

Part 3

Financial Status and Performance

13. Financial Information

The consolidated and separate financial statements for the year ended December 31, 2017 and 2018 were audited by Mr. Sakda Kaothanthong, Certified Public Accountant, with registration No. 4628 of KPMG Phoomchai Audit Ltd and for the year ended December 31, 2019 was audited by Mr. Sumate Jangsamsee, Certified Public Accountant, with registration No. 9362 of KPMG Phoomchai Audit Ltd.

Summary of audit report of Certified Public Accountant of the Company

Financial Statement For the years ended 31 December 2019

The auditor gave an opinion that the consolidated and separate financial statements present fairly, in all material respects, the financial position of the Group and the Company, respectively, as at 31 December 2019 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards.

Without qualifying the opinion, the auditor drew attention to note 4 to the consolidated financial statements for the following matters:

The Group completed the acquisition of an equity stake of 50% in IVL Dhunseri Petrochem Industries Private Limited, 100% in Custom Polymers PET, 39% in Indo Rama Synthetics (India) Limited, 100% in Bevpak (Nigeria) Limited, 100% in Sinterama S.p.A. and its subsidiaries and 100% in Green Fiber International Inc. resulting in the recording goodwill of Baht 558.0 million, Baht 80.3 million, Baht 93.3 million, Baht 132.8 million, Baht 22.5 million and Baht 224.2 million respectively in the consolidated statement of financial position as of 31 December 2019. The fair value of business acquired and the allocation of purchase price have been provisionally determined and are subject to potential amendment.

The Group completed the acquisitions of an equity stake 100% in M&G Fibras Brasil Ltda., UTT Beteiligungsgesellschaft mbH and INVISTA Resins & Fibers GmbH resulting in the recording gains on bargain purchases of Baht 805.5 million in the consolidated statement of income for the year ended 31 December 2019. The fair value of business acquired and the allocation of purchase price have been provisionally determined and are subject to potential amendment.

The following table sets forth summary of the consolidated financial statements of Indorama Ventures Public Company Limited from 2017 to 2019

Statements of Financial Position (Consolidated Financial Statements)

Unit: Baht million	As of December 31					
	2017	%	2018	%	2019	%
<u>Assets</u>						
Current assets						
Cash and cash equivalents	6,877.0	2.4	5,578.4	1.5	10,446.7	2.7
Current investments	138.0	0.0	134.3	0.0	7.7	0.0
Trade accounts receivable	32,098.2	11.4	37,636.6	9.9	34,304.9	9.0
Other receivables	1,056.8	0.4	1,324.6	0.3	1,286.0	0.3
Short-term loans to related parties and interest receivable from related parties	155.6	0.1	170.9	0.0	174.3	0.0
Inventories	46,036.5	16.3	70,085.3	18.5	62,164.9	16.3
Other current assets	6,590.8	2.3	9,354.1	2.5	10,372.4	2.7
Total current assets	92,953.0	32.9	124,284.2	32.8	118,757.0	31.2
Non-current assets						
Investments in joint ventures	6,247.1	2.2	5,294.0	1.4	2,492.2	0.7
Other long-term investments	14.9	0.0	15.2	0.0	27.4	0.0
Long-term loans to related parties	53.1	0.0	42.6	0.0	28.3	0.0
Property, plant and equipment	151,202.0	53.5	205,182.4	54.1	212,422.9	55.8
Goodwill	9,837.7	3.5	15,210.0	4.0	15,249.9	4.0
Other intangible assets	18,027.2	6.4	25,139.3	6.6	24,165.1	6.3
Deferred tax assets	2,620.5	0.9	2,713.9	0.7	2,321.9	0.6
Other non-current assets	1,402.8	0.5	1,313.2	0.3	5,103.3	1.3
Total non-current assets	189,405.4	67.1	254,910.6	67.2	261,810.9	68.8
Total assets	282,358.4	100.0	379,194.8	100.0	380,567.9	100.0
<u>Liabilities and equity</u>						
Current liabilities						
Bank overdrafts and short-term loans from financial institutions	6,115.1	2.2	31,272.0	8.2	30,379.5	8.0
Trade accounts payable	39,301.4	13.9	54,564.8	14.4	57,172.9	15.0
Current portion of long-term loans from financial institutions	6,167.8	2.2	8,626.7	2.3	6,033.5	1.6
Current portion of debentures	2,728.8	1.0	3,013.1	0.8	4,107.8	1.1
Current portion of finance lease liabilities	48.5	0.0	110.2	0.0	130.0	0.0
Current tax payable	1,327.3	0.5	2,974.1	0.8	1,049.5	0.3
Other current liabilities	9,932.5	3.5	13,139.1	3.5	14,117.4	3.7
Total current liabilities	65,621.6	23.2	113,700.1	30.0	112,990.6	29.7
Non-current liabilities						

Unit: Baht million	As of December 31					
	2017	%	2018	%	2019	%
Long-term loans from financial institutions	42,329.1	15.0	34,640.0	9.1	42,551.2	11.2
Debentures	38,116.8	13.5	58,604.3	15.5	63,060.0	16.6
Finance lease liabilities	278.9	0.1	498.1	0.1	689.2	0.2
Deferred tax liabilities	13,138.6	4.7	15,788.5	4.2	17,010.0	4.5
Non-current provisions for employee benefits	2,209.6	0.8	2,327.2	0.6	4,696.2	1.2
Other non-current liabilities	1,677.1	0.6	1,781.3	0.5	1,403.4	0.4
Total non-current liabilities	97,750.1	34.6	113,639.4	30.0	129,410.0	34.0
Total liabilities	163,371.7	57.9	227,339.5	60.0	242,400.6	63.7
Equity						
Share capital						
Authorised share capital	5,666.0	2.0	5,666.0	1.5	5,666.0	1.5
Issued and paid-up share capital	5,245.4	1.9	5,614.6	1.5	5,614.6	1.5
Share premium:						
Share premium on ordinary shares	44,848.2	15.9	60,331.4	15.9	60,331.4	15.9
Gain (Loss) on cash flow hedges	305.1	0.1	(157.2)	(0.0)	731.5	0.2
Exchange differences on translating foreign operations	(2,639.6)	(0.9)	(6,638.2)	(1.8)	(16,674.5)	(4.4)
Excess of cost over book value of acquired subsidiaries	(2,862.3)	(1.0)	(2,973.7)	(0.8)	(3,778.1)	(1.0)
Differences arising from common control transactions	(1,235.6)	(0.4)	(1,235.6)	(0.3)	(1,235.6)	(0.3)
Retained earnings						
Appropriated						
Legal reserve	2,956.8	1.0	3,207.1	0.8	4,146.6	1.1
Unappropriated	55,569.5	19.7	71,815.3	18.9	66,350.0	17.4
Equity attributable to owners of the parent	102,187.6	36.2	129,963.7	34.3	115,486.0	30.3
Subordinated perpetual debentures	14,874.1	5.3	14,874.1	3.9	14,905.6	3.9
Subordinated perpetual debentures acquired by subsidiary	0.0	0.0	0.0	0.0	(679.6)	(0.2)
Equity attributable to equity holders of the Company	117,061.7	41.5	144,837.8	38.2	129,711.9	34.1
Non-controlling interests	1,925.0	0.7	7,017.6	1.9	8,455.4	2.2
Total equity	118,986.7	42.1	151,855.4	40.0	138,167.3	36.3
Total liabilities and equity	282,358.4	100.0	379,194.8	100.0	380,567.9	100.0

Statements of Income (Consolidated Financial Statements)

