LEADING

Mid-Cap Research

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Cosmo Chem (005420 KS)

A complete makeover as a material supplier of rechargeable battery

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Leading Traffic Light: Green

Cosmo Chem is…

- ✓ Only domestic supplier of titanium dioxide (TiO_2), a key chemical pigment for paint, coating, and construction materials
- ✓ Dominates domestic market with 90% MS

Green light because:

- ✓ Expecting a revenue growth of TiO_2 from a lack of global TiO_2 supply
- ✓ Secured a new growth engine with a core material for rechargeable batteries

Growth potential:
- ➢ Expecting a strong earnings growth of 42.7% yoy in sales and 196.3% yoy in operating profit
- ➢ Generating meaningful sales in rechargeable battery division from 2012

Management & shareholder concern:
- ➢ Exposed the company to risk by offering collateral to related companies

Value creation:
- ➢ ROE to improve to 5~6% in 2012F and 2013F as the company turns to profit
- ➢ Net interest bearing debt to equity ratio to improve from 61.5% in 2010 to 24% in 2013F

Valuation:
- ➢ The company deserves valuation premium received by its close comparative twin Foosung (093370 KS)
- ➢ Target price W24,000 = 57.4% upside potential

CAVEAT EMPTOR!!! – Watch out for…

- ➢ Financial risk derived from providing collateral amounting to W67.6bn or 30% of total shareholder's equity
- ➢ OP could suffer if titanium ore price drops suddenly as the company carries 3 month inventory

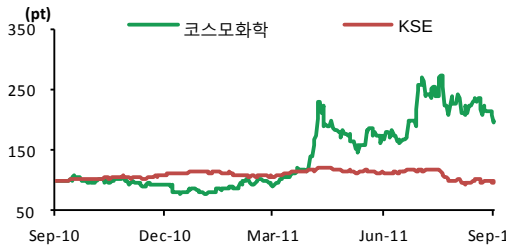
BUY

Target Price (KRW)	**24,000**
Current Price (KRW)	**15,250**
Upside potential	**57.4%**

Key Data	**Sept 16th , 2011**
Sector	Materials
KOSPI	1840.10
Market Cap. (Wbn)	197.5
Shares Outstanding (m)	12.9
Foreign Ownership (%)	1.1
52 Week High (W)	21,150
Low (W)	6,020
60-d avg. turnover (Wbn)	14.1
Major Shareholders	**(%)**
Cosmo & Company etc.	34.99
Treasury	0.34

Performance (%)	**1M**	**6M**	**12M**
Absolute	(18.7)	106.1	97.3
Relative	(15.9)	113.2	95.7

Relative Performance



Valuation Forecast

FY	Sales (Wbn)	% chg yoy	OP (Wbn)	OPM (%)	NP (Wbn)	EPS (W)	EPS Growth (%)	P/E (x)	EV/EBITDA (x)	ROE (%)	P/B (x)
2008	103.6	19.8	(2.4)	(2.3)	(5.7)	(522)	N/A	N/A	29.5	(5.2)	0.9
2009	110.6	6.7	6.4	5.8	2.2	201	N/A	75.7	14.2	1.2	0.9
2010	124.7	12.8	5.9	4.7	30.9	2,810	1,295.1	5.4	17.7	15.3	0.8
2011E	178.8	43.4	17.5	9.8	14.2	911	(67.6)	16.7	12.0	5.9	0.8
2012E	243.4	36.1	25.1	10.3	24.2	1,555	70.6	9.8	8.6	8.8	0.8
2013E	286.1	17.5	30.6	10.7	24.1	1,550	(0.3)	9.8	6.8	8.0	0.8

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Key check points for Cosmo Chem

✓ **Only domestic supplier of TiO_2, which is in short supply in the global market**

Global TiO_2 market is in short supply as Chinese chemical companies are reducing supply of TiO_2. China is the world's largest titanium dioxide producer, but recently began to reduce production as it began to cope with the reinforced environmental regulations. Additionally, Japan has ceased its supply as well due to the recent earthquake. Such disruption in Asian production rippled through the global market and resulted in global titanium dioxide shortage. As the only domestic supplier of titanium dioxide, Cosmo Chem has become a reflective beneficiary of the global market situation. The global titanium dioxide shortage is expected to continue until 2014, the year DuPont is scheduled to complete titanium dioxide production plant with a capacity of 350,000 tons per year (page 14).

✓ **Secured new growth engine – entering rechargeable battery market**

Cobalt sulfuric acid is an essential basic raw material for rechargeable battery, but Korean currently imports 100% of the domestic demand. Cosmo Chem entered the rechargeable battery market and has invested W39.9bn to build a cobalt sulfuric acid production plan, which is expected to offer strong revenue growth beginning 2012. Also, the company acquired Cosmo AM&T (former Saehan Media, 005070 KS), a cathode material producer, for synergy effect. Considering the rapid growth of the rechargeable battery market led by Korean makers such as Samsung SDI and LG Chem, Cosmo Chem is expected to penetrate the market as the only domestic producer of cobalt sulfuric acid (Page 16).

✓ **Upgrade 2011E earnings …**

2011E revenue is expected to grow by 43.4% yoy and OP by 196.3% yoy. The increase in sales will result from the rise in selling price for titanium dioxide products and also from the increase of sales volume due to short supply of TiO2. Also, the company purchased a large quantity of titanium ore at 60% discount to the current price. However, when the current inventory is consumed, higher price of titanium ore will be used beginning 2012, which will reduce profitability.

The revenue contribution from rechargeable battery division is expected to increase to 30% of the total revenue in 2012F. As such, revenue is expected to improve by 36% yoy in 2012F and 17% yoy in 2013 while OPM is expected to be maintained at 10% level (Page 19).

✓ **High financial burden, but…**

The company was forced to undergo government mandated Restructuring Program due to severe deterioration in business condition. The financial leverage rose and current D/E ratio rose to 109% in 1H11. However, the financial burden is expected to be reduced as an exercise of W30bn in BW will infuse cash , which will be used to repay debt. The company is expected to generate W48.6bn cumulative free cashflow between 2011F and 2013F, which could also be used to repay debt. Also, there is no major capex planned in the foreseeable future. Thus, we expect 2013F D/E ratio to drop to 53% (page 9).

✓ **Target price of W24,000/sh implies upside potential of 57.4%**

We employed valuation of twin company Foosung (093370 KS), a producer of raw material for rechargeable batteries, namely raw material for cathode. Both companies have successfully secured growth engine from new business (raw material for rechargeable batteries) by utilizing their existing technology. We applied Foosung's PER valuation of 15.6X and applied to Cosmo Chem's 2012F EPS W1,555, thereby reaching at fair price assessment of W24,000/sh (page 21).

Section 1: Company at a glance

Only domestic supplier of titanium dioxide

Dominates local TiO2 market

Cosmo Chem is the only domestic producer of titanium dioxide (TiO_2), which accounts for 90% of total revenue. TiO_2 is a key chemical pigment for paint, coating, and paper. Without TiO_2, paper will not be white, but transparent.

Two types of TiO2 ; rutile & anatase

The company produces anatase TiO_2, which has lower price than another type of TiO_2 called rutile. The difference between two products is that rutile has a coating function in addition to the functions of anatase. As such, users switch to rutile if the price gap narrows. However, some industry requires specifically anatase TiO2 such as IT materials and Department of Printing and Engraving.

Exhibit 1. Usage of TiO_2

Source: Leading Research Center

Source: Leading Research Center

TiO_2 is produced by combining ilmenate (titanium ore) and sulfuric acid. In the process, iron sulfate is produced as a by-product.

$$FeTiO_2 + H_2SO_4 \rightarrow TiO_2 + FeSO_4$$

Ilmenate + Sulfuric acid → Titanium dioxide + Iron sulfate

TiO2 capacity of 60,000 ton/yr

The company dominates the local TiO_2 market as the only domestic supplier. It has a 12% global market share with a capacity of 60,000 ton/yr. The company maintains operating rate of over 85% to satisfy increasing demand of TiO_2. However, no further capacity expansion is expected for next three years.

In 2010, the export revenue was 70% of total sales, mostly to the US and Japan. Globally, tight environment regulations limit TiO_2 production expansion in many countries. However, low priced TiO_2 produced by China with more relaxed environment regulation resulted in a competition in the global TiO_2 market.

Exhibit 2. TiO2 capacity of Cosmo Chem

District	TiO_2		Iron sulfate(by-product)
	Capacity (ton/year)	Operating rate	Inventory
Incheon, Kyunggi	30,000	86.4%	10,000 ton
Onsan, Ulsan	30,000	99.6%	30,000 ton

Source: Leading Research Center

Securing growth with rechargeable battery

TiO2 producer for 40 years

Cosmo Chem suffered from losses for the most part of the past decade. The company started production of TiO_2 under the name Korea Titanium Industry in 1968, but the business deteriorating considerably. As such, the company was put under the Restructuring Program by the government in 2002. One of the main problems was high fuel cost, but the company reduced that fuel cost by W10bn a year. Eventually, the company recorded a net profit in 2009.

Beneficiary of global TiO_2 shortage

The company is benefitted from increasing selling price and decreasing production by Chinese by TiO_2 manufacturers due mainly to tightened environment regulation. The TiO_2 price increased naturally and Cosmo Chem became one of the main beneficiaries. Comparing TiO_2 in 2010, a domestic TiO_2 price increased almost 20% and export price increased over 20%. The level of the current TiO_2 price is expected to be maintained until as the global supply shortage of TiO_2 persists.

