

BUY (Unchanged)

Change in Numbers

TP: Bt 19.00 (From: Bt 17.00)**Upside : 39.7%****16 AUGUST 2022**

Banpu Public Co Ltd (BANPU TB)

Just getting started

We reaffirm our BUY on BANPU and lift our TP to Bt19 from Bt17 on an improving long-term coal and gas price outlook. The stock remains attractively valued at 3x 2023F PE (lower end of trading range). Strong sequential earnings growth in 3Q-4Q22F is a key catalyst.

**CHAK REUNGSINPINYA**

662-779-9104

chak.reu@thanachartsec.co.th

New records for coal demand

We raise our NEX coal price assumptions to USD300/250/200/180/tonne in 2022-25F from previously USD200/180/150/120/tonne. Based on the IEA's forecast, coal demand is likely to retest its record high in 2022 at 8.01bn tonnes, up 0.7% y-y and following a sharp recovery of 6% y-y in 2021. Demand is likely to grow further in 2023F, reaching a new record of 8.03bn tonnes. Given this strong demand backdrop, limited supplies, the high natural gas price (where coal is a substitute), and trade flow disruptions because of the conflict in Ukraine, we believe coal prices will remain high for the foreseeable future.

US natural gas market to remain tight

We have raised our estimates for BANPU's realized Henry Hub gas price (net of hedging impact) to USD4.3/4.5/4.5/4.6/mmbtu in 2022-25F, up about USD0.5-0.7/mmbtu from previously. We believe the US natural gas market will remain tight for the rest of this year and into early 2023F. Even if the spot price were to drop next year due to greater supply, BANPU's realized price is likely to increase from the 2022F level due to a lower hedged position.

Hedged positions to decline in 2023F

BANPU's hedged positions for both coal and gas continue to decline, meaning the company has chosen to let existing hedges roll off without entering into new ones. For coal, the remaining coal swap position is only 165k tonnes at end-2Q22 (vs. 450k tonnes at end-1Q22). This means there's unlikely to be any more coal hedging loss starting in 2023F. For gas, the hedged position is 216m MMBTU at end-2Q22, up 11% from the end-1Q22 level. However, this includes positions from the newly acquired XTO which will likely contribute 30% production growth from 3Q22F onwards. In other words, the hedged position relative to production volume will decline vs. pre-merger level. The company has yet to do any hedging for 2024F.

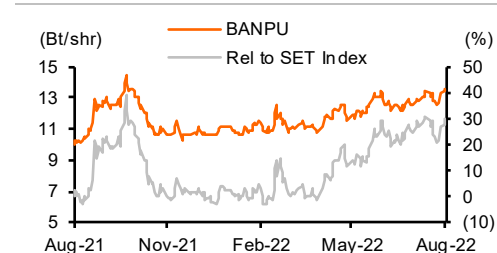
We see value that can't be beaten

BANPU is trading at 3x forward PE and 2x EV/EBITDA, which is already at the very bottom of its trading range. We have raised our DCF-derived SOTP-based 12-month TP to Bt19 from Bt17 given the strong long-term earnings outlook based on higher coal and gas prices. Note that to better reflect the market's perception of the stock, we have increased our beta assumption to 2.0x from 1.5x, pushing our cost of equity to 18.5-19.5% and our WACC to 11.3-12.2% throughout the forecast periods.

COMPANY VALUATION

Y/E Dec (Bt m)	2021A	2022F	2023F	2024F
Sales	133,190	196,356	195,658	165,808
Net profit	9,852	33,864	35,487	24,500
Consensus NP	—	32,258	26,339	21,538
Diff frm cons (%)	—	5.0	34.7	13.8
Norm profit	7,520	33,864	35,487	24,500
Prev. Norm profit	—	22,759	23,249	20,138
Chg frm prev (%)	—	48.8	52.6	21.7
Norm EPS (Bt)	1.4	4.7	4.0	2.4
Norm EPS grw (%)	na	245.3	(15.2)	(39.6)
Norm PE (x)	10.0	2.9	3.4	5.6
EV/EBITDA (x)	4.9	2.2	1.9	2.3
P/BV (x)	1.2	1.0	0.9	0.9
Div yield (%)	3.3	11.8	10.3	7.1
ROE (%)	10.6	35.2	27.2	15.9
Net D/E (%)	152.1	70.6	34.1	16.2

PRICE PERFORMANCE



COMPANY INFORMATION

Price as of 16-Aug-22 (Bt)	13.60
Market Cap (US\$ m)	2,596.0
Listed Shares (m shares)	6,766.1
Free Float (%)	90.2
Avg Daily Turnover (US\$ m)	50.8
12M Price H/L (Bt)	14.50/10.00
Sector	Energy
Major Shareholder	Vongkusolkit family 8.55%

Sources: Bloomberg, Company data, Thanachart estimates

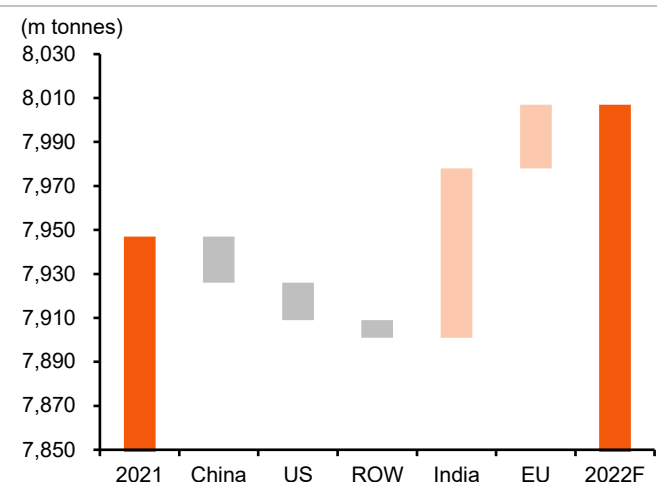
New records for coal demand

Global coal demand likely to reach a new record high in 2023F

Based on the IEA's forecast, coal demand is likely to retest its record high in 2022 at 8.01bn tons, up 0.7% y-y and following a sharp recovery of 6% y-y in 2021. Most of this growth is driven by India and the EU where demand is set to grow by 77m tonnes and 29m tonnes, respectively. Growth in these two regions is more than enough to offset declines in China (mostly due to lockdowns in 1H22), the US and the rest of the world.

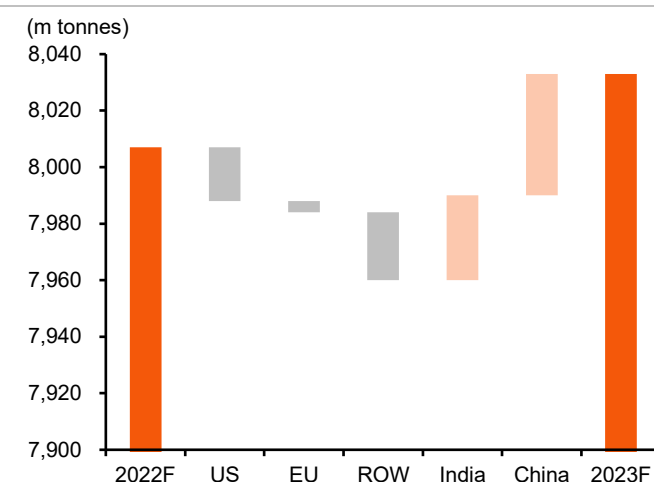
Demand is likely to grow further in 2023F, reaching a new record of 8.03bn tonnes. Again, India is likely to be a major driver with demand growing by another 30m tonnes while China's recovery could see demand there growing by over 40m tonnes. These two major consumers could more than offset potential demand declines elsewhere.