Unit: Baht million	For the year ended December 31					
	2017	%	2018	%	2019	%
Revenue						
Revenue from sale of goods	286,332.3	100.0	347,170.9	100.0	352,692.4	100.0
Interest income	102.4	0.0	247.2	0.1	183.2	0.1
Net foreign exchange gain	0.0	0.0	586.2	0.2	0.0	0.0
Gain on a bargain purchases	3,672.7	1.3	1,928.5	0.6	805.5	0.2
Other income	1,160.2	0.4	1,952.6	0.6	2,183.7	0.6
Total revenue	291,267.7	101.7	351,885.4	101.4	355,864.8	100.9
Expenses						
Cost of sale of goods	240,888.6	84.1	289,232.0	83.3	309,344.5	87.7
Selling and administrative expenses	25,766.7	9.0	28,593.1	8.2	34,005.3	9.6
Management benefit expenses	136.9	0.0	190.8	0.1	307.1	0.1
Loss on impairment and written-off of property, plant and equipment	899.4	0.3	78.0	0.0	404.2	0.1
Net foreign exchange loss	61.9	0.0	0.0	0.0	296.1	0.1
Total expenses	267,753.5	93.5	318,093.8	91.6	344,357.3	97.6
Share of net profit of joint ventures	28.4	0.0	585.9	0.2	5.3	0.0
Profit before finance costs and tax expense (benefit)	23,542.6	8.2	34,377.4	9.9	11,512.8	3.3
Finance costs	3,864.5	1.3	4,227.4	1.2	5,615.1	1.6
Profit before tax expense (benefit)	19,678.1	6.9	30,150.0	8.7	5,897.7	1.7
Tax expense (benefit)	(1,400.2)	(0.5)	3,812.4	1.1	1,534.0	0.4
Profit for the year	21,078.3	7.4	26,337.6	7.6	4,363.7	1.2
Attributable to:						
Owners of the parent	20,882.9	7.3	26,465.4	7.6	5,252.1	1.5
Non-controlling interests	195.4	0.1	(127.8)	(0.0)	(888.4)	(0.3)
Profit for the year	21,078.3	7.4	26,337.6	7.6	4,363.7	1.2
Earnings per share (in Baht)	3.98		4.61		0.76	
Core earnings per share (in Baht)*	2.91		4.43		1.96	

*Core financials are calculated as reported financials less Inventory gain/ (loss) and less extraordinary items, if any to reflect operations before any extraordinary items.

Cash Flow Statement (Consolidated Financial Statements)

	For the year ended December 31		
Unit: Baht million	2017	2018	2019
Cash flows from operating activities			
Profit for the year	21,078.3	26,337.6	4,363.7
<i>Adjustments to reconcile profit to cash receipts (payments)</i>			
Depreciation	10,678.8	12,161.2	14,343.8
Amortisation of intangible assets and other assets	1,560.0	2,112.1	2,696.6
Interest income	(102.4)	(247.2)	(183.2)
Gain on bargain purchases	(3,672.7)	(1,928.5)	(805.5)
Gain on previously held interest in a jointly-controlled entity	-	(1.4)	-
Share of net profit of joint ventures	(28.4)	(585.9)	(5.3)
Finance costs	3,864.5	4,227.4	5,615.1
Unrealised foreign exchange loss	45.1	39.7	237.7
Provision for bad and doubtful debts expenses, net	1,978.6	23.9	91.6
(Reversal) Provision for loss on inventories devaluation	(37.4)	345.9	396.6
Provision for impairment on property, plant and equipment	427.6	49.8	374.9
Employee benefits expense related to defined benefit plans	268.2	397.0	510.5
Loss (gain) on disposal of property, plant and equipment, net	6.0	(6.5)	(181.1)
Loss on written-off of property, plant and equipment	471.8	28.1	29.3
Tax expense (benefit)	(1,400.2)	3,812.4	1,534.0
	35,137.8	46,765.7	29,018.8
<i>Changes in operating assets and liabilities</i>			
Trade accounts receivable	(895.5)	(596.3)	9,825.4
Inventories	(3,672.2)	(18,054.9)	14,857.4
Other current assets	693.9	(818.0)	613.4
Other non-current assets	732.1	1,269.4	(3,162.5)
Trade accounts payable	35.8	8,149.8	(6,477.1)
Other current liabilities	(897.3)	(1,354.3)	447.5
Other non-current liabilities	198.7	20.6	(651.0)
Repayment of employee benefit relating to defined benefit plans	(178.9)	(215.9)	(378.8)
Taxes paid	(2,247.4)	(3,185.5)	(3,248.1)
Net cash from operating activities	28,906.8	31,980.6	40,845.0
Cash flows from investing activities			
Interest received	122.5	250.6	177.4
Acquisition of property, plant and equipment	(19,773.6)	(16,353.0)	(16,673.9)
Proceeds from sale of property, plant and equipment	336.6	78.4	441.1
Proceeds from sale of other investments	51.3	2.3	116.3
Acquisition of intangible assets	(281.9)	(190.2)	(126.1)
Proceeds from sale of intangible assets	0.1	0.2	6.4
Net cash outflow on acquisitions of businesses	(8,453.0)	(26,191.2)	(7,018.6)

	For the year ended December 31		
Unit: Baht million	2017	2018	2019
Net cash outflow on investment in joint operation	-	(11,535.3)	-
Net cash outflow on additional investments in subsidiaries and joint ventures	(558.3)	(2,289.0)	(2,220.9)
Advance payment on additional investments in subsidiary and a joint venture	(229.3)	-	-
Net cash used in investing activities	(28,785.7)	(56,227.3)	(25,298.2)
Cash flow from financing activities			
Interest paid	(4,425.8)	(5,141.6)	(6,641.9)
Deferred financing cost paid	(32.8)	(73.4)	(360.1)
Dividends paid to owners of the Company	(4,048.7)	(8,925.2)	(7,860.2)
Dividends paid to non-controlling interests	(134.5)	(67.3)	(199.7)
Proceeds from short and long-term borrowings	13,726.4	28,434.9	23,691.8
Repayment of short and long-term borrowings	(21,038.6)	(20,310.3)	(22,373.5)
Repayment of debentures	(5,500.0)	(3,551.4)	(4,018.5)
Payment by a lessee for reduction of the outstanding liability relating to a finance lease	(25.8)	(63.6)	(197.5)
Repayment of subordinated perpetual debentures	-	-	(15,000.0)
Proceeds from issue of ordinary shares due to warrants exercised	15,504.1	15,852.4	-
Proceeds from debenture, net of debenture issuance costs	9,477.6	17,471.7	9,039.0
Issuance of subordinated perpetual debentures, net of issuance cost of Baht 94 million	-	-	14,905.6
Subordinated perpetual debentures of the Company acquired by subsidiary	-	-	(679.6)
Coupon payment on subordinated perpetual debentures	(1,050.0)	(1,050.0)	(1,050.0)
Loans to joint ventures, net	277.9	(9.3)	(51.4)
Net cash from (used in) financing activities	2,729.9	22,566.7	(10,796.1)
Net increases (decrease) in cash and cash equivalents, before effect of exchange rates	2,851.0	(1,680.0)	4,750.6
Cash and cash equivalents at 1 January	4,025.6	6,877.0	5,578.4
Effect of exchange rate changes on cash and cash equivalents	0.4	381.4	117.6
Cash and cash equivalents at 31 December	6,877.0	5,578.4	10,446.7

