

POSCO DAEWOO Corporation **(formerly, Daewoo International Corporation)**

Separate financial statements
for the years ended December 31, 2015 and 2016
with the independent auditors' report

POSCO DAEWOO Corporation

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Independent auditors' report

The Shareholders and Board of Directors

POSCO DAEWOO Corporation (formerly, Daewoo International Corporation)

We have audited the accompanying separate financial statements of POSCO DAEWOO Corporation (the "Company", formerly known as Daewoo International Corporation), which comprise the separate statements of financial position as at December 31, 2016 and 2015, and the separate statements of comprehensive income, separate statements of changes in equity and separate statements of cash flows for the years then ended, all expressed in Korean won, and a summary of significant accounting policies and other explanatory information.

Management's responsibility for the separate financial statements

Management is responsible for the preparation and fair presentation of these separate financial statements in accordance with Korean International Financial Reporting Standards (K-IFRS), and for such internal control as management determines is necessary to enable the preparation of separate financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' responsibility

Our responsibility is to express an opinion on these separate financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the Republic of Korea. Those standards require that we comply with ethical requirements and plan and perform the audits to obtain reasonable assurance about whether the separate financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the separate financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the separate financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity's preparation and fair presentation of the separate financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the separate financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the separate financial statements referred to above, expressed in Korean won, present fairly, in all material respects, the separate financial position of the Company as at December 31, 2016 and 2015, and its financial performance and cash flows for the years then ended in accordance with Korean International Financial Reporting Standards.

We have also reviewed the translation of the 2016 separate financial statements mentioned above into United States dollar amounts on the basis described in Note 2 to the accompanying separate financial statements. In our opinion, such statements have been properly translated on such basis.

Consolidated financial statements presented separately

Without qualifying our opinion, we draw attention to Note 2 to the separate financial statements which states that POSCO DAEWOO Corporation is the parent company of its subsidiaries (collectively referred to as the "Group") and that the consolidated financial statements of the Group prepared in accordance with K-IFRS have been issued separately. We have audited the consolidated financial statements of the Group as at and for the years ended December 31, 2016 and 2015 and expressed an unqualified opinion thereon in our auditors' report dated March 3, 2017.

Ernst & Young Han Young

March 3, 2017

This audit report is effective as at March 3, 2017, the independent auditors' report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditors' report to the time this report is used. Such events and circumstances could significantly affect the accompanying financial statements and may result in modifications to this report.

POSCO DAEWOO Corporation
(formerly, Daewoo International Corporation)

Financial statements
for the years ended December 31, 2015 and 2016

“The accompanying separate financial statements, including all footnotes and disclosures, have been prepared by, and are the responsibility of, the Company.”

Kim, Young-Sang
Chief Executive Officer
POSCO DAEWOO Corporation

POSCO DAEWOO Corporation
Separate statements of financial position
as at December 31, 2015 and 2016

		Korean won in millions		U.S. dollar in thousands (Note 2)
	Notes	2015	2016	2016
Assets				
Current assets				
Cash and cash equivalents	4,29,30	₩ 83,431	₩ 43,922	\$ 36,344
Trade and other receivables	5,29,30	3,388,220	3,494,714	2,891,778
Other current financial assets	6,29,30	1,421	3,083	2,551
Derivative financial assets	18,29,30	68,868	41,047	33,965
Other current assets	7	53,553	77,468	64,103
Inventories	8	320,206	357,637	295,935
		<u>3,915,699</u>	<u>4,017,871</u>	<u>3,324,676</u>
Non-current assets				
Trade and other receivables	5,29,30	551,659	449,173	371,678
Other non-current financial assets	6,29,30	100,114	98,713	81,682
Investments in subsidiaries and associates	9	679,447	665,227	550,457
Property, plant and equipment	10	306,147	290,831	240,655
Intangible assets	11	1,629,249	1,553,763	1,285,695
Investment properties	12,30	163,912	161,004	133,226
Deferred tax assets	27	125,289	179,872	148,839
Current tax assets		2,796	3,146	2,604
		<u>3,558,613</u>	<u>3,401,729</u>	<u>2,814,836</u>
Total assets		<u>₩ 7,474,312</u>	<u>₩ 7,419,600</u>	<u>\$ 6,139,512</u>
Liabilities and equity				
Current liabilities				
Trade and other payables	13,29,30	₩ 1,166,364	₩ 1,657,860	\$ 1,371,833
Borrowings	14,29,30	1,833,824	1,470,792	1,217,039
Current portion of bonds	14,29,30	349,799	294,733	243,883
Derivative financial liabilities	18,29,30	72,560	71,804	59,416
Other current liabilities	15	59,393	113,945	94,286
Current tax liabilities		50,821	44,618	36,921
		<u>3,532,761</u>	<u>3,653,752</u>	<u>3,023,378</u>
Non-current liabilities				
Trade and other payables	13,29,30	31,419	28,430	23,525
Borrowings	14,29,30	576,855	456,809	377,997
Bonds	14,29,30	894,963	759,477	628,446
Other non-current liabilities	15	566	1,588	1,314
Employee benefit liabilities	16	14,406	3,569	2,953
Provisions	17,18	56,432	85,038	70,367
		<u>1,574,641</u>	<u>1,334,911</u>	<u>1,104,602</u>
Total liabilities		<u>5,107,402</u>	<u>4,988,663</u>	<u>4,127,980</u>

(Continued)

POSCO DAEWOO Corporation
Separate statements of financial position
as at December 31, 2015 and 2016 (cont'd)

	Notes	Korean won in millions		U.S. dollar in thousands (Note 2)
		2015	2016	2016
Equity				
Issued capital	1,19	₩ 569,381	₩ 569,381	\$ 471,147
Capital surplus	19	333,161	333,161	275,681
Accumulated other comprehensive income	6,20	22,422	21,129	17,484
Retained earnings	21	1,441,946	1,507,266	1,247,220
Total equity		2,366,910	2,430,937	2,011,532
Total liabilities and equity		₩ 7,474,312	₩ 7,419,600	\$ 6,139,512

The accompanying notes are an integral part of the separate financial statements.

POSCO DAEWOO Corporation
Separate statements of comprehensive income
for the years ended December 31, 2015 and 2016

	Notes	Korean won in millions		U.S. dollar in thousands (Note 2)
		2015	2016	2016
Sales	3	₩ 16,881,040	₩ 15,417,230	\$ 12,757,327
Cost of sales	22	(15,734,626)	(14,392,093)	(11,909,054)
Gross profit		1,146,414	1,025,137	848,273
Selling and administrative expenses	22,23,26,29	(801,793)	(720,836)	(596,472)
Operating profit		344,621	304,301	251,801
Finance income	24,29	1,281,174	1,074,445	889,073
Finance costs	24,29	(1,282,620)	(1,048,191)	(867,349)
Other income	25,26,29	21,724	10,357	8,570
Other expenses	25,26,29	(273,790)	(187,541)	(155,185)
Profit for the year before tax	3	91,109	153,371	126,910
Income tax expense	27	(9,259)	(29,662)	(24,544)
Profit for the year		₩ 81,850	₩ 123,709	\$ 102,366
Other comprehensive income:				
<i>Other comprehensive income to be reclassified to profit or loss in subsequent periods:</i>				
Net loss on valuation of available-for-sale financial assets	6,20,27,29	(2,096)	(1,293)	(1,070)
<i>Other comprehensive income not to be reclassified to profit or loss in subsequent periods:</i>				
Re-measurement gain (loss) on defined benefit liabilities	16,27	177	(1,451)	(1,201)
Other comprehensive loss for the year, net of tax		(1,919)	(2,744)	(2,271)
Total comprehensive income for the year, net of tax		₩ 79,931	₩ 120,965	\$ 100,095
Earnings per share (Korean won and U.S. dollar):				
Basic	28	₩ 719	₩ 1,086	\$ 0.90
Diluted	28	₩ 719	₩ 1,086	\$ 0.90

The accompanying notes are an integral part of the separate financial statements.

POSCO DAEWOO Corporation
Separate statements of changes in equity
for the years ended December 31, 2015 and 2016

	Korean won in millions					U.S. dollar in thousands (Note 2)
	Issued capital	Capital surplus	Accumulated other comprehensive income	Retained earnings	Total	Total
As at January 1, 2015	₩ 569,381	₩ 333,161	₩ 24,518	₩ 1,416,857	₩ 2,343,917	\$ 1,939,526
Profit for the year	-	-	-	81,850	81,850	67,729
Net loss on valuation of available-for-sale financial assets	-	-	(2,096)	-	(2,096)	(1,734)
Re-measurement loss on defined benefit plans	-	-	-	177	177	146
Total comprehensive income	-	-	(2,096)	82,027	79,931	66,141
Dividends (Note 21)	-	-	-	(56,938)	(56,938)	(47,115)
As at December 31, 2015	₩ 569,381	₩ 333,161	₩ 22,422	₩ 1,441,946	₩ 2,366,910	\$ 1,958,552
As at January 1, 2016	₩ 569,381	₩ 333,161	₩ 22,422	₩ 1,441,946	₩ 2,366,910	\$ 1,958,552
Profit for the year	-	-	-	123,709	123,709	102,366
Net loss on valuation of available-for-sale financial assets	-	-	(1,293)	-	(1,293)	(1,070)
Re-measurement gain on defined benefit plans	-	-	-	(1,451)	(1,451)	(1,201)
Total comprehensive income	-	-	(1,293)	122,258	120,965	100,095
Dividends (Note 21)	-	-	-	(56,938)	(56,938)	(47,115)
As at December 31, 2016	₩ 569,381	₩ 333,161	₩ 21,129	₩ 1,507,266	₩ 2,430,937	\$ 2,011,532

The accompanying notes are an integral part of the separate financial statements.

POSCO DAEWOO Corporation
Separate statements of cash flows
for the years ended December 31, 2015 and 2016

	Korean won in millions		U.S. dollar in thousands (Note 2)
	2015	2016	2016
Operating activities			
Profit for the year	₩ 81,850	₩ 123,709	\$ 102,366
Non-cash adjustments to reconcile profit for the year to net cash flows:			
Depreciation of property, plant and equipment	18,183	16,822	13,920
Amortization of intangible assets	123,514	127,532	105,529
Depreciation of investment properties	2,908	2,908	2,406
Severance and retirement benefits	12,470	14,501	11,999
Bad debt expenses	43,587	40,357	33,394
Interest expenses	50,724	43,150	35,705
Loss on impairment of available-for-sale financial assets	498	182	151
Loss on disposal of available-for-sale financial assets	-	530	439
Gain on disposal of available-for-sale financial assets	-	(13)	(11)
Loss on impairment of investments in subsidiaries and associates	162,110	53,586	44,341
Gain on disposal of investments in subsidiaries and associates	(308)	-	-
Reversal of loss on impairment of disposal groups classified as held for sale	(136)	-	-
Gain on disposal of disposal groups classified as held for sale	(592)	-	-
Loss on foreign currency translation	205,624	123,986	102,595
Loss on settlement of derivatives	251,669	267,605	221,436
Loss on valuation of derivatives	179,502	59,009	48,828
Other bad debt expenses	58,157	43,352	35,873
Loss on disposal of property, plant and equipment	212	1	1
Loss on disposal of intangible assets	309	-	-
Loss on impairment of intangible assets	13,991	13,816	11,432
Income tax expense	9,259	29,662	24,544
Loss on valuation of inventories	3,000	612	506
Financial guarantee expenses	17,960	22,777	18,847
Contribution to provision for contingencies	15,947	32,592	26,969
Contribution to provision for restoration	130	345	285
Interest income	(47,456)	(35,400)	(29,293)
Dividend income	(36,960)	(70,647)	(58,458)
Gain on foreign currency translation	(223,469)	(122,493)	(101,360)
Gain on settlement of derivatives	(309,450)	(252,895)	(209,264)
Gain on valuation of derivatives	(115,188)	(71,723)	(59,349)
Reversal of allowance for doubtful accounts	(197)	(488)	(404)
Gain on disposal of property, plant and equipment	(265)	(151)	(125)
Gain on disposal of intangible assets	-	(83)	(69)
Reversal of provision for contingencies	(4,058)	-	-
Reversal of loss on valuation of inventories	-	(607)	(502)
Financial guarantee income	(1,219)	(869)	(719)

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POSCO DAEWOO Corporation
Separate statements of cash flows
for the years ended December 31, 2015 and 2016 (cont'd)

	Korean won in millions		U.S. dollar in thousands (Note 2)
	2015	2016	2016
Working capital adjustments:			
Trade receivables	₩ 842,321	₩ (42,700)	\$ (35,332)
Other current receivables	(4,746)	(27,166)	(22,478)
Other current assets	22,106	(24,891)	(20,596)
Inventories	159,286	(37,436)	(30,976)
Derivative financial assets	9,460	25,069	20,744
Other non-current receivables	1,211	60,984	50,463
Trade accounts payable	(366,139)	513,654	425,034
Other current payables	(659)	(51,893)	(42,940)
Other current liabilities	(26,014)	53,913	44,612
Other non-current payables	3,813	(13,429)	(11,112)
Payment of severance benefit	(7)	(2,256)	(1,867)
Contribution to plan assets	(17,990)	(24,995)	(20,683)
Interest received	34,015	31,571	26,124
Dividends received	34,626	74,374	61,542
Interest paid	(56,536)	(56,405)	(46,674)
Income tax paid	(45,531)	(90,455)	(74,849)
Net cash flows provided by operating activities	1,101,522	849,604	703,024
Investing activities			
Decrease (increase) in short-term financial instruments	9,482	(1,663)	(1,376)
Decrease in long-term financial instruments	1	2	2
Proceeds from disposal of available-for-sale financial assets	6	773	640
Proceeds from disposal of investments in subsidiaries	-	1	1
Decrease in long-term other receivables	851	1,720	1,423
Increase in long-term other receivables	-	(23,225)	(19,218)
Decrease (increase) in guarantee deposits	295	(10)	(8)
Decrease (increase) in long-term guarantee deposits	874	(56)	(46)
Proceeds from disposal of property, plant and equipment	302	255	211
Proceeds from disposal of intangible assets	299	200	165
Increase in short-term loans receivable	(31,644)	(67)	(55)
Decrease (increase) in current portion of long-term loans receivable	(985)	47,141	39,008
Increase in long-term loans receivable	(35,417)	(40,109)	(33,189)
Acquisition of available-for-sale financial assets	(2,841)	(1,778)	(1,471)
Acquisition of associates	(1,446)	-	-
Acquisition of subsidiaries	(24,799)	(8,527)	(7,056)
Acquisition of property, plant, and equipment	(23,520)	(2,447)	(2,025)
Acquisition of intangible assets	(156,376)	(60,536)	(50,092)
Acquisition of investment properties	(78)	-	-
Receipt of government grants	369	-	-
Proceeds from disposal of disposal groups classified as held for sale	67,657	-	-
Net cash flows used in investing activities	(196,970)	(88,326)	(73,086)

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POSCO DAEWOO Corporation
Separate statements of cash flows
for the years ended December 31, 2015 and 2016 (cont'd)

	Korean won in millions		U.S. dollar in thousands (Note 2)
	2015	2016	2016
Financing activities			
Issuance of bonds	₩ 336,373	₩ 149,483	\$ 123,693
Redemption of bonds	(303,969)	(350,000)	(289,615)
Decrease in short-term borrowings	(891,556)	(439,514)	(363,686)
Proceeds from long-term borrowings	193,253	-	-
Repayment of long-term borrowings	(191,373)	(102,817)	(85,078)
Dividends paid	(56,938)	(56,938)	(47,115)
Payment of financial lease liabilities	(1,130)	(1,028)	(852)
Net cash flows used in financing activities	(915,340)	(800,814)	(662,653)
Net decrease in cash and cash equivalents	(10,788)	(39,536)	(32,715)
Cash and cash equivalents at January 1			
Cash and cash equivalents on the statements of financial position	86,938	83,431	69,037
Cash and cash equivalents included in disposal groups classified as held for sale	6,198	-	-
	93,136	83,431	69,037
Net foreign exchange difference	1,083	27	22
Cash and cash equivalents at December 31	₩ 83,431	₩ 43,922	\$ 36,344

The accompanying notes are an integral part of the separate financial statements.

1. Corporate information

POSCO DAEWOO Corporation (the "Company", formerly known as Daewoo International Corporation), was incorporated on December 27, 2000 as a result of a spin-off of the trading segment of Daewoo Corporation. The Company changed its name from Daewoo International Corporation to POSCO DAEWOO Corporation in accordance with the resolution approved at general shareholders' meeting held on March 14, 2016.

The Company is engaged in various business activities, such as providing export services, export agency services, intermediary trading, manufacturing and natural resource development. The primary products sold by the Company include various industrial grade steel, metals, chemicals, automobile parts, machinery, ships, plants, electronics, special materials, grains and petroleum.

The Company listed its shares on the Korea Exchange on March 23, 2001. The Company's issued capital as at the spin-off date amounted to ₩93,100 million and as at December 31, 2016 amounted to ₩569,381 million, (\$471,147 thousand) through several rounds of conversion of debt to equity swaps and share dividends. The Company's major stockholder is POSCO, which owns 60.31% of the Company's total outstanding shares.

2. Basis of preparation and summary of significant accounting policies

2.1 Basis of preparation

The Company prepares statutory financial statements in the Korean language in accordance with *Korean International Financial Reporting Standards* (K-IFRS) enacted by the *Act on External Audit of Stock Companies*. The accompanying separate financial statements have been translated into English from the Korean language financial statements. In the event of any differences in interpreting the financial statements or the independent auditors' report thereon, the Korean version, which is used for regulatory reporting purposes, shall prevail.

The separate financial statements have been prepared on a historical cost basis, except for derivative financial instruments, available-for-sale financial assets and others that have been measured at fair value. The carrying values of recognized assets and liabilities that are designated as hedged items in fair value hedges that would otherwise be carried at amortized cost are adjusted to record changes in the fair values attributable to the risks that are being hedged in effective hedge relationships. The separate financial statements are presented in Korean won (KRW) and all values are rounded to the nearest million, except when otherwise indicated.

POSCO DAEWOO Corporation is the parent entity of its subsidiaries (collectively referred to as the "Group") and the consolidated financial statements of the Group prepared in accordance with K-IFRS have been issued separately.

2.1.1 Financial statements translation

The accompanying 2016 separate financial statements are expressed in Korean won, and solely for convenience of the reader, have been translated into United States dollars at the rate of ₩1,208.5 to USD 1, the year-end exchange rate on December 31, 2016. Such translation should not be construed as a representation that the Korean won amount can actually be converted into United States dollars at the exchange rate used for the purpose of such translation.

2.2 Summary of significant accounting policies

2.2.1 Subsidiaries, associates and jointly controlled entities

Pursuant to K-IFRS 1027, the accompanying separate financial statements are accounted for, by a parent, investor in an associate on the basis of the direct equity interest rather than on the basis of the reported results and net assets of the investees. Moreover, K-IFRS 1027 requires that, in separate financial statements, investments in subsidiaries or associates should be accounted for at cost. All dividends should be recognized in profit or loss within separate financial statements once the right to receive payment has been established.

2.2.2 Current versus non-current classification

The Company presents assets and liabilities in the statement of financial position based on current /non-current classification.

An asset is current when it is:

- Expected to be realized or intended to be sold or consumed in the normal operating cycle
- Held primarily for the purpose of short-term trading
- Expected to be realized within twelve months after the reporting period, or
- Cash or cash equivalent unless restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period

All other assets are classified as non-current.

A liability is current when:

- It is expected to be settled in the normal operating cycle
- It is held primarily for the purpose of short-term trading
- It is due to be settled within twelve months after the reporting period, or
- There is no unconditional right to defer the settlement of the liability for at least twelve months after the reporting period

The Company classifies all other liabilities as non-current.

Deferred tax assets and liabilities are classified as non-current assets and liabilities.

2.2.3 Fair value measurement

The Company measures financial instruments such as derivatives at fair value at each balance sheet date. Fair value related disclosures for financial instruments and non-financial assets that are measured at fair value or where fair values are disclosed, are summarized in the following notes:

	Notes
Disclosure for valuation methods, significant estimates and assumptions	2,6,29 and 30
Quantitative disclosures of fair value measurement hierarchy	30
Investment properties	12
Financial instruments (including those carried at amortized cost)	6,29 and 30

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either:

- In the principal market for the asset or liability, or
- In the absence of a principal market, in the most advantageous market for the asset or liability

The principal or the most advantageous market must be accessible by the Company.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

The Company uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs.

2.2.3 Fair value measurement (cont'd)

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorized within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

- Level 1 — Quoted (unadjusted) market prices in active markets for identical assets or liabilities
- Level 2 — Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable
- Level 3 — Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable

For assets and liabilities that are recognized in the financial statements at fair value on a recurring basis, the Company determines whether transfers have occurred between levels in the hierarchy by re-assessing categorization (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

For the purpose of fair value disclosures, the Company has determined classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy as explained above.

2.2.4 Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable excluding taxes or duty. Revenue is recognized to the extent that it is probable that the economic benefits will flow to the Company and the revenue can be reliably measured. The specific recognition criteria described below must also be met before revenue is recognized.

When the collectability of an amount already included in revenue becomes uncertain, the uncollectible amount or the amount in respect of which recovery has ceased to be probable is recognized as an expense, rather than as an adjustment of the amount of revenue originally recognized.

2.2.4.1 Sale of goods

Revenue from the sale of goods is recognized when the significant risks and rewards of ownership of the goods have passed to the buyer. Revenue received from transactions where the Company acts as an agent without assuming the risks and rewards of ownership of the goods is recognized on a net basis.

