CLARK UNIVERSITY
1887
GRADUATE SCHOOL OF MANAGEMENT

April 21, 2010

The purpose of this project is to provide a guide to the U.S. Investors to invest $20 million in India. India, with its incremental GDP (Gross Domestic Product) growth, stable politics, open trade policies, controlled inflation and strengthening currency is one of the fastest growing economies in the world. Tata Consultancy Services, a leading solutions provider and Apollo Hospital, a pioneer in promoting medical tourism in India are attractive investment options with excellent growth rates and profitability. The paper provides an in-depth analysis of the overall investment climate and exchange rate forecasting with recommendations for the foreign investor.

Table of Contents

Country Overview

India, with a population of over 1.1B, is the world's 12th largest economy and the third largest in Asia after Japan and China. While over 25% of India's population still live under the poverty line (less than $2 a day), there is a growing middle-class in India with annual income in the range of $4166 to $20,833. A report issued by Goldman Sachs in 2004 stated that the middle class population in India was estimated to increase by 14 times compared to 10 times in China by 2014[1]. Since opening up its economy in 1991 and adopting a market-oriented policy, the country has experienced a series of economic reforms such as liberalization of trade, reduction in tariffs and trade barriers, opening up of financial sector such as banks and other institutions, industrial decontrol, a more stringent policy for intellectual property rights and modification to the government's fiscal and monetary policies[2].

Improvements are being continually made in the infrastructure of the country. Textiles, Chemicals, Food Processing, Steel, Cement, Mining, Petroleum and Software are the major industries in India. The major export industries of India are the agriculture sector, the leather and leather products sector, paper and paper products, handicrafts, Apparel and Textiles, Plastic and Plastic Products, Chemicals, Engineering goods and Gems and Jewelry[3]. However, in recent years, other industries like software and medical tourism have been growing. India's software exports has been increasing as it reached $22B in 2008[4] and it is estimated that medical tourism will generate $2.2B dollars as revenues for India by 2012[5]

India joined the WTO on 1st January 1995[6]. The United States is India's biggest trade as well as investment partner. The two countries share positive bilateral relations. 'In July 2009, Secretary of State Hillary Clinton traveled to India to launch the *Strategic Dialogue*, which called for collaboration in a number of areas, including energy, climate change, trade, education, and counterterrorism'[7].

India's gross domestic product grew at 7% in 2008 (9% in 2007) compared to 1.1% (2% in 2007) in the United States and 9% (13% in 2007) in neighboring country-China. While all countries experienced a reduction in growth in recent years, India appeared to be the least affected. Also compared to China (42.5% to 35% in 2007-08), India's exports are increasing (21% to 24% in 2007-2008). India's population is increasing at 1.34% annually while both China and the United States' population are increasing at less than 1% subsequently leading to reduction in the size of labor force in these countries (Exhibit 1)[8].

As India is experiencing increases in gross domestic product, middle class population and development of new industrial sectors like software services and medical tourism, the country will continue to exhibit an optimistic and profitable investment climate for foreign investors.

Company Overview

Tata Consulting Services, a leading IT consulting company and Apollo Hospital, one of the biggest hospitals in India have exhibited strong performance in recent years and are expected to generate

---

[1] ENS ECONOMIC BUREAU. (2004, October 22). *India could overtake China in 15 yrs.* Retrieved April 10, 2010, from India Express: http://www.indianexpress.com/storyOld.php?storyId=57429

[2] "India: Economy." 2009. Global Edge. February 2010 < http://globaledge.msu.edu/countries/india/economy/>.

[3] *Surf India*. (n.d.). Retrieved March 11, 2010, from www.surfindia.com: http://www.surfindia.com/india-facts/major-industries-in-india.html

[4] U.S. Department of State. (2009, November). *Background: India.* Retrieved April 10, 2010, from U.S. Department of State: http://www.state.gov/r/pa/ei/bgn/3454.htm

[5] Bhangale, V. (2008, May). *Medical Tourism: Taking off in a big way in India.* Retrieved April 10, 2010, from Conference on Tourism in India – Challenges Ahead: http://dspace.iimk.ac.in/bitstream/2259/578/1/365-368+Prof.Vijay+Bhangale.pdf

[6] WTO. (n.d.). *World Trade Organisation*. Retrieved March 11, 2010, from www.wto.org: http://www.wto.org/english/thewto_e/countries_e/india_e.htm

[7] U.S. Department of State. (2009, November). *Background: India.* Retrieved April 10, 2010, from U.S. Department of State: http://www.state.gov/r/pa/ei/bgn/3454.htm

[8] The World Bank. (2009). *World Development Indicators.* Retrieved March 30, 2010, from The World Bank: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135
WTO. (n.d.). *World Trade Organisation*. Retrieved March 11, 2010, from www.wto.org: http://www.wto.org/english/thewto_e/countries_e/india_e.htm

maximum profits and returns on investment in the coming years. Details are discussed below:

Tata Consulting Services

Since the mid-1990s, India's Information Technology (IT) sector has been heading towards becoming a world leader in IT services and products with a CAGR (Compound Annual Growth Rate) of over 42.4% in 1995-2000 period double that of the growth rate in the developed countries[9]. It contributed 5.8% to the GDP of the country in 2008-09. The sector grew by 16% from $ 40.9B in 2007-08 to $47.3B in 2008-09. Despite the economic slowdown, the Indian IT industry is the fastest growing industry in the Asia Pacific region with a CAGR (Compound Annual Growth Rate) of 18.6%[10].

Tata Consultancy Services (TCS), part of Tata Group in India, is 'an IT services, business solutions and outsourcing organization'[11]. TCS is the forerunner in the consultancy services that began its journey in 1968[12]. TCS currently provides consultation services to insurance, retail, and telecommunication sectors[13]. The company is listed on the National Stock Exchange and Bombay Stock Exchange of India. In the fiscal year 2008-09, Tata Consultancy Services experienced growth even though Indian economy including rest of the world had been suffering. The operating profits increased by $1.43B an increase of 11.7%. Net profit was at $1.12B which decreased by 10.1%[14].

Although as a publicly traded company, TCS' focus has been maximizing profit and hence maximizing wealth for shareholders, the company has begun to incorporate a unique wealth maximization model that combines value to shareholders as well as stakeholders and they call it 'mutualism'[15]. Mutualism involves developing strategies to maximize profit so as to make the shareholders content as well as contribute to the importance of development of the global IT sector through innovations and risks. TCS's parent company, Tata Group, too, is a profit-making company but continues to invest in developing communities where it operates.

During the IT boom, the government had granted certain tax exemptions to IT companies to attract more investors in the country. The exemption was called the *Software Technology Park* exemption. This exemption will come to an end in the year 2011 resulting in increased tax for the company. TCS will also likely be affected by global economy. While TCS has its presence in most parts of the world, it generates maximum revenue from the U.S. and Europe. The wellbeing or downturn of these two economies will influence the company's business.

Apollo Hospital

Medical tourism is a growing sector in India. The industry is expected to grow at a rate of 30% making it a $2B industry by 2015[16]. Medical Tourism is poised to be the next Indian success story after Information Technology.

Apollo Hospital was the pioneer in promoting medical tourism in India by the corporatization of healthcare services. It was started in 1983 in Chennai, India. In just 25 years, the hospital has become the

---

[9] Misra, A. (2009, January 24). *India - A Future Warehouse of the World*. Retrieved April 18, 2010, from http://ezinearticles.com/?India- - - A- Future-Warehouse- of- the- World&id=1916396

[10] India Brand Equity Foundation. (2010, January). *Information Technology.* Retrieved April 18, 2010, from India Brand Equity Foundation: http://www.ibef.org/industry/informationtechnology.aspx

[11] Tata Consulting Services. (2009). *TCS FY09 Revenues at record $6b.* Retrieved April 18, 2010, from Tata Consulting Services: http://www.tcs.com/investors/documents/Press%20Releases/TCS_PressRelease_USGAAP_Q4_09.pdf

[12] Edelweiss. (2009, July). *Tata Consulting Services-Annual Report Analysis.* Retrieved March 2010, from Edelweiss: http://www.edelcap.com/CMT/Upload/ArticleAttachments/TCS%20and%20Infosys%20-%20AR%20analysis-Jul-09-EDEL.pdf

[13] Edelweiss. (2009, July). *Tata Consulting Services-Annual Report Analysis.* Retrieved March 2010, from Edelweiss: http://www.edelcap.com/CMT/Upload/ArticleAttachments/TCS%20and%20Infosys%20-%20AR%20analysis-Jul-09-EDEL.pdf

[14] Tata Consulting Services. (2009). *TCS FY09 Revenues at record $6b.* Retrieved April 18, 2010, from Tata Consulting Services: http://www.tcs.com/investors/documents/Press%20Releases/TCS_PressRelease_USGAAP_Q4_09.pdf

[15] Wood, C. (2009). *Mutualism: An Approach to Optimizing Shareholder Value.* Retrieved April 18, 2010, from Tata Consultancy

[16] PricewaterhouseCoopers. "Emerging Market Report: Health in India 2007." 2007. PricewaterhouseCoopers. March 2010 <http://www.pwc.com/en_GX/gx/healthcare/pdf/emerging-market-report-hc-in-india.pdf>.

largest provider of healthcare services in Asia and third largest in the world[17]. It is listed on the Bombay Stock Exchange (BSE), National Stock Exchange (NSE) and Luxembourg Exchange. It has a market capitalization of US $700M. Apollo hospitals also have good brand recognition in the industry. It was the first hospital to receive Joint Commission International (JCI) accreditation[18]-a gold standard international accreditation. It has major partnerships with other well-known medical facilities like Johns Hopkins Medicine, Cleveland Clinic, and MD Anderson Cancer Center. In the fiscal year 2008-09, Apollo Hospital experienced growth even though Indian economy including rest of the world had been suffering. The company's total revenue increased from $25, 333M to $32, 564M[19] a growth of 29%. The net profit of the company in FY 2009 was $22, 5482M. The company experienced a growth of 33%[20].

