

## **IT Industry in India: Exchange Rate Risks and Competition from China**

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### **Executive Summary**

This paper discusses the IT industry in India and exchange rate risks. Starting with the history of the Indian IT Industry, the paper talks about change in government policies and how it impacted the growth of the industry. After devaluation of the Indian currency in 1991, the Indian government changed to a liberal policy and it helped the growth of the IT industry. The government also established Special Economic Zones to boost the growth of the Indian IT Industry.

India does not have a high domestic IT market, so most of the growth involves export to the US and European countries. Indian currency is volatile and businesses are exposed to exchange rate risks. This paper discusses different hedging techniques and finds out why options and futures are the best options for the Indian IT Industry.

China is a fast growing economy and is challenging the Indian IT industry because of advantages similar to India. This paper discusses advantages and disadvantages with both the economies. It discusses options such as joint ventures and establishing development centers in China for Indian IT companies to penetrate into the Chinese market.

The third section of the paper deals with differences in exchange rate systems between India and China. China follows a pegged system while India has a managed float system. This section discusses the differences and impact of exchange rates on international trade.

## **Exchange Rate Risk for Indian IT Industry**

### **Indian IT Industry**

Software exports in Indian started around 1974 when Tata Consultancy Services was established. Before that, Indian companies imported hardware from companies like IBM and since software was bundled with hardware there was no market for software. The Indian domestic market lacked computerization and mostly involved in-house development, so IT companies started providing services in the foreign market. <sup>1</sup>

In the mid-80s the Indian government changed policies to support domestic companies and encouraged export-oriented foreign investment. In 1991, the Indian government faced a financial crisis that was a result of increasing oil prices because of the Gulf War. This resulted in a liberal government policy and helped the IT industry to grow. This also helped develop the software export industry which increased at a steady rate of 40% till 2000. <sup>2</sup>

To attract foreign investment and development of new organizations the Indian government set up a Special Economic Zone (SEZ) policy in April 2000. This policy helped establish Special Economic Zones throughout the country and this in turn helped in development of infrastructure facilities, creation of employment and promotion of export of IT services. <sup>3</sup>

Although it started in 1974, the Indian IT industry has grown to \$52 billion in revenues. The majority of the revenue comes from software exports and this paper deals with exchange rate risks from this exposure as well as competition from other competing economies.

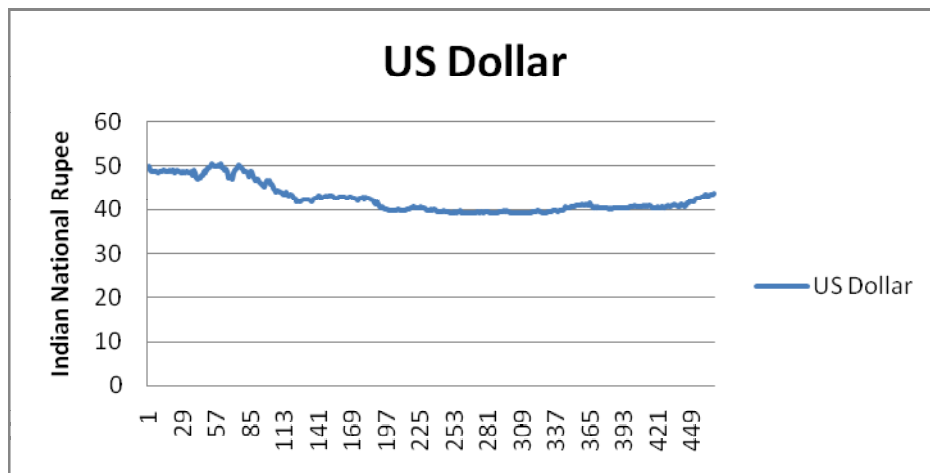
## Exchange Rate Risk

More than 75% of revenues for the Indian IT industry come from exports (as shown in table 1). This kind of business models, where the majority of revenue is from exports, exposes business to risks involved with foreign trade.