2.2.4.2 Rendering of services

Revenue from the rendering of services is recognized by reference to the stage of completion when the amount of revenue can be measured reliably, the stage of completion of the transaction can be measured reliably and the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

When the outcome of the transaction involving the rendering of services cannot be estimated reliably, revenue is recognized only to the extent of the expenses recognized that are recoverable.

2.2.4.3 Interest income

For all financial instruments measured at amortized cost and interest-bearing financial assets classified as available-for-sale (AFS), interest income is recorded using the effective interest rate (EIR). The EIR is the rate that exactly discounts the estimated future cash receipts over the expected life of the financial instrument or a shorter period, where appropriate, to the net carrying amount of the financial asset. Interest income is included in finance income in profit or loss.

2.2.4.4 Dividends

Dividends income is recognized when the Company's right to receive the payment is established.

2.2.5 Cash and cash equivalents

Cash and cash equivalents in the statement of financial position comprise cash at banks and on hand and short-term deposits with a maturity of three months or less, which are subject to an insignificant risk of changes in value.

2.2.6 Financial assets

All financial assets are recognized initially at fair value plus transactions costs, except in the case of financial assets recorded at fair value through profit or loss. Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the marketplace (regular way trades) are recognized on the trade date, i.e., the date that the Company commits to purchase or sell the asset.

Financial assets are classified as financial assets at fair value through profit or loss, loans and receivables, held-to-maturity investments and AFS financial assets. The Company determines the classification of its financial assets at initial recognition.

2.2.6.1 Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss include financial assets held for trading and financial assets designated upon initial recognition at fair value through profit or loss. Financial assets are classified as held for trading if they are acquired for the purpose of selling or repurchasing in the near term. Derivatives are also classified as held for trading. Financial assets at fair value through profit or loss are carried in the statement of financial position at fair value with net changes in fair value presented as finance costs (negative net changes in fair value) or finance income (positive net changes in fair value) in the statement of profit or loss and other comprehensive income. Transaction costs attributable to the acquisition of the financial asset at fair value through profit or loss are charged to current operation.

2.2.6.2 Held-to-maturity investments

Non-derivative financial assets with fixed or determinable payments and fixed maturities are classified as held-to-maturity when the Company has the positive intention and ability to hold it to maturity. After initial measurement held-to-maturity investments are measured at amortized cost using the effective interest rate (EIR), less impairment. The EIR amortization is included as finance income in the statement of profit or loss and other comprehensive income. The losses arising from impairment are recognized in the statement of profit or loss and other comprehensive income as finance costs.

2.2.6.3 Available-for-sale (AFS) financial assets

AFS financial assets include equity investments and debt securities. Equity investments classified as AFS are those, which are neither classified as held for trading nor designated at fair value through profit or loss. Debt securities in this category are those which are intended to be held for an indefinite period of time and which may be sold in response to needs for liquidity or in response to changes in the market conditions. After initial measurement, AFS financial investments are subsequently measured at fair value with unrealized gains or losses recognized in other comprehensive income (OCI) and credited in the AFS reserve until the investment is derecognized, at which time the cumulative gain or loss is recognized in other income, or the investment is determined to be impaired, when the cumulative loss is reclassified from the AFS reserve to the statement of profit or loss and other comprehensive income in finance costs. Dividends income earned whilst holding AFS financial investments is reported when the Company's right to receive the payment is established.

2.2.6.4 Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. After initial measurement, such financial assets are subsequently measured at amortized cost using the EIR method, less impairment. The EIR amortization is included in finance income in the statement of profit or loss and other comprehensive income.

2.2.6.5 Impairment of financial assets

The Company assesses, at each reporting date, whether there is objective evidence that a financial asset or a group of financial assets is impaired. An impairment exists if one or more events that has occurred since the initial recognition of the asset (an incurred 'loss event'), has an impact on the estimated future cash flows of the financial asset or the group of financial assets that can be reliably estimated. In the case of equity investments classified as AFS, objective evidence would include a significant or prolonged decline in the fair value of the investment below its cost.

For financial assets carried at amortized cost, the Company first assesses whether impairment exists individually for financial assets that are individually significant, or collectively for financial assets that are not individually significant. Evidence of impairment includes the Company's historical loss experience for receivables with similar credit risk characteristics, increased number of delayed payments and significant change of national or local economic conditions that correlate with defaults on the receivables.

For financial assets carried at amortized cost, the amount of the impairment loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the financial asset's original EIR.

The carrying amount of the asset is reduced directly, except for loans and receivables. The carrying amount of loans and receivables is reduced through use of an allowance account. If the loans and receivables have been extinguished, the loans and receivables are written off and offset against the related allowance account.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognized, the previously recognized impairment loss is reversed to the extent that the asset's carrying amount does not exceed what the amortized cost would have been had impairment loss not been recognized. However, impairment losses recognized in profit or loss for an investment in an equity investment classified as available-for-sale is not reversed through profit or loss.

2.2.6.6 Derecognition

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognized (i.e., removed from the Company's statement of financial position) when:

- The rights to receive cash flows from the asset have expired, or
- The Company has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through' arrangement; and either (a) the Company has transferred substantially all the risks and rewards of the asset, or (b) the Company has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset

When the Company has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if, and to what extent, it has retained the risks and rewards of ownership.

When it retains substantially all of the risks and rewards of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognize a financial liability for the consideration received.

2.2.7 Inventories

Inventories are valued at the lower of cost and net realizable value, with cost being determined using the first-in, first-out method, except for materials in-transit which are stated at cost by the specific identification method. Net realizable value is the estimated selling price in the ordinary course of business, less estimated costs of completion and the estimated costs necessary to make the sale.

2.2.8 Non-current assets held for sale and discontinued operations

The Company classifies non-current assets and disposal groups as held for sale or for distribution to equity holders of the parent if their carrying amounts will be recovered principally through a sale or distribution rather than through continuing use. Such non-current assets and disposal groups classified as held for sale or as held for distribution are measured at the lower of their carrying amount and fair value less costs to sell or to distribute. Costs to sell are the incremental costs directly attributable to the sales, excluding the finance costs and income tax expense.

The criteria for held for sale classification is regarded as met only when the sale is highly probable and the asset or disposal group is available for immediate sale in its present condition. Actions required to complete the sale should indicate that it is unlikely that significant changes to the sale will be made or that the sale will be withdrawn. Management must be committed to the sale expected within one year from the date of the classification.

Property, plant and equipment and intangible assets are not depreciated or amortized once classified as held for sale or as held for distribution. Assets and liabilities classified as held for sale or for distribution are presented separately as current items in the statement of financial position.

A disposal group qualifies as discontinued operation if it is a component of an entity that either has been disposed of, or is classified as held for sale, and:

- Represents a separate major line of business or geographical area of operations
- Is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations, or
- Is a subsidiary acquired exclusively with a view to resale

Discontinued operations are excluded from the results of continuing operations and are presented as a single amount as profit or loss after tax from discontinued operations in the statement of profit or loss and other comprehensive income.

2.2.9 Property, plant and equipment

Property, plant and equipment is stated at cost, net of accumulated depreciation and/or accumulated impairment losses, if any. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. The present value of the expected cost for the decommissioning of the asset after its use is included in the cost of the respective asset if the recognition criteria for a provision are met.

Subsequent cost is recognized in the carrying amount of the item of property, plant and equipment, if the following recognition criteria are met:

- It is probable that future economic benefits associated with the item will flow to the Company, and
- Cost can be measured reliably.

The carrying amount of the replaced part is expensed, and the expenditures related to repair and maintenance are reflected in current operation as incurred.

Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets, as follows:

	Years
Buildings	40~50
Machinery	4~25
Others	4

The residual values, useful lives and methods of depreciation of property, plant and equipment are reviewed at each financial year end and adjusted prospectively, if appropriate.

2.2.10 Investment properties

Property held to earn rental income or for capital appreciation is classified as investment properties. Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are stated at cost, net of accumulated depreciation and/or accumulated impairment losses.

Subsequent cost is recognized in the carrying amount of the item of property, plant and equipment, if the following recognition criteria are met.

- It is probable that future economic benefits associated with the item will flow to the Company and;
- Cost can be measured reliably.

The carrying amount of the replaced part is expensed, and the expenditures related to repair and maintenance are reflected in current operation as incurred.

Depreciation of investment properties other than land is calculated on a straight-line basis. The useful lives and depreciation method of investment properties are the same as those of property, plant and equipment.

The residual values, useful lives and methods of depreciation of property, plant and equipment are reviewed at each financial year end and adjusted prospectively, if appropriate.

2.2.11 Intangible assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is its fair value at the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and any accumulated impairment losses. The cost of an internally generated intangible asset is the sum of expenditure incurred from the date when the intangible as set first meet the recognition criteria.

The useful lives of intangible assets are assessed as either finite or indefinite. Intangible assets with finite lives except for exploration and evaluation assets, development assets and mining rights are amortized using the straight-line method over the useful life of 5~10 years. Mining rights are amortized using the unit of production method. Memberships are not amortized as their useful life is deemed to be indefinite.

The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at least at each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates.

Intangible assets with indefinite useful lives are not amortized, but are tested for impairment annually, either individually or at the cash generating unit level. The assessment of indefinite life is reviewed annually to determine whether the indefinite life continues to be supportable. If not, the change in useful life from indefinite to finite is made on a prospective basis.

2.2.12 Exploration and evaluation assets, development assets and mining rights

The Company engages in the development of natural resources either by entering into contracts for sharing the extracted natural resources or by acquiring interests in the related projects. Expenditures related to natural resources are recognized as exploration and evaluation assets, development assets or mining rights. The nature of these intangible assets is as follows:

2.2.12.1 Exploration and evaluation assets

Exploration and evaluation assets consist of expenditures for topographical studies, geophysical studies, drilling and appraisal of oil fields. These assets are reclassified into development assets when the reserves are proven successful.

2.2.12.2 Development assets

Development assets consist of expenditures for fields, construction of production facilities and others. These development assets are reclassified as mining rights at inception of the commercial production.

2.2.12.3 Mining rights

Mining rights (production fields) consist of expenditures for improving productivity, oil reservoir management for prediction of oil output and production optimization, and increasing the return rate from crude oil. Mining rights are amortized using the unit of production method.

2.2.13. Impairment of non-financial assets

The Company assesses, at each reporting date, whether there is an indication that an asset may be impaired. If any indication exists, the Company estimates the asset's recoverable amount. Intangible assets that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually.

An asset's recoverable amount is the higher of an asset's or cash-generating unit's (CGU) fair value less costs to sell and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

Where the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. Impairment losses are recognized in profit or loss. A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount since the last impairment loss was recognized. The reversal is limited so that the carrying amount of the asset does not exceed its recoverable amount, nor exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years. Such reversal is recognized in the statement of comprehensive income.

2.2.14 Leases

The determination of whether an arrangement is (or contains) a lease is based on the substance of the arrangement at the inception date. The arrangement is assessed for (i) whether fulfilment of the arrangement is dependent on the use of a specific asset or assets or (ii) the arrangement conveys a right to use the asset or assets, even if that right is not explicitly specified in an arrangement.

2.2.14.1 Company as a lessee

Finance leases that transfer substantially all the risks and benefits incidental to ownership of the leased item to the Company, are capitalized at the commencement of the lease at the fair value of the leased property or, if lower, at the present value of the minimum lease payments. Lease payments are apportioned between finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are recognized in finance costs in the statement of comprehensive income.

A leased asset is depreciated over the useful life of the asset. However, if there is no reasonable certainty that the Company will obtain ownership by the end of the lease term, the asset is depreciated over the shorter of the estimated useful life of the asset and the lease term.

Operating lease payments are recognized as an expense in the statement of comprehensive income on a straight-line basis over the lease term.

2.2.14.2 Company as a lessor

Leases in which the Company does not transfer substantially all the risks and benefits of ownership of an asset are classified as operating leases. Initial direct costs incurred in negotiating an operating lease are added to the carrying amount of the leased asset and recognized over the lease term on the same basis as rental income. Contingent rents are recognized as revenue in the period in which they are earned.

2.2.15 Foreign currency translation

These financial statements are presented in Korean won, which is the Company's functional currency and the currency of the primary economic environment in which the Company operates.

At the end of each reporting period, foreign currency monetary items are translated using the closing rate. Exchange differences arising on translating monetary items at rates different from those at which they were translated on initial recognition during the period or in previous financial statements are recognized in profit or loss in the period in which they arise.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates at the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value is determined.

2.2.16 Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of an asset that necessarily takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets. Any investment income on the temporary investment of those borrowings is deducted from borrowing costs. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

2.2.17 Government grants

Government grants are recognized where there is reasonable assurance that the grant will be received and all attached conditions will be complied with.

When the grant relates to an expense item, recognized as income by reducing the related costs on a systemic basis over the periods that the related costs, for which it is intended to compensate, are expensed. When the grant relates to an asset, it is presented in the statement of financial position by deducting the grant in arriving at the carrying amount of the asset. It is recognized in profit or loss over the life of depreciable asset as a reduced depreciation expenses.

2.2.18 Financial liabilities and equity instrument

Debts and equity instruments issued by the Company are classified based on the substance of the contracts as financial liabilities and equity.

2.2.18.1 Equity instruments

An equity instruments is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities.

2.2.18.2 Financial guarantee contracts

Financial guarantee contracts issued by the Company are those contracts that require a payment to be made to reimburse the holder for a loss it incurs because the specified debtor fails to make a payment when due in accordance with the terms of a debt instrument. Financial guarantee contracts are recognized initially as a liability at fair value, adjusted for transaction costs that are directly attributable to the issuance of the guarantee. Subsequently, the liability is measured at the higher of the best estimate of the expenditure required to settle the present obligation at the reporting date and the amount recognized less cumulative amortization.

2.2.18.3 Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss includes financial liabilities held for trading and financial liabilities designated upon initial recognition at fair value through profit or loss. Financial liabilities are classified as held for trading if they are acquired for the purpose of selling in the near term. This category includes derivative financial instruments entered into by the Company that are not designated as hedging instruments. Gains or losses on liabilities held for trading are recognized in profit or loss.

2.2.18.3 Financial liabilities at fair value through profit or loss (cont'd)

Financial liabilities are classified as held for trading if they are acquired for the purpose of selling in the near term. Gains or losses on liabilities held for trading are recognized in the statement of comprehensive income.

2.2.18.4 Other financial liabilities

Other financial liabilities are recognized initially at fair value less directly attributable transaction costs. After initial recognition, other financial liabilities are subsequently measured at amortized cost using the EIR method.

2.2.18.5 Derecognition

A financial liability is derecognized when the obligation under the liability is discharged or cancelled or expires.

2.2.19 Severance benefit

The Company operates a defined benefit pension plan, which requires contributions to be made to a separately administered fund.

The cost of providing benefits under the defined benefit plan is determined using the projected unit credit method. Re-measurements, comprising of actuarial gains and losses, the effect of the asset ceiling, excluding net interest (not applicable to the Company) and the return on plan assets (excluding net interest), are recognized immediately in the statement of financial position with a corresponding debit or credit to retained earnings through OCI in the period in which they occur. Re-measurements are not reclassified to profit or loss in subsequent periods.

Past service costs are recognized in profit or loss on the earlier of:

- The date of the plan amendment or curtailment, and
- The date that the Company recognizes restructuring-related costs

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. The Company recognizes the following changes in the net defined benefit obligation under cost of sales and selling and administrative expenses in profit or loss (by function).

- Service costs comprising current service costs, past-service costs, gains and losses on curtailments and non-routine settlements
- Net interest expense or income

2.2.20 Taxes

2.2.20.1 Current income tax

Current income tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted, by the reporting date, in the countries where the Company operates and generates taxable income.

2.2.20.2 Deferred tax

Deferred tax is provided using the liability method on temporary differences at the reporting date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes at the reporting date.

2.2.20.2 Deferred tax (cont'd)

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- When the deferred tax liability arises from the initial recognition of goodwill or an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss
- In respect of taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future

Deferred tax assets are recognized for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry forward of unused tax credits and unused tax losses can be utilized except:

- When the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss
- In respect of deductible temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed at each reporting date and are recognized to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Deferred tax relating to items recognized outside profit or loss is recognized outside profit or loss. Deferred tax items are recognized in correlation to the underlying transaction either in OCI or directly in equity.

Deferred tax assets and deferred tax liabilities are offset, if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

Tax benefits acquired as part of a business combination, but not satisfying the criteria for separate recognition at that date, would be recognized subsequently if new information about facts and circumstances changed. The adjustments would either be treated as a reduction to goodwill (as long as it does not exceed goodwill) if it was incurred during the measurement period or in profit or loss.

2.2.20.3 Recognition of current and deferred tax

Current and deferred tax are recognized as income or an expense and included in profit or loss for the period, except to the extent that the tax arises from (a) a transaction or event which is recognized, in the same or a different period, outside profit or loss, either in OCI or directly in equity; or (b) a business combination. In case of a business combination, the Company recognizes deferred tax assets or liabilities relating to temporary differences arising in a business combination. Consequently, those deferred tax assets and liabilities affect the amount of goodwill or the bargain purchase gain.

2.2.21 Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. When it is not probable that an outflow of resources embodying economic benefits will be required to settle the obligation or the amount of the obligation cannot be measured with sufficient reliability, a contingent liability is disclosed, but not recognized.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where the Company expects some or all of a provision to be reimbursed, the reimbursement is recognized as a separate asset but only when the reimbursement is virtually certain.

2.2.22 Derivatives

Derivatives are initially recognized at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are recognized in profit or loss. For the purpose of hedge accounting, hedges are classified as fair value hedges when hedging the exposure to changes in the fair value of a recognized asset or liability or an unrecognized firm commitment.

At the inception of a hedge relationship, the Company formally designates and documents the hedge relationship to which the Company wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge. The documentation includes identification of the hedging instrument, the hedged item or transaction, the nature of the risk being hedged and how the entity will assess the effectiveness of changes in the hedging instrument's fair value in offsetting the exposure to changes in the hedged item's fair value or cash flows attributable to the hedged risk.

Such hedges are expected to be highly effective in achieving offsetting changes in fair value or cash flows and are assessed on an ongoing basis to determine that they actually have been highly effective throughout the financial reporting periods for which they were designated.

2.2.22.1 Fair value hedges

Under a fair value hedge, the change in the fair value of a hedging derivative is recognized in profit or loss and the change in the fair value of the hedged item attributable to the risk hedged is recorded as a part of the carrying value of the hedged item and is also recognized in profit or loss.

When the hedging instrument expires or is sold, terminated or exercised, hedge no longer meets the criteria for hedge accounting or the entity revokes the designation of hedge relationship, the hedge accounting is discontinued prospectively.

2.2.22.2 Embedded derivatives

Embedded derivatives are separated from the host contract and accounted for separately only if the following criteria have been met: (a) the economic characteristics and risks of the host contract and the embedded derivatives are not closely related to those of the host contract, (b) a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative, and (c) the hybrid (combined) instrument is not measured at fair value through profit or loss.

2.3 Significant accounting judgments, estimates and assumptions

The preparation of the Company's financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent liabilities, at the end of the reporting period. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of the asset or liability affected in future periods.

Other disclosures relating to the Company's exposure to risks and uncertainties are disclosed in Note 29, which includes:

- Capital management
- Financial instruments risk management
- Sensitivity analysis disclosures

The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below.

2.3.1 Impairment of non-financial assets

Impairment exists when the carrying value of an asset or CGU exceeds its recoverable amount, which is the higher of its fair value less costs to sell and its value in use. The fair value less costs to sell calculation is based on available data from binding sales transactions in an arm's length transaction of similar assets or observable market prices less incremental costs for disposing of the asset. The value in use calculation is based on a discounted cash flow model. The cash flows are derived from the budget for the next five years and do not include restructuring activities that the Company is not yet committed to or significant future investments that will enhance the asset's performance of the CGU being tested. The recoverable amount is most sensitive to the discount rate used for the discounted cash flow model as well as the expected future cash inflows and the growth rate used for extrapolation purposes.

2.3.2. Pension benefits

The present value of the defined benefit obligation is determined using actuarial valuations. An actuarial valuation involves making various assumptions. It includes the determination of the discount rate, future salary growth rate and mortality rates. Due to the complexity of the valuation, the underlying assumptions and its long term nature, a defined benefit obligation is highly sensitive to changes in these assumptions. All assumptions are reviewed at each reporting date.

2.3.3 Fair value measurement of financial instruments

When the fair value of financial assets and financial liabilities recorded in the statement of financial position cannot be derived from active markets, they are determined using valuation techniques including the discounted cash flow model. The inputs to these models are taken from observable markets where possible, but where this is not feasible, a degree of judgment is required in establishing fair values. The judgments include considerations of inputs such as liquidity risk, credit risk and volatility. Changes in assumptions about these factors could affect the reported fair value of financial instruments.

2.4 New and amended standards and interpretations

The Company applied for the first time certain standards and amendments, which are effective for annual periods beginning on or after January 1, 2016. The nature and the impact of each new standard and amendment are described below:

K-IFRS 1114 *Regulatory Deferral Accounts*

K-IFRS 1114 is an optional standard that allows an entity, whose activities are subject to rate-regulation, to continue applying most of its existing accounting policies for regulatory deferral account balances upon its first-time adoption of K-IFRS. Entities that adopt K-IFRS 1114 must present the regulatory deferral accounts as separate line items on the statement of financial position and present movements in these account balances as separate line items in the statement of comprehensive income. The standard requires disclosure of the nature of, and risks associated with, the entity's rate-regulation and the effects of that rate-regulation on its financial statements. Since the Company already adopted K-IFRS and is not involved in the rate-regulated activities, this standard does not apply.

