

## BIOSENSORS INTERNATIONAL AND CHINA (B)

In 2010, Yoh-Chie Lu, the chairman and single largest shareholder in Biosensors International Group (BIG), contemplated long and hard options for his company in China (see *Biosensors International and China, A*). He ultimately saw BIG's future as a leader in Asia, addressing fast growing Asian markets. A strategic partnership with Shandong Weigao and full ownership of JW Medical Systems (JWMS) in China's Shandong province hewed most closely to that vision.

### *The deal*

To get there, Lu made a number of critical maneuvers. In October 2010, he and his affiliates sold their 18.1 percent stake in Biosensors (see Exhibit 1) to Hony Capital, a Chinese private equity firm, for 88.88 Singapore cents a share (US\$1:S\$1.2), a very auspicious number in Chinese culture as the number 8 signifies good fortune and prosperity. Around the time of the sale, Lu was quoted as saying, "When we did the calculations of the 45-day average price, it came up to 88.88 cents. My birthday is August 8 and I was married the same day. So I said, 'Eight is a lucky number, let's do it.' They liked it too. It was meant to be."<sup>1</sup> The transaction, which was private, did not require the approval of BIG's board of directors. Although some board members expressed concern at the time, they soon agreed that bringing in a strategic institutional partner like Hony was a good choice in the long term.

Two Hong Kong-based investment boutiques, Atlantis Investment and Ever Union Capital, also acquired stakes in early 2011, bringing the three firms' collective share of Biosensors to more than 30 percent (see Exhibit 2).<sup>2</sup> These moves helped assuage financial markets. BIG's share price, which was at S\$0.75 a share on June 1, 2010, rose to \$S1.22 by April 21, 2011.<sup>3</sup> Hony and the investment boutiques also provided financial muscle and useful connections through their

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<sup>1</sup> Lynn Kan, "Biosensors founder Allays Fears Over Share Sale," *The Business Times*, October 14, 2010, BiotechSingapore.com, <http://www.timesdirectories.com/biotech/news/Biosensors%20founder%20allays%20fears%20over%20share%20sale/654773> (October 23, 2012).

<sup>2</sup> Huifen Chen, "Chairman's 'Sacrifice' a Boon to Biosensors," *The Business Times*, June 16, 2011, p.5.

<sup>3</sup> "Biosensors International Group, Ltd.: Historical Share Prices," Yahoo! Finance Singapore, <http://sg.finance.yahoo.com/q/hp?s=B20.SI&a=4&b=20&c=2005&d=9&e=23&f=2012&g=d&z=66&y=396> (October 23, 2012).

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Case writer Pamela Yatsko prepared this case for use in Stanford University's Program in Biodesign as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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financial interests in other medical companies in China and overseas. Lu expected them to help Biosensors expand in China and to transform into a medical device platform company through mergers and acquisitions. Moreover, Biosensors had what it needed to convince Weigao that Biosensors could afford to buy the Chinese firm's stake in JWMS.

In the meantime, Biosensors made some leadership changes to reflect its commitment to its Asian vision. The company announced in July 2010 that long-time Biosensors executive Jeffrey Jump would succeed Robert Michael Kleine as president and CEO following the successful launch of BIG's flagship BioMatrix drug-eluting stent (DES) system in Europe. In November 2010, Biosensors named Jack Wang as co-CEO, on top of his responsibilities running JWMS, as a first step in integrating its China operations.

In June 2011, Biosensors announced it was buying Weigao's 50 percent stake for a hefty S\$625.4 million. Moreover, it agreed to pay the amount partially in cash, S\$160 million, and the rest in stock. Shandong Weigao gained 21.6 percent of Biosensors, making the Chinese firm BIG's single largest shareholder (see Exhibit 2).

Regarding the price paid, Lu commented: "For us to cough up S\$625 million just to buy 50 percent, especially knowing how it all started, I still cannot register that this was how much we paid to own the remaining 50 percent."<sup>4</sup> His biggest regret, he contended, was originally agreeing to a 50:50 ownership structure for JWMS, rather than attempting to secure a majority stake for Biosensors. "If I had to do it all over, I definitely would have tried to negotiate 51 percent."