Beginning production of core materials for rechargeable battery

Cosmo Chem invested W39.9bn to enter rechargeable battery market by producing cobalt sulfuric acid, which is the basic raw material for rechargeable battery. Also, the company acquired a 42% stake of Cosmo AM&T (005070 KS), which is a supplier of cathode material for rechargeable batteries, to booster synergy in raw material market of rechargeable market.

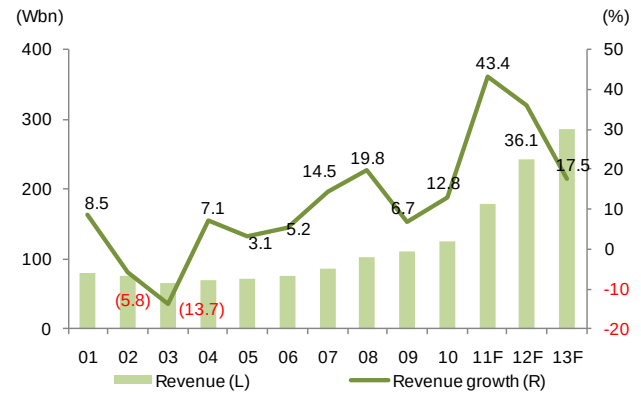
Considering the growth potential of 13% CGAR of the global rechargeable battery market led by Korean makers, the company's revenue in rechargeable battery division is expected to grow rapidly from 2012F.

Also, the Korean rechargeable battery manufacturers import most of the raw materials for rechargeable battery, thus a cost competitive and reliable domestic producer would have a significant advantage in the cobalt sulfuric acid. We believe revenue contribution of battery material division will increase by 30% of total sales in 2012F.

2011E earnings ;
+43% yoy in sales and +196% yoy in OP

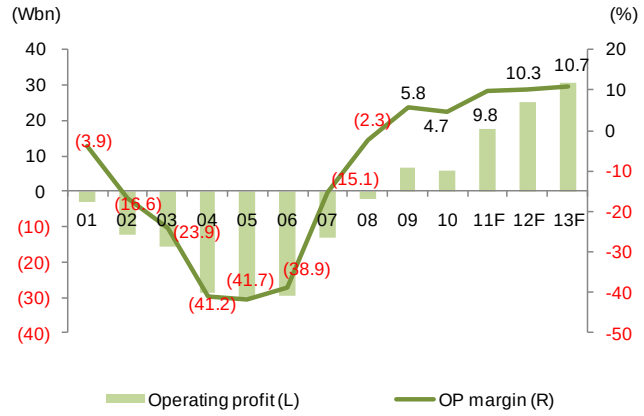
Continuous global supply shortage of TiO_2 will keep TiO_2 price stable at the current high level until 2014, the year DuPont is scheduled to complete 350,000 ton production capacity. Also, rechargeable battery revenue will take off beginning 2012F and contribute 36.1% revenue growth in 2012F and 17.5% in 2013F.

Exhibit 3. Revenue and growth trend



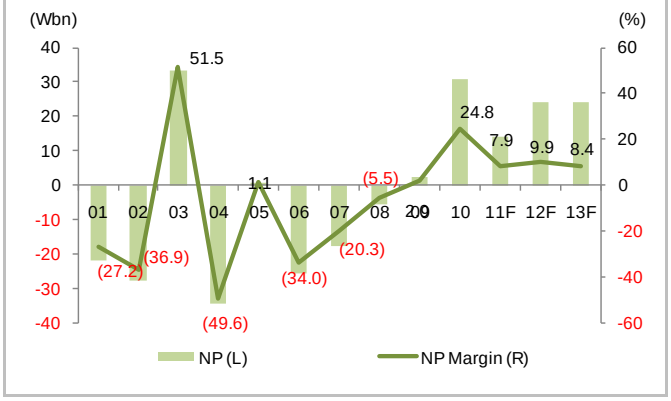
Source: Company data, Leading Research Center

Exhibit 4. Operating profit and OPM trend



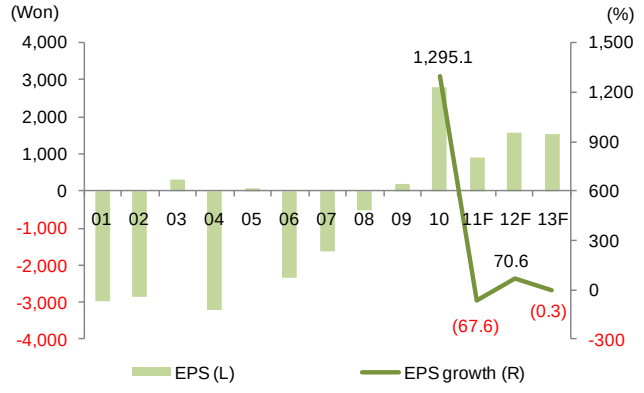
Source: Company data, Leading Research Center

Exhibit 5. Net profit and NP margin trend



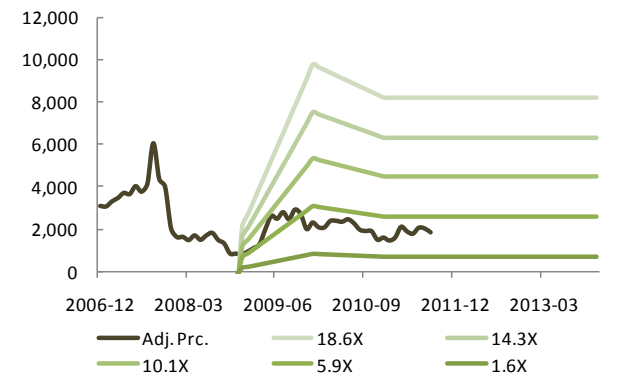
Source: Company data, Leading Research Center

Exhibit 6. EPS and EPS growth



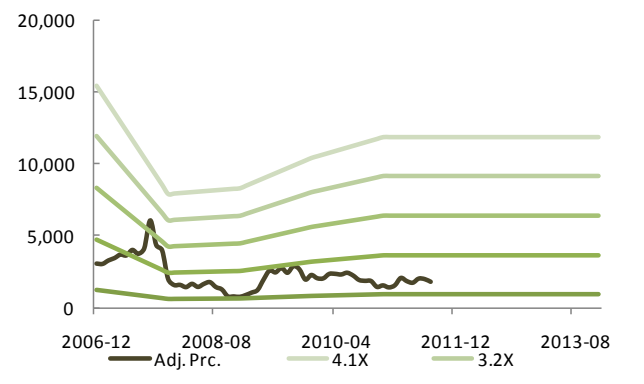
Source: Company data, Leading Research Center

Exhibit 7. PER Band



Source: Company data

Exhibit 8. PBR Band



Source: Company data, Leading Research Center

Section 2: Is the company a value creator?

Consistent net loss for the most of the past decade

Cosmo Chem recorded negative ROE of -70%~-30% during most part of the past decade as the company suffered from tightened environmental regulation and inefficient operating system. However, the company improved the heating system, which saved fuel costs and eventually turned to profit in 2009.

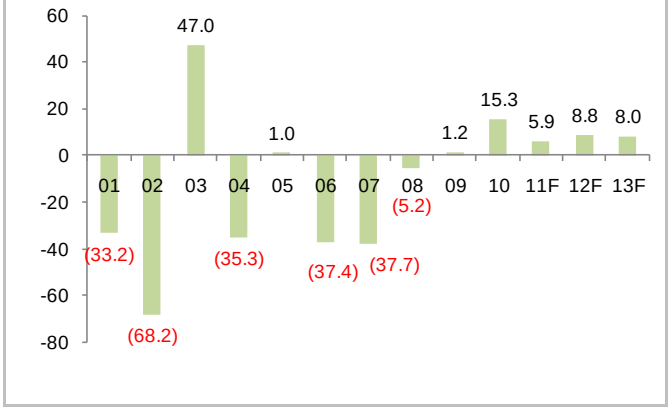
2010 ROE jumped to 15.3% from 1.2% because of over W30bn gains from acquiring Cosmo AM&T at a discount.

ROE expected to improve by 6%~9% in 2011E~2013F

2011E~2013F ROE is expected to remain in the range of 5.9%~8.8% as the global supply shortage of TiO_2 is maintained and keep the price at a high level. Also, rechargeable battery will begin to generate revenue beginning 2012F.

The reason for decreasing ROE in 2013F is that the company has to begin paying corporate taxes in 2013, which will reduce net profit. Until 2012, it will have had loss tax credit and will receive tax reduction. But the company will begin to pay normal corporate tax beginning 2013.

Exhibit 9. ROE (%)



Source: Company data, Leading Research Center

Exhibit 10. ROIC less WACC (%)

Source: Company data, Leading Research Center

Being no value creator, its ROIC is still under WACC

Even though ROE turned to positive from 2010, ROIC less WACC is expected to remain in the red, implying that the company is not a true value creator.

ROIC expected to improve from 2.2% in 2010 to 8.0% in 2012F. However, it is expected to drop to 7.3% in 2013F as tax burden will decrease NOPAT from W25.1bn in 2012F to W23.2bn in 2013F

WACC is expected to increase from 6.7% in 2010 to 10.8% in 2012F as we were forced to apply a beta of 1.0 for the forecast period whereas the actual past beta was in the 0.5~0.8 range.

Section 3: Is the company a cash generator and share cash with shareholders?