Year	2005	2006	2007	2008	2009(estimate)
<b>Total Revenue</b>	22.5	30.3	39.3	52	59.6
<b>Export</b>	17.7	23.6	31.1	40.4	47
<b>Percentage Export</b>	78.67	77.89	79.16	77.68	78.84

**Table 1**

The Indian Rupee (INR) fluctuates a lot with respect to the US dollar. Looking at the data from the last 500 days (chart 1) we see that the Rupee has fluctuated between 39.27 and 50.52 per USD. This kind of change has a huge impact on business and it requires a strong strategy to handle such exchange rate risks.



**Chart 1** (source RBI - <http://www.rbi.org.in>)

“Every 1% movement in the Rupee against the US Dollar has an impact of approximately 50 basis points on operating margins.”<sup>4</sup> – Infosys annual report.

To understand the impact of change in exchange rates, I looked into the Annual Report '08 of Infosys Technologies Limited, the second largest IT company in India. According to the report there was a decline of 11.2% in the Rupee with respect to the US dollar from 2007 to 2008. Because of this change, even though the company had a growth of 34.1% (in US dollars), its actual growth was 19% in rupee. [1 crore = 10 million]

	<b>2008</b>	<b>2007</b>	<b>Percentage change</b>
<b>Income (US \$ million)</b>	3,912	2,918	34.1
<b>Average US \$ Rupee rate (Rs.)</b>	40.00	45.06	(11.2)
<b>Income (Rs. crore)</b>	15,648	13,149	19.0

Source: <http://www.infosys.com/investors/reports-filings/annual-report/annual/Infosys-AR-08.pdf>

**Table 2**

There were similar fluctuations between the Indian Rupee and Euro (69.17-51.84), Yen (55.58-32.69), etc. But the most impact on the IT industry is from US dollar fluctuation only because more than 70% of exports from India are to the United States. One major issue the Indian IT industry is facing is to diversify exports into other countries so risks involved with the US economy can be reduced, especially the exchange rate risks with respect to dollar.

The same report specifies (Table 3) that the transaction and translation losses increased from 2007 to 2008 and by using options and futures contracts those losses were neutralized.

	2008 (in Rs Crore)	2007(in Rs Crore)
<b>Transaction and translation losses</b>	(98)	(21)
<b>Option / forward contracts – gains / (losses)</b>	103	63
<b>Net</b>	5	42

Source: <http://www.infosys.com/investors/reports-filings/annual-report/annual/Infosys-AR-08.pdf>

**Table 3**

The main exports from the industry are software and software/consultancy services. Software development has two pricing models. The first model is a fixed price system, where the costs and timelines of the project are decided before the start of the project. This model also specifies the cash flows involved. The second model is a variable pricing model, where the approximate cost of the project and timelines are decided on, but a large part depends on the complexity of the project, number of people involved, lines of code delivered, etc. Current IT systems do not have mature models to accurately measure the effort needed to complete projects and that is why the cost of these projects cannot be determined beforehand. Due to the complex nature of variable pricing models it is very hard to accurately identify future cash flows. Most of the projects follow the variable pricing model and that makes it harder to hedge exchange rate risks.

### **Strategy for covering Exchange Rate Risk**

The Indian IT industry depends mainly on exports and they have very limited imports. This huge gap between imports and exports makes it more challenging to hedge against exchange rate risks. Since companies deal with exports only, we will discuss hedging of accounts receivable only. In this discussion we are only considering the risks involved with exchange rates.

1. **Forward Contract:** A forward is a contract with the bank where we specifically set the amount and date on which we need to transfer/receive foreign currency. The bank specifies an exchange rate for the future and we agree on it. In case of accounts receivable we sell the forward contract to bank.

This is a perfect hedging mechanism because we achieve perfect match for the amount and time for the transaction. The only issue is small organizations cannot buy/sell forward contracts. Only big organizations who deal in large amount of money and have good contact with banks can participate in the process.