The June 2011 deal resolved a number of issues. With Biosensors finally able to consolidate fully JWMS's sales and profits, it was comfortable infusing its Chinese subsidiary with new technologies that would better differentiate JWMS from Microport, Lepu, and other Chinese competitors. As a significant shareholder in Biosensors, Shandong Weigao had more incentive to support Biosensors and, by extension, JWMS. "Our success is their success," Lu said. Moreover, through Biosensors, the Chinese company would extend its reach overseas: Although Shandong Weigao was successful in China, it had not been able to expand beyond its home market.

The deal, however, was not without risks. The possibility existed that Shandong Weigao would use its seat on the board of directors to meddle in BIG's day-to-day management or that BIG's management would not be able to convince Shandong Weigao that it knew best how to grow the business (see Exhibit 3). But as long as Biosensors delivered results and satisfied Shandong Weigao as a shareholder, Biosensors management would likely have the autonomy it desired, Lu concluded. His success in attracting Hony and the other new shareholders also mitigated the risk of decision-making stalemate at the board level. Lu, meanwhile, would continue to take pains to maintain a strong personal relationship with Shandong Weigao's chairman, given how critical close ties had proven in the past. Lu did this by keeping in touch with Chen, informing him about pertinent foreign issues, and helping him with personal matters when asked, such as lending a hand to a friend's child.

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<sup>4</sup> Interview with Yoh-Chie Lu, founder and chairman, Biosensors International Group, May 3, 2012. Subsequent quotations are from the author's interviews unless otherwise noted.

## LOOKING AHEAD

As Lu pondered BIG's future in China and beyond (see Exhibit 4 for a summary of BIG's operations worldwide), he had even more to be happy about. Biosensors was already well-established on the ground in China through JWMS, while its MNC competitors were not. Its largest shareholder was now the biggest medical device player in China and ostensibly had strong incentive to help JWMS succeed, even in penetrating second and third tier markets. Not only did Lu enjoy an excellent relationship with Shandong Weigao's 60-year old chairman, but so did Jack Wang, who, in addition to running JWMS, became BIG's sole CEO in March 2012. (Jump, Wang's former co-CEO, was named president of the company's cardiovascular unit at that time). In 2011, JWMS moved out of Shandong Weigao's industrial compound into a new factory on land it had purchased in the same city.

One of JWMS's biggest challenges going forward would be to develop a robust pipeline of new products given how challenging obtaining regulatory approval from China's State Food and Drug Administration (SFDA) was becoming generally. But while awaiting SFDA's approval for BIG's BioMatrix DES system, JWMS still enjoyed strong sales. It had US\$100 million in revenue in 2011 using its already approved Excel stent, which it sold as a domestic DES at a price point low enough to undercut MNC rivals in Tier 1 cities and compete with domestic players, even in second and third tier cities. This situation gave it a leg up on its MNC competitors. "If we had to start our business today in China or if we had waited to get approval for our own drug rather than using J&J's for our Excel stent, I don't think we could achieve the same success because it's a lot more difficult to get approval," Lu said. As long as SFDA approved BioMatrix as expected, JWMS would then also be able to offer the most cutting-edge DES approved in China, which it could market as an imported DES at a higher price point.<sup>5</sup>

Meanwhile, Biosensors overall enjoyed net profits in 2011 of US\$43 million on sales of US\$157 million. Net sales in 2013 were estimated at US\$400 million and net profits at US\$132 million (see Exhibit 5).<sup>6</sup> With 1,136 employees and penetration in 70 countries, Biosensors held a roughly two percent share of the global DES market in 2011, which analysts expected to exceed eight percent by 2015.<sup>7</sup> Its next generation DES, a polymer-free stent named BioFreedom, was in clinical trials, seeking patent protection in Europe, and expecting to launch in 2014. BioFreedom's safety profile was even better than BioMatrix's since its lack of a polymer drug carrier lessened the need for doctors simultaneously to give patients anti-platelet therapy to reduce thrombosis risk. Biosensors would not try to enter the U.S. market again on its own given the shrinking value of that country's DES market and the lengthiness and high cost of seeking regulatory approval there (see Case A). Instead, it was considering collaborating with partners in that country, like it did in Japan with Terumo.