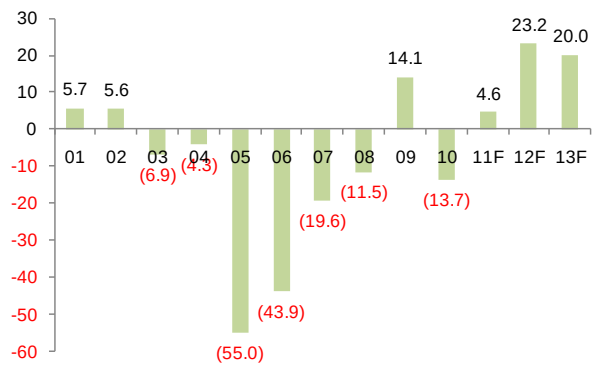
Financials to improve from 2011E

Recorded negative free cash flow during the past decade – however, expects cumulative free cashflow of W48bn during 2011E~2013F

Cosmo Chem recorded negative free cashflow during the most of the past decade. However, free cashflow is expected to improve going forward with an expected cumulative 2011E~2013F free cashflow of W47.8bn. The main reason for the improvement is an expected increase in revenue from not only TiO_2, but also rechargeable battery material.

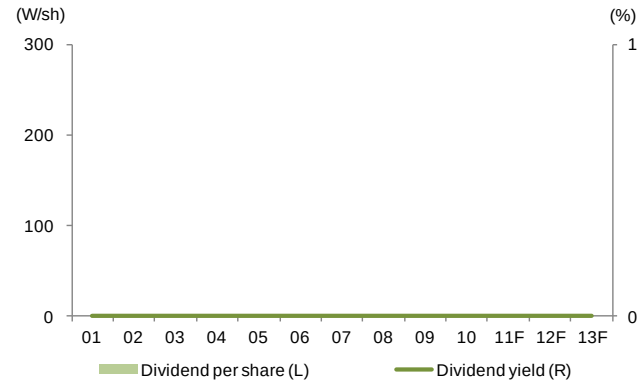
The company invested W39.9bn to produce cobalt sulfuric acid for rechargeable battery in 2010 and 2011E. However, no further capital investment is planned during the next two years.

Exhibit 11. Free cashflow trend (Wbn)



Source: Company data, Leading Research Center

Exhibit 12. Dividend per share and yield trend



Source: Company data, Leading Research Center

No dividend, but investors could be rewarded with an appreciation in share price

The company has not paid any dividend during the past decade, which was quite natural given consistent losses. The company has no plan to pay dividend in the near future as its main goal is to reduce debt and build net cash position.

However, we believe the global shortage of TiO_2 until 2014 and bright prospect for rechargeable battery materials beginning 2012 could reward shareholders with share price appreciation.

Section 4: Are the debt and interest burden manageable?

Debt position to decrease over the next three years

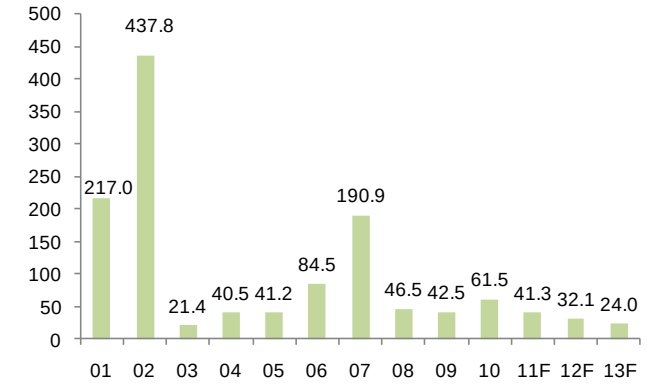
High debt to be reduced

Consistent losses during the past decade forced the company to increase debt position. The net debt was W135.2bn and net debt to equity ratio stood at 61.5% as of end 2010. However, expected W47.8bn in cumulative free cashflow until 2013F and a part of W30.0bn in cash infusion from BW exercise will significantly reduce debt.

W20.0bn of the infusion of W30.0bn in cash from BW to be used to repay debt

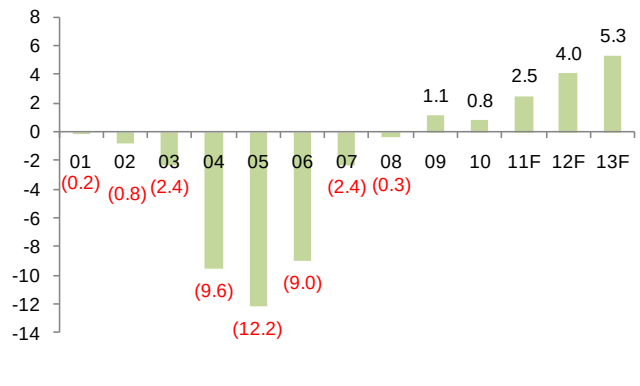
The company issued W30.0bn exercisable beginning May 2011 at an exercise price of W6,567/sh. Given that the current share price is W15,250/sh, there is a high likelihood that all W30.0bn in BW will be exercised in 2011. As of September 2011, W13.0bn in BW has been exercised already. Of the total money raised from BW conversion, the company plans to use over W20.0bn in repaying debt.

Exhibit 13. Net debt/equity ratio (%)



Source: Company data, Leading Research Center

Exhibit 14. Interest coverage (X)



Source: Company data, Leading Research Center

Interest coverage is expected to improve to by 2.5X-5.3X

During the past decade, the company's operating profit could not even cover interest expenses. But an improvement in the heating system efficiency from 2009 reduced fuel costs improved operating profit, which was able to at least cover interest expenses. Going forward, interest coverage is expected to improve to 2.5X in 2011E and ultimately to 5.3X in 2013F as the TiO_2 and rechargeable battery operation perform well.

Section 5: Asking for money with share issues, CB, BW?

W24.0bn in BW to be exercised soon given high share price

Financed W30.0bn by issuing BW in 2010

In May 2010, the company issued W30.0bn in BW with an exercise price of W6,567/sh and exercise period beginning May 7, 2011. As of September 2011, W130bn has been exercised as the share current remained at above W15,000/sh since July 2011.

Given that the current share price of W15,250/sh is about 2.5X the exercise price, there is a good chance that the remaining W17.0bn in BW will be exercised in the near future, including the W15.0bn in BW owned by a major shareholder.

In our forecasting model, we assumed that all W30.0bn in BW will be exercised in 2011. Thus, 2.58m new shares will be issued (30.7% of the outstanding shares of 11.91m), which dilutes 2011E EPS by 29.4%.

Exhibit 15. CB & BW issuance and remaining balance

Type	Issue date	Maturity	Face value (Wbn)	Exercise period	Exercise price/sh	Remaining balance (Wbn)	No. shares exercisable to
BW (Uncollateralized)	2010.05.07	2015.05.07	30.0	2011.05.07~2015.04.07	6,567	17.0	2,588,707

Source: Company data, Dart

Exercise of BW to dilute 2011E EPS by 29.4%

Assuming that all W30.0bn in BW are exercised in 2011 (which is highly likely), 2011E EPS will be drop to W911/sh from W1,290/sh. As a result, 2011E PER valuation will deteriorate from 11.8X to 16.7X and 2012F and 2013F PER valuation will also deteriorate to 9.8X from current circa 7.0X.

Exhibit 16. Dilution in EPS and PER after all BWs are exercised

	2010	2011F	2012F	2013F
Outstanding shares	11,000,757	11,000,757	15,569,053	15,569,053
No. shares exercisable	0	4,568,296	0	0
Total shares outstanding	11,000,757	15,569,053	0	0
EPS (W/sh)	2,810	1,290	2,201	2,193
PER (X)	5.4	11.8	6.9	7.0
Fully diluted EPS (W/sh)	2,810	911	1,555	1,550
Fully diluted PER (X)	5.4	16.7	9.8	9.8

Source: Company data, Leading Research Center

Section 6: What is the management philosophy?

35 year of professional experience leads to the new business

Management successfully turned to rechargeable battery material business

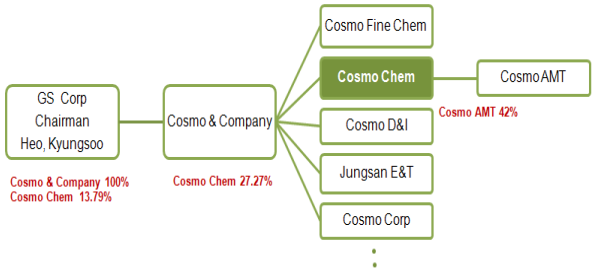
Cosmo Chem is a GS group (Korean Chaebol) related company since the chairman Mr. Kyungsoo Huh is a cousin of GS Holdings CEO. He also has 100% share of Cosmo & Company, a holding company of Cosmo group and the largest share holder of Cosmo Chem (27.3%). As such, Cosmo Chem receives support from GS group.

Since the company was put under the "Restructuring" program mandated by the government in 2002, it recorded net losses almost every year until 2008. The current CEO Mr. Paik was appointed in 2004 to turn the company around. However, it took some time to normalize the company that was in such a bad shape that it was required to enter the "Mandatory Restructuring" program.

However, the company slowly turned around under the guidance of Mr. Paik who had deep knowledge of the industry and products with 30 years of experience in the chemical industry as an elite member of LG Chemical. He recognized the opportunity arising from limited TiO_2 supply and took full advantage of the situation by becoming the only TiO_2 producer in the country.

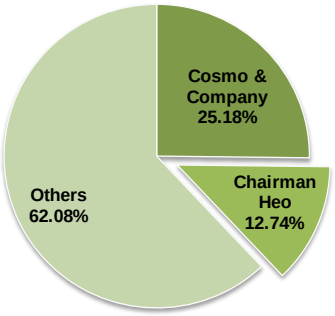
Also, he entered the rechargeable battery market in 2010, which was relatively easy for the company given that it is able to utilize its existing technology to produce cobalt sulfuric acid. Considering the huge growth potential of the rechargeable battery industry, we believe the prospect for the fruits of his decision is very optimistic.