Ex 1: Coal Demand Growth 2022F



Sources: IEA, Thanachart estimates

Ex 2: Coal Demand Growth 2023F

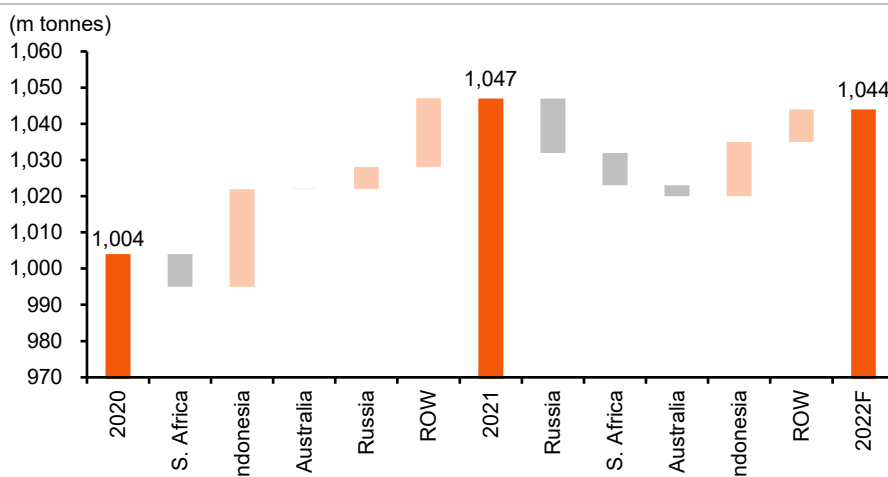


Sources: IEA, Thanachart estimates

While total demand is set to grow by about 60m tonnes in 2022F, global seaborne supply is likely to shrink by about 3m tonnes this year after having grown by over 40m tonnes (4%) in 2021. The lower seaborne supply is driven by declines in Russia (sanction impacts), South Africa and Australia (logistical issues, rain). Meanwhile, supply growth from Indonesia and the rest of the world is not enough to offset those declines.

Shrinking seaborne coal supply in 2022F due to logistical issues and EU's ban on Russian coal

Ex 3: Seaborne Coal Supply To Decline In 2022F

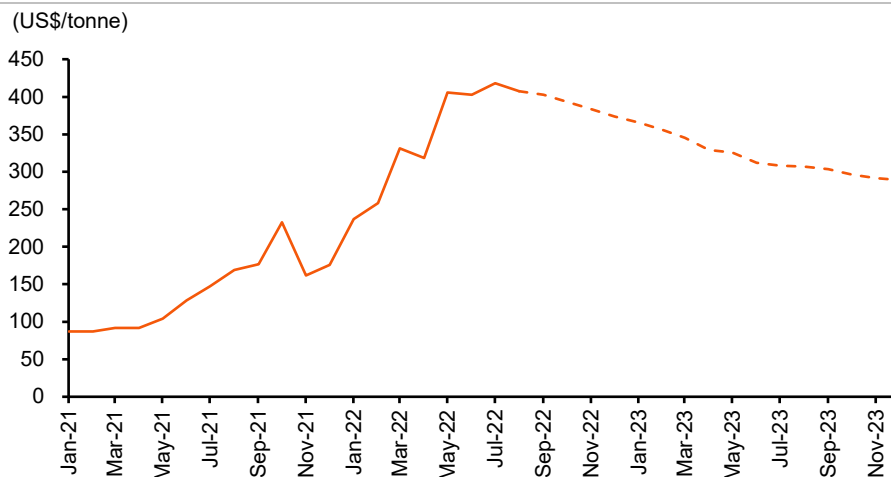


Sources: Company data, Thanachart estimates

The tightening global demand/supply balance and disruptions due to the conflict in Ukraine have combined to drive up the NEX coal price to USD400/tonne or more. We think coal prices will remain elevated through the end of winter 2022/23. In fact, the futures market is pricing in a coal price of above USD300/tonne over the next 12 months and above USD250/tonne beyond.

We expect coal prices to stay elevated through at least end-2023F

Ex 4: NEX Coal Price And Futures



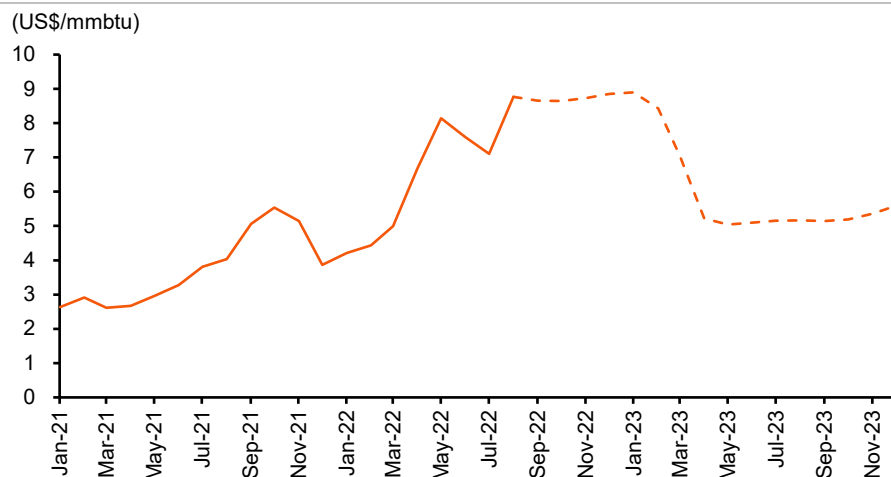
Sources: Company data, Bloomberg

US natural gas market to remain tight

US gas price likely to stay high through the end of coming winter

We expect the US natural gas price at Henry Hub to remain elevated for the remainder of this year and into 1Q23F. As we head into winter, we believe the working gas storage in the US will remain well below its five-year average. However, next year's inventory level could begin to exceed its five-year average as we head into the next injection season (starting April 2023). This is based on the assumption that 1) consumption will decline from a relatively high level in 2022F, and 2) production will continue to grow. The normalized storage level could put some downward pressure on the spot price, though we do not expect the price to correct to the sub-USD3/mmbtu level as we have seen during the downturn.