Health care is a social sector and Apollo Hospital, too, adopts a stakeholder wealth maximization model as it contributes to the welfare of all parties involved ranging from the government, local community, shareholders, medical community and the hospital management. The company is helping the tourism industry in India, providing employment directly and indirectly to communities where it operates in and developing tools and technologies for the advancement of medical community in India. But, although being a hospital and generally adopting a stakeholder maximization model, Apollo Hospital is a publicly traded company that is growing profitably and cares a lot about maximizing the profit for its shareholders throughout the world.

Apollo hospital is expanding by building a chain of hospitals in India as well as the rest of Asia. The hospital plans to expand its presence in 3-5 yrs with an investment of $20B. The current state of the financial markets can make it difficult to raise capital from the primary as well as debt markets at competitive costs. Another issue that the company should be concerned about is the outflow of medical professionals to the developed countries. 'India is the world's biggest exporter of doctors with an overseas workforce equal to almost 10% of the physicians in India'[21]. The company would have to offer lucrative packages to get the best minds to come and work for them; this could lead to an increase in the operating costs.

Information Technology and Medical Tourism are two booming sectors of India with a significant contribution to the GDP of the country. Both Tata Consultancy Services and Apollo Hospital are leaders in their respective industries with a strong growth potential for the future and hence recommended for the U.S. investor to make a portfolio investment in. As both of them are publicly listed companies, the investor will have ready access to the financial data of the company for investment decision-making purposes and can easily exit the position in case of unfavorable stock movements. The overall research on the two companies indicates that they are lucrative investment options for the U.S. investor.

Investment Climate in India

The investment climate in India is affected by a range of factors such as the macro-economic landscape, trade components such as exports, imports and foreign reserves as well as political, cultural, economic and national security risks or lack thereof. In this section, the investment climate in India will be analyzed from the different perspectives.

---

[17] MedVoy. (n.d.). *Apollo Hospital.* Retrieved April 18, 2010, from MedVoy: https://www.medvoy.com/provider/apollo-hospital

[18] "Joint Commission International (JCI) was founded in the late 1990s to survey hospitals outside of the United States. JCI, which is also not-for-profit, currently accredits facilities in Asia, Europe, the Middle East, and South America. A January 2008 press release says that since 1999, JCI has accredited more than 140 hospitals in 27 countries." http://www.hziegler.com/locations/middle-east/articles/jci-accreditation.html

[19] Bloomberg. (n.d.). Retrieved March 11, 2010, from Bloomberg.com: http://www.bloomberg.com/invest/calculators/currency.html

[20] PRLog. "Apollo Hospitals Group consolidates leadership in healthcare." 29 June 2009. PRLog. 1 March 2010 <http://www.prlog.org/10269508-apollo-hospitals-group-consolidates-leadership-in-healthcare.html>.

[21] SouthAsian Post. (2010, April). *Come home, India tells its overseas doctors.* Retrieved April 18, 2010, from SouthAsian Post: http://www.southasianpost.com/news/topnews/article/comehomeindiatellsitsoverseasdoctors

Macro-Economic Scenario

Some of the key macro-economic indicators which are and will continue to impact India's investment environment are discussed below:

Gross Domestic Product

India's gross domestic product annual change rate while remaining positive slightly decreased in 2008 and 2009 as a consequence of the global financial crisis; however it is showing an increasing trend again with anticipated annual change in GDP to be a little over 8% by 2014 (Exhibit 2). Compared to 2006 when the GDP was $800B, in 2009 it is $1200B and by 2014, it is expected to reach a staggering $1800B (Exhibit 2). *See Asset Market Approach analysis for more on GDP growth.*

Inflation

As any other emerging economy, India has experienced an incremental inflation rate in recent years but unlike a lot of other emerging economies of the 1990s in Eastern Europe and East Asia, the Indian government appears to have inflation under control as after 2010, inflation is forecasted to continually decline until it becomes 4% in 2014 (Exhibit 3). A country with a consistently lower inflation rate exhibits a rising currency value[22]. The Indian rupee has been appreciating against the US dollar.

Unemployment

The unemployment does not appear to have been impacted by the global financial crisis in India as the number has been declining since 2004 with unemployment rate to under 7% in 2009 (Exhibit 4). This could be attributed to the increasing number of employment opportunities in India as a result of increasing FDI, opening up of trade, advancements in industrial and technological productions.

Industrial Production

A strong industrial production rate of 16.8% in 2010, (Exhibit 5) indicates that there has been increase in the output of production in sectors like manufacturing, construction, mining and utilities as the production rate was 6.2% in 2008 (Exhibit 5). It is a good indicator of economic forecasting. For foreign investors trying to determine sectors to invest in, a positive increase in industrial production helps them take the step to look at specific sectors within the industrial sector to invest in while a low and decreasing rate indicates the opposite. With an improvement in the industrial production rate, the exporting capacity of the country increases. This leads to a potential increase in foreign reserves resulting in a stronger currency.

Gini Coefficient

"The Gini coefficient measures the inequality of income distribution within a country. It varies from zero, which indicates perfect equality, with every household earning exactly the same, to one, which implies absolute inequality, with a single household earning a country's entire income"[23]. The Gini coefficient of India is 0.368 (36.8) compared to 0.45 (45.0) for the United States[24].

Hence, a macro-economic analysis of India validates profitable investment climate in India with appreciating Indian Rupee and rising industrial production supported by controlled inflation, decreasing

[22] Investopedia. (n.d.). *Investopedia*. Retrieved March 11, 2010, from Investopedia: http://www.investopedia.com/articles/basics/04/050704.asp
[23] *The Economist*. (n.d.). Retrieved March 11, 2010, from www.economist.com: http://www.economist.com/research/economics/alphabetic.cfm?letter=G
[24] *Central Intelligence Agency*. (n.d.). Retrieved March 11, 2010, from www.cia.gov: https://www.cia.gov/library/publications/the-world-factbook/rankorder/2172rank.html

unemployment and favorable Gini coefficient.

Foreign Direct Investment

One of the indicators of economic success and investment potential is foreign direct investment. Under the Foreign Exchange Management Act (FEMA), there are two routes through which a foreign company can make a direct investment in India – the Automatic route and the Government route depending on the sector in which the investment is made. FDI in sectors permitted by the Government under the automatic route does not need prior approval of the Government. However, the regional office of the Reserve Bank of India must be notified within 30 days of the receipt of the funds in India. The investment under this route does not include certain production activities in areas which would affect the Small Scale Manufacturing Sector. The Government route must be used for the sectors which are not covered under the automatic route. Prior approval from the Foreign Investment Promotion Board is required for investment in these sectors. FDI is prohibited under the Automatic and Government route for Retail Trading (except single brand product retailing), Atomic Energy, Lottery Business), Gambling and Betting, Business of Chit Fund, Nidhi Company, Agricultural or plantation activities, Housing and Real Estate business, Trading in Transferable Development Rights (TDRs).[25] *See Asset Market Approach analysis for more on FDI in India.*

Portfolio Investment

Foreign Institutional Investors (FIIs) can invest in shares, debentures, warrants, and units of mutual funds, government securities and derivative instruments both in primary and secondary capital markets. Such investments are regulated by the Securities and Exchange Board of India (SEBI). Individual FIIs or their sub accounts can invest up to a maximum of 10% of the paid up capital of a company. Investment by all FIIs and their sub accounts should not exceed a maximum of 24% of the paid up capital of the company. No RBI approval is needed for FIIs in companies listed on the stock exchanges. Investment by FIIs in unlisted companies is permissible but must be approved by the RBI [26]. Short term sale of securities by FIIs are taxable under the capital gain tax in case of a gain on sale. The investment is said to be short term if the securities are held for one year or less. A short term capital gain tax of 10% is levied by the Central Government. Long term investments in securities are exempt from tax. "Long-term and short-term capital losses are allowed to be carried forward for eight consecutive years. Long-term capital losses may be offset against taxable long-term capital gains and short-term capital losses may be offset against both long term and short-term taxable capital gains."[27]

Stock Market

There are two stock markets in India – the Bombay Stock Exchange (BSE) popularly known as the *Sensex* and the National Stock Exchange (NSE) popularly known as the *Nifty.* The Bombay Stock Exchange is the oldest stock exchange in Asia constructed on the 'free-float' methodology consisting of 30 stocks representing 12 major sectors. "It is the world's number 1 exchange in terms of the number of listed companies and the world's 5th in handling of transactions through its electronic trading system. The companies listed on BSE command a total market capitalization of USD Trillion 1.06 as of July, 2009"[28]. The NSE is a 50 stock index accounting for 22 sectors of the economy computed based on free float

[25] RBI. (2007, April 1). *Reserve Bank of India*. Retrieved April 8, 2010, from www.rbi.org.in: http://www.rbi.org.in/scripts/FAQView.aspx?Id=26
[26] *Embassy of India Washington DC*. (n.d.). Retrieved April 8, 2010, from www.indianembassy.org: http://www.indianembassy.org/newsite//Doing_business_In_India/Portfolio_Investment.asp
[27] *Embassy of India Washington DC*. (n.d.). Retrieved April 8, 2010, from www.indianembassy.org: http://www.indianembassy.org/newsite//Doing_business_In_India/Fiscal_Taxation_system_in_India.asp
[28] BSE India. (n.d.). *BSE India*. Retrieved March 11, 2010, from www.bseindia.com: http://www.bseindia.com/about/introbse.asp

methodology[29]. In 2009 beginning, SENSEX stocks were trading at 9619 points and the stocks went up 6534 points in 12 months (Exhibit 10). The stock market experienced a slight drop end of December and beginning of January but it is still pretty steady. Also, the market value of shares issued by publicly traded companies has doubled in a year's time between 2008 and 2009 (Exhibit 11). This could be because of the increase in market price index as well as the number of shares issued since Market Value is simply the latest price per share multiplied by the total number of outstanding shares in the market. The Indian stock market did not experience the stock market crash as the U.S., East Asian and European markets will help the market gain more investors.

