several questions (board & executive team), risks and controls and corporate structure.
MPL	Strong governance scores across several questions (risks and controls, board and executive team), as well as improved scores across social metrics.
XRO	Strong governance scores across several questions (board & executive team, shareholder communication & disclosure and risks and controls).
CBA	Saw an improvement in score YoY on a number of governance (remuneration structure and shareholder disputes) and environmental questions

Source: Macquarie Research, December 2021

Other notable mentions in the top tier ESG rated stocks are:

- **NXT** saw an improvement in score on several governance questions (remuneration structure, capital management and shareholder communications) as well as an improvement in human capital management.
- **WES** saw improvement in score in a number of governance questions (remuneration structure, capital management, board and executive team and risks and controls).

Fig 21 Result drivers for bottom ESG rated stocks in ASX100

ASX Code	Comment
CWN	Similar score to last survey. Low governance scores, remuneration strike and impacted by gaming inquiry.
AMP	Score improved vs. last survey but remains below peers on governance.
TAH	Lower governance scores on board composition, risks and controls and shareholder disputes.
AWC	Lower governance score vs. peers (risks and controls) as well as lower environmental scores.
IAG	Lower governance scores on risks and controls, shareholder communications and remuneration structure.
SGR	Lower social scores across human capital management and responsible operations, further impacted by the gaming inquiry.
EDV	Below sector average scores, impacted by alcohol and gaming exposure.
VUK	Lower governance scores on governance (shareholder communications and remuneration structure).
HVN	Slightly improved governance scores but remains below sector averages.
IPL	Lower score on capital management and human capital management

Source: Macquarie Research, December 2021

Stocks seeing changes in ESG score in this update

Besides viewing the headline results and the companies achieving the highest and lowest ESG scores, it is also instructive to consider those companies seeing major changes to their respective scores since the last rating compilation. This is particularly important given the excess returns we find from the quant analysis of the changes in ESG ratings.

There are over 221 companies that have historical scores, reflecting our dynamic stock coverage and changes to our coverage universe.

- The following companies experienced a significant **deterioration** (of 10 or more points) in their ESG Rating relative to the prior survey:
  - ⇒ **APX –** lower governance scores following lack of clarity around earnings guidance and adequate shareholder disclosure.
  - ⇒ **IAG** – weaker governance scores off the back of governance issues as well as poor shareholder guidance and disclosure.
  - ⇒ **SBM** – revised governance scores driven by a board transition as well as operational issues.
  - ⇒ **SGR** – lower social scores across human capital management and responsible operations, further impacted by the gaming inquiry
- The following companies experienced a significant **improvement** in their ESG Rating relative to the prior survey:
  - ⇒ **GOR** – improved environmental metrics off the back of investment in renewable energy resources as well as improved sustainability disclosure.
  - ⇒ **WOW** – improved governance and social scores following the demerger of Endeavour Group in May.
  - ⇒ **NWS** – higher governance scores following an improved shareholding structure after the Board authorised the termination of a stockholder rights agreement.
  - ⇒ **NXT** – improved shareholder disclosure and greater clarity around remuneration structure led to an improvement in governance scores.

These changes in score are a result of a number of factors.

First, over the past year or more a significant number of companies have released updated sustainability reports detailing their latest quantitative data, qualitative information and commentary on ESG performance. This includes information on: occupational health and safety, employee engagement, environmental performance, community engagement processes or other aspects of ESG.

Conversely, some historic controversies have now sufficiently ‘rolled out’ of the survey time scope (as controversies on board and management are questioned for a three-year period).

Just as significant as the incorporation of updated disclosed environmental and social data are updated governance assessments, given the average ~50% weighting afforded to both qualitative and quantitative governance factors.

Updates to these assessments have occurred over the past year in light of: executive management or board controversies (**AMP**, **JMS**) or AGM results including the result of voting on the remuneration report (**IAG, TCL**) and other events.

Indeed, in addition to updated ESG reporting, ad hoc environmental, social or governance events can, and do, impact ESG ratings assessments such as the casino inquires which impacted **CWN** and **SGR**’s ESG rating in this survey.