Amendments to K-IFRS 1111 *Joint Arrangements: Accounting for Acquisitions of Interests*

The amendments to K-IFRS 1111 require that a joint operator accounting for the acquisition of an interest in a joint operation, in which the activity of the joint operation constitutes a business, must apply the relevant K-IFRS 1103 *Business Combinations* principles for business combination accounting. The amendments also clarify that a previously held interest in a joint operation is not remeasured on the acquisition of an additional interest in the same joint operation if joint control is retained. In addition, a scope exclusion has been added to K-IFRS 1111 to specify that the amendments do not apply when the parties sharing joint control, including the reporting entity, are under common control of the same ultimate controlling party. The amendments apply to both the acquisition of the initial interest in a joint operation and the acquisition of any additional interests in the same joint operation and are applied prospectively. These amendments does not have impacts on the Company.

Amendments to K-IFRS 1016 and K-IFRS 1038 *Clarification of Acceptable Methods of Depreciation and Amortization*

The amendments clarify the principle in K-IFRS 1016 and K-IFRS 1038 that revenue reflects a pattern of economic benefits that are generated from operating a business (of which the asset is part) rather than the economic benefits that are consumed through use of the asset. As a result, a revenue-based method cannot be used to depreciate property, plant and equipment and may be used in very limited circumstances to amortize intangible assets. The amendments are effective prospectively for annual periods beginning on or after January 1, 2016, with early adoption permitted. These amendments have no impact on the Company's separate financial statements given that the Company has not used a revenue-based method to depreciate its non-current assets.

Amendments to K-IFRS 1016 and K-IFRS 1041 *Agriculture: Bearer Plants*

The amendments change the accounting requirements for biological assets that meet the definition of bearer plants. Under the amendments, biological assets that meet the definition of bearer plants will no longer be within the scope of K-IFRS 1041 *Agriculture*. Instead, K-IFRS 1016 is applied. After initial recognition, bearer plants will be measured under K-IFRS 1016 at accumulated cost (before maturity) and using either the cost model or revaluation model (after maturity). The amendments also require that products which grow on bearer plants will remain in the scope of K-IFRS 1041 measured at fair value less costs to sell. For government grants related to bearer plants, K-IFRS 1020 *Accounting for Government Grants and Disclosure of Government Assistance* is applied. The amendments are applied retrospectively and do not have any impact on the Company's separate financial statements as it does not have any bearer plants.

Amendments to K-IFRS 1027 *Equity Method in Separate Financial Statements*

The amendments allow entities to use the equity method to account for investments in subsidiaries, joint ventures and associates in their separate financial statements. Entities already applying K-IFRS and electing to change to the equity method in their separate financial statements have to apply that change retrospectively. These amendments do not have any impact on the Company's separate financial statements.

2.4 New and amended standards and interpretations (cont'd)

Amendments to K-IFRS 1001 *Disclosure Initiative*

The amendments to K-IFRS 1001 clarify, rather than significantly change, existing K-IFRS 1001 requirements. The amendments clarify:

- The materiality requirements in K-IFRS 1001
- That specific line items in the statement(s) of profit or loss and OCI and the statement of financial position may be disaggregated
- That entities have flexibility as to the order in which they present the notes to financial statements
- That the share of OCI of associates and joint ventures accounted for using the equity method must be presented in aggregate as a single line item, and classified between those items that will or will not be subsequently reclassified to profit or loss

Furthermore, the amendments clarify the requirements that apply when additional subtotals are presented in the statement of financial position and the statement of comprehensive income. These amendments have no impact on the Company's separate financial statements.

Amendments to K-IFRS 1110, K-IFRS 1112 and K-IFRS 1028 *Investment Entities: Applying the Consolidation Exception*

The amendments address issues that have arisen in applying the investment entities exception under K-IFRS 1110 *Consolidated Financial Statements*. The amendments to K-IFRS 1110 clarify that the exemption from presenting consolidated financial statements applies to a parent entity that is a subsidiary of an investment entity, when the investment entity measures all of its subsidiaries at fair value.

Furthermore, the amendments to K-IFRS 1110 clarify that only a subsidiary of an investment entity that is not an investment entity itself and that provides support services to the investment entity is consolidated. All other subsidiaries of an investment entity are measured at fair value. The amendments to K-IFRS 1028 *Investments in Associates and Joint Ventures* allow the investor, when applying the equity method, to retain the fair value measurement applied by the investment entity associate or joint venture to its interests in subsidiaries. These amendments are applied retrospectively and have no impact on the Group's consolidated financial statements as the Group has not adopted the exception.

K-IFRS 1011 *Construction Contract* and K-IFRS 2115 *Agreements for the Construction of Real Estate*

The amendments require additional disclosures of information on construction contracts when the percentage of work completed is measured based on the ratio of the total costs incurred to date to the total estimated contract costs, and the contract revenue exceeds 5% of the preceding year's total revenue. The amendments are effective for annual periods beginning on or after 1 January 2016, and may not prepare comparative information in the first year of adoption. These amendments have no financial impact on the Company's separate financial statements.

Annual Improvements 2012-2014 Cycle

These amendments do not have any impact on the Company's separate financial statements. The improvements include:

K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*

Non-current assets (or disposal groups) are generally disposed of either through sale or distribution to the owners. The amendment clarifies that changing from one of these disposal methods to the other would not be considered a new plan of disposal, rather it is a continuation of the original plan. There is, therefore, no interruption of the application of the requirements in K-IFRS 1105. This amendment is applied prospectively.

2.4 New and amended standards and interpretations (cont'd)

K-IFRS 1107 *Financial Instruments: Disclosures*

(i) Servicing contracts

The amendment clarifies that a servicing contract that includes a fee can constitute continuing involvement in a financial asset. An entity must assess the nature of the fee and the arrangement against the guidance for continuing involvement in K-IFRS 1107 in order to assess whether the disclosures are required. The assessment of which servicing contracts constitute continuing involvement must be made retrospectively. However, the required disclosures need not be provided for any period beginning before the annual period in which the entity first applies the amendments.

(ii) Applicability of the amendments to K-IFRS 1107 to condensed interim financial statements

The amendment clarifies that the offsetting disclosure requirements may not be applied to condensed interim financial statements, unless such disclosures provide a significant update to the information reported in the most recent annual report. This amendment is applied retrospectively.

K-IFRS 1019 *Employee Benefits*

The amendment clarifies that market depth of high quality corporate bonds is assessed based on the currency in which the obligation is denominated, rather than the country where the obligation is located. When there is no deep market for high quality corporate bonds in that currency, government bond rates must be used. This amendment is applied prospectively.

K-IFRS 1034 *Interim Financial Reporting*

The amendment clarifies that the required interim disclosures must either be in the interim financial statements or incorporated by cross-reference between the interim financial statements and wherever they are included within the interim financial report (e.g., in the management commentary or risk report). The other information within the interim financial report must be available to users on the same terms as the interim financial statements and at the same time. This amendment is applied retrospectively.

2.5 Standards issued but not yet effective

The standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Company's financial statements are disclosed below.

K-IFRS 1109 *Financial Instruments*

K-IFRS 1109 *Financial Instruments*, which was enacted on September 25, 2015, is effective for annual periods beginning on or after January 1, 2018, with early application permitted. The amendments will replace K-IFRS 1039 *Financial Instruments: Recognition and Measurement*.

The Company plans to adopt K-IFRS 1109 for annual periods beginning on or after January 1, 2018.

Under K-IFRS 1109, retrospective application is required, but providing comparative information is not compulsory for certain cases such as classification and measurement of financial instruments, and impairment. For hedge accounting, the requirements are generally applied prospectively, with some limited exceptions such as accounting for time value of options.

The main features of K-IFRS 1109 include: a business model for the managing financial assets; classification and measurement of financial assets based on contractual cash flow characteristics of financial assets; an impairment model for financial instruments based on expected credit losses; the hedged item that meet the requirements of hedge accounting, increases in hedging instruments, or changes in the evaluation method for hedge effectiveness.

The effective implementation of K-IFRS 1109 will likely require analyses on financial effects, establishment of accounting policies, development of an accounting system, and stabilization of the system. The effect on the financial statements for the first-time adoption of the standard may differ depending on the selection and judgment of accounting policies in accordance with the standard, as well as the Company's financial instruments and economic conditions during the period.

2.5 Standards issued but not yet effective (cont'd)

The Company is preparing for its internal control procedures, or the accounting system related to the adoption of K-IFRS 1109, and will analyze financial effect of K-IFRS 1109 on its separate financial statements. General impacts on the Company's financial statements upon the adoption of the standard are as follows;

(i) Classification and measurement of financial assets

If new K-IFRS 1109 is applied, the Company will classify financial assets as subsequently measured at amortized cost, fair value through other comprehensive income or fair value through profit or loss on the basis of both: The Company's business model for managing the financial assets and the contractual cash flow characteristics of the financial assets. For hybrid contracts with financial asset hosts, embedded derivatives are not separated and financial assets are classified in their entirety.

Business model	Principal and interest cash flows	Others
Collection of contractual cash flows	Amortized cost	
Collection and sale of contractual cash flows	Fair value through other comprehensive income	Fair value through profit or loss
Sale and others	Fair value through profit or loss	

According to K-IFRS 1109, the Company may make an irrevocable election to present an investment in an equity instrument that is not held for trading as FVOCI. Items of comprehensive income are not subsequently recycled to profit or loss. At the end of the reporting period, equity instruments of classified as available-for-sale financial instruments are described in Note 6.

In accordance with K-IFRS 1109, the Company measures the following instruments at FVTPL: 1) cash flows that do not represent solely payments of principal and interest on the principal amount outstanding; or 2) debt instruments held for the purpose of trading; and 3) equity instruments that are not designated as measured at FVOCI. The Company does not have any debt or equity instruments classified as financial assets measured at FVTPL as at December 31, 2016.

(ii) Classification and measurement of financial liabilities

Based on the new K-IFRS 1109, changes in the fair value of a financial liability designated as measured at FVTPL that arise from changes in the liability's credit risk are presented in other comprehensive income, instead of profit or loss. The changes in the liability's credit risk are recognized in profit or loss if the changes create or enlarge an accounting mismatch had it been presented in other comprehensive income.

Some of the changes in the fair value of financial liabilities designated as at FVTPL, which were recognized in profit or loss under the current K-IFRS 1039, are presented in other comprehensive income; therefore, gains and losses on valuation of financial liabilities may decrease. The Company does not have any financial liabilities measured at FVTPL as at December 31, 2016.

(iii) Impairment: financial assets and contract assets

Under the current K-IFRS 1039, impairment losses are recognized when there is objective evidence of impairment based on an incurred loss model; however, under K-IFRS 1109, impairment losses are recognized on debt instruments, lease receivables, contract assets, loan commitment, and financial guarantee contracts that are accounted for at amortized cost, or FVOCI, based on an expected credit loss impairment model.

K-IFRS 1109 outlines a three-stage model for 12-month expected credit losses, or lifetime expected credit losses based on changes in credit risk since initial recognition of financial assets; as a result, credit losses can be recognized earlier than the current K-IFRS 1039.

2.5 Standards issued but not yet effective (cont'd)

	Classification (*1)	Loss allowance
Stage 1	The credit risk on a financial instrument has not increased significantly since initial recognition (*2)	12-month expected credit losses: The expected credit losses that result from default events on a financial instrument that are possible within the 12 months after the reporting date.
Stage 2	The credit risk on a financial instrument has increased significantly since initial recognition	Lifetime expected credit losses: The expected credit losses that result from all possible default events over the expected life of a financial instrument.
Stage 3	Credit-impaired	

(*1) For trade receivables or contract assets in accordance with K-IFRS 1115 *Revenue from Contracts with Customers*, which does not contain a significant financing component, the Company is to measure the loss allowance at an amount equal to lifetime expected credit losses; however, if it contains a significant financial component, the Company can choose as its accounting policy to measure the loss allowance at an amount equal to lifetime expected credit losses. For lease receivables, the Company may choose as its accounting policy to measure the loss allowance at an amount equal to lifetime expected credit losses.

(*2) For financial instruments with low credit risk at the reporting date, it may be considered that the credit risk did not increase significantly.

Under K-IFRS 1109, the Company is to recognize the cumulative changes in lifetime expected credit losses since initial recognition as a loss allowance for a financial asset that is considered credit-impaired at initial recognition.

At the end of the reporting period, Trade and other receivables and available-for-sale financial assets designated as measured at amortized cost are described in Note 5.

(iv) Hedge accounting

K-IFRS 1109 applies mechanics of hedge accounting (fair value hedge accounting, cash flow hedge, foreign entities net investment hedge) specified in the current K-IFRS 1039; however, the Company changed from the complex and rule-based hedge accounting requirements of K-IFRS 1039 to the principle-based approach which focuses on the risk management activities. Requirements for application of hedge accounting are relaxed by enlarging items designated as hedges and hedging instruments, evaluating the high risk avoidance effects, and eliminating the quantitative criteria (80 ~ 125%).

Upon application of hedge accounting of K-IFRS 1109, some transactions that do not meet the criteria for hedge accounting of the current K-IFRS 1039 may be accounted for using the hedge accounting; therefore, volatility in profit or loss may be reduced.

The details of the assets, liabilities and firm commitment contracts for which the Company applies hedge accounting are described in Note 18.

The Company can elect to continue to apply the current K-IFRS 1039 hedge accounting requirements upon initial application of K-IFRS 1109.

K-IFRS 1115 *Revenue from Contracts with Customers*

K-IFRS 1115 *Revenue from Contracts with Customers*, which was enacted on November 6, 2015, is effective for annual periods beginning on or after January 1, 2018, with early application permitted. The new standard will supersede the following K-IFRS: K-IFRS 1018 *Revenue*, K-IFRS 1011 *Construction Contracts*, K-IFRS 2031 *Revenue-Barter Transactions Involving Advertising Services*, K-IFRS 2113 *Customer Loyalty Programmes*, K-IFRS 2115 *Agreements for the Construction of Real Estate*, and K-IFRS 2118 *Transfers of Assets from Customers*. The company applies K-IFRS 1115 beginning on or after January 1, 2018 and will make the amendments retrospectively on the statement of the pervious reporting period, presented for comparative purposes in accordance with K-IFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors*. As at January 1, 2017, the Company plans to apply a practical expedient for completed contracts, under which the Company does not restate its financial statements.

2.5 Standards issued but not yet effective (cont'd)

The current K-IFRS 1018 provides the criteria for the recognition of revenue relating to: sale of goods, rendering of services, interest, royalties, dividends and construction contracts; however, under the new K-IFRS 1115, revenue is recognized by applying a five-stage revenue recognition model (① Identify a contract with a customer. → ② Identify the performance obligations in the contract. → ③ Determine the transaction price → ④ Allocate the transaction price to the separate performance obligations in the contract. → ⑤ Recognize revenue when the entity satisfies a performance obligation) to its all contracts with customers.

The Company is preparing for its internal control procedures, or the accounting system related to the adoption of K-IFRS 1115, and will analyze financial effect of K-IFRS 1115 on its separate financial statements. The company is planning to analyze the impact related to the adoption of K-IFRS 1115 by the period ended December 31, 2017, and its results will be disclosed within accounts note.

General impacts on the Company's financial statements upon the adoption of K-IFRS 1115 are as follows. However, the followings do not include all possible impacts and may change on the future analysis result.

(1) Determine the transaction price

The Company is engaged in providing export services, export agency services and intermediary trading. For the year ended December 31, 2016, the Company recognized revenue of ₩14,849,191 million(\$12,287,291 thousand) for sales of goods, accounting for 96.32% of the Company's total revenue.

The transaction price is the amount of consideration in a contract to which an entity expects to be entitled in exchange for transferring promised goods or services to a customer. The transaction price is an estimation of what the company expects to receive in the future, not the amount promised in a contract with a customer. If the consideration promised in a contract with a customer includes variable amounts such as discount, price concessions, incentives or others, the transaction price is consisted of fixed amounts and variable amounts. The variable amount of consideration is estimated at the expected value or the most likely amount.

Upon application of K-IFRS 1115, the Company estimates the variable amount with the method which the Company expects to anticipate more precisely. The Company recognizes revenue by including variable amount in the transaction price only to the extent that it is highly unlikely that a recognized significant portion of the cumulative revenue is reversed.

(2) Allocate the transaction price to the performance obligations in the contract

In case of a term-base sales contract, numbers of performance obligations can be identified in a single contract. In such cases, the transaction price should be allocated to each performance obligation and revenue should be recognized for each performance obligation performed. Where a contract has multiple performance obligations, the transaction price will be allocated to the performance obligations in the contract by reference to their relative standalone selling prices. The standalone selling price is the price at which an entity would sell a promised good or service separately to a customer. If a standalone selling price is not directly observable, an entity shall estimate the stand-alone selling price. Suitable methods for estimating the stand-alone selling price of a good or service include, but are not limited to, the following:

Method	Contents
Adjusted market assessment approach	Evaluating the market in which an entity sells goods or services, and estimating the price that a customer in that market would be willing to pay for those goods or services.
Expected cost plus a margin approach	Forecasting its expected costs of satisfying a performance obligation and then adding an appropriate margin for that good or service.
Residual approach	Estimating the stand-alone selling price by reference to the total transaction price less the sum of the observable stand-alone selling prices of other goods or services promised in the contract.

2.5 Standards issued but not yet effective (cont'd)

Upon application of K-IFRS 1115, where a contract has multiple performance obligations, the transaction price will be allocated to the performance obligations in the contract by reference to their relative standalone selling prices. The Company will implement the most reasonable approach to estimate the standalone selling price of each performance obligation.

Amendments to K-IFRS 1110 and K-IFRS 1028 *Sale or Contribution of Assets between an Investor and its Associate or Joint Venture*

The amendments address the conflict between K-IFRS 1110 and K-IFRS 1028 in dealing with the loss of control of a subsidiary that is sold or contributed to an associate or joint venture. The amendments clarify that the gain or loss resulting from the sale or contribution of assets that constitute a business, as defined in K-IFRS 1103, between an investor and its associate or joint venture, is recognized in full. Any gain or loss resulting from the sale or contribution of assets that do not constitute a business, however, is recognized only to the extent of unrelated investors' interests in the associate or joint venture. The effective date of these amendments has been deferred indefinitely, but an entity that adopts the amendments early must apply them prospectively. These amendments are not expected to have any impact on the Company's separate financial statements.

Amendments to K-IFRS 1007 *Statement of Cash Flows: Disclosure Initiative*

The amendments to K-IFRS 1007 *Statement of Cash Flows* are part of the IASB's Disclosure Initiative and require an entity to provide disclosures that enable users of financial statements to evaluate changes in liabilities arising from financing activities, including both changes arising from cash flows and non-cash changes. On initial application of the amendment, entities are not required to provide comparative information for preceding periods. These amendments are effective for annual periods beginning on or after 1 January 2017, with early application permitted. Application of the amendments will result in additional disclosures provided by the Company.

Amendments to K-IFRS 1012 *Recognition of Deferred Tax Assets for Unrealised Losses*

The amendments clarify that an entity needs to consider whether tax law restricts the sources of taxable profits against which it may make deductions on the reversal of that deductible temporary difference. Furthermore, the amendments provide guidance on how an entity should determine future taxable profits and explain the circumstances in which taxable profit may include the recovery of some assets for more than their carrying amount.

Entities are required to apply the amendments retrospectively. However, on initial application of the amendments, the change in the opening equity of the earliest comparative period may be recognized in the opening retained earnings (or in another component of equity, as appropriate), without allocating the change between opening retained earnings and other components of equity. Entities applying this relief must disclose that fact. These amendments are effective for annual periods beginning on or after 1 January 2017 with early application permitted. If an entity applies the amendments for an earlier period, it must disclose that fact. These amendments are not expected to have any impact on the Company.

Amendments to K-IFRS 1102 *Classification and Measurement of Share-based Payment Transactions*

Amendments to K-IFRS 1102 *Share-based Payment* address three main areas: the effects of vesting conditions on the measurement of a cash-settled share-based payment transaction; the classification of a share-based payment transaction with net settlement features for withholding tax obligations; and accounting where a modification to the terms and conditions of a share-based payment transaction changes its classification from cash settled to equity settled.

On adoption, entities are required to apply the amendments without restating prior periods, but retrospective application is permitted if elected for all three amendments and other criteria are met. The amendments are effective for annual periods beginning on or after 1 January 2018, with early application permitted. The Company expects there will be no impact on its separate financial statements.

2.6 Date of authorization for issue

The financial statements of the Company for the year ended December 31, 2016 were authorized at the meeting of the Board of Directors held on January 25, 2017 and scheduled to be approved at the shareholders' meeting to be held on March 13, 2017.

3. Segment information

3.1 Operating segment

For management purposes, the Company has three reportable operating segments (trading, natural resource development, and others). Accounting policies of each segment are the same as those of the Company mentioned in Note 2.

The financial performance and financial position of each segment for the year ended December 31, 2016 are as follows:

	Korean won in millions				U. S. dollar in thousands (Note 2)
	Trading	Natural resource development	Others	Total	Total
Sales	₩ 14,849,191	₩ 557,212	₩ 10,827	₩ 15,417,230	\$ 12,757,327
Profit (loss) for the year before tax	(86,652)	238,926	1,097	153,371	126,910
Total asset	4,221,839	2,803,230	211,513	7,236,582	5,988,069
Total liabilities	3,440,018	443,469	6,347	3,889,834	3,218,730

3.2 Adjustments and eliminations

Current taxes, deferred taxes and certain financial assets and financial liabilities are not allocated to individual segments as they are accounted for at the enterprise level.

