

# Background of the Merger with LG Life Sciences and Future Plan

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**Sep. 26, 2016**



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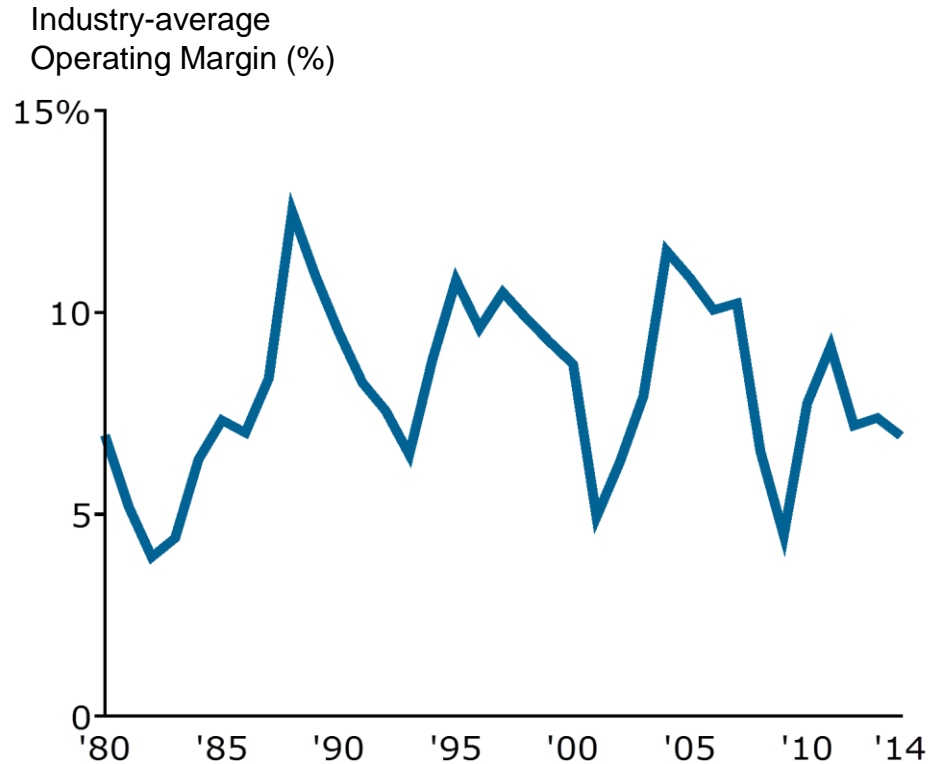
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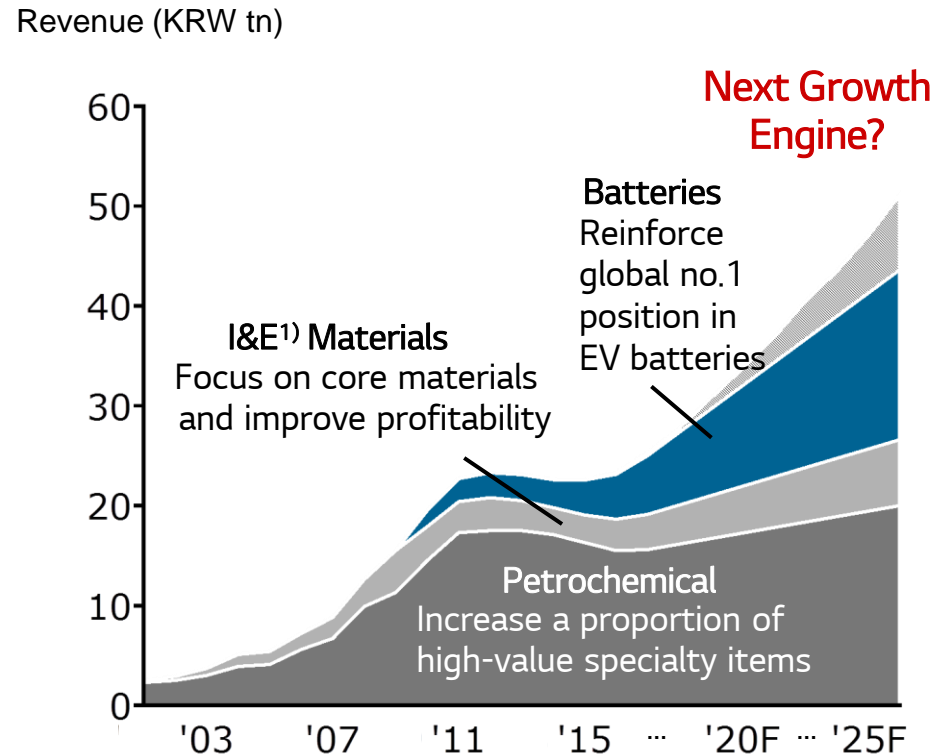
# 1. LG Chem's Strategic Direction

LG Chem has dedicated to building a balanced business portfolio by exploring new growth engines to recoup a volatility of its core petrochemical business and to continue to grow

Petrochemical is a "Cycle Business"