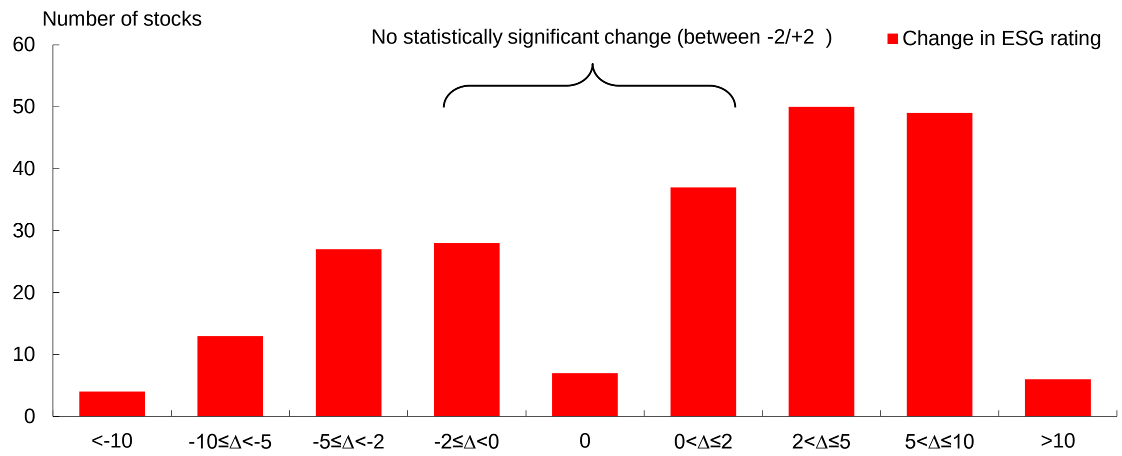
Finally, it is also worth noting that there have been several companies where a change in analyst coverage or a refinement in the analysts’ approach to ESG information may have contributed to a change in rating. This is the case media and technology, and some consumer and small caps coverage.

Score revisions – small change in average masks movements at company level

Companies with statistically significant upward revisions to their scores outnumbered those with a statistically significant downward revision to scores. There were 55 companies with an upward revision of above 5, and 17 companies with a downward revisions above 5. Out of the companies in the survey, 72 companies had no meaningful change to their ESG score, as shown below.

The movements in individual company ESG scores may reflect a change in analyst or a refinement in the analysts' approach to ESG information.

Fig 22 Change in ESG ratings – movements in individual company ESG scores



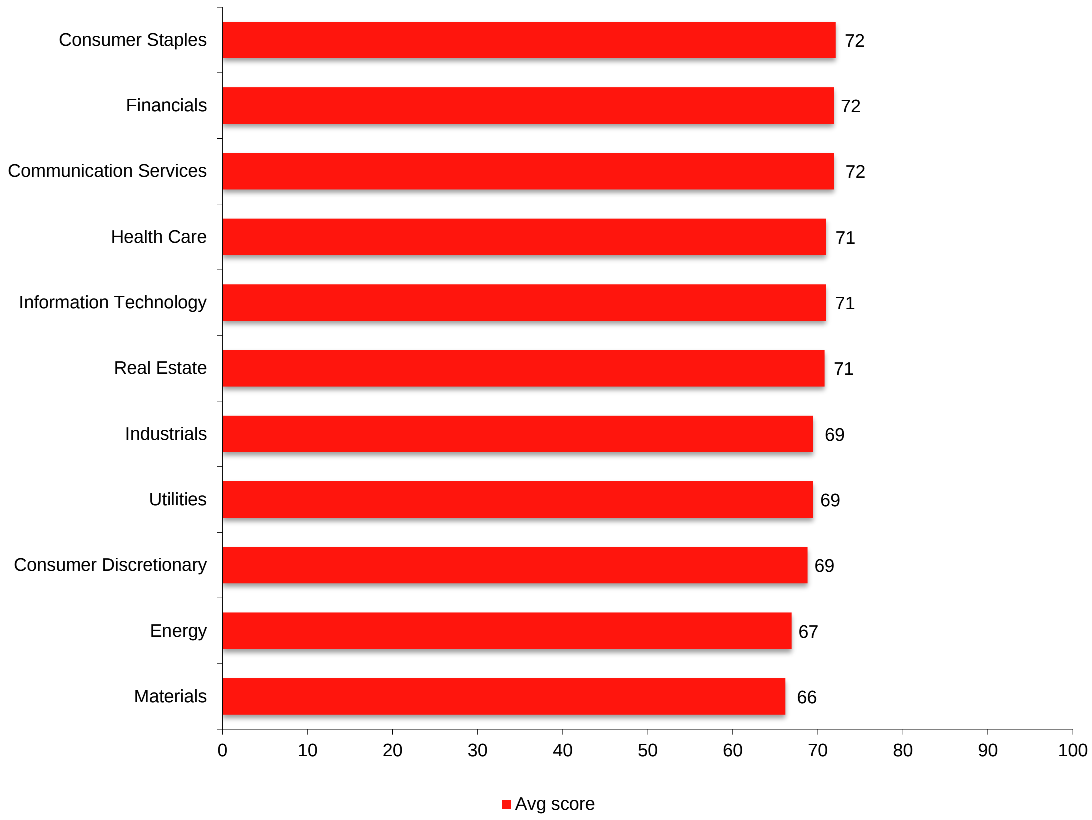
Source: Macquarie Research, December 2021