Reconciliation of assets is as follows:

	Korean won in millions	U. S. dollar in thousands (Note 2)
	2016	2016
Segment operating assets	₩ 7,236,582	\$ 5,988,069
Current tax assets	3,146	2,604
Deferred tax assets	179,872	148,839
Total assets	₩ 7,419,600	\$ 6,139,512

Reconciliation of liabilities is as follows:

	Korean won in millions	U. S. dollar in thousands (Note 2)
	2016	2016
Segment operating liabilities	₩ 3,889,834	\$ 3,218,730
Current tax liabilities	44,619	36,921
Current portion of bonds	294,733	243,883
Bonds	759,477	628,446
Total liabilities	₩ 4,988,663	\$ 4,127,980

3.3 Geographic information

Sales by geographic area are based on the geographical location of the market and customers.

Sales for the year ended December 31, 2016 and non-current assets as at December 31, 2016 by geographic area are as follows:

	Korean won in millions						U. S. dollar in thousands (Note 2)
	Domestic	Asia (excluding China)	China	North America	Others	Total	Total
Total sales	₩ 1,171,784	₩ 5,956,544	₩ 2,972,510	₩ 1,219,723	₩ 4,096,669	₩ 15,417,230	\$ 12,757,327
Non-current assets(*1)	361,040	1,642,811	81	-	1,666	2,005,598	1,659,576

(*1) Consist of PP&E, intangible assets and investment properties.

4. Cash and cash equivalents

Cash and cash equivalents as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Savings account and checking account	₩ 70,958	₩ 35,255	\$ 29,172
Other cash equivalents:	12,473	8,667	7,172
	<u>₩ 83,431</u>	<u>₩ 43,922</u>	<u>\$ 36,344</u>

5. Trade and other receivables

Trade and other receivables as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Current:			
Trade receivables	₩ 3,325,295	₩ 3,455,982	\$ 2,859,729
Allowance for doubtful accounts	(51,615)	(86,521)	(71,594)
Other receivables	77,368	104,110	86,148
Allowance for doubtful accounts	(42,140)	(67,222)	(55,624)
Short-term guarantee deposits	504	514	425
Short-term loans receivable	36,844	36,845	30,488
Allowance for doubtful accounts	(1,188)	(18,143)	(15,013)
Current portion of long-term loans receivable	43,152	69,149	57,219
	<u>3,388,220</u>	<u>3,494,714</u>	<u>2,891,778</u>
Non-current:			
Long-term trade receivables	6,139	2,354	1,948
Long-term loans receivable	446,193	394,866	326,741
Long-term other receivables	102,274	53,675	44,414
Allowance for doubtful accounts	(7,007)	(5,893)	(4,876)
Long-term guarantee deposits	4,060	4,171	3,451
	<u>551,659</u>	<u>449,173</u>	<u>371,678</u>
	<u>₩ 3,939,879</u>	<u>₩ 3,943,887</u>	<u>\$ 3,263,456</u>

5.1 Allowance for doubtful accounts

Changes in allowance for doubtful accounts related to trade receivables for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Beginning balance	₩ 34,020	₩ 51,615	\$ 42,710
Bad debt expenses	43,587	40,357	33,394
Write-off	(26,038)	(6,965)	(5,763)
Foreign exchange translation loss	46	1,514	1,253
Ending balance	₩ 51,615	₩ 86,521	\$ 71,594

5.2 Financial assets transferred but not derecognized

As at December 31, 2016, trade receivables transferred with a book value amounting to ₩660,345 million (\$546,417 thousand) are not derecognized. Cash received through factoring of such receivables is accounted for as short-term borrowings.

The Company factored the above trade receivables to financial institutions with recourse. The Company retains the risks of ownership arising from credit risk such as default of debtors. The fair values of the above receivables transferred and the related borrowings are not significantly different from their book values.

6. Other financial assets

Other current financial assets as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Deposits in financial institutions	₩ 1,421	₩ 3,083	\$ 2,551

Other non-current financial assets as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Deposits in financial institutions	₩ 10	₩ 8	\$ 6
Available-for-sale financial assets	100,104	98,705	81,676
	₩ 100,114	₩ 98,713	\$ 81,682

6. Other financial assets (cont'd)

Available-for-sale financial assets as at December 31, 2015 and 2016 are as follows:

	Korean won in millions					U. S. dollar in thousands (Note 2)	
	2015	2016				2016	
	Book value	Number of shares	Equity ownership (%)	Acquisition cost	Fair value or net asset value	Book value	Book value
<u>Marketable securities:</u>							
Maruichi Steel Tube Ltd.	₩ 4,187	120,000	0.12	₩ 2,933	₩ 4,734	₩ 4,734	\$ 3,917
TK-Chemical Co., Ltd.	17,680	8,000,000	8.80	14,818	15,360	15,360	12,710
IQ Power Licensing AG	583	5,119,129	1.90	679	526	526	435
	22,450			18,430	20,620	20,620	17,062
<u>Non-marketable securities:</u>							
The Korea Economic Daily	974	178,881	0.96	1,952	1,912	974	806
Erae-automotive system Co., Ltd.	28,678	1,835,520	7.70	9,178	26,725	26,725	22,116
Hanil Daewoo Cement Mfg Co., Ltd.	-	300,000	15.00	1,500	(1,384)	-	-
Shinpoong Daewoo Pharma Co., Ltd.	343	-	3.42	343	333	343	284
CJ Philippines INC.	349	109,200	10.00	349	3,182	349	289
POSCO-Malaysia Sdn. Bhd.	7,577	24,128,000	13.63	7,905	(2,252)	7,577	6,270
CES Co., Ltd.	600	156,000	5.34	600	600	600	496
Central Corporation	8,676	100,474	10.89	1,859	10,157	10,157	8,405
Korea Investment Private Placement KEXIM Carbon Credit Special Asset Fund No. 1	86	-	2.13	263	103	103	85
Hanmi ADM Co., Ltd.	1,000	10,000	16.67	1,000	1,516	1,000	827
Dongjin Vietnam Co., Ltd.	803	20,000	10.00	803	130	803	664
POSCO Assan TST Steel Industry A.S.	15,460	24,096,526	10.00	15,460	(6,431)	15,460	12,793
ADM21	2	-	-	-	-	-	-
Hunchun Pohang Hyundai International Logistics Complex Development Co., Ltd.	10,732	-	10.00	10,732	9,766	10,732	8,880
TES MI S.R.O.	523	-	3.00	523	653	523	433
POSCO-ITPC S.P.A	781	-	10.00	781	696	781	646
JILIN KDAC Co., LTD.	176	-	7.00	176	77	176	146
Miju Steel Mfg Co., Ltd.	182	909,391	1.49	182	(277)	-	-
KG Power (M) Sdn. Bhd.	-	1,457,847	6.69	45	-	-	-
S&S Metal Co., Ltd.	-	26,390	10.44	1,000	771	1,000	827
Erae Automotive Systems Mexico	-	-	19.00	478	(1,064)	478	396
POSCO Agricultural Products Export Fund	-	-	10.00	300	300	300	248
Others	712			10,251	(5,908)	4	3
	77,654			65,680	39,605	78,085	64,614
	₩ 100,104			₩ 84,110	₩ 60,225	₩ 98,705	\$ 81,676

Investments in marketable securities, Maruichi Steel Tube Ltd., TK-Chemical Co., Ltd. and IQ Power Licensing AG were stated at fair market value as at December 31, 2016. Investment in Erae-automotive system Co., Ltd. and Central Corporation were stated at fair value of ₩14,560 per share and ₩101,093 per share, respectively, by using the discounted cash flow method under the income approach. Investment in Korea Investment Private Placement KEXIM Carbon Credit Special Asset Fund No. 1 was valued at net asset value (NAV) as at December 31, 2016. The resulting unrealized gains arising from fair value adjustments on available-for-sale financial assets amounting to ₩21,129 million (\$17,484 thousand) were recorded in accumulated other comprehensive income, net of deferred income tax effect (liability) of ₩6,746 million (\$5,582 thousand).

6. Other financial assets (cont'd)

Available-for-sales financial assets other than marketable securities and investment in Erae-automotive system Co., Ltd., Central Corporation and Korea Investment Private Placement KEXIM Carbon Credit Special Asset Fund No. 1 are recorded at cost as those securities do not have quoted market prices in active markets and the fair value of those securities could not be measured reliably.

7. Other current assets

Other current assets as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Advance payments	₩ 58,570	₩ 79,212	\$ 65,546
Allowance for doubtful accounts	(7,118)	(3,463)	(2,865)
Prepaid expenses	2,101	1,719	1,422
	₩ 53,553	₩ 77,468	\$ 64,103

8. Inventories

Inventories as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Merchandise	₩ 255,402	₩ 317,666	\$ 262,860
Valuation allowance	(5,186)	(5,798)	(4,797)
Raw materials	52	-	-
Supplies	1,559	1,749	1,447
Materials-in-transit	68,986	44,020	36,425
Valuation allowance	(607)	-	-
	₩ 320,206	₩ 357,637	\$ 295,935

The loss on valuation of inventories and the reversal of loss on valuation of inventories, which were recorded as costs of sales in 2016, amounted to ₩612 million (\$506 thousand) and ₩607 million (\$502 thousand), respectively.

9. Investments in subsidiaries and associates

Investments in subsidiaries and associates as at December 31, 2015 and 2016 are as follows:

	Korean won in millions				U. S. dollar in thousands (Note 2)	
	2015		2016		2016	
	Equity ownership (%)	Book value	Equity ownership (%)	Book value	Book value	
<Subsidiaries>						
POSCO DAEWOO America Corp.(*1)	100.00	₩ 29,590	100.00	₩ 29,590	\$	24,485
POSCO DAEWOO Deutschland GmbH	100.00	9,724	100.00	9,724		8,046
POSCO DAEWOO Japan Corp.(*1)	100.00	4,729	100.00	4,729		3,913
POSCO DAEWOO Singapore Pte Ltd.(*1)	100.00	3,711	100.00	3,711		3,071
POSCO DAEWOO Italia S.R.L.(*1)	100.00	3,621	100.00	3,621		2,996
POSCO DAEWOO Mexico S.A. de C.V.(*1)	100.00	2,905	100.00	2,905		2,404
POSCO DAEWOO Shanghai Co., Ltd.(*1)	100.00	8,807	100.00	8,807		7,288
POSCO DAEWOO Malaysia Sdn Bhd.(*1)	100.00	2,192	100.00	2,192		1,814
POSCO DAEWOO India Pvt.,Ltd.(*1)	100.00	2,299	100.00	2,299		1,902
Daewoo Textile LLC(*5)	100.00	5,856	100.00	24,808		20,528
Daewoo Textile Bukhara LLC(*5)	100.00	18,952	-	-		-
Daewoo Paper Manufacturing Co., Ltd.(*2)	33.84	-	-	-		-
Tianjin Daewoo Paper Manufacturing Co., Ltd.(*2)	25.00	-	-	-		-
POSCO DAEWOO China Co., Ltd.(*1)(*4)	100.00	34,967	100.00	16,009		13,247
POSCO DAEWOO Australia Holdings Pty. Ltd. (*1)(*4)	100.00	125,854	100.00	125,009		103,440
Daewoo AAPC Corp	100.00	5,027	100.00	5,027		4,160
Brasil Sao Paulo Steel Processing Center	51.00	-	51.00	-		-
PT. Bio Inti Agrindo	85.00	43,779	85.00	48,984		40,533
POSCO DAEWOO Vietnam Co., Ltd.(*1)	100.00	4,613	100.00	4,613		3,817
POSCO DAEWOO Myanmar Corp. Ltd.(*1)	100.00	5,403	100.00	5,403		4,471
POSCO DAEWOO E&P Canada Corp.(*1)(*4)	100.00	11,173	100.00	5,022		4,156
Daewoo Power and Infra (Pty) Ltd	100.00	1	100.00	1		1
POSCO DAEWOO Power (PNGPOM) Ltd.(*1)(*4)	100.00	13,725	100.00	11,889		9,838
Daewoo Precious Resources Co., Ltd.	70.00	6,638	70.00	6,638		5,493
Daewoo Power PNG Ltd.	100.00	14,685	100.00	14,686		12,152
Daewoo Minerals Canada Corp.(*6)	-	-	100.00	1,201		994
		358,251		336,868		278,749
<Associates>						
Blue Ocean Recovery PEF No. 1	27.52	33,300	27.52	33,300		27,555
Posco Mexico Processing Center Holding, LLC	29.00	11,509	26.70	11,509		9,523
POSCO-ESDC Ltd.	20.00	1,160	20.00	1,160		960
POSCO IJPC	20.00	4,665	20.00	4,665		3,860
Shanghai Lansheng Daewoo Corp.	49.00	7,957	49.00	7,957		6,584
Shanghai Waigaogiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	49.00	876	49.00	876		725
General Medicines Co., Ltd.	33.00	2,990	33.00	2,990		2,474
Korea LNG Ltd.	20.00	2,749	20.00	2,749		2,275
KG Power (M) Sdn. Bhd.	20.00	-	20.00	-		-
Global Komsco Daewoo LLC	35.00	4,445	35.00	4,445		3,678
South-East Asia Gas Pipeline Co., Ltd.	25.04	150,778	25.04	150,778		124,765
Korea Siberia Wood Cjsc	50.00	-	50.00	-		-
DMSA/AMSA(*3)(*4)	4.00	64,125	4.00	64,249		53,164
Daewoo Global Development Pte. Ltd.	30.00	15,683	30.00	15,683		12,977
VNS-Daewoo Co., Ltd.	40.00	4,228	40.00	4,228		3,499
SPH Co., Ltd.	50.00	500	50.00	500		414
PT. Batutua Tembaga Raya	24.10	14,785	24.10	21,824		18,059
Yulchon Mexico S. A. De C. V.(*3)	10.00	1,349	10.00	1,349		1,116
HyunSon Engineering & Construction(*3)	4.90	97	4.90	97		80
		321,196		328,359		271,708
	₩	679,447	₩	665,227	\$	550,457

9. Investments in subsidiaries and associates (cont'd)

(*1) In accordance with the resolution made at the shareholders' meeting held on March 13, 2016, some of its subsidiaries changed their names as follows:

Before	After
Daewoo Int'l (America) Corp.	POSCO DAEWOO America Corp.
Daewoo Int'l (Deutschland) GmbH	POSCO DAEWOO Deutschland GmbH
Daewoo Int'l Japan Corp.	POSCO DAEWOO Japan Corp.
Daewoo Int'l Singapore Pte. Ltd.	POSCO DAEWOO Singapore Pte Ltd.
Daewoo Italia S.R.L.	POSCO DAEWOO Italia S.R.L.
Daewoo Int'l Mexico S.A. de C.V.	POSCO DAEWOO Mexico S.A. de C.V.
Daewoo Int'l Shanghai Co., Ltd.	POSCO DAEWOO Shanghai Co., Ltd.
Daewoo Int'l (M) Sdn. Bhd.	POSCO DAEWOO Malaysia Sdn Bhd
Daewoo Int'l India Private Ltd.	POSCO DAEWOO India Pvt., Ltd.
Daewoo (China) Co., Ltd.	POSCO DAEWOO China Co., Ltd.
Daewoo Int'l Australia Holdings Pty. Ltd.	POSCO DAEWOO Australia Holdings Pty. Ltd.
Daewoo Int'l Vietnam Co., Ltd.	POSCO DAEWOO Vietnam Co., Ltd.
Myanmar Daewoo Int'l Corp.	POSCO DAEWOO Myanmar Corp. Ltd.
Daewoo E&P Canada Corp.	POSCO DAEWOO E&P Canada Corp.
Hanjung Power Ltd.	POSCO DAEWOO Power (PNGPOM) Ltd.

(*2) Daewoo Paper Co., Ltd. has been sold and the Company lost control on Tianjin Daewoo Paper Co., Ltd. accordingly.

(*3) This securities are classified as investment in an associate even though the Company's equity ownership is below 20%, as the Company is able to exercise significant influence on the investee.

(*4) At the end of the reporting period, the Company recognized the amount of the excess of the carrying amount over the recoverable amount as impairment loss.

	Korean won in millions		
	Carrying amount before impaired	Recoverable amount	Impairment loss
POSCO DAEWOO China Co., Ltd.	₩ 34,967	₩ 16,009	₩ 18,958
POSCO DAEWOO Australia Holdings Pty. Ltd.	125,854	125,009	845
POSCO DAEWOO E&P Canada Corp.	12,469	5,022	7,447
POSCO DAEWOO Power (PNGPOM) Ltd.	13,725	11,889	1,836
DMSA/AMSA(*)	88,749	64,249	24,500
	₩ 275,764	₩ 222,178	₩ 53,586
U. S. dollar in thousands (Note 2)	\$ 228,187	\$ 183,846	\$ 44,341

(*) The Company invested in the Ambatovy Nickel Project (DMSA / ASMA) in Madagascar through Korea Ambatovy Consortium (KAC), which is composed of Korea Resource Corporation (KORES) and STX Co., Ltd. As withdrawal from KAC was approved at the Company's Board of Directors' meeting on July 28, 2016, the Company has officially notified the withdrawal from KAC to participating companies including KORES, and also requested KAC to resolve all legal issues. The Company also requested for arbitration to Korean Commercial Arbitration Board on November 4, 2016, in connection with the withdrawal notice, settlement of shares, compensation for damages and others.

(*5) Daewoo Textile Fergana LLC merged with Daewoo Textile Bukhara LLC in 2016 and changed its name to Daewoo Textile LLC.

(*6) Daewoo Minerals Canada Corp. was newly established in 2016.

10. Property, plant and equipment

Property, plant and equipment as at December 31, 2015 and 2016 is as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Acquisition cost	₩ 348,588	₩ 348,854	\$ 288,667
Accumulated depreciation	(42,149)	(57,823)	(47,847)
Government subsidy	(292)	(200)	(165)
Book value	₩ 306,147	₩ 290,831	\$ 240,655

Changes in the acquisition cost of property, plant and equipment for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015				
	Beginning balance	Acquisition	Disposals	Others	Ending balance
Land	₩ 15,370	₩ -	₩ -	₩ -	₩ 15,370
Buildings	38,363	198	-	-	38,561
Machinery	255,780	-	-	(418)	255,362
Others	34,834	6,021	(6,707)	(3,425)	30,723
Construction-in-progress	6,029	13,655	-	(11,112)	8,572
	₩ 350,376	₩ 19,874	₩ (6,707)	₩ (14,955)	₩ 348,588

	2016				
	Beginning balance	Acquisition	Disposals	Others	Ending balance
Land	₩ 15,370	₩ -	₩ -	₩ -	₩ 15,370
Buildings	38,561	-	-	-	38,561
Machinery	255,362	8	-	8,295	263,665
Others	30,723	1,044	(1,346)	440	30,861
Construction-in-progress	8,572	1,434	-	(9,609)	397
	₩ 348,588	₩ 2,486	₩ (1,346)	₩ (874)	₩ 348,854
U. S. dollar in thousands (Note 2)	\$ 288,447	\$ 2,057	\$ (1,114)	\$ (723)	\$ 288,667

Changes in accumulated depreciation of property, plant and equipment for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015				
	Beginning balance	Depreciation	Disposals	Others	Ending balance
Buildings	₩ 2,510	₩ 950	₩ -	₩ -	₩ 3,460
Machinery	12,092	10,219	-	-	22,311
Others	27,109	5,419	(6,593)	(9,557)	16,378
	₩ 41,711	₩ 16,588	₩ (6,593)	₩ (9,557)	₩ 42,149

	2016				
	Beginning balance	Depreciation	Disposals	Others	Ending balance
Buildings	₩ 3,460	₩ 951	₩ -	₩ -	₩ 4,411
Machinery	22,311	10,901	-	-	33,212
Others	16,378	5,062	(1,240)	-	20,200
	₩ 42,149	₩ 16,914	₩ (1,240)	₩ -	₩ 57,823
U. S. dollar in thousands (Note 2)	\$ 34,877	\$ 13,996	\$ (1,026)	\$ -	\$ 47,847

10. Property, plant and equipment (cont'd)

Changes in the government grants for property, plant and equipment for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015				
	Beginning balance	Received	Depreciation	Classified as held for sale	Ending balance
Others	₩ -	₩ 369	₩ (77)	₩ -	₩ 292

	2016				
	Beginning balance	Received	Depreciation	Classified as held for sale	Ending balance
Others	₩ 292	₩ -	₩ (92)	₩ -	₩ 200
U. S. dollar in thousands (Note 2)	\$ 241	\$ -	\$ (76)	\$ -	\$ 165

11. Intangible assets

Intangible assets as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Acquisition cost	₩ 1,984,357	₩ 2,050,219	\$ 1,696,498
Accumulated amortization and impairment loss	(342,047)	(483,498)	(400,081)
Government grants	(13,061)	(12,958)	(10,722)
Book value	₩ 1,629,249	₩ 1,553,763	\$ 1,285,695

Changes in acquisition cost of intangible assets for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015				
	Beginning balance	Acquisition	Disposals	Others	Ending balance
Goodwill	₩ 1,033	₩ -	₩ -	₩ -	₩ 1,033
Industrial proprietary rights	4,236	139	-	-	4,375
Mining rights	1,656,415	97,529	-	-	1,753,944
Development costs	6,711	-	-	-	6,711
Exploration and evaluation assets	146,125	61,427	-	(16,347)	191,205
Membership	12,664	3	(465)	12	12,214
Software	-	338	(143)	14,680	14,875
	₩ 1,827,184	₩ 159,436	₩ (608)	₩ (1,655)	₩ 1,984,357

	2016				
	Beginning balance	Acquisition	Disposals	Others	Ending balance
Goodwill	₩ 1,033	₩ -	₩ -	₩ -	₩ 1,033
Industrial proprietary rights	4,375	294	-	-	4,669
Mining rights	1,753,944	15,473	-	36,011	1,805,428
Development costs	6,711	-	-	-	6,711
Exploration and evaluation assets	191,205	44,473	-	(31,143)	204,535
Development assets	-	9,304	-	(9,304)	-
Membership	12,214	-	(117)	-	12,097
Software	14,875	41	-	830	15,746
	₩ 1,984,357	₩ 69,585	₩ (117)	₩ (3,606)	₩ 2,050,219
U. S. dollar in thousands (Note 2)	\$ 1,641,999	\$ 57,580	\$ (97)	\$ (2,984)	\$ 1,696,498