The Securities and Exchange Board of India (SEBI) was established on April 12, 1992 **'**to protect the interests of investors in securities and to promote the development of, and to regulate the securities market and for matters connected therewith or incidental thereto'[30].

Balance of Payment Analysis

In the Q1 of 2009-2010 (Exhibit 23) India's merchandise exports and imports saw a decline of 21% and 19.6% respectively resulting in a trade deficit. The current account balance for India was US$ (9.3)B in 2006, US$ (33.6)B in 2010 and is anticipated to remain the same in 2014 (Exhibit 17). However, while the absolute value of the deficit will continue to increase, the deficit as a percentage of the country's GDP is expected to decrease after 2011 (Exhibit 16). India's leading exports are gems and jewelry and textile goods; engineering goods, chemicals, leather manufactures and services constitute other exports. India's main export partners are the European Union, United States, United Arab Emirates and China[31]. India imported slightly over $250B dollars in 2009 (Exhibit 18) of which bulk was spent in importing oil resources and coal. Machinery, gems, fertilizers and chemicals are other main imports. Main import partners are European Union, Saudi Arabia and United States[32]. The Foreign reserve provides the dollar value for the stock of all financial assets available to the Indian Monetary Authority that they can use to meet the balance of payments needs. This category includes foreign currency and gold, holdings of Special Drawing Rights in the International Monetary Fund, and its reserve position in the fund[33]. India's foreign reserve is currently at slightly over 250B U.S. dollars (Exhibit 14). The increasing trend in India's foreign reserves resulted in a stronger Indian Rupee. *See Balance of Payments Approach for more information.*

Risk Assessment

While the overall investment climate in India is favorable to a foreign investor in terms of financial growth potential, there are some risk factors that cannot be ignored such as economic and political risks.

Economic Risks: Indian economy is not immune from the global economic crisis and as trade is becoming a major source of revenue generation for the government and citizens of India, the deteriorating economy in most of the developed countries in the West is likely to negatively impact India's export market[34]. With regards to currency risks, the Indian Rupee is freely convertible on the current account since 1994 and almost fully convertible on the capital account for non-residents and it is striving for full

[29] *NSE*. (n.d.). Retrieved March 11, 2010, from www.nse-india.com: http://www.nse-india.com/content/indices/ind_nifty.htm
[30] SEBI. (n.d.). *Securities and Exchange Board of India*. Retrieved March 11, 2010, from www.sebi.gov.in: http://www.sebi.gov.in/Index.jsp?contentDisp=AboutSEBI
[31] Trading Economics. (2009). *India Exports.* Retrieved February 2010, from Trading Economics-Global Economic Research: http://www.tradingeconomics.com/Economics/Exports.aspx?Symbol=INR#ixzz0fci7i1r1
[32] Trading Economics. (2009). *India.* Retrieved February 2010, from Trading Economics-Global Economic Research: http://www.tradingeconomics.com/Economics
[33] Index Mundi. (2010). *India .* Retrieved February 2010, from Index Mundi: http://www.indexmundi.com/india
[34] Global Risk Network of World Economic Forum. (2008). *India Risk 2008.* Retrieved March 14, 2010, from World Economic Forum: http://www.weforum.org/pdf/globalrisk/IndiaRisk.pdf

convertibility on the capital account[35]. Hence, the currency risk is minimal for foreign institutional investors. An analysis of the economic and market indicators such as GDP growth rate, inflation, currency valuation, interest rate, labor force, education and official reserves also indicate that India is a fairly risk-free region to invest in from an economic perspective.

Political Risks: In the last decade or so, no political party has had a unanimous victory in the elections and hence, multi-party coalition government structure has been prevalent. India ranked 85 out of 180 countries on the Corruption Perceptions Index while the United States ranked 18[36]. Corruption in India is rampant in all the sectors and more so in the public sector. 25% of the budget for public projects is estimated to go towards corruption[37]. Indian government has to take stringent action against activities of corruption and put specific laws in place to attract foreign investors. In its attempts to reform corruption, 'a new right-to-information law went into effect last October requiring both central and state governments to divulge information about contracts, hiring, and expenditures to any citizen who requests it'. Tata Consulting Company (TCS) is helping monitor a government program that is meant to improve transparency in the public sector. [38] If the country can tackle corruption in a better way than it is doing now then it can pave a way for faster economic development.

Since the opening of the economy, India has not only seen high economic development but has also faced numerous terrorist attacks on its soil. Almost 5000 people have died between 2004 and 2008[39] in terrorist attacks in India and the attacks have been attributed to multiple radical political and religious groups inside of India. Externally, India's continued conflict with Pakistan over Kashmir as well as instability in neighboring countries-Pakistan, Afghanistan and other South Asian countries are major risks to all parties[40]. India has been on a brink of war with the neighboring countries a couple of times in the last decade. This impacts the confidence of an investor in the country. An occurrence of any terror activity might cause institutional investors to withdraw their investments from India. This will reduce the demand for the Indian Rupee resulting in the weakening of currency. *See Asset Market Approach analysis for more on Political risks.*

Summary of Investment Climate in India

Based on the analysis of the country's economic, market and trade indicators, India poses a sound and safe investment climate for foreign investors. While the country did experience lower rates of growth in 2008-2009, the economy stayed fairly resilient during the global financial crisis with a strong stock market, imports and exports, inflation and interest rates under control. Some of the other factors positively impacting India's investment climate are increase in industrial production, ample foreign reserves and foreign direct investment. The country's rising workforce will be another advantage. Despite the lackluster speed of infrastructural development and national security risks, India continues to be an attractive investment option on the basis of macroeconomic indicators such as GDP growth, booming industrial production and decreasing unemployment along with improving exports and foreign reserve with a sound and growing stock market.

---

[35] D'silva, N. (2010, February 17). *Reuters India*. Retrieved April 8, 2010, from http://in.reuters.com/: http://in.reuters.com/article/specialEvents/idINIndia-46140320100217?pageNumber=1&virtualBrandChannel=0

[36] Transparency International. (2009). *2008 Corruption Perception Index*. Retrieved March 14, 2010, from Transparency International: http://www.transparency.org/news_room/in_focus/2008/cpi2008/cpi_2008_table

[37] Business Week. (2007, March 19). *The Trouble With India* . Retrieved April 18, 2010, from Business Week: http://www.businessweek.com/magazine/content/07_12/b4026001.htm

[38] Business Week. (2007, March 19). *The Trouble With India* . Retrieved April 18, 2010, from Business Week: http://www.businessweek.com/magazine/content/07_12/b4026001.htm

[39] SATP (2010). *India Fatalities 2010.* Retrieved April 11, 2010, from SATP: http://www.satp.org/satporgtp/countries/india/database/indiafatalities.htm

[40] Global Risk Network of World Economic Forum. (2008). *India Risk 2008.* Retrieved March 14, 2010, from World Economic Forum: http://www.weforum.org/pdf/globalrisk/IndiaRisk.pdf

Exchange Rate

India adopted a fixed exchange rate system until 1991 when it experienced massive budget deficits. Later it decided to adopt a managed float exchange rate system. In the last 2 years, India's currency experienced a temporary depreciation as with the U.S. dollar; however, the currency seems to be becoming strong again, supported by sound interest rates and government bond yield rates and improving macro-economic indicators described above.

History

Prior to 1991, India had adopted the fixed exchange rate pegged against a basket of currencies (Exhibit 7). In July 1991, the Indian rupee was devalued successively by 9% and 11% to improve its domestic competitiveness. Fiscal deficit on the current account was 3% of GDP and India's foreign debt rose over three fold in 1991 to $72B against $20.5B in 1980. India was left with a reserve balance of only $1.1B, sufficient to pay for only 2 weeks of imports. India turned to the IMF for a loan of $80B which was granted[41]. This paved the path for the Liberalization, Globalization, and Privatization movement in India. India adopted the '*Managed float with no predetermined path for the exchange rate regime',* where "the monetary authority attempts to influence the exchange rate without having a specific exchange rate path or target"[42]. India has adopted a cautious policy and a step-by-step approach to liberalize the economy. The Indian Rupee is freely convertible on the current account since 1994 and almost fully convertible on the capital account for non-residents[43].

Current trends

As the U.S. economy is showing signs of reform and the U.S. dollar has appreciated with respect to the Euro, the Indian Rupee exchange rate is appreciating as well. In January 2010, the U.S. dollar was worth INR 46.50 compared to about INR 51.00 in early 2009 (Exhibit 8). In 2010, the United States is expected to slowly come out of recession and get back on track which increases the demand for U.S. dollars. This helps U.S. investors seeking to invest in growing economies like India, as their investment in dollars is of more value. India's interest rate has been fluctuating as in most growing economies with its peak in 2001. In 2001, the interest rate had gone up to 14% but today India's interest rate is 3.25% (Exhibit 6). The country's high government bond yield is another trend affecting the exchange rate of India. A country's government bond yield rate basically implies the likelihood of bonds being repaid as well as inflation rate expectations as higher yield affect aspects of the economy such as mortgage loan interest rates. But it also implies that the government is willing to pay high interests to attract investors to the country. High yield rates indicate demand for the bond and will eventually affect the demand for currency. India's bond yield rate reached its peak in mid-2008, slumped down in January 2009 and is increasing again and averages around 7.5% in 2010 (Exhibit 13). This marks a great opportunity even for foreign investors to purchase Indian bonds as well as indicates that the country is still growing and is attempting to attract investors.

