CIANS ANALYTICS

Asset Returns in India (1991–2013)

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Where should one have invested in the India of 1991… Stocks, Gold, Debt? Lets find out…

- In 1991, India implemented economic reforms under pressure from the World Bank and IMF, thus opening up its economy to the world. This was followed by the arrival of sophisticated investors in large chunks since India presented land of opportunity with various asset classes to invest. Consequentially, Foreign Direct Investment (FDI), which were a meagre US$ 0.1 BN in 1990, increased to US$ 28 BN in 2013, while Foreign Institutional Investor inflows stood at US$ 20 BN in 2013

- India's nominal GDP increased from US$ 275 BN in 1991 to US$ 1,758 BN in 2013. Economic liberalization in India being an unprecedented event of sorts, we want to probe which asset class would have provided the highest return since the liberalization

- This study includes 5 types of asset classes – Equities (BSE Sensex), Commodities (Gold), Bank fixed deposit (1–3 years maturity), Government securities (10-year maturity), and Real estate*.

    - Pitting all these asset classes against each other, we found that Real estate and Equities (Sensex) have given strong returns on a nominal basis. Looking at the overall IRRs, Real estate appears to have outperformed all other asset classes during the 23-year period with an annualized rate of ~20%

    - Looking closely at 5-year rolling periods, we have found that Government securities consistently posted higher returns in the 1990s, while Real estate was the winner in the recent years

    - Not surprisingly Real Estate and Equities have experienced the most volatility, as well

- Interestingly, when looking at returns on a real basis during the 1991-2013 period, Equities in India have returned almost an identical rate of return compared to the US equity market, during the same time-period