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<sup>5</sup> "China Medical Devices: Stents that Sell: Opportunities in China and Beyond," Morgan Stanley Research, December 13, 2011, p. 34.

<sup>6</sup> *Ibid.*, pp. 7, 10.

<sup>7</sup> *Ibid.*, p. 5.

Reflecting on BIG's future, Lu commented:

“Right now what excites Biosensors and me is the fact that we have all the elements we need to assure our future success. We have cash on hand. We have financial partners. We have a strategic partner in China, and we are in China ourselves. How we use all these elements, that's always the key. It's not automatic. It's not guaranteed. It becomes almost like an art. You have the piece of paper and the pen. Can you draw better than the other guys, and can you do it faster than the other guys? Can you seize that opportunity before it goes away?”

### **DISCUSSION QUESTIONS**

Do Lu's decisions to embrace an Asian vision for Biosensors and to take a Chinese company as a strategic partner make sense? Why or why not?

Are there other potential pitfalls or benefits that Lu has not considered?

What are the pros and cons of BIG's strategy for capturing a larger share of China's market for medical devices and for drug-eluting stents specifically?

Did Biosensors pay too dearly for full ownership of JWMS? Why or why not?

How important is Lu's continued involvement to BIG's success?

Will BIG's innovation pipeline in China succeed given the potential for infringement of its intellectual property (IP)? How will JWMS protect itself?

**Exhibit 1**  
**BIG's Substantial Shareholders Prior to the Deal With Hony Capital, 2010**

As of June 11, 2010

Name	Number of Shares	Percent
Yoh-Chie Lu <sup>A</sup>	196,576,100	18.35
Lu Asset Management, L.P. <sup>B</sup>	125,290,808	11.7
John E. Shulze <sup>C</sup>	57,627,350	5.38

Notes:

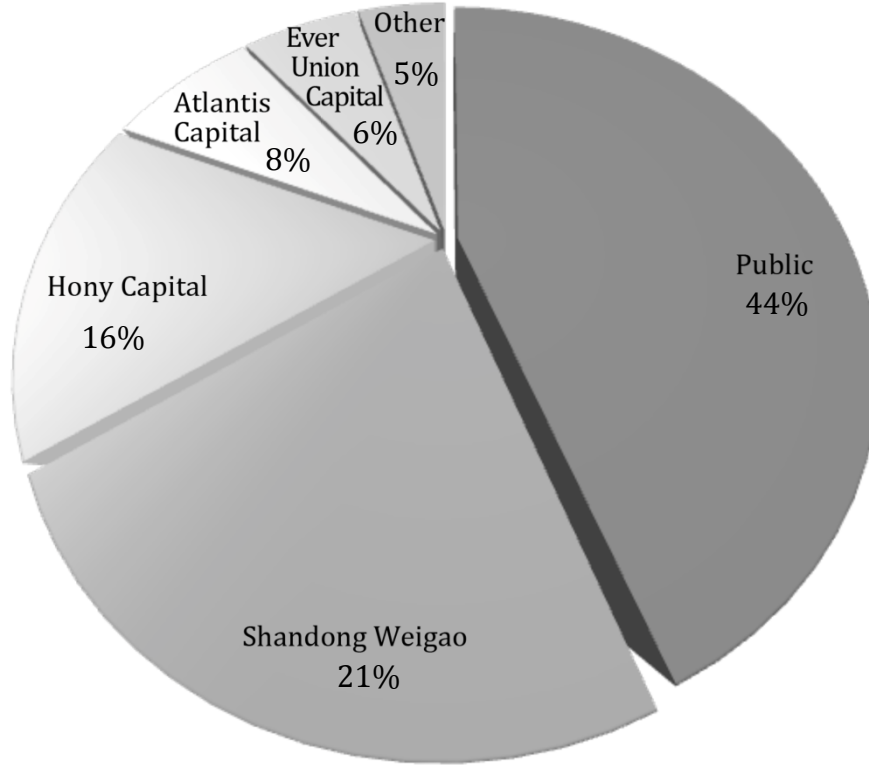
(A) Yoh-Chie Lu owned 38,837,646 shares in his own name and 33,197,646 shares as trustee of a living trust established for the benefit of Mr. Lu and his spouse. Both 38,837,646 shares and 33,197,646 shares are registered in the name of DB Nominees (S) Pte Ltd. Mr. Lu is also the beneficial owner of 124,540,808 shares held by Lu Asset Management, L.P.