11. Intangible assets (cont'd)

Changes in accumulated amortization and impairment losses of intangible assets for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

2015					
	Beginning balance	Amortization	Others	Impairment	Ending balance
Goodwill	₩ 1,033	₩ -	₩ -	₩ -	₩ 1,033
Industrial proprietary rights	3,916	219	-	-	4,135
Mining rights	152,242	120,999	-	13,446	286,687
Development costs	6,711	-	-	-	6,711
Exploration and evaluation assets	28,900	-	-	-	28,900
Membership	2,264	-	-	350	2,614
Software	-	2,409	9,558	-	11,967
	<u>₩ 195,066</u>	<u>₩ 123,627</u>	<u>₩ 9,558</u>	<u>₩ 13,796</u>	<u>₩ 342,047</u>
2016					
	Beginning balance	Amortization	Others	Impairment	Ending balance
Goodwill	₩ 1,033	₩ -	₩ -	₩ -	₩ 1,033
Industrial proprietary rights	4,135	178	-	-	4,313
Mining rights	286,687	125,866	-	10,626	423,179
Development costs	6,711	-	-	-	6,711
Exploration and evaluation assets	28,900	-	-	2,190	31,090
Membership	2,614	-	-	1,000	3,614
Software	11,967	1,591	-	-	13,558
	<u>₩ 342,047</u>	<u>₩ 127,635</u>	<u>₩ -</u>	<u>₩ 13,816</u>	<u>₩ 483,498</u>
U. S. dollar in thousands (Note 2)	<u>\$ 283,035</u>	<u>\$ 105,614</u>	<u>\$ -</u>	<u>\$ 11,432</u>	<u>\$ 400,081</u>

Changes in government grants for intangible assets for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

2015				
	Beginning balance	Amortization	Others	Ending balance
Mining rights	₩ 920	₩ (114)	₩ -	₩ 806
Exploration and evaluation assets	25,919	-	(13,664)	12,255
	<u>₩ 26,839</u>	<u>₩ (114)</u>	<u>₩ (13,664)</u>	<u>₩ 13,061</u>
2016				
	Beginning balance	Amortization	Others	Ending balance
Mining rights	₩ 806	₩ (103)	₩ -	₩ 703
Exploration and evaluation assets	12,255	-	-	12,255
	<u>₩ 13,061</u>	<u>₩ (103)</u>	<u>₩ -</u>	<u>₩ 12,958</u>
U. S. dollar in thousands (Note 2)	<u>\$ 10,807</u>	<u>\$ (85)</u>	<u>\$ -</u>	<u>\$ 10,722</u>

11.1 Joint operation

Mining rights and machinery include the Company's proportionate share of the jointly controlled assets. As at December 31, 2016, a list of significant joint operation is as follows:

	Activities	Equity interest (%)	Location
Myanmar A-1/A-3 area	Development and production for gas area	51.00	Myanmar
Offshore midstream	Gas transmission facilities	51.00	Myanmar

12. Investment properties

Investment properties as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollars in thousands (Note 2)
	2015	2016	2016
Acquisition cost	₩ 168,031	₩ 168,031	\$ 139,041
Accumulated depreciation	(4,119)	(7,027)	(5,815)
Book value	₩ 163,912	₩ 161,004	\$ 133,226

Changes in acquisition cost of investment properties for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015		
	Beginning balance	Acquisition	Ending balance
Land	₩ 51,703	₩ -	₩ 51,703
Buildings	116,250	78	116,328
	₩ 167,953	₩ -	₩ 168,031
	2016		
	Beginning balance	Acquisition	Ending balance
Land	₩ 51,703	₩ -	₩ 51,703
Buildings	116,328	-	116,328
	₩ 168,031	₩ -	₩ 168,031
U. S. dollar in thousands (Note 2)	\$ 139,041	\$ -	\$ 139,041

Changes in accumulated depreciation of investments properties for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015		
	Beginning balance	Depreciation	Ending balance
Building	₩ 1,211	₩ 2,908	₩ 4,119
	2016		
	Beginning balance	Depreciation	Ending balance
Building	₩ 4,119	₩ 2,908	₩ 7,027
U. S. dollar in thousands (Note 2)	\$ 3,409	\$ 2,406	\$ 5,815

The fair value of investment properties amounted to ₩170,285 million (\$140,906 thousand) as at December 31, 2016 (₩168,679 million as at December 31, 2015).

Income and expense arising from investment properties for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Rental income	₩ 4,191	₩ 4,587	\$ 3,796
Rental expense	(5,158)	(3,321)	(2,748)
	₩ (967)	₩ 1,266	\$ 1,048

12.1 Joint arrangement

The Company owns Songdo Northeast Asia Trade Tower, located in Yeonsu-gu, Incheon, in form of a joint arrangement. As at the end of reporting period, the Company owns 60% of the real estate, which is classified as property, plant and equipment and investment properties. The Company classifies these joint arrangements as joint operations. Rental income and expense from the joint operations are recognized as income and expense in proportion to the Company's shares.

13. Trade and other payables

Trade and other payables as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Current:			
Trade payables	₩ 970,508	₩ 1,517,470	\$ 1,255,664
Other payables	181,285	127,231	105,280
Accrued expenses	14,065	13,099	10,839
Guarantee deposits received	506	60	50
	<u>1,166,364</u>	<u>1,657,860</u>	<u>1,371,833</u>
Non-current:			
Long-term other payables	9,812	2,422	2,004
Long-term guarantee deposits received	1,630	2,053	1,699
Financial guarantee liabilities	19,977	23,955	19,822
	<u>31,419</u>	<u>28,430</u>	<u>23,525</u>
	<u>₩ 1,197,783</u>	<u>₩ 1,686,290</u>	<u>\$ 1,395,358</u>

14. Borrowings

Borrowings as at December 31, 2015 and 2016 are as follows:

	Creditor	Annual interest rates as at Dec. 31, 2016	The longest maturity	Korean won in millions		U. S. dollar in thousands (Note 2)
				2015	2016	2016
Current borrowings:						
Short-term borrowings:						
Banker's usance and others	Woori Bank and others	1.40%~2.12%	-	₩ 1,787,262	₩ 1,401,759	\$ 1,159,916
				1,787,262	1,401,759	1,159,916
Current-portion of long-term borrowings:						
Work-out debt from creditor council	AKA Bank	6M Euribor +0.45%	2017.12.29	6,201	6,456	5,342
Energy special account financing loan	Korea Resources Corporation	3 year government bond yield -2.25% and others	2017.12.31	-	5,930	4,907
Forgivable borrowings	Korea National Oil Corporation and others	3 year government bond yield -2.25% and others	2017.12.31	-	25,760	21,316
Others	Korea EXIM Bank and others	3M Libor +2.2% and others	2017.12.31	40,903	32,267	26,700
Less: present value discount				(542)	(1,380)	(1,142)
				46,562	69,033	57,123
				1,833,824	1,470,792	1,217,039
Non-current borrowings:						
Korean won denominated borrowings:						
Energy special account financing loan	Korea Resources Corporation	3 year government bond yield -2.25% and others	2027.12.15	12,731	10,779	8,919
Forgivable borrowings	Korea Resources Corporation	3 year government bond yield -2.25% and others	Undecided	2,934	2,358	1,951
Other borrowings	Korea Rural Community Corporation	2.00%	2029.12.12	27,500	27,500	22,756
				43,165	40,637	33,626
Foreign-currency denominated borrowings:						
Work-out debt from creditor council	AKA Bank	-	-	6,522	-	-
Energy special account financing loan	Korea Resources Corporation	3 year government bond yield -2.25% and others	2027.12.15	39,264	31,352	25,943
Forgivable borrowings	Korea National Oil Corporation and others	3 year government bond yield -2.25% and others	Undecided	259,566	182,449	150,971
Other foreign currency borrowings	Korea EXIM Bank and others	3M Libor+1% and others	2018.08.31	234,048	205,445	170,000
				539,400	419,246	346,914
				582,565	459,883	380,540
Less: present value discount				(5,710)	(3,074)	(2,543)
				576,855	456,809	377,997
				₩ 2,410,679	₩ 1,927,601	\$ 1,595,036

14. Borrowings (cont'd)

Details of bonds as at December 31, 2015 and 2016 are as follows:

	Annual interest rates as at Dec. 31, 2016	Maturity	Korean won in millions		U. S. dollar in thousands (Note 2)
			2015	2016	2016
Current-portion of bonds:					
7th unsecured bond	-	-	₩ 200,000	₩ -	\$ -
8-1st unsecured bond	-	-	150,000	-	-
10-1st unsecured bond	3.00%	2017.07.02	-	180,000	148,945
12th privately placed bond	3M SGD SOR+0.75%	2017.10.27	-	115,175	95,304
			350,000	295,175	244,249
Less: discount on bonds			(201)	(442)	(366)
			349,799	294,733	243,883
Non-current bonds:					
8-2nd unsecured bond	3.09%	2018.03.08	150,000	150,000	124,121
10-1st unsecured bond	-	-	180,000	-	-
10-2nd unsecured bond	3.26%	2019.07.02	220,000	220,000	182,043
11th privately placed bond	3M Libor + 0.9%	2018.10.16	234,400	241,700	200,000
12th privately placed bond	-	-	114,276	-	-
13th public offered bond	2.02%	2019.07.14	-	150,000	124,121
			898,676	761,700	630,285
Less: discount on bonds			(3,713)	(2,223)	(1,839)
			894,963	759,477	628,446
			₩ 1,244,762	₩ 1,054,210	\$ 872,329

15. Other liabilities

Other liabilities as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Current:			
Advance received	₩ 41,660	₩ 87,752	\$ 72,612
Withholdings	17,733	26,193	21,674
	59,393	113,945	94,286
Non-current:			
Long-term withholdings	566	1,588	1,314
	₩ 59,959	₩ 115,533	\$ 95,600

16. Severance and retirement benefit liability

The Company operates a defined benefit pension plan for its employees and uses the projected unit credit method in the actuarial valuation of plan assets and the defined benefit obligation.

16.1 Principal assumptions used in actuarial valuation

	2015	2016
Discount rate (%)	2.50%	2.54%
Future salary growth rate (%)	5.00%	5.00%
Expected retirement rate (%)	7.20%	8.50%

16.2 Sensitivity analysis

16.2.1 Discount rate

	1%point decrease	1%point increase
Impact on the defined benefit obligation	₩ 8,047	₩ (6,912)
Rate of change	9.32%	(7.99%)

16.2.2 Future salary growth rate

	1%point decrease	1%point increase
Impact on the defined benefit obligation	₩ (6,828)	₩ 7,772
Rate of change	(7.90%)	9.00%

16.3 Net benefit expense recognized in profit or loss

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Current service cost	₩ 11,354	₩ 13,950	\$ 11,543
Net Interest cost	792	551	456
	₩ 12,146	₩ 14,501	\$ 11,999

16.4 Amounts recognized in the statement of financial position

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Present value of defined benefit obligation	₩ 82,575	₩ 86,361	\$ 71,461
Fair value of plan assets	(68,169)	(82,792)	(68,508)
	₩ 14,406	₩ 3,569	\$ 2,953

16.5 Changes in the present value of the defined benefit obligation

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Beginning balance	₩ 77,082	₩ 82,575	\$ 68,329
Current service cost	11,354	13,950	11,543
Interest cost	2,266	2,020	1,671
Benefits paid	(8,111)	(14,319)	(11,849)
Re-measurement gain (loss) in OCI:	(5)	2,118	1,753
Actuarial changes arising from changes in demographic assumptions	(824)	-	-
Actuarial changes arising from changes in financial assumptions	1,534	(295)	(244)
Others	(715)	2,413	1,997
Transfer from related parties	-	17	14
Others	(11)	-	-
Ending balance	₩ 82,575	₩ 86,361	\$ 71,461

16.6 Changes in the fair value of plan assets

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Beginning balance	₩ 56,581	₩ 68,169	\$ 56,407
Contribution by employer	18,000	24,995	20,683
Interest income	1,474	1,469	1,216
Benefits paid	(8,114)	(12,062)	(9,981)
Re-measurement gain (loss) in OCI:	228	204	169
Actuarial changes arising from changes in financial assumptions	228	204	169
Transfer from related parties	-	17	14
Ending balance	₩ 68,169	₩ 82,792	\$ 68,508

16.7 Re-measurement gain (loss) in OCI

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Re-measurement of defined benefit obligation	₩ 5	₩ (2,118)	\$ (1,753)
Re-measurement of plan assets	228	204	169
	233	(1,914)	(1,584)
Income tax effect	(56)	463	383
Other comprehensive income	₩ 177	₩ (1,451)	\$ (1,201)

16.8 Analysis of defined benefit plans on future cash flows

The estimated contribution for the fiscal year ending December 31, 2017 amounted to ₩15,114 million. The maturity analysis of the Company's un-discounted pension benefit payments at the end of the reporting period is as follows:

	Korean won in millions					Total
	Less than 1 year	1 year to 2 years	2 years to 5 years	Over 5 years		
Amount to be paid	₩ 4,519	₩ 4,905	₩ 19,724	₩ 149,008	₩	178,156

The weighted average maturity of defined benefit obligations is 9.42 years.

17. Provisions

Provisions as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Provision for contingencies (see Note 18)	₩ 51,618	₩ 74,085	\$ 61,303
Provision for restoration	4,814	10,953	9,064
	₩ 56,432	₩ 85,038	\$ 70,367

Changes in provisions for the year ended December 31, 2016 are as follows:

	Korean won in millions			U. S. dollar in thousands (Note 2)
	Provision for contingencies	Provision for restoration	Total	Total
Beginning balance	₩ 51,618	₩ 4,814	₩ 56,432	\$ 46,696
Contribution	32,592	345	32,937	27,255
Transfers	-	5,419	5,419	4,484
Used	(10,816)	-	(10,816)	(8,950)
Foreign currency translation	691	375	1,066	882
Ending balance	₩ 74,085	₩ 10,953	₩ 85,038	\$ 70,367

18. Provision for contingencies

Changes in provision for contingencies for the year ended December 31, 2016 are as follows (Korean won in millions):

	Beginning Balance	Increase	Decrease	Foreign currency translation	Ending Balance	Principal debt amount
Creditors of Daewoo Corp.	₩ 26,800	₩ 777	₩ -	₩ 691	₩ 28,268	₩ 257,405
Legal proceedings provision	10,816	476	(10,816)	-	476	-
Other onerous contracts provision	14,002	31,339	-	-	45,341	120,346
	<u>₩ 51,618</u>	<u>₩ 32,592</u>	<u>₩ (10,816)</u>	<u>₩ 691</u>	<u>₩ 74,085</u>	<u>₩ 377,751</u>
U.S. dollar in thousands (Note 2)	<u>\$ 42,712</u>	<u>\$ 26,969</u>	<u>\$ (8,950)</u>	<u>\$ 572</u>	<u>\$ 61,303</u>	<u>\$ 312,578</u>

18.1.1 Contingent liabilities carried over from Daewoo Corporation prior to the spin-off

On July 22, 2000, the shareholders of Daewoo Corporation approved the spin-off of two business segments which were established as separate entities, Daewoo International Corporation and Daewoo Engineering & Construction Co., Ltd. ("Daewoo E&C"), with the former representing the international trading division and the latter representing the construction division. Certain creditors approved the spin-off while others disapproved. Creditors approving the spin-off entered into a work-out agreement on March 15, 2000, transferring certain of Daewoo Corporation's liabilities to the Company and to Daewoo E&C, which resulted in the Company becoming a primary debtor or guarantor for such transferred liabilities.

Regarding the probable claims on liabilities from both consenting and dissenting creditors, the Company estimated ₩28,268 million (\$23,391 thousand) as the amount of provision on the basis of the settlement agreement with some creditors and other information.

The above total amount of provision for contingencies related to creditors of Daewoo Corporation was proportionately allocated between the Company and Daewoo E&C.

In May 2002, Industrial Development Bank of India ("IDBI"), a creditor of Daewoo Motors India Ltd. ("DMIL"), to which Daewoo Corporation provided a payment guarantee, filed a petition with the court of Delhi/Mumbai against DMIL to exercise its rights to dispose of DMIL's assets for settlement of the related obligations. Accordingly, the Company estimated the probable loss of the pending petitions and reflected the amount in provisions for contingencies as at December 31, 2016.

Further, Daewoo Corporation filed for bankruptcy with the Seoul Central District Court on May 25, 2006 and received the adjudication of bankruptcy on June 16, 2006. As at December 31, 2016, the bankruptcy proceedings of Daewoo Corporation are in progress.

18.1.2 Provision for litigation and others

The Company recognized probable outflow of resources amounting to ₩45,817 million (\$37,912 thousand) as provision for contingencies in connection with lawsuits against the Company and Canada Baptiste project as at December 31, 2016 (see related Notes below).

18.2 Pending litigations

As at the reporting date, the Company is a defendant in pending lawsuits involving 18 claims (domestic: 10 claims, overseas: 8 claims). The total amount of the lawsuits, except one case that the outcome of the pending litigation cannot be reasonably estimated, is ₩ 5,802 million, USD 15,644 thousand, EUR 2,667 thousand, INR 4,469,396 thousand, CAD 79,000 thousand and PKR 124,775 thousand.

The Company is involved in 26 pending lawsuits as a plaintiff as at December 31, 2016.

The ultimate outcome of these lawsuits could not be determined. Therefore, the Company has not established potential liabilities that may arise as a result of the above litigations as at December 31, 2016 other than lawsuits for which provision for contingencies is recognized.

18.3 Credit facilities

As at December 31, 2016, the Company has letter of credit facilities ("L/C") with Woori Bank and others, document against acceptance facilities ("D/A") and other trading facilities as follows (U.S. dollar in thousands and Korean won in millions):

	Bank	Credit line amount		Outstanding balance	
Local L/C	Woori Bank and others	USD	306,599	USD	243,183
L/C	Woori Bank and others	USD	1,535,171	USD	1,088,621
D/A	Woori Bank and others	USD	1,707,265	USD	465,379
Credit line in foreign currency	Woori Bank and others	USD	470,000	USD	304,061
P-Bond and others	Korea EXIM Bank and others	USD	684,050	USD	467,341
Overdraft and others	Woori Bank and others	KRW	9,000		-

18.4 Collateral

The Company has pledged 35 blank promissory notes and 16 blank checks as collateral to Korea National Oil Corporation and others for the contract performance guarantees as at December 31, 2016.

18.5 Derivatives

The Company entered into currency forwards contracts and commodity futures contracts with financial institutions to hedge against foreign exchange risks and inventory price risks, and details on the maximum credit line amounts are as follows (U.S. dollar in thousands and Korean won in millions):

Contract	Bank	Derivative credit lines		Details
Currency forwards	Woori Bank	\$	15,000	Limit of loss
	Kookmin Bank	₩	33,600	Limit of loss
	Suhyup Bank	₩	10,000	Limit of loss
	Citibank Korea	\$	50,000	Limit of risk transaction
	SC Bank Korea	\$	120,000	Limit of transaction
	HSBC	\$	60,000	Limit of risk transaction
	UOB(*1)	\$	200,000	Limit of transaction
	Deutsch Bank	\$	13,000	Limit of risk transaction
	Credit Agricole(*1)	\$	50,000	Limit of risk transaction
	KEB Hana Bank	\$	60,000	Limit of loss
	ANZ Bank	\$	10,000	Limit of risk transaction
	Societe General	\$	42,000	Limit of risk transaction
	SMBC	\$	200,000	Limit of transaction
	Industrial & Commercial Bank of China	\$	50,000	Limit of risk transaction
	Korea Development Bank	₩	30,000	Limit of risk transaction
	ING Bank	\$	34,000	Limit of risk transaction
	Mizuho Bank	\$	20,000	Limit of loss

18.5 Derivatives (cont'd)

Contract	Bank	Derivative credit lines	Details
Commodity futures	Triland	\$ 20,000	Limit of loss
		\$ 20,000	Limit of transaction
	Mitsui Bussan	\$ 15,000	Limit of loss
		\$ 15,000	Limit of transaction
	Toyota	\$ 13,000	Limit of loss
		\$ 13,000	Limit of transaction
	Societe General	\$ 20,000	Limit of loss
		\$ 20,000	Limit of transaction
	BOCI	\$ 10,000	Limit of loss
		\$ 10,000	Limit of transaction
	Daishin Securities(*2)	\$ 5,000	Limit of loss

(*1) Includes limit of transaction on currency swap contracts.

(*2) Includes limit of transaction on currency futures contracts.