Sector averages illustrate no sector bias in methodology

It is also instructive to compare the average ESG rating between sectors (Figure 24). It is worth highlighting that the dispersion in average scores at a sector level is small - which strongly suggests to us consistency in the application of the ESG Ratings methodology across the equity analyst team.

The maximum dispersion between the eleven sectors is less than the standard deviation of the stock level dispersion. This suggests that differences at the sector-level are negligible, with variation in ESG Ratings being predominantly driven by stock-level characteristics.

Fig 23 Average ESG score by sector for the 2021 ESG Ratings survey



Source: Macquarie Research, December 2021

To reduce sector bias, Macquarie undertakes a rigorous review of ESG issues and applies a relative weighting of each of the ESG issues for each sector, depending on the materiality. These materiality assessments deal with underlying ESG risk and performance on an industry-specific basis.

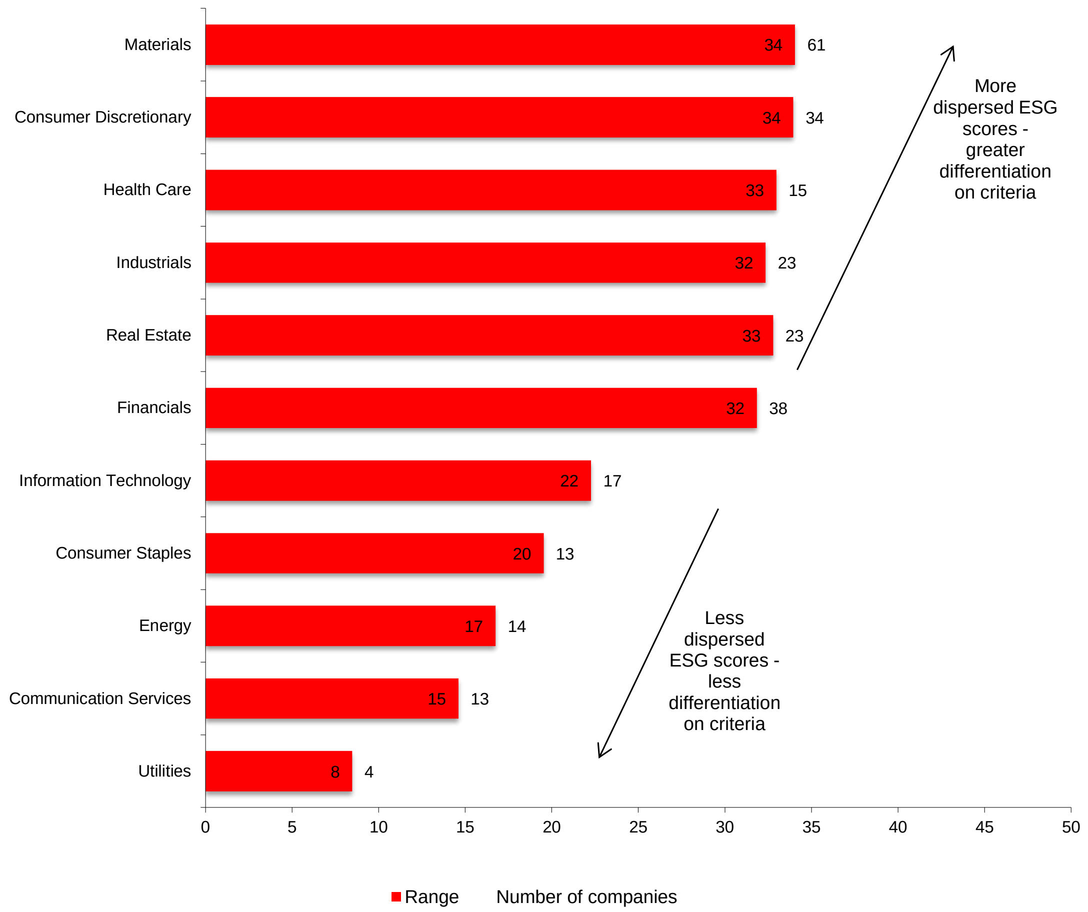
Governance risks regarding management oversight, risk management and executive remuneration are considered equally material across all sectors. This is supported by strong empirical evidence.