2. **Currency Options:** An option is a contract where one has right but not obligation to buy (or sell) currency at a predetermined price on or before expiration date. In case of accounts receivable we will buy a 'put' option to hedge risk.

Currency options are not a perfect hedge because it is hard for one to find the exact quantity for the currency value he wants to hedge and also these options expire on specific dates which might not be the date when we want to have the transaction. Options face another problem, most of the time the party on the other side of the transaction is a speculator. These kinds of speculators are reducing with time as options market is riskier. Because of fewer speculators the option market is shrinking.

“Barrier options are path-dependent options which come in various flavors and forms, but their key characteristic is that these types of options are either initiated or exterminated upon reaching a certain barrier level; that is, they are either knocked in or knocked out.”<sup>5</sup>

Range Barrier options are the ones where the option to exercise depends on the getting

out of the specific range which was decided before the contract. These kinds of options are cheaper to buy and are more popular.

3. **Futures Contract:** A futures contract is right and obligation to buy (or sell) currency at a predetermined price. In the case of accounts receivables we take the sell or short position.

Futures contract are a decent hedge and since these have hedgers on both ends we always have a lot of trading going on in this market. Since, it is a low cost activity many small organizations can also participate.

4. **Money Market Hedge:** This is a perfect hedge too but needs good connections with foreign banks. In the case of accounts receivable the exporter negotiates a loan with a foreign bank (the country which we have receivable from) and transfer the borrowed funds to the local country at the spot rate. By doing this, whenever the accounts receivable is paid in the other currency, we repay the loan and do not have to deal with foreign exchange at that time.

### **Choice of Hedging Option**

To select the best option for hedging is very tricky; the factors involved in deciding this are firm size, leverage, liquidity, profitability and government rules and regulations.<sup>6</sup>

Big sized companies that have revenues in the range of billions of dollars can participate in forward contracts and can achieve perfect hedges. They have enough balance and connections with banks to participate in the contract. Small and medium enterprises, which form most of the Indian IT sector, would have trouble participating in forward contracts because of their size.

They should participate in the futures market, as it has a decent hedge, there is low cost involved, and there are enough opportunities to participate in market.

“The money market hedge suits many companies because they have to borrow anyway, so it simply is a matter of denominating the company's debt in the currency to which it is exposed. That is logical. But if a money market hedge is to be done for its own sake, as in the example just given, the firm ends up borrowing from one bank and lending to another, thus losing on the spread. This is costly, so the forward hedge would probably be more advantageous except where the firm had to borrow for ongoing purposes anyway.”<sup>7</sup> Since most of Indian companies have costs in Indian Rupee it is more favorable to look for other options than money market hedging even though it provides a perfect hedge and small businesses can participate in it.

Economic liberalization in 1991 helped in development of derivatives based on foreign exchange. India has a Rupee forward market where most of the business is in short maturity contracts of one year or less. There are no exchange traded currency derivatives in India; all the forward contracts are done Over The Counter (OTC).<sup>8</sup> Government also has a regulation for small and medium enterprises – “In order to ensure that SMEs understand the risks of these products, only banks with which they have credit relationship are allowed to offer such facilities.”<sup>9</sup>

IT companies in India prefer Options over Futures for following reasons.

1. Using Options over Futures, the Indian IT companies try to keep the profits associated with upside of currency but at the same time protecting downside of currency.
2. Options allow the Indian IT companies to participate in international bids with lesser risk as compared to Futures contract. “Non-linear payoff of the product enables its use as

hedge for various special cases and possible exposures. e.g. If an Indian company is bidding for an international assignment where the bid quote would be in dollars but the costs would be in rupees, then the company runs a risk till the contract is awarded. Using forwards or currency swaps would create the reverse positions if the company is not allotted the contract, but the use of an option contract in this case would freeze the liability only to the option premium paid upfront.”<sup>10</sup>