Ex 5: Henry Hub Price And Futures



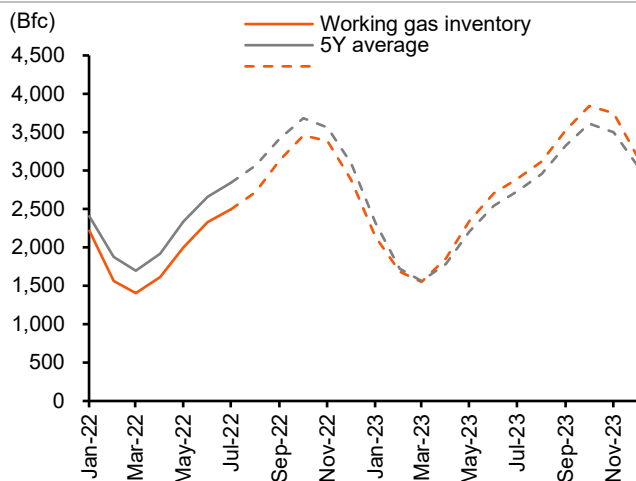
Source: Bloomberg

Hedged positions to decline in 2023F

BANPU's effective gas ASP to increase due to lower hedged portion in 2023F

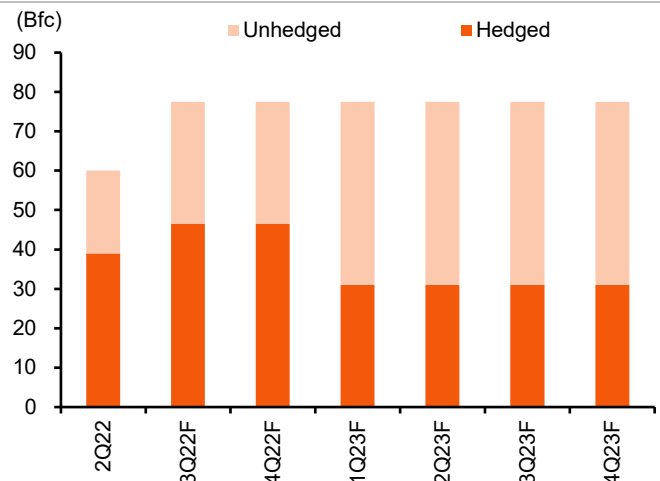
For BANPU, we expect its earnings from the gas business to continue growing in 2H22F and 2023F. This should be driven by additional volume from XTO (30% volume growth) which the company just acquired at the end of 2Q22. BANPU will also benefit from a lower hedged portion as old positions mature and do not get rolled over while XTO itself has a smaller portion of hedging relative to its output.

Ex 6: US Working Gas Storage



Sources: EIA, Thanachart estimates

Ex 7: BANPU's Hedged Portion To Decline In 2023F



Sources: Company data, Thanachart estimates

We raise our NEX coal price assumptions to USD300/250/200/180/tonne over 2022-25F from USD200/180/150/120/tonne previously. For the Henry Hub price, net of BANPU's hedged positions, we have also upgraded our assumptions to USD4.3/4.5/4.5/4.6/mmbtu in 2022-25F, up about USD0.5-0.7/mmbtu from previously. Note that we expect the realized price to increase mainly because of a lower hedged portion. The spot Henry Hub price itself, on the other hand, is likely to decrease from the very high level this year though it should still be much higher than during the downturn.

We have upgraded our coal and gas price assumption

Ex 8: Assumption Changes

		2022F	2023F	2024F	2025F
New					
NEX coal price	(USD/tonne)	300	250	200	180
Henry Hub gas price	(USD/mmbtu)	4.30	4.50	4.50	4.59
Old					
NEX coal price	(USD/tonne)	200	180	150	120
Henry Hub gas price	(USD/mmbtu)	3.70	3.80	4.00	4.08
Change					
NEX coal price	(USD/tonne)	100	70	50	60
Henry Hub gas price	(USD/mmbtu)	0.60	0.70	0.50	0.51

Source: Thanachart estimates

Consequently, we raise our normalized profit estimates (net of hedging losses) by 22-56% in 2022-25F. We also boost our DCF-derived SOTP-based 12-month TP to Bt19 from Bt17 in light of these earnings changes and higher WACC assumption.

Our TP upgrades reflect an improved long-term coal and gas price outlook

Ex 9: EPS And TP Upgrades

(Bt/shr)	Norm EPS				TP
	2022F	2023F	2024F	2025F	
New	4.71	3.99	2.41	2.09	19.00
Old	3.16	2.62	1.98	1.35	17.00
Change (%)	48.8	52.6	21.7	55.5	11.8

Source: Thanachart estimates

For our TP, we have adopted a higher beta assumption (2.0 instead of 1.5 previously). This pushes up cost of equity to the 18.5-19.5% range from 14.5-15.5% previously. We have also raised our cost of debt by 1%ppt to 5.0-6.0%. Consequently, our WACC assumption goes up to 11.3-12.2% throughout the forecast periods from 8.7-9.5% previously. We summarize our discount rate assumption below in Exhibit 10.

We have raised our beta (and therefore WACC) assumption to reflect the market's perception

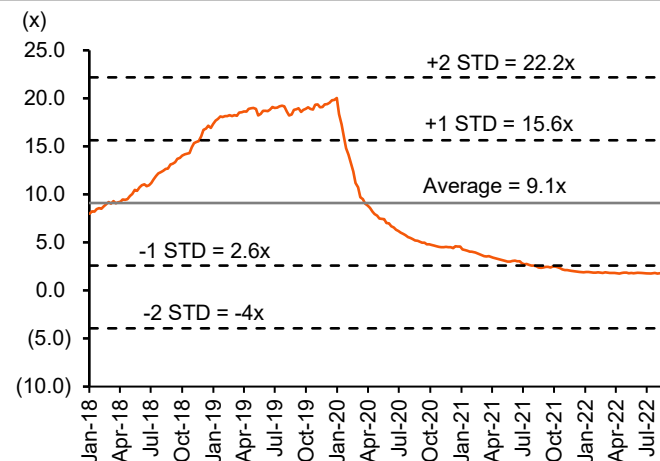
Ex 10: Our Discount Rate Assumption

Year	2020-24	2025-30	2031+TV
Risk-free rate	2.5%	3.0%	3.5%
Market risk premium	8.0%	8.0%	8.0%
Cost of debt	5.0%	5.5%	6.0%
Beta	2.0	2.0	2.0
Cost of equity	18.5%	19.0%	19.5%
WACC	11.3%	11.7%	12.2%

Source: Thanachart estimates

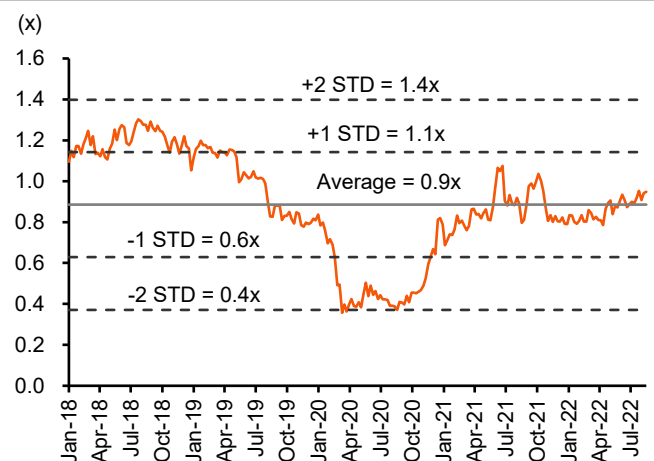
In terms of valuation, BANPU continues to trade at depressed levels relative to its earnings outlook. The stock is trading at just 3x forward PE and 2x EV/EBITDA, which is at the lowest end of its historical trading range. On P/BV, BANPU is trading at just 0.9x forward P/BV. This is even lower than its pre-COVID average when the coal price was trading at less than a third of the current level.

