



Mindray Medical International Limited:

Going Global from China

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Introduction

It was almost Christmas and a sense of festivity pervaded Shenzhen, where Mindray Medical International Limited was headquartered. Founder and chairman, Xu Hang, was working late. He felt Mindray had reached a crossroads on the route to globalization. While it was crucial to penetrate the US market – the largest in the world for medical devices – the company's US distribution channels had not lived up to expectations. Recently, Xu had been approached by a leading investment bank to discuss the potential acquisition of Datascope, an American producer of medical devices and mid-sized player in the global market. Xu wondered if this was the opportunity he had been waiting for. Would such an acquisition fit with Mindray's short and long-term strategy? Would it help Mindray gain the kind of distribution it needed to build a strong presence in the US? If there were potential synergies, could Mindray effectively integrate the resources and capabilities of Datascope? Several major Chinese companies had recently suffered setbacks with foreign acquisitions. Well-publicized examples included TCL's acquisition of Thompson and Huawei's failed attempt to acquire 3Com. It seemed Chinese companies had difficulty integrating overseas acquisitions. Xu wondered if Mindray would be able to handle the challenges post-acquisition.

Overview

Mindray Medical International Limited was the second largest medical device manufacturer in China (Exhibit 1). It had approximately 4,800 employees, 1,000 of whom were R&D staff. Since 2002, Mindray had launched between seven and nine new products every year across four product lines: Patient Monitoring & Life Support products, the In-Vitro Diagnostic Products, Medical Imaging Systems and Veterinary (see Exhibit 2). In 2006, Mindray's American depository shares (ADS) were listed on the New York Stock Exchange (NYSE stock code MR). By the end of 2007, Mindray had sold medical devices to over 37,500 hospitals and clinics in China.

It had 12 international offices in Amsterdam, Frankfurt, Istanbul, London, Mumbai, Mexico City, Moscow, Vancouver, São Paulo, Seattle, Toronto and Paris, and its products were sold in more than 140 countries. In 2007, global sales reached 2.23 billion RMB,¹ a 47% increase on 2006. Net profits grew 60% (over 2006), over 50% of which came from Mindray's overseas markets (see Exhibits 3 and 4) – surpassing domestic sales for the first time and making it a true multinational. According to data from the General Administration of Customs of the People's Republic of China, Mindray's products accounted for 60% of all medical devices exported from China, and its ultrasonic and diagnostic products alone accounted for 40% of the exports in that category. Consultants Frost & Sullivan recognized Mindray for its global expansion by conferring their '2007 Award for Global Excellence in Patient Monitoring' (see Exhibit 5).²

1 In 2007, the US dollar was worth approximately 7.6 RMB (annual range of 7.3-7.8 RMB/US\$).

2 <http://www.frost.com/prod/servlet/press-release.pag?docid=102829330>.

Company History

Mindray was founded in 1991 by 40-year-old Lee Xiting and his colleague Xu Hang, 29, along with others working at Anke, a joint venture between Analogic of the US and Kejian, a listed company that was part of the Chinese Academy of Sciences. Mindray started out distributing imported medical devices such as the patient-monitoring products of GE Healthcare, Hitachi, ~~HP~~ and Siemens, with turnover exceeding 10 million RMB during its first year. Not content to be simply distributors, the founders' goal was to develop and manufacture their own products. At that time there were few domestic manufacturers and the joint venture was the largest domestic medical device company in the country. By entering the manufacturing business, they were taking on global health care giants like GE, Philips and Siemens, as Xu Hang reminisced:

“From very early on, the leadership team was determined to challenge the global giants. We understood that the opponents we faced were the Jordans on the basketball court and the Tysons in the boxing ring.”

R&D

Xu Hang and Lee Xiting were technically highly qualified. In addition to their academic training (Xu had a master's degree in biological engineering from Tsinghua University and Lee was a graduate of University of Science & Technology of China) they had acquired R&D experience as part of Anke teams that had developed China's first ultrasonic colour Doppler (Xu) and first magnetic resonance imaging device (Lee). They understood that if Mindray intended to seriously compete against the giants, products had to be built on proprietary intellectual property.

With this in mind, they pushed for the adoption of a "mid-cut" R&D strategy. As executive vice-president Mu Leming explained, was driven by the fact that to develop the core technology for mid-market products “would take Mindray three to four years. Once the core technology was mastered, Mindray could easily further develop in two directions: go low-end to expand and cover the market, and move up-market to be a part of the elite group and climb beyond the current technology.” For a new company with limited resources, this was the only option, as Xu affirmed:

“Mindray wishes revolutionary innovations, but such innovations do not meet the short-term goal. In a company's development, survival always comes first. Innovation always involves risks, but such risks should be calculated.”³

Even a mid-cut strategy was a significant challenge for a start-up company. Waiting two to three years for the first breakthrough in the development of core technologies, and then at least another two to bring a product based on that technology to market (in order to monetize the R&D effort) was a long time for a capital-constrained start-up, particularly since the time horizon was at best a rough estimate.

3 “Mindray's ‘Pilot,’” Manager, April 2006, “Can't afford to lose the battle,” Shanghai Business, January 2007.

Under Xu and Lee's direction, Mindray significantly increased its R&D investment in 1996 and 1997. Instead of making progress, however, this tipped the company into financial difficulties. The situation was made worse by the fact that there was no initial agreement between the founding group with regard to Mindray's future direction. Some felt it should not be involved in high-risk R&D and continue to act as an agent for foreign brands operating in the high-margin business of distribution.

Meanwhile, despite the internal turmoil over the direction of the company, Walden International Investment had spotted Mindray's potential and offered to invest in the company. After careful consideration, Xu and Lee accepted an investment of US\$2 million in exchange for a stake in Mindray. This not only relieved the financial pressure but allowed them to buy out those founders who opposed Mindray's push to become an R&D-led company.

Further recognition came in 1997 from the municipal government. The Shenzhen Medical Electronics Engineering Research and Development Centre was set up under Mindray's stewardship. Funded under the government's National Science and Technology Development Plan, it recognized Mindray as the leading player in medical equipment manufacturing in China and provided the financial support to undertake government-sponsored research projects. More importantly, it allowed Mindray to focus on developing core medical technologies as a pioneer of the domestic medical device industry as a whole, giving a further boost to the goal of becoming an R&D-led business.

By 2007, Mindray claimed to have established the largest R&D team of any medical device manufacturer in China, with R&D centres located in Shenzhen, Beijing, Shanghai, Nanjing, Xi'an and Chengdu. Its China-based R&D and manufacturing operations provided a distinct competitive advantage in international markets by enabling Mindray to leverage low-cost technical expertise, labour, raw materials and facilities.