#### A Typical Options/Futures statement for an IT company

Derivatives	US \$ (Mn)	Rs. crore	EUR (Mn)	Rs. crore
<b>Forward contracts</b>	521	2,085	10	63
<b>Option contracts</b>				
<b>Range barrier</b>	100	400	–	–
<b>Euro accelerator</b>	–	–	12	76
<b>Euro forward</b>	–	–	5	32
<b>Total</b>	621	2,485	27	171

Source: outstanding option / forward contracts as of March 31, 2008 is given below - <http://www.infosys.com/investors/reports-filings/annual-report/annual/Infosys-AR-08.pdf>

## Competition from China

### Factors responsible for growth of IT in India

To understand the threat posed by China to India’s IT industry we analyze the factors responsible for growth of the IT industry in India:

1. **Government initiative and policies:** The Indian government has helped development of the Indian IT industry since the 1980s. They relaxed the rules and regulations for exports and foreign investment in India, thus helping in development of software exports.

After 1991, India changed a lot of policies to resolve its financial crisis. These reforms included opening of Indian market, free floating exchange rates, and development of a derivative market. All these changes helped Indian software exporters to grow at a rapid pace.

Since 2000, the Indian government started building Special Economic Zones for growth of software industry. These zones included tax relief, cheaper land, and other resources. This helped smaller and midsized firms to grow at better pace and they started contributing to exports.

2. **Sizable work force:** India is the second most populated country in the world. Even though 100% of its population is not educated, there has been an inclination towards technical education. Over the last 20 years India has responded well to the technical needs by IT companies by opening up more engineering colleges across the country and providing more technical education at school level.

“While India continues to have enough talented workers to meet most of the needs of its services sector, these workers represent just a small portion of the population.”<sup>11</sup>

India also gains advantage by having an English speaking technology work force. Not being able to communicate in English has been a barrier to countries while trying to develop IT services markets.

3. **Low cost labor:** India's main advantage in gaining the outsourcing market is low cost labor. Outsourcing the operations to India results in saving costs up to 50% in labor cost. The Indian rupee moves in the range of 40 to 50 per US dollar. The reason for low labor cost is low standard of living. Purchasing power parity adjusted gross domestic product, for 2003 was \$3,100 for India as compared to \$33,000 in the US.<sup>12</sup> Along with the low standard of living, India has a huge population and with unemployment rate around seven percent, has a big pool of skilled unemployed labors, which is responsible for lower salaries.

4. **Infrastructure:** Infrastructure for IT can be classified into two parts. First, the development of technology parks. The Indian government developed technology parks to provide all the facilities for development of IT companies. Unlike other parts of India, these parks include high speed internet connection, constant power supply, some exemption from taxes on software, world class building facilities, etc.<sup>13</sup>

The second level of infrastructure deals with improvement of telecommunication channels, improvement of highways, and the addition of engineering colleges and technical institutes. This has indirectly helped the growth of the IT industry in India.<sup>14</sup>

5. **Export based growth industry:** The Indian IT industry thrives on software exports mainly because of two reasons. The first reason is because Indian software consumers market is not yet mature. Currently, IT requirements for Indian companies are limited and they can be served with pre-packaged software. The Indian IT industry is mainly focused on software services and solutions rather than development of software packages. The only services required by Indian consumers are installation, testing, and customization of

packaged software solutions. Most of the non-IT companies in India rely on in-house software services because it is cheaper to maintain a software department than to outsource it to other IT companies. The second reason is because the Indian IT market was not very profitable as compared to foreign trade.