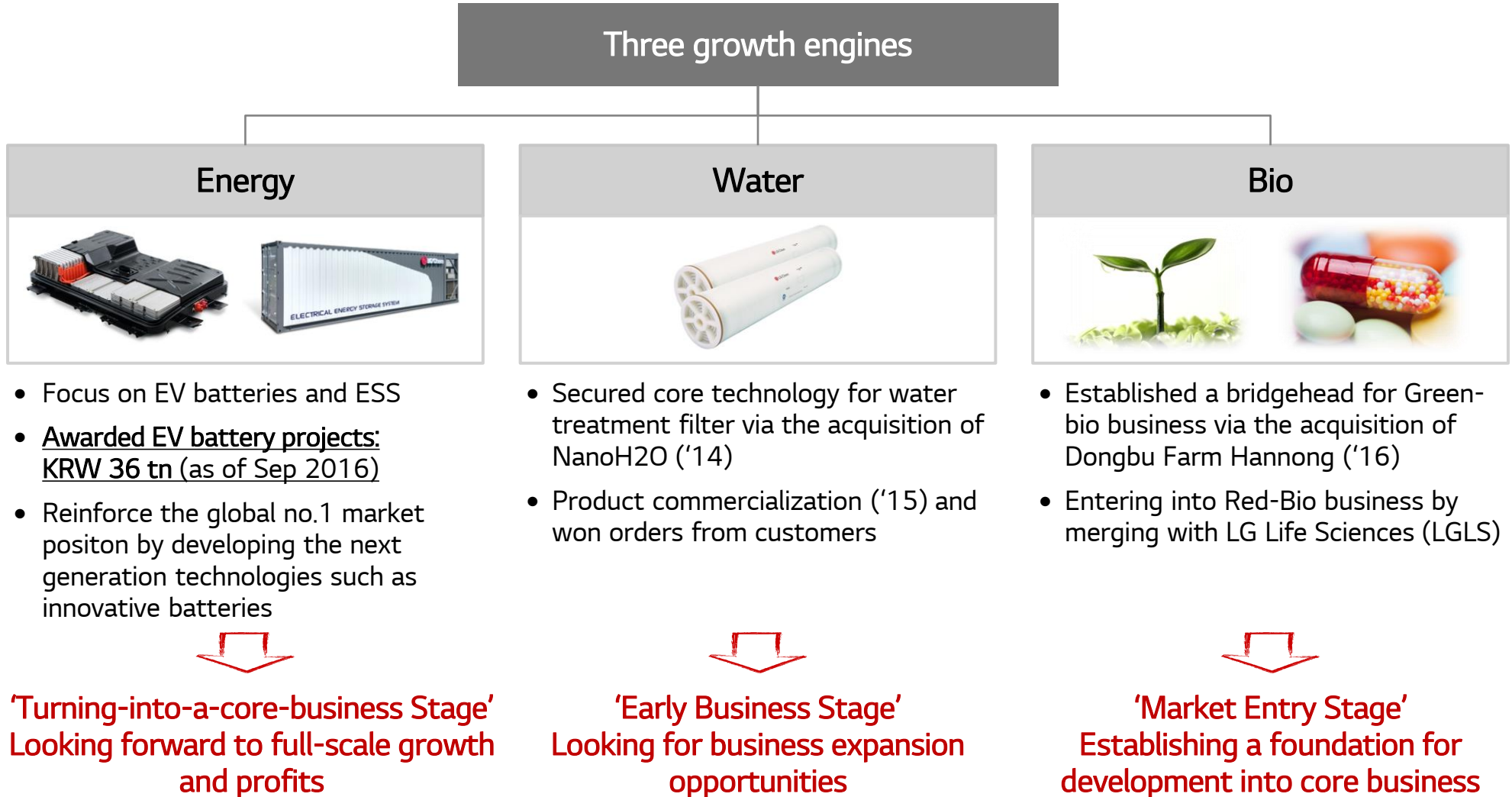
LG Chem's Business Portfolio Strategy



Source: Capital IQ, 1) Information & Electronic

## 2. LG Chem's New Growth Engines

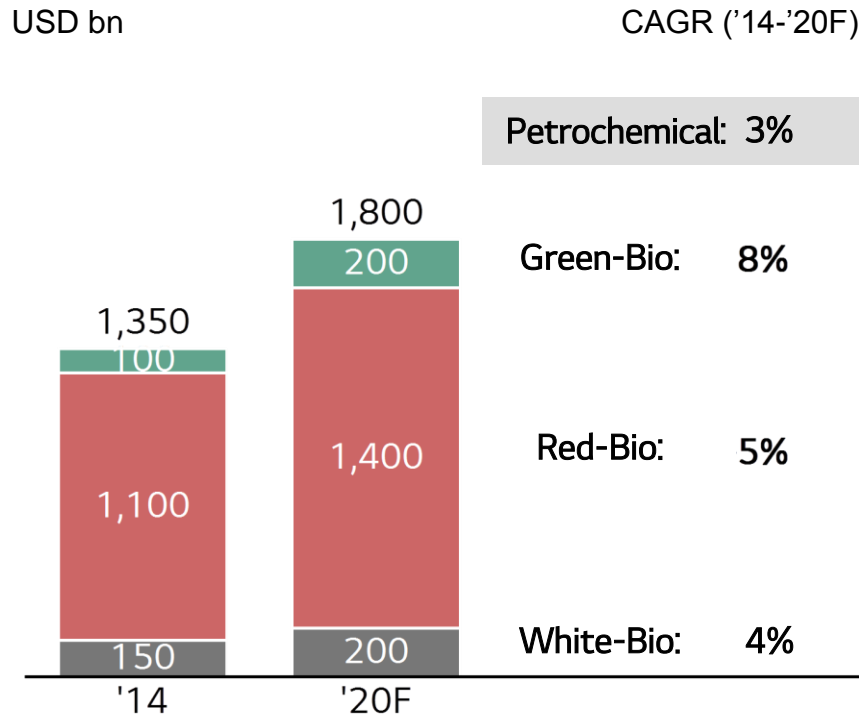
LG Chem is pursuing Energy/ Water/ Bio business as growth engines for the next generation



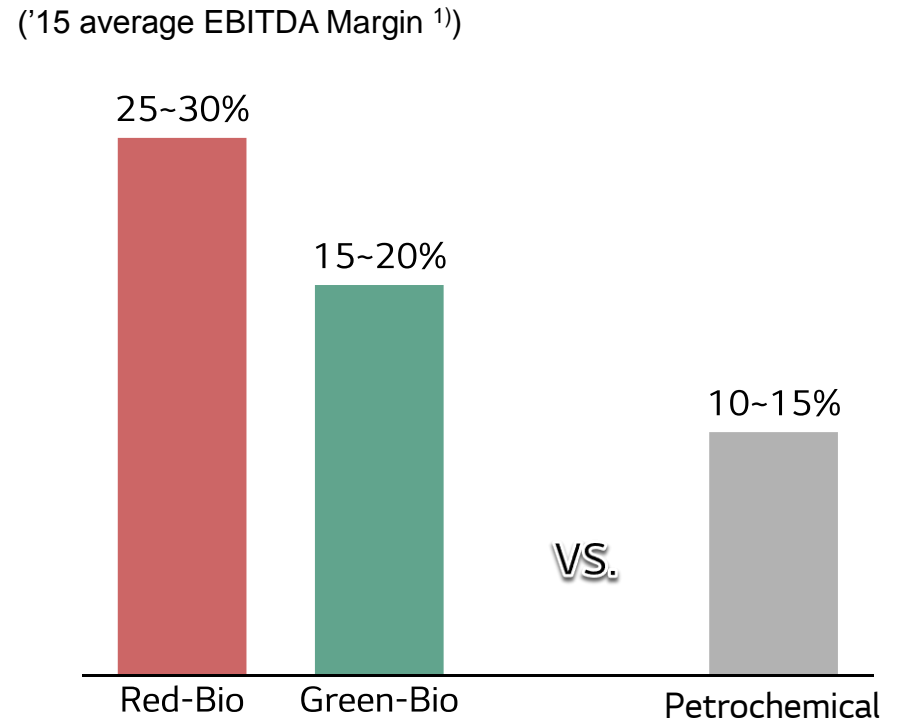
### 3. Attractiveness of Bio Market

Whilst Bio sector forms a huge market and allows continuous growth/ high profitability, many new entrants have shown meaningful successes in this sector