Mindray also established an R&D centre in Seattle, the so-called 'Silicon Valley of ultrasound', enabling it to assemble experts from across the world to focus on more advanced medical device technologies and work on product development targeted towards the US and other developed country markets.

Leader in the Domestic Market

Mindray launched its first product, a patient-monitoring device, in 1998, followed by a haematology analyser and other new products. By 1999, revenues were almost entirely derived from self-developed product sales. From 2000, Mindray ramped up its annual R&D spending to 10% of revenues, a level it has since sustained with over 20% of staff working in R&D (Exhibit 6).

In 2001, Mindray launched the DP-9900 ultrasound machine, China's first digital black and white ultrasound, which delivered a performance comparable to that of the mid-to-high-end analogue machines sold by the major international players. It was priced below the mid-range product price of the international brands, an incredible value proposition according to Mindray president, Xu Hang:

“Our philosophy is to compete by maintaining a superior quality-price ratio. The quality of our products is high, quite similar to the product quality of major corporations such as GE, while our price is 20%-30% lower.”⁴

Developing the DP-9900 meant a lot to Mindray. After six years in the making (work on the core technology began in 1996), it extended its digital ultrasonic product line and broke the monopoly of imported products, enabling Mindray to compete both at home and abroad. The product was hugely successful, and went on to become the number-one-selling digital black and white ultrasound worldwide for five consecutive years. This not only boosted morale but served as a cash cow to support the R&D efforts behind other products. It also provided a platform on which to develop digital colour ultrasound technology.

In 2004, Mindray became the original design manufacturer (ODM) for Datascope, a well-known international company in the ultrasonic field. The cooperation between the two companies continued for two years, during which Datascope was very satisfied with Mindray’s R&D capability and speed. However, as Mindray’s capability and influence increased, Datascope realized that it was becoming a dangerously strong competitor and terminated the ODM relationship in 2006.

Employee Selection, Training and Management

Mindray's low costs in R&D could be attributed to its personnel selection and training system. Each year at graduation time, Mindray sent a recruiting team of more than 100 people (including vice-president-level executives) to China’s top colleges and universities. It offered stock options to the fresh graduates it recruited for its R&D team, with an annual salary package typically around RMB 300,000 – two to three times higher than competing local firms. New hires received basic literacy training in the specific topics relevant to the technologies Mindray was involved in, as well as induction to the company culture, which emphasized teamwork, personal responsibility and quality. Following the initial training period, new recruits spent six months on the factory floor, and then one-on-one tutoring for a year with selected cadres who had over two years’ experience. The aim was to help new recruits quickly get into their assigned roles thanks to the mentor, and deepen their exposure to the products and technologies they would be working on. They also had access to other projects to enrich their experience.

According to Xu, after three years at Mindray, the capabilities of its Chinese R&D staff were 80% of their European or American counterparts, at a cost less than one fifth. Xu encouraged employees to set high career goals in terms of acquired knowledge and expertise, rather than simply achieving financial security. This had the benefit of aligning employee motivation with Mindray’s goal of becoming a world-class industry leader. Mindray had the largest and most skilled R&D team in the domestic medical equipment industry; 60% held a master’s degree or higher. In the areas of life support, clinical examination and reagents, digital ultrasonic and radiography, it launched more than 60 new products, all based on proprietary intellectual property. It held over 610 patents, more than 100 of which were international patents, and created over 15 “China’s first” products (Exhibit 7).

4 Interview with The Link, magazine’s Xu Hang, by CEIBS, http://www.ceibs.edu/link_c/latest/22322_5.shtml.

Sales

While developing its product portfolio, Mindray also began to build sales channels. In China, local companies tended to use a direct sales model, since the best distributors had already been snapped up by companies such as GE and Philips, which, thanks to their strong brand recognition and reputation, were attractive to national-level dealers. However, the direct sales model had the added benefit of enabling local firms to get a firmer grasp of the needs of their target customers.

Mindray opted to develop a distributor-based system, selecting local distributors rather than the national distribution favoured by the multinationals. This had several benefits. First, it was able to pick up strong local players who, within their limited geography, offered as good a service as the best national distributors. Second, it was able to appoint specific distributors for specific product lines, thereby avoiding the problem of a distributor favouring the more profitable products in its portfolio to the detriment of less profitable lines, as had happened to players like GE with their full-line national distributors. (GE's distributors had pushed its colour ultrasound machine to the detriment of its black and white machine, because it was more profitable for the distributor). Third, managing local distributors brought Mindray closer to the end customer, typically just one step away rather than way down the line of intermediaries (as was the case when working with national distributors). Fourth, although the cost of managing local distributors was higher, given Mindray's significantly lower staff costs, it could still propose attractive margins to its distributors. The one-level distribution gave Mindray better control over its distributors, not least oversight of their pricing to hospitals, the rebates they offered, and so on.

By the mid-2000s, Mindray's marketing network in China consisted of more than 800 dealers. In addition, it had its own customer service centres in 30 cities with hundreds of specialized service engineers to deal with customer needs. Beyond this, it had hundreds of third-party professional service providers all over the country that had been carefully selected and qualified. Mindray launched the first toll-free telephone service system in the medical equipment industry to respond to customer requests 24/7.

By 2006, it occupied the top position in the domestic market, with 41.3% of the patient monitoring market share, 37.1% of blood-cell analysers, 34.5% of 200~400T/H biochemical analysers, and 36.5% of black and white ultrasound scanners.⁵

Competition in China

Based on scale, level of technology, product variety and market coverage, competitors in the medical device market at that time could be divided into three categories. The 'Big Three' (General Electric, Philips and Siemens), who had entered the ultrasound market in the mid-1980s, formed the first level. International manufacturers with extensive experience in the ultrasound industry – often over 40 years – formed the second level. The third consisted of numerous small international as well as local Chinese companies (see Exhibits 8 and 9).

5 Frost & Sullivan survey.

GE, Siemens, Philips and other multinationals accounted for over 75% of China's medical imaging market. Indeed these companies had a virtual monopoly on high-end devices in China, controlling 95% of the market. These were either imported or made at their own manufacturing facilities in the country – almost all the top producers (including J&J, GE, Siemens, Philips and Toshiba) had built production facilities in China. The Big Three and the second-level companies served mainly large domestic hospitals in the top-tier cities, while the competition for the low-end and mid-to-low-end market was largely among local players.