Details of unsettled contracts for currency forwards, commodity futures, currency futures and currency swap contract are as follows (Korean won in millions):

18.5.1 Currency forwards

Currency unit	Unsettled contractual amount		Accumulated valuation gain (loss)
	Long position	Short position	
USD	₩ 65,501	₩ 342,972	₩ (3,108)
EUR	37,288	415,099	10,656
JPY	8,581	20,902	82
CNY	1,795	20,573	(46)
AED	873	769	(1)
CHF	112	-	(2)
CAD	-	119,022	1,838
GBP	1,977	54,457	932
AUD	27,580	4,026	(269)
			₩ 10,082
			\$ 8,343

U. S. dollar in thousands (Note 2)

18.5.2 Commodity futures

Commodity	Unsettled contractual amount		Accumulated valuation gain (loss)
	Long position	Short position	
Aluminum	₩ 51,844	₩ 94,437	₩ 519
Copper	40,974	74,297	1,081
Nickel	65,562	146,162	7,693
Tin	7,137	22,194	(414)
Soybean	25,994	21,045	1,876
Corn	19,374	-	(273)
Singapore Gasoil	3,322	-	42
Cotton	-	253	(3)
Rubber	961	2,421	(167)
Brent	338	-	5
Fuel oil	2,564	371	149
			₩ 10,508
			\$ 8,695

U. S. dollar in thousands (Note 2)

18.5.3 Currency futures

Currency unit	Unsettled contractual amount		Accumulated valuation gain (loss)
	Long position	Short position	
JPY	₩ 387	₩ 1,560	₩ 4
U. S. dollar in thousands (Note 2)			\$ 3

18.5.4 Currency swap

Bank	Unsettled contractual amount				Expiration date	Interest swap	Valuation gain (loss)	
	Payment		Receipt					
UOB	USD	69,077	SGD	96,500	Oct. 27, 2017	Pay 3M USD Libor+1.10% Receive 3M SGD SOR+0.75%	₩	(3,316)
KEB Hana Bank	USD	130,000	KRW	132,600	Jun. 30, 2017	Pay 3M USD Libor+1.21% Receive KRW 3.20%		(23,877)
KEB Hana Bank	USD	70,000	KRW	71,120	Jun. 30, 2017	Pay 3M USD Libor+1.20% Receive KRW 3.20%		(13,136)
Credit Agricole	USD	29,891	SGD	41,500	Oct. 27, 2017	Pay 3M USD Libor+1.05% Receive 3M SGD SOR+0.75%		(1,604)
							₩	(41,933)
U. S. dollar in thousands (Note 2)							\$	(34,698)

Changes in the book value of derivative financial assets (liabilities) for the year ended December 31, 2016 are as follows:

	Korean won in millions				Ending balance
	Beginning balance	Settlement	Valuation gain	Valuation loss	
Currency forwards	₩ 6,248	₩ (6,247)	₩ 15,758	₩ (5,677)	₩ 10,082
Commodity futures	37,437	(37,437)	19,168	(8,660)	10,508
Currency futures	(35)	35	11	(7)	4
Currency swap	(30,652)	-	-	(11,281)	(41,933)
Firm commitment contracts	(14,353)	3,870	36,786	(32,616)	(6,313)
Others	(2,337)	-	-	(768)	(3,105)
	₩ (3,692)	₩ (39,779)	₩ 71,723	₩ (59,009)	₩ (30,757)
U. S. dollar in thousands (Note 2)	\$ (3,055)	\$ (32,917)	\$ 59,349	\$ (48,828)	\$ (25,451)

The Company uses commodity futures and other financial instruments to hedge its commodity price risks and other risks attributable to firm sales or purchase contracts. The Company applies fair value hedge accounting under which the firm sales or purchase contracts (the firm commitment contract) are designated as the hedged item with commodity futures and others as hedging instruments.

The firm commitment contracts in connection with commodity futures and others were valued at fair value. As a result of such valuation, the resulting unrealized gains and losses on valuation were recorded as firm commitment contracts assets and liabilities, respectively.

For the year ended December 31, 2016, settled firm commitment contracts amounting to ₩1,059 million and ₩4,929 million were deducted from sales and cost of sales, respectively.

18.6 Guarantee obligations

Guarantees provided by the Company to certain creditors on behalf of associates/debtors as at December 31, 2016 are as follows:

Debtor	Creditor	Limit amount		Outstanding balance		Year of expiration
		Foreign currency amounts (in thousands)	Korean won equivalent (in millions)	Foreign currency amounts (in thousands)	Korean won equivalent (in millions)	
PT. Bio Inti Agrindo	POSCO-Asia	USD 10,000	₩ 12,085	USD 10,000	₩ 12,085	2017
	POSCO-Asia	USD 6,500	7,855	USD 6,500	7,855	2017
	Korea EXIM Bank	USD 7,000	8,460	USD 7,000	8,460	2017
	Korea EXIM Bank	USD 7,500	9,064	USD 7,500	9,064	2019
	Korea EXIM Bank	USD 9,625	11,632	USD 9,625	11,632	2020
	Korea EXIM Bank	USD 26,000	31,421	USD 26,000	31,421	2021
	Korea EXIM Bank	USD 5,000	6,043	USD 5,000	6,043	2022
	Korea EXIM Bank	USD 22,000	26,587	USD 22,000	26,587	2023
Daewoo Textile LLC	Korea EXIM Bank	USD 8,000	9,668	USD 8,000	9,668	2018
POSCO DAEWOO India Pvt Ltd.	Shinhan Bank	USD 20,000	24,170	USD 16,048	19,394	2017
	Shinhan Bank	USD 30,000	36,255	USD 24,633	29,769	2017
	Shinhan Bank	USD 14,600	17,644	USD 12,440	15,034	2017
	Shinhan Bank	USD 30,000	36,255	USD 23,460	28,351	2017
	Industrial Bank of Korea	USD 5,400	6,526	USD 4,225	5,106	2017
	SMBC	USD 20,000	24,170	USD 16,912	20,438	2017
	Mizuho Bank	USD 20,000	24,170	USD 15,373	18,579	2017
	Standard chartered, New Delhi	USD 25,000	30,213	USD 23,933	28,923	2017
Global Komsco Daewoo	ICBC	USD 8,225	9,940	USD 7,263	8,777	2019
	Bank of China, Seoul	USD 963	1,163	USD 963	1,163	2017
POSCO Assan TST	ING and others	USD 14,653	17,708	USD 14,653	17,708	2020
Daewoo Power Png Ltd.	Korea EXIM Bank	USD 54,400	65,742	USD 36,000	43,506	2025
Ambatovy project investments Ltd.	Korea EXIM Bank	USD 65,455	79,102	USD 38,578	46,622	2019
Sherritt International Corporation	Korea EXIM Bank	USD 21,818	26,367	USD 6,042	7,301	2023
		USD 432,139	₩ 522,240	USD 342,148	₩ 413,486	

Principal debtors listed above are related parties of the Company, excluding Sherritt International Corp. and Ambatovy Project Investments Ltd. (See Note 31).

Investments in DMSA and AMSA (book value: ₩64,249 million) have been pledged as collateral to creditors in connection with the above payment guarantees.

18.7 Other commitments

18.7.1 Canada Baptiste Project

In accordance with the joint investment agreement between the Company and Devonian Private Equity Fund ("Devonian PEF"), Devonian PEF has a put option to sell its interest in Canada Baptiste Project to the Company with the minimum guaranteed return of 6.5% per annum for 6 months from 4 years after execution of investments. As at December 31, 2016, Devonian PEF's interests in Canada Baptiste Project amounted to ₩120,346 million (\$99,583 thousand).

An estimated loss of ₩45,341 million (\$37,518 thousand) is recorded as provisions in relation to the exercise of the option right in this year.

18.7.2 Daewoo Global Development Pte. Ltd.

In accordance with the Shareholders' Agreement and the Put Option Agreement between the Company and other shareholders of Daewoo Global Development Pte. Ltd. ("DGDP"), the financial investor in DGDP or any successor of FI ("FI") has a put option to sell its equity interest in DGDP and its subordinated loan to DGDP to other shareholders for 3 years and 9 months from the first capital contribution date. The guaranteed return on the put option is 5.25% per annum on the equity interest and 10% per annum on the subordinated loan. If FI exercises its put option, the Company and the shareholders is to purchase the equity interest and the subordinated loan put by FI in proportion to its equity ownership. Other shareholders except the Company may decline to purchase the equity interest and the subordinated loan. Amounts of the shares underlying the put option as at December 31, 2016 amounts ₩23,565 million (\$19,499 thousand) and there is no underlying subordinated loan.

In relation to the put option, ₩3,105 million (\$2,569 thousand) is recorded as derivative financial liabilities as at December 31, 2016.

In accordance with the stand-by loan agreement between the Company and other shareholders of DGDP, the Company and other shareholders except FI should provide subordinated loan jointly in case that DGDP would suffer from lack of funds for redemption of borrowings from FI and related interests. In addition, interests in DGDP of the Company and other shareholders except FI have been pledged as collateral to FI in connection with those borrowings. As at December 31, 2016, the outstanding borrowings amounts to ₩195,777 million (\$ 162,000 thousand).

18.7.3 SPH Co., Ltd.

In 2014, the Company and POSCO Engineering Co., Ltd. established a 50-50 joint venture SPH Co., Ltd. ("SPH") for the construction and the lease of company housing. In accordance with the loan agreement between SPH and its creditors, the Company and POSCO Engineering Co., Ltd. should provide subordinated loan jointly in case that SPH would suffer from lack of funds for redemption of borrowings from its creditors and related interests. As at December 31, 2016, the outstanding borrowings amounts to ₩68,000 million (\$56,268 thousand).

19. Issued capital and capital surplus

Issued capital as at December 31, 2016 is as follows (Korean won in millions, Korean won for par value amount):

	Number of shares authorized	Number of shares issued	Par value	Issued capital	Paid-in capital in excess of par value (capital surplus)
Ordinary shares	500,000,000	113,876,291	₩ 5,000	₩ 569,381	₩ 333,145
U. S. dollar in thousands (Note 2)				\$ 471,147	\$ 275,668

Capital surplus as at December 31, 2015 and 2016 are as follows (Korean won in millions, Korean Won for par value amount):

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Paid-in capital in excess of par value	₩ 333,145	₩ 333,145	\$ 275,668
Other capital surplus	16	16	13
	₩ 333,161	₩ 333,161	\$ 275,681

20. Accumulated other comprehensive income

Accumulated other comprehensive income comprises gain on valuation of available-for-sale financial assets. Changes in gain on valuation of available-for-sale financial assets for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Beginning balance	₩ 24,518	₩ 22,422	\$ 18,554
Changes during the year	(2,765)	(1,705)	(1,411)
Tax effect	669	412	341
Ending balance	₩ 22,422	₩ 21,129	\$ 17,484

21. Retained earnings

Retained earnings as at December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Legal reserve(*1)	₩ 27,785	₩ 33,478	\$ 27,702
Voluntary reserve(*2)	1,331,000	1,349,000	1,116,260
Unappropriated	83,161	124,787	103,258
	₩ 1,441,946	₩ 1,507,265	\$ 1,247,220

(*1) The Commercial Code of the Republic of Korea requires the Company to appropriate, as a legal reserve, an amount equal to a minimum of 10% of cash dividends paid, until such reserve equals 50% of its issued capital. The reserve is not available for the payment of cash dividends, but may be transferred to issued capital, or used to reduce accumulated deficit, if any.

(*2) Voluntary reserve consists of a reserve for business expansion.

21.1 Statements of appropriations of retained earnings

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Retained earnings before appropriations:			
Unappropriated retained earnings carried forward from the prior year	₩ 1,134	₩ 2,529	\$ 2,093
Actuarial gain (loss)	177	(1,451)	(1,201)
Profit for the year	81,850	123,709	102,366
	83,161	124,787	103,258
Appropriations:			
Legal reserve	5,694	5,694	4,712
Reserve for business expansion	18,000	60,000	49,648
Cash dividends	56,938	56,938	47,115
	80,632	122,632	101,475
Unappropriated retained earnings to be carried forward to the next year	₩ 2,529	₩ 2,155	\$ 1,783

Appropriations approval dates for 2015 and 2016 are March 14, 2016 and March 13, 2017, respectively.

21.2 Dividends

Details of dividends declared for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)	
	2015	2016	2016	
	Cash dividends	Cash dividends	Cash dividends	
Dividends per share (Korean won and U.S. dollar) (dividend ratio) (A)	₩ 500 (10%)	₩ 500 (10%)	\$	0.414 (10%)
Number of shares (B)	113,876,291	113,876,291		113,876,291
Dividends (A x B)	₩ 56,938	₩ 56,938	\$	47,115

22. Expenses disclosed by the nature

Expenses disclosed by the nature of expense (cost of sales and selling and administrative expense) for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)	
	2015	2016	2016	
Cost of goods sold	₩ 15,597,172	₩ 14,252,586	\$	11,793,617
Employee salaries	116,494	119,360		98,767
Depreciation of property, plant and equipment	18,183	16,822		13,920
Amortization of intangible asset	123,514	127,532		105,529
Depreciation of investment properties	2,908	2,908		2,406
Others	678,147	593,721		491,287
	₩ 16,536,418	₩ 15,112,929	\$	12,505,526

23. Selling and administrative expenses

Details of selling and administrative expenses for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)	
	2015	2016	2016	
Salaries	₩ 104,078	₩ 104,859	\$	86,768
Severance benefit	12,416	14,501		11,999
Employee welfare	24,103	25,044		20,723
Travel	7,869	7,827		6,477
Communication	4,217	3,883		3,213
Utilities	2,059	130		108
Taxes and dues	3,534	3,132		2,592
Rents	12,116	9,561		7,911
Depreciation	7,840	6,453		5,340
Amortization	2,628	1,768		1,463
Repairs	873	154		127
Insurance	23,249	24,504		20,276
Entertainment	391	400		331
Advertising	1,822	918		760

23. Selling and administrative expenses (cont'd)

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Packaging	₩ 1,753	₩ 2,109	\$ 1,745
Freight	395,739	350,566	290,083
Shipping	36,684	37,636	31,143
Commissions	102,994	78,233	64,736
Bad debt expenses	43,587	40,357	33,394
Supplies	434	510	422
Car maintenance	1,582	1,521	1,259
Printing	290	296	245
Training	1,618	1,435	1,187
Research and development	4,080	1,344	1,112
Sales promotion	4,756	3,057	2,530
Exhibition	257	119	98
Samples	210	195	161
Miscellaneous expense	439	217	180
Conference	175	107	89
	₩ 801,793	₩ 720,836	\$ 596,472

24. Finance income and costs

Details of finance income for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Interest income	₩ 47,456	₩ 35,400	\$ 29,293
Financial guarantee income	1,219	869	719
Dividends income	36,960	70,647	58,458
Gain on foreign currency transactions	547,432	520,418	430,630
Gain on foreign currency translation	223,469	122,493	101,360
Gain on valuation of derivatives	115,188	71,723	59,349
Gain on settlement of derivatives	309,450	252,895	209,264
	₩ 1,281,174	₩ 1,074,445	\$ 889,073

Details of finance costs for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Loss on disposal of trade accounts receivable	₩ 14,082	₩ 16,915	\$ 13,997
Interest expenses	50,724	43,150	35,705
Financial guarantee expense	17,960	22,777	18,847
Loss on foreign currency transactions	563,059	514,749	425,941
Loss on foreign currency translation	205,624	123,986	102,595
Loss on valuation of derivatives	179,502	59,009	48,828
Loss on settlement of derivatives	251,669	267,605	221,436
	₩ 1,282,620	₩ 1,048,191	\$ 867,349

24. Finance income and costs (cont'd)

Details of interest income for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Interest income on cash equivalents	₩ 1,961	₩ 1,545	\$ 1,278
Other interest income	45,495	33,855	28,015
	₩ 47,456	₩ 35,400	\$ 29,293

Details of interest expenses for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Interest on borrowings and bonds	₩ 53,783	₩ 46,754	\$ 38,687
Less: capitalization of borrowing costs	(3,059)	(3,604)	(2,982)
	₩ 50,724	₩ 43,150	\$ 35,705

25. Other income and expenses

Details of other income for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Gain on disposal of investments in subsidiaries and associates	₩ 308	₩ -	\$ -
Gain on disposal of property, plant and equipment	265	151	125
Gain on disposal of intangible assets	-	83	69
Gain on disposal of disposal groups classified as held for sale	618	-	-
Reversal of allowance for doubtful accounts	197	488	404
Reversal of provision for contingencies	4,058	-	-
Reversal of loss on impairment of disposal groups classified as held for sale	136	-	-
Gain on disposal of available-for-sale financial assets	-	13	11
Miscellaneous income	16,142	9,622	7,961
	₩ 21,724	₩ 10,357	\$ 8,570

25. Other income and expenses (cont'd)

Details of other expenses for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Contribution to provisions for restoration	₩ 130	₩ 345	\$ 285
Other bad debt expense	58,157	43,352	35,873
Loss on disposal of property, plant and equipment	212	1	1
Loss on disposal of intangible assets	309	-	-
Loss on impairment of intangible assets	13,991	13,816	11,432
Donations	1,217	1,209	1,000
Contribution to provision for contingencies	15,947	32,592	26,969
Loss on impairment of investments in subsidiaries and associates	162,110	53,586	44,341
Loss on disposal of available-for-sale financial assets	-	530	439
Loss on impairment of available-for-sale financial assets	498	182	151
Miscellaneous expenses	21,192	41,928	34,694
Loss on disposal of disposal groups classified as held for sale	27	-	-
	<u>₩ 273,790</u>	<u>₩ 187,541</u>	<u>\$ 155,185</u>

26. Impairment of financial instrument

Details of impairment of financial instrument for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Bad debt expenses	₩ 43,587	₩ 40,357	\$ 33,394
Other bad debt expenses	55,093	42,719	35,349
Less: reversal of allowance for doubtful accounts	(108)	(471)	(390)
Loss on impairment of available-for-sale financial assets	498	182	151
	<u>₩ 99,070</u>	<u>₩ 82,787</u>	<u>\$ 68,504</u>

27. Income taxes

The major components of income tax expenses for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Current income taxes	₩ 58,653	₩ 83,370	\$ 68,986
Changes in deferred income tax arising from temporary differences	(48,038)	(51,916)	(42,959)
Changes in deferred income tax arising from tax credit carryforwards	(1,969)	(2,667)	(2,207)
Income tax charged directly to equity	613	875	724
Income tax expense	₩ 9,259	₩ 29,662	\$ 24,544

The reconciliation between income tax expense at the effective income tax rates of the Company and accounting profit before income tax at the Korea statutory tax rate for the years ended December 31, 2015 and 2016 is as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Accounting profit before income tax	₩ 91,109	₩ 153,371	\$ 126,910
Tax at the statutory income tax rate	21,586	36,654	30,330
Adjustments:			
Non-taxable income (2015: ₩ 100 million, 2016: ₩ 26 million)	(24)	(6)	(5)
Non-deductible expenses (2015: ₩ 2,290 million, 2016: ₩ 11,918 million)	554	2,884	2,386
Effect of deferred income tax not recognized (2015: ₩ (7,220) million, 2016: -)	(1,747)	-	-
Tax credits	(4,355)	(1,626)	(1,345)
Others	(6,755)	(8,244)	(6,822)
Income tax expense	₩ 9,259	₩ 29,662	\$ 24,544
Effective income tax rates	10.16%	19.34%	19.34%

27. Income taxes (cont'd)

Income tax charged directly to equity for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Gain on valuation of available-for-sale financial assets	₩ 669	₩ 412	\$ 341
Re-measurement loss on defined benefit liabilities	(56)	463	383
	₩ 613	₩ 875	\$ 724

Changes in deferred income tax assets and liabilities for the years ended December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015			
	Beginning balance	Recognized in profit or loss	Recognized directly to equity	Ending balance
Valuation of derivatives	₩ (4,464)	₩ (548)	₩ -	₩ (5,012)
Loss on impairment of investments	34,267	(23,709)	-	10,558
Investments in subsidiaries and associates	(1,070)	46,293	-	45,223
Provisions for severance liability	13,448	3,462	(56)	16,854
Severance insurance deposits	(11,966)	(1,304)	-	(13,270)
Amortization of present value discount	3,430	(3,430)	-	-
Debt restructuring	(4,646)	579	-	(4,067)
Extraordinary loss	16,492	451	-	16,943
Allowance for doubtful accounts	-	16,469	-	16,469
Depreciation	8,077	8,286	-	16,363
Loss on impairment of property, plant and equipment	15,846	(15,846)	-	-
Capitalized borrowing costs	(30,178)	1,027	-	(29,151)
Accrued expenses	15,737	911	-	16,648
Conversion of debt to equity	1,812	-	-	1,812
Foreign currency translation	706	228	-	934
Valuation of available-for-sale financial assets	(7,828)	1	669	(7,158)
Gain on revaluation of property, plant and equipment	(1,853)	1,853	-	-
Financial guarantee liabilities	9	4,235	-	4,244
Borrowings with low interest rates	1,665	200	-	1,865
Forgivable borrowings	7,024	(4,059)	-	2,965
Others	18,774	12,326	-	31,100
	75,282	47,425	613	123,320
Tax credit carryforwards	-	1,969	-	1,969
	₩ 75,282	₩ 49,394	₩ 613	₩ 125,289

27. Income taxes (cont'd)

	2016			
	Beginning balance	Recognized in profit or loss	Recognized directly to equity	Ending balance
Valuation of derivatives	₩ (5,012)	₩ 4,762	₩ -	₩ (250)
Loss on impairment of investments	10,558	452	-	11,010
Investments in subsidiaries and associates	45,223	9,415	-	54,638
Provisions for severance liability	16,854	69	463	17,386
Severance insurance deposits	(13,270)	(244)	-	(13,514)
Debt restructuring	(4,067)	(52)	-	(4,119)
Extraordinary loss	16,943	5,447	-	22,390
Allowance for doubtful accounts	16,469	17,909	-	34,378
Depreciation	16,363	10,058	-	26,421
Capitalized borrowing costs	(29,151)	3,681	-	(25,470)
Accrued expenses	16,648	1,573	-	18,221
Conversion of debt to equity	1,812	-	-	1,812
Foreign currency translation	934	(231)	-	703
Valuation of available-for-sale financial assets	(7,158)	-	412	(6,746)
Financial guarantee liabilities	4,244	1,797	-	6,041
Borrowings with low interest rates	1,865	(2,961)	-	(1,096)
Forgivable borrowings	2,965	(371)	-	2,594
Others	31,100	(263)	-	30,837
	123,320	51,041	875	175,236
Tax credit carryforwards	1,969	2,667	-	4,636
	₩ 125,289	₩ 53,708	₩ 875	₩ 179,872
U. S. dollar in thousands (Note 2)	\$ 103,673	\$ 44,442	\$ 724	\$ 148,839

28. Earnings per share

28.1 Basic earnings per share

Basic earnings per share for the years ended December 31, 2015 and 2016 are calculated as follows (Korean won in millions, except for per share amounts):

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Profit for the year attributable to ordinary equity holders	₩ 81,850	₩ 123,709	\$ 102,366
Weighted average number of ordinary shares outstanding	113,876,291	113,876,291	113,876,291
Basic earnings per share (Korean won and U.S dollar)	₩ 719	₩ 1,086	\$ 0.90

Details of weighted average number of ordinary shares outstanding for the years ended December 31, 2015 and 2016 are as follows:

	2015		
	Number of outstanding shares	Number of days outstanding	Weighted number of shares
Beginning balance	113,876,291	365/365	113,876,291
	<u>113,876,291</u>		<u>113,876,291</u>
	2016		
	Number of outstanding shares	Number of days outstanding	Weighted number of shares
Beginning balance	113,876,291	366/366	113,876,291
	<u>113,876,291</u>		<u>113,876,291</u>

28.2 Diluted earnings per share

Diluted earnings per share for the years ended December 31, 2015 and 2016 are the same as basic earnings per share as the Company does not have any potential ordinary shares.