Exhibit 17. Structure of Cosmo Chem



Source: Company data, Leading Research Center

Exhibit 18. Shareholders (based on 1H11)



Source: Company data, Leading Research Center

One negative factor to be considered is taking on additional financial burden with acquisition of Cosmo AM&T, another raw material maker of rechargeable battery. Also, the company provided collateral for related companies owned by the major shareholder, which exposes the company to a non-essential risk (Page 20).

Exhibit 19. CEO Profile- Mr. Jaehyun Paik

Period	Professional experience
2004~Present	CEO, Cosmo Chem
1997	Director of LSIS
1975	Joined LG Chem

Source: Company data

Section 7: Peer group comparison

For peer group comparison, four international companies are selected

For peer group comparison, we selected international TiO_2 producers since Cosmo Chem has no domestic competitor as it is only domestic producer. Cosmo Chem has the largest capacity of TiO_2 production as a single-product firm. As such, its profitability is lower than global competitors that are general chemical producers producing a wide array of chemical product.

Increasing revenue in TiO2 business and rechargeable battery to be reflected from 2012F

Based on 2011E earnings, Cosmo Chem's looks overvalued compared to global peers. However, we believe that the positive impact of the rechargeable battery has not been reflected in the share price, yet. Considering bright prospect in the rechargeable industry, we believe that Cosmo Chem will ultimately receive a fair market valuation.

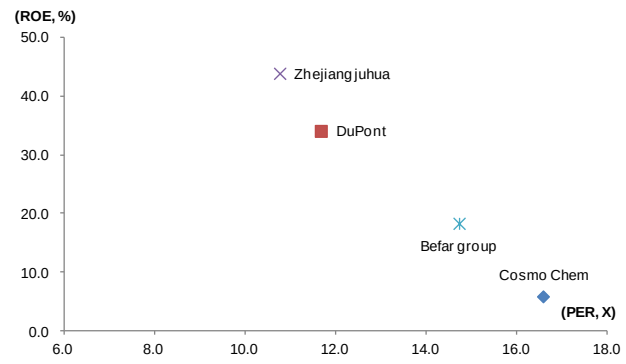
Exhibit 20. Peer group comparison

Name	Ticker	Country	Market Cap (USD)	Sales (USD)				OP Margin (%)			
				09	10	11E	12E	09	10	11E	12E
Cosmo Chem	005420 KS	SOUTH KOREA	193.1	87.1	107.9	165.3	236.3	5.8	4.7	9.8	10.3
DuPont	DD US	US	43,342.7	26,109.0	31,505.0	38,534.4	42,201.6	6.1	9.6	13.6	14.5
Sakai Chem	4078 JP	JAPAN	447.3	426.9	543.4	604.5	599.7	7.3	10.3	9.0	10.2
Zhejiang juhua	600160 CH	CHINA	3,108.1	550.9	805.8	1,350.7	1,451.0	5.2	15.7	27.1	26.9
Befar group	601678 CH	CHINA	1,612.6	396.9	524.7	688.3	732.0	14.2	13.7	19.9	20.1

Name	P/E (X)				EV/EBITDA (X)				P/B (X)				ROE (%)			
	09	10	11E	12E	09	10	11E	12E	09	10	11E	12E	09	10	11E	12E
Cosmo Chem	75.0	5.4	16.6	9.7	14.1	17.6	12.2	8.8	0.9	0.8	0.8	0.8	0.0	0.2	0.1	0.1
DuPont	16.6	15.2	11.7	10.2	11.7	11.3	7.9	6.7	4.4	5.1	3.6	2.8	26.6	37.7	34.1	31.8
Sakai Chem	34.5	25.4	N/A	N/A	8.2	5.1	N/A	N/A	0.9	0.8	N/A	N/A	2.7	4.9	N/A	N/A
Zhejiang juhua	52.0	23.7	10.8	10.7	12.2	12.2	N/A	N/A	2.6	5.7	4.7	3.3	5.7	25.8	43.9	32.2
Befar group	N/A	23.8	14.7	13.5	N/A	12.2	15.6	14.4	N/A	2.7	2.7	2.3	31.4	17.0	18.3	17.4

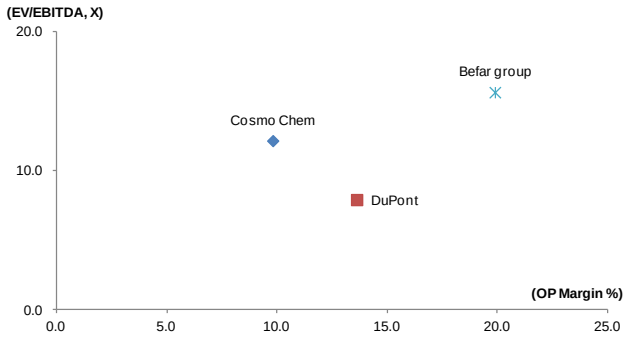
Source: Company data, Bloomberg, Leading Research Center (based on Sep 15th, 2011)

Exhibit 21. A Peer Group PER vs. ROE



Source: *Bloomberg, Leading Research Center*

Exhibit 22. A Peer Group EV/EBITDA vs. OP margin



Source: *Bloomberg, Leading Research Center*

Section 8: FX exposure

An 1% change in an year average W/$ rate changes 2011F OP by 4.6%

Cosmo Chem generates 70% of total sales from exports and the main currencies used are US dollar and Japanese yen. A purchase of raw material, which is 25% of COGS, is paid in US dollar. As such, the net exposure to USD and Yen is 45% of total sales. The rate of foreign currency exposure is expected to remain at the current level for the foreseeable future.

Our sensitivity test shows that a 1% change in a year average KRW/USD exchange rate and KRW/Yen rate changes 2011E OP by 4.6%.Company has no foreign currency debt, so the exchange rate does not have any impact the debt side.

Exhibit 23. FX sensitivity

2011E

Currency rate change	-5%	-1%	Base	1%	5%
Year-avg KRW/US$	**1,028**	**1,071**	**1,082**	**1,093**	**1,136**
Year-avg KRW/JPY	**1,231**	**1,283**	**1,296**	**1,309**	**1,361**
Revenue (Wbn)	173.1	177.7	178.8	180.0	184.6
Operating profit	13.5	16.7	17.5	18.3	21.6
NP (Wbn)	10.2	13.4	14.2	15.0	18.2
EPS (W)	652	859	911	963	1,170
PER	23.4	17.7	16.7	15.8	13.0
Revenue change (%)	(3.2)	(0.6)	0.0	0.6	3.2
OP change (%)	(23.0)	(4.6)	0.0	4.6	23.0
NP change (%)	(28.4)	(5.7)	0.0	5.7	28.4
EPS change (%)	(28.4)	(5.7)	0.0	5.7	28.4

2012F

Currency rate change	-5%	-1%	Base	1%	5%
Year-avg KRW/US$	**979**	**1,020**	**1,030**	**1,040**	**1,082**
Year-avg KRW/JPY	**1,111**	**1,158**	**1,170**	**1,181**	**1,228**
Revenue (Wbn)	235.5	241.8	243.4	245.0	251.3
Operating profit	19.5	23.9	25.1	26.2	30.7
NP (Wbn)	18.6	23.1	24.2	25.3	29.8
EPS (W)	1,195	1,483	1,555	1,626.8	1,914.4
PER	12.8	10.3	9.8	9.4	8.0
Revenue change (%)	(3.3)	(0.6)	0.0	0.6	3.3
OP change (%)	(22.3)	(4.5)	0.0	4.5	22.3
NP change (%)	(23.1)	(4.6)	0.0	4.6	23.1
EPS change (%)	(23.1)	(4.6)	0.0	4.6	23.1

2013F

Currency rate change	-5%	-1%	Base	1%	5%
Year-avg KRW/US$	**1,002**	**1,044**	**1,055**	**1,066**	**1,108**
Year-avg KRW/JPY	**1,062**	**1,107**	**1,118**	**1,130**	**1,174**
Revenue (Wbn)	276.8	284.2	286.1	287.9	295.4
Operating profit	24.0	29.3	30.6	31.9	37.2
NP (Wbn)	17.5	22.8	24.1	25.4	30.7
EPS (W)	1,126	1,465	1,550	1,634.4	1,973.0
PER	13.5	10.4	9.8	9.3	7.7
Revenue change (%)	(3.3)	(0.6)	0.0	0.7	3.3
OP change (%)	(21.5)	(4.3)	0.0	4.3	21.5
NP change (%)	(27.3)	(5.5)	0.0	5.5	27.3
EPS change (%)	(27.3)	(5.5)	0.0	5.5	27.3

Source: Company data, Leading Research Center

Section 9: Operations overview

Ⅰ. Global supply shortage boost the demand of TiO_2

1H11 earnings has already exceeded 2010

Cosmo Chem's 2Q11 revenue increased 17.1% yoy to W41.2bn and OP increased 98.9% to W5.1bn. The 1H11 OP increased 100.4% to W7.7bn, which is greater than the 2010 annual OP of W5.9bn. The main reason for such strong performance is an increase in revenue and profitability of TiO_2, which accounts for 85% of total sales.