To avoid direct competition with international brands, Mindray targeted mainly second- and third-level hospitals (see Exhibit 10), township health centres in rich regions, and secondary hospitals and large private hospitals in less affluent areas. Non-mainstream uses (such as obstetrics, physical examinations and others), neglected by the international brands, were regarded as a secondary target. Its target audience was primarily concerned with product cost, functionality and performance.

International Market Expansion

Global Markets and Competitors

The top ten global producers of ultrasound medical devices accounted for about 70% of the global market. Most were American companies with products ranging from basic expendable devices (e.g., disposable sterile needles and intravenous infusion needles) to high-grade electro-medical devices (e.g., ultrasound machines), comprising a complete product line. They competed by systematically introducing more advanced, more compact and more patient-centric products. For instance, in 2006 GE launched a ground-breaking product, the LOGIQ 9 ultrasound series that allowed doctors to obtain ultrasonic images more quickly and accurately, with applications ranging from abdomen and chest imaging to vascular imaging. In 2007, GE launched Voluson, an ultrasound product with applications in obstetrics and gynaecology.

These devices relied heavily on R&D that required significant capital investment. All four giants, GE Medical Systems, Medtronic, Siemens Medical Solutions and Philips Medical Systems (see Exhibit 11) focused on producing electro-medical devices.⁶ They deployed some 10% of revenues to R&D, conducted in R&D centres in key markets around the world so that products could be tailored to local needs. These centres not only had their own research programmes but maintained close ties to complement each other in forming a complete development system.

These R&D centres also collaborated with university laboratories. For instance, GE had close cooperation with the labs at Stanford University, University of Wisconsin-Madison and other research institutes. Companies typically provided free equipment, services and financial support to these research institutions. In return the R&D results were transferred to the company either directly or for an agreed low price. This enabled the company to master the world's most advanced technology, reserve personnel for its own R&D teams through long-term cooperation, and facilitate sales penetration in hospitals, since many top hospitals had close ties with universities.

6 Extracted from annual reports.

Mindray's First International Moves

Even without a strategic plan, Mindray's international business took off in 1997.

A number of foreign dealers had expressed an interest in its patient monitoring products, claiming they would purchase its products if the company had a presence at international exhibitions. In response, Mindray attended the Miami Medical Devices Exhibition for the first time in 1997, with a small stand alongside a Taiwanese producer of aluminium crutches. Subsequently, it had a stand at various exhibitions across the world, selling to visiting dealers (who found its product quality to be as good as the well-known brands) at very competitive prices.

When, shortly after an exhibition in Egypt in 1999, three patient monitors were returned by a client for lacking CE certification (the quality standard recognized in Europe and beyond), the company realised that a more systematic approach to internationalization was needed, as Xu Hang affirmed:

“The overseas strategy of ‘sailing out to the sea’ is not difficult to implement. In the first three years of our overseas expansion, we entered 70 or 80 countries and regions, but only a few devices were sold in most countries in a year and no appropriate organization was established. Such a situation does not represent a true overseas strategy. For the overseas market, we now require that we go out and plant ourselves. We should let customers realize that Mindray has become an important part in the global medical device production chain. We should also inform them about the problems we can solve and what strengths we possess. Such a task requires a relatively large organization to complete.”⁷

New Initiatives in Internationalization

As a first step, Mindray needed certification to enable it to not only do business, but to signal its high quality even in markets that did not require certification. It thus invested RMB 700,000 in a quality system and acquired CE certification for its patient monitors.

Next it began to consider which markets to prioritize. Its analyses revealed that countries in Asia (excluding Japan) and Africa had fewer regulatory agencies and fewer legal permission requirements. Customers in these markets were very sensitive to product pricing, as was the case with Mindray's domestic customers. Furthermore, competition was relatively less intense in Africa, which was not yet on the radar of the larger multinational competitors, while Asia was China's own backyard. Hence it was decided to prioritize these markets.

Mindray launched a low-end portable black and white ultrasound, the DP-1100, pricing it very competitively at US\$1300-1600, compared to US\$1800-3500 for compatible models of the global brands such as the Honda 2000, Medison 600, Aloka500, and GE100.

It also realized that a strong distribution set-up, which had been crucial to its success at home, was even more important in international markets.

7 <http://www.iceo.com.cn/renwu/35/2010/1009/201376.shtml>.

International Distribution

Mindray initially entered the international market with a direct sales model because as a late entrant it had limited access to top-class distributors. But around 2003, the global players that had traditionally opted for a distributor network began shifting to a direct sales model to offset cost pressures created by the margins of almost 40% paid to distributors, as well as to get more attuned to customer needs by building stronger relationships. This shift in strategy meant that the top-notch distributors hitherto unavailable to Mindray were now available.

Mindray seized the opportunity as it had been having difficulty finding suitable personnel for the direct sales force in overseas markets. There were several reasons for this. First, it was difficult to find personnel in China who were skilled sales people, knowledgeable about the medical equipment industry, and fluent in English or other languages. Second, people that Mindray tried to bring in from the international markets were typically over 40, while the Chinese sales staff were in their late 20s, which brought its own set of challenges. Third, Mindray had a strong Chinese company culture which required significant adaptation when external talent was brought in. Navigating local labour laws was also a challenge. Thus, as the better distributors became available, Mindray decided to move its product range that sold for less than US\$10,000 per unit to distributors to leverage the strong relationships that leading distributors had with hospitals, doctors and clinics in the areas they served. It continued its direct sales network for the more expensive products in its portfolio.

By the end of 2006, Mindray had built up a global network of more than 800 distributors for its products and provided service support for their customers in terms of parts, repairs, and scheduled maintenance and calibration. The distribution network was supported by its branches in Asia, Europe and North America (Boston, Istanbul, London, Mumbai and Vancouver), together with 29 offices spread over almost every province in China.

In September 2006, Mindray listed on the New York Stock Exchange, successfully raising US\$311 million. The prospectus indicated that the company would grow more than 40% in the next three consecutive years.⁸ The listing not only helped raise money; more importantly it created the visibility and credibility required for more aggressive international business development. As one executive noted after the listing, “Potential customers and distributors rarely refused Mindray’s sales calls.”

In 2007, Mindray’s sales reached RMB 2.23 billion globally, an increase of 47% over 2006, and net profits rose by more than 60%. In 2007, 51% of total sales came from overseas markets. The company’s achievements were recognised the “2006 Global Patient Monitoring Market Penetration Leadership Award” from consultants Frost & Sullivan.

The American Market

However, while its performance in Asia, Africa and Latin America was strong, and in Europe was acceptable, in the US it remained lacklustre. This was particularly galling as the US topped the world league in terms of healthcare spending, accounting for 42% of global expenditure (Exhibit 12).