Ex 11: BANPU Forward EV/EBITDA



Sources: Company data, Thanachart estimates

Ex 12: BANPU Forward P/BV



Sources: Company data, Thanachart estimates

Ex 13: 12-month DCF-derived SOTP-based TP Calculation Using A Base Year Of 2023F

(Bt m)	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	2031F	2032F	2033F	Terminal Value
Coal EBITDA and equity income	99,801	76,000	69,488	67,606	67,941	67,870	67,696	67,421	67,042	66,553	65,964	-
Free cash flow	38,534	34,009	28,833	29,542	30,052	30,353	30,536	30,600	30,545	30,364	30,065	271,920
PV of free cash flow	38,534	30,561	23,102	21,191	19,299	17,498	15,803	14,216	12,305	10,904	9,627	87,068
Risk-free rate (%)	2.5											
Market risk premium (%)	8.0											
Beta	2.0											
WACC (%)	11.3											
Terminal growth (%)	2.0											
BANPU's sum-of-the-parts valuation												(Bt m)
PV of cash flow												300,108
Less: net debt (2022F)												69,259
Less: minority interest												83,666
Equity value - coal & gas												147,183
Battery												6,810
Power												35,056
Total value exc. Warrant												189,050
Add cash from warrants:												
W4												0
W5												0
Net equity value												189,050
# of shares												10,149
Total value per share (Bt/sh)												18.6

Sources: Company data, Thanachart estimates

Valuation Comparison

Ex 14: Valuation Comparison With Regional Peers

Company	Code	Country	EPS Growth		PE		P/BV		EV/EBITDA		Div. yield	
			22F	23F	22F	23F	22F	23F	22F	23F	22F	23F
			(%)	(%)	(x)	(x)	(x)	(x)	(x)	(x)	(%)	(%)
New Hope Corp	NHC AU	Australia	na	43.2	3.6	2.5	1.5	1.1	2.3	1.6	3.2	16.6
Whitehaven Coal Ltd	WHC AU	Australia	na	62.0	3.6	2.2	1.5	1.1	2.4	1.7	0.0	8.8
China Shenhua Energy	601088 CH	China	30.4	3.2	8.4	8.2	1.4	1.4	4.0	4.1	7.2	9.4
Datong Coal Industry	601001 CH	China	8.8	8.7	5.7	5.3	1.6	1.3	3.0	2.8	na	na
Guizhou Panjiang Ref. Coal	600395 CH	China	22.0	10.8	9.4	8.4	1.9	1.7	6.7	6.0	4.3	8.9
Kailuan Energy	600997 CH	China	na	na	na	na	na	na	na	na	6.4	6.7
Pingdingshan Tianan Coal	601666 CH	China	na	12.6	4.6	4.1	1.2	0.9	3.6	3.0	7.4	14.2
Yang Quan Coal Industry	600348 CH	China	65.8	10.4	10.0	9.0	2.1	1.8	4.9	4.3	1.9	3.3
Yanzhou Coal Mining	600188 CH	China	88.6	(0.3)	7.0	7.0	2.2	1.8	4.5	4.6	3.9	8.0
China Coal Energy	1898 HK	Hong Kong	32.3	(8.1)	4.0	4.4	0.7	0.6	3.0	3.1	5.5	6.7
Indo Tambangraya Megah	ITMG IJ	Indonesia	na	(34.5)	2.9	4.4	1.7	1.7	1.4	2.1	6.6	19.0
Bukit Asam Tbk PT	PTBA IJ	Indonesia	57.3	(12.1)	4.3	4.9	1.5	1.4	2.0	2.4	4.3	13.0
Semirara Mining Corp.	SCC PM	Philippines	na	(11.8)	5.4	6.1	3.0	2.7	3.6	4.3	6.8	9.1
Banpu Plc *	BANPU TB	Thailand	245.3	(15.2)	2.9	3.4	1.0	0.9	2.2	1.9	11.8	10.3
Average			68.8	5.3	5.5	5.4	1.6	1.4	3.4	3.2	5.3	10.3

Sources: Bloomberg, * Thanachart estimates

Based on 16 August 2022 closing prices

COMPANY DESCRIPTION

Banpu Pcl (BANPU) is a leading regional energy company. It operates coal mines in Indonesia, Australia and China. It also has investments in the power businesses in Thailand, Laos, China and Japan. In recent years, the company has significantly expanded its footprint in US shale gas as well as invested in new energy businesses including battery (Durapower) and EV (Fomm).

Source: Thanachart

COMPANY RATING



Rating Scale

Excellent	5
Good	4
Fair	3
Weak	2
Very Weak	1
None	0

Source: Thanachart; *CG Rating

THANACHART'S SWOT ANALYSIS

S — Strength

- Strong footprints in key coal-exporting countries (Australia, Indonesia).
- Large and growing gas operation in the US.

O — Opportunity

- BANPU could look to grow its US shale gas business after having established a firm footing.
- New energy businesses such as lithium-ion battery and nickel mining offer strong growth potential.

W — Weakness

- BANPU still relies heavily on coal despite effort to diversify into cleaner energy.
- Relatively high financial leverage.

T — Threat

- Regulatory risk and environmental concerns.
- High coal and gas prices could accelerate global transition away from these fuels

CONSENSUS COMPARISON

	Consensus	Thanachart	Diff
Target price (Bt)	16.21	19.00	17%
Net profit 22F (Bt m)	32,258	33,864	5%
Net profit 23F (Bt m)	26,339	35,487	35%
Consensus REC	BUY: 9	HOLD: 3	SELL: 1

HOW ARE WE DIFFERENT FROM THE STREET?

- We are 5-35% ahead of the Bloomberg consensus in our 2022-23F earnings estimates, likely due to us having higher coal and gas price assumptions.
- Our TP is consequently higher than the Street's number.

Sources: Bloomberg consensus, Thanachart estimates

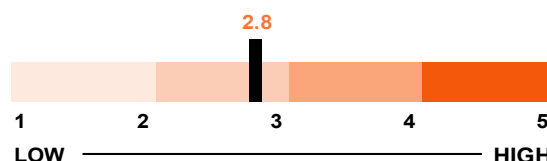
RISKS TO OUR INVESTMENT CASE

- A weaker-than-expected coal or gas price environment would present the key downside risk to our earnings and TP.
- Lower-than-expected growth in the power business would present a secondary downside risk to our TP.

Source: Thanachart

BANPU engages in coal production in Indonesia, Australia and China. The company also has natural gas production in the US as well as power plants across Asia and in the US. It has a strong commitment to improving its ESG metrics. Our ESG score for BANPU is 2.84, which is slightly below the average for our energy coverage due to the nature of its business.

Thanachart ESG Rating



	SETTHSI Index	THSI Index	DJSI Index	MSCI (CCC-AAA)	Arabesque S-Ray (0-100)	Refinitiv (0-100)	S&P Global (0-100)	Moody's (0-100)	CG Rating (0-5)
BANPU	YES	YES	YES	A	57.65	82.66	71.35	44.0	5.0

Sources: SETTRADE, SETTHSI Index, Thailand Sustainability Investment (THSI), The Dow Jones Industrial Average (DJSI), MSCI ESG Research LLC, Arabesque S-Ray®, Refinitiv ESG Information, S&P Global Market Intelligence, Moody's ESG Solutions, Thai IOD (CG rating)
Note: Please see third party on "term of use" in the following back page.