Forecasting

The current state of exchange rate and currency are important to an investor; but future trends and

[41] Weinraub, B. (1991, June 29). *Economic Crisis Forcing Once Self-Reliant India to Seek Aid.* Retrieved February 15, 2010, from The New York Times: http://www.nytimes.com/1991/06/29/world/economic-crisis-forcing-once-self-reliant-india-to-seek-aid.html?pagewanted=1

[42] International Monetary Fund. (2006, July 31). *International Monetary Fund*. Retrieved February 14, 2010, from www.imf.org: http://www.imf.org/external/np/mfd/er/2006/eng/0706.htm

[43] D'silva, N. (2010, February 17). *Reuters India*. Retrieved April 8, 2010, from http://in.reuters.com/: http://in.reuters.com/article/specialEvents/idINIndia-46140320100217?pageNumber=1&virtualBrandChannel=0

forecasting are more significant to determine one's return on investment in the years to come. In this section, some standard international finance techniques have been used to determine the direction of Indian rupee's exchange rate in the near future.

The Law of One price and Purchasing Power Parity

The Law of one price states that identical products or services sold in two different markets, with no restrictions on sales or transportation costs should have the same price in both markets, merely stated in different currencies. Comparing prices would require only a conversion from one currency to the other using the exchange rate. "The theory of absolute Purchasing Power Parity (PPP) states that the spot exchange rate is determined by the relative prices of similar baskets of goods"[44]. Basic products consumed in both India and the United States have been used to arrive at the implied exchange rate, compare it to the actual exchange rate and determine if the Indian rupee is overvalued or undervalued against the U.S. Dollar. It has been assumed that the there are no restrictions on sales and no transportation costs for moving the products between India and United States markets. On comparing the Indian rupee (INR) against the U.S. dollar (USD) for this basket of goods, we conclude that the INR is undervalued compared to the USD by 36.07% and is thus expected to appreciate (Exhibit 19).

The Big Mac Index

"The Economist uses the price of the ubiquitous McDonald's meal to calculate the 'Big Mac Index', a guide showing how far from fair value different world currencies are. The Big Mac theory (a.k.a. purchasing-power parity or PPP) says that exchange rates should even out the prices of Big Macs sold across the world. The implied PPP is the exchange rate that would make a Big Mac cost the same abroad as it does in the USA"[45]. The Big Mac Index does not include India. However, on comparing the price of the Chicken Maharaja Mac (an Indian equivalent of the U.S. Big Mac), it can be seen that INR is undervalued against USD by 59.95% (Exhibit 20). As the actual exchange rate is higher than the implied rate, the value of the Indian rupee is expected to appreciate against the U.S. Dollar till it reaches the implied PPP rate.

The Fisher Effect

"The relationship between the percentage change in the spot exchange rate over time and the differential between comparable interest rates in different national capital markets is known as the international fisher effect"[46]. The difference of the 10 year bond rate in the United States and India indicate Indian Rupee to depreciate, with the spot rate declining from the current INR 45.46 to INR 47.35 per U.S. Dollar at the end of the period (Exhibit 21).

One Year Forward Rate

"A forward rate is an exchange rate quoted today for settlement at some future date. A forward exchange agreement between currencies states the rate of exchange at which a foreign currency will be bought forward or sold forward at a specific date in the future. [The] [f]orward premium / discount is the percentage difference between the spot and forward exchange rate, stated in annual percentage terms"[47]. The one year forward rate for the USD/INR, calculated using the one year Treasury bill rates in India and United States, is 46.50 (Exhibit 22). As per the calculation, the one year forward rate for the

[44] Eiteman, S. &. (2007). Purchasing Power Parity and the Law of One Price. In S. &. Eiteman, *Multinational Business Finance* (p. 103). Boston: Pearson Education, Inc.
[45] Oanda. (2009, July 16). *www.oanda.com*. Retrieved March 11, 2010, from http://www.oanda.com/currency/big-mac-index
[46] Eiteman, S. &. (2007). The International Fisher Effect. In S. &. Eiteman, *Multinational Business Finance* (p. 112). Boston: Pearson Education, Inc.
[47] Eiteman, S. &. (2007). The Forward Rate. In S. &. Eiteman, *Multinational Business Finance* (p. 113). Boston: Pearson Education, Inc.

Indian rupee depreciated by 4.59%. However, the *Financial Times* indicates that the one year forward rate is 45.86, which is a depreciation of 3.15% over the Spot rate of 44.46 on 04/08/10. As the interest rate in India is higher than that in the United States, the INR will trade at a premium and the USD at a discount. This will result in the depreciation of the Indian Rupee compared to the U.S. Dollar.

The Balance of Payments Approach

"As per the Balance of Payments Approach, the equilibrium exchange rate is found when the net inflow (outflow) of foreign exchange arising from current account activities matches the net outflow (inflow) of foreign exchange arising from financial account activities"[48]. In India's Balance of Payments, the Financial Account is known as the Capital Account. On basis of the preliminary figures reported for 2008 – 2009 by the Reserve Bank of India (Exhibit 23) the Current Account had a balance of USD (29,817) million and the Capital Account (Including Error and Omissions) had a balance of USD 9,737 million. The Change in Reserves equaled USD 20,080 million. This shows that the reserves of the country have been utilized to fund the deficit on the Current account. India has adopted the Managed Float exchange rate regime where the government takes certain indirect steps to control the U.S. dollar reserves and the exchange rate. It uses the Monetary Policy tools to stabilize the Indian rupee like open market operations, cash reserve ratio adjustments, REPO and reverse REPO rate adjustment and maintain statutory liquidity ratio. The decrease in the value of the country's reserves will result in a depreciation of the Indian Rupee against the U.S. Dollar.

The Asset Market Approach

"The Asset Market approach assumes that whether foreigners are willing to hold claims in monetary form depends on an extensive set of investment considerations or drivers"[49].

Relative real Interest rates: India's low interest rate might be attractive to borrowers and encourages spending on personal or business matters inside the country. However, the low interest rates might not prove to be attractive to foreign investors because low interest rates mean lower returns on their investment. While a lower interest rate will result in a weaker Indian Rupee against the US Dollar, a 3.25% interest rate will still yield U.S. investors more return than investing in the United States (interest rate of 0.25%)[50]. The positive relative real interest rate in India (Exhibit 24) against the United States shows that the short term investments in India have a higher return than in the United States. Thus, the Indian Rupee is expected to appreciate compared to the U.S. Dollar.

Prospects for economic growth: We agree with the World Bank report that the GDP rate of India is expected to grow steadily[51]. While the rate of annual growth in GDP is going to be smaller than it was in 2006-07, the absolute value of the annual GDP has been on an increasing trend and is expected to keep increasing in the following years including the GDP per capita. The country is becoming wealthier with higher living standards. By 2014, the GDP per capita will have doubled what it was in 2006 (Exhibit 2)[52].

---

[48] Eiteman, S. &. (2007). Balance of Payment (Flows) Approaches. In S. &. Eiteman, *Multinational Business Finance* (p.144). Boston: Pearson Education, Inc.

[49] Eiteman, S. &. (2007). The Asset Market Approach to Forecasting. In S. &. Eiteman, *Multinational Business Finance* (p. 145). Boston: Pearson Education, Inc.

[50] Trading Economics. (2009). *United States of America.* Retrieved February 2010, from Trading Economics-Global Economic Research: http://tradingeconomics.com/Economics/Interest-Rate.aspx?Symbol=USD

[51] The World Bank. (2009). *World Development Indicators.* Retrieved March 30, 2010, from The World Bank: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135
WTO. (n.d.). *World Trade Organisation*. Retrieved March 11, 2010, from www.wto.org: http://www.wto.org/english/thewto_e/countries_e/india_e.htm

[52] The World Bank. (2009). *World Development Indicators.* Retrieved March 30, 2010, from The World Bank: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135
WTO. (n.d.). *World Trade Organisation*. Retrieved March 11, 2010, from www.wto.org:

This indicates that the Indian rupee will appreciate against the U.S. Dollar.

Supply and demand for assets: India has seen a massive increase in FDI in recent years from US$3.5B in 2000 to US$22.9 in 2007 (Exhibit 15) indicating that foreign businesses see profit potential in India. The increase in the inflow of FDI has positively affected the reserves of the country resulting in strengthening of the Indian Rupee. "India has liberalized its foreign exchange controls. Rupee is freely convertible on current account and almost fully convertible on capital account for non-residents. Profits earned, dividends and proceeds out of the sale of investments are fully repatriable for FDI. There are restrictions on capital account for resident Indians for incomes earned in India"[53]. FII in India increased from $95.96B in 2008 to $144.2B in 2009 (Exhibit 12). India continues to be a lucrative stock market investment for individuals and businesses globally. All this indicates an appreciation of the Indian rupee versus the U.S. Dollar.

Outlook for political stability: In a multi-party coalition government structure, different parties may not come to consensus because of varying political beliefs. This results in delayed decision-making regarding crucial national matters. There is always a fear of the support being removed and the government being dissolved[54]. However, all political parties in India have agreed on economic liberalization and have not allowed the differences in political ideologies to impact India's economic relations and foreign investment[55]. Thus, for a foreign investor the overall political situation in India has been stable. This suggests an appreciation of the Indian rupee against the U.S. Dollar.

Speculation and Liquidity: SEBI ensures full disclosures by its member companies to bring about transparency and attract and retain foreign investment. It controls speculation by imposing stock wise and index wise circuit limit on trading. It also takes steps to maintain the liquidity of the capital market in order to attract foreign investors. This allows the investors to immediately sell their investment and avoid losses in the event of a fraud, loss, political turmoil or terrorist activities. This has developed foreign investor's confidence in the Indian stock market which indicates that the Indian rupee will appreciate against the U.S. Dollar.