However, the relative weightings of environmental and social issues will differ markedly across the sectors. This is discussed in greater detail in the section ESG Ratings methodology.

Sector analysis – differentiation on ESG criteria

Although the sector averages are clustered, the range at a sector level illustrates that there is differentiation on ESG criteria. The wide range of results indicates that there is *likely a strong potential for companies to differentiate themselves to peers on these grounds*. There is strategic opportunity for these companies to differentiate themselves from peers as being more 'sustainable'. Or in other words, the ESG opportunity being captured by any of these companies is apparent. For example, this is the case for banking (**CBA** vs. **WBC**) or real estate (**MGR** vs. **URW**).

Fig 24 Sectors with ESG differentiation – range in ESG scores at a sector level and number of companies in the sector



Source: Macquarie Research, December 2021

ESG ratings – the what, why and how

Environmental, social and governance (ESG) ratings can be a useful tool, indeed one of a suite of tools, for analysing the ESG performance of individual companies and integrating this information into financial analysis.

ESG ratings provide:

- A quick snapshot of ESG performance that can be built upon with further analysis;
- An additional factor to build into quantitative models and link to different elements of financial performance; and
- A starting point for corporate engagement on ESG issues.

Whilst ESG ratings can be used effectively, they can also be misused. It is important that end-user investor needs are aligned with the ratings process, and, more importantly, that several common ESG ratings pitfalls are avoided. Namely, ESG ratings should have a clear process for dealing with corporate non-disclosure and be based on the financial materiality of different ESG factors. Other common issues include ethical bias, reporting frequency and data standardisation.

To address these concerns, *Macquarie's ESG research team created proprietary ESG ratings for the largest Australian-listed companies dating back to 2011.*

How is Macquarie's ESG rating system different to others?

- Analyst ratio – each Macquarie analyst is able to comprehensively consider their responses with a company to analyst ratio of an average ten stocks;
- Consistency in the ratings – individual responses have then been cross-referenced against available ESG quantitative and qualitative information by an ESG specialist. This ensures that questions are answered in a consistent manner, and highlights any issues that may not have been otherwise addressed or incorporated by the stock analysts;
- The weighting ascribed to each ESG question for each company is then determined by the sector(s) in which the company operates. Therefore, questions are weighted according to the materiality of the issue for that sector. Hence questions have a high, medium, or no weighting;
- The 27 questions are based on specific issues with a financial bent and address the dual concerns with most ESG ratings of non-disclosure and financial materiality – by being compiled by a stock specialist with a strong understanding of the financials and utilising only material information.

As discussed in our quant teams note Quantamentals – ESG Finding the Glove that Fits, Macquarie's own research shows there can be little correlation (and sometimes negative correlation) between ESG data vendors, suggesting that either the ratings are measuring very different aspects of corporate governance or that there is substantial measurement error.

Finally, it is worth noting that ***ratings should be utilised in conjunction with, rather than as a replacement for, other forms of ESG integration***. That is, ratings can be a useful tool for ESG integration, but over-reliance on ratings at the expense of either financial information or a broader understanding of ESG risks can likewise be a concern. In short, Macquarie's ESG ratings come with the important caveat that they do not comprise the entire ESG 'answer'.

Fig 25 Summary of the changes and output for the 2021 survey

ESG rating system	2020	2021		2020	2021
Company to analyst ratio	9.9	10.7	Mean score	68.0	69.4
Stocks covered	237	256	Standard dev	7.3	7.2
Questions	27	27			
Response set	Y/N, 1-5, 1-3	Y/N, 1-5, 1-3			
E, S, G weighting	Varies by sector	Varies by sector			

Source: Macquarie Research, December 2021

Macquarie's ESG Ratings methodology

In essence, there *are two key elements of a ratings framework: the list of ESG 'questions' and the different weightings applied to each sector*. We consider each of these in turn, starting with the list of ESG analyst questions used in Macquarie's ESG ratings (Figure 29).

The starting point for Macquarie's ESG ratings is the *list of 27 ESG questions, covering the full spectrum of 'E', 'S' and 'G' issues*.

Each question is ascribed either a yes/no or 1-5 response and is completed by the relevant stock expert from the Macquarie Research Equities team. In some cases, it is possible to pre-populate provisional answers subject to availability of Macquarie or third-party data, but these answers are still subject to final covering analyst approval. Analysts are also provided detailed commentary on each question, relevant ESG metrics and information including how these metrics compare to peers, and further guidance on how the 1-5 rating should be applied.