8 <http://www.asianbusinessleaders.com/content.aspx?694&page=2>

Mindray's analysis of the situation in the US revealed multiple causes for the poor performance. First, the direct sales model was typical in the US, and it was difficult to find strong distributors, so Mindray had struggled to build a strong sales team in the US. Second, the US was quite different from its other markets. For example, medical equipment in the US was handled by professional technicians instead of doctors, and the implications of this had not been taken into consideration. Third, the requirements for product quality in the United States were very high. Fourth, patient monitoring devices used in US hospitals were mostly modular systems which could be easily upgraded. Hence, hospitals required not only high-end software and hardware, but also compatible components which could be easily assembled in different configurations to perform specific functions. For instance, a power supply or generator and all the component diagnostic equipment that a given firm supplied not only needed to be compatible in terms of the geometric interface, but also the required power inputs in terms of voltage, amperage and frequency. Finally, products in the US market needed to be equipped with digital transmission such as an internet connection (DICOM) and the ability to structure data in terms of breaking it into its component parts based on a clear framework to look for relationships.

Datascope

Founded in 1964 and headquartered in Montvale, New Jersey, Datascope was a diversified medical devices company and the world's first manufacturer of monitoring devices. Among global companies it was a leader in the field of intra-aortic balloon pumps. It had a 50% share of the market for patient monitors and intra-aortic balloon pumps in the small and medium-sized hospital market in the US. By 2007, Datascope had approximately 1,200 employees worldwide. It had four product lines, broadly classified into cardiac assist/monitoring products and interventional/vascular products. The cardiac assist/monitoring product segment accounted for 87% of sales, i.e., approximately US\$320 million (See Exhibit 13 and 14).

Datascope had a worldwide marketing organization, including direct sales forces in the United States and Europe. Its worldwide direct sales organization employed approximately 315 people, including sales representatives, sales managers, clinical education specialists and sales support personnel. Its largest markets were the US, Europe and Japan. The company had subsidiaries in the UK, France, Germany, Italy, Spain, Belgium, Sweden and the Netherlands. It had also established Datascope Japan K.K. as a wholly-owned subsidiary to manage the intra-aortic balloon pump business in Japan, the world's second largest market for medical devices. Datascope's international sales accounted for 41% of its total sales in 2006. Its primary customers were hospitals and other medical institutions. Sales were broadly distributed. Non-end-user customers accounted for a little over 10% of total sales.

Where Datascope struggled was with managing costs. Its human resource costs were very high, particularly when compared to Mindray. The result was that Datascope farmed out significant chunks of its operations to lower cost producers, as it had done with Mindray between 2004 and 2006. However, this led to the slowing down of new product development as the checks and balances that Datascope had put in place to avoid its technology being absorbed by these low-cost firms made the collaborative process slow, cumbersome, complex and difficult to manage.

Conclusion

Xu Hang wondered whether Mindray should acquire Datascope's patient monitoring business, and if so, at what price, and to what extent would Datascope be able to help Mindray succeed in the US? This was essential if Mindray was to attain its dream of becoming a global player.

He was also concerned whether it would be able to make a success of the acquisition. With the upgrading of China's industrial structure and economic globalization in recent years, cross-border mergers and acquisitions in China were increasing. But whether in the domestic or international market, the outlook for mergers and acquisitions in general was not optimistic. A survey conducted by McKinsey in 2003 had found that 61% of M&As worldwide ended in failure; only 23% were successful.⁹

Chinese companies had had a mixed record with global acquisitions. In January 2004, TCL had acquired Thomson France and had formed TTE Corporation to manufacture and sell colour TV sets under the Thompson brand. In April 2004, TCL and Alcatel had merged to form the mobile joint venture T&A. Both had failed to meet the expected goal of improving efficiency and TCL Group's net profits fell by 50% in 2004. The decline was entirely attributable to T&A's and TTE's poor performance. TCL had blamed the failure on cultural differences between the French employees of the acquired businesses and TCL's Chinese staff. While the latter put their jobs above all else, working long hours and weekends, the French insisted on a balance between work and home life.

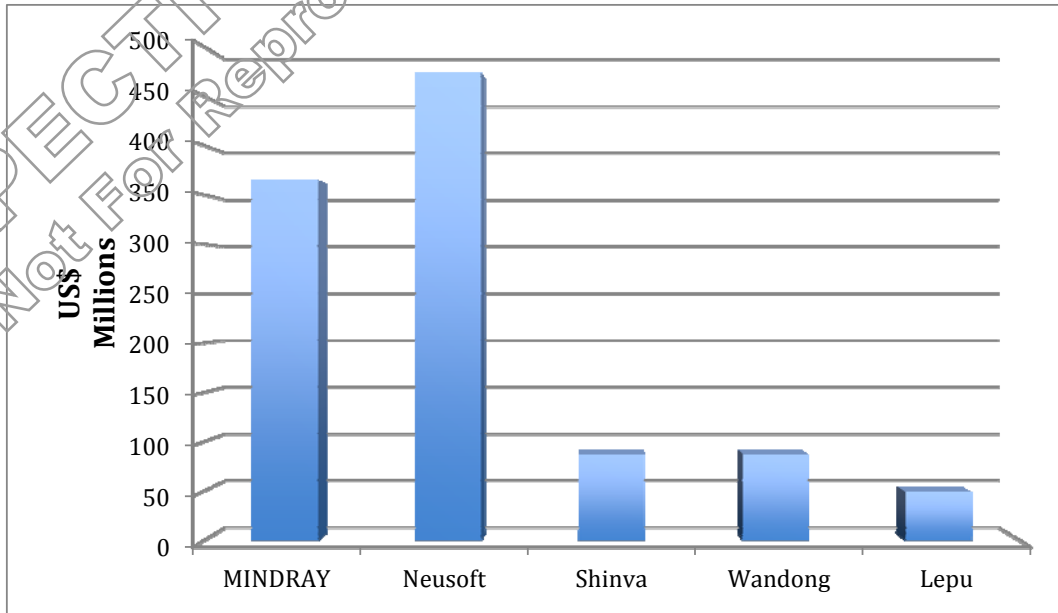
Lenovo had acquired IBM's personal computer business in December 2004, paying an astronomical US\$1.8 billion. Three years later, the jury was still out as to whether the acquisition was a success or not. In 2006, Bain Capital and Huawei had made an offer of US\$2.2 billion for 3Com. However, the deal did not get US regulatory approval for national security reasons, as one of 3Com's departments, Tipping Point, developed security software for the Defense Department.