Factors

Our Comments

ENVIRONMENT

- Environmental Policies & Guidelines
- Energy Management
- Carbon Management
- Water Management
- Waste Management

- In terms of investment, BANPU targets to generate over 50% of its EBITDA from non-coal businesses by 2025 compared to about 70% in 2022. To achieve this goal, over 90% of its investments are made in greener energy (including natural gas), renewable energy (wind, solar) as well as energy technologies (batteries, carbon capture).
- For its mining business, BANPU aims to reduce energy intensity by 5% and reduce its greenhouse gas (GHG) emissions intensity by 7% from the 2021 base line of 0.129 tonne CO₂e per tonne of finished coal. For the power business, the company wants to reduce GHG emissions intensity by 20% from 2021 baseline of 0.555 CO₂e/MWh by 2025. The company also aims to have zero hazardous waste to landfill by 2025.
- BANPU also assesses 100% of its operation for any biodiversity impact

SOCIAL

- Human Rights
- Staff Management
- Health & Safety
- Product Safety & Quality
- Social Responsibility

- As of 2021, BANPU already assessed 86% of its business and its supply chain for any potential human rights risks, including occupational health and safety, labor rights, and personal data protection, among others.
- BANPU targets to have 90% of its business undergoing social impact assessment by 2025F, up from 30% in 2021.
- BANPU is active in its CSR program including community development, a university scholarship program, a local economic development program, and skills training for local youths.

GOVERNANCE & SUSTAINABILITY

- Board
- Ethics & Transparency
- Business Sustainability
- Risk Management
- Innovation

- BANPU's board of directors comprises 13 members, five of whom are independent directors. However, there is only one female on the board.
- The company established an ESG Committee, comprising three independent directors, to support BOD's ongoing commitment to ESG.
- 100% of material ESG aspects form part of the KPIs for the CEO and senior management across all business units.
- In 2021, BANPU strengthened its Corporate Governance Policy and Code of Conduct. These policies are in alignment with international standards such as those of ASEAN and OECD.
- BANPU aims to have 100% of its critical tier-1 suppliers assessed for ESG risks by 2025 compared to 6% in 2021.

Source: Thanachart

INCOME STATEMENT

FY ending Dec (Bt m)	2020A	2021A	2022F	2023F	2024F
Sales	71,332	133,190	196,356	195,658	165,808
Cost of sales	57,768	76,916	88,810	86,062	85,362
Gross profit	13,564	56,274	107,546	109,596	80,446
% gross margin	19.0%	42.3%	54.8%	56.0%	48.5%
Selling & administration expenses	17,128	24,824	32,444	32,129	28,778
Operating profit	(3,564)	31,450	75,102	77,467	51,667
% operating margin	-5.0%	23.6%	38.2%	39.6%	31.2%
Depreciation & amortization	13,543	15,895	20,230	21,009	23,628
EBITDA	9,979	47,346	95,332	98,476	75,295
% EBITDA margin	14.0%	35.5%	48.6%	50.3%	45.4%
Non-operating income	2,309	(12,846)	2,210	1,865	1,627
Non-operating expenses	(199)	(307)	(320)	(320)	(300)
Interest expense	(5,420)	(5,576)	(7,074)	(5,141)	(3,597)
Pre-tax profit	(6,874)	12,722	69,918	73,871	49,397
Income tax	269	6,372	27,967	29,548	19,759
After-tax profit	(7,143)	6,350	41,951	44,323	29,638
% net margin	-10.0%	4.8%	21.4%	22.7%	17.9%
Shares in affiliates' Earnings	4,239	7,290	7,196	7,238	5,803
Minority interests	(1,217)	(6,121)	(15,283)	(16,074)	(10,941)
Extraordinary items	2,336	2,332	0	0	0
NET PROFIT	(1,786)	9,852	33,864	35,487	24,500
Normalized profit	(4,122)	7,520	33,864	35,487	24,500
EPS (Bt)	(0.3)	1.8	4.7	4.0	2.4
Normalized EPS (Bt)	(0.8)	1.4	4.7	4.0	2.4

We see a new earnings
base for the stock in
2022-24F

BALANCE SHEET

FY ending Dec (Bt m)	2020A	2021A	2022F	2023F	2024F
ASSETS:					
Current assets:	47,301	85,437	78,192	77,778	69,699
Cash & cash equivalent	23,777	42,704	18,123	18,123	18,123
Account receivables	7,482	15,806	18,829	18,762	15,899
Inventories	3,935	3,905	7,299	7,074	7,016
Others	12,107	23,022	33,940	33,820	28,660
Investments & loans	51,389	55,806	59,055	62,818	63,472
Net fixed assets	77,523	114,167	114,055	124,778	126,298
Other assets	105,435	110,390	110,573	110,355	94,061
Total assets	281,648	365,799	361,874	375,729	353,530
LIABILITIES:					
Current liabilities:	66,405	97,191	66,237	61,780	48,282
Account payables	2,025	3,293	1,582	1,533	1,520
Bank overdraft & ST loans	24,856	39,232	12,615	8,738	5,496
Current LT debt	24,520	21,418	9,083	6,292	3,957
Others current liabilities	15,003	33,248	42,957	45,217	37,309
Total LT debt	112,559	139,747	104,454	72,352	45,506
Others LT liabilities	18,129	25,164	38,177	38,213	32,914
Total liabilities	197,092	262,102	208,867	172,345	126,702
Minority interest	22,211	24,420	39,703	55,777	66,718
Preferreds shares	0	0	0	0	0
Paid-up capital	5,075	6,766	8,458	10,149	10,149
Share premium	15,372	22,139	28,905	39,900	39,900
Warrants	0	0	0	0	0
Surplus	(19,348)	(17,950)	(17,950)	(17,950)	(17,950)
Retained earnings	61,245	68,322	93,891	115,508	128,010
Shareholders' equity	62,344	79,277	113,304	147,607	160,110
Liabilities & equity	281,648	365,799	361,874	375,729	353,530

Balance sheet continues
to improve with high
profits, new capital, and
limited capex

Sources: Company data, Thanachart estimates

CASH FLOW STATEMENT

FY ending Dec (Bt m)	2020A	2021A	2022F	2023F	2024F
Earnings before tax	(6,874)	12,722	69,918	73,871	49,397
Tax paid	(543)	(3,165)	(28,672)	(28,419)	(20,814)
Depreciation & amortization	13,543	15,895	20,230	21,009	23,628
Chg In working capital	1,006	(7,025)	(8,130)	244	2,907
Chg In other CA & CL / minorities	7,560	7,550	6,691	8,490	4,110
Cash flow from operations	14,692	25,978	60,037	75,195	59,228
Capex	(32,269)	(52,539)	(20,000)	(31,600)	(25,000)
Right of use	(2,149)	(53)	(300)	(300)	(300)
ST loans & investments	0	0	0	0	0
LT loans & investments	(1,678)	(4,417)	(3,249)	(3,763)	(655)
Adj for asset revaluation	0	0	0	0	0
Chg In other assets & liabilities	(4,767)	2,084	13,012	421	11,148
Cash flow from investments	(40,863)	(54,926)	(10,537)	(35,241)	(14,807)
Debt financing	30,596	40,793	(74,244)	(38,770)	(32,423)
Capital increase	(87)	8,458	8,458	12,686	0
Dividends paid	(2,030)	(1,776)	(8,295)	(13,870)	(11,997)
Warrants & other surplus	5,080	400	0	0	0
Cash flow from financing	33,559	47,875	(74,082)	(39,954)	(44,421)
Free cash flow	(17,578)	(26,561)	40,037	43,595	34,228