### **Comparing these features with the Chinese IT industry:**

1. **Large work force:** China has one of the largest workforces in the world and is taking advantage of it in the manufacturing market. To compete in the IT industry, China has come up with a large number of technical institutes. “The Chinese education system produces approximately 4 million graduates each year. This, inspite of the one-child policy and the relatively ageing population, translates into a large and growing workforce. This is a key advantage for China, especially in the context of the shortage of skills forecast in most developed markets over the next two decades.”<sup>15</sup>
2. **Government initiative and policies:** China has already developed a very good market for exports and to provide the same opportunities in the IT sector they have come up with a 15 year plan known as Informatization Strategy 2006-2020. Informatiation can be defined as “All the means to accelerate the process from the industry society to the information society”<sup>16</sup> This strategy plans to develop infrastructure as well as policies related to development of information security, e-government, e-commerce, rich internet media and the IT industry.
3. **Large domestic market:** Unlike India, China has a large domestic market for IT, mainly for one reason. Because of the growth in the manufacturing sector, that growth requires IT systems to be developed and implemented in the domestic market.

4. **Low cost:** Similar to India, China also has the cost advantage over western countries. China has been utilizing a similar strategy in manufacturing companies and can achieve the same in the IT sector.
5. **Infrastructure:** The Chinese government has developed excellent infrastructure for the development of the IT industry. China has invested heavily in telecommunication, 3G wireless networks and a railway network to stimulate the IT industry. China also has spent on research related to green-IT and development of green-data centers and virtualization systems.<sup>17</sup>

The above points show a lot of similarities between the Chinese and Indian IT industries. But there are a lot of differentiating features that have emerged. These follow:

### **Advantages to China**

1. **Penetration in Japanese and Korean markets:** While Indian IT industry exports are mainly to the US and European countries, Chinese exports are confined mainly to Japan and Korea. Similar language and culture have been a major benefit to China's penetration into these markets. "Even though China's software export is growing at an annual rate of 50%, on closer scrutiny one finds that the overall annual IT revenues from software export is still \$2 billion (compared to India's IT exports of \$18 billion), and the bulk of Chinese software exports have been of low-value application development and maintenance services to Japan"<sup>18</sup>
2. **High domestic market:** Unlike India, China has a huge domestic market for IT. China is a very fast growing economy and there has been a lot of development in government as well as the private sector. This development has increased the demand for IT

infrastructure and that demand can be utilized by the Chinese IT industry as a platform to rise to international levels.

3. **Pegged currency:** China has control over the appreciation of the Yuan. The Chinese government does not allow it to appreciate as it would in a free float system. If China keeps the Yuan low, as compared to other currencies, their exports become more lucrative and China has been doing this for few years now. Pegged currency in combination with low labor cost can be a boom to the Chinese software Industry. “Due to this stronger demand for IT services by the Chinese economy as compared to the demand in the Indian economy, China's \$27.8 billion IT industry is larger than its Indian counterpart.”<sup>19</sup>
4. **Quality infrastructure:** The Chinese government is pushing hard to build quality infrastructure to support faster growth of the Chinese IT industry. Their system is much more developed than Indian systems of telecommunication, internet bandwidth, railways networks, power grids, etc and it gives them an advantage over India.

### **Advantages to India**

1. **Mature process:** The Indian IT industry has very good exposure from business in the US and European countries. These are the economies that will be bringing a lot of business into the IT sector and are considered as trend setters. Working with these organizations, Indian IT companies have changed themselves to suit the requirements of western market with respect to work, technology and culture. This exposure also has given them insight into domain knowledge (industry specific knowledge). The Indian IT industry has broadened their coverage of customer industries - starting with financial sector software

they have now spread across pharmaceuticals, retail chains, online marketing, aerospace, etc.

Along with a broader spectrum of clients, the Indian IT industry has started moving from a service oriented model to consultancy and product development. Consultancy comes as a natural progression to service providers and that gives the Indian IT industry an edge over their Chinese counterpart.