Could Mindray overcome the odds and join the 23% that managed to make a success of their acquisitions? Like TCL, Mindray's work culture was intense – employees worked long hours for no extra pay. Xu Hang wondered whether Mindray had the ability to manage conflicts that would arise from management and cultural diversity if it went ahead. What might be some of the elements of an integration plan to increase the odds of success?

And any acquisition decision needed to be weighed against the option of building up Mindray's distribution and brand in the US market. What were the challenges of the go-it-alone approach? How much would it cost and how long would it take for Mindray to install the requisite distribution capability and build brand awareness in customers' minds?

9 <http://www.sasac.gov.cn/n1180/n2429527/n2438790/4945132.html>.

Exhibit 1
Mindray & Chinese Competitor Revenues in 2007



Source: <http://library.corporate-ir.net/library/20/203/203167/items/305556/2007BusinessOverview.pdf>
<http://www.neusoft.com/upload/files/20080328/1206665816633.pdf>,
http://pg.irj.com.cn/acc/pdf%5C2008%5Cgp%5CJCSJ%5C0312%5C600587_nb_37923000.PDF,
<http://app.wandong.com.cn/enterprise/jsp/templet/browse/TempletRecordShow.jsp?appHostName=app.wandong.com.cn&BrowseTID=96&baseDn=page%3D15161%2Cou%3D10028%2Cou%3D10018%2Cou%3DData%2Cou%3Dwandong.com.cn%2Co%3Deast&domain=wandong.com.cn&definePk=10018&templetID=97&recordDetailTid=96&sysLanguage=cn>, <http://www.lepumedical.com/a/20100129/003475.htm>.

For conversion 1 RMB=0.16 USD

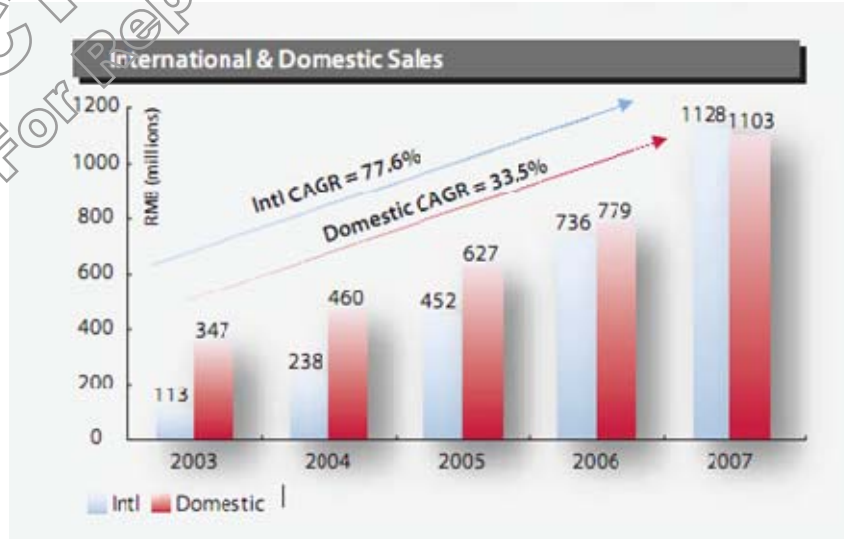
Exhibit 2
Mindray Product Lines

Products Lines	Products type
Life-support Products	By application: Pre-hospital, Patient Transportation, Critical Care, Out-patient Care, Emergency Care, Operation Room, General Ward By Products: Multi-parameter, Telemetry, Electrocardiograph, Vital signs. Anesthesia Machine, Surgical Lights, North American Patient, OEM products, Central Station, Defibrillator, Accessories, Ventilators, Operating Table, Ceiling Supply Units, Veterinary
In-Vitro Diagnostic Products	Hematology Analyzer and Reagents; Veterinaries,; Chemistry Analyzer and Reagents; Micro Plate Reader & Washer
Medical Imaging System	Ultrasound; Radiology
Veterinary	Patient Monitoring & Life support Products; In-Vitro Diagnostic Products; Medical Imaging System

Source: <http://www.mindray.com/en/products/products.html>.

Exhibit 3
Source of Revenues

Revenue Growth



Product Category Revenues as a Percentage of Total Revenue

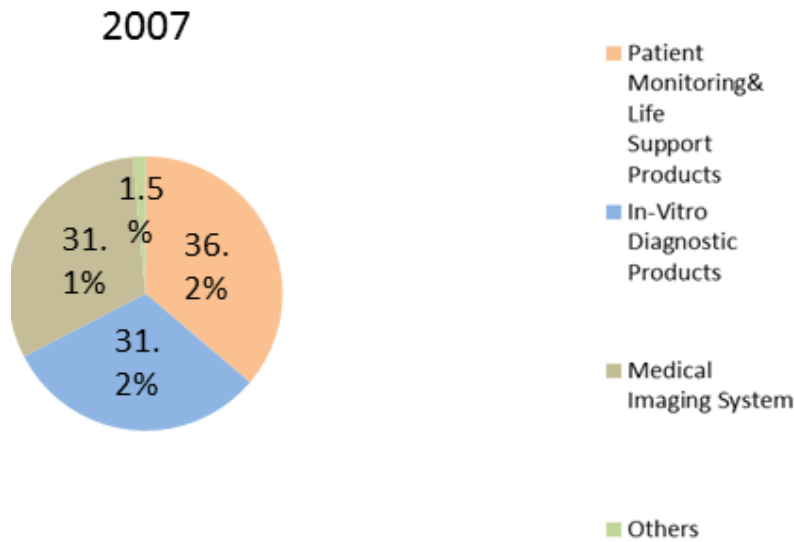
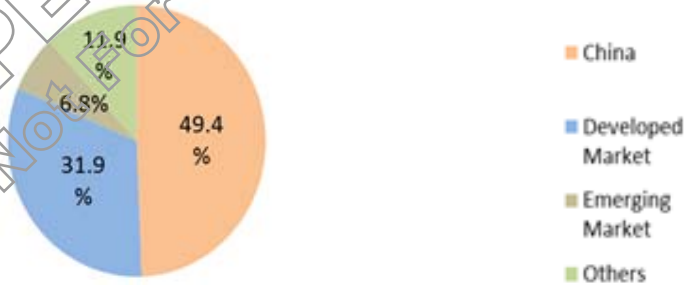