Market Size and Growth Potential



Market Profitability

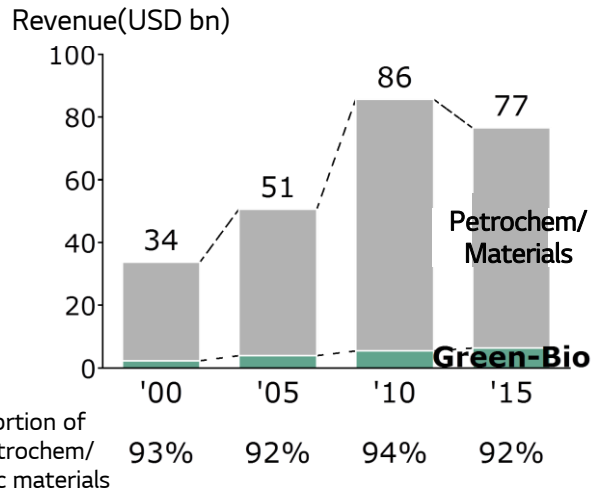


1) Global top 10 players in each industry (based on revenue)

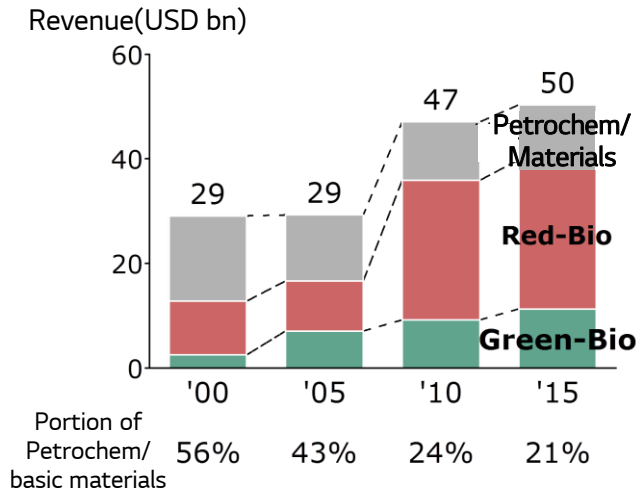
Source: Evaluate Pharma, IHS; IMS Health, Frost & Sullivan, Philips McDougall, Capital IQ, Each company's Annual Report

# 4. Leading Chemical Companies' Expansion into the Bio Sector

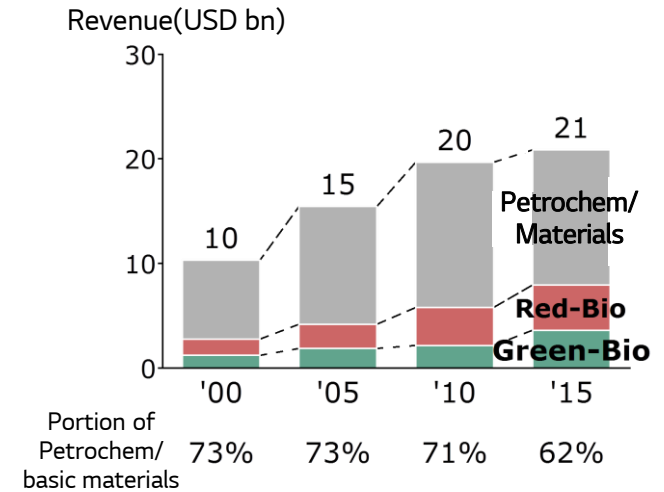
Major global chemical players are actively expanding Green/Red-Bio business



- **[Green-Bio]** Securing global business Platform through a series of mid-sized M&As
  - Acquired Cyanamid ('00)



- **[Red-Bio]** Pursuing organic and Inorganic growths in parallel
  - Acquired Roche ('05) and Merck's ('14) consumer care division
- **[Green-Bio]** Full-range expansion in crop protection/seeds
  - Working on acquiring world's biggest Green-Bio company Monsanto ('16)



- **[Red-Bio]** Expansion in domestic/global market
  - Merged with Dainippon Pharma ('05)
- **[Green-Bio]** Global expansion based on stake acquisition/alliance
  - Acquired Nufarm's stake ('10)