2. **Broad base of technological usage:** The Indian IT industry has broadened the technologies involved and the type of work associated therewith. In the beginning the work involved was related to outsourcing, testing, and transforming legacy systems. The market has grown to complex tasks such as engineering and software products, custom application development, application management, consulting, information systems, and training services. This broadening of technologies will not only spread risk across different sectors but will also increase revenues. Better understanding of technology will also help in getting end-to-end product development projects.
3. **Usage of English:** English is a second language in India and a large amount of the population uses it for day to day communication. This is unlike China where English is a second language but is not used for communication. Fluency in spoken English gives an advantage to the Indian IT industry which is heavily dependent on communication and knowledge sharing with customers.
4. **Intellectual Property protection:** To protect Intellectual Property (IP) and to prevent other cyber crimes, the Indian government came up with the Information Technology Act in October 2000 and more amendments were done in 2008. These laws are not as

comprehensive as in the US or European countries but they provide a way to protect IP and make sure customers' privacy and security needs are assured.

“While India lacks specific laws on privacy and data protection, there are proxy laws and other indirect safeguards, which provide adequate protection to companies offshoring work. Further, the Indian Government is proactively strengthening the existing legal system to cover data protection issues.”<sup>20</sup>

China currently lacks these laws and that is one reason multinationals do not enter into the Chinese market. China is trying to address these issues in Informatization Strategy.

5. **More Transparent:** Unlike India, the Chinese government is not transparent in many of its policies. A lot of information about Chinese policies is not available outside China and there is sometimes censorship of the press. These policies make customers reluctant to enter Chinese markets when they want to give business to IT companies in China. India therefore has an advantage over China because of this reason.

A combination of transparent policies and IP protection laws, along with similar low cost manpower and IT infrastructure make India a better option for foreign investors as well as customers.

### **Response of Indian IT companies**

In many respects China has similar advantages as the India in IT sector and is posing a constant competition to the Indian IT industry. Low cost manpower in China is a big concern of Indian IT companies as pointed by Infosys founder Narayan Murthy - “While until about a year ago top Indian service firms were charging American companies \$75 to \$90 an hour, today the figures are merely \$6 to

\$9. Murthy believes that China will very soon do the same job at about \$3 an hour -- and that will bleed Indian firms to death.”<sup>21</sup> India can take advantage of China’s domestic market as well as their infrastructure in the following ways:

1. **Outsource to China:** The most reasonable way to use Chinese infrastructure is to outsource the projects that have been outsourced to Indian companies. In this three-tier approach Indian companies can act as the project managers, since they have the expertise and understanding of a broad range of technologies and the Chinese counterparts can provide developers. This strategy has been used by many companies and is not restricted to China. Indian companies have started operations in countries like the Philippines, Malaysia, Vietnam, Brazil, Romania and Morocco.<sup>22</sup> This setup not only helps in setting up cheaper operations but also in risk mitigation.
2. **Explore new market in China:** The Chinese domestic IT market was worth \$10.6 billion in 2006 and is growing rapidly. Indian companies cannot overlook this big opportunity and fail to penetrate into the market. It will be tough to compete with Chinese local companies, which can provide solutions at cheaper rates, but there are areas where Chinese IT companies struggle. Indian companies should identify those areas and use their experience and expertise to get into that market. This experience will not only provide them insight into the Chinese industry but also help them setup a base in China and that will help them compete with Chinese companies internationally.
3. **Joint Venture with Chinese companies:** Indian IT giants like Tata Consultancy Services and Satyam computers are planning to setup joint ventures with Chinese companies and the Chinese government is helping them in the process. There is an

advantage for both of the partners. Chinese companies will learn from the experience of Indian IT companies and will get an entry into the American and European markets. On other side, Indian companies will utilize the cheaper manpower, utilize the Chinese talent pool, and will get entry into the Chinese domestic market as well as growing Japanese and Korean markets.<sup>23</sup>

4. **New development centers in China:** As pointed out by Fanny Chan, senior vice-president, ChinaSoft International - “Tier I companies are finding it hard to do business in China because they believe in doing things themselves. In China, you have to find the right partner who understands the market. Tier II companies, on the other hand, partner easily and hence have better chances to succeed.”<sup>24</sup> Top Indian companies have struggled to have a proper joint venture.