29. Financial instruments

29.1 Capital risk management

The primary objective of the Company's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize shareholder value. To maintain or adjust the capital structure, the Company may adjust the dividend payment to shareholders.

The Company monitors capital using a gearing ratio, which is net borrowings divided by total equity. The Company includes within net borrowings, interest bearing borrowings and bonds, less cash and cash equivalents, excluding discontinued operations.

	Korean won in millions		U. S. dollar in thousands (Note 2)	
	2015	2016	2016	
Total borrowings (A)	₩ 3,655,442	₩ 2,981,811	\$ 2,467,365	
Cash and cash equivalents (B)	(83,431)	(43,922)	(36,344)	
Net borrowings (A-B)	₩ 3,572,011	₩ 2,937,889	\$ 2,431,021	
Total equity (D)	₩ 2,366,910	₩ 2,430,937	\$ 2,011,532	
Gearing ratio ((A-B)/D)	151%	121%	121%	

29.2 Financial instruments by category

Financial assets by category as at December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015			
	Financial asset at fair value through profit or loss	Loans and receivables	Available-for-sale financial assets	Total
Cash and cash equivalents	₩ -	₩ 83,431	₩ -	₩ 83,431
Trade and other receivables	-	3,388,220	-	3,388,220
Other current financial assets	-	1,421	-	1,421
Derivative financial assets	68,868	-	-	68,868
Non-current trade and other receivables	-	551,659	-	551,659
Other non-current financial assets	-	10	100,104	100,114
	₩ 68,868	₩ 4,024,741	₩ 100,104	₩ 4,193,713

29.2 Financial instruments by category (cont'd)

	2016			
	Financial asset at fair value through profit or loss	Loans and receivables	Available-for-sale financial assets	Total
Cash and cash equivalents	₩ -	₩ 43,922	₩ -	₩ 43,922
Trade and other receivables	-	3,494,714	-	3,494,714
Other current financial assets	-	3,083	-	3,083
Derivative financial assets	41,047	-	-	41,047
Non-current trade and other receivables	-	449,173	-	449,173
Other non-current financial assets	-	8	98,705	98,713
	₩ 41,047	₩ 3,990,900	₩ 98,705	₩ 4,130,652
U. S. dollar in thousands (Note 2)	\$ 33,965	\$ 3,302,358	\$ 81,676	\$ 3,417,999

Financial liabilities by category as at December 31, 2015 and 2016 are as follows (Korean won in millions):

	2015		
	Financial liabilities at fair value through profit or loss	Financial liabilities carried at amortized cost	Total
Trade and other payables	₩ -	₩ 1,166,364	₩ 1,166,364
Borrowings	-	1,833,824	1,833,824
Current portion of bonds	-	349,799	349,799
Derivative financial liabilities	72,560	-	72,560
Non-current trade and other payables	-	31,419	31,419
Long-term borrowings	-	576,855	576,855
Bonds	-	894,963	894,963
	₩ 72,560	₩ 4,853,224	₩ 4,925,784

29.2 Financial instruments by category (cont'd)

	2016		
	Financial liabilities at fair value through profit or loss	Financial liabilities carried at amortized cost	Total
Trade and other payables	₩ -	₩ 1,657,860	₩ 1,657,860
Borrowings	-	1,470,792	1,470,792
Current portion of bonds	-	294,733	294,733
Derivative financial liabilities	71,804	-	71,804
Non-current trade and other payables	-	28,430	28,430
Long-term borrowings	-	456,809	456,809
Bonds	-	759,477	759,477
	₩ 71,804	₩ 4,668,101	₩ 4,739,905
U. S. dollar in thousands (Note 2)	\$ 59,416	\$ 3,862,723	\$ 3,922,139

Profit or loss by category of financial instruments for the year ended December 31, 2015 are as follows (Korean won in millions):

	Financial asset at fair value through profit or loss	Loans and receivables	Available-for-sale financial assets	Financial liabilities at fair value through profit or loss	Financial liabilities carried at amortized cost	Total
Selling and administrative expenses:						
Bad debt expenses	₩ -	₩ (43,587)	₩ -	₩ -	₩ -	₩ (43,587)
Other income (expenses):						
Other bad debt expense	-	(55,093)	-	-	-	(55,093)
Reversal of allowance for doubtful accounts	-	108	-	-	-	108
Loss on impairment of available-for-sale financial assets	-	-	(498)	-	-	(498)
Finance income (cost):						
Interest income	-	47,456	-	-	-	47,456
Interest expenses	-	-	-	-	(50,724)	(50,724)
Dividend income	-	-	608	-	-	608
Gain (loss) on foreign currency translation	-	78,508	-	-	(60,663)	17,845
Gain (loss) on valuation of derivatives	115,188	-	-	(179,502)	-	(64,314)
Gain (loss) on settlement of derivatives	309,450	-	-	(251,669)	-	57,781
Loss on disposal of trade receivables	-	(14,082)	-	-	-	(14,082)
Other comprehensive income	-	-	(2,765)	-	-	(2,765)
	₩ 424,638	₩ 13,310	₩ (2,655)	₩ (431,171)	₩ (111,387)	₩ (107,265)

29.2 Financial instruments by category (cont'd)

Profit or loss by category of financial instruments for the year ended December 31, 2016 are as follows (Korean won in millions):

	Financial asset at fair value through profit or loss	Loans and receivables	Available-for- sale financial assets	Financial liabilities at fair value through profit or loss	Financial liabilities carried at amortized cost	Total
Selling and administrative expenses:						
Bad debt expenses	₩ -	₩ (40,357)	₩ -	₩ -	₩ -	₩ (40,357)
Other income (expenses):						
Other bad debt expense	-	(42,719)	-	-	-	(42,719)
Reversal of allowance for doubtful accounts	-	471	-	-	-	471
Loss on impairment of available-for-sale financial assets	-	-	(182)	-	-	(182)
Gain on disposal of available-for-sale financial assets	-	-	13	-	-	13
Loss on disposal of available-for-sale financial assets	-	-	(530)	-	-	(530)
Finance income (cost):						
Interest income	-	35,400	-	-	-	35,400
Interest expenses	-	-	-	-	(43,150)	(43,150)
Dividend income	-	-	446	-	-	446
Gain (loss) on foreign currency translation	-	116,330	-	-	(117,823)	(1,493)
Gain (loss) on valuation of derivatives	71,723	-	-	(59,009)	-	12,714
Gain (loss) on settlement of derivatives	252,895	-	-	(267,605)	-	(14,710)
Loss on disposal of trade receivables	-	(16,915)	-	-	-	(16,915)
Other comprehensive income	-	-	(1,705)	-	-	(1,705)
	₩ 324,618	₩ 52,210	₩ (1,958)	₩ (326,614)	₩ (160,973)	₩ (112,717)
U. S. dollar in thousands (Note 2)	\$ 268,612	\$ 43,203	\$ (1,620)	\$ (270,264)	\$ (133,201)	\$ (93,270)

29.3 Financial risk management

The Company is exposed to market risk (foreign currency risk and interest rate risk), credit risk, and liquidity risk. The primary purpose of Company's financial risk management is to detect potential risk which could decrease the Company's profit and to eliminate, reduce and hedge such risk to an acceptable level. The Company uses derivative financial instruments for hedging special risk such as foreign currency risk. Financial risk management policy of the Company has been consistent with the policy of prior years.

29.3.1 Market risk

Market risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market prices. Market prices comprise three types of risk: foreign currency risk, interest rate risk and other price risk.

29.3.1.1 Foreign currency risk

The Company is exposed to the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. As at December 31, 2015 and 2016, significant monetary assets and liabilities denominated in major foreign currencies, other than functional currencies are as follows:

	Korean won in millions				U. S. dollar in thousands (Note 2)	
	2015		2016		2016	
	Asset	Liability	Asset	Liability	Asset	Liability
USD	₩ 3,265,582	₩ 3,049,506	₩ 3,436,337	₩ 3,239,730	\$ 2,843,473	\$ 2,680,786
JPY	49,480	46,328	34,120	24,342	28,233	20,142
EUR	428,560	374,830	428,916	314,908	354,916	260,578

Effects of fluctuation in foreign exchange rates on the Company's functional currency by 10% on profit for the year ended December 31, 2016 are as follows (Korean won in millions):

	Increase by 10%	Decrease by 10%
USD	₩ 19,661	₩ (19,661)
JPY	978	(978)
EUR	11,401	(11,401)

29.3.1.2 Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Company's exposure to the risk of changes in market interest rates relates primarily to the Company's borrowings and bonds with floating interest rates.

As at December 31, 2016, with all other variables remaining constant, a change by 1% points of the floating interest rate on borrowings will have an effect of ₩6,384 million (\$5,283 thousand) on the Company's profit for the year.

29.3.2 Credit risk

Credit risk is the risk that counterparties will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. The Company's exposure to the credit risk relates to operating and financial activities.

29.3.2.1 Trade and other receivables

Customer credit risk is managed by each business unit subject to the Company's established policy, procedures and control relating to customer credit risk management. Credit quality of the customer is assessed based on an extensive credit rating scorecard and individual credit limits are defined in accordance with this assessment. Outstanding customer receivables are regularly monitored and any shipments to major customers are generally covered by letters of credit or other forms of credit insurance.

29.3.2.2 Other assets

Credit risks associated with the Company's other assets which consist of cash, short-term deposits and short-term and long-term loans arise from the default by the counterparties. Maximum exposure to credit risks will be the book value of the other assets. The Company deposits its surplus funds in Woori Bank and other financial institutions whose credit ratings are high, therefore, credit risk related to financial institutions is considered low.

29.3.2.3 Maximum exposure to credit risk

As at December 31, 2015 and 2016, the maximum exposure to credit risk of the Company is as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Cash and cash equivalents	₩ 83,431	₩ 43,922	\$ 36,344
Trade and other receivables	3,388,220	3,494,714	2,891,778
Other current financial assets	1,421	3,083	2,551
Derivative financial assets	68,868	41,047	33,965
Non-current trade and other receivables	551,659	449,173	371,678
Other non-current financial assets	100,114	98,713	81,682
Financial guarantee contract	568,311	758,931	627,994
	₩ 4,762,024	₩ 4,889,583	\$ 4,045,992

29.3.2.4 Aging analysis of financial instruments

Aging analysis of non-derivative financial instruments as at December 31, 2016 is as follows (Korean won in millions):

			Past due but not impaired				
	Total	Not past due	Within 30 days	30 days to 60 days	60 days to 90 days	90 days to 120 days	Over 120 days
Cash and cash equivalents	₩ 43,922	₩ 43,922	₩ -	₩ -	₩ -	₩ -	₩ -
Trade and other receivables	3,494,714	3,226,963	73,706	11,549	2,593	7,080	172,823
Other current financial assets	3,083	3,083	-	-	-	-	-
Non-current trade and other receivables	449,173	449,173	-	-	-	-	-
Other non-current financial assets	98,713	98,713	-	-	-	-	-
	₩ 4,089,605	₩ 3,821,854	₩ 73,706	₩ 11,549	₩ 2,593	₩ 7,080	₩ 172,823
U. S. dollar in thousands (Note 2)	\$ 3,384,034	\$ 3,162,477	\$ 60,990	\$ 9,556	\$ 2,146	\$ 5,859	\$ 143,006

29.3.3 Liquidity risk

The Company establishes short and long-term capital management plans and analyzes and reviews cash flow budgets against actual cash outflow in order to match the maturity of financial liabilities and financial assets. The Company believes that it has sufficient cash inflows from operating activities and financial assets to redeem financial liabilities that become due.

The aggregated maturities of financial liabilities outstanding as at December 31, 2016, excluding present value discount, are as follows (Korean won in millions):

	Within 1 year	1 year to 5 years	Over 5 years	Total
Trade and other payables	₩ 1,657,860	₩ 26,986	₩ 1,444	₩ 1,686,290
Derivative financial liabilities	71,804	-	-	71,804
Borrowings	1,491,628	257,598	362,109	2,111,335
Bonds	299,075	780,290	-	1,079,365
Financial guarantee liabilities	195,157	134,892	347,214	677,263
	₩ 3,715,524	₩ 1,199,766	₩ 710,767	₩ 5,626,057
U. S. dollar in thousands (Note 2)	\$ 3,074,492	\$ 992,773	\$ 588,140	\$ 4,655,405

29.4 Fair value of financial instruments

Book value and fair value of financial instruments as at December 31, 2015 and 2016 are as follows:

	Korean won in millions				U. S. dollar in thousands (Note 2)	
	2015		2016		2016	
	Book value	Fair value	Book value	Fair value	Book value	Fair value
Financial assets						
Financial assets carried at amortized cost:						
Cash and cash equivalents	₩ 83,431	₩ 83,431	₩ 43,922	₩ 43,922	\$ 36,344	\$ 36,344
Trade and other receivables	3,388,220	3,388,220	3,494,714	3,494,714	2,891,778	2,891,778
Other current financial assets	1,421	1,421	3,083	3,083	2,551	2,551
Non-current trade and other receivables	551,659	551,659	449,173	449,173	371,678	371,678
Other non-current financial assets	10	10	8	8	7	7
	4,024,741	4,024,741	3,990,900	3,990,900	3,302,358	3,302,358
Financial assets carried at fair value:						
Derivative financial assets	68,868	68,868	41,047	41,047	33,965	33,965
Available-for-sale financial assets(*1)	59,890	59,890	57,605	57,605	47,667	47,667
	128,758	128,758	98,652	98,652	81,632	81,632
	₩ 4,153,499	₩ 4,153,499	₩ 4,089,552	₩ 4,089,552	\$ 3,383,990	\$ 3,383,990
Financial liabilities						
Financial liability carried at amortized cost:						
Trade and other payables	₩ 1,166,364	₩ 1,166,364	₩ 1,657,860	₩ 1,657,860	\$ 1,371,833	\$ 1,371,833
Current portion of borrowings	1,833,824	1,833,824	1,470,792	1,470,792	1,217,039	1,217,039
Current portion of bonds	349,799	355,845	294,733	298,112	243,883	246,679
Non-current trade and other payables	31,419	31,419	28,430	28,430	23,525	23,525
Borrowings	576,855	576,855	456,809	456,809	377,997	377,997
Bonds	894,963	912,755	759,477	772,589	628,446	639,296
	4,853,224	4,877,062	4,668,101	4,684,592	3,862,723	3,876,369
Financial liability carried at fair value:						
Derivative financial liabilities	72,560	72,560	71,804	71,804	59,416	59,416
	72,560	72,560	71,804	71,804	59,416	59,416
	₩ 4,925,784	₩ 4,949,622	₩ 4,739,905	₩ 4,756,396	\$ 3,922,139	\$ 3,935,785

(*1) Excludes equity securities carried at cost as the fair value of those securities could not be measured reliably.

30. Fair value measurement

30.1 Fair value hierarchy

The Company uses the following hierarchy for determining and disclosing the fair value by valuation technique:

Level 1: Quoted (unadjusted) prices in active markets for identical assets or liabilities

Level 2: Other techniques for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly

Level 3: Techniques which use inputs that have a significant effect on the recorded fair value that are not based on observable market data.

30.1 Fair value hierarchy (cont'd)

The fair values of financial instruments by fair value hierarchy as at December 31, 2016 are as follows:

	Level 1		Level 2		Level 3		Total
Assets measured at fair value:							
Available-for-sale financial assets	₩	20,620	₩	103	₩	36,882	₩ 57,605
Derivative financial assets		-		41,047		-	41,047
Assets for which fair values are disclosed:							
Cash and cash equivalents		-		43,922		-	43,922
Trade and other receivables		-		-		3,494,714	3,494,714
Other current financial assets		-		3,083		-	3,083
Non-current trade and other receivables		-		-		449,173	449,173
Other non-current financial assets		-		8		-	8
Investment properties		-		-		170,285	170,285
Liabilities measured at fair value:							
Derivative financial liabilities		-		71,804		-	71,804
Liabilities for which fair values are disclosed:							
Trade and other payables		-		-		1,657,860	1,657,860
Short-term borrowings		-		1,470,792		-	1,470,792
Current-portion of bonds		-		298,112		-	298,112
Non-current trade and other payables		-		-		28,430	28,430
Long-term borrowings		-		456,809		-	456,809
Bonds		-		772,589		-	772,589

The fair value of financial instruments that are traded in active markets at each reporting date is determined by reference to quoted market prices or dealer price quotations. These instruments are included in Level 1, mostly are classified into available-for-sale financial assets which are listed stocks.

For financial instruments not traded in an active market, the fair value is determined using appropriate valuation techniques. This valuation technique fully makes use of observable market information as possible and internal information at minimum. When every significant variable required for measuring fair value of the instrument is observable, the instrument is classified into Level 2.

Such techniques may include using recent arm's length market transactions; reference to the current fair value of another instrument that is substantially the same; discounted cash flow analysis or other valuation models.

When one or more significant variable is not based on observable market information, the instrument is classified into Level 3.

Valuation techniques used to measure fair values of instruments are:

- Quoted prices or dealer price of similar instrument
- Present value discounted by forward exchange rate as of year-end is used for fair value of derivative instrument
- Discounted cash flow and other techniques are used for other instruments

A reasonable approximate value of fair value is used as book values of instruments which are classified into same category with trade and other receivables.

The Company used the interest rate for U.S. government treasury bills in determining the fair value of the derivative financial assets and liabilities valued at Level 2 hierarchy. Also, the Company used the risk-free interest rate of 1.75% and market risk premium of 9.64% in determining the fair value of available-for-sale financial assets valued at Level 3 hierarchy.