Political risks and controls: The wave of liberalization, privatization and globalization initiated in 1991 has opened India's borders to foreign investment. Simultaneously, India's cautious banking policies have protected it from external shocks like the sub-prime losses in the United States. As stated in the Political risk and Corruption point under Risk Assessment section of this report, India ranked 85 out of 180 countries on the Corruption Perception Index (CPI) in 2008.[56] In 2004, it ranked 90 out of a 145 countries on the CPI[57]. According to World Development Indicators database, the time required to start a business in India is the same as in China i.e. 35 days versus 5 days in the United States.[58] India is a strong economy in the South Asian region, thus India has not faced the contagion effect from its neighboring countries. Thus the Indian Rupee is expected to appreciate against the U.S. dollar.

---

http://www.wto.org/english/thewto_e/countries_e/india_e.htm

[53] *Embassy of India Washington DC*. (n.d.). Retrieved April 8, 2010, from www.indianembassy.org: http://www.indianembassy.org/newsite//Doing_business_In_India/Foreign_Exchange_Regulations.asp

[54] Evans, A. S. (2008, July 21). *Indian government faces tight confidence vote.* Retrieved April 8, 2010, from Reuters UK: http://uk.reuters.com/article/idUKL2182822620080721

[55] Trade Chakra. (2008). *Investment Risks in India.* Retrieved March 14, 2010, from Trade Chakra: http://www.tradechakra.com/investment-risks-india.html

[56] Transparency International. (2009). *2008 Corruption Perception Index*. Retrieved March 14, 2010, from Transparency International: http://www.transparency.org/news_room/in_focus/2008/cpi2008/cpi_2008_table

[57] Transparency International. (2009). *2004 Corruption Perception Index*. Retrieved March 14, 2010, from Transparency International: http://www.transparency.org/policy_research/surveys_indices/cpi/2004

[58] NationaMaster. (n.d.). *NationaMaster*. Retrieved April 16, 2010, from www.nationmaster.com: http://www.nationmaster.com/graph/gov_tim_req_to_sta_a_bus_day-time-required-start-business-days

To summarize, all indicators of the Asset Market Approach – relative real interest rates, prospects for economic growth, supply and demand for assets, outlook for political stability, speculation and liquidity and political risks and controls suggest that the Indian rupee will appreciate versus the U.S. Dollar.

Interest Rate Parity

"The theory of Interest rates parity states that the difference in the national interest rates for securities of similar risk and maturity should be equal to, but opposite in sign to, the forward rate discount or premium for the foreign currency, except for transaction costs. Ignoring transaction costs, if the returns in dollars are equal between the two alternative money market investments, the spot and forward rates are considered to be at interest rate parity"[59]. Exhibit 25 describes the interest rate parity for the Indian rupee and the U.S. dollar, indicating a depreciation of the Indian rupee.

Summary of exchange rate forecasting

Method	Appreciate/ Depreciate
Purchasing Power Parity	Appreciate
The Big Mac Index	Appreciate
The Fisher Effect	Depreciate
One year forward rate	Depreciate
Balance of Payments Method	Depreciate
Asset Market Approach	Appreciate
Interest Rate Parity	Depreciate
Analysts prediction	Appreciate

Based on the projections, the fisher effect, one year forward rate, balance of payments and the interest rate parity methods indicate that the Indian Rupee will depreciate against the U.S. Dollar. However, all asset market methods in addition to the purchasing power parity and law of one price and the Big Mac Index indicate an appreciation of the Indian rupee. After careful consideration of results of all valuation methods, it is believed that the Indian Rupee will appreciate as the Indian economy is expected to continue its upward growth trend. This will be beneficial for the foreign investor as the appreciating Indian Rupee will ensure a higher return when the investment is withdrawn from India and converted to U.S. Dollar upon the completion of the investment period.

Conclusion

India's increasing GDP growth rate, controlled inflation, interest rate, reduced unemployment, export increase in comparison to the world power United States and neighboring China in addition favorable FDI, portfolio and stock investment policies and reforms in corruption, political sector and currency risks have all aided in making India one of the most sought-after locations for investment in the world. While the Indian economy suffered minor setbacks due to the global economic crisis of 2008, the country is expected to grow and exhibit strong currency. Information Technology and Medical Tourism are two of the biggest sectors contributing to the exports of the country and are expected to continue to grow in the coming years. Tata Consultancy Services and Apollo Hospital are established players in their respective industries showing continued growth and the same is expected in the years to come.

[59] Eiteman, S. &. (2007). Balance of Payment (Flows) Approaches. In S. &. Eiteman, *Multinational Business Finance* (p.144). Boston: Pearson Education, Inc.

Appendix

Exhibit 1: Country Comparison

	2007			2008		
Indicators	**India**	**China**	**USA**	**India**	**China**	**USA**
Foreign direct investment, net inflows (BoP, current US$ inB)	22.95	138.41	237.54			
Inflation, GDP deflator (annual %)	4.89	7.45	2.66	7.27	7.20	2.17
GDP (currentB US$)	1176.89	3382.27	13751.40	1217.49	4326.19	14204.32
GDP growth (annual %)	9.06	13.00	2.00	7.09	9.00	1.10
Imports of goods and services (% of GDP)	24.72	32.79	..	30.34	28.40	..
Population growth (annual %)	1.34	0.55	0.98	1.34	0.55	0.92
Population, total(inBs)	1.12	1.32	0.30	1.14	1.33	0.30
Exports of goods and services (% of GDP)	21.16	42.53	..	24.00	35.01	..

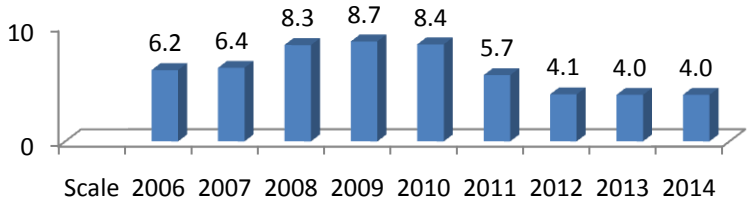
(The World Bank, 2009)[60]

Exhibit 2: India's GDP

Subject Descriptor	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Gross domestic product	*9.81%*	*9.37%*	*7.34%*	*5.35%*	*6.42%*	*7.27%*	*7.62%*	*7.98%*	*8.07%*
Gross domestic product (billions)	$875.43	$1100.98	$1206.68	$1242.64	$1339.48	$1449.16	$1583.43	$1740.41	$1908.33
Gross domestic product per capita	$759.89	$941.63	$1017.17	$1032.71	$1097.82	$1171.67	$1263.31	$1370.53	$1483.25

(International Monetary Fund, 2009)[61]

Exhibit 3: India Inflation, average consumer prices Annual percent change

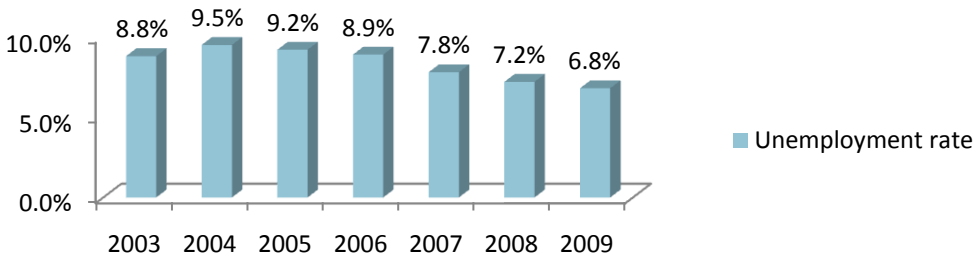


(International Monetary Fund, 2009)[62]

[60] The World Bank. (2009). *World Development Indicators.* Retrieved March 30, 2010, from The World Bank: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135
WTO. (n.d.). *World Trade Organisation*. Retrieved March 11, 2010, from www.wto.org: http://www.wto.org/english/thewto_e/countries_e/india_e.htm

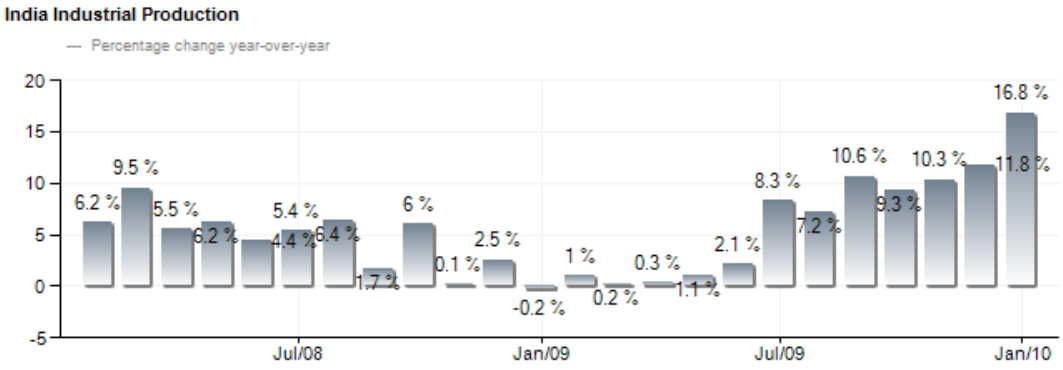
[61] International Monetary Fund. (2009, October). *World Economic Outlook Database-India.* Retrieved March 2010, from International Monetary Fund:http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/weorept.aspx?pr.x=59&pr.y=3&sy=2007&ey=2014&scsm=1&ssd=1&sort=country&ds=.&br=1&c=534&s=NGDP_R,NGDP_RPCH,NGDP,NGDPD,NGDP_D,NGDPRPC,NGDPPC,NGDPD

Exhibit 4: Unemployment rate In India



(Index Mundi, 2010)[63]

Exhibit 5: India Industrial Production (Source: Ministry of Planning and Region)



(Trading Economics, 2009)[64]