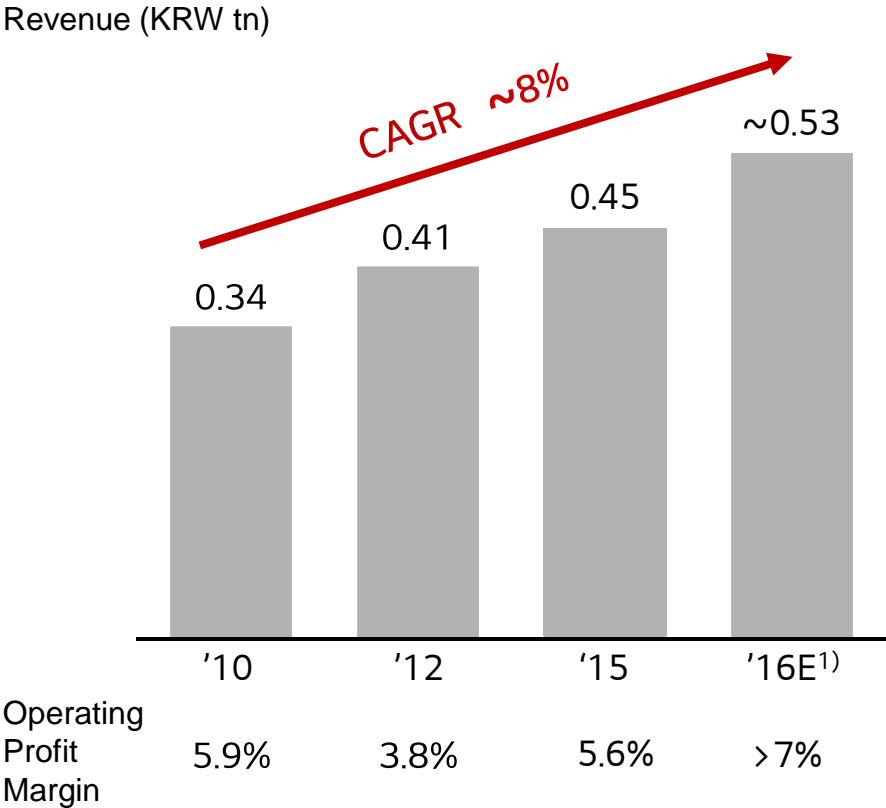
# 5. Overview of LG Life Sciences

LG Life Sciences is an attractive merger target making stable growth with R&D capabilities for bio and chemical drugs.

## Company Overview

<b>Established</b>	<ul style="list-style-type: none"> <li>• <b>Aug 2002.</b></li> </ul>
<b># of employees</b>	<ul style="list-style-type: none"> <li>• <b>1,356</b> (as of Jan '16)</li> </ul>
<b>Business</b>	<ul style="list-style-type: none"> <li>• <b>3 areas of business</b> <ul style="list-style-type: none"> <li>- Bio pharmaceuticals (Growth hormone, filler, etc.)</li> <li>- Chemical drugs (New diabetes drug)</li> <li>- Vaccines</li> </ul> </li> </ul>
<b>Market Cap</b>	<ul style="list-style-type: none"> <li>• <b>KRW 1.1T</b> (as of Sep '16)</li> </ul>
<b>History</b>	<ul style="list-style-type: none"> <li>• 1<sup>st</sup> Korean new drug approved by <b>US FDA</b> ('03, Factive)</li> <li>• Launched the 1<sup>st</sup> Korean hyaluronic acid filler ('11, Yvoire)</li> <li>• Launched the 1<sup>st</sup> Korean new diabetes drug ('12, Zemiglo)</li> </ul>

## Key Financial Performance

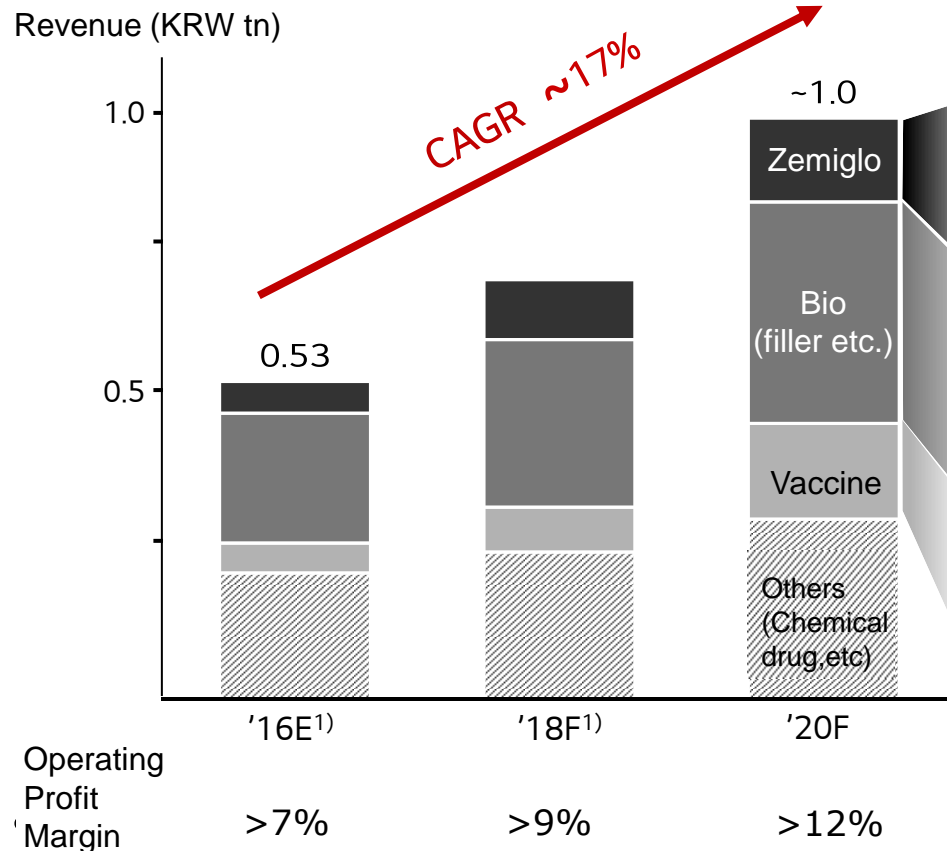


1) Estimates based on the market consensus of recent 2 months

# 6. LG Life Sciences Performance Outlook

Continuous growth can be achieved with already developed products such as Zemiglo, filler and vaccines for the next several years, but expansion of the new pipeline is necessary for a long-term and full-scale growth

## LGLS's Performance Outlook



## Major Growth Drivers

**“Development of ethical drugs<sup>2)</sup> and expansion into emerging markets for further growth”**



### New drug, Diabetes

- Better in lowering blood sugar level and less hypoglycemia side effect than drugs in the same class (DPP4 inhibitor)
- Distribution via major local/global pharma's sales networks (To be launched in 37 countries by '18)
- Revenue of KRW 140 bn in '20



### Aesthetic Filler

- Better drug persistence with filler cross-linking technology
- Increase in demand from emerging market including China
  - Annual growth rate > 200% and No.2 M/S in China
- Revenue of KRW 110 bn in '20



### Combination Vaccines, etc.

- Secure stable supply of vaccines and expedite development process through improvement of clinical trials
- Entry into UN public market ('16~)
- Revenue of KRW 160 bn in '20

1) Estimates based on the market consensus of recent 2 months

2) Ethical drug (ETC): A drug which is only available legally with a doctor's prescription



# 7. LG Life Sciences' Growth Potential

LGLS' strong R&D capabilities can ensure the high level of growth with expanded pipelines of new drug development projects