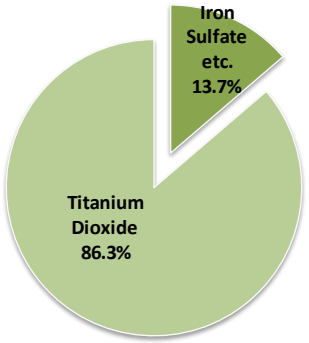
Global supply shortage from more strict environment regulation in China and earthquake in Japan help form an equation TiO_2 revenue ↑ = P ↑ * Q ↑

The reason of the increase in revenue of TiO2 is that there was a simultaneous rise in the selling price and sales volume. Cosmo Chem is a beneficiary of global shortage in global TiO_2 supply caused by production reduction in China as the country enhances environment regulation which limits TiO_2 production. Furthermore, Japan's Sakai Chemical (4078 JP) ceased its production because the district of Iwaki (where Sakai is based) was isolated due to the recent Japanese earthquake.

TiO_2 supply shortage to be maintained until 2014

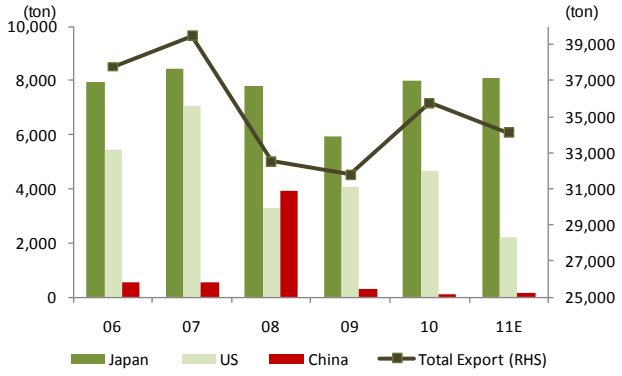
Given the fact that it will take some time before Sakai Chemical could resume normal production and that China will not relax environment regulation, we believe the global shortage of TiO_2 will continue at least until 2014. DuPont is scheduled to complete a TiO_2 production facility with an annual capacity of 350,000 ton by 2014, which will relieve global shortage. The main type of TiO_2 that DuPont is scheduled to produce is rutile TiO_2, which could reduce the demand for anatase TiO_2 as the price gap between two types narrow. Consumers will purchase higher priced rutile with coating function if the price is low enough. DuPont's rutile TiO_2 production is likely to lower the price.

Exhibit 24. Sales breakdown (2010E)



Source: Leading Research Center estimates

Exhibit 25. Global export trend of TiO_2



Source: Leading Research Center estimates

Strong improvement in profitability

Rise in the cost of RM < Rise in ASP →Improvement of profitability (OPM 4.7%→10.1%)

2011E operating profit margin will improve to 10.1% from 4.7% in 2010. Cosmo Chem raised TiO_2 price following price hike of titanium ore. Also, Chinese TiO_2 price also rose as the complying with strict environment regulation increased production cost. The domestic TiO_2 price rose 20%~25% since the end of 2010, which contributed to 19% yoy increase in 1H11 TiO_2 revenue. We expect the trend to continue until 2014 when DuPont completes the TiO_2 plant.

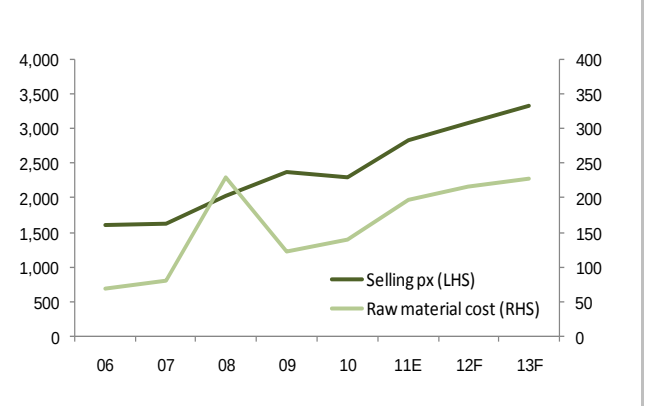
Securing titanium ore inventory at a discount

The company secured lower priced titanium ore inventory which could last until September 2011. However, after September 2011, Cosmo Chem will have to begin using titanium ore at a higher price, which will deteriorate profitability, but the degree of deterioration will be limited as the raw material costs account for less than 30% of total manufacturing cost. Furthermore, the company has been in the TiO_2 business for 40 years and gained bargaining power in purchase of TiO_2. The company estimates that it could secure titanium ore at 20% discount compared to competitors.

Additional income from by-product

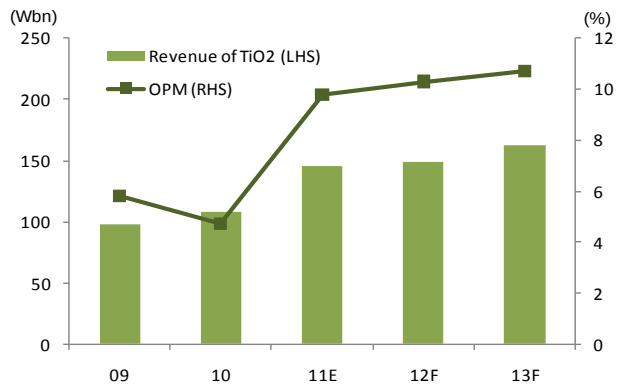
Another product that can contribute to the company's improvement in profitability is iron sulfate that accounts for 10% of the total sales. Iron sulfate is a by-product of TiO_2 production that was considered useless waste until 2009. However, it was discovered that iron sulfate could be used for waste water treatment. As a result, the company is expected to generate revenue of W15bn in iron sulfate division in 2011E. Given the fact that iron sulfate is a by-product with virtually no production cost, it is a great contributor to company's earnings.

Exhibit 26. Titanium ore price trend



Source: Leading Research Center estimates

Exhibit 27. TiO_2 sales and OPM tend



Source: Leading Research Center estimates

Ⅱ. Secured growth engine- production of sulfuric acid cobalt

Difficulty in securing stable profitability with only TiO2 business

While TiO_2 business is in good shape, the company needs to develop new business model as the DuPont's TiO_2 production facility completion in 2014 is likely to bring a downcycle to the industry.

In diversify product lines to other growth industry, Cosmo Chem entered the business of sulfuric acid cobalt, a raw material of cathode material for rechargeable battery, in 2010.

New growth engine for the future - sulfuric acid cobalt

Cosmo Chem invested W39.9bn for 1,000 ton/yr production of sulfuric acid cobalt. The plant is ready to supply sulfuric acid cobalt to rechargeable battery producers in full scale beginning 2012. Considering that all cathode material producers import sulfuric acid cobalt, Cosmo Chem is likely to stand as the only domestic supplier of sulfuric acid cobalt.

Demand for sulfuric acid cobalt is plentiful

Rechargeable battery market is expected to grow rapidly. The market is dominated by Korean producers, namely LG Chem (051910 KS), SB Limotive (a joint venture between Samsung SDI and Bosch), and SK Innovation. These companies are gearing up for full scale mass production of rechargeable battery for automobile beginning 2015. LG Chem currently has production capacity of 100,000 PHEV automobiles batteries annually. Furthermore, LG Chem has a plan to increase the capacity by 100,000 rechargeable batteries every year until 2015. As for SB Limotive, its annual production capacity is 12,000 PHEV automobile batteries. But the production capacity is scheduled to increase to 80,000 batteries by 2013 and to 640,000 by 2015.

Cosmo Chem to become a major beneficiary of the fast growing rechargeable battery for automobiles market

Cosmo Chem is expected to reap strong benefits from such a bright domestic and global rechargeable battery market conditions. While domestic battery producers plan to aggressively expand production capacity, suppliers of cathode material are also expanding their production capacity to supply to battery producers. In Korea, there are many suppliers of cathode material such as Umicore (unlisted), L&F (066970 KQ), Ecopro (086520 KQ), Cosmo AMT (005070 KS), etc. Amongst them, Ecopro expanded its production capacity from 1,800 tons in 2010 to 4,800 tons in 2011 and further expansion is planned. Furthermore, the largest domestic supplier of cathode material, L&F, has a production capacity of 9,500 ton/year including subsidiaries' production. They will keep expanding its capability to respond its client's requests.

According to IIT, a Japanese battery market research organization, the production capacity of rechargeable battery to increase from ￥1.2tr in 2009 to ￥3.6tr in 2018, which renders CAGR of 12.9%. Furthermore, Isuppli, an American research organization, forecasts that the rechargeable battery market to grow from US$11.8bn in 2010 to US$31.4bn in 2015 and ultimately to US$53.7bn by 2020.

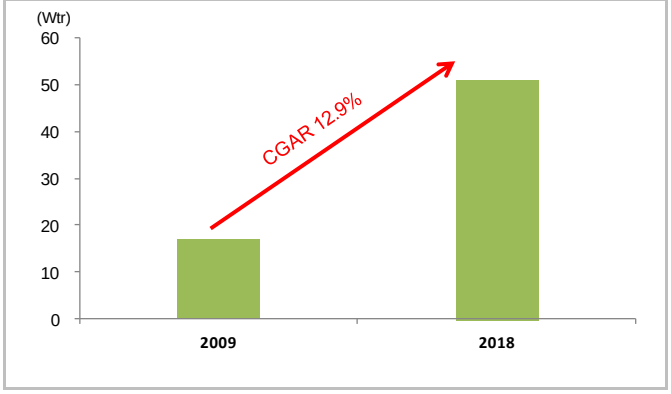
Securing raw materials by forming a consortium

Cosmo Chem has formed a consortium with Samsung C&T Corporation and Korea Resources Corporation to sign an MOU with the government of the Democratic Republic of Congo to produce copper and cobalt, which will give the company secure supply of raw materials for sulfuric acid cobalt.