As mentioned previously, *the focus is on involving Macquarie's team of financial analysts* due to their detailed company and industry knowledge, and ability to make an informed assessment on the financial materiality of qualitative and quantitative ESG factors.

Individual responses have then been cross-referenced against available ESG quantitative and qualitative information by an ESG specialist. This ensures that questions are approached and answered in a consistent manner, and also serves to highlight any issues that may not have been otherwise addressed or incorporated by the stock analysts.

Having detailed the key questions, the issue becomes how these questions are weighted for each company.

Companies are first placed into one of 31 sectors (Figure 27), according to the primary operating activity. These sectors broadly, but not strictly, follow the GICS classification but are adjusted for the similarity of ESG issues faced and classified according to primary operating activity. With some companies undertaking activities across a number of sectors, companies are ascribed a primary and, if relevant, a secondary sector.

Fig 26 List of sectors in Macquarie's ESG ratings

- Oil and gas
- Chemicals
- Building and construction materials
- Containers and packaging
- Mining
- Metals processing
- Paper and forestry products
- Construction and engineering
- Machinery and equipment
- Commercial and professional services
- Airlines
- Transport and logistics
- Infrastructure
- Other manufacturing – auto, electronics, etc
- Textiles and apparel
- Hotels, leisure and gaming
- Media
- Discretionary retailing
- Nondiscretionary (consumer staples) retailing
- Food, beverage and tobacco
- Healthcare equipment
- Healthcare services
- Pharmaceuticals and biotechnology
- Banks
- Diversified financials
- Insurance
- Property development
- REITs and LPTs
- IT software and services
- Telecommunications
- Utilities

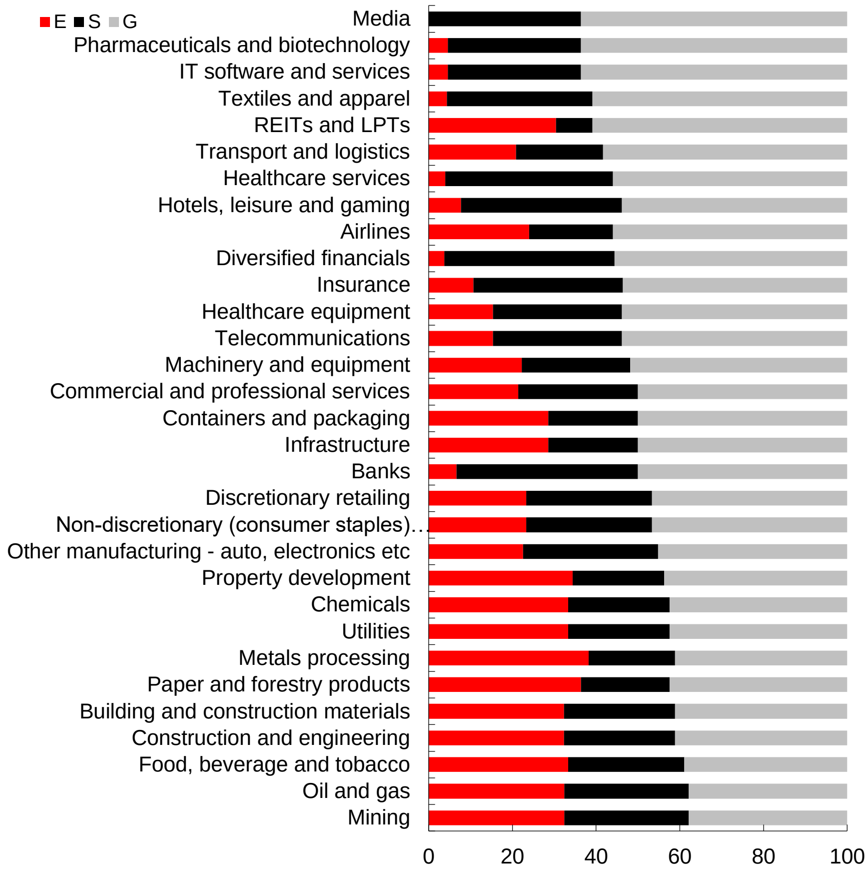
Source: Macquarie Research, December 2021

The weighting ascribed to each ESG question for each company is then determined by the sector(s) in which the company operates. At a conceptual level, questions are weighted according to the materiality of the issue for that sector. Hence questions have a high, medium, or no weighting.