Key Financial Ratio

		For the year ended December 31		
		2017	2018	2019
Liquidity Ratio				
Current ratio	times	1.4	1.1	1.1
Quick ratio	times	0.6	0.4	0.4
Cash from operating ratio	times	0.4	0.4	0.4
Receivable turnover ratio	times	8.8	9.6	9.7
Collection days	days	41.1	37.3	37.0
Inventory turnover ratio	times	5.5	4.9	4.6
Average number of days sales	days	65.6	73.3	78.4
Account payable turnover ratio	times	6.3	6.2	5.5
Payment days	days	57.3	58.4	65.0
Cash cycle	days	49.4	52.2	50.3
Profitability Ratio				
Gross profit margin	%	15.9	16.7	12.3
Operating profit margin	%	6.9	8.5	2.6
Non-operating profit margin	%	1.3	1.3	0.6
Net profit margin	%	7.2	7.5	1.5
Return of equity (ROE)	%	20.3	20.2	3.8
Efficiency Ratio				
Return on asset (ROA)	%	8.7	10.4	3.0
Return on fixed asset	%	16.3	19.3	5.5
Asset turnover	times	1.1	1.1	0.9
Financial Policy Ratio				
Interest bearing debt to equity	times	0.8	0.9	1.1
Net interest bearing debt to equity	times	0.7	0.9	1.0
Interest coverage ratio (on Net Cash provided by operating activities)	times	7.5	7.6	7.3
Interest coverage ratio (on EBITDA)	times	9.1	11.1	5.1

14. **Management Discussion and Analysis (MD&A)**

The following MD&A should be read in conjunction with our consolidated financial statements. It includes forward-looking statements reflecting our current views with respect to future events and future performance. Thus, a number of factors could cause actual results or outcomes to differ materially from those expressed in any forward-looking statement as described in our Risk Factors and statements appearing elsewhere.

2019 IVL Performance Summary

IVL registered volume growth of 18% in 2019 driven mainly by inorganic expansion. Industry-wide spreads declined to historical lows in 2019, leading to a 20% reduction in IVL's core EBITDA. Operating cash flow through this period increased by 33% to \$1.3B, as a result of lower prices and operational excellence. IVL has proposed a dividend of THB1.225/share for 2019.

IVL concurrently undertook several transformative initiatives that were announced on February 4, 2020, at its Capital Market Day, which are expected to generate benefits starting in 2020 and targeted to lead to \$350 million in run-rate cost savings by 2023. These initiatives and the strategic acquisition of the Huntsman Integrated Ethylene and Propylene Oxide (EO & PO) assets (code-named Spindletop); footprint expansion into a growing market in India; formation of a dedicated team to grow the PET recycling business; continued focus on working capital optimization coupled with an increased emphasis on leadership development are the key strategic priorities for the group.

2019 Summary Financials

Table 1: Core Financials of Consolidated Business

	Full Year		
\$million (except where stated otherwise)	2019	2018	2019 YoY
Production Volume (KT)	12,340	10,419	18%
Consolidated Revenue ^{1,2}	11,361	10,741	6%
Core EBITDA^{2,3}	1,147	1,441	(20)%
PET	563	588	(4)%
Fibers	246	240	2%
Feedstock	354	613	(42)%
<u>New Segments</u>			
Integrated PET	754	791	(5)%
Fibers	222	211	5%
Packaging	71	48	50%
Integrated Oxides and Derivatives	75	232	(68)%
Specialty Chemicals	40	158	(74)%
Core EBIT	598	1,000	(40)%
Core Net Profit after Tax and NCI⁴	387	789	(51)%
Core Net Profit after Tax and NCI (THB m)	12,002	25,488	(53)%
Core EPS after PERP Interest (THB)	1.96	4.43	(56)%
Core EBITDA/T (\$)	93	138	(33)%
Operating Cash Flow⁵	1,316	989	33%
Net Debt to Equity (times)	0.99	0.87	14%

* 'Integrated Oxides and Derivatives' was previously called Olefins. The new nomenclature better reflects our sector following the consolidation of Huntsman assets.

¹Consolidated financials are based upon elimination of intra-company or intra-business segment transactions.

²Total of each segment may not always tally with consolidated financials due to holding segment.

³Core EBITDA is Reported EBITDA less Inventory gains/(losses).

⁴Core Net Profit is Reported Net Profit less Inventory gains/(losses) and one-time extraordinary items.

⁵Operating Cash Flow is er changes in net working capital and cash tax, before maintenance capex.

Business Segments Definitions

IVL now categorizes its businesses in five segments. This section of the document will discuss the performance of these five segments.

Integrated PET	Full PET value chain PX (Paraxylene), PTA (Purified terephthalic acid), PET (Polyethylene terephthalate), and Recycling
Integrated Oxides and Derivatives	Includes olefin intermediates and Ethylene Oxide (EO): MEG (Monoethylene glycol), DEG (Diethylene Glycol), TEG (Triethylene Glycol) and EO (Purified Ethylene oxide)
Fibers	Polyester, Rayon, Nylon, Polypropylene, composites and worsted wool fibers, for three end-use segments: Mobility (automotive parts e.g. airbags, tires, seatbelts), Lifestyle (apparel, active wear), and Hygiene (diapers, feminine care)
Specialty Chemicals	Specialty PET-related chemicals (for medical, premium bottles, films and sheets); PIA (Purified Isophthalic Acid, for PET production, unsaturated polyester resins and coatings); NDC (Naphthalene Dicarboxylate, for optical displays and industrial/mobility uses)
Packaging	PET preforms and packaging (e.g. bottles) for beverage and food end uses

As presented during the 2020 Capital Markets Day on 4 Feb 2020, we have established new segment groupings to better define our business. Integrated PET, Packaging and Specialty Chemicals are now grouped under Combined PET given the inter-related nature of their businesses.

Table 2: Segment Results (New Grouping)

	Full year		
	2019	2018	2019 YoY
\$million (except where stated otherwise)			
Production (MMT)	12.3	10.4	18%
Combined PET	10.3	8.6	20%
Integrated PET	9.4	7.8	20%
Packaging	0.2	0.2	31%
Specialty Chemicals	0.7	0.6	14%
Integrated Oxides and Derivatives	0.4	0.5	(20)%
Fibers	1.6	1.3	25%
Core EBITDA	1,147	1,441	(20)%
Combined PET	866	997	(13)%
Integrated PET	754	791	(5)%
Packaging	71	48	50%
Specialty Chemicals	40	158	(74)%
Integrated Oxides and Derivatives	75	232	(68)%
Fibers	222	211	5%
ROCE (%)	8%	14%	(6)ppt.
Combined PET	13%	16%	(3)ppt.
Integrated PET	15%	16%	(1)ppt.
Packaging	22%	12%	9ppt.
Specialty Chemicals	(1)%	19%	(21)ppt.
Integrated Oxides and Derivatives	5%	35%	(31)ppt.
Fibers	1%	5%	(4)ppt.

FY2019 Performance Highlights

Table 3: Segment Results (New segments)

	Full Year		
\$million (except where stated otherwise)	2019	2018	2019 YoY
Production Volume (KT)	12,340	10,419	18%
Integrated PET	9,365	7,804	20%
Fibers	1,614	1,292	25%
Packaging	213	162	31%
Integrated Oxides and Derivatives	412	515	(20)%
Specialty Chemicals	736	646	14%
Operating rate (%)	85%	88%	(3)%
Integrated PET	88%	88%	0%
Fibers	83%	94%	(12)%
Packaging	76%	61%	16%
Integrated Oxides and Derivatives	75%	94%	(19)%
Specialty Chemicals	69%	85%	(16)%
Consolidated Revenue^{1,2}	11,361	10,741	6%
Integrated PET	7,620	6,996	9%
Fibers	3,153	2,747	15%
Packaging	335	249	34%
Integrated Oxides and Derivatives	293	452	(35)%
Specialty Chemicals	954	1,061	(10)%
Core EBITDA³	1,147	1,441	(20)%
Integrated PET	754	791	(5)%
Fibers	222	211	5%
Packaging	71	48	50%
Integrated Oxides and Derivatives	75	232	(68)%
Specialty Chemicals	40	158	(74)%
Core EBITDA Margin (%)	10%	13%	(3)ppt.
Integrated PET	10%	11%	(1)ppt.
Fibers	7%	8%	(1)ppt.
Packaging	21%	19%	2ppt.
Integrated Oxides and Derivatives	25%	51%	(26)ppt.
Specialty Chemicals	4%	15%	(11)ppt.
Core ROCE%	8%	14%	(6)ppt.
Integrated PET	15%	16%	(1)ppt.
Fibers	1%	5%	(4)ppt.
Packaging	22%	12%	9ppt.
Integrated Oxides and Derivatives	5%	35%	(31)ppt.
Specialty Chemicals	(1)%	19%	(21)ppt.