LGLS R&D Pipeline

Field	Target Area	Projects	Research	Pre-clinical	Clinical trial			Approval
					Phase 1	Phase 2	Phase 3	
Bio	Similar	Enbrel similar					○	
		Humira similar					○	
	Aesthetic Filler	Next-gen filler	○					
	Cell therapy	Osteoarthritis	●					
		CAR-T <sup>1)</sup>	●					
Synthetic	Diabetes	Zemiglo/Zemimet (global)						○
		ZemiStatin						○
		Diabetes (New)	●					
	Autoimmune	Ulcerative colitis		●				
		Myocardial infarction				●		
Arthritis		●						
Vaccine	For UN supply	Pentavalent (5-in-1 combo)						○
		Hexavalent (6-in-1 combo)			○			
		Polio (IPV)			○			
	Premium	Pneumonia 13-valent			○			
		Improved pneumonia		●				
Improved combination		○						

1) Chimeric antigen receptor-T cell

● Innovative new drugs

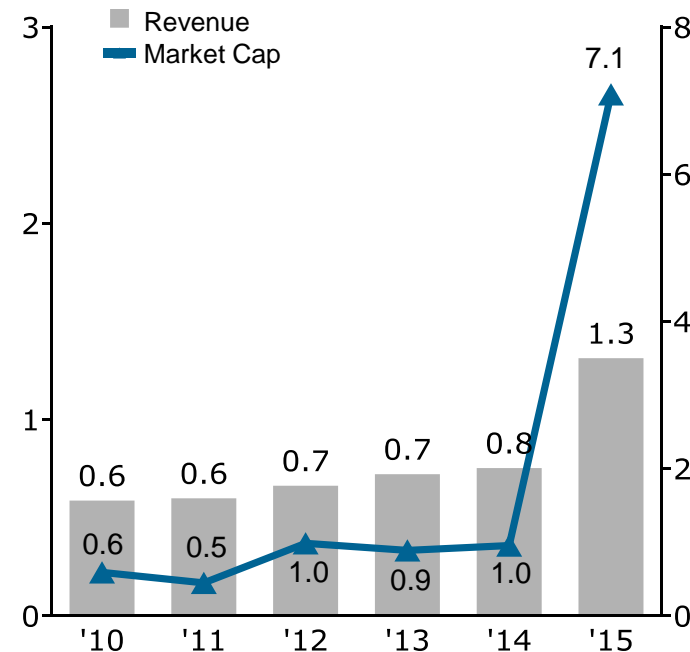
**Key Issues**

- Focusing on short-term projects due to pressure on financial performance
- Limit in new drug development as investment and capabilities are dispersed

Case: Korean Firm "H"

Revenue (KRW tn)

Market Cap (KRW tn)



➡ High level of growth can be driven by increased investment and focused approach to new drug development

# 8. Post-Merger Management Plan

Focus on new drug development targeting global market with re-aligned strategic direction

## Post-Merger Management Plan

### Focus on new drug development targeting global market

- Target areas to be determined through detailed review after merger (Diabetes, immunity, vaccines, cell therapy, etc)
- To strengthen open innovation
- To add core talents with expertise (R&D, biz development)

### Maximize cash generation from existing products

- To intensify sales activities rather than additional R&D

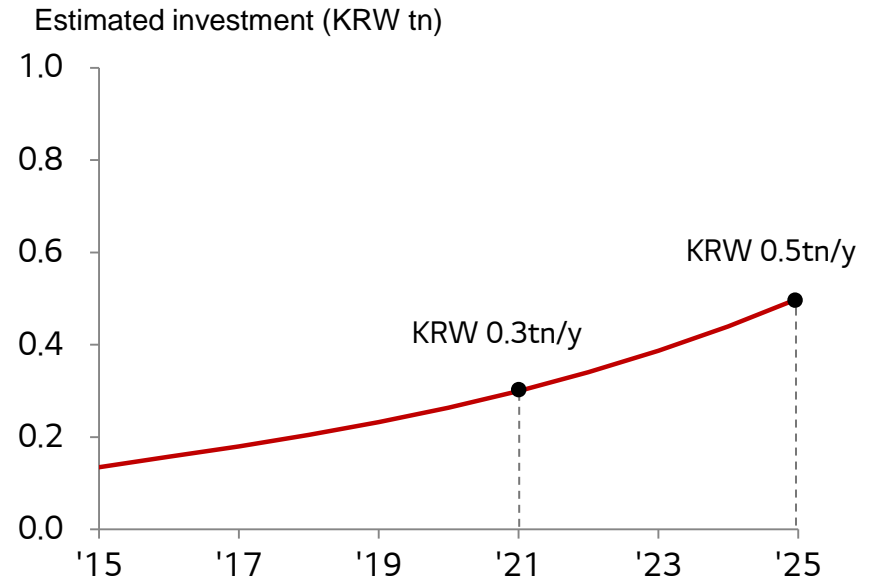
### Strengthen core competence through synergy between LG Chem & LGLS

### Do not pursue large-scale M&As for volume growth

- Proactively explore strategic alliance and open innovation opportunities

## Investment in R&D and Manufacturing Facility

- Gradual increase up to KRW 300-500 bn a year  
- expand the project pipelines to 10-20 for new drugs



LG Chem's additional investment is to be around KRW 100bn/year<sup>1)</sup>, considering LGLS's EBITDA

1) Less than 3% of LG Chem's annual EBITDA

# 9. Expected benefit and synergy

## Expected benefit and synergy

## Key contents

- Enhancing the possibility of success in new drug development

- Supporting to enhance core competence of LGLS

- Enhancing the competence of Green-Bio business (Farm Hannong)

- Upgrading business infrastructure and reducing financial costs

- Gradually increase investment up to KRW 300~500 bn from current KRW130bn level
  - In particular, improve the success rate of new drug development by expanding the pipelines at least to 10-20
- AOT<sup>1)</sup>, Big data driven Innovation of drug development process
- Expedite establishment of mass production system and improve the operational efficiency
- Proactive open innovation and C&D<sup>2)</sup> activities through overseas network of 26 branches in 19 countries
- Enhancement of global business capabilities using the experience of overseas licensing and new crop protection material development
  - Share the know-hows in new material development such as HTS<sup>3)</sup> utilization
  - Share the expertise in overseas registration, licensing, and toxicological evaluation
- Enhancement of breeding capabilities utilizing LG LS's genetic modification technology
- Upgrading business infrastructure in a most cost effective manner (IT system, logistics, raw material purchase, etc.)
- Financial cost reduction
  - Current credit rating: LG LS's A vs. LG Chem's AA+4)