Exhibit 3
Sources of Revenues

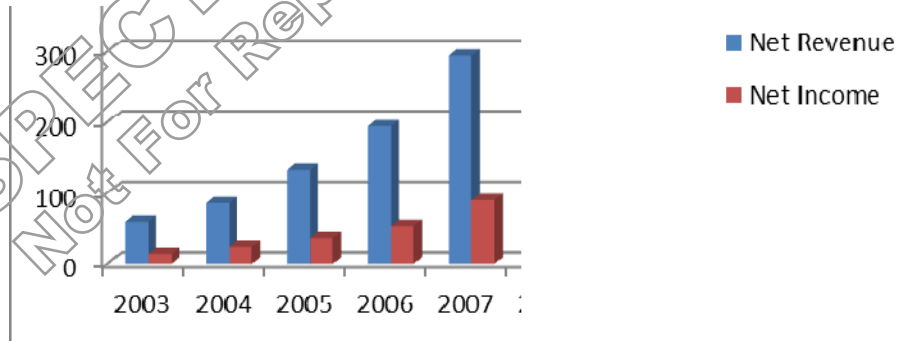
Geographic Revenues as a Percentage of Total Revenue



Source: <http://library.corporate-ir.net/library/20/203/203167/items/305556/2007BusinessOverview.pdf>,
<http://ir.mindray.com/phoenix.zhtml?c=203167&p=irol-reportsannual>,
<http://ir.mindray.com/phoenix.zhtml?c=203167&p=irol-reportsannual>, <http://library.corporate-ir.net/library/20/203/203167/items/302583/MR2007AnnualReport.pdf>.

Exhibit 4
Mindray Business Growth

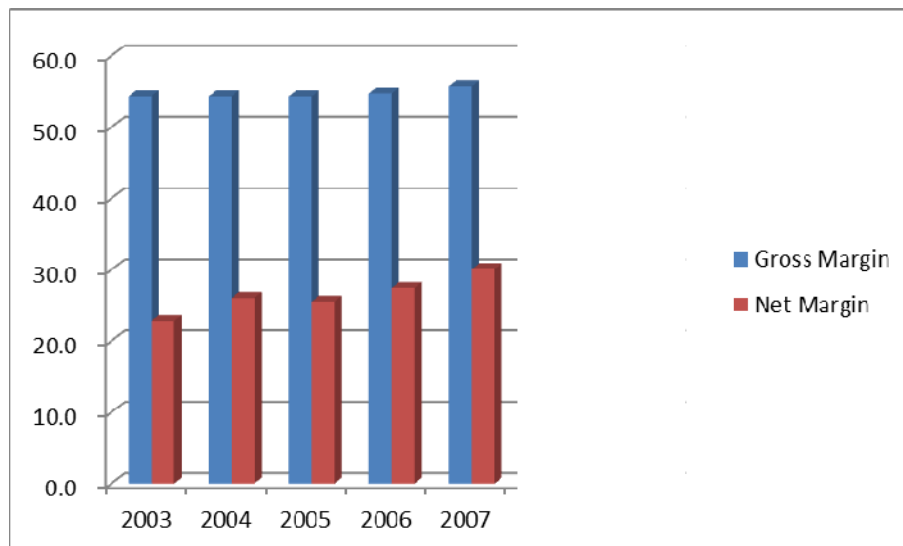
Net Revenue % Net Income (US\$ million)



Net Revenue CAGR=49%

Net Income CAGR=51%

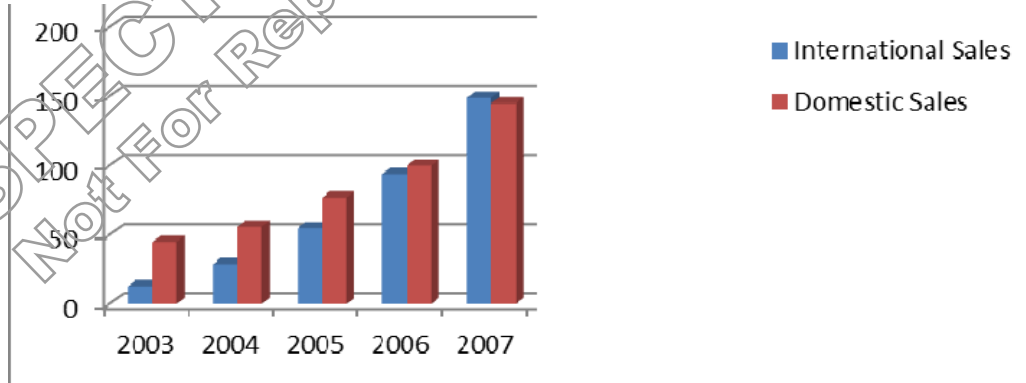
Gross & Net Margin (%)



Source: Mindray 2008 annual report, page 5, <http://ir.mindray.com/phoenix.zhtml?c=203167&p=irol-reportsannual>.

Exhibit 4 Cont'd
Mindray Business Growth

International & Domestic Sales (US\$ million)



Intl CAGR=70%

Domestic CAGR=37%

Source: Mindray 2008 annual report, page 5, <http://ir.mindray.com/phoenix.zhtml?c=203167&p=irol-reportsannual>.

Exhibit 5*History of Mindray*

- 1991 Founded in Shenzhen, China
- 1993 Developed China's first multi-parameter patient monitor
- 1995 ISO 9001 certified by TUV
- 1998 Developed China's first 3-part differential haematology analyzer
- 2000 Received first CE Mark clearance; began exporting products overseas
- 2001 Developed China's first digital diagnostic ultrasound imaging system
- 2003 Developed China's first automatic chemistry analyzer
- 2004 Received first FDA 510(k) clearance; first products exported to the US Market
- 2006 Developed China's first 5-part differential haematology analyzer
- 2006 Developed China's first digital color Doppler ultrasound imaging system
- 2006 Listed on New York Stock Exchange under the ticker symbol "MR"
- 2007 Received the "2006 Global Market Penetration Leadership" and the "2007 Patient Monitoring Global Excellence" awards from the global growth consulting company, Frost & Sullivan

Source: <http://www.mindray.com/en/aboutus/milestones.html>.