[62] International Monetary Fund. (2009, October). *World Economic Outlook Database-India.* Retrieved March 2010, from International Monetary Fund:http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/weorept.aspx?pr.x=59&pr.y=3&sy=2007&ey=2014&scsm=1&ssd=1&sort=country&ds=.&br=1&c=534&s=NGDP_R,NGDP_RPCH,NGDP,NGDPD,NGDP_D,NGDPRPC,NGDPPC,NGDPD

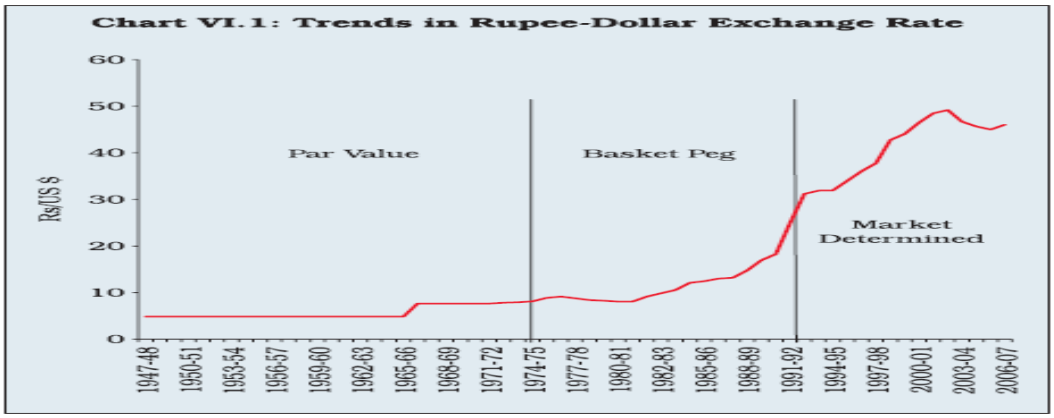
[63] Index Mundi. (2010). *India .* Retrieved February 2010, from Index Mundi: http://www.indexmundi.com/india
India: Economy. (2009). Retrieved February 2010, from Global Edge: http://globaledge.msu.edu/countries/india/economy/

[64] Trading Economics. (2009). *India.* Retrieved February 2010, from Trading Economics-Global Economic Research: http://www.tradingeconomics.com/Economics

Exhibit 6: India's Interest Rate

(Trading Economics, 2010)[65]

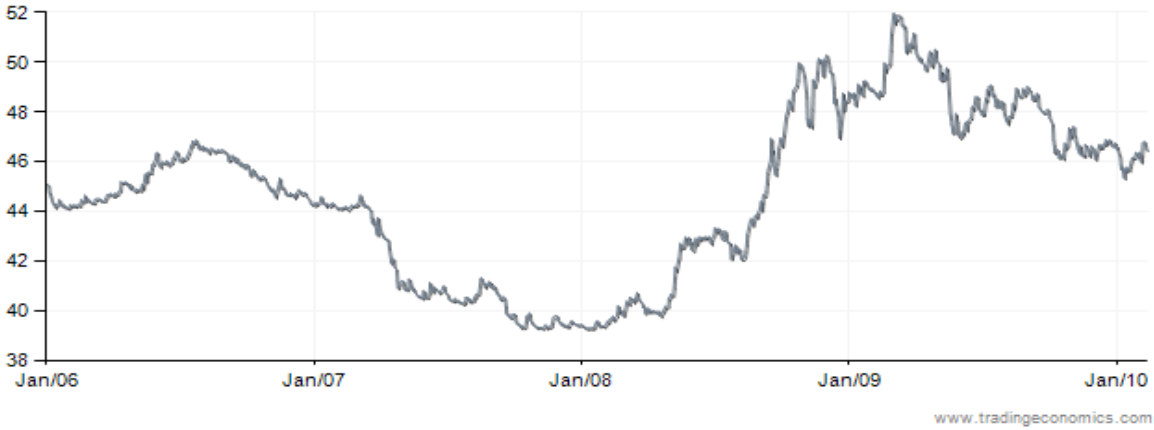
Exhibit 7: Trends in Rupee/Dollar Exchange Rate



(Reserve Bank of India)[66]

[65] "India Interest Rate." 2010. Trading Economics-Global Economics Research. February 2010 <http://www.tradingeconomics.com/Economics/Interest-Rate.aspx?symbol=INR>.
[66] Reserve Bank of India. 31 May 2007. 15 February 2010 <http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/77577.pdf>

Exhibit 8: Exchange Rate (Indian Rupees/US Dollar)



(Trading Economics-Global Economics Research, 2010) [67]

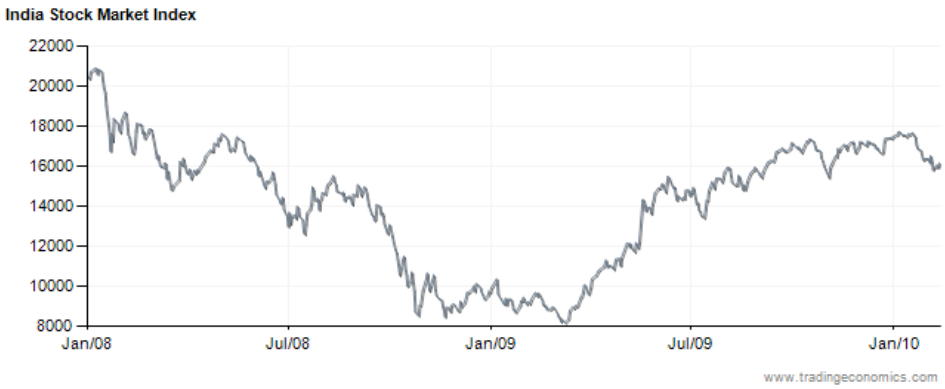
[67] Trading Economics-Global Economics Research. "Indian Rupee Exchange Rate Chart." 2010. Trading Economics-Global Economics Research. February 2010 <http://www.tradingeconomics.com/Economics/Currency.aspx?Symbol=INR>

Exhibit 9: Crisis and Reforms in Indian Currency - 1991 to 2000

Date	Event
1 & 3 Jul 1991	External Payments Crisis. Rupee Devalued in two stages. Cumulative devaluation about 18 percent in USD terms.
Nov 1991	The Narsimahmam Committee Report suggested far reaching reforms in the Indian Banking sector. These included a phased reduction in the SLR and CRR as well as accounting standards, income recognition norms and capital adequacy norms.
Mar 1992	A dual exchange rate system called Liberalised Exchange Rate Management System (LERMS) introduced. This was the initial step to enable a transition to a market determined exchange rate system.
Apr 1992	Income recognition and asset classification norms introduced. Provisioning and Capital adequacy standards specified. Indian Banks required to fulfill these norms by 1994 and 1996.
1993	Unified Exchange rate.
Jun 1994	National Stock Exchange commenced operations
Aug 1994	Rupee made convertible on the Current Account. Acceptance of Article VIII of the Articles of Agreement of the IMF.
Oct 1994	Lending rates of commercial banks deregulated. Banks required to declare their Prime Lending Rates (PLR).
10 Jul 1997	Foreign Institutional Investors (debt funds) permitted to invest in dated Government Securities.
28 Nov 1997	A series of measures introduced in response to the Asian Currency Crisis.
28 Nov 1997	Fixed rate repos in G-Secs introduced to give maneuverability in liquidity management; and to bring orderly conditions in money and forex markets.
Jul 1999	Interest Rate Swaps (IRS) and Forward Rate Agreements (FRAs) introduced as OTC derivatives.
1999	Foreign Exchange Management Act, 1999 replaces FERA, 1973 with the objective of 'facilitating external trade and payments' and 'promoting the orderly development and maintenance of foreign exchange market in India'. The new act became operative from June 2000 along with a sunset clause.

(Reserve Bank of India)[68]

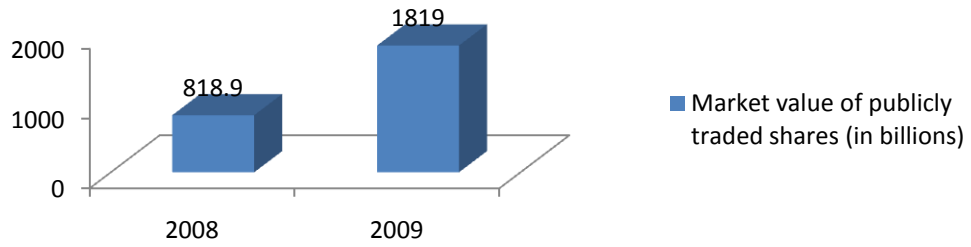
Exhibit 10: India Stock Market Performance



(Trading Economics, 2010)[69]

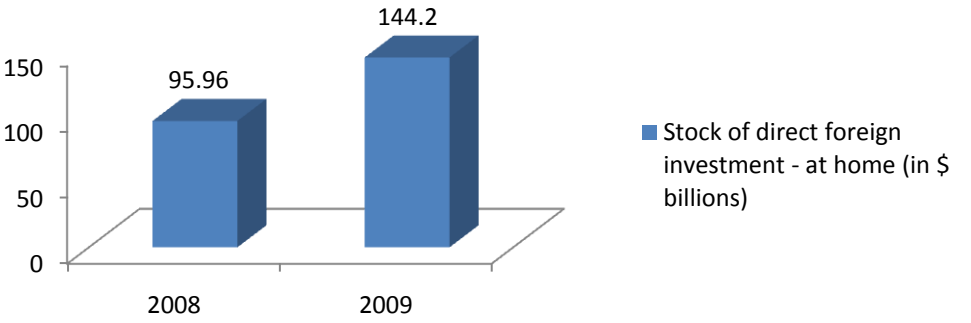
[68] RBI. (n.d.). *Reserve Bank of India*. Retrieved February 26, 2010, from www.rbi.org: http://rbi.org.in/scripts/chro_1991.aspx

Exhibit 11: Market Value of Publicly Traded Shares (inBs US$)



(Indexmundi, 2009)[70]

Exhibit 12: Stock of direct foreign investment - at home (in US$Bs)