BANPU generates high FCF in the current environment

VALUATION

FY ending Dec	2020A	2021A	2022F	2023F	2024F
Normalized PE (x)	na	10.0	2.9	3.4	5.6
Normalized PE - at target price (x)	na	13.9	4.0	4.8	7.9
PE (x)	na	7.6	2.9	3.4	5.6
PE - at target price (x)	na	10.6	4.0	4.8	7.9
EV/EBITDA (x)	20.8	4.9	2.2	1.9	2.3
EV/EBITDA - at target price (x)	23.6	5.5	2.6	2.4	3.1
P/BV (x)	1.1	1.2	1.0	0.9	0.9
P/BV - at target price (x)	1.5	1.6	1.4	1.3	1.2
P/CFO (x)	4.7	2.9	1.6	1.6	2.3
Price/sales (x)	1.3	0.7	0.5	0.5	0.6
Dividend yield (%)	2.2	3.3	11.8	10.3	7.1
FCF Yield (%)	(25.3)	(35.4)	40.9	36.1	24.8
(Bt)					
Normalized EPS	(0.8)	1.4	4.7	4.0	2.4
EPS	(0.3)	1.8	4.7	4.0	2.4
DPS	0.3	0.5	1.6	1.4	1.0
BV/share	12.3	11.7	13.4	14.5	15.8
CFO/share	2.9	4.7	8.3	8.5	5.8
FCF/share	(3.4)	(4.8)	5.6	4.9	3.4

Sources: Company data, Thanachart estimates

Valuation looks attractive in our view at 3x forward PE

FINANCIAL RATIOS

FY ending Dec	2020A	2021A	2022F	2023F	2024F
Growth Rate					
Sales (%)	(16.8)	86.7	47.4	(0.4)	(15.3)
Net profit (%)	na	na	243.7	4.8	(31.0)
EPS (%)	na	na	163.6	(15.2)	(39.6)
Normalized profit (%)	na	na	350.3	4.8	(31.0)
Normalized EPS (%)	na	na	245.3	(15.2)	(39.6)
Dividend payout ratio (%)	(85.2)	30.9	40.0	40.0	40.0
Operating performance					
Gross margin (%)	19.0	42.3	54.8	56.0	48.5
Operating margin (%)	(5.0)	23.6	38.2	39.6	31.2
EBITDA margin (%)	14.0	35.5	48.6	50.3	45.4
Net margin (%)	(10.0)	4.8	21.4	22.7	17.9
D/E (incl. minor) (x)	1.9	1.9	0.8	0.4	0.2
Net D/E (incl. minor) (x)	1.6	1.5	0.7	0.3	0.2
Interest coverage - EBIT (x)	na	5.6	10.6	15.1	14.4
Interest coverage - EBITDA (x)	1.8	8.5	13.5	19.2	20.9
ROA - using norm profit (%)	na	2.3	9.3	9.6	6.7
ROE - using norm profit (%)	na	10.6	35.2	27.2	15.9
DuPont					
ROE - using after tax profit (%)	na	9.0	43.6	34.0	19.3
- asset turnover (x)	0.3	0.4	0.5	0.5	0.5
- operating margin (%)	na	13.7	39.2	40.4	32.0
- leverage (x)	4.3	4.6	3.8	2.8	2.4
- interest burden (%)	472.7	69.5	90.8	93.5	93.2
- tax burden (%)	na	49.9	60.0	60.0	60.0
WACC (%)	#N/A	#N/A	#N/A	11.3	11.3
ROIC (%)	(2.0)	7.8	19.0	21.0	14.3
NOPAT (Bt m)	(3,564)	15,699	45,061	46,480	31,000
invested capital (Bt m)	200,502	236,969	221,333	216,866	196,945

Sources: Company data, Thanachart estimates

ROE has improved significantly from 2021 despite lower leverage

ESG Information - Third Party Terms

www.Settrade.com
SETTRADE: You acknowledge that the use of data, information or service displayed and/or contained in this website may require third party's data, content or software which is subject to the terms of third party provider. By accessing and/or using of such certain data, you acknowledge and agree to comply with and be bound by the applicable third party terms specified below.

- ESG Scores by Third Party data from www.SETTRADE.com
- 1. MSCI (CCC- AAA)
 - 2. Arabesque S-Ray (0-100)
 - 3. Refinitiv (0-100)
 - 4. S&P Global (0-100)
 - 5. Moody's ESG Solutions (0-100)

SET THSI Index (SETTHSI)
Nowadays, long-term investment tends to be more focused on sustainable companies. The financial statement performance and the consideration in environmental, social and governance (ESG) perspective are keys aspects for analysis.
SET has created a Thailand Sustainability Investment (THSI) list since 2015 for using as an alternative investment in the high performance ESG stocks for investors while, supporting the sustainable Thai companies. SET defines the sustainable companies as the companies that embrace risk management, supply chain management and innovations together with responsibility for environmental, social and governance aspects
As a result, SET has created the SETTHSI for the purpose of indicating the price of these sustainable companies that pass the market capital size and liquidity criteria.

Arabesque S-Ray®
The S-Ray data here is published with a 3 month delay. For the latest data, please contact sray@arabesque.com
Arabesque S-Ray® is a service (the "Service") provided by Arabesque S-Ray GmbH ("Arabesque S-Ray") and its branch and subsidiary companies. Arabesque S-Ray is a limited liability company (Gesellschaft mit beschränkter Haftung) incorporated in Frankfurt am Main and organized under the laws of Germany with registered number HRB 113087 in the commercial register of the local court with its seat and business address at Zeppelinallee 15, 60325 Frankfurt am Main, Germany. The Service is unconnected to any of the asset management activities conducted within the wider group of Arabesque companies, and is not investment advice or a solicitation or an offer to buy any security or instrument or to participate in investment services. RELIANCE - Arabesque S-Ray makes no representation or warranty, express or implied, as to the accuracy or completeness of the information contained herein, and accepts no liability for any loss, of whatever kind, howsoever arising, in relation thereto, and nothing contained herein should be relied upon. ENQUIRIES - Any enquiries in respect of this document should be addressed to Arabesque S-Ray.
Arabesque S-Ray® - The ESG Score, ranging from 0 to 100, identifies sustainable companies that are better positioned to outperform over the long run, based on the principles of financial materiality. That is, when computing the ESG Score of a company, the algorithm will only use information that significantly helps explain future risk-adjusted performance. Materiality is applied by overweighting features with higher materiality and rebalancing these weights on a rolling quarterly basis to stay up-to-date

MSCI ESG Research LLC
"Certain information @2021 MSCI ESG Research LLC. Reproduced by permission"
"Although [User ENTITY NAME's] information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the "ESG Parties"), obtain information (the "Information") from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for your internal use, may not be reproduced or disseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Further, non of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages."