In doing so, a number of questions are screened out for each sector such that the average number of 'effective' questions for each sector is ~19 rather than 27. The question on preparedness for climate change, for example, is of high relevance for the energy, infrastructure, insurance and property sectors, of moderate concern for the banking and financial sectors via the exposure of the loan book and investment portfolios, and not weighted for other sectors.

Governance is strongly weighted across all sectors, and for ~60% of sectors, governance contributes over 50% to the overall rating (Figure 28). This is in line with strong empirical evidence on the link between governance and performance metrics. Environmental and social factors are broadly equally weighted across the entire market, although this varies significantly between sectors.

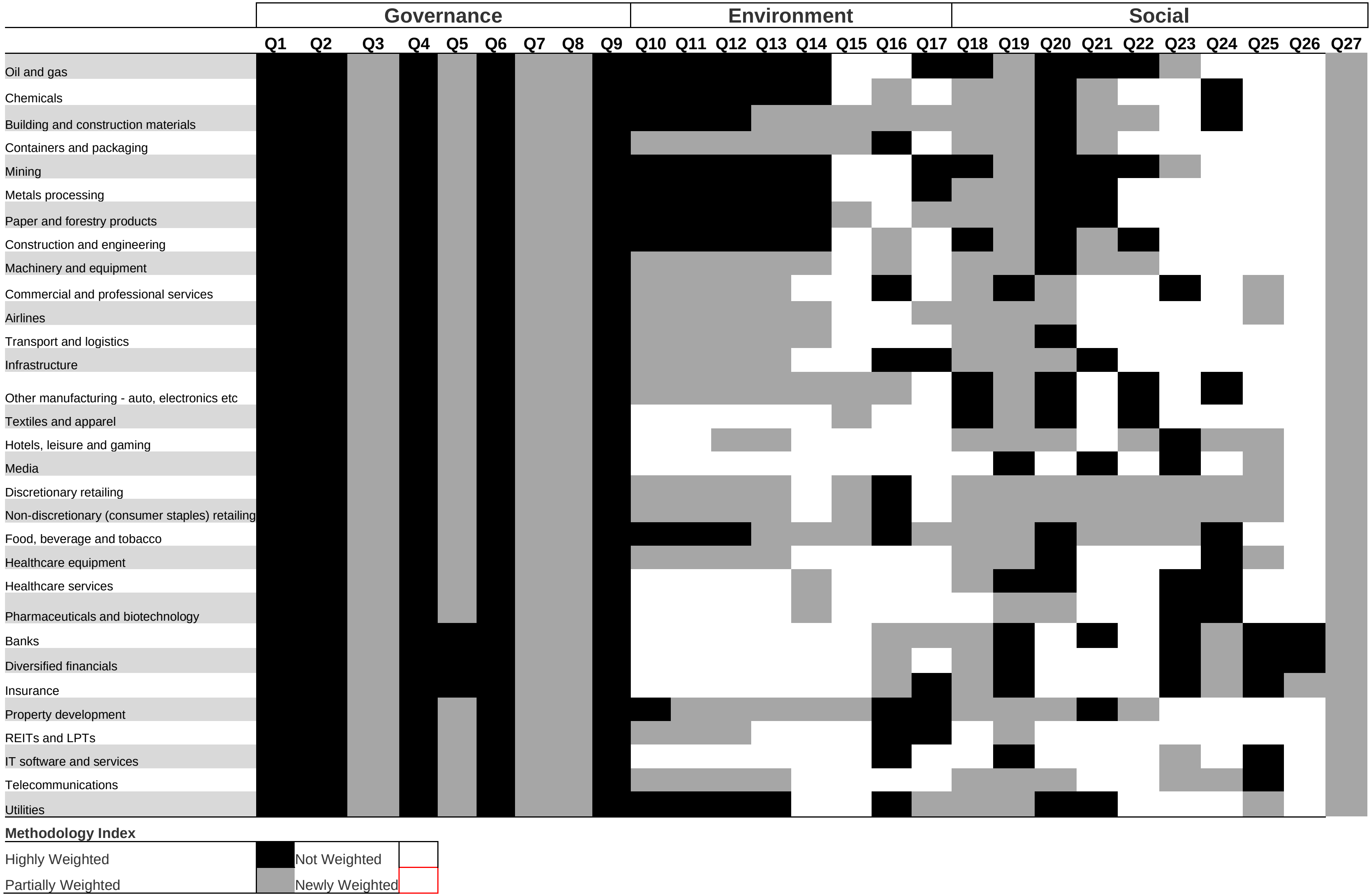
Fig 27 Relative environmental, social and governance weightings by sector



Source: Macquarie Research, December 2021

Changes to sector weightings this year

After making several changes to the survey in 2020 (predominantly on environmental questions and the addition of a question on modern slavery) we left the sector weightings unchanged in 2021. This table provides a visual representation of the weightings, while the questions are listed below in Fig 29. Appendix 1.