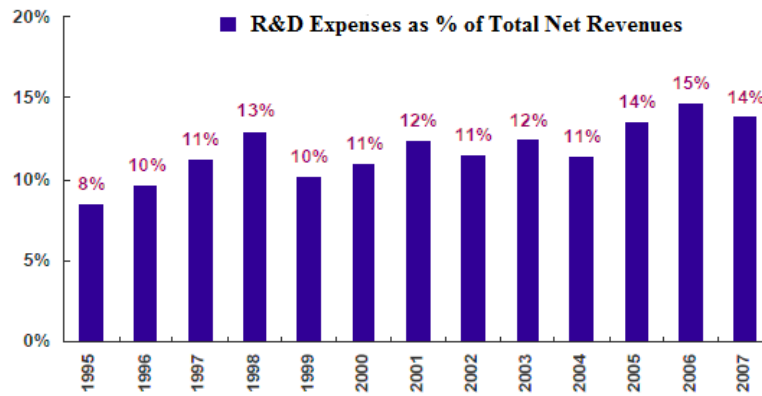
Exhibit 6
R&D Expenses

Mindray's Research and Development Expenses

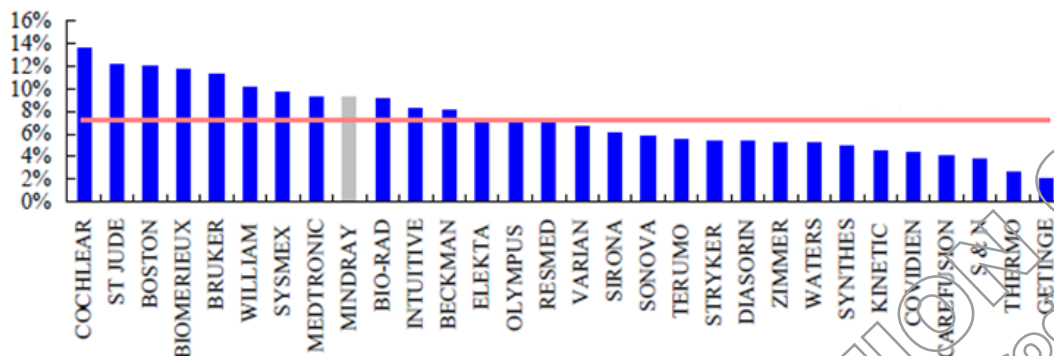
Percentage of total net revenues

2006	2007
9.8	9.5

Research and Development Expenses of American Companies



R&D Expenses of TOP 30 Global Medical Devices Firms (% of Sales)



Source: Bloomberg. From "Looking for the new world champions: The champion of Chinese Medical Devices", <http://wenku.baidu.com/view/2b186d5bbe23482fb4da4cc7.html>.

Exhibit 7

Mindray's Firsts in China

Patient Monitors

- 1992 China's first blood oxygen saturation monitor
- 1994 China's first central monitoring system in China
- 1998 China's first portable multi-parameter monitor
- 2003 China's first set of wireless central monitoring system
- 2006 China's first modular monitor
- 2006 China's first set of multi-parameter monitoring and information in one of the anaesthesia machine

Clinical Examination and Reagents

- 1998 China's first quasi-automatic blood cell analyser
- 2001 China's first automatic blood cell analyser
- 2003 China's first automatic chemistry analyser
- 2005 China's first automatic closure of the puncture into the blood cell analyser sample
- 2006 China's first 5-part differential haematology analyser

Digital Ultrasound

- 1993 China's first diagnostic trans-cranial Doppler cerebral blood flow
- 1993 China's first multi-parameter patient monitor
- 2001 China's first digital diagnostic ultrasound imaging system
- 2004 China's first all-digital portable ultrasound diagnostic apparatus
- 2006 China's first digital colour Doppler ultrasound imaging system

Source: <http://www.mindray.com/cn/aboutus/development.html>.

Exhibit 8
Competitive Landscape for Ultrasound Devices in China

Level	Companies	Country	History	Major Products	Technology Level*	World Market Share
Level I	General Electric	United States	20 years	Black/White, Colour	+++++	26%
	Philips	Netherlands	20 years	Colour Only	+++++	22%
	Siemens	Germany	20 years	Black/White, Colour	+++++	18%
Level II	Toshiba	Japan	40 years	Black/White, Colour	++++	14%
	Aloka	Japan	50 years	Black/White, Colour	++++	5%
	SonoSite	United States	>10 years	Colour, Portable	+++	3%
	Esaote	Italy	40 years	Black/White, Colour	+++	4%
	Medison	South Korea	20 years	Black/White, Colour	+++	3%
Level III	Mindray	China	6 years	Black/White, Colour	++	>1%
	Other Chinese	China	10-30 years	Black/White	+	<1%

Note:* Highest +++++ ; Lowest +

Source: Industry Survey Data obtained from <http://www.ibisworld.com/industry/china/medical-device-manufacturing.html>.

Exhibit 9*Competitors by Product Category*

Patient Monitoring and Life support products	In-Vitro Diagnostic Products	Biochemistry Analyser	Medical Imaging Systems
Philips Healthcare GE Healthcare Draeger Medica Nihon Kohden Spacelabs	Sysmex Corporation Beckman Coulter Horiba Medica Nihon Kohden Biotech Tecom Science Corp. Abbot Laboratories	Beckman Coulter Hitachi Toshiba Roche Diagnostics Abbot Laboratories	GE Healthcare Siemens Medical Philips Healthcare Aloka Toshiba Hitachi Esaote Group Sonoscape SIUI

Source: <http://www3.gehealthcare.com/en/Products/Interoperability>,

http://www.ge.com/ar2007/pdf/ge_ar2007_full_book.pdf,

http://www.siemens.com/investor/pool/en/investor_relations/financial_publications/annual_reports/2007/e07_00_gb2007.pdf,

http://www.philips.com/shared/assets/Downloadablefile/Investor/annual-report/Philips2007_AnnualReport.pdf.

http://www.medtronic.hu/downloadablefiles/Annual_Report_07.pdf.

Exhibit 10
Grading of Chinese Hospitals

First-level (Low-Level)	Number of beds less than 100 (including 100). These hospitals and health centres directly provide preventive care, health care for the sick, and rehabilitation services to a certain population of the community
Second-level (Mid-Level)	Number of beds between 101-500. These are regional hospitals and provide integrated health services to more communities and take some teaching and research mission
Third-level (Top-Level)	Number of beds more than 500. These are pan-regional hospitals that provide a high level of specialist medical and health services to several regions and undertake higher education and research

Source: Categories of Chinese Hospitals, from Chinese Wikipedia,

<http://www.baik.com/wiki/%E5%8C%BB%E9%99%A2%E7%AD%89%E7%BA%A7%E5%88%92%E5%88%86%E6%A0%87%E5%87%86>.