Score range	Description
CCC - B	LAGGARD: A company lagging its industry based on its high exposure and failure to manage significant ESG risks
BB - BBB - A	AVERAGE : A company with a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers
AA - AAA	LEADER: A company leading its industry in managing the most significant ESG risks and opportunities

The Dow Jones Sustainability Indices (DJSI)
The Dow Jones Sustainability Indices (DJSI) are a family of best-in-class benchmarks for investors who have recognized that sustainable business practices are critical to generating long-term shareholder value and who wish to reflect their sustainability convictions in their investment portfolios. The family was launched in 1999 as the first global sustainability benchmark and tracks the stock performance of the world's leading companies in terms of economic, environmental and social criteria. Created jointly by S&P Dow Jones Indices and SAM, the DJSI combine the experience of an established index provider with the expertise of a specialist in Sustainable Investing to select the most sustainable companies from across 61 industries. The indices serve as benchmarks for investors who integrate sustainability considerations into their portfolios, and provide an effective engagement platform for investors who wish to encourage companies to improve their corporate sustainability practices.

S&P Global Market Intelligence
Copyright © 2021, S&P Global Market Intelligence (and its affiliates as applicable). Reproduction of any information, opinions, views, data or material, including ratings ("Content") in any form is prohibited except with the prior written permission of the relevant party. Such party, its affiliates and suppliers ("Content Providers") do not guarantee the accuracy, adequacy, completeness, timeliness or availability of any Content and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such Content. In no event shall Content Providers be liable for any damages, costs, expenses, legal fees, or losses (including lost income or lost profit and opportunity costs) in connection with any use of the Content. A reference to a particular investment or security, a rating or any observation concerning an investment that is part of the Content is not a recommendation to buy, sell or hold such investment or security, does not address the suitability of an investment or security and should not be relied on as investment advice. Credit ratings are statements of opinions and are not statements of fact.
ESG risk combines the concepts of management and exposure to arrive at an absolute assessment of ESG risk. We identify five categories of ESG risk severity that could impact a company's enterprise value

Moody's ESG Solutions
© 2022 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.
CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$5,000,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

Additional terms for Hong Kong only: Any Second Party Opinion or other opinion that falls within the definition of "advising on securities" under the Hong Kong Securities and Futures Ordinance ("SFO") is issued by Vigeo Eiris Hong Kong Limited, a company licensed by the Hong Kong Securities and Futures Commission to carry out the regulated activity of advising on securities in Hong Kong. This Second Party Opinion or other opinion that falls within the definition of "advising on securities" under the SFO is intended for distribution only to "professional investors" as defined in the SFO and the Hong Kong Securities and Futures (Professional Investors) Rules. This Second Party Opinion or other opinion must not be distributed to or used by persons who are not professional investors.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY550,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

Refinitiv ESG

These Terms of Use govern your access or use of the ESG information and materials on the Refinitiv website and any AI powered voice assistance software ("Refinitiv ESG Information"). 2020© Refinitiv. All rights reserved. Refinitiv ESG Information is proprietary to Refinitiv Limited and/or its affiliates ("Refinitiv").

The Refinitiv ESG Information is for general informational and non-commercial purposes only. Reproduction, redistribution or any other form of copying or transmission of the Refinitiv ESG Information is prohibited without Refinitiv's prior written consent.

All warranties, conditions and other terms implied by statute or common law including, without limitation, warranties or other terms as to suitability, merchantability, satisfactory quality and fitness for a particular purpose, are excluded to the maximum extent permitted by applicable laws. The Refinitiv ESG Information is provided "as is" and Refinitiv makes no express or implied warranties, representations or guarantees concerning the accuracy, completeness or currency of the information in this service or the underlying Third Party Sources (as defined below). You assume sole responsibility and entire risk as to the suitability and results obtained from your use of the Refinitiv ESG Information.

The Refinitiv ESG Information does not amount to financial, legal or other professional advice, nor does it constitute: (a) an offer to purchase shares in the funds referred to; or (b) a recommendation relating to the sale and purchase of instruments; or (c) a recommendation to take any particular legal, compliance and/or risk management decision. Investors should remember that past performance is not a guarantee of future results.

The Refinitiv ESG Information will not be used to construct or calculate an index or a benchmark, used to create any derivative works or used for commercial purposes. Refinitiv's disclaimer in respect of Benchmark Regulations applies to the Refinitiv ESG Information.

No responsibility or liability is accepted by Refinitiv its affiliates, officers, employees or agents (whether for negligence or otherwise) in respect of the Refinitiv ESG Information, or for any inaccuracies, omissions, mistakes, delays or errors in the computation and compilation of the Refinitiv ESG Information (and Refinitiv shall not be obliged to advise any person of any error therein). For the avoidance of doubt, in no event will Refinitiv have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) relating to any use of the Refinitiv ESG Information.

You agree to indemnify, defend and hold harmless Refinitiv from and against any claims, losses, damages, liabilities, costs and expenses, including, without limitation, reasonable legal and experts' fees and costs, as incurred, arising in any manner out of your use of, or inability to use, any Information contained on the Refinitiv web site or obtained via any AI powered voice assistance software.

You represent to us that you are lawfully able to enter into these Terms of Use. If you are accepting these Terms of Use for and on behalf of an entity such as the company you work for, you represent to us that you have legal authority to bind that entity.

By accepting these Terms of Use you are also expressly agreeing to the following Refinitiv's website Terms of Use.

Refinitiv ESG scores are derived from third party publicly available sources ("Third Party Sources") and are formulated on the basis of Refinitiv own transparent and objectively applied methodology. Refinitiv's ESG Information methodology can be accessed here.

Score range	Description	
0 to 25	First Quartile	Scores within this range indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly.
> 25 to 50	Second Quartile	Scores within this range indicates satisfactory relative ESG performance and moderate degree of transparency in reporting material ESG data publicly.
> 50 to 75	Third Quartile	Scores within this range indicates good relative ESG performance and above average degree of transparency in reporting material ESG data publicly.
> 75 to 100	Fourth Quartile	Score within this range indicates excellent relative ESG performance and high degree of transparency in reporting material ESG data publicly.

CG Report : by Thai Institute of Directors Association (Thai IOD), Established in December 1999, the Thai IOD is a membership organization that strives to promote professionalism in directorship. The Thai IOD offers directors certification and professional development courses, provides a variety of seminars, forums and networking events, and conducts research on board governance issues and practices. Membership comprises board members from companies ranging from large publicly listed companies to small private firms.

90-100	▲▲▲▲▲	Excellent
80-89	▲▲▲▲	Very Good
70-79	▲▲▲	Good
60-69	▲▲	Satisfactory
50-59	▲	Pass
Below		N/A

General Disclaimers And Disclosures:

This report is prepared and issued by Thanachart Securities Public Company Limited (TNS) as a resource only for clients of TNS, Thanachart Capital Public Company Limited (TCAP) and its group companies. Copyright © Thanachart Securities Public Company Limited. All rights reserved. The report may not be reproduced in whole or in part or delivered to other persons without our written consent.

This report is prepared by analysts who are employed by the research department of TNS. While the information is from sources believed to be reliable, neither the information nor the forecasts shall be taken as a representation or warranty for which TNS or TCAP or its group companies or any of their employees incur any responsibility. This report is provided to you for informational purposes only and it is not, and is not to be construed as, an offer or an invitation to make an offer to sell or buy any securities. Neither TNS, TCAP nor its group companies accept any liability whatsoever for any direct or consequential loss arising from any use of this report or its contents.