2011E rechargeable battery division- W70bn in revenue with 7~9% OPM

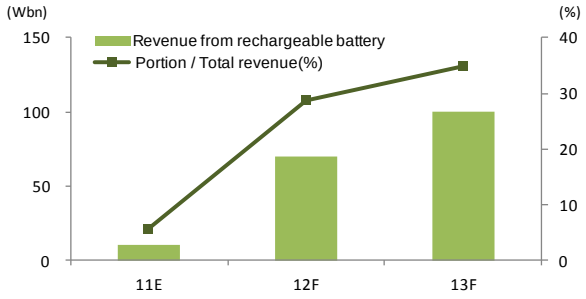
2011E sulfuric acid cobalt revenue is expected at W10.0bn with a slight net loss. However, increasing demand of sulfuric acid cobalt is expect to push the revenue to W70.0bn and 7%~9% in OPM in 2012F.

Exhibit 28. Forecast of rechargeable battery market



Source: IIT, Leading Research Center

Exhibit 29. Sulfuric acid cobalt revenue of Cosmo Chem



Source: Company data, Leading Research Center

Pursuit of vertical affiliation with Cosmo AMT

Vertical affiliation with Cosmo AMT

Cosmo AMT is a producer of cathode active material (2,400 ton/year) and of precursor (1,200 ton/year). They are moving away from low margin video tape and now moving toward rechargeable battery material, namely cathode active material, the revenue of which increased 66.0% yoy. That ultimately helped the total 2010 revenue growth of 41.6% yoy and a net profit of W68.8bn compared to a net loss of W8.7bn in 2009.

Cathode active material accounted for 57% of total sales in 2010 and is expected to increase to 65% in 2013F. If Cosmo AMT could also supply precursor, it could become a vertical affiliation as a high technology material business and the two companies will demonstrate a synergy effect.

Exhibit 30. Earnings Forecast of Cosmo AMT

(Wbn)	2009	2010	2011E	2012F	2013F
Revenue	115.8	164.1	170.7	201.2	226.5
OP	-5.2	8.9	9.3	15.5	20.4
NP	-8.7	68.8	3	7	11

Source: Company data, Leading Research Center

Outstanding market management

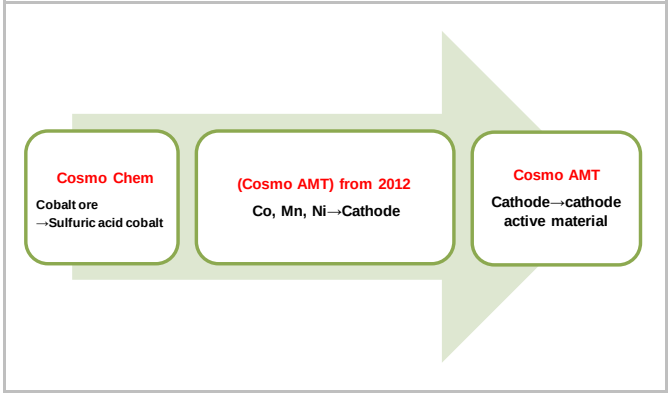
Possibility of substitution depending on the change in RM price

Cosmo Chem can handle the change in raw material cost. Cobalt ore is required for production of sulfuric acid cobalt, so it is highly at risk of being exposed to the changes in raw material price. However, Cosmo Chem reduces the risk by producing sulfuric acid cobalt and at the same time selling the copper that has been extracted from the cobalt raw ore. Based on historical trend, cobalt and copper can be seen to move reversely. Therefore, when the price of cobalt increases, the company could use raw ore that has a high content of cobalt in order to expand the cobalt extraction, and also do the same for copper. This is similar to industries that sell nonferrous metals. Therefore, the company could reduce the risk by having an outstanding raw material procurement risk management program

Could easily adapt to changing market demand

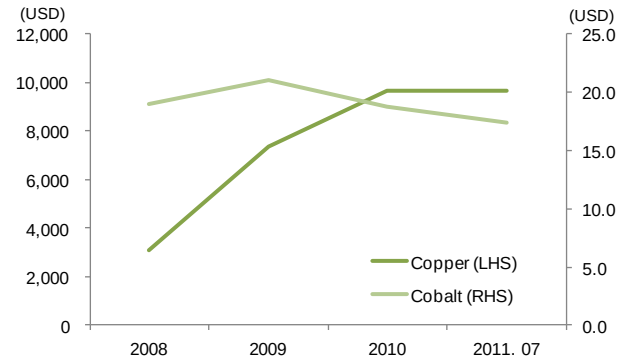
In case that the rechargeable battery producers substitute sulfuric acid cobalt to other low priced material, Cosmo Chem can change their products by replacing ore. For example, the company can produce manganese that is used in rechargeable battery through the same process of producing sulfuric acid cobalt by simply replacing the rude ore. As a consequence, if the automobile battery is made up of a manganese related substance and is still used as the main substance, then we expect a stable increase in sales despite the change in technology trend.

Exhibit 31. Synergy effect with Cosmo AMT



Source: Leading Research Center estimates

Exhibit 32. Price trend of Copper and Cobalt



Source: Public Procurement Service, Metal Pages, Asian Metal, Metal bulletin

Earnings outlook

2011E~2013F revenue growth and margins

Strong 2Q11 earnings

Cosmo Chem released strong 2Q11 earnings. Sales increased 37% yoy to W41.2bn and operating profit increased 165% yoy to W5.1bn. A notable increase in OP is attributable to increase in selling price of TiO_2 and increasing sales volume. We expect the company to record stronger results in 2H11 as the global TiO_2 supply shortage persists.

Exhibit 33. 2Q Earnings Review

(Wbn)	2Q10	2Q11	YoY (%)	3Q11E	4Q11E	2011E
Revenue	30.2	41.2	36.4	47.6	54.7	178.8
OP	1.9	5.1	164.9	5.8	4.0	17.5
EBT	0.4	4.2	973.2	4.9	3.7	14.2
NP	0.4	4.2	973.2	4.9	3.7	14.2
Margin(%)						
OPM	6.4	12.4		12.2	7.3	9.8
NPM	1.3	10.2		10.3	6.8	7.9

Source: Company data, Leading Research Center

Continued OP increase until 2013F

2011E earnings is expected to grow by 43.4% yoy in sales and 196.3% yoy in operating profit. However, net profit is expected to decrease 54.1% yoy as the company had W30bn in non-operating income in 2010.

The earnings will continue to increase in 2012F and 2013F. However, the deferred loss tax deduction will expire in 2012, thus 2013F earnings will remain flat while OP increase by 22.1%.

Exhibit 34. Earnings forecast

	Earnings				Growth (%, YoY)		
(Wbn)	2010	2011E	2012F	2013F	2011E	2012F	2013F
Revenue	124.7	178.8	243.4	286.1	43.4	36.1	17.5
OP	5.9	17.5	25.1	30.6	196.3	43.0	22.1
EBI	30.9	14.2	24.2	31.8	(54.1)	70.6	31.5
NP	30.9	14.2	24.2	24.1	(54.1)	70.6	(0.3)
Margin(%)							
OPM	4.7	9.8	10.3	10.7			
NPM	24.8	7.9	9.9	8.4			

Source: Company data, Leading Research Center

Putting up excessive collaterals to related companies

Put up collateral of W67.6bn for related companies

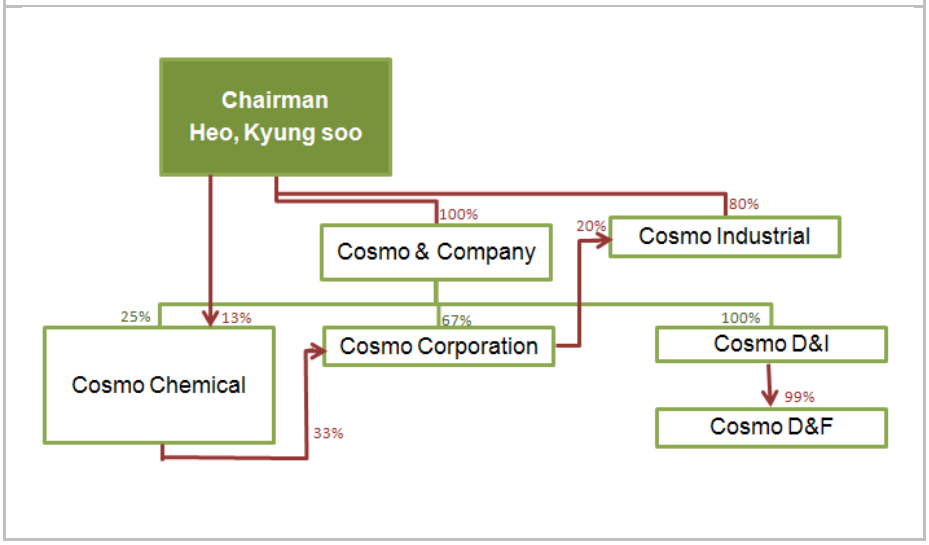
On June 17, 2011, Cosmo Chem disclosed that it had put up W49.4bn in collateral to Cosmo Ltd. The total collateral that company has put up for related companies amounts to W67.6bn, which is 30% of total shareholder's equity. However, the disclosure had a limited impact on the share price as the market focus was on the raw material production for rechargeable battery.