(B) Lu Asset Management, L.P. is a California limited partnership established for the benefit of Yoh-Chie Lu, his spouse and his brother Hong Liang Lu. Lu Asset Management, L.P. holds 124,540,808 shares for the benefit of Lu and his spouse, and 750,000 shares for the benefit of Hong Liang Lu. The total 125,290,808 shares are registered in the name of DB Nominees (Singapore) Pte Ltd.

(C) John E. Shulze (Chief Technology Officer, who joined Biosensors in 1995) owned 7,174,220 shares registered in the name of HSBC (Singapore) Nominees Pte Ltd. Mr. Shulze is also the beneficial owner of 50,453,130 shares held by The Linstar Alaska Trust, a trust established for the benefit of Mr. Shulze and his family. The 50,453,130 shares are registered in the name of BNP Paribas Nominees Singapore Pte Ltd.

Source: Biosensors International, "Annual Report 2009/2010," p.120.

**Exhibit 2**  
**BIG's Shareholders, Percentage, June 2012**



Source: Biosensors International, "Annual Report 2011/12," 2012, p.130.

**Exhibit 3**  
**Board of Directors, Biosensors International, 2012**  
**Biography Excerpts**

**Yoh-Chie LU**

*Executive Chairman*

Mr. Lu, the founder of **Biosensors** International Group Ltd, was its chairman and CEO from its inception to 2008. He retained his leadership position as chairman of the Group since January 2008.

**Jack WANG**

*Executive Director and CEO*

Dr. Wang joined **Biosensors** in 2001 and has been involved in product development and operating activities, first serving as vice president for research & development, then as chief operating officer, as well as president and CEO of JW Medical Systems Ltd (JWMS). On November 8, 2010, Dr. Wang was appointed as co-CEO and executive director, until most recently in March 2012 when he was appointed as CEO of Biosensors.

**Jeffrey B. JUMP**

*Executive Director and President of Cardiovascular Business Unit*

Mr. Jump has over 30 years' experience in the medical device industry. He joined **Biosensors** in 2003 as president of our subsidiary Occam International B.V. in The Netherlands and soon afterwards became the managing director of Biosensors Europe SA. In 2005 he was additionally appointed senior vice president – sales and marketing, with responsibility for sales, sales support and global marketing for Europe, Middle East, Africa, India, North and South America. In 2007 he was also given global responsibility for clinical and regulatory activities. In July 2010, Mr. Jump became president and CEO, and subsequently co-CEO, a position he held until March 2012 when he was appointed president of Biosensors' newly created Cardiovascular Business Unit.

**Huawei ZHANG**

*Non-Executive Non-Independent Director*

Mr. Zhang is the vice chairman and general manager of **Shandong Weigao** Group Medical Polymer Company Limited, listed on the Stock Exchange of Hong Kong Limited and he is also the vice chairman of Weigao Holding Company Limited.

**Qiang JIANG**

*Non-Executive Non-Independent Director*

Mr. Jiang is a consultant of **Shandong Weigao** Group Medical Polymer Company Limited. Prior to this, he was the head of corporate strategy and the deputy general manager of Shandong Weigao until August 15, 2011.