31. Related party transactions

Significant transactions with related parties for the years ended December 31, 2015 and 2016 and the related account balances outstanding as at December 31, 2015 and 2016 are summarized as follows (Korean won in millions):

	2015					
	Sales and others			Purchase and others		
	Sales	Others	Total	Purchase	others	Total
Parent company:						
POSCO	₩ 46,450	₩ -	₩ 46,450	₩ 3,372,193	₩ 132,955	₩ 3,505,148
Subsidiaries:						
POSCO DAEWOO America Corp.(*1)	946,191	-	946,191	50,952	-	50,952
POSCO DAEWOO Deutschland GmbH(*1)	356,482	-	356,482	16,079	595	16,674
POSCO DAEWOO Japan Corp.(*1)	623,035	-	623,035	60,667	538	61,205
POSCO DAEWOO Singapore Pte. Ltd.(*1)	793,082	-	793,082	4,276	838	5,114
POSCO DAEWOO Italia S.R.L.(*1)	318,034	-	318,034	-	2,181	2,181
POSCO DAEWOO Mexico S.A. de C.V.(*1)	151,151	-	151,151	-	2,768	2,768
POSCO DAEWOO Shanghai Co., Ltd.(*1)	8,673	-	8,673	13	2,719	2,732
POSCO DAEWOO Malaysia Sdn. Bhd.(*1)	127,156	-	127,156	-	2,002	2,002
POSCO DAEWOO India Private Ltd.(*1)	33,095	-	33,095	-	3,090	3,090
POSCO DAEWOO Myanmar Corp.(*1)	-	-	-	-	1,173	1,173
Daewoo Textile Fergana LLC(*4)	7,025	47	7,072	53,886	-	53,886
Daewoo Textile Bukhara LLC(*4)	2,319	-	2,319	22,442	-	22,442
Tianjin Daewoo Paper Manufacturing Co., Ltd.	906	-	906	-	-	-
POSCO DAEWOO China Co., Ltd.(*1)	210,471	-	210,471	3,160	2,812	5,972
Brasil Saopaulo Steel Processing Center	12,310	-	12,310	-	-	-
POSCO DAEWOO Vietnam Co., Ltd.(*1)	6,335	-	6,335	450	2,686	3,136
POSCO DAEWOO E&P Canada Corp.(*1)	-	879	879	-	-	-
POSCO DAEWOO Power (PNGPOM) Ltd.(*1)	1,818	5,738	7,556	-	-	-
POSCO DAEWOO Waigaoqiao Shanghai Co., Ltd.(*1)	33,496	-	33,496	8,724	-	8,724
Daewoo Int'l Guangzhou Corp.	15,424	-	15,424	-	1,662	1,662
PT. Bio Inti Agrindo	2,935	437	3,372	-	-	-
Daewoo Power PNG Ltd.	12,892	-	12,892	-	-	-
POSCO DAEWOO Australia Holdings Pty. Ltd.(*1)	156	-	156	-	-	-
Associates:						
POSCO Mexico Processing Center Holding LLC	164,990	-	164,990	-	-	-
POSCO-ESDC Ltd.	-	101	101	-	1,688	1,688
POSCO IJPC	26,361	-	26,361	2,364	-	2,364
Shanghai Lansheng Daewoo Corp.	11,713	-	11,713	-	728	728
Shanghai Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	214,521	-	214,521	7,149	-	7,149
General Medicines Co., Ltd.	4,031	364	4,395	-	-	-
Korea LNG Ltd.	-	12,195	12,195	-	-	-
DMSA/AMSA	800	9,493	10,293	241,069	-	241,069
South-East Asia Gas Pipeline Co., Ltd.	-	48,071	48,071	-	-	-
Global Komsco Daewoo LLC	-	-	-	6,532	-	6,532
Daewoo Global Development PTE. Ltd.	2,312	-	2,312	-	-	-
PT. Batutua Tembaga Raya	-	-	-	1,280	-	1,280
VNS-Daewoo Co., Ltd.	25,323	-	25,323	-	11	11
POSCO-AAPC	15,877	-	15,877	-	-	-

31. Related party transactions (cont'd)

		2015					
		Sales and others			Purchase and others		
		Sales	Others	Total	Purchase	others	Total
Others:							
POSCO ASIA CO., Ltd.	₩	4,639	₩ -	₩ 4,639	₩ 270,258	₩ -	₩ 270,258
POSCO-Vietnam		62,092	-	62,092	68,554	-	68,554
POSCO-Thainox		8,362	-	8,362	45,578	-	45,578
POSCO Assan TST		256,335	-	256,335	5,523	-	5,523
POSCO C&C Co., Ltd.		33,108	-	33,108	69,850	1	69,851
POSCO America Corp.		8,316	-	8,316	-	-	-
Zhangjiagang Pohang Stainless Steel Co., Ltd.		52,478	-	52,478	24,290	-	24,290
POSCO-Foshan Steel Processing Center Co., Ltd.		41,497	-	41,497	54	-	54
POSCO-Malaysia Sdn.Bhd.		36,735	-	36,735	11,210	-	11,210
POSCO-ITPC		128,585	-	128,585	-	-	-
POSCO VST Co., Ltd.		38,976	-	38,976	17,390	-	17,390
Other affiliates of POSCO		447,491	-	447,491	320,849	28,725	349,574
	₩	5,293,978	₩ 77,325	₩ 5,371,303	₩ 4,684,792	₩ 187,172	₩ 4,871,964

		2016					
		Sales and others			Purchase and others		
		Sales	Others	Total	Purchase	others	Total
Parent company:							
POSCO	₩	91,899	₩ -	₩ 91,899	₩ 3,119,860	₩ 107,329	₩ 3,227,189
Subsidiaries:							
POSCO DAEWOO America Corp.(*1)		1,109,257	-	1,109,257	66,296	10,090	76,386
POSCO DAEWOO Deutschland GmbH(*1)		378,700	-	378,700	1,626	784	2,410
POSCO DAEWOO Japan Corp.(*1)		501,442	-	501,442	32,976	578	33,554
POSCO DAEWOO Singapore Pte. Ltd.(*1)		599,213	-	599,213	6,958	989	7,947
POSCO DAEWOO Italia S.R.L.(*1)		351,294	-	351,294	-	2,527	2,527
POSCO DAEWOO Mexico S.A. de C.V.(*1)		99,543	-	99,543	-	2,473	2,473
POSCO DAEWOO Shanghai Co., Ltd.(*1)		25,905	-	25,905	-	1,980	1,980
POSCO DAEWOO Malaysia Sdn. Bhd.(*1)		151,262	-	151,262	-	1,616	1,616
POSCO DAEWOO India Private Ltd.(*1)		4	-	4	-	2,643	2,643
POSCO DAEWOO Myanmar Corp.(*1)		3	-	3	-	739	739
Daewoo Textile LLC(*1)(*4)		11,318	7	11,325	62,682	-	62,682
POSCO DAEWOO China Co., Ltd.(*1)		241,012	-	241,012	1,207	4,130	5,337
Brasil Saopaulo Steel Processing Center		96	-	96	-	-	-
POSCO DAEWOO Vietnam Co., Ltd.(*1)		15,814	-	15,814	33	2,466	2,499
POSCO DAEWOO E&P Canada Corp.(*1)		-	547	547	-	-	-
POSCO DAEWOO Power (PNGPOM) Ltd.(*1)		1,193	4,297	5,490	-	-	-
POSCO DAEWOO Waigaoqiao Shanghai Co., Ltd.(*1)		1,905	-	1,905	17,063	-	17,063
Daewoo Int'l Guangzhou Corp.		1,180	-	1,180	-	491	491
PT. Bio Inti Agrindo		396	784	1,180	-	-	-
Daewoo Power PNG Ltd.		30,085	-	30,085	-	-	-
POSCO DAEWOO Australia Holdings Pty. Ltd.(*1)		167	-	167	-	-	-

31. Related party transactions (cont'd)

	2016					
	Sales and others			Purchase and others		
	Sales	Others	Total	Purchase	others	Total
Associates:						
POSCO Mexico Processing Center Holding LLC	₩ 173,915	₩ -	₩ 173,915	₩ -	₩ -	-
POSCO-ESDC Ltd.	-	-	-	-	1,784	1,784
POSCO IJPC	42,807	-	42,807	-	-	-
Shanghai Lansheng Daewoo Corp.	15,322	-	15,322	-	791	791
Shanghai Waigaogiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	157,886	-	157,886	2,616	-	2,616
General Medicines Co., Ltd.	5,864	470	6,334	-	-	-
Korea LNG Ltd.	-	6,342	6,342	-	-	-
DMSA/AMSA	-	-	-	72,580	-	72,580
South-East Asia Gas Pipeline Co., Ltd.	-	87,657	87,657	-	-	-
Global Komsco Daewoo LLC	-	-	-	9,825	-	9,825
Daewoo Global Development PTE. Ltd.	2,327	-	2,327	-	-	-
PT. Batutua Tembaga Raya	-	-	-	15,964	-	15,964
SPH	50	-	50	-	-	-
Others:						
POSCO Asia Co., Ltd.	18,018	-	18,018	491,949	-	491,949
POSCO-Vietnam	52,091	-	52,091	44,111	-	44,111
POSCO-Thainox	48,055	-	48,055	44,134	-	44,134
POSCO Assan TST	264,729	-	264,729	7,263	-	7,263
POSCO-AAPC	2,919	-	2,919	-	-	-
POSCO C&C Co., Ltd.	85,231	-	85,231	98,970	19	98,989
POSCO America Corp.	45,521	-	45,521	-	-	-
Zhangjiagang Pohang Stainless Steel Co., Ltd.	79,757	-	79,757	635	-	635
POSCO-Foshan Steel Processing Center Co., Ltd.	68,829	-	68,829	158	-	158
Companhia Siderurgica Do Pecem	63,688	-	63,688	-	-	-
POSCO-Malaysia Sdn.Bhd.	47,098	-	47,098	9,091	-	9,091
POSCO-ITPC	49,852	-	49,852	-	-	-
POSCO VST Co., Ltd.	104,679	-	104,679	23,030	-	23,030
Other affiliates of POSCO	390,259	533	390,792	287,641	22,074	309,715
	₩ 5,330,585	₩ 100,637	₩ 5,431,222	₩ 4,416,668	₩ 163,503	₩ 4,580,171
U. S. dollar in thousands (Note 2)	\$ 4,410,910	\$ 83,274	\$ 4,494,184	\$ 3,654,669	\$ 135,294	\$ 3,789,963

31. Related party transactions (cont'd)

Significant balances outstanding with related parties as at December 31, 2015 and 2016 are summarized as follows (Korean won in millions):

	2015					
	Receivables			Payables		
	Trade receivables	Others	Total	Trade payables	Others	Total
Parent company:						
POSCO	₩ -	₩ 58	₩ 58	₩ 139,609	₩ 5,189	₩ 144,798
Subsidiary:						
POSCO DAEWOO America Corp.(*1)	307,105	308	307,413	4,667	1,752	6,419
POSCO DAEWOO Deutschland GmbH(*1)	152,626	-	152,626	19	73	92
POSCO DAEWOO Japan Corp.(*1)	118,239	-	118,239	13,778	415	14,193
POSCO DAEWOO Singapore Pte. Ltd.(*1)	108,075	-	108,075	-	102	102
POSCO DAEWOO Italia S.R.L.(*1)	115,325	-	115,325	-	199	199
POSCO DAEWOO Mexico S.A. de C.V.(*1)	59,200	-	59,200	-	324	324
POSCO DAEWOO Shanghai Co., Ltd.(*1)	6,282	7	6,289	-	213	213
POSCO DAEWOO Malaysia Sdn. Bhd.(*1)	46,733	-	46,733	-	977	977
POSCO DAEWOO India Private Ltd.(*1)	21,261	51	21,312	-	237	237
POSCO DAEWOO Myanmar Corp.(*1)	-	-	-	-	184	184
Daewoo Textile Fergana LLC(*1)(*3)(*4)	5,048	11,408	16,456	1,463	18	1,481
Daewoo Textile Bukhara LLC(*1)(*3)(*4)	2,355	2,237	4,592	-	126	126
Tianjin Daewoo Paper Manufacturing Co., Ltd.(*3)	15,408	8,228	23,636	-	36	36
POSCO DAEWOO China Co., Ltd.(*1)	22,079	347	22,426	-	236	236
Brasil Saopaulo Steel Processing Center(*3)	31,286	35,196	66,482	-	-	-
POSCO DAEWOO Vietnam Co., Ltd.(*1)	1,517	229	1,746	-	178	178
POSCO DAEWOO E&P Canada Corp.(*1)(*3)	-	17,585	17,585	-	-	-
POSCO DAEWOO Power (PNGPOM) Ltd.(*1)(*3)	-	15,068	15,068	-	785	785
POSCO DAEWOO Waigaoqiao Shanghai Co., Ltd.(*1)	11,281	-	11,281	-	27	27
Daewoo Int'l Guangzhou Corp.	4,165	-	4,165	-	144	144
PT. Bio Inti Agrindo(*3)	2,348	29,421	31,769	-	708	708
Daewoo Power PNG Ltd.	4,132	1,021	5,153	-	978	978
POSCO DAEWOO Australia Holdings Pty. Ltd.(*1)	43	-	43	-	-	-
Associate:						
POSCO Mexico Processing Center Holding LLC	48,759	-	48,759	-	-	-
POSCO IJPC	15,566	-	15,566	1	-	1
Shanghai Lansheng Daewoo Corp.	5,122	-	5,122	-	581	581
Shanghai Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	101,806	-	101,806	921	-	921
General Medicines Co., Ltd.	1,768	13	1,781	-	70	70
Korea LNG Ltd.	-	727	727	-	-	-
DMSA/AMSA(*3)	-	107,247	107,247	-	-	-
South-East Asia Gas Pipeline Co., Ltd.(*3)	-	283,954	283,954	-	-	-
Global Komsco Daewoo LLC	-	569	569	-	45	45
POSCO-AAPC	411	-	411	-	-	-
KG Power (M) Sdn. Bhd.	2,339	-	2,339	-	-	-
Daewoo Global Development PTE. Ltd.	-	2,344	2,344	-	-	-
Korea Siberia Wood CJSC	-	2,190	2,190	-	-	-
PT. Batutua Tembaga Raya(*3)	-	36,830	36,830	-	-	-

31. Related party transactions (cont'd)

2015						
	Receivables			Payables		
	Trade receivables	Others	Total	Trade payables	Others	Total
Others:						
POSCO Asia Co., Ltd.	₩ -	₩ -	₩ -	₩ 105,345	₩ -	₩ 105,345
POSCO-Vietnam	37,666	-	37,666	101	-	101
POSCO-Thainox	983	-	983	6,555	-	6,555
POSCO Assan TST	134,943	251	135,194	254	242	496
POSCO C&C Co., Ltd.	5,203	-	5,203	8,050	-	8,050
POSCO America Corp.	2,576	-	2,576	-	-	-
Zhangjiagang Pohang Stainless Steel Co., Ltd.	7,579	-	7,579	186	-	186
POSCO-Foshan Steel Processing Center Co., Ltd.	6,826	-	6,826	-	-	-
Companhia Siderurgica Do Pecem	-	-	-	-	-	-
POSCO-Malaysia Sdn.Bhd.	3,595	-	3,595	496	-	496
POSCO-ITPC	46,156	-	46,156	-	-	-
POSCO VST Co., Ltd.	32,383	-	32,383	1,071	-	1,071
Other affiliates of POSCO	103,784	74	103,858	7,900	9,961	17,861
	₩ 1,591,973	₩ 555,363	₩ 2,147,336	₩ 290,416	₩ 23,800	₩ 314,216

2016						
	Receivables			Payables		
	Trade receivables	Others	Total	Trade payables	Others	Total
Parent company:						
POSCO	₩ 546	₩ 49	₩ 595	₩ 190,476	₩ 5,206	₩ 195,682
Subsidiary:						
POSCO DAEWOO America Corp.(*1)	337,342	11,089	348,431	22,986	3,021	26,007
POSCO DAEWOO Deutschland GmbH(*1)	175,053	-	175,053	-	86	86
POSCO DAEWOO Japan Corp.(*1)	40,591	-	40,591	182	164	346
POSCO DAEWOO Singapore Pte. Ltd.(*1)	166,699	-	166,699	-	41,411	41,411
POSCO DAEWOO Italia S.R.L.(*1)	104,355	-	104,355	-	169	169
POSCO DAEWOO Mexico S.A. de C.V.(*1)	64,669	-	64,669	-	339	339
POSCO DAEWOO Shanghai Co., Ltd.(*1)	16,814	-	16,814	-	142	142
POSCO DAEWOO Malaysia Sdn. Bhd.(*1)	41,898	-	41,898	-	110	110
POSCO DAEWOO India Private Ltd.(*1)	-	582	582	-	518	518
POSCO DAEWOO Myanmar Corp.(*1)	-	-	-	-	63	63
Daewoo Textile LLC(*1)(*3)(*4)	9,957	15,252	25,209	1,287	76	1,363
POSCO DAEWOO China Co., Ltd.(*1)	20,688	330	21,018	-	573	573
Brasil Saopaulo Steel Processing Center(*3)	27,861	36,293	64,154	-	-	-
POSCO DAEWOO Vietnam Co., Ltd.(*1)(*3)	8,644	234	8,878	-	249	249
POSCO DAEWOO E&P Canada Corp.(*1)	-	19,267	19,267	-	-	-
POSCO DAEWOO Power (PNGPOM) Ltd.(*1)(*3)	77	8,497	8,574	-	149	149
Daewoo Int'l Guangzhou Corp.	1,279	-	1,279	-	-	-
PT. Bio Inti Agrindo(*3)	1,534	30,658	32,192	-	892	892
Daewoo Power PNG Ltd.	8,578	994	9,572	-	879	879
POSCO DAEWOO Australia Holdings Pty. Ltd.(*1)	46	-	46	-	-	-

31. Related party transactions (cont'd)

	2016					
	Receivables			Payables		
	Trade receivables	Others	Total	Trade payables	Others	Total
Associate:						
POSCO Mexico Processing Center Holding LLC	₩ 76,513	₩ -	₩ 76,513	₩ -	₩ -	₩ -
POSCO-ESDC LTD.	-	-	-	-	-	-
POSCO IJPC	15,630	-	15,630	-	-	-
Shanghai Lansheng Daewoo Corp.	8,612	-	8,612	-	588	588
Shanghai Waigaogiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	70,397	-	70,397	-	-	-
General Medicines Co., Ltd.	1,018	-	1,018	-	-	-
Korea LNG Ltd	-	604	604	-	-	-
DMSA/AMSA(*3)	-	93,994	93,994	-	-	-
South-East Asia Gas Pipeline Co., Ltd.(*3)	-	276,653	276,653	-	-	-
Global Komsco Daewoo LLC	-	598	598	-	74	74
Daewoo Global Development Pte. Ltd.	-	4,834	4,834	-	-	-
PT BATUTUA TEMBAGA RAYA(*3)	-	32,070	32,070	2,293	-	2,293
Korea Siberia Wood CJSC	-	2,258	2,258	-	-	-
KG Power (M) Sdn. Bhd	2,408	332	2,740	2,579	-	2,579
Others:						
POSCO Asia Co., Ltd.	216	-	216	182,660	-	182,660
POSCO-Vietnam	23,642	-	23,642	2,584	-	2,584
POSCO-Thainox	4,340	-	4,340	1,534	-	1,534
POSCO Assan TST	173,062	207	173,269	1,053	193	1,246
POSCO-AAPC	164	-	164	-	-	-
POSCO C&C Co., Ltd.	7,534	-	7,534	11,932	5	11,937
POSCO America Corp.	6,506	-	6,506	-	-	-
Zhangjiagang Pohang Stainless Steel Co., Ltd.	9,565	28	9,593	-	-	-
POSCO-Foshan Steel Processing Center Co., Ltd.	17,071	-	17,071	-	-	-
Companhia Siderurgica Do Pecem	13,472	-	13,472	-	-	-
POSCO-Malaysia Sdn.Bhd.	693	-	693	400	-	400
POSCO-ITPC	13,628	-	13,628	-	-	-
POSCO VST Co., Ltd.	51,963	-	51,963	880	-	880
Other affiliates of POSCO	94,416	2,050	96,466	25,218	14,008	39,226
	₩ 1,617,481	₩ 536,873	₩ 2,154,354	₩ 446,064	₩ 68,915	₩ 514,979
U. S. dollar in thousands (Note 2)	\$ 1,338,420	\$ 444,247	\$ 1,782,667	\$ 369,106	\$ 57,025	\$ 426,131

(*1) Changed its name in 2016.

(*2) A provision for the trade receivable amounts to ₩34,195 million as at December 31, 2016.

31. Related party transactions (cont'd)

(*3) During the year ended December 31, 2016, changes in loan investment included the above other receivables as follows:

	Korean won in millions							
	Beginning balance	Increase (Include capitalized interest)	Decrease	Transfer to equity	Write off	Foreign exchange translation and others	Ending balance	
POSCO DAEWOO E&P Canada Corp.	₩ 16,942	₩ 86	₩ -	₩ -	₩ -	₩ 1,010	₩ 18,038	
DMSA/AMSA	99,855	11,774	-	(24,624)	-	3,633	90,638	
South-east Asia Gas Pipeline Co., Ltd.	283,953	27,087	(43,080)	-	-	8,645	276,605	
POSCO DAEWOO Power (PNGPOM) Ltd	10,548	-	(3,374)	-	-	(14)	7,160	
PT. Bio Inti Agrindo	28,573	-	-	-	-	890	29,463	
PT. Batutua Tembaga Raya	36,830	-	-	(7,040)	-	2,280	32,070	
Daewoo Textile LLC(*4)	737	-	(589)	-	-	(148)	-	
Daewoo Paper Manufacturing Co., Ltd.	1,172	-	-	-	(1,242)	70	-	
Brasil Sao Paulo steel process	35,160	-	-	-	-	1,095	36,255	
	₩ 513,770	₩ 38,947	₩ (47,043)	₩ (31,664)	₩ (1,242)	₩ 17,461	₩ 490,229	
U. S. dollar in thousands (Note 2)	\$ 425,130	\$ 32,228	\$ (38,927)	\$ (26,201)	\$ (1,028)	\$ 14,448	\$ 405,650	

(*4) Daewoo Textile Fergana LLC merged with Daewoo Textile Bukhara LLC in 2016 and changed its name to Daewoo Textile LLC.

31.1 Key management personnel compensation

Compensations for key management personnel for the years ended December 31, 2015 and 2016 are as follows:

	Korean won in millions		U. S. dollar in thousands (Note 2)
	2015	2016	2016
Salaries	₩ 11,428	₩ 11,991	\$ 9,922
Long-term employee benefits	695	-	-
Severance and retirement benefits	1,448	1,760	1,456
	<u>₩ 13,571</u>	<u>₩ 13,751</u>	<u>\$ 11,378</u>

31.2 Guarantees provided to related parties

Guarantees provided to related parties as at December 31, 2015 and 2016 are as follows (Korean won in millions):

	Limit amount		Outstanding balance	
	2015	2016	2015	2016
Subsidiaries:				
Daewoo Paper Manufacturing Co., Ltd.	₩ 14,650	₩ -	₩ 14,650	₩ -
Daewoo Textile LLC	14,064	9,668	14,064	9,668
PT. Bio Inti Agrindo	69,734	113,147	69,734	113,147
POSCO DAEWOO India Private Limited	23,440	199,403	10,313	165,594
Daewoo Power PNG Ltd.	63,757	65,742	16,408	43,506
Associates:				
Global Komsco Daewoo LLC	9,639	11,103	9,639	9,940
Yulchon Mexico S. A De C. V.	563	-	-	-
Other related parties:				
POSCO Assan TST	17,173	17,708	17,173	17,708
	₩ 213,020	₩ 416,771	₩ 151,981	₩ 359,563
U. S. dollar in thousands (Note 2)	\$ 176,268	\$ 344,866	\$ 125,760	\$ 297,528

32. Events after the reporting period

In accordance with the resolution made by Board of Directors on November 4, 2016, the Company merged with a steel and other business divisions of POSCO P&S Co., Ltd. on March 1, 2017.

The main contents related to the merger are as follows:

	Description of Merger
Type of merger	Small-scale merger
Mergee	POSCO P&S's steel and other business divisions
Corporation after merger	POSCO DAEWOO Corporation
Date of merger	March 1, 2017
Date of merger registration	March 3, 2017
Ratio of merger	POSCO DAEWOO Corporation : POSCO P&S = 1 : 0.4387662 (Split merger ratio)