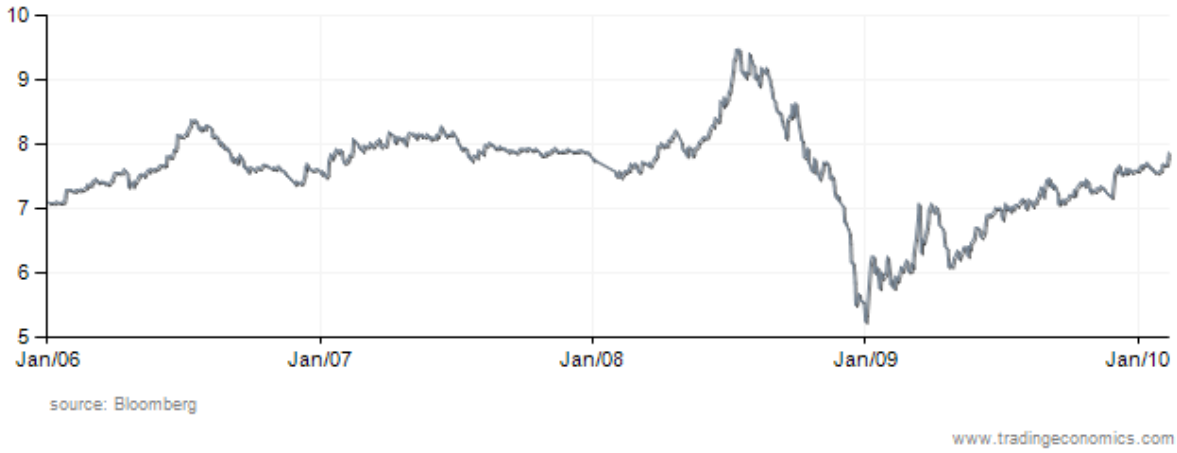
(Indexmundi, 2009)[71]

[69] "India Stock Market Index." 2010. Trading Economics-Global Economics Research. January 2010 <http://www.tradingeconomics.com/Economics/Stock-Market.aspx?Symbol=INR#ixzz0fcbp2jBv>

[70] Indexmundi. (2009). *India Market value of publicly traded shares.* Retrieved March 2010, from Indexmundi: http://indexmundi.com/india/market_value_of_publicly_traded_shares.html

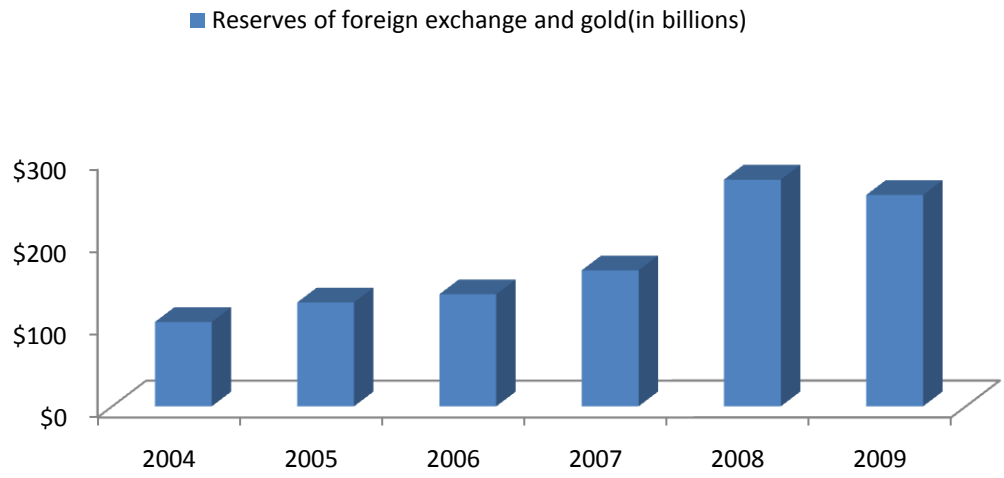
[71] Indexmundi. (2009). *India Stock of direct foreign investment - at home.* Retrieved March 2010, from Indexmundi: http://indexmundi.com/india/stock_of_direct_foreign_investment_at_home.html

Exhibit 13: India's Government Bond 10 Year Yield



(Trading Economics, 2009) [72]

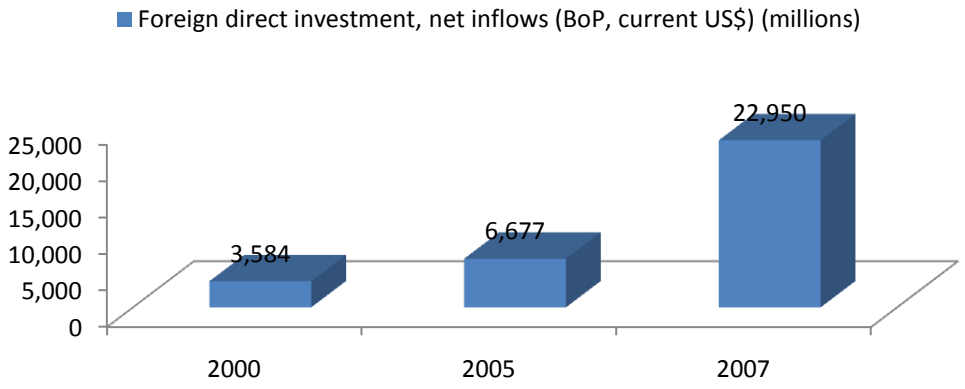
Exhibit 14: Reserves of Foreign Exchange and Gold (inBs) for India



(Index Mundi, 2010)[73]

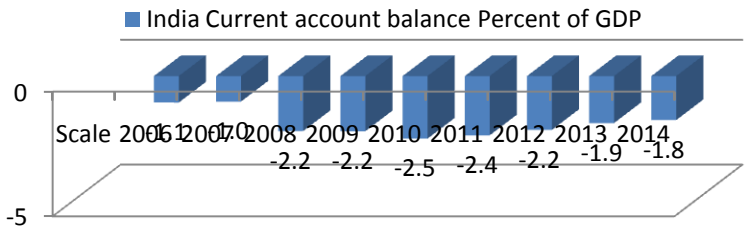
[72] Trading Economics. (2009). *India Government 10 Year Yield.* Retrieved March 2010, from Trading Economics: http://tradingeconomics.com/Economics/Government-Bond-Yield.aspx?Symbol=INR
[73] Index Mundi. (2010). *India Reserves of foreign exchange and gold.* Retrieved February 2010, from Index Mundi: http://www.indexmundi.com/india/reserves_of_foreign_exchange_and_gold.html

Exhibit 15: Foreign Direct Investment, Net Inflows (BoP, current US$ millions)



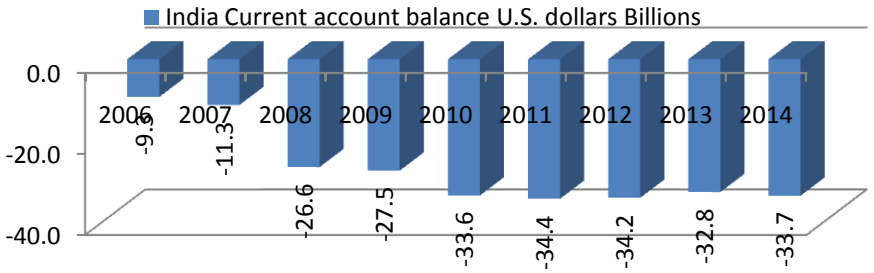
(The World Bank, 2009)[74]

Exhibit 16: India Current Account Balance Percent of GDP



(International Monetary Fund, 2009)[75]

Exhibit 17: India's Current Account Balance



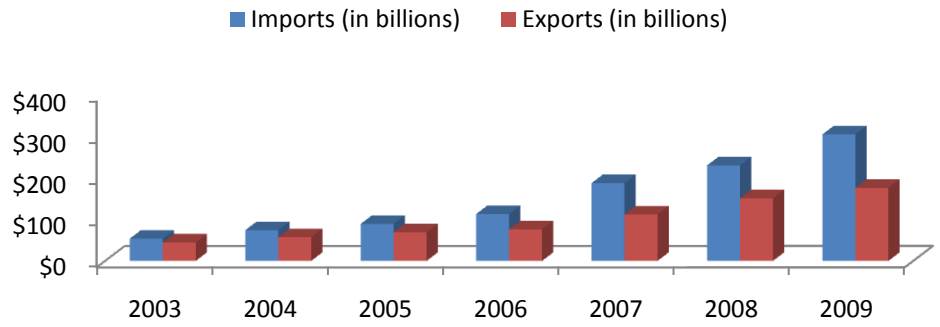
(International Monetary Fund, 2009)[76]

[74] The World Bank. (2009). *World Development Indicators.* Retrieved March 30, 2010, from The World Bank: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135

[75] International Monetary Fund. (2009, October). *World Economic Outlook Database-India.* Retrieved March 2010, from International Monetary Fund:http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/weorept.aspx?pr.x=59&pr.y=3&sy=2007&ey=2014&scsm=1&ssd=1&sort=country&ds=.&br=1&c=534&s=NGDP_R,NGDP_RPCH,NGDP,NGDPD,NGDP_D,NGDPRPC,NGDPPC,NGDPD

[76] International Monetary Fund. (2009, October). *World Economic Outlook Database-India.* Retrieved March 2010, from International

Exhibit 18: India Imports and Exports



(Index Mundi, 2010) [77]

Exhibit 19: The Law of One Price and Purchasing Power Parity

Product	Price (INR) Rs.	Price (USD) $	Implied Exchange rate USD/INR	Actual exchange rate as on 03/11/2010[78] USD/INR	Overvalued / Undervalued %
One Gallon of Milk	147.81	2.39	61.85	45.46	36.06
A loaf of brown bread	25	1.99	12.56	45.46	-72.36
Cheese Pizza at Domino's	175	10.99	15.92	45.46	-64.97
Hertz Car Rental (Hyundai Accent or similar car per day)	1800	84.50	21.30	45.46	-53.14
FedEx International Priority Shipment (0.5 kg)	1962	58.27	33.67	45.46	-25.93

Assuming this to be a basket of goods, the USD/INR rate can be averaged as follows:

$$\frac{36.06+(72.36)+(64.97)+(53.14)+(25.93)}{5} = \textbf{-36.07\%}$$

Thus the INR is undervalued compared to the USD by **36.07%**.