The information and opinions contained herein have been compiled or arrived at from sources believed reliable. However, TNS, TCAP and its group companies make no representation or warranty, express or implied, as to their accuracy or completeness. Expressions of opinion herein are subject to change without notice. The use of any information, forecasts and opinions contained in this report shall be at the sole discretion and risk of the user.

TNS, TCAP and its group companies perform and seek to perform business with companies covered in this report. TNS, TCAP, its group companies, their employees and directors may have positions and financial interest in securities mentioned in this report. TNS, TCAP or its group companies may from time to time perform investment banking or other services for, or solicit investment banking or other business from, any entity mentioned in this report. Therefore, investors should be aware of conflict of interest that may affect the objectivity of this report.

Note: Thanachart Securities Public Company Limited act as a Market Maker and Derivative Warrants Issuer. At present, TNS has issued 72 Derivative Warrants which are ADVANC16C2210A, ADVANC16C2211A, AMAT16C2209A, AOT16C2212A, AOT16C2209A, BANPU16C2212A, BANPU16C2210A, BCH16C2211A, BGRIM16C2212A, BGRI16C2209A, BLA16C2208A, BLA16C2209A, CBG16C2210A, CENTEL16C2209A, COM716C2208A, COM716C2209A, COM716C2211A, COM716C2211B, COM716C2211C, CPALL16C2211A, EA16C2209A, EA16C2211A, ESSO16C2209A, ESSO16C2209B, FORTH16C2211A, GPSC16C2209A, GULF16C2210A, GUNK16C2209A, HANA16C2209A, HANA16C2211A, IVL16C2209A, IVL16C2211A, JMART16C2210A, JMART16C2211A, JMT16C2210A, JMT16C2211A, KBAN16C2208A, KBAN16C2209A, KBANK16C2211A, KCE16C2208A, KCE16C2209A, KCE16C2211A, KTC16C2211A, KTC16C2209A, MINT16C2211A, MTC16C2209A, PTG16C2211A, PTG16C2209A, PTTEP16C2212A, PTTE16C2209A, RBF16C2209A, RCL16C2208A, SAWAD16C2211A, S5016C2209A, S5016P2209A, SAWA16C2209A, SCB16C2211A, SCB16C2208A, SCGP16C2212A, SET5016P2212A, SET5016C2209B, SET5016C2212A, SET5016P2209B, SINGER16C2212A, SPRC16C2209A, STEC16C2209A, TIDLOR16C2212A, TOP16C2211A, TTA16C2208A, TTA16C2211A, TU16C2210A, WHA16C2209A (underlying securities are ADVANC, AMATA, AOT, BANPU, BCH, BGRIM, BLA, CBG, CENTEL, COM7, CPALL, EA, ESSO, FORTH, GPSC, GULF, GUNKUL, HANA, IVL, JMART, JMT, KBANK, KCE, KTC, MINT, MTC, PTG, PTTEP, RBF, RCL, SAWAD, SCB, SET50, SCGP, SINGER, SPRC, STEC, TIDLOR, TOP, TTA, TU, WHA).. before making investment decisions.

Note: Our major shareholder TCAP (Thanachart Capital Pcl) which holding 50.96% of Thanachart Securities and also TCAP holding 100% of Thanachart SPV1 Co. Ltd. TCAP and Thanachart SPV1 Co. Ltd has stake in THANI for 60% and being the major shareholder of THANI.

Note: Thanachart Capital Public Company Limited (TCAP), TMBThanachart Bank Public Company Limited (TTB), are related companies to Thanachart Securities Public Company Limited (TNS). Thanachart Securities Pcl is a subsidiary of Thanachart Capital Pcl (TCAP) which holds 23% of the shareholding in TMBThanachart Bank Pcl.

Thanachart Capital Public Company Limited (TCAP), Ratchthani Leasing Public Company Limited (THANI), MBK PUBLIC COMPANY LIMITED (MBK) and PATUM RICE MILL AND GRANARY PUBLIC COMPANY LIMITED (PRG) are related companies to Thanachart Securities Public Company Limited (TNS) . Since TNS covers those securities in research report, consequently TNS incurs conflicts of interest.

Disclosure of Interest of Thanachart Securities

Investment Banking Relationship

Within the preceding 12 months, Thanachart Securities has lead-managed public offerings and/or secondary offerings (excluding straight bonds) of the securities of the following companies: The One Enterprise Pcl. (ONEE TB)

Recommendation Structure:

Recommendations are based on absolute upside or downside, which is the difference between the target price and the current market price. If the upside is 10% or more, the recommendation is BUY. If the downside is 10% or more, the recommendation is SELL. For stocks where the upside or downside is less than 10%, the recommendation is HOLD. Unless otherwise specified, these recommendations are set with a 12-month horizon. Thus, it is possible that future price volatility may cause a temporary mismatch between upside/downside for a stock based on the market price and the formal recommendation.

For sectors, an "Overweight" sector weighting is used when we have BUYs on majority of the stocks under our coverage by market cap. "Underweight" is used when we have SELLs on majority of the stocks we cover by market cap. "Neutral" is used when there are relatively equal weightings of BUYs and SELLs.

Thanachart Securities Pcl.

Research Team

18 Floor, MBK Tower

444 Phayathai Road, Pathumwan Road, Bangkok 10330

Tel: 662 - 779-9119

Email: thanachart.res@thanachartsec.co.th

Pimpaka Nichgaroon, CFA

Head of Research

Tel: 662-779-9199

pimpaka.nic@thanachartsec.co.th

Pattarawan Wangmingmat

Senior Technical Analyst

Tel: 662-779-9105

pattarawan.wan@thanachartsec.co.th

Phannarai Tiypittayarat

Property, Retail

Tel: 662-779-9109

phannarai.von@thanachartsec.co.th

Sarachada Sornsong

Bank, Finance

Tel: 662-779-9106

sarachada.sor@thanachartsec.co.th

Witchanan Tambamroong

Technical Analyst

Tel: 662-779-9123

witchanan.tam@thanachartsec.co.th

Adisak Phupiphatirungul, CFA

Retail Market Strategy

Tel: 662-779-9120

adisak.phu@thanachartsec.co.th

Nuttapop Prasitsuksant

Telecom, Utilities

Tel: 662-483-8296

nuttapop.pra@thanachartsec.co.th

Rata Limsuthiwanpoom

Auto, Industrial Estate, Media, Prop. Fund

Tel: 662-483-8297

rata.lim@thanachartsec.co.th

Siriporn Arunothai

Small Cap, Healthcare, Hotel

Tel: 662-779-9113

siriporn.aru@thanachartsec.co.th

Sittichet Rungrassameephat

Analyst, Quantitative

Tel: 662-483-8303

sittichet.run@thanachartsec.co.th

Chak Reungsinpinya

Strategy, Insurance, Paper

Tel: 662-779-9104

chak.reu@thanachartsec.co.th

Pattadol Bunnak

Electronics, Food & Beverage, Shipping

Tel: 662-483-8298

pattadol.bun@thanachartsec.co.th

Saksid Phadthananarak

Construction, Transportation

Tel: 662-779-9112

saksid.pha@thanachartsec.co.th

Yupapan Polpornprasert

Energy, Petrochemical

Tel: 662-779-9110

yupapan.pol@thanachartsec.co.th

Thaloengsak Kucharoenpaisan

Analyst, Retail Market

Tel: 662-483-8304

thaloengsak.kuc@thanachartsec.co.th