

TAIWAN

Ralink Technology

28 October 2008

3534 TT **Underperform**

Stock price as of 28 Oct 08	NT\$	108.00
12-month target	NT\$	82.00
Upside/downside	%	-24.1
Valuation	NT\$	82.00
- PER		

GICS sector	semiconductors & semiconductor equipment
Market cap	NT\$m 13,023
30-day avg turnover	NT\$m 287.2
Market cap	US\$m 390
Number shares on issue	m 120.6

Investment fundamentals

Year end 31 Dec		2007A	2008E	2009E	2010E
Total revenue	m	3,845.3	4,789.7	5,431.4	5,998.1
Reported profit	m	1,163.6	925.2	981.0	1,070.0
Profit bonus exp	m	1,163.6	925.2	981.0	1,070.0
Bon exp/rep prof	%	0.0	0.0	0.0	0.0
Adjusted profit	m	965.2	925.2	981.0	1,070.0
EPS rep	NT\$	12.03	7.67	8.14	8.87
EPS rep growth	%	58.4	-36.2	6.0	9.1
EPS bonus exp	NT\$	12.03	7.67	8.14	8.87
EPS bonus growth %		58.4	-36.2	6.0	9.1
PE rep	x	9.0	14.1	13.3	12.2
PE bonus exp	x	9.0	14.1	13.3	12.2
Total DPS	NT\$	3.95	4.50	5.31	6.19
Total div yield	%	3.7	4.2	4.9	5.7
ROA	%	33.0	18.6	16.1	16.6
ROE	%	38.1	22.9	19.6	19.6
EV/EBITDA	x	5.2	8.1	7.6	6.7
Net debt/equity	%	-61.9	-79.1	-77.5	-79.2
Price/book	x	3.2	2.7	2.5	2.3

3534 TT rel Taix performance, & rec history



Source: Datastream, Macquarie Research, October 2008 (all figures in NT\$ unless noted)

Analyst

Stefan Chang, CFA
886 2 2734 7511 stefan.chang@macquarie.com
Warren Lau
852 2823 3592 warren.lau@macquarie.com

One more cut

Event

- Ralink announced its 3Q08 results and 4Q08 guidance today, and both disappointed at the gross/operating level. We maintain our UP rating and cut our TP from NT\$100 to NT\$82, based on 10x 2009E EPS (from 12x). We believe the PER will further de-rate on a softer outlook.

Impact

- Macquarie vs consensus.** Our conservative call is based on soft retail demand for WiFi equipment and severe price erosion of 802.11n ICs. All networking manufacturers' 4Q08 outlook supports our view. Overnight Atheros's (ATHR, US\$16.13, NR) sales guidance of a 0–5% QoQ decline also provided an early warning of Ralink's softening sales outlook. Our negative view remains intact because both demand and pricing are not improving.
- Margin pressure to continue.** The new product cycle for Ralink has been ended, and the GM for low-end 1x1 and 1x2 11n IC is already lower than that for 11g ICs. Given that all its competitors are promoting a low-cost SoC solution for 1x1/1x2 11n ICs and that competitors such as Atheros still have a higher GM (49–50% for 4Q08), the price pressure seems to be intensifying. Ralink is using the 90nm process for all new ICs, but competitors are also moving to the higher-end (Atheros at 90nm, Broadcom at 65nm) to be cost competitive. This is in addition to the fact that all of them have wider product lines than Ralink, such as GbE ICs for bundle sales, which are positive for their ASP.
- More headwinds for shipments outlook.** The retail and broadband markets still account for 65%+ of Ralink's revenue, and these two segments seem to have more downside, especially the former. This is supported by the presentations of all networking makers and Atheros. For other applications, Ralink still gained only one netbook order and limited NB exposure.
- 3Q08 EPS of NT\$2.15** were 6% above our forecast, due largely to an NT\$48m (EPS of NT\$0.4) forex gain. Sales of NT\$1.28bn (+5% QoQ and +25% YoY) and the GM of 37.7% were both below expectations. 4Q08 guidance of a 0–5% QoQ sales decline and a 38–40% GM is also below our estimate and the consensus (sales up by 5%+ QoQ and GM to be 39–40% or above).

Earnings revision

- Our 2008E EPS is broadly unchanged, but we cut our 2009/10E by 8% and 11%, respectively.

Price catalyst

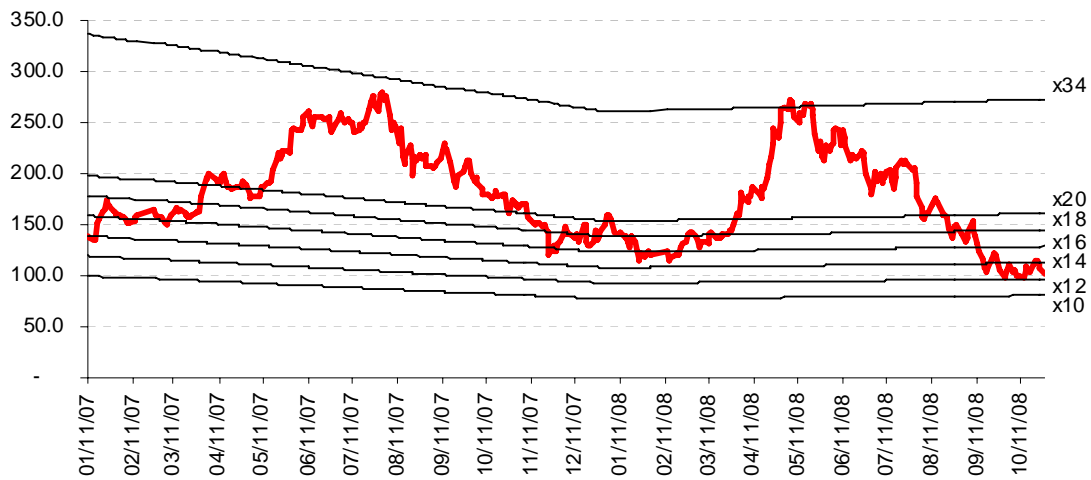
- 12-month price target: NT\$82.00 based on a PER methodology.
- Catalyst: Deteriorating sales and GM trend and softening demand.