Exhibit 11
Profile of Key Global Competitors

	GE	Philips	Siemens	Medtronic
2007 revenue (US\$ billions)¹⁰	17.00	9.53	14.50	12.30
Technology strengths	<p>Diagnostic Imaging Systems, like X-Ray, CT, MRI</p> <p>Interoperability is the sharing of information between medical devices and information systems. It is fundamental to GE's "healthymagination" objectives of lowering cost, increasing access and improving quality.</p> <p>GE Healthcare is a recognized leader in providing standards-based, non-proprietary interoperability solutions in its diagnostic imaging, PACS and clinical information system offerings.</p> <p>Interoperability is a major component of healthcare projects around the world, and GE is proud to be an active partner in those efforts.</p>	<p>Imaging , Systems , such as ultrasound, X-Ray, CT, MRI</p> <p>We operate in fours main business areas: Diagnostic Imaging Systems; Patient Care and Clinical Informatics; Customer Services; and Home Healthcare.</p> <p>Our competitive advantage lies in our clinical perspective, the broad clinical subject-matter expertise within the company, as well as the deep clinical relationships we have with our customer base.</p>	<p>Imaging Systems for diagnosis X-Ray, CT, Ultrasound, and MRI; Treatment Systems like radiation therapy; , Hearing technology</p> <p>Clinical image reading and visualization; Radiology image management(PACS); Vendor Netural Archive (VNA); Cardiology IT System; Radiology Information System(RIS)</p> <p>As a provider and partner for innovative Imaging IT solutions, we help unleash the power of your clinical images enabling better informed decisions.</p>	<p>Provide life-long treatment solution to chronic diseases such as Cardiac Rhythm Disease</p>

10 According to European Central Bank, the 2007 end-of-period exchange rate of Euro to U.S. dollar is 1.4721.

Exhibit 11

Profile of Key Global Competitors

Geographic Strength	US as well as internationally, including China, India, and Mexico. Strong in MRI but not as strong as Siemens. Strong in digital radiography, patient monitors, anesthesia machines.	Leading player worldwide. US, Japan and Germany Particularly strong in ultrasound, patient monitors, digital radiography, and CT. Not aggressive in terms of pricing. Winning is not as important. Not as quick. Higher cost structure.	Particularly strong in MRI. Exiting ultrasound. Do not have patient monitors. Europe, CIS, Africa, Middle East	US
Distribution approach	Mixed—direct as well as indirect.	Mixed—direct as well as indirect.	Mixed—direct as well as indirect.	Mixed—direct as well as indirect.
Strength	High quality and good cost control in its products	No.1 business in Philips, highly valued. Excellent acquisition ability	Strong R & D and production capacity in CT and X-ray systems	Leader in Cardiac Rhythm Disease sector

Source: <http://www3.gehealthcare.com/en/Products/Interoperability>,

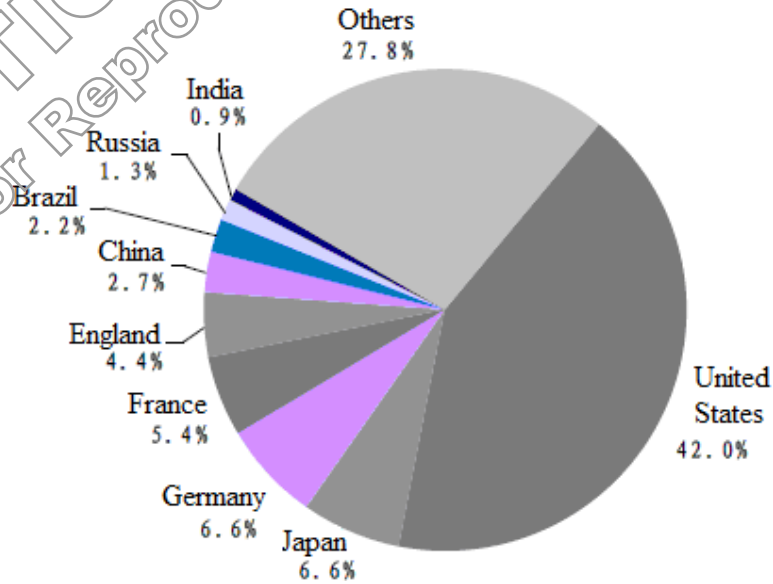
http://www.ge.com/ar2007/pdf/ge_ar2007_full_book.pdf,

http://www.siemens.com/investor/pool/en/investor_relations/financial_publications/annual_reports/2007/e07_00_gb2007.pdf,

http://www.philips.com/shared/assets/Downloadablefile/Investor/annual-report/Philips2007_AnnualReport.pdf,

http://www.medtronic.hu/downloadablefiles/Annual_Report_07.pdf.

Exhibit 12
Global Demand for Medical Devices



Source: <http://www.plastemart.com/Plastic-Technical-Article.asp?LiteratureID=2039&Paper=USA-leads-medical-device-packaging-demand-to-rise-5.9-percent-through-2017-globally>.

Exhibit 13
Datascope Product Profile

Type	Product	Functions
Cardiac Assist	Intra-aortic balloon pumps	Used in the treatment of cardiac shock, acute heart failure, irregular heart rhythms, cardiac support in open-heart surgery, coronary angioplasty and stenting
	Balloon catheters	Pumping device within the patient's aorta
	EVH	Enable less-invasive techniques for the harvesting of suitable vessels for use in coronary artery bypass grafting
Patient Monitoring	Portable battery-powered bedside monitors	Used throughout the hospital
	Central monitoring systems that include wireless telemetry	
Interventional/Vascular	Vascular graft	Replace diseased arteries

Source: <http://www.mindray.com/en/products/products.html>.

Exhibit 14**Datascope Financials in US\$ Millions (except EPS)**

12 months ending	2006/6/30	2005/6/30	2004/6/30
market capitalization	577.36	493.45	716.17
enterprise value	524.73	454.87	692.03
total capital	293.74	269.86	292.57
stock price	30.84	33.35	39.69
revenue	373	352	343.3
growth% YOY	5.76	2.74	4.57
cardiac assist/monitoring products	319.38	288.6	273.7
vascular products	51.84	34.6	30.9
corporate and other	1.59	29.5	38.7
gross profit	208.95	205.44	202.82
margin%	56.02	58.25	59.08
EBITDA	49.07	46.91	50.54
margin%	13.15	13.3	14.72
net income before XO	25.84	14.65	23.91
margin%	6.93	4.15	6.96
adjusted EPS	1.69	1.42	1.58
growth% YOY	19.01	-10.13	9.72
cash from operations	29	36.89	38.54
capital expenditures	-6.26	-6.68	-6.83
free cash flow	22.75	30.22	31.71

Source: <http://library.corporate-ir.net/library/20/203/203167/items/305555/2006BusinessOverview.pdf>.