¹Consolidated financials are based upon elimination of intra-company or intra-business segment transactions.

²Total of each segment may not always tally with consolidated financials due to elimination of Intra-company.

³Core EBITDA is Reported EBITDA less Inventory gains/(losses).

Segment Analysis

Integrated PET

The overall volume increase was outweighed by a significant decline in EBITDA/T, reflecting lower integrated PET and PX spreads.

PET volumes declined by 3% in 4Q19 YoY. Organic volumes declined by ~10% due to a planned reduction in production to manage inventories and seasonality. Management will now focus on cost management initiatives, operational excellence and working capital optimization in 2020.

In addition, IVL remains committed to growing our recycling footprint and driving the circular economy for PET, working closely with our global customers. For example, P&G recently announced a long-term agreement with IVL to supply recycled PET for several major lines including Pantene, Head & Shoulders and Herbal Essences. IVL has allocated a budget of US\$ 1.5Billion by 2025 to grow the recycling business.

Integrated Oxides and Derivatives

EO, which represents around 40% of total production volume has performed well. EO margins have remained relatively stable, which is reflected in its unchanged EBITDA contribution in 4Q19.

EG, which has a direct correlation with the absolute price of EG, represents the remainder of our production volume. The lower EBITDA contribution of EG reflects the decline in industry-wide MEG spreads, driven by increased capacity in Asia as well as lower MEG prices.

The poor 2019 performance was exacerbated by an unplanned shutdown, which contributed to a \$38M EBITDA decline. However, the affected operations are now back online and operating normally.

Management focus in 2020 will be to realize the synergy of the recently-acquired Huntsman assets, our Louisiana (IVOL) gas cracker as well as our existing Texas MEG (IVOG) assets while minimizing any further unplanned shutdowns through operational excellence initiatives.

Fibers

IVL has restructured the Fibers segment into three market-oriented verticals: *Mobility*, *Hygiene* and *Lifestyle*. Each vertical has a dedicated management team tasked to consolidate its asset footprint to capture combinatory synergies. This is progressing well to date in 2020.

The *Lifestyle* business registered a lower EBITDA in 4Q19, as a sharp decline in margins offset an increase in volumes. The margin decline was driven by the unwinding of accumulated inventories in China during the quarter.

		4Q18	4Q19	2018	2019
Lifestyle	Production (MT)	0.19	0.26	0.77	0.97
	Core EBITDA (\$M)	24	5	101	62
	Core EBITDA/T	128	19	131	64
Mobility	Production (MT)	0.05	0.05	0.22	0.26
	Core EBITDA (\$M)	9	12	52	70
	Core EBITDA/T	205	215	235	271
Hygiene	Production (MT)	0.10	0.09	0.30	0.38
	Core EBITDA (\$M)	31	26	58	90
	Core EBITDA/T	310	291	195	234

The *Mobility* business grew on a YoY basis, with stable volumes and a slight improvement in margins despite a global slowdown in the broader automotive sector.

The *Hygiene* business grew in 2019, reflecting the full year contribution from the Avgol acquisition.

As a part of the Fibers segment transformation, IVL has taken a conservative approach including a non-cash impairment and restructuring costs of US\$ 15M at three fibers location in Israel (Hygiene), Mexico and France (Mobility).

Packaging

This segment has performed strongly both in the last quarter and the last twelve months supported by growth in both margins and volume, including the acquisition of Medco Plast in November 2018 and further expanded with the acquisition of BEVPAK in Africa in 4Q19.

We believe that this segment's performance is in-line with the growing demand for PET packaging, given its beneficial, functional and environmental properties compared to other beverage packaging materials.

Specialty Chemicals

The specialty chemicals segment registered lower earnings on a YoY basis both in 4Q19 and 2019, driven mainly by a negative EBITDA contribution from PIA. This is in line with industry spreads, which were at an all-time low.

IVL has launched a turnaround plan for this business including a project to drive new demand for PIA, feedstock optimization and one line conversion to become switchable between PIA and PTA.

Capital Expenditure Program

IVL expects its balance sheet and cash flow from operations to remain strong, and sufficient to meet its planned investments in future growth opportunities.

Table 4: Major Projects Update & Recycling Growth Plan

Project	Business	Expected Completion	Total Installed Capacity (T)	Earnings in \$M	Capex in \$M
Olympus Cost Transformation Program	Corporate and all business segments	2020-2023	n/a	EBITDA ~350	~500
Corpus Christi PET/PTA	Integrated PET	2022-2023	PET: 367 kta PTA: 433 kta	Double digit ROCE	700-800 (till Dec'19: 381)
Recycling projects	PET recycling	2020-2023	~600kta	ROCE 12-14%	700-800

¹ Huntsman assets' acquisition completed on 3rd January 2020, total paid \$2 billion

² Gas Cracker (IVOL) commercial startup on 31st January 2020, total Capex ~\$1 billion

IVL Strategic Priorities Going Forward

IVL remains focused on its financial objective for 2023 - to achieve double-digit ROCE in each of its core businesses; top decile total shareholder returns (TSR) position vs. peers and a strong cash flow through the cycle.

On the journey to achieve this, IVL is committed to:

- **Cost transformation** via the Olympus program, leading to \$350M run-rate savings by 2023
- **Asset full potential** with strong revenue and margin growth across PET, IOD and Fibers through commercial excellence
- **Adjacency growth** to develop new growth engines for IVL
- **Recycling leadership** as the #1 player in recycled PET and the orchestrator of the PET circular economy
- **Leadership development** with a bench of leaders and talent management systems that is recognized as best-in-class

In 2020, the key milestones for IVL are:

- Spreads to register some recovery, given the historical lows below sustainable levels in 4Q19
- Demand for recycled PET to accelerate while virgin PET and PTA demand remain resilient, driving organic volume growth
- COVID-19 has had limited direct impact to-date on IVL's global production footprint as only ~4% of EBITDA from China; IVL continues to monitor further downside risks globally
- Volumes lost in 2019 from unplanned shutdowns in 2019 to be recovered
- Switchable PTA/PIA line in the US to generate EBITDA upside
- Lake Charles gas cracker commenced commercial operations on 31 January 2020
- IOD business to benefit from Spindletop integration synergies and organic growth potential
- Olympus cost program to start contributing to the bottom line
- Operating rates and inventory days to be balanced to optimize both earnings and operating cash flows; IVL continues to optimize working capital through supply chain financing with a target reduction of three days in gross working capital

Accounting Policy

The accounting policies are adopted and applied consistently to all of the periods. For more information on key accounting policies, please refer to Note numbers 2 and 3 of our full-year 2019 audited financial statements.

Emphasis of Matters in the Auditors Opinion

The auditor has drawn attention to note 4 to the consolidated financial statements that, as at the reporting date, the determination of the fair value and the allocation of the purchase price of several business acquired during 2019 was determined provisionally and is subject to potential amendment. The opinion is not modified in respect of this matter.

Performance Comparison
Revenue from the sale of goods

THB in Millions	FY 2018	FY 2019	Change (%)
<u>Old segment</u>			
Revenue from the sale of goods	347,170.9	352,692.4	1.6%
Add: Eliminations	81,747.5	83,324.4	
Adjusted revenue from the sale of goods	428,918.4	436,016.8	1.7%
PET	182,415.4	196,046.7	7.5%
Fibers	99,207.0	107,058.6	7.9%
*Feedstock	147,296.0	132,911.5	(9.8)%

*Excluding Feedstock price adjustment for captive sales to PET on freight savings.