Exhibit 35. List of Collaterals offered

(Wm)	Collateral	Asset	Equity	Debt	D/E	Int bearing debt	Sales	OP	NP
Cosmo S&F	6,500	5,532	(8,275)	13,807	(166.9)	5,000	5,291	(697)	(1,849)
Cosmo Ind	1,300	44,717	2,231	42,486	1,904.3	2,000	47,228	(3,052)	(4,716)
Cosmo D&I	1,300	44,398	41,193	3,205	7.8	4,200	24,411	1,729	70
Cosmo Corp	9,100	84,927	24,933	59,994	240.6	7,000	26,327	1,212	(218)
Cosmo Ltd. Co.	49,400								
Total	67,600								

Source: Dart, Leading Research Center, based on 2010

Exhibit 36. Relationship between Chairman Heo and Cosmo group



Source: Company data, Leading Research Center

Section 10: Valuation – Target price W24,000

Difficult to evaluate valuation due to series of net losses

Since the company was put on Restructuring Program in 2002, the company unable to receive a normal valuation as it consistently recorded losses (Exhibit 37).

Exhibit 37. Discount in Cosmo Chem PER to market PER

(x, %)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011E	2012F	2013F
Cosmo Chem High PER	(1.0)	7.4	(1.3)	87.8	(2.3)	(7.1)	(17.5)	46.2	3.0	23.2	9.8	9.8
Market High PER	19.9	20.7	9.9	13.9	17.9	22.3	42.4	20.4	16.0	11.2	7.8	6.9
Discount/ (Premium) to market	**NA**	**64.4**	**NA**	**(532.7)**	**NA**	**NA**	**NA**	**(126.7)**	**81.1**	**(107.2)**	**(25.7)**	**(40.6)**
Cosmo Chem Low PER	(0.4)	1.3	(0.1)	38.4	(1.3)	(2.1)	(4.5)	14.9	2.1	6.6	9.8	9.8
Market Low PER	9.9	10.2	5.7	7.2	11.0	10.9	16.2	9.8	9.6	8.6	7.8	6.9
Discount/ (Premium) to market	**NA**	**87.0**	**NA**	**(431.6)**	**NA**	**NA**	**NA**	**(52.5)**	**78.6**	**23.2**	**(25.7)**	**(40.6)**

Source: Company data, Leading Research Center
**Market = KOSPI + KOSDAQ*

Twin business model : Cosmo Chem and Foosung

The rechargeable battery revenue will account for 35% of total revenue 2013 and increase going forward. Such revenue structure is similar to Foosung (093370 KS), a producer of raw material for rechargeable battery. We employed Foosung's valuation in valuing Cosmo Chem as they are close twins in many aspects.

Three reason why we believe Foosung and Cosmo Chem are twins:

1. Both companies are suppliers of core raw material for rechargeable battery
2. Both companies started a production of raw material for rechargeable battery by employing existing proprietary technology
3. Both companies are the only producers in the domestic market

While Foosung has own technology for electrolytes (LiPF6) production, Cosmo Chem has own manufacturing technology for sulfuric acid cobalt for rechargeable battery.

Therefore, we believe Cosmo Chem deserves the same valuation that Foosung is receiving from the market.

Exhibit 38. PER valuation

Code	Name	2011E	2012F	2013F
A005420	Cosmo Chem	16.7	9.8	9.8
A093370	Foosung	16.1	15.6	9.2

Source: FnGuide, Leading Research Center

Target price W24,000

We assess a fair value of Cosmo Chem at W 24,000/sh, which was derived by applying 2012F Foosung PER of 15.67X to 2012F Cosmo Chem EPS W1,555. Our target price implies 57.4% share price upside potential.

The reason the current Cosmo Chem's PER is lower than that of Foosung is that Foosung has already supplying electrolytes to rechargeable battery producers. However, Cosmo Chem has production of sulfuric acid cobalt in place, but has not begun supplying yet. But once Cosmo Chem successfully begin supplying to rechargeable producers, we believe the market will positively reassess Cosmo Chem's valuation.

Financial Statements

Income Statement

(Wbn)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011F	2012F	2013F
Revenue	**80.1**	**75.4**	**65.1**	**69.7**	**71.9**	**75.6**	**86.5**	**103.6**	**110.6**	**124.7**	**178.8**	**243.4**	**286.1**
% chg yoy	8.5	(5.8)	(13.7)	7.1	3.1	5.2	14.5	19.8	6.7	12.8	43.4	36.1	17.5
COGS	77.6	78.2	72.4	88.9	91.1	94.5	89.5	93.8	89.8	99.7	135.4	185.0	216.6
Gross profit	**2.5**	**(2.8)**	**(7.3)**	**(19.2)**	**(19.3)**	**(18.9)**	**(3.0)**	**9.8**	**20.8**	**25.0**	**43.5**	**58.4**	**69.5**
GP margin (%)	3.1	(3.7)	(11.2)	(27.5)	(26.8)	(25.1)	(3.4)	9.5	18.8	20.0	24.3	24.0	24.3
SG&A	**5.6**	**9.7**	**8.3**	**9.5**	**10.7**	**10.4**	**10.1**	**12.2**	**14.3**	**19.1**	**25.9**	**33.3**	**38.9**
Operating income	**(3.1)**	**(12.5)**	**(15.6)**	**(28.7)**	**(30.0)**	**(29.4)**	**(13.1)**	**(2.4)**	**6.4**	**5.9**	**17.5**	**25.1**	**30.6**
OP margin (%)	(3.9)	(16.6)	(23.9)	(41.2)	(41.7)	(38.9)	(15.1)	(2.3)	5.8	4.7	9.8	10.3	10.7
Non-operating income	11.1	4.9	330.2	3.0	34.9	8.8	3.1	9.4	4.1	35.4	5.8	7.4	9.1
Interest income	0.2	0.2	1.4	0.8	1.0	0.8	0.7	0.9	0.5	2.2	2.0	2.0	2.0
Net FX related gains	0.2	(0.0)	(0.1)	(0.6)	(0.1)	(0.3)	(0.0)	(2.7)	(0.0)	(0.3)	0.0	0.0	0.0
Equity method gains	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	31.6	1.3	2.9	4.6
Non-operating expenses	29.8	20.3	281.1	8.9	4.2	5.1	7.6	12.8	8.3	10.4	9.1	8.3	7.9
Interest expenses	14.4	15.3	6.6	3.0	2.5	3.3	5.5	6.9	5.8	7.3	7.0	6.2	5.8
Net FX related losses	0.3	0.3	0.3	0.7	0.5	0.5	0.3	4.1	1.7	1.3	1.5	1.5	1.5
Equity method losses	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.7	0.0	1.6	0.3	0.3	0.3
Profit before tax	**(21.8)**	**(27.8)**	**33.5**	**(34.6)**	**0.8**	**(25.7)**	**(17.6)**	**(5.7)**	**2.2**	**30.9**	**14.2**	**24.2**	**31.8**
Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7
Tax rate (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.2
Net income	**(21.8)**	**(27.8)**	**33.5**	**(34.6)**	**0.8**	**(25.7)**	**(17.6)**	**(5.7)**	**2.2**	**30.9**	**14.2**	**24.2**	**24.1**

Balance Sheet

(Wbn)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011F	2012F	2013F
Cash & deposit	1.5	4.8	3.3	1.3	1.3	1.1	0.3	0.1	0.8	0.9	9.1	15.1	13.5
Marketable securities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A/R	4.6	5.6	5.5	5.1	10.7	10.9	9.4	7.8	9.7	9.9	15.2	20.0	24.9
Other quick assets	0.9	1.4	7.4	12.0	12.2	9.2	6.9	7.6	6.8	38.5	32.9	28.8	27.8
Total quick assets	7.1	14.8	23.4	27.3	34.2	30.3	22.0	20.9	18.2	49.3	57.2	64.6	66.2
Inventory	15.7	16.4	15.2	9.3	5.8	8.4	5.4	19.5	12.2	13.6	14.1	20.0	25.1
Total current assets	**22.8**	**31.2**	**38.6**	**36.6**	**40.0**	**38.8**	**27.4**	**40.4**	**30.4**	**62.9**	**71.3**	**84.5**	**91.3**
Investments	1.2	0.7	0.7	0.3	7.3	7.7	7.2	12.3	17.7	61.4	62.7	66.2	67.5
Tangible assets	168.4	151.2	136.3	122.4	113.4	119.3	122.5	300.2	295.1	308.6	320.8	318.8	315.3
Others	1.2	0.4	0.4	1.6	1.9	1.9	2.2	1.7	1.6	1.7	1.8	2.0	2.0
Total non-current assets	**170.8**	**152.3**	**137.3**	**124.2**	**122.6**	**128.9**	**132.0**	**314.2**	**314.4**	**371.8**	**385.3**	**387.0**	**384.8**
Total assets	**193.6**	**183.5**	**175.9**	**160.8**	**162.6**	**167.7**	**159.4**	**354.6**	**344.8**	**434.7**	**456.7**	**471.6**	**476.1**
Trade Payables	9.9	9.6	8.6	11.3	9.6	11.8	5.0	8.1	8.8	10.1	13.9	18.7	19.9
Short-term borrowings	0.0	0.0	0.0	9.3	44.0	55.2	69.4	70.6	62.1	75.7	50.7	36.7	15.9
Current portion of LT debt	11.8	12.5	1.9	0.0	0.9	2.7	8.0	7.8	6.4	18.6	18.6	18.6	18.6
Others	4.0	11.0	3.0	11.4	13.2	23.7	5.6	6.7	11.4	11.8	11.2	11.2	11.2
Total current liabilities	**25.7**	**33.1**	**13.4**	**32.1**	**67.7**	**93.4**	**88.0**	**93.2**	**88.7**	**116.3**	**94.4**	**85.2**	**65.6**
Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.8	26.8	26.8	26.8
Long-term debt	108.8	113.4	33.5	33.5	0.0	0.0	0.0	12.0	12.0	15.1	15.0	15.0	15.0
Allowance for retirement	4.4	5.1	5.7	5.5	6.3	7.1	5.8	5.3	4.4	4.3	4.0	4.0	4.0
Others	(0.0)	4.9	7.9	9.0	7.2	11.4	28.2	62.6	54.8	52.4	52.4	52.4	52.4
Total LT liabilities	**113.2**	**123.4**	**47.0**	**48.0**	**13.4**	**18.6**	**34.0**	**79.8**	**71.2**	**98.6**	**98.2**	**98.2**	**98.2**
Total liabilities	**138.9**	**156.6**	**60.4**	**80.1**	**81.1**	**111.9**	**122.0**	**173.0**	**159.9**	**214.9**	**192.6**	**183.4**	**163.8**
Paid-in capital	48.8	48.8	54.2	54.2	54.2	54.5	54.5	55.0	55.0	55.0	57.3	57.3	57.3
Capital surplus	81.2	81.2	132.0	132.0	7.8	15.7	0.0	9.7	9.7	13.4	41.2	41.2	41.2
Retained earnings	(95.2)	(123.1)	(89.6)	(124.2)	0.7	(25.0)	(27.7)	(33.4)	(30.0)	0.9	15.1	39.3	63.5
Capital adjustments	20.0	20.1	19.0	18.8	18.8	10.6	10.6	150.3	150.3	150.4	150.4	150.4	150.4
Total shareholder's equity	**54.7**	**26.9**	**115.5**	**80.8**	**81.5**	**55.8**	**37.4**	**181.6**	**184.9**	**219.8**	**264.0**	**288.2**	**312.3**