**Exhibit 3 (continued)**  
**Board of Directors, Biosensors International, 2012**  
**Biography Excerpts**

**Bing YUAN**

*Non-Executive Non-Independent Director*

Mr. Yuan joined the Biosensors board and was appointed a member of the Audit and Compensation committees on November 8, 2010. Mr. Yuan is the managing director of **Hony Capital**, which he joined in 2009. He leads Hony's efforts in cross-border deals.

**Li SHENG**

*Non-Executive Non-Independent Director*

Mr. Sheng joined **Hony Capital** in May 2006 where he is currently a director responsible for the financial and business analysis as well as post- investment management.

**Peter V. HUGGLER**

*Non-Executive Independent Director*

Dr. Huggler joined the Biosensors board on August 10, 2006 and was appointed a member of the Nominations Committee on September 1, 2008. He is currently the chairman of **Askokoro Holding AG**, Zurich, a company active in the field of environmental technologies to purify air, water, surfaces, and develop solar energy. He is also chairman of Far East Investment Ltd., Zug, a private investment company. He has many years' business experience in Europe, the United States and Asia, including five years with a mining and metal smelting company in India and two years in the U.S. and Canada.

**Soon Beng AW**

*Non-Executive Independent Director*

Mr. Aw joined the Biosensors board and was appointed chairman of the Audit Committee on 28 July 2010. Mr. Aw, a banker by training, co-founded the boutique corporate finance house **e2-Capital Pte Ltd** in June 2000 after spending 14 years with DBS Bank. When the company was successfully listed on the Singapore Exchange Limited ("SGX") in January 2004 as SBI E2-Capital Holdings Limited, Mr. Aw was appointed as executive director on the board and served as chief operating officer responsible for the general management of the business, in addition to overseeing the execution of corporate finance transactions and looking after risk management. The company was renamed Westcomb Finance Group Limited in August 2004 and was a market leader in lead managing IPOs on the SGX between 2002 and 2005. Mr. Aw assumed the position of CEO in November 2006. After close to 10 years serving as senior management and on the board of Westcomb, he relinquished his position on March 1, 2010.



**Exhibit 3 (continued)**  
**Board of Directors, Biosensors International, 2012**  
**Biography Excerpts**

**Vincent ONG**

*Non-Executive Independent Director*

Mr. Ong joined the Biosensors board and was appointed chairman of the Compensation Committee and a member of the Audit Committee on July 28, 2010. Mr. Ong is the managing partner of **Evia Capital Partners and Evia Real Estate**, a private equity firm, which also develops industrial and residential properties in Singapore.