THB in Millions	FY 2019
<u>New segment</u>	
Revenue from the sale of goods	352,692.4
Add: Eliminations	30,863.7
Adjusted revenue from the sale of goods	383,556.2
Integrated PET	236,358.4
Fibers	97,890.5
Packaging	10,403.5
Integrated Oxides and Derivatives	9,099.5
Specialty Chemicals	29,804.3

Sales revenue for the year ended 2019 was THB 352,692.4 million, an increase of 1.6% from 2018, while the volume grew 18% from 2018. This variance results primarily from the lower crude prices and margins in 2019.

PET Revenue

PET revenue for the year ended 2019 was THB 196,046.7 million, an increase of THB 13,631.3 million, or 7.5% from 2018, mainly driven by increased volumes, which grew by 28%. The higher PET volume contributions were from full-year operation in 2019 of Brazil PET (acquired May 2018), Egyptian Indian Polyester (acquired June 2018), Medco Plast (acquired November 2018) and acquisitions of Invista Germany (acquired 1Q2019) including consolidation of India PET JV (consolidated 1Q2019).

Fibers Revenue

Fibers revenue for the year ended 2019 was THB 107,058.6 million, an increase of THB 7,851.7 million, or 7.9% from 2018, driven by increased volumes which grew by 18%. The higher Fibers volume contributions were from the full-year operation in 2019 of Avgol (acquired July 2018), Kordarna (acquired October 2018), and Schoeller (acquired November 2018) and acquisitions of M&G Fibras Brasil (acquired 1Q2019), UTT (acquired 1Q2019) and IRSL India (acquired 2Q2019).

Feedstock Revenue

Feedstock revenue for the year ended 2019 was THB 132,911.5 million, a decrease of THB 14,384.5 million or 9.8% from 2018, in contrast with volume growth of 10%. The decrease in revenue is driven mainly by the negative impact from low industry spreads and lower prices. The higher Feedstocks volume resulted from the increase PTA volume from the full-year operation in 2019 of Polyprima Indonesia (consolidated October 2018).

Cost of Sale of Goods

THB in millions	FY 2018	FY 2019	Change (%)
<u>Old segment</u>			
Cost of sale of goods	281,119.7	295,054.6	5.0%
As a percentage of total revenues	81.0%	83.7%	
Add: Eliminations	77,611.1	82,966.0	
Adjusted cost of sale of goods	358,730.8	378,020.6	5.4%
*PET	154,401.2	168,980.7	9.4%
As a percentage of total PET revenue	84.6%	86.2%	
Fibers	84,565.2	92,511.0	9.4%
As a percentage of total Fibers revenue	85.2%	86.4%	
Feedstock	119,764.4	116,528.9	(2.7)%
As a percentage of total Feedstock revenue	81.3%	87.7%	

*Excluding Feedstock price adjustment for captive sales to PET on freight savings.

THB in millions	FY 2019
<u>New segment</u>	
Cost of sale of goods	295,054.6
As a percentage of total revenues	83.7%
Add: Eliminations	30,701.0
Adjusted cost of sale of goods	325,755.6
Integrated PET	200,837.8
As a percentage of total Integrated PET revenue	85.0%
Fibers	84,812.5
As a percentage of total Fibers revenue	86.6%
Packaging	7,489.1
As a percentage of total Packaging revenue	72.0%
Integrated Oxides and Derivatives	5,976.8
As a percentage of total Integrated Oxides and Derivatives revenue	65.7%
Specialty Chemicals	26,639.4
As a percentage of total Specialty Chemicals revenue	89.4%

Our cost of sales for the year ended 2019 was THB 295,054.6 million, an increase of THB 13,934.9 million, or 5.0% from 2018 which is in-line with the increase in sales revenue.

PET Cost of Sale of Goods

For the year ended 2019, PET cost of sale of goods was THB 168,980.7 million, an increase of THB 14,579.5 million, or 9.4% from 2018, in-line with an increase in sales revenue.

Fibers Cost of Sale of Goods

For the year ended 2019, Fibers cost of sale of goods was THB 92,511.0 million, an increase of THB 7,945.8 million, or 9.4% from 2018, in-line with an increase in sales revenue.

Feedstock Cost of Sale of Goods

For the year ended 2019, Feedstock cost of sale of goods was THB 116,528.9 million, a decrease of THB 3,235.6 million, or 2.7% from 2018. This resulted from the decrease in raw materials price offset with an increase in volumes.

Gross Profit

THB in millions	FY 2018	FY 2019	Change (%)
<u>Old segment</u>			
Gross Profit	66,051.2	57,637.8	(12.7)%
As a percentage of total revenues	19.0%	16.3%	
Add: Eliminations	4,136.3	358.4	
Adjusted gross profit	70,187.5	57,996.2	(17.4)%
PET	28,014.2	27,066.0	(3.4)%
As a percentage of total PET revenue	15.4%	13.8%	
Fibers	14,641.8	14,547.6	(0.6)%
As a percentage of total Fibers revenue	14.8%	13.6%	
Feedstock	27,531.6	16,382.6	(40.5)%
As a percentage of total Feedstock revenue	18.7%	12.3%	

THB in millions	FY 2019
<u>New segment</u>	
Gross Profit	57,637.8
As a percentage of total revenues	16.3%
Add: Eliminations	162.8
Adjusted gross profit	57,800.6
Integrated PET	35,520.7
As a percentage of total Integrated PET revenue	15.0%
Fibers	13,078.0
As a percentage of total Fibers revenue	13.4%
Packaging	2,914.4
As a percentage of total Packaging revenue	28.0%
Integrated Oxides and Derivatives	3,122.6
As a percentage of total Integrated Oxides and Derivatives revenue	34.3%
Specialty Chemicals	3,164.9
As a percentage of total Specialty Chemicals revenue	10.6%

Gross profit for the year ended 2019 was THB 57,637.8 million, a decrease of THB 8,413.4 million or 12.7% from 2018. The gross profit margin of 16.3% in 2019 decreased from the prior year mainly due to lower industry spreads.

PET Gross Profit

For the year ended 2019, PET gross profit was THB 27,066.0 million, a decrease of THB 948.2 million from 2018. PET gross profit margin in 2019 was 13.8%, a decrease YoY predominantly due to a lower industry spreads.

Fibers Gross Profit

For the year ended 2019, Fibers gross profit was THB 14,547.6 million, a decrease of THB 94.2 million from 2018. Gross profit margin in 2019 was 13.6%, decreasing from the prior year primarily due to lower industry margins especially in Lifestyle fibers (mainly polyester fibers).

Feedstock Gross Profit

For the year ended 2019, Feedstock gross profit was THB 16,382.6 million, a decrease of THB 11,148.9 million from 2018. Gross profit margin in 2019 was 12.3%, decreasing from the prior year due to a lower industry spreads and unplanned shutdown which were compensated, to some extent, by higher volumes.

Spread or Raw Material Margins*

Amount in US\$ per MT	FY 2018	FY 2019
Industry spread		
Asia PTA	149	137
Asia PET	179	126
Asia PET Integrated	307	243
Industry spread		
West PTA	247	238
West PET	302	234
West PET Integrated	514	439

*Selling price less raw material consumption

Our actual geographic capacity mix also impacts our margin when compared with the industry.