1) Advanced Optimization Technology, 2) Connect and Development, 3) High Throughput Screening, 4) Based on local credit rating, and LG Chem's S&P rating is A-

# 10. Why LG Life Sciences

LG Life Sciences is the only company LG Chem can realistically acquire at a reasonable price

**“Only candidate among the companies with new drug development capabilities”**

- There are 6 Korean pharma companies with new drug development capabilities
- LGLS is the only realistic acquisition target

**“Reasonable price”**

- LGLS’s PER is 35.6x, lower than the industry average of 41x<sup>1)</sup>
- No additional premium payment for this merger
  - Generally, 30-50% of premium <sup>2)</sup> is required in Pharma M&A deals

**“Low risk in PMI”**

- Low risk of integration failure
- Low risk of hidden liability



Price is too high as its current market cap is KRW 7 tn



Low feasibility of acquiring controlling stake

1) KRX healthcare sector average

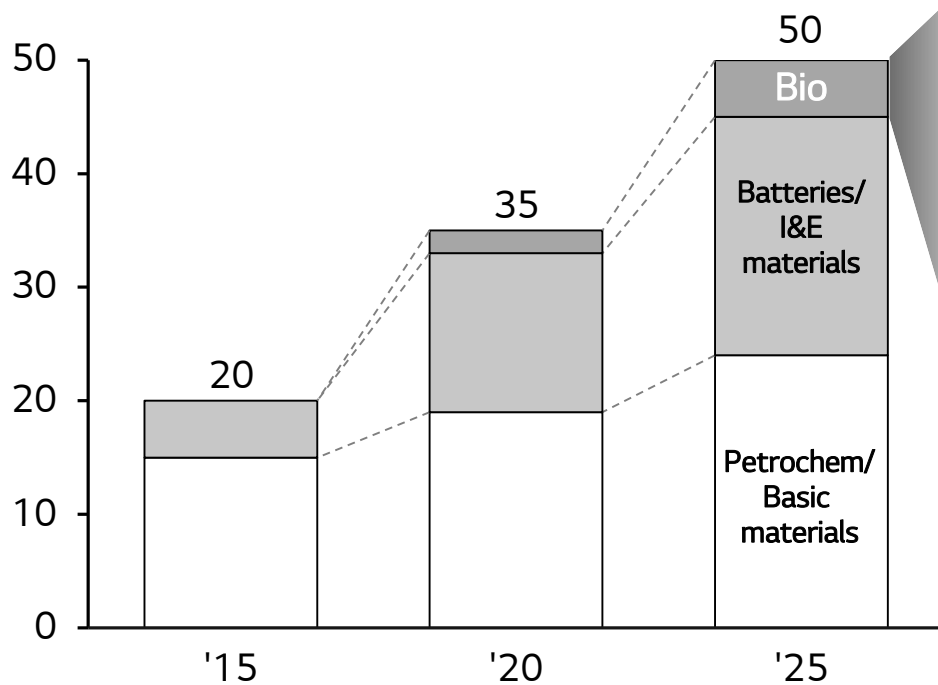
2) Based on 7 acquisitions worth around KRW 500 bn over the last 3 years (Endo-Paladin deal required 40% premium and Shire-ViroPharma required 47%)

# 11. LG Chem's Vision for Growth

LG Chem will build a sustainable and balanced business portfolio by nurturing bio business on top of its flagship petrochemical and battery businesses

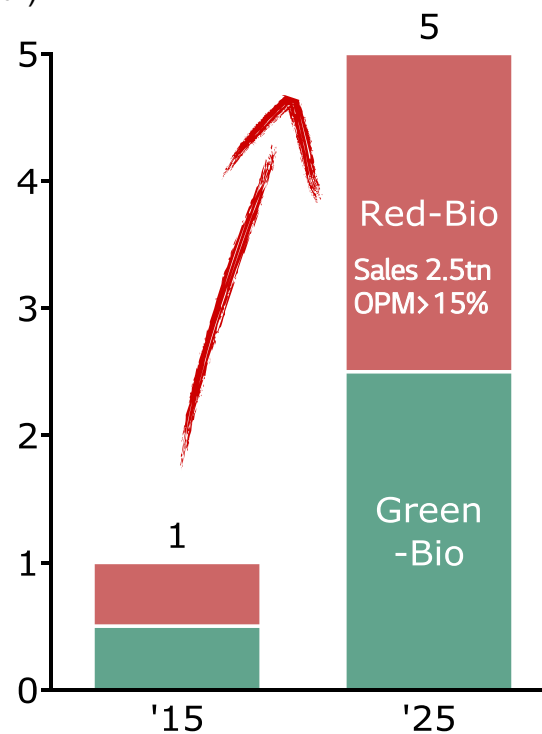
## LG Chem's Mid-to-long Term Management Goals

Revenue by Business Area  
(KRW tn)



## Growth of Bio Business

Revenue by Business Area  
(KRW tn)



# Appendix

## 1. Merger Overview

## 2. LG Life Sciences, Ltd.

- ① History
- ② Domestic/Global Networks
- ③ Financial Statements
- ④ Status by Business Division

## 3. Stock Price Trend

- ① Stock Price Trend by Industry
- ② Stock Price of Two Companies

## 4. Summary on Small-scale Merger Under the Commercial Code

# 1. Merger Overview

## ❑ Merger Timeline

BOD Resolution on Sep 12<sup>th</sup> → Shareholders' Meeting on Amendment to Articles of Incorporation on Oct 31<sup>st</sup>  
 → BOD on Merger Approval on Nov. 28<sup>th</sup> → Merger Completion on Jan 1<sup>st</sup> 2017

## ❑ Merger Method

<b>Remaining entity</b>	<b>LG Chem</b>
<b>Disposed entity</b>	<b>LG Life Sciences</b>

## ❑ Merger Ratio

Classification	Common stock		Preferred stock	
	LG Chem	LG Life Sciences	LG Chem	LG Life Sciences
Based Share Price <sup>1)</sup>	KRW 253,390	KRW 66,053	KRW 171,629	KRW 43,507
<b>Merger Ratio</b>	<b>1 : 0.2606772</b>		<b>1 : 0.2534945</b>	

## ❑ New Stock Issuance after Merger

Classification	Total number of issued shares	Remark
Common stock	4,321,243	On the date of merger, new issued common/ preferred stocks will be assigned to LG Life Sciences' common/preferred stock shareholders
Preferred stock	59,879	
<b>Total</b>	<b>4,381,122</b>	Approx. 5.9% of 73,900,021, the total number of stocks issued.