Free cashflow analysis

(Wbn)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011F	2012F	2013F
Net profit	**(21.8)**	**(27.8)**	**33.5**	**(34.6)**	**0.8**	**(25.7)**	**(17.6)**	**(5.7)**	**2.2**	**30.9**	**14.2**	**24.2**	**24.1**
add non-cash expenses	**43.6**	**37.2**	**295.1**	**25.8**	**23.2**	**24.6**	**17.3**	**16.5**	**20.6**	**23.2**	**20.1**	**21.7**	**23.5**
Depreciation	20.3	18.4	15.9	15.7	16.7	18.7	12.4	10.9	10.9	11.2	10.8	12.0	13.5
Equity method losses	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.7	0.8	1.6	0.3	0.3	0.3
Other non-cash expenses	23.2	18.8	279.1	10.1	6.5	5.9	4.9	5.6	9.6	12.0	9.3	9.7	10.0
subtract non-cash income	**9.5**	**3.5**	**327.9**	**1.6**	**37.2**	**7.4**	**1.7**	**7.0**	**2.3**	**34.0**	**4.8**	**6.5**	**8.3**
Equity method gains	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	31.6	1.3	2.9	4.6
Other non-cash income	9.5	3.5	327.9	1.6	37.2	7.4	1.7	7.0	2.3	2.4	3.5	3.6	3.7
Add chgs in op assets & liabs	(5.1)	0.9	(6.5)	15.9	(14.7)	(3.5)	(2.0)	(11.2)	(0.6)	(9.6)	(2.0)	(5.9)	(8.8)
Investment in WC	0.9	2.1	(0.4)	(9.0)	3.7	0.7	2.3	9.4	(6.1)	0.2	2.0	5.9	8.8
Others	(4.2)	2.9	(6.9)	6.9	(10.9)	(2.8)	0.3	(1.8)	(6.6)	(9.3)	0.0	0.0	0.0
Cash from operation	**7.1**	**6.8**	**(5.9)**	**5.5**	**(27.9)**	**(12.0)**	**(3.9)**	**(7.4)**	**20.0**	**10.5**	**27.6**	**33.5**	**30.5**
subtract capital expenditure	1.4	1.2	1.0	9.8	27.1	31.9	15.6	4.1	5.9	24.2	23.0	10.0	10.0
Free cash flow	**5.7**	**5.6**	**(6.9)**	**(4.3)**	**(55.0)**	**(43.9)**	**(19.6)**	**(11.5)**	**14.1**	**(13.7)**	**4.6**	**23.5**	**20.5**
Dividend	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net investments	(0.8)	(0.4)	(0.1)	(0.2)	7.0	0.5	1.8	(0.2)	3.5	40.6	1.3	3.5	1.3
Share issues	0.0	0.0	52.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0
Increase in debt	(0.1)	5.4	(90.6)	7.5	2.1	13.0	19.6	12.9	(9.8)	55.7	(25.1)	(14.0)	(20.8)
Others	4.9	8.1	(43.9)	5.4	(59.9)	(31.2)	(1.0)	1.9	0.0	1.2	0.0	0.0	0.0
Net cash flow	**1.5**	**3.4**	**(1.5)**	**(2.0)**	**(0.0)**	**(0.2)**	**(0.7)**	**(0.3)**	**0.7**	**0.2**	**8.2**	**6.0**	**(1.6)**
Beginning cash	0.0	1.5	4.8	3.3	1.3	1.3	1.1	0.3	0.1	0.8	0.9	9.1	15.1
Ending cash	1.5	4.8	3.3	1.3	1.3	1.1	0.3	0.1	0.8	0.9	9.1	15.1	13.5

Key ratios and stability ratios

Year-end 31 Dec (Wbn)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011F	2012F	2013F
Current ratio	88.8	94.2	287.8	114.1	59.1	41.5	31.2	43.3	34.2	54.1	75.5	99.2	139.1
Quick ratio	23.7	31.5	65.6	20.2	17.7	12.8	11.0	8.5	11.8	9.3	18.2	28.0	39.9
Inv holding period (days)	63.4	75.0	79.8	50.3	30.2	27.5	28.2	48.4	64.4	47.2	37.3	33.6	38.0
A/R collect period (days)	23.9	24.8	31.1	27.8	40.2	52.1	42.7	30.3	28.9	28.7	25.6	26.4	28.6
A/P period (days)	39.0	45.0	46.6	43.8	43.6	40.3	35.4	22.1	37.3	34.1	32.4	31.2	31.8
Interest bear debt (Wbn)	120.5	125.9	35.3	42.8	44.9	57.9	77.4	90.4	80.5	136.2	111.1	97.1	76.3
Cash, eq & LT dep (Wbn)	1.7	8.0	10.6	10.1	11.4	10.7	6.1	5.9	2.0	0.9	2.0	4.6	1.3
Net int. bear debt (Wbn)	118.8	117.9	24.8	32.7	33.5	47.2	71.4	84.5	78.5	135.2	109.1	92.5	75.0
Net debt/equity (%)	217.0	437.8	21.4	40.5	41.2	84.5	190.9	46.5	42.5	61.5	41.3	32.1	24.0
Liability/equity (%)	253.8	581.2	52.3	99.1	99.6	200.6	326.2	95.3	86.4	97.8	73.0	63.6	52.5
Interest coverage (X)	-0.2	-0.8	-2.4	-9.6	-12.2	-9.0	-2.4	-0.3	1.1	0.8	2.5	4.0	5.3

Valuations and margins

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011F	2012F	2013F
EV/EBITDA (X)	13.4	45.0	4,490.3	(15.2)	(14.9)	(20.0)	(329.5)	29.5	14.2	17.7	12.0	8.6	6.8
EPS (W)	(2,984)	(2,855)	309	(3,193)	72	(2,355)	(1,611)	(522)	201	2,810	911	1,555	1,550
EPS y-y (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,295.1	(67.6)	70.6	(0.3)
PER (X)	N/A	N/A	49.3	N/A	212.5	N/A	N/A	N/A	75.7	5.4	16.7	9.8	9.8
BVPS (W)	7,990	3,158	1,956	1,355	7,518	5,133	3,431	16,579	16,812	19,978	19,870	18,510	20,060
P/BVPS (X)	1.9	4.8	7.8	11.3	2.0	3.0	4.4	0.9	0.9	0.8	0.8	0.8	0.8
Dividend (W)	0	0	0	0	0	0	0	0	0	0	0	0	0
Dividend yield (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROE (%)	(33.2)	(68.2)	47.0	(35.3)	1.0	(37.4)	(37.7)	(5.2)	1.2	15.3	5.9	8.8	8.0
ROA (%)	(10.7)	(14.8)	18.6	(20.5)	0.5	(15.5)	(10.7)	(2.2)	0.6	7.9	3.2	5.2	5.1
GP margin (%)	3.1	(3.7)	(11.2)	(27.5)	(26.8)	(25.1)	(3.4)	9.5	18.8	20.0	24.3	24.0	24.3
OP margin (%)	(3.9)	(16.6)	(23.9)	(41.2)	(41.7)	(38.9)	(15.1)	(2.3)	5.8	4.7	9.8	10.3	10.7
NP margin (%)	(27.2)	(36.9)	51.5	(49.6)	1.1	(34.0)	(20.3)	(5.5)	2.0	24.8	7.9	9.9	8.4
EBITDA margin (%)	21.5	7.9	0.6	(18.6)	(18.5)	(14.1)	(0.8)	8.2	15.7	13.7	15.8	15.2	15.4
ROIC (%)	(1.7)	(7.9)	(11.0)	(22.7)	(27.1)	(28.9)	(13.3)	(1.3)	2.6	2.2	5.9	8.3	7.6
WACC (%)	8.4	7.7	9.5	9.1	6.6	7.8	7.4	8.3	6.7	6.7	8.9	10.8	11.0
ROIC less WACC (%)	(10.1)	(15.6)	(20.5)	(31.8)	(33.7)	(36.7)	(20.6)	(9.6)	(4.1)	(4.5)	(3.0)	(2.6)	(3.4)

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