Earnings before Interest Expenses, Income Taxes, Depreciation & Amortization (EBITDA)

THB in millions	FY 2018	FY 2019	Change (%)
<u>Old segment</u> EBITDA ⁽¹⁾	47,128.5	28,913.5	(38.6)%
Add: Inventory loss/(gain) ⁽²⁾	(539.4)	6,689.1	
CORE EBITDA	46,589.1	35,602.6	(23.6)%
As a percentage of total revenues	13.4%	10.1%	
Add: Eliminations and others ⁽³⁾	(30.5)	492.1	
Adjusted CORE EBITDA	46,558.6	36,094.7	(22.5)%
PET	18,993.4	17,481.8	(8.0)%
As a percentage of total PET revenue	10.4%	8.9%	
Fibers	7,753.4	7,631.7	(1.6)%
As a percentage of total Fibers revenue	7.8%	7.1%	
Feedstock	19,811.8	10,981.2	(44.6)%
As a percentage of total Feedstock revenue	13.5%	8.3%	

- (1) EBITDA is calculated from sales revenue adding net foreign exchange gain (loss) and other income, then deducting cost of sales, selling & administrative expenses (excludes depreciation & amortization), management benefits expenses, and adjusting by extraordinary items. Excluding Feedstock price adjustments for captive sales to PET on freight savings. There are no impacts on regional or consolidated EBITDA.
- (2) Inventory gains (losses) are the gains or losses on the inventories that IVL carries every month, due to the movement in the prices of finished products and raw materials following market movements.
- (3) Eliminations and others include the amounts attributable to intra-group transactions and the EBITDA of holding companies.

THB in millions	FY 2019
<u>New segment</u>	
EBITDA ⁽¹⁾	28,913.5
Add: Inventory loss/(gain) ⁽²⁾	6,689.1
CORE EBITDA	35,602.6
As a percentage of total revenues	10.1%
Add: Eliminations and others ⁽³⁾	492.1
Adjusted CORE EBITDA	36,094.7
Integrated PET	23,408.9
As a percentage of total Integrated PET revenue	9.9%
Fibers	6,891.1
As a percentage of total Fibers revenue	7.0%
Packaging	2,219.3
As a percentage of total Packaging revenue	21.3%
Integrated Oxides and Derivatives	2,320.2
As a percentage of total Integrated Oxides and Derivatives revenue	25.5%
Specialty Chemicals	1,255.2
As a percentage of total Specialty Chemicals revenue	4.2%

(1) EBITDA is calculated from sales revenue adding net foreign exchange gain (loss) and other income, then deducting cost of sales, selling & administrative expenses (excludes depreciation & amortization), management benefits expenses, and adjusting by extraordinary items. Excluding Feedstock price adjustments for captive sales to PET on freight savings. There are no impacts on regional or consolidated EBITDA.

(2) Inventory gains (losses) are the gains or losses on the inventories that IVL carries every month, due to the movement in the prices of finished products and raw materials following market movements.

(3) Eliminations and others include the amounts attributable to intra-group transactions and the EBITDA of holding companies.

Core EBITDA for the year ended 2019 was THB 35,602.6 million, a decrease of THB 10,986.5 million or 23.6%, mainly from the Feedstock segment. Core EBITDA is defined as EBITDA less Inventory gain/(loss).

PET Core EBITDA

PET Core EBITDA for the year ended 2019 was THB 17,481.8 million, a decrease of THB 1,511.6 million, or 8.0% from 2018, driven by a lower industry margins.

Fibers Core EBITDA

Fibers Core EBITDA for the year ended 2019 was THB 7,631.7 million, a slight decrease of THB 121.7 million, or 1.6% from 2018, driven by a lower industry margins especially in Lifestyle fibers.

Feedstock Core EBITDA

Feedstock Core EBITDA for 2019 was THB 10,981.2 million, a decrease of THB 8,830.6 million, or 44.6% from 2018. This was driven mainly by the impact of PIA industry spreads, which were at an all-time low and an unplanned shutdown in our EOEG site in the USA.

Other Revenues

THB in millions	FY 2018	FY 2019	Change (%)
Interest Income	247.2	183.2	(25.9)%
Net foreign exchange gain/(loss)	586.2	(296.1)	(150.5)%
Gain on a bargain purchase	1,928.5	805.5	(58.2)%
Other income	1,952.6	2,183.7	11.8%
Total	4,714.5	2,876.2	(39.0)%

Interest Income

Interest Income for the year ended 2019 was THB 183.2 million, a decrease of THB 64.0 million, or 25.9% from 2018. This was mainly due to a decrease in current investments during the year.

Net foreign exchange gain/(loss)

There was a net foreign exchange loss for 2019 of THB 296.1 million, a decrease from a gain of THB 586.2 million in 2018. A significant decrease of THB 882.4 million, or 150.5% as a result of mismatch of currency for loan exposure in Holding companies. Currency volatilities are also hedged in a natural way due to our global presence, for example US\$ assets are hedged naturally against US\$ liabilities.

Gains on bargain purchases

During 2019, IVL acquired several businesses where the excess of the Group's interest in the net identified assets and liabilities of the companies acquired over cost (recognized values are higher than the consideration transferred) are considered to be gains on bargain purchases, and recognized in the consolidated statement of income in accordance with generally accepted accounting principles for business combinations. A valuation of net identified assets acquired and liabilities assumed is calculated every time to arrive at recognized values. Fair value adjustments are the difference between the carrying amount and the recognized value. In 2019, IVL had gains on bargain purchases of THB 805.5 million. The following details are provided:

Baht in millions	Net identified assets acquired and liabilities assumed				
	Interest acquired (%)	Recognized values	Total Consideration	Gain on a bargain purchase	Goodwill
Companies acquired during the years ended December 31, 2018					
Egyptian Indian Polyester Company S.A.E., Egypt	50%	1,197.2	307.1	890.1	
Sorepla Technologie S.A., France	100%	400.3	395.0	5.3	
Kordárna Plus a.s., Czech Republic	100%	2,767.0	2,124.3	642.7	
Schoeller Group, Austria, Czech Republic and Germany	100%	1,802.8	1,412.4	390.4	
M&G Polimeros Brazil S.A., Brazil	100%	12,216.5	12,246.7		30.2
Avgol Industries 1953 Ltd., Israel	66%	5,996.6	10,643.5		4,646.9
Medco Plast for Packing and Packaging Systems S.A.E., Egypt	74%	702.1	1,699.5		997.4
				1,928.5	5,674.5
Companies acquired during the years ended December 31, 2019					
M&G Fibras Brasil Ltda., Brazil	100%	984.8	870.3	114.4	
UTT Beteiligungsgesellschaft mbH, Germany	100%	2,833.1	2,325.9	507.1	
INVISTA Resins & Fibers GmbH, Germany	100%	1,323.2	1,139.2	183.9	
IVL Dhunseri Petrochem Industries Private Limited, India	50%	2,721.3	3,309.3		588.0
Custom Polymers PET, LLC, USA	100%	874.4	954.7		80.3
Indo Rama Synthetics (India) Limited, India	39%	1,578.9	1,672.2		93.3
Bevpak (Nigeria) Limited, Nigeria	100%	(110.8)	22.0		132.8
Sinterama S.p.A. and its subsidiaries, Italy, Brazil, China and Bulgaria	100%	1,775.2	1,797.7		22.5
Green Fiber International Inc., USA	100%	521.9	746.1		224.2
				805.5	1,141.1

A gain on bargain purchase is considered by management as an extraordinary item which does not arise from the normal operations of the business, but is included in the net profit of the Company. Additional information on each acquisition is provided in Note 4 – Acquisitions of Businesses in the Audited Financial Statements. Net identifiable assets acquired, including intangible assets, i.e. customer contracts, technology licenses and know-how, trade names and trademarks, were all recognized in the financial statements at fair value, and subject to depreciation, amortization or impairment (if any) in accordance with generally accepted accounting principles, as disclosed in Note 3 – Significant Accounting Policies in the Audited Financial Statements.

IVL's management expertise and business model allows us to buy companies most of the time at below their fair value as determined by an appraiser. We, therefore, need to record the gain on bargain purchases. These gains are recorded under property plant & equipment or intangibles or other assets, as applicable.