☞ New stocks after merger will be assigned to LG Life Sciences' treasury stocks  
 (Including the treasury stocks to be owned by exercising put back option)

1) Calculation method of based share price for merger: average of latest close price, recent 1 week, and 1 month weighted average price  
 (Based on Article 165 (4) of Capital Markets and Financial Investment Services Act)

## 2. LG Life Sciences

### ① History

- 1981** Started to conduct genetic engineering research, for the first time in Korea
  - 1989** Developed Korea's 1st biopharmaceutical product (Intermax Gamma )
  - 1996** Hepatitis-B vaccine was pre-qualified by WHO
  - 2002** LG Life Sciences was established
  - 2003** Factive became Korea's 1st new drugs approved by US FDA
  - 2008** Became Korea's 1st pharmaceutical firm to make \$100million in export
  - 2009** Introduced the world's weekly-administered growth hormone (Eutropin Plus)
  - 2012** Developed Korea's 1st new diabetes drug (Zemiglo) - Licensed out to Sanofi (79 countries)
  - 2016** Achieved WHO Pre Qualification of Pentavalent vaccine
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# 2. LG Life Sciences

## ② Domestic/Global Networks

### Domestic

Seoul HQ



- Business divisions
- Domestic sales
- R&D (clinical trial /product development)
- Support

Research Centers in Daejeon



- Biopharmaceuticals R&D
- Vaccine R&D
- Drug discovery
- CMC R&D
- Drug development center

Osong Campus



- Vaccine / Biopharmaceutical products
- Biosimilar
- Zemiglo

Iksan Plant



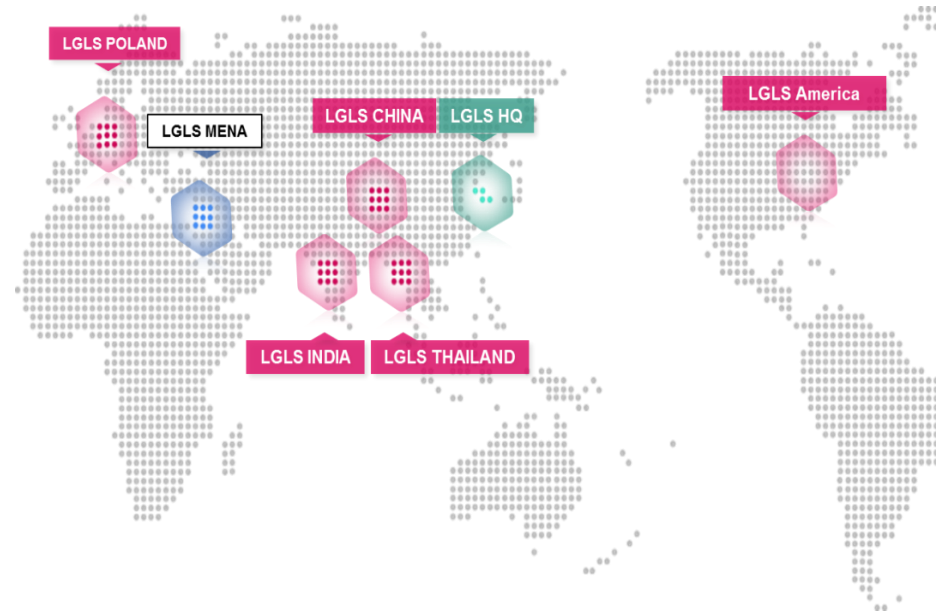
- Yvoire, Boostin, etc.
- Materials for Factive

Onsan Plant



- Chemical drug materials
- Agricultural chemicals/  
Chemical materials

### Global Networks



- Corporations (China, India, Thailand, USA, Poland)
- Regional Office (MENA)

### □ Summary of Consolidated Financial Position Statement

(KRW Billion)

Classification	2011	2012	2013	2014	2015
Current Asset	221	248	233	262	255
Non-current Asset	280	321	379	391	452
<b>Total Assets</b>	<b>501</b>	<b>569</b>	<b>612</b>	<b>653</b>	<b>707</b>
Current Liabilities	98	118	166	98	161
Non-current Liabilities	154	198	192	306	288
<b>Total Liabilities</b>	<b>253</b>	<b>316</b>	<b>358</b>	<b>404</b>	<b>449</b>
Capital Stock	84	84	84	84	84
Additional Paid-in Capital	147	147	147	147	147
Other Capital Items	-1	-1	-1	-1	-3
Retained Earnings	17	23	24	19	29
<b>Total Stockholders' Equity</b>	<b>248</b>	<b>253</b>	<b>254</b>	<b>249</b>	<b>258</b>
Debt Ratio	102%	125%	141%	162%	174%
Net Borrowing Ratio	47%	63%	88%	103%	115%

### □ Summary of Consolidated Income Statement

(KRW Billion)

Classification	2011	2012	2013	2014	2015
Sales	382	406	417	426	451
Gross Profit	168	185	200	201	219
Operating Profit	12	15	14	16	25
Profit before Income Taxes	4	8	5	2	14
Net Income	6	9	3	-2	11

## 2. LG Life Sciences

### ④ Status by Business Division

(KRW bn)