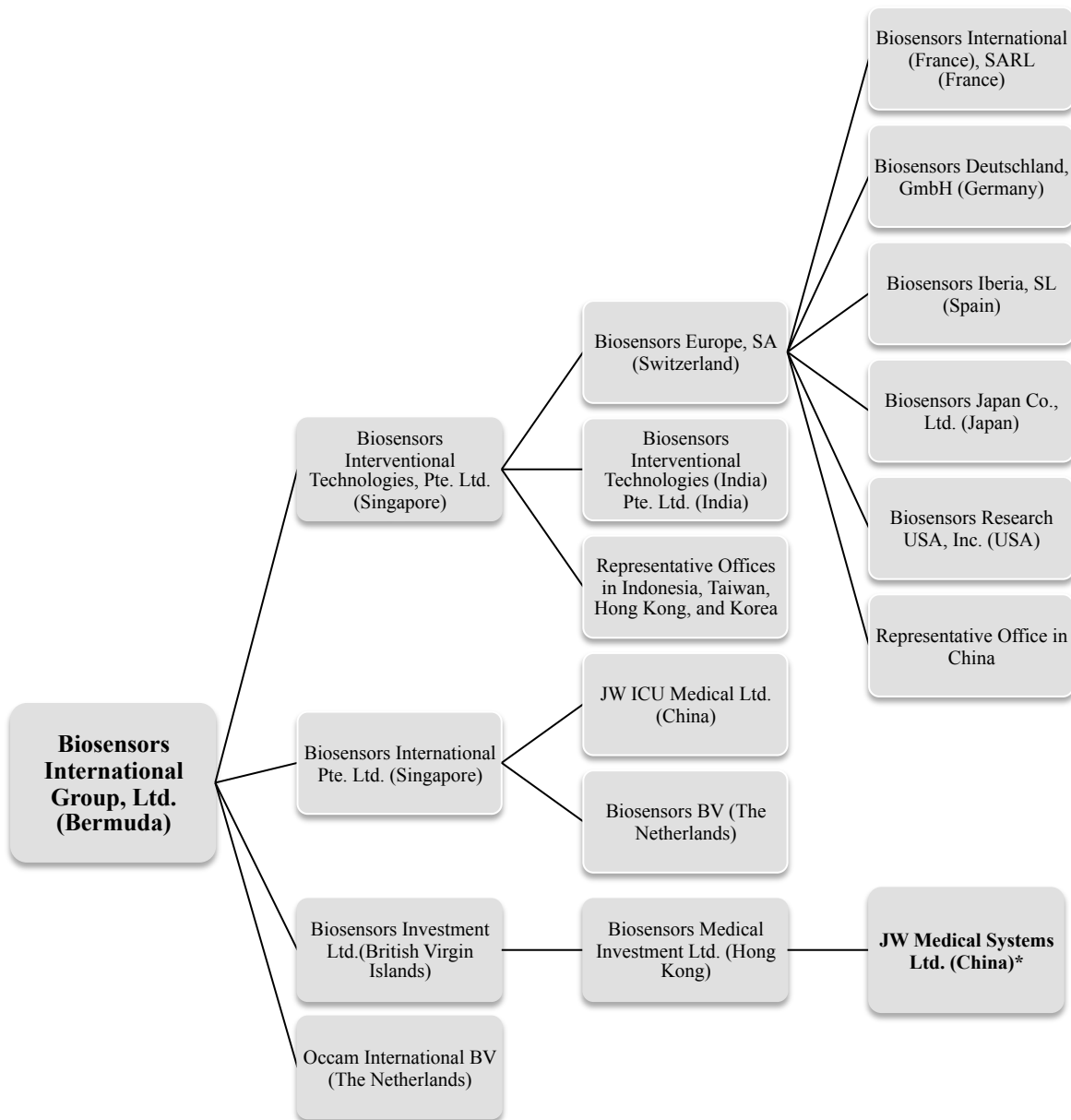
**Adrian CHAN Pengee**

*Non-Executive Independent Director*

Mr. Chan joined the Biosensors board and was appointed chairman of the Nominations Committee on July 28, 2010 and a member of the Compensation Committee on November 8, 2010. He is head of Corporate and a senior partner at the law firm, **Lee & Lee**. Mr. Chan is vice chairman of the Singapore Institute of Directors and serves on the Corporate Governance and Regulations Committee of the Singapore International Chamber of Commerce and on the Corporate Practice Committee of the Law Society of Singapore.

Source: Biosensors International Annual Report 2011/12, pp. 14-16,  
[http://biosensors.listedcompany.com/misc/ar2011\\_12.pdf](http://biosensors.listedcompany.com/misc/ar2011_12.pdf) (October 29, 2012).

**Exhibit 4  
Biosensors' s Corporate Structure, 2012**



\* Biosensors International Group owns one hundred percent of JW Medical Systems (JWMS), 50 percent directly and 50 percent via Biosensors Medical Investment in Hong Kong.

Source: Biosensors International, “Annual Report 2011/12,” 2012, p.18.

**Exhibit 5**  
**Biosensors Financial Summary, 2007-2013**

U.S. Dollar Millions

	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012*</b>	<b>2013*</b>
Net Sales	34.35	44.32	118.96	116.18	156.59	274.68	400.37
Gross Profit	14.29	20.61	89.49	84.40	122.09	222.84	313.95
Net Profits/Loss	-36.29	-31.56	-1.12	32.05	43.27	101.61	131.89

\*Estimated

Source: Table compiled from data in “China Medical Devices: Stents that Sell: Opportunities in China and Beyond,” Morgan Stanley Research, December 13, 2011, p. 5.