Other Income

Other income for the year ended 2019 was THB 2,183.7 million, an increase of THB 231.1 million, or 11.8%, from 2018. This was mainly due to an increase of government grants, gain on disposal of assets and other non-operating income. Please refer to Note 26 – Other Income in the Audited Financial Statements for further details.

Expenses

THB in millions	FY 2018	FY 2019	Change (%)
Distribution costs	18,449.4	21,216.2	15.0%
Administrative expenses	10,143.7	12,789.1	26.1%
Management benefit expenses	190.8	307.1	60.9%
Total	28,783.9	34,312.4	19.2%

Total expenses for the year ended December 31, 2019 was THB 34,312.4 million, an increase of THB 5,528.5 million, or 19.2%, from 2018 as a result of higher spending on selling and administrative expenses in-line with our volume growth. Please refer to Note 28 and 29 – Distribution Costs and Administrative Expenses of the Audited Financial Statements for further details on this item.

Management benefit expenses was THB 307.1 million, or an increase of 60.9% from last year, due to an increase in wages and salaries and an increase in the number of sites outside Asia.

Doubtful Debt Expenses

IVL had doubtful debt expenses in the amount of THB 91.6 million in 2019 and THB 23.9 million in 2018, a significant increase of THB 67.6 million, or 282.5%, from 2018 due to an increase of allowance for doubtful accounts in 2019 as we adopted more conservative approach. Please refer to Note 7 – Trade Account Receivables of the Audited Financial Statements for further details on this item.

Research and Development (R&D) Expenses

IVL has a strong R&D platform with 15 centers for innovation around the world. We are strongly committed to providing innovative solutions to our customers and focusing on an agenda geared to sustainability. We have many high value-added businesses which require R&D, and as a result, we have a strongly focused approach to innovation. In 2019, IVL spent THB 412.1 million (2018: THB 401.6 million) on R&D.

Finance Costs

Finance costs for the year ended 2019 was THB 5,615.1 million, an increase of THB 1,387.7 million from 2018, that was in-line with an increase in overall interest-bearing liabilities.

Share of profit of jointly-controlled entities, net

IVL had a share of profit from joint ventures in the amount of THB 5.3 million and THB 585.9 million for the year ended 2019 and 2018, respectively. A significant decrease in the share of profit from joint ventures was due to a change in accounting treatment of investment in India JV as in 2019 IVL started to consolidate JV in India with the change in management control in IVL's favor. Please refer to Note 11 – Investment in Joint Ventures in the Audited Financial Statements for further details.

Income Tax Expense

Tax expense for 2019 was THB 1,534.0 million, a decrease of THB 2,278.4 million from 2018. This was in-line with a decrease in earnings in 2019.

Net Profit

THB in millions	FY 2018	FY 2019	Change (%)
Net profit	26,337.6	4,363.7	(83.4)%
As a percentage of total revenues	7.6%	1.2%	
Profit attributable to:			
Owners of the Company	26,465.4	5,252.1	(80.2)%
Non-controlling interests	(127.8)	(888.4)	595.4%

Net Profit for the year ended December 31, 2019 was THB 4,363.7 million, a decrease of THB 21,974.0 million, or 83.4%, from 2018 due to a significant decline in industry margins across the business. Please refer to the explanation of EBITDA above for more details. Net profit for the period included extraordinary items, i.e. gains on bargain purchases, acquisition costs, and related transaction expenses incurred on completed acquisitions. These non-recurring items are not from the normal operations of the business.

Financial Position

IVL closely monitors the financial position, and any changes, of various businesses at the group level. An analysis of the financial position is presented below:

Total Assets

As of December 31, 2019 and 2018, IVL had total assets of THB 380,567.9 million and THB 379,194.8 million, respectively. Total assets remained relatively stable which increased only 0.4% compare to prior period with the increase in assets but offset by higher depreciation and lower working capital due to lower prices. The major assets are as follows:

Trade Accounts Receivable

As of December 31, 2019 and 2018, IVL reported trade accounts receivable of THB 34,304.9 million, and THB 37,636.6 million respectively, representing 9.0% and 9.9% of total assets. We continued to improve and control our receivables management. Each subsidiary takes responsibility to set up and monitor their allowance for doubtful accounts by focusing on amounts that are over 12 months overdue in order to ensure that the allowance is adequate. The allowance for doubtful accounts is normally in a narrow low-range due to the close follow-up and collections that are conducted on time. The aging analysis for trade accounts receivable is as follows:

THB in millions	Consolidated financial statements	
	December 31, 2018	December 31, 2019
Related parties		
Within credit terms	855.6	824.0
Overdue:		
Less than 3 months	138.6	18.5
3-6 months	0.9	8.0
6-12 months	0.2	0.2
Over 12 months	150.0	1.7
Net	1,145.3	852.3
Other parties		
Within credit terms	31,121.4	29,291.5
Overdue:		
Less than 3 months	4,687.3	3,573.3
3-6 months	253.8	253.4
6-12 months	51.9	100.5
Over 12 months	618.3	515.2
	36,732.7	33,733.9
Less: allowance for doubtful accounts	(241.5)	(281.4)
Net	36,491.2	33,452.6
Total	37,636.5	34,304.9

Inventories

As of December 31, 2019 and 2018, IVL reported inventories of THB 62,164.9 million and THB 70,085.3 million, respectively, representing 16.3% and 18.5% of total assets. The decrease in inventories is the result of a planned reduction in production to manage inventories as well as lower prices.

Investment in joint ventures

As of December 31, 2019 and 2018, IVL reported investment in jointly-controlled entities of THB 2,492.2 million and THB 5,294.0 million, respectively, representing 0.7% and 1.4% of total assets. The significant decrease is mainly the result of our investment in an Indian JV. As a result of a change in accounting treatment, the transaction is accounted for as a business combination.

Property, plant and equipment (PPE)

As of December 31, 2019 and 2018, IVL reported property, plant and equipment of THB 212,422.9 million and THB 205,182.4 million, respectively, representing 55.8% and 54.1% of total assets. The increase is the result of various acquisitions and the ongoing gas cracker project in the US.

The PET segment saw an increase of 5.2% in its PPE in 2019 from 2018 to THB 60,617.3 million. In 2019, IVL completed the acquisition of Invista Germany and the combination of joint venture in India. We also acquired PET recycling assets in USA and Bevpak Packaging in Nigeria which is one of the largest manufacturers of PET preforms in West Africa.

The Fibers segment saw an increase of 10.6% in its PPE in 2019 from 2018 to THB 61,522.2 million. In 2019, IVL completed the acquisition of M&G Fibras Brasil, HVA-focused UTT and IRSL India. The Company also acquired the specialty fibers business of Sinterama which offers a vast range of colored polyester yarns for the automotive, furnishing and apparel industries as well as for technical applications.

The Feedstock segment saw a decrease of 2.5% in its PPE in 2019 from 2018 to THB 89,334.0 million. There was no major asset acquisition in this segment. The decline in PPE was mainly as a result of depreciation during the year.

Other Intangible Assets

As of December 31, 2019 and 2018, IVL reported intangible assets of THB 24,165.1 million and THB 25,139.3 million, respectively, representing 6.3% and 6.6% of total assets. Intangible assets decreased 3.9% from last year which was mainly as a result of amortization during the year and was considered insignificant. Please refer to Note 16 – Other Intangible Assets in the Audited Financial Statements for further details.

Loan to related parties

IVL has given certain loans to related parties as per Note 5 – Related Parties in the Audited Financial Statements. There are various strategic reasons given and as of December 31, 2019, these amounts are not material.

Total Liabilities

As of December 31, 2019 and 2018, IVL reported total liabilities of THB 242,400.6 million and THB 227,339.5 million, respectively. The increase in total liabilities resulted from an increase in loans from financial institutions, issuance of debentures, and higher trade accounts payable which were all in-line with the growth in volumes from business expansion and acquisitions.