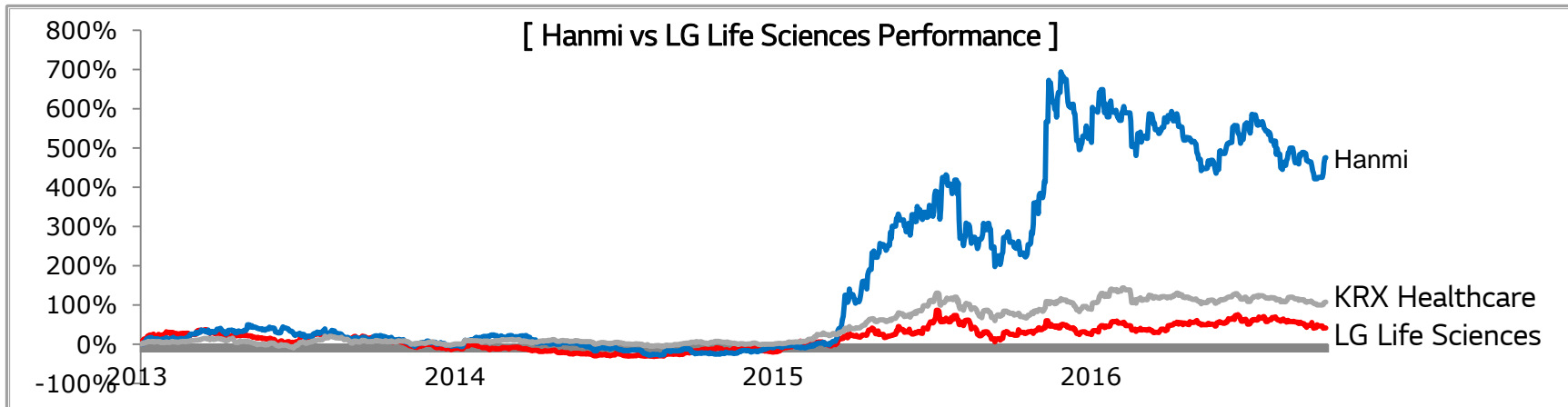
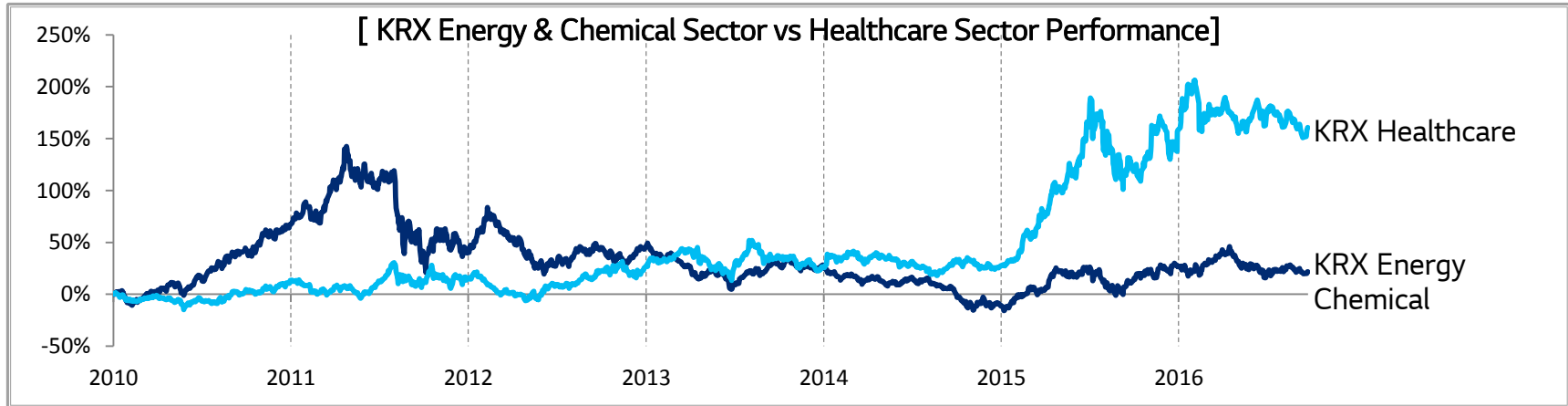
Division	2013		2014		2015	
	Sales	Operating Profit	Sales	Operating Profit	Sales	Operating Profit
<b>Total</b>	<b>417</b>	<b>14</b>	<b>426</b>	<b>16</b>	<b>451</b>	<b>25</b>
Pharma	339	9	357	17	388	29
Bio	175	32	187	40	203	50
Chemical	66	-17	77	-18	97	-4
Vaccine	31	3	40	1	37	-8
Fine Chem	79	5	69	-1	62	-4

\* 2016 H1 Sales KRW 250 bn, Operating Profit KRW 28 bn

# 3. Stock Price Trend

## ① Stock Price Trend by Industry

- Pharmaceutical sector's stock price performance has been on a steep rise since 2015 as pharma industry became attractive in Korea  
→ Further upside momentum is expected considering the growth rate and profitability of pharmaceutical sector



LG Life Sciences deserves attention as it is undervalued relatively in the sector despite its Bio business potential and R&D capabilities.

### 3. Stock Price Trend

### ② Stock Price of Two Companies

LG Chem's recent stock price is lower than the past, however, LG Life Sciences is in a similar situation. Thus, the merger ratio would have been quite similar

#### Two Companies' Stock Price Trend

(Unit: KRW)	Closing before BOD	12 month-high	24 month-high	36 month-high
LG Chem	248,500	344,500	344,500	344,500
LGLS	64,000	79,400	91,100	91,100
$\left( \frac{\text{LGLS}}{\text{LG Chem}} \right)$	0.26	0.23	0.26	0.26

# 4. Summary on Small-scale Merger under the Commercial Code

## □ Purpose under the Commercial Code

- To support the revitalization of corporate restructuring and merger
- If the amount of new shares issuance through the merger is not substantial (not more than 10% of outstanding shares), there is not a significant effect on existing shareholders, and therefore the procedures are streamlined to require only a board resolution rather than a shareholders' approval of the merger.

## □ Requirements for Small-scale merger

- Article 527-3, Section 1 of the Commercial Code, revised in 2012 (effective as of April 15, 2012) : New shares issued by surviving company must not exceed 10% of total outstanding shares

## □ Cases of Small-scale merger prior to effectiveness of revised Commercial Code in 2012

- Number of small-scale mergers since 2012 : 289 according to disclosure records
- Many cases involving new shares exceeding 5% and up to 10% of outstanding shares

## ※ Issues relating to communication with shareholders in case of merger

- In case of merger between listed companies in Korea, the merger consideration and merger ratio are determined mechanically based on the market price on a specified date in accordance with statutory requirements, and therefore it is not possible to reflect shareholders' opinion.
- If information on the merger is known, it may affect the market price which will directly impact the merger consideration. Therefore, it is important from the parties to the merger to prevent disclosure of merger-related information
- Discussion with shareholders in the course of the merger will give rise to the risk of major issues relating to "insider trading".