Applying sector weightings

Having defined what ESG issues are, we can then use each factor to apply a relative importance to each sector. For example, considering the ESG factor matrix above, this can be summarised, proceeding down the columns, as three E, S and G issues, respectively:

⇒ Environmental: internalising externalities (E1), environmental risks in operating activities (E2), and environmental opportunities (E3);

⇒ Social: employees (S1), community and other stakeholders (S2), and customers (S3); and

⇒ Governance: oversight (G1), risk management (G2), and remuneration (G3).

There are two important aspects. First, these materiality assessments deal with underlying ESG risk across sectors, without elaborating on the record that specific companies have in managing these risks. Second, governance risks regarding management oversight, risk management and executive remuneration are considered equally prevalent, plausible and material across sectors. Moreover, governance concerns are rated as highly relevant in line with stronger empirical support for these factors.

The mining, oil and gas sectors are generally considered at the forefront of ESG factors. They are environmentally intensive, with strong carbon, water and biodiversity footprints (E1, E2), as well as requiring significant numbers of skilled and unskilled workers operating in potentially hazardous conditions (S1) and often in developing countries (S2). The high level of underlying ESG risk is therefore unsurprising.

Infrastructure, including transport and the highly-regulated utilities, have a different ESG risk profile. The relative stability of their cash-flows results in a lower risk profile for the sector, and factors such as carbon pricing (E1), and environmental opportunities (E3) are highly dependent on the individual asset and regulatory environment.

The financial sector is largely dependent on the quality of human capital (S1), and remuneration is both a component of this, and also highly politicised in the current environment (G3). Moreover, data security and privacy (S3) are key issues given the nature of information that is collected by the sector. While the direct environmental impact is small, the second-order impacts on the loan book are nonetheless worth considering (E2).

The consumer sector is a varied one from an ESG perspective. While well placed to take advantage of environmental trends in consumer spending (E3), exposure to other ESG factors depends on whether the company undertakes their own manufacturing activities and the type of good (discretionary vs. non-discretionary) sold. For example, companies in the food and beverage space that are reliant on water as a significant input will be impacted by competitive water pricing (E1) whereas manufacturers and companies in the discretionary retail space are most likely to be impacted by supply chain risks (S2).

Fig 28 Appendix 1: List of Macquarie's ESG Ratings questions

Governance

1) Assess the appropriateness of the corporate structure and the consistency of business activities with the company purpose and domain expertise/core competencies?
2) Assess the composition and effectiveness of the Board; taking into account relevant industry experience, independence, age, diversity, tenure, and capacity?
3) Assess the level of insider equity ownership on the Board?
4) How closely is the remuneration incentives framework (both short-term and long-term) aligned with the corporate strategy and shareholder interests, and is disclosure adequate to make this assessment?
5) Assess the quality of capital management, taking account of the extent to which it is long term and consistent with market expectations and corporate strategy?
6) How would you rate the Board and Executive Team's overall stewardship of the business, taking account of leadership quality, long term decision-making, track-record and the protection of shareholder interests?
7) How would you rate the company's internal risk and control framework and quality of earnings? (NB: the question combines an earnings quality quant factor with the analyst's view of the company's internal control framework and track-record)
8) Rate the shareholder communication and corporate disclosure, taking account of the consistency of financial statements and overall prudence and reliability of accounting judgements?
9) Have there been any significant shareholder disputes or controversies in the past 3 years? Examples of risk controversies are: financial fraud, product safety, conduct and business ethics, bribery, corruption, political donations, accounting and taxation etc.