Trade accounts payable

As of December 31, 2019 and 2018, IVL had trade accounts payable of THB 57,172.9 million and THB 54,564.8 million, respectively. This was in-line with the growth in volumes from business expansion and acquisitions. The payment days increased from 58.4 days for the year ended December 31, 2018, to 65.0 days for the year ended December 31, 2019, as a result of management actions on working capital optimization.

Interest-bearing liabilities

As of December 31, 2019 and 2018, IVL reported interest-bearing liabilities of THB 146,951.3 million and THB 136,764.4 million, respectively, representing 38.6% and 36.0% of total liabilities and shareholders' equity.

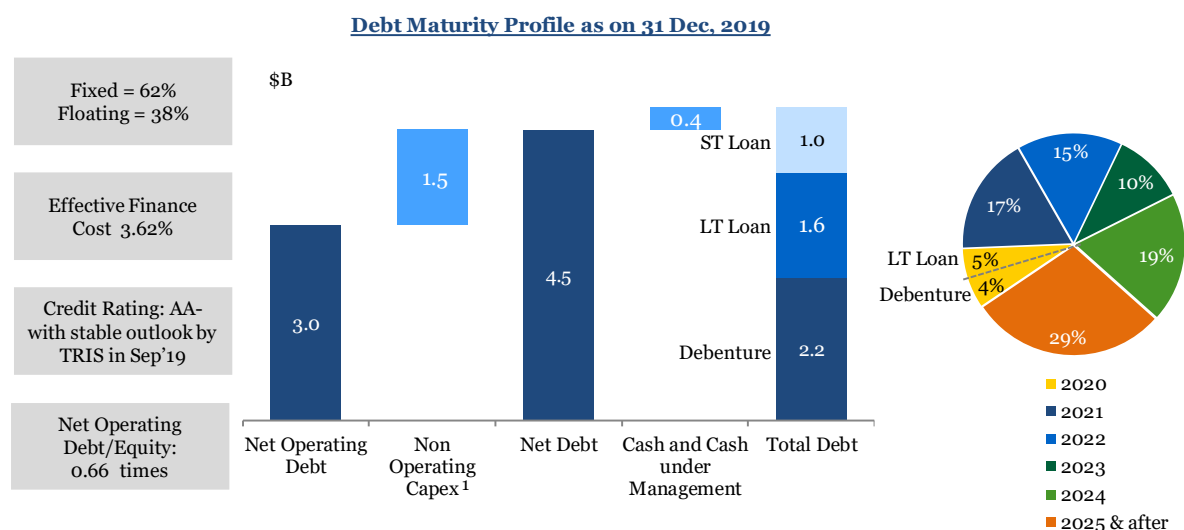
Our net operating debt-to-equity slightly increased from 0.60 times at the end of 2018 to 0.66 times at the end of 2019, after spending on capex and investments of THB 34,559.4 million in 2019. IVL's net operating debt slightly decreased from THB 91,832.2 million at the end of December 31, 2018 to THB 91,647.8 million at the end of December 31, 2019.

The table below describes total debt and net operating debt in THB billions:

THB billions	31-Dec-18	31-Dec-19
Total Debt	137	147
Bank overdraft and short-term loans	31	30
Long-term debt (Current portion)	9	6
Debentures (Current portion)	3	4
Long-term debt (Non-current portion)	35	43
Debentures (Non-current portion)	59	63
Cash & Cash under management	5	11
Cash and cash equivalents	6	10
Current investments and loans given	(0)	0
Net Debt	131	136
Non-operating Debt (Project Debt)	40	45
Net Operating Debt ¹	92	92
Net debt to equity (times)	0.87	0.99
Net operating debt to equity (times)	0.60	0.66
Debts with fixed interest %	49%	62%
Credit Rating by TRIS	AA-	AA-

¹ Net debt after debt for capex and investments in progress that are not generating revenue and earnings as on the date given.

The graph below provides the repayment schedule for long-term debt and debentures in US\$ billions:



¹ Includes various projects underway which are not yet completed and have not yet started contributing to the earnings

Shareholders' Equity

As of December 31, 2019 and 2018, IVL reported shareholders' equity of THB 138,167.3 million and THB 151,855.4 million, respectively. The decrease in shareholders' equity was mainly due to the increase in translation loss of overseas investments caused by Thai Baht appreciation in 2019 over 2018. Please refer to "Statement of Changes of Equity" in the Audited Financial Statements for more details.

Cash Flow

IVL generated THB 40,845.0 million in cash flow from operating activities in 2019 compared to THB 31,980.6 million in 2018 due to lower prices and operational excellence.

Cash flow used in investing activities of THB 25,298.2 million in 2019 was primarily paid towards the acquisitions of M&G Fibras Brasil, Invista Germany, PET recycling in USA, Bevpak Nigeria, UTT, IRSL India and Sinterama including combination of joint venture in India as well as the ongoing Gas Cracker project. Capex and investments were funded by a mix of long-term loans and cash flow from operations.

Cash flow used in financing activities of THB 10,796.1 million in 2019 was a result of short and long-term loans repayment and interest and dividend payments in 2019.

Liquidity

Strong cash flow from operations and a longer average loan maturity led to a high liquidity position for the Company. As at December 2019, IVL had liquidity of THB 62,430.6 million, in the form of cash and cash under management, plus un-utilized banking credit lines. The high liquidity provides us greater flexibility in business operations and allows us to finance accretive growth opportunities.

Key Financial Ratios

Current Ratio

Our current ratio is calculated by dividing total current assets by total current liabilities. IVL maintained the current ratio stood at 1.1 times at the end 2019 and 1.1 times at the end 2018 also. This ratio above 1 illustrated the strong financial position and liquidity of the Company as well as assurance of IVL's ability to pay-off our short-term liabilities.

Return on Equity Ratio (ROE)

Our ROE ratio is calculated by dividing our profit attributable to owners of the Company for the period by the average of the total equity attributable to equity holders of the Company. IVL ROE of 3.8% in 2019 compared to 20.2% in 2018, a significant decrease driven mainly by the impact of Industry spreads and lower prices leading in inventory losses. IVL core ROE of 9.0% in 2019 compared to 21.1% in 2018 which decreased in-line with decline in core net profit due to lower industry spreads.

Note: For the Core ROE% calculation, we use the formula as follows: Core profit attributable to owners of the Company after interest on perp/average of the equity attributable to shareholders of the Company.

Return on Assets Ratio (ROA)

Our ROA ratio is calculated by dividing profit before finance costs and income tax expenses by the average total assets. For the year ended 2019 and 2018, our ROA ratio was 3.0% and 10.4%, respectively. IVL core ROA of 4.9% in 2019 compared to 9.9% in 2018, which decreased in-line with decline in core net profit.

Net Debt-to-Equity Ratio (D/E)

Our Net Interest Bearing Debt-to-Equity Ratio is calculated by dividing our interest-bearing liabilities-less cash and cash equivalents by total shareholders' equity. As of December 31, 2019 and 2018, our net interest bearing debt-to-equity stood at 0.99 times and 0.87 times, respectively. The Company raised cash through the issuance of debentures and additional loans from financial institutions, which was used in acquisitions, ongoing expansions and working capital needs. However, the debt covenant for most of the debts is net debt to equity of at least two times.

Debt Servicing Coverage Ratio (DSCR)

Our DSCR is calculated by dividing core EBITDA by annual interest and principal payments on debt. As of December 31, 2019 and 2018, our DSCR was at 2.1 times and 3.5 times, respectively. The slightly decrease came from an increase in debt used in acquisitions. However, our DSCR is still in a good range which indicates that operations-generated income is sufficient to cover outstanding debt payments during the year. However, the debt covenant for most of the debts is at 1.1 times DSCR.