Monetary Fund:http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/weorept.aspx?pr.x=59&pr.y=3&sy=2007&ey=2014&scsm=1&ssd=1&sort=country&ds=.&br=1&c=534&s=NGDP_R,NGDP_RPCH,NGDP,NGDPD,NGDP_D,NGDPRPC,NGDPPC,NGDPD

[77] Index Mundi. (2010). *India* . Retrieved February 2010, from Index Mundi: http://www.indexmundi.com/india

[78] Bloomberg. (n.d.). Retrieved March 11, 2010, from Bloomberg.com: http://www.bloomberg.com/invest/calculators/currency.html

Exhibit 20: The Big Mac Index

Chicken Maharaja Mac = Rs. 65.00[79]
Big Mac in the U.S. = $ 3.57[80]
Implied PPP rate = 65 / 3.57 = 18.21
Actual USD/INR exchange rate (as on 03/11/2010) = Rs. 45.46

Thus, (18.21 – 45.46) / 45.46 = -59.95%

Thus the Indian rupee is undervalued against the U.S. dollar by **59.95**%

Exhibit 21: The Fisher Effect

Let us assume that S_2 is the spot rate at the end of the period.
S_1 = INR 45.46
10 year bond rate in United States = 3.62%[81]
10 year bond rate in India = 7.94%[82]

$$\frac{S_1 - S_2}{S_2} = \frac{i^{\$} - i^{Rs.}}{1 + i^{Rs.}}$$

Thus, $\frac{45.46 - S_2}{S_2} = \frac{0.0362 - 0.0794}{1 + 0.0794}$

S_2 = Rs. 47.3532

[79] *Call Meals*. (n.d.). Retrieved March 11, 2010, from www.callmeals.com: http://www.callmeals.com/order_us/getMenu/6
[80] Oanda. (2009, July 16). *www.oanda.com*. Retrieved March 11, 2010, from http://www.oanda.com/currency/big-mac-index
[81] *Trading Economics*. (n.d.). Retrieved March 11, 2010, from www.tradingeconomics.com: http://www.tradingeconomics.com/Economics/Government-Bond-Yield.aspx?Symbol=USD
[82] Trading Economics. (n.d.). Retrieved March 11 2010, from Trading Economics: http://tradingeconomics.com/Economics/Government-Bond-Yield.aspx?Symbol=INR

Exhibit 22: One Year Forward Rate

365 day T-bill rate in India = 5.06%[83]
12 month T bill rate in United States = 0.45 %[84]
USD/INR = 44.46[85]

One year forward rate = Spot Rate X $\frac{(1+ i^{Rs})}{(1+ i^{\$})}$

$$= 44.46 \times \frac{1.0506}{1.0045}$$

One year forward rate USD/INR= 46.50

Forward Premium / Discount = $\frac{\text{Forward} - \text{Spot}}{\text{Spot}} \times 100$

$$= \frac{46.50 - 44.46}{44.46} \times 100$$

Forward Premium = 4.59%

Forward Rates as per the Financial Times[86]

DOLLAR SPOT FORWARD AGAINST THE DOLLAR

Apr 8		Closing mid-point	Change on day	Bid/offer spread	Day's mid High	Day's mid Low	One month Rate	One month %PA	Three month Rate	Three month %PA	One year Rate	One year %PA	J.P.Morgan Index
Pacific/Middle East/Africa													
Australia	(A$)	1.0794	-	791-797	1.0797	1.0791	1.0829	-3.9	1.0906	-4.1	1.1278	-4.3	
Hong Kong	(HK $)	7.7593	-0.0029	591-595	7.7626	7.7581	7.7576	0.3	7.7540	0.3	7.7389	0.3	
India	(Indian Rupee)	44.4600	-0.0850	550-650	44.6925	44.3100	44.5850	-3.4	44.8375	-3.4	45.8625	-3.1	
Indonesia	(Rupiah)	9067.50	15.0000	000-000	9075.00	9055.00	9117.00	-6.5	9222.50	-6.7	9760.00	-7.1	
Iran	(Rial)	9902.00	7.0000	000-000	-	-	-	-	-	-	-	0.0	
Israel	(Shekel)	3.6985	0.0033	980-990	3.7031	3.6850	3.6999	-0.5	3.7035	-0.5	3.7240	-0.7	
Japan	(Yen)	93.1450	-0.5100	130-160	93.4400	92.8400	93.1256	0.2	93.0845	0.3	92.6935	0.5	101.4
Kuwait	(Kuwaiti Dinar)	0.2887	-0.0001	886-888	0.2912	0.2858	0.2889	-0.9	0.2891	-0.6	0.2900	-0.4	
Malaysia	(Ringgit)	3.2025	-0.0060	000-050	3.2190	3.2000	3.2078	-2.0	3.2191	-2.1	3.2655	-1.9	
New Zealand	(NZ $)	1.4184	0.0051	180-188	0.7052	0.7048	1.4213	-2.4	1.4273	-2.5	1.4619	-3.0	126.4
Philippines	(Peso)	44.9650	0.1850	600-700	44.9900	44.7900	45.1100	-3.9	45.4115	-3.9	46.5450	-3.4	
Saudi Arabia	(Riyal)	3.7503	-	501-504	3.7503	3.7502	3.7497	0.2	3.7482	0.2	3.7423	0.2	
Singapore	($)	1.3941	-0.0015	937-944	1.3993	1.3930	1.3942	-0.1	1.3946	-0.2	1.3956	-0.1	108.3
South Africa	(Rand)	7.2960	0.0335	910-010	7.3570	7.2653	7.3351	-6.4	7.4137	-6.3	7.7666	-6.1	
Korea South	(Won)	1123.25	2.5200	310-340	1125.00	1121.90	1124.40	-1.2	1126.70	-1.2	1136.05	-1.1	87.1
Taiwan	($)	31.5960	0.0275	920-000	31.6500	31.5000	31.5060	3.4	31.3060	3.7	30.6310	3.2	85.1
Thailand	(Baht)	32.2900	-0.0350	600-200	32.4800	32.2500	32.3125	-0.8	32.3538	-0.8	32.5650	-0.8	
U A E	(Dirham)	3.6729	-0.0001	728-730	3.6730	3.6728	3.6729	-	3.6735	-0.1	3.6762	-0.1	

* The closing mid-point rates for the Euro and £ are shown in brackets.The other figures in both rows are in the reciprocal form in line with market convention.
† Official rates set by Malaysian Government. The WM/Reuters rate for the valuation of capital assets in 2.80 MYR/USD. Bid/offer spreads in the Dollar Spot table show only the last three decimal places. J.P. Morgan nominal indices: Base average 2000 = 100. Bid, offer, mid spot rates and forward rates in both this and the pound table are derived from the WM/Reuters 4pm (London time) CLOSING SPOT and FORWARD RATE services. Some values are rounded by the F.T.

[83] RBI. (n.d.). *Reserve Bank of India*. Retrieved April 8, 2010, from www.rbi.org.in: http://www.rbi.org.in/home.aspx
[84] *Board of Governors of the Federal Reserve System*. (n.d.). Retrieved April 8, 2010, from www.federalreserve.gov: http://www.federalreserve.gov/releases/h15/data/Annual/H15_TB_Y1.txt
[85] *Financial Times*. (2010, April 8). Retrieved April 8, 2010, from www.ft.com: http://markets.ft.com/ft/markets/reports/FTReport.asp?dockey=DSP-080410
[86] *Financial Times*. (2010, April 8). Retrieved April 8, 2010, from www.ft.com: http://markets.ft.com/ft/markets/reports/FTReport.asp?dockey=DSP-080410

Exhibit 23: India's Balance of Payments

Major Items of India's Balance of Payments (RBI) **(US$ million)**				
	(2007-08) (PR)	**(2008-09) (P)**	**April-June (2008-09) (PR)**	**April-June (2009-10) (P)**
Exports	166163	175184	49120	38789
Imports	257789	294587	80545	64775
Trade Balance	-91626	-119403	-31425	-25986
Invisibles, net	74592	89587	22406	20179
Current Account Balance	-17034	-29817	-9019	-5808
Capital Account*	109198	9737	11254	5923
Change in Reserves# (+ indicates increase;- indicates decrease)	-92164	20080	-2235	-115
Including errors & omissions; # On BoP basis excluding valuation; P: Preliminary, PR: Partially revised. R: revised				
SOURCE: Reserve Bank of India Report				

Exhibit 24: The Asset Market Approach

Real interest rate in India = $\frac{1+\text{nominal interest rate}}{1+\text{inflation rate}} - 1$

$= \frac{1+0.3250}{1+0.1622} - 1$ [87]

$= 0.1401$

Real interest Rate in United States = $\frac{1+0.0025}{1+0.0260} - 1$ [88]

$= -0.0229$

[87] *Trading Economics*. (n.d.). Retrieved March 11, 2010, from www.tradingeconomics.com: http://www.tradingeconomics.com/Economics/Government-Bond-Yield.aspx?Symbol=INR

[88] *Trading Economics*. (n.d.). Retrieved March 11, 2010, from www.tradingeconomics.com: http://www.tradingeconomics.com/Economics/Government-Bond-Yield.aspx?Symbol=USD

Exhibit 25: Interest Rate Parity

F = 46.50= 1.05 ≈ 1%
S 44.46