To address this issue the approach followed by Infosys was to setup a development center in China. Infosys started a development center in 2004 with Indian project managers and Chinese developers. Infosys’ main aim was to capture the Chinese domestic market and those multinationals operating in China. Many Chinese developers were sent to India for training so they could understand the processes followed. Infosys also tried interns from Chinese universities who worked in Indian development centers and returned to China and were offered a job. Even with all these efforts Infosys’ approach has not been successful till now.

Analyzing both countries’ IT industry we find many similarities between them. The Chinese IT industry started later than the Indian and is now in the phase where the Indian IT industry was 10 years ago. This is a good thing for China as they can learn from the Indian IT industry and

proceed faster. On the other hand the Chinese market has a lot of potential and the Indian industry can harness it. Rather than competing with each other, they should collaborate and learn from each other's experience.

### **Differences between Indian and Chinese Exchange Rate System**

The Indian currency faced devaluation in 1991 and there were many reforms to resolve the crisis. Liberalization started in 1991 and the government changed the exchange rate system to managed (or dirty) float. Managed float is a system in which most of the time the currency is allowed to act freely as per the market movement but in certain cases the government intervenes by buying/selling foreign currencies to influence exchange rates. These interventions are not frequent and in most cases applicable when there is a drastic change in exchange rates and government want to minimize the impact on exporters/importers.

The Reserve Bank of India (RBI) plays the role of monitoring the exchange rate and if necessary influences it to appreciate or depreciate. An example of managing the currency would be in September 2008 when the Rupee climbed to a high of 38 per dollar (highest in 33 years). There was a strong demand from exporters to manage the rate and the RBI was considering intervening but conditions changed and the Rupee went down.

China follows a different approach than India, they have pegged their currency to a certain amount and there is very little fluctuation as compared to international markets. A pegged system can be considered as a fixed rate system where the rate is determined by the central bank of the country and it does not change. Unlike a floating rate which is driven by supply and demand, pegged rates are manipulated by the government.

**Impact of exchange rates on international trade:** Exchange rates between currencies play a crucial role in international trade. If a currency is getting stronger with respect to a country with which we are trading it would be better to import goods from the country rather than exporting to it. A stronger currency means for the same amount of money our purchasing power in other country has increased and that is always better to buy goods and services. The reverse applies when the currency weakens; it indicates a strong export policy but weaker import policy.

China follows a pegged system and have pegged their currency to 7.53 per dollar (2007), but according to International Monetary Fund the rate should be 3.547 per dollar based on implied purchase power parity calculations.<sup>25</sup> China is doing this to have a strong export policy because that has been the main factor behind the growing economy. But by doing so China has weakened its import policy and has managed to acquire a huge US dollar reserve. This can hamper China's growth in the future if they do not gradually appreciate their currency against US dollar.<sup>26</sup>

**Summary:** The Indian IT industry has a head start over the Chinese IT industry in terms of exports, as well as its mature market and skilled labor force. The credit for this advantage is attributed to the Indian government for its liberal economic policy, its establishment of a derivatives market, its opening up of special economic zones, and finally, its provision of higher levels of technical education. China has been trying to achieve the same success and has the advantage over India in terms of a better infrastructure, a developing domestic market, and its penetration into the Japanese and Korean market.

China's pegged exchange rate system plays against Indian IT exporters because the Indian rupee is volatile to market changes and companies are always exposed to exchange rate risk. However, looking over the course of history, we see that the decision to open up the Indian currency was

one of the reasons behind the success of the IT industry. Challenges related to currency exchange rates can be handled through the proper usage of derivative based hedging solutions.

India and China both have the potential and infrastructure to capture large shares of the global IT market. Instead of competing against each other, there are lessons to be learnt from each other. By developing strategic partnerships in the form of joint ventures, knowledge sharing, and setting up development centers across borders, they can together dominate the global IT market.

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