Environmental

10) How would you rate the 'environmental impact' of operating activities as a proportion of sales, in terms of energy use, carbon pollution, other air pollutants, water pollution, land clearing and use, biodiversity loss and hazardous materials produced?
11) How would you rate the earnings sensitivity if a cost to pollutants (carbon, air, water) or land clearing, biodiversity loss were to be introduced? Consider the elasticity of demand in the context of suppliers passing through the implied additional cost.
12) Has the company implemented, invested in or realised any significant environmental efficiency improvements in the past 3 years, taking into account emissions reduction programmes, formal targets and data, or position statements relating to this?
13) Does the company have existing policy framework on environmental management practices and is there any track record of environmental incidents including pollutant releases, chemical or other spills, fines, compliance breaches, site rehabilitation, litigation, monetary sanctions and compliance with relevant environmental regulations?
14) How would you rate the company's waste processing and/or hazardous materials handling?
15) Does the company manage supply chain risks from an environmental perspective, taking into account policies or standards to mitigate environmental supply chains risks, sustainable sourcing, procurement initiatives or supply chain assessments and audits; and has there been a history of supply chain controversies from an environmental perspective?
16) Does the company produce products, services or processes that assist customers in managing their own environmental needs? If so, how material are these factors to company earnings?
17) Has the company undertaken any research on, or preparations for, the physical and financial risks associated with climate change and considered the implications for its strategy and capital allocation? For example, the potential for a higher incidence of natural disasters, climate stranded assets or water scarcity disruption.

Social

18) Is there a prior history or track record of human rights violations, workplace and industrial relations disputes, litigation, discrimination and/or harassment claims?
19) How would you rate overall human capital management taking into account employee engagement at the company, staff turnover, remuneration and productivity, industrial relations disputes and performance on diversity metrics?
20) How would you rate the company's occupational health and safety performance relative to peers, taking into account any track record of safety incidents, injuries, deaths, non-compliance breaches, fines and litigation?
21) How would you rate the company's community engagement and social licence to operate, taking into account relationships with stakeholders in the communities that they operate or plan to operate in?
22) Review the company's policy framework on 'social' issues across its supply chain taking into account standards set for suppliers and compliance in areas such as labour standards, health/safety, working hours, non-discrimination, child labour, and is there a history of supply chain controversies on social issues?
23) Does the company have a Code of Conduct and ethics and procedures for enforcement, is information on compliance against these standards disclosed and has there been a recent history of conduct controversies?
24) Has there been an incident over the past 3 years relating to the company's product safety systems and policies, taking into account any track record of product recalls, product integrity, correct labelling, responsible marketing, fines/litigation; as well as product waste and disposal systems?
25) Has there been any incidents over the past 3 years relating to company's data privacy systems and policies, taking into account any track record of hacks, litigation or other controversies?
26) Does the company haves policies and procedures regarding investment or lending in controversial sectors (such as the military, coal and forestry sectors) and has there been recent history relating to controversial financing or investment decisions?
27) What is the risk of modern slavery in the organisation? How well prepared is the company to manage the risk? (I.e. do they have robust controls and policies in place)

Source: Macquarie Research, December 2021

Important disclosures:

Recommendation definitions

Macquarie – Asia and USA
Outperform – expected return >10%
Neutral – expected return from -10% to +10%
Underperform – expected return <-10%

Macquarie – Australia/New Zealand
Outperform – expected return >10%
Neutral – expected return from 0% to 10%
Underperform – expected return <0%

Note: expected return is reflective of a Medium Volatility stock and should be assumed to adjust proportionately with volatility risk

Volatility index definition*

This is calculated from the volatility of historical price movements.

Very high–highest risk – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.

High – stock should be expected to move up or down at least 40–60% in a year – investors should be aware this stock could be speculative.

Medium – stock should be expected to move up or down at least 30–40% in a year.

Low–medium – stock should be expected to move up or down at least 25–30% in a year.

Low – stock should be expected to move up or down at least 15–25% in a year.
* Applicable to select stocks in Asia/Australia/NZ

Recommendations – 12 months
Note: Quant recommendations may differ from Fundamental Analyst recommendations

Financial definitions

All "Adjusted" data items have had the following adjustments made:
Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense
Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests

EPS = adjusted net profit / efpowa*
ROA = adjusted ebit / average total assets
ROA Banks/Insurance = adjusted net profit /average total assets
ROE = adjusted net profit / average shareholders funds
Gross cashflow = adjusted net profit + depreciation
*equivalent fully paid ordinary weighted average number of shares

All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).

Recommendation proportions – For quarter ending 30 Sept 2021

	AU/NZ	Asia	USA	
Outperform	62.76%	67.53%	74.19%	(for global coverage by Macquarie, 4.72% of stocks followed are investment banking clients)
Neutral	31.03%	21.83%	24.73%	(for global coverage by Macquarie, 3.23% of stocks followed are investment banking clients)
Underperform	6.21%	10.64%	1.08%	(for global coverage by Macquarie, 0.00% of stocks followed are investment banking clients)

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