Action and recommendation

- The stock price was relatively resilient recently, we believe, due to Street expectations for its sales and GM recovery. However, we suspect the disappointing sales and GM outlook will prompt a further sell-off. We maintain an Underperform and will review our rating when we see more-significant market-share gains and/or a stabilisation in Ralink's margin trend.

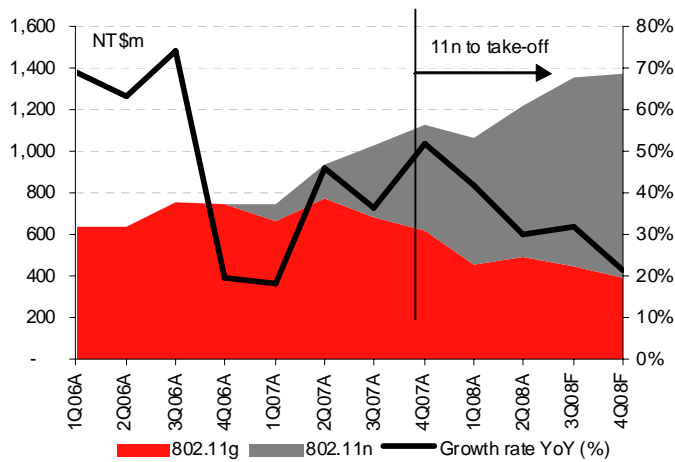
Please refer to the important disclosures and analyst certification on inside back cover of this document, or on our website www.macquarie.com.au/research/disclosures.

Fig 1 Ralink's PER - bonus expensed



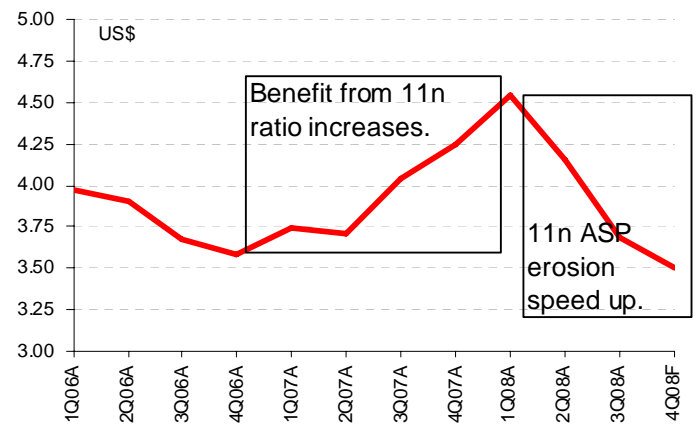
Source: TEJ, Macquarie Research, October 2008

Fig 2 Ralink's sales breakdown



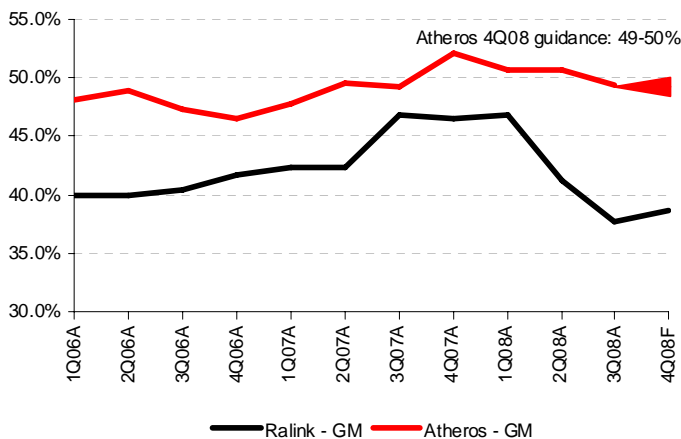
Source: Company data, Macquarie Research, October 2008

Fig 3 Ralink's blended ASP



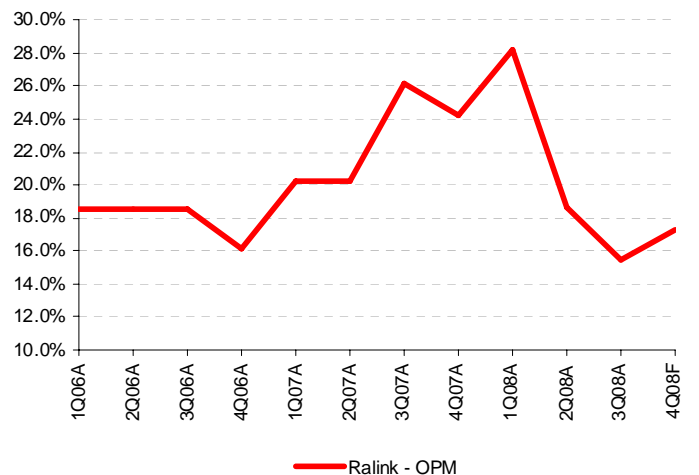
Source: Company data, Macquarie Research, October 2008

Fig 4 GM comparison of Atheros and Ralink



Source: Company data, Macquarie Research, October 2008

Fig 5 Ralink's OP margins



Source: Company data, Macquarie Research, October 2008

Fig 6 Macquarie's earnings revision for Ralink

		2008E			2009E			2010E		
		Current	Previous	var.	Current	Previous	var.	Current	Previous	var.
Sales	NT\$m	4,790	4,969	-4	5,431	5,923	-8	5,998	6,799	-12
GP	NT\$m	1,956	2,055	-5	2,094	2,321	-10	2,295	2,634	-13
OP profit	NT\$m	935	1,001	-7	1,000	1,081	-7	1,129	1,266	-11
Net profit	NT\$m	925	941	-2	981	1,061	-8	1,070	1,201	-11
EPS	NT\$	7.67	7.81	-2	8.14	8.80	-8	8.87	9.96	-11
GM	%	40.8	41.4	-0.5	38.6	39.2	-0.6	38.3	38.7	-0.5
OP margin	%	19.5	20.1	-0.6	18.4	18.2	0.2	18.8	18.6	0.2
Net margin	%	19.3	18.9	0.4	18.1	17.9	0.1	17.8	17.7	0.2

Source: Macquarie Research, October 2008

Fig 7 MACQ's P&L model for Ralink

		1Q08A	2Q08A	3Q08A	4Q08E	1Q09E	2Q09E	3Q09E	4Q09E	2007A	2008E	2009E	2010E
Forex		31.50	30.50	31.70	33.00	33.00	33.00	33.00	33.00	32.85	31.68	33.00	33.00
PRE BONUS EXP.		1Q08A	2Q08A	3Q08A	4Q08F	1Q09F	2Q09F	3Q09F	4Q09F	2007A	2008F	2009F	2010F
Net sales	NT\$m	1,063	1,218	1,280	1,229	1,100	1,306	1,545	1,480	3,845	4,790	5,431	5,998
COGS	NT\$m	565	716	798	754	676	802	949	910	2,123	2,833	3,337	3,703
Gross profit	NT\$m	498	502	482	474	424	505	596	570	1,722	1,956	2,094	2,295
OP expense	NT\$m	170	154	198	190	173	189	204	201	640	713	767	810
Op income	NT\$m	328	348	284	284	251	315	392	369	1,082	1,244	1,327	1,486
Net non-op income	NT\$m	-82	18	66	15	14	15	16	15	86	16	60	67
Pretax income	NT\$m	246	367	349	299	265	330	408	383	1,168	1,260	1,387	1,552
Tax expenses	NT\$m	-7	21	3	9	13	26	20	19	4	27	79	126
Net income	NT\$m	252	345	346	290	252	304	388	364	1,164	1,234	1,308	1,427
EPS	NT\$	2.09	2.87	2.87	2.40	2.09	2.52	3.22	3.02	12.03	10.23	10.85	11.83
Profit margins													
Gross margin	%	46.8	41.2	37.7	38.6	38.5	38.6	38.6	38.5	44.8	40.8	38.6	38.3
Op margin	%	30.8	28.6	22.2	23.1	22.8	24.1	25.4	24.9	28.1	26.0	24.4	24.8
Net margin	%	23.7	28.4	27.0	23.6	22.9	23.2	25.1	24.6	30.3	25.8	24.1	23.8
YoY													
Sales	%	41.9	30.0	24.6	8.5	3.5	7.2	20.7	20.5	38.7	24.6	13.4	10.4
Op profit	%	75.8	49.5	-12.1	-16.4	-23.4	-9.5	38.2	29.8	71.4	15.0	6.7	12.0
Net profit	%	22.3	33.9	8.3	-23.7	-0.1	-12.1	12.1	25.7	69.2	6.0	6.0	9.1
QoQ													
Sales	%	-6.1	14.6	5.0	-4.0	-10.5	18.7	18.2	-4.2				
Op profit	%	-3.5	6.3	-18.6	0.1	-11.5	25.4	24.4	-6.0				
Net profit	%	-33.6	36.9	0.1	-16.2	-13.0	20.4	27.7	-6.1				
BONUS EXP.		1Q08A	2Q08A	3Q08A	4Q08F	1Q09F	2Q09F	3Q09F	4Q09F	2007A	2008F	2009F	2010F
Net sales	NT\$m	1,063	1,218	1,280	1,229	1,100	1,306	1,545	1,480	3,845	4,790	5,431	5,998
COGS	NT\$m	565	716	798	754	676	802	949	910	2,123	2,833	3,337	3,703
Gross profit	NT\$m	498	502	482	474	424	505	596	570	1,722	1,956	2,094	2,295
OP expense	NT\$m	198	276	285	263	236	265	301	292	839	1,021	1,094	1,166
Op income	NT\$m	300	227	197	212	188	239	295	278	883	935	1,000	1,129
Net non-op income	NT\$m	-82	18	66	15	14	15	16	15	86	16	60	67
Pretax income	NT\$m	218	245	263	226	202	254	311	292	969	952	1,060	1,196
Tax expenses	NT\$m	-7	21	3	9	13	26	20	19	4	27	79	126
Net income	NT\$m	225	224	259	217	189	228	291	273	965	925	981	1,070
EPS	NT\$	1.86	1.86	2.15	1.80	1.57	1.89	2.41	2.27	9.98	7.67	8.14	8.87
Profit margins													
Gross margin	%	46.8	41.2	37.7	38.6	38.5	38.6	38.6	38.5	44.8	40.8	38.6	38.3
Op margin	%	28.2	18.6	15.4	17.2	17.1	18.3	19.1	18.8	23.0	19.5	18.4	18.8
Net margin	%	21.1	18.4	20.3	17.7	17.2	17.4	18.8	18.5	25.1	19.3	18.1	17.8
YoY													
Sales	%	41.9	30.0	24.6	8.5	3.5	7.2	20.7	20.5	38.7	24.6	13.4	10.4
Op profit	%	98.5	19.8	-26.5	-23.0	-37.3	5.6	49.7	31.2	78.2	5.9	6.9	12.9
Net profit	%	31.3	4.5	-2.0	-31.0	-15.8	1.8	12.1	25.7	74.8	-4.1	6.0	9.1
QoQ													
Sales	%	-6.1	14.6	5.0	-4.0	-10.5	18.7	18.2	-4.2				
Op profit	%	9.2	-24.5	-13.0	7.3	-11.1	27.1	23.4	-5.9				
Net profit	%	-28.7	-0.4	16.0	-16.2	-13.0	20.4	27.7	-6.1				

Source: Company data, Macquarie Research, October 2008

Ralink Technology (3534 TT, Underperform, Target price: NT\$82.00)

Quarterly Results		2Q/08A	3Q/08E	4Q/08E	1Q/09E	Profit & Loss					
						2007A	2008E	2009E	2010E		
Revenue	m	1,218	1,280	1,229	1,100	Revenue	m	3,845	4,790	5,431	5,998
Gross Profit	m	502	482	474	424	Gross Profit	m	1,722	1,956	2,094	2,295
Operating Expenses	m	-276	-285	-263	-236	Operating Expenses	m	-640	-1,021	-1,094	-1,166
Operating Income	m	227	197	212	188	Operating Income	m	1,082	935	1,000	1,129
Net Non-operating income	m	18	66	15	14	Net Non-operating income	m	86	16	60	67
Pre-Tax Income	m	245	263	226	202	Pre-Tax Income	m	1,168	952	1,060	1,196
Tax Expense	m	-21	-3	-9	-13	Tax Expense	m	-4	-27	-79	-126
Exceptionals	m	0	0	0	0	Exceptionals	m	0	0	0	0
Minority Interests	m	0	0	0	0	Minority Interests	m	0	0	0	0
Reported Earnings	m	224	259	217	189	Reported Earnings	m	1,164	925	981	1,070
Reported Earnings (bonus exp)	m	224	259	217	189	Reported Earnings (bonus exp)	m	1,164	925	981	1,070
Bonus exp / Reported Earnings	%					Bonus exp / Reported Earnings	%				
Adjusted Earnings	m	224	259	217	189	Adjusted Earnings	m	965	925	981	1,070
EBITDA	m	269	242	254	226	EBITDA	m	1,184	1,101	1,189	1,338
EPS (rep)	NT\$	1.86	2.15	1.80	1.57	EPS (rep)	NT\$	12.03	7.67	8.14	8.87
EPS pcg growth (rep)	%	-30.4	-34.8	-54.1	-15.8	EPS growth (rep)	%	58.4	-36.2	6.0	9.1
EPS (rep bonus exp)	NT\$	1.86	2.15	1.80	1.57	EPS (rep bonus exp)	NT\$	12.03	7.67	8.14	8.87
EPS pcg growth (rep bonus exp)	%	-30.4	-34.8	-54.1	-15.8	EPS growth (rep bonus exp)	%	58.4	-36.2	6.0	9.1
EPS (adj)	NT\$	1.86	2.15	1.80	1.57	EPS (adj)	NT\$	9.98	7.67	8.14	8.87
EPS pcg growth (adj)	%	-16.1	-21.4	-44.7	-15.8	EPS growth (adj)	%	63.7	-23.1	6.0	9.1
Revenue pcg growth	%	30.0	24.6	8.5	3.5	PE (rep)	x	9.0	14.1	13.3	12.2
Operating Income pcg growth	%	-2.8	-38.9	-37.7	-37.3	PE (rep bonus adj)	x	9.0	14.1	13.3	12.2
Reported Earnings pcg growth	%	-13.3	-18.8	-42.8	-15.8	PE (adj)	x	10.8	14.1	13.3	12.2
Gross Profit Margin	%	41.2	37.7	38.6	38.5	Total DPS	NT\$	3.95	4.50	5.31	6.19
Operating Income Margin	%	18.6	15.4	17.2	17.1	Total Div Yield	%	3.7	4.2	4.9	5.7
Reported Earnings Margin	%	18.4	20.3	17.7	17.2	Weighted Average Shares	m	96.8	120.6	120.6	120.6
EBITDA Margin	%	22.1	18.9	20.7	20.6	Period End Shares	m	96.8	120.6	120.6	120.6
Profit and Loss Ratios		2007A	2008E	2009E	2010E	Cashflow Analysis		2007A	2008E	2009E	2010E
Revenue Growth	%	38.7	24.6	13.4	10.4	Reported Earnings	m	1,164	925	981	1,070
Gross Profit Growth	%	53.2	13.6	7.1	9.6	Depreciation & Amortisation	m	102	166	189	209
Operating Income Growth	%	71.4	-13.5	6.9	12.9	Chgs in Working Cap	m	-478	119	-211	-42
Reported Earnings Growth	%	69.2	-20.5	6.0	9.1	Other	m	199	245	238	279
EBITDA Growth	%	72.7	-7.0	7.9	12.5	Operating Cashflow	m	988	1,455	1,197	1,516
Gross Profit Margin	%	44.8	40.8	38.6	38.3	Acquisitions	m	0	26	19	21
Operating Income Margin	%	28.1	19.5	18.4	18.8	Capex	m	-44	-16	-10	-11
Reported Earnings Margin	%	30.3	19.3	18.1	17.8	Asset Sales	m	0	-12	0	0
EBITDA Margin	%	30.8	23.0	21.9	22.3	Other	m	-188	-278	-218	-228
Payout Ratio	%	39.6	58.6	65.2	69.8	Investing Cashflow	m	-232	-279	-209	-219
EV/EBITDA	x	5.2	8.1	7.6	6.7	Dividend (Ordinary)	m	-266	-500	-542	-640
EV/EBIT	x	5.6	9.5	9.0	8.0	Equity Raised	m	585	1,214	0	0
Balance Sheet Ratios						Debt Movements	m	-0	0	0	0
ROE	%	38.1	22.9	19.6	19.6	Other	m	-3	-121	-183	-228
ROA	%	33.0	18.6	16.1	16.6	Financing Cashflow	m	317	593	-726	-868
ROIC	%	129.8	72.7	92.4	85.8	Net Chg in Cash/Debt	m	1,072	1,769	262	430
Net Debt/Equity	%	-61.9	-79.1	-77.5	-79.2	Free Cashflow	m	943	1,439	1,187	1,505
Interest Cover	x	nmf	nmf	nmf	nmf	FCF per Share	NT\$	9.75	11.94	9.84	12.48
Price/Book	x	3.2	2.7	2.5	2.3	P/FCF	x	11.1	9.0	11.0	8.7
Book Value per Share	NT\$	33.9	39.8	43.4	47.0	Balance Sheet		2007A	2008E	2009E	2010E
						Cash	m	2,029	3,797	4,060	4,490
						Receivables	m	1,106	820	988	1,020
						Inventories	m	473	618	746	774
						Investments	m	0	0	0	0
						Fixed Assets	m	65	80	90	101
						Intangibles	m	96	100	100	100
						Other Assets	m	384	494	536	581
						Total Assets	m	4,153	5,909	6,519	7,065
						Payables	m	428	406	490	509
						Short Term Debt	m	0	0	0	0
						Long Term Debt	m	0	0	0	0
						Provisions	m	0	0	0	0
						Other Liabilities	m	446	704	791	889
						Total Liabilities	m	874	1,111	1,282	1,398
						Total S/H Equity	m	3,278	4,798	5,237	5,667
						Total Liab & S/H Funds	m	4,153	5,909	6,519	7,065

All figures in NT\$ unless noted.
Source: Macquarie Research, October 2008

Important disclosures:

Recommendation definitions	Volatility index definition*	Financial definitions
<p>Macquarie - Australia/New Zealand Outperform – return >5% in excess of benchmark return (>2.5% in excess for listed property trusts) Neutral – return within 5% of benchmark return (within 2.5% for listed property trusts) Underperform – return >5% below benchmark return (>2.5% below for listed property trusts)</p> <p>Macquarie – Asia/Europe Outperform – expected return >+10% Neutral – expected return from -10% to +10% Underperform – expected return <-10%</p> <p>Macquarie First South - South Africa Outperform – expected return >+10% Neutral – expected return from -10% to +10% Underperform – expected return <-10%</p> <p>Macquarie – Canada Outperform – return >5% in excess of benchmark return Neutral – return within 5% of benchmark return Underperform – return >5% below benchmark return</p> <p>Macquarie – USA Outperform (Buy) – return >5% in excess of benchmark return Neutral (Hold) – return within 5% of benchmark return Underperform (Sell) – return >5% below benchmark return</p> <p>Recommendations – 12 months</p> <p>Note: Quant recommendations may differ from Fundamental Analyst recommendations</p>	<p>This is calculated from the volatility of historic price movements.</p> <p>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.</p> <p>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.</p> <p>Medium – stock should be expected to move up or down at least 30–40% in a year.</p> <p>Low–medium – stock should be expected to move up or down at least 25–30% in a year.</p> <p>Low – stock should be expected to move up or down at least 15–25% in a year.</p> <p>* Applicable to Australian/NZ stocks only</p>	<p>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</p> <p>EPS = adjusted net profit / epowa* 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</p> <p>All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).</p>

Recommendation proportions – For quarter ending 30 September 2008

	AU/NZ	Asia	RSA	USA	CA	EUR
Outperform	43.17%	61.57%	63.08%	53.60%	71.54%	43.00%
Neutral	41.37%	16.43%	30.77%	37.60%	24.61%	48.00%
Underperform	15.47%	22.00%	6.15%	8.80%	3.85%	9.00%

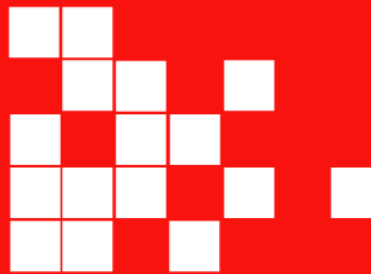
Analyst Certification: The views expressed in this research accurately reflect the personal views of the analyst(s) about the subject securities or issuers and no part of the compensation of the analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations or views in this research. The analyst principally responsible for the preparation of this research receives compensation based on overall revenues of Macquarie Group Ltd ABN 94 122 169 279 (AFSL No. 318062)(MGL) and its related entities (the Macquarie Group) and has taken reasonable care to achieve and maintain independence and objectivity in making any recommendations.

Disclaimers: Macquarie Securities (Australia) Ltd; Macquarie Capital (Europe) Ltd; Macquarie Capital Markets Canada Ltd; Macquarie Capital Markets North America Ltd; Macquarie Capital (USA) Inc; Macquarie Capital Securities Ltd; Macquarie Capital Securities (Singapore) Pte Ltd; Macquarie Securities (NZ) Ltd; and Macquarie First South Securities (Pty) Limited are not authorised deposit-taking institutions for the purposes of the Banking Act 1959 (Commonwealth of Australia), and their obligations do not represent deposits or other liabilities of Macquarie Bank Limited ABN 46 008 583 542 (MBL) or MGL. MBL does not guarantee or otherwise provide assurance in respect of the obligations of any of the above mentioned entities. MGL provides a guarantee to the Monetary Authority of Singapore in respect of the obligations and liabilities of Macquarie Capital Securities (Singapore) Pte Ltd for up to SGD 35 million. This research has been prepared for the general use of the wholesale clients of the Macquarie Group and must not be copied, either in whole or in part, or distributed to any other person. If you are not the intended recipient you must not use or disclose the information in this research in any way. Nothing in this research shall be construed as a solicitation to buy or sell any security or product, or to engage in or refrain from engaging in any transaction. In preparing this research, we did not take into account the investment objectives, financial situation and particular needs of the reader. Before making an investment decision on the basis of this research, the reader needs to consider, with or without the assistance of an adviser, whether the advice is appropriate in light of their particular investment needs, objectives and financial circumstances. There are risks involved in securities trading. The price of securities can and does fluctuate, and an individual security may even become valueless. International investors are reminded of the additional risks inherent in international investments, such as currency fluctuations and international stock market or economic conditions, which may adversely affect the value of the investment. This research is based on information obtained from sources believed to be reliable but we do not make any representation or warranty that it is accurate, complete or up to date. We accept no obligation to correct or update the information or opinions in it. Opinions expressed are subject to change without notice. No member of the Macquarie Group accepts any liability whatsoever for any direct, indirect, consequential or other loss arising from any use of this research and/or further communication in relation to this research.

Other Disclaimers: In Canada, securities research is prepared, approved and distributed by Macquarie Capital Markets Canada Ltd, a participating organisation of the Toronto Stock Exchange, TSX Venture Exchange & Montréal Exchange. Macquarie Capital Markets North America Ltd., which is a registered broker-dealer and member of FINRA, accepts responsibility for the contents of reports issued by Macquarie Capital Markets Canada Ltd in the United States and to US persons and any person wishing to effect transactions in the securities described in the reports issued by Macquarie Capital Markets Canada Ltd should do so with Macquarie Capital Markets North America Ltd. Securities research is issued and distributed by Macquarie Securities (Australia) Ltd (AFSL No. 238947) in Australia, a participating organisation of the Australian Securities Exchange; Macquarie Securities (NZ) Ltd in New Zealand, a licensed sharebroker and New Zealand Exchange Firm; Macquarie Capital (Europe) Ltd in the United Kingdom, which is authorised and regulated by the Financial Services Authority (No. 193905); Macquarie Capital Securities Ltd in Hong Kong, which is licensed and regulated by the Securities and Futures Commission; Macquarie Capital Securities (Japan) Limited in Japan, a member of the Tokyo Stock Exchange, Inc., Osaka Securities Exchange Co. Ltd, and Jasdak Securities Exchange, Inc. (Financial Instruments Firm, Kanto Financial Bureau(kin-sho) No. 231, a member of Japan securities Dealers Association and Financial Futures Association of Japan); Macquarie First South Securities (Pty) Limited in South Africa, a member of the JSE Limited and in Singapore, Macquarie Capital Securities (Singapore) Pte Ltd (Company Registration Number: 198702912C), a Capital Markets Services licence holder under the Securities and Futures Act to deal in securities and provide custodial services in Singapore. Pursuant to the Financial Advisers (Amendment) Regulations 2005, Macquarie Capital Securities (Singapore) Pte Ltd is exempt from complying with sections 25, 27 and 36 of the Financial Advisers Act. Clients should contact analysts at, and execute transactions through, a Macquarie Group entity in their home jurisdiction unless governing law permits otherwise. Macquarie Capital (USA) Inc., which is a registered broker-dealer and member of FINRA, accepts responsibility for the content of each research report prepared by one of its non-US affiliates when the research report is distributed in the United States by Macquarie Capital (USA) Inc. Macquarie Capital (USA) Inc. affiliate research reports and affiliate employees are not subject to the disclosure requirements of FINRA rules. Any persons receiving this report directly from Macquarie Capital (USA) Inc. and wishing to effect a transaction in any security described herein should do so with Macquarie Capital (USA) Inc. The information contained in this document is confidential. If you are not the intended recipient, you must not disclose or use the information in this document in any way. If you received it in error, please tell us immediately by return e-mail and delete the document. We do not guarantee the integrity of any e-mails or attached files and are not responsible for any changes made to them by any other person. MGL has established and implemented a conflicts policy at group level (which may be revised and updated from time to time) (the "Conflicts Policy") pursuant to regulatory requirements (including the FSA Rules) which sets out how we must seek to identify and manage all material conflicts of interest. Disclosures with respect to the issuers, if any, mentioned in this research are available at www.macquarie.com/research/disclosures. © Macquarie Group

Auckland Tel: (649) 377 6433	Bangkok Tel: (662) 694 7999	Calgary Tel: (1 403) 218 6650	Hong Kong Tel: (852) 2823 3588	Jakarta Tel: (62 21) 515 1818	Johannesburg Tel: (27 11) 343 2258	Kuala Lumpur Tel: (60 3) 2059 8833
London Tel: (44 20) 3037 4400	Manila Tel: (63 2) 857 0888	Melbourne Tel: (613) 9635 8139	Montreal Tel: (1 514) 925 2850	Mumbai Tel: (91 22) 6653 3000	Perth Tel: (618) 9224 0888	Seoul Tel: (82 2) 3705 8500
Shanghai Tel: (86 21) 6841 3355	Singapore Tel: (65) 6231 1111	Sydney Tel: (612) 8232 9555	Taipei Tel: (886 2) 2734 7500	Tokyo Tel: (81 3) 3512 7900	Toronto Tel: (1 416) 848 3500	New York Tel: (1 212) 231 2500

Available to clients on the world wide web at www.macquarie.com/research and through Thomson Financial, FactSet, Reuters and Bloomberg.



Asia Research

Head of Equity Research

Stephen O'Sullivan (852) 2823 3566

Automobiles/Auto Parts

Deepak Jain (India) (9122) 6653 3157
Kenneth Yap (Indonesia) (6221) 515 7343
Dan Lucas (Japan) (813) 3512 6050
Eunsook Kwak (Korea) (822) 3705 8644
Linda Huang (Taiwan) (8862) 2734 7521

Banks and Non-Bank Financials

Ismael Pili (Asia) (65) 6231 2840
Nick Lord (Asia, China, Hong Kong) (852) 2823 4774
Sarah Wu (China) (8621) 2412 9035
Seshadri Sen (India) (9122) 6653 3053
Ferry Wong (Indonesia) (6221) 515 7335
Chin Seng Tay (Malaysia, S'pore) (65) 6231 2837
Nadine Javellana (Philippines) (632) 857 0890
Matthew Smith (Taiwan) (8862) 2734 7514
Alastair Macdonald (Thailand) (662) 694 7741

Chemicals/Textiles

Scott Weaver (Taiwan) (8862) 2734 7512
Jal Irani (India) (9122) 6653 3040
Christina Lee (Korea) (822) 3705 8670
Sunaina Dhanuka (Malaysia) (603) 2059 8993

Conglomerates

Gary Pinge (Asia) (852) 2823 3557
Leah Jiang (China) (8621) 2412 9020
Kenneth Yap (Indonesia) (6221) 515 7343
Ashwin Sanketh (Singapore) (65) 6231 2830

Consumer

Mohan Singh (Asia) (852) 3901 1111
Jessie Qian (China, Hong Kong) (852) 2823 3568
Charles Yan (China) (8621) 2412 9033
Unmesh Sharma (India) (9122) 6653 3042
Sarina Lesmina (Indonesia) (6221) 515 7339
Duane Sandberg (Japan) (813) 3512 7867
Toby Williams (Japan) (813) 3512 7392
Heather Kang (Korea) (822) 3705 8677
HongSuk Na (Korea) (822) 3705 8678
Edward Ong (Malaysia) (603) 2059 8982
Alex Pomento (Philippines) (632) 857 0899
Linda Huang (Taiwan) (8862) 2734 7521

Emerging Leaders

Jake Lynch (Asia) (8621) 2412 9007
Hui-Lui Ko (China) (852) 2823 4704
Minoru Tayama (Japan) (813) 3512 6058
Robert Burghart (Japan) (813) 3512 7853
Heather Kang (Korea) (822) 3705 8677
Scott Weaver (Taiwan) (8862) 2734 7512

Industrials

Bin Liu (China) (8621) 2412 9006
Inderjeetsingh Bhatia (India) (9122) 6653 3166
Christopher Cintavey (Japan) (813) 3512 7432
Janet Lewis (Japan) (813) 3512 7475
Michael Na (Korea) (822) 2095 7222
Sunaina Dhanuka (Malaysia) (603) 2059 8993
David Gambrill (Thailand) (662) 694 7753

Sales

Regional Heads of Sales

Peter Slater (Boston) (1 617) 217 2103
Michelle Paisley (China, Hong Kong) (852) 2823 3516
Ulrike Pollak-Tsutsumi (Frankfurt) (49) 69 7593 8747
Thomas Renz (Geneva) (41) 22 818 7712
Ajay Bhatia (India) (9122) 6653 3200
Stuart Smythe (India) (9122) 6653 3200
Chris Gray (Indonesia) (6221) 515 7304
K.Y. Nam (Korea) (822) 3705 8607
Lena Yong (Malaysia) (603) 2059 8888
Gino C Rojas (Philippines) (632) 857 0761
Greg Norton-Kidd (New York) (1 212) 231 2527
Luke Sullivan (New York) (1 212) 231 2507

Insurance

Mark Kellock (Asia) (852) 2823 3567
Seshadri Sen (Asia, India) (9122) 6653 3053
Makarim Salman (Japan) (813) 3512 7421

Media

Jessie Qian (China, Hong Kong) (852) 2823 3568
Shubham Majumder (India) (9122) 6653 3049
Prem Jearajasingam (Malaysia) (603) 2059 8989
Alex Pomento (Philippines) (632) 857 0899

Oil and Gas

David Johnson (Asia, China) (852) 2823 4691
Scott Weaver (Taiwan) (8862) 2734 7512
Jal Irani (India) (9122) 6653 3040
Christina Lee (Korea) (822) 3705 8670
Edward Ong (Malaysia) (603) 2059 8982
Sunaina Dhanuka (Malaysia) (603) 2059 8993
Ashwin Sanketh (Singapore) (65) 6231 2830
Trevor Buchinski (Thailand) (662) 694 7728

Pharmaceuticals

Abhishek Singhal (India) (9122) 6653 3052
Naomi Kumagai (Japan) (813) 3512 7474
Christina Lee (Korea) (822) 3705 8670

Property

Matt Nacard (Asia) (852) 2823 4731
Eva Lee (China, Hong Kong) (852) 2823 3573
Tata Goeyardi (Hong Kong) (852) 2823 4077
Unmesh Sharma (India) (9122) 6653 3042
Chang Han Joo (Japan) (813) 3512 7885
Hiroshi Okubo (Japan) (813) 3512 7433
Tuck Yin Soong (Singapore) (65) 6231 2838
Elaine Cheong (Singapore) (65) 6231 2839
Corinne Jian (Taiwan) (8862) 2734 7522
Patti Tomaitrichitr (Thailand) (662) 694 7727

Resources / Metals and Mining

Andrew Dale (Asia) (852) 2823 3587
YeeMan Chin (China) (852) 2823 3562
Rakesh Arora (India) (9122) 6653 3054
Adam Worthington (Indonesia) (6221) 515 7338
Polina Diyachkina (Japan) (813) 3512 7886
Christina Lee (Korea) (822) 3705 8670
Scott Weaver (Taiwan) (8862) 2734 7512

Technology

Warren Lau (Asia) (852) 2823 3592
Kishore Belai (India) (9122) 6653 3046
Damian Thong (Japan) (813) 3512 7877
David Gibson (Japan) (813) 3512 7880
George Chang (Japan) (813) 3512 7854
Yoshihiro Shimada (Japan) (813) 3512 7862
Yukihiro Goto (Japan) (813) 3512 5984
Do Hoon Lee (Korea) (822) 3705 8641
Michael Bang (Korea) (822) 3705 8659
Patrick Yau (Singapore) (65) 6231 2835
Andy Kung (Taiwan) (8862) 2734 7534
Chia-Lin Lu (Taiwan) (8862) 2734 7526
Daniel Chang (Taiwan) (8862) 2734 7516
James Chiu (Taiwan) (8862) 2734 7517
Nicholas Teo (Taiwan) (8862) 2734 7523

Telecoms

Tim Smart (Asia, China) (852) 2823 3565
Shubham Majumder (India) (9122) 6653 3049
Kenneth Yap (Indonesia) (6221) 515 7343
Nathan Ramler (Japan) (813) 3512 7875
Prem Jearajasingam (Malaysia) (603) 2059 8989
Ramakrishna Maruvada (Philippines, Singapore, Thailand) (65) 6231 2842

Regional Heads of Sales cont'd

Scot Mackie (New York) (1 212) 231 2848
Sheila Schroeder (San Francisco) (1 415) 835 1235
Giles Heyring (Singapore) (65) 6231 2888
Mark Duncan (Taiwan) (8862) 2734 7510
Angus Kent (Thailand) (662) 694 7601
Michael Newman (Tokyo) (813) 3512 7920
Charles Nelson (UK/Europe) (44) 20 7065 2032
Rob Fabbro (UK/Europe) (44) 20 7065 2031

Sales Trading

Adam Zaki (North Asia) (852) 2823 3528
Duncan Rutherford (ASEAN, India) (65) 6231 2888
Mona Lee (Hong Kong) (852) 2823 3519

Transport & Infrastructure

Anderson Chow (Asia, China) (852) 2823 4773
Jonathan Windham (Asia, China) (852) 2823 5417
Tim Bacchus (Asia, China) (852) 2823 3586
Wei Sim (China, Hong Kong) (852) 2823 3598
Eunsook Kwak (Korea) (822) 3705 8644
Sunaina Dhanuka (Malaysia) (603) 2059 8993

Utilities

Carol Cao (China, Hong Kong) (852) 2823 4075
Deepak Jain (India) (9122) 6653 3157
Adam Worthington (Indonesia) (6221) 515 7338
Prem Jearajasingam (Malaysia) (603) 2059 8989
Alex Pomento (Philippines) (632) 857 0899

Commodities

Jim Lennon (4420) 7065 2014
Adam Rowley (4420) 7065 2013
Jonathan Butcher (4420) 7065 5938
Max Layton (4420) 7065 2000
Bonnie Liu (8621) 2412 9008
Henry Liu (8621) 2412 9005
Rakesh Arora (9122) 6653 3054

Data Services

Andrea Clohessy (Asia) (852) 2823 4076

Economics

Bill Belchere (Asia) (852) 2823 4636
Rajeev Malik (ASEAN, India) (65) 6231 2841
Richard Gibbs (Australia) (612) 8232 3935
Paul Cavey (China) (852) 2823 3570
Richard Jerram (Japan) (813) 3512 7855

Quantitative

Martin Emery (Asia) (852) 2823 3582
Viking Kwok (Asia) (852) 2823 4735
George Platt (Australia) (612) 8232 6539
Raelene de Souza (Australia) (612) 8232 8388
Tsumugi Akiba (Japan) (813) 3512 7560

Strategy/Country

Tim Rocks (Asia) (852) 2823 3585
Daniel McCormack (Asia) (852) 2823 4073
Desh Peramunetilleke (Asia) (852) 2823 3564
Mahesh Kedia (Asia) (852) 2823 3576
Stewart Ferns (Asia) (852) 2823 4068
Michael Kurtz (China) (8621) 2412 9002
Seshadri Sen (India) (9122) 6653 3053
Ferry Wong (Indonesia) (6221) 515 7335
Chris Hunt (Japan) (813) 3512 7878
Peter Eadon-Clarke (Japan) (813) 3512 7850
Eugene Ha (Korea) (822) 3705 8643
Prem Jearajasingam (Malaysia) (603) 2059 8989
Edward Ong (Malaysia) (603) 2059 8982
Alex Pomento (Philippines) (632) 857 0899
Tuck Yin Soong (ASEAN, Singapore) (65) 6231 2838
Daniel Chang (Taiwan) (8862) 2734 7516
Alastair Macdonald (Thailand) (662) 694 7741

Find our research at

Macquarie: www.macquarie.com.au/research
Thomson: www.thomson.com/financial
Reuters: www.knowledge.reuters.com
Bloomberg: MAC GO
Factset: <http://www.factset.com/home.aspx>
Email macresearch@macquarie.com for access

Sales Trading cont'd

Stuart Goddard (Europe) (44) 20 7065 2033
Brendan Rake (India) (9122) 6653 3204
Edward Robinson (London) (44) 20 7065 5883
Robert Risman (New York) (1 212) 231 2555
Isaac Huang (Taiwan) (8862) 2734 7582
Jon Omori (Tokyo) (813) 3512 7838

Alternative Strategies

Convertibles - Roland Sharman (852) 2823 4628
Depository Receipts - Robert Ansell (852) 2823 4688
Derivatives - Tim Connolly (852) 2249 3380
Futures - Tim Smith (852) 2823 4637
Hedge Fund Sales - Darin Lester (852) 2823 4736
Structured Products - Andrew Terlich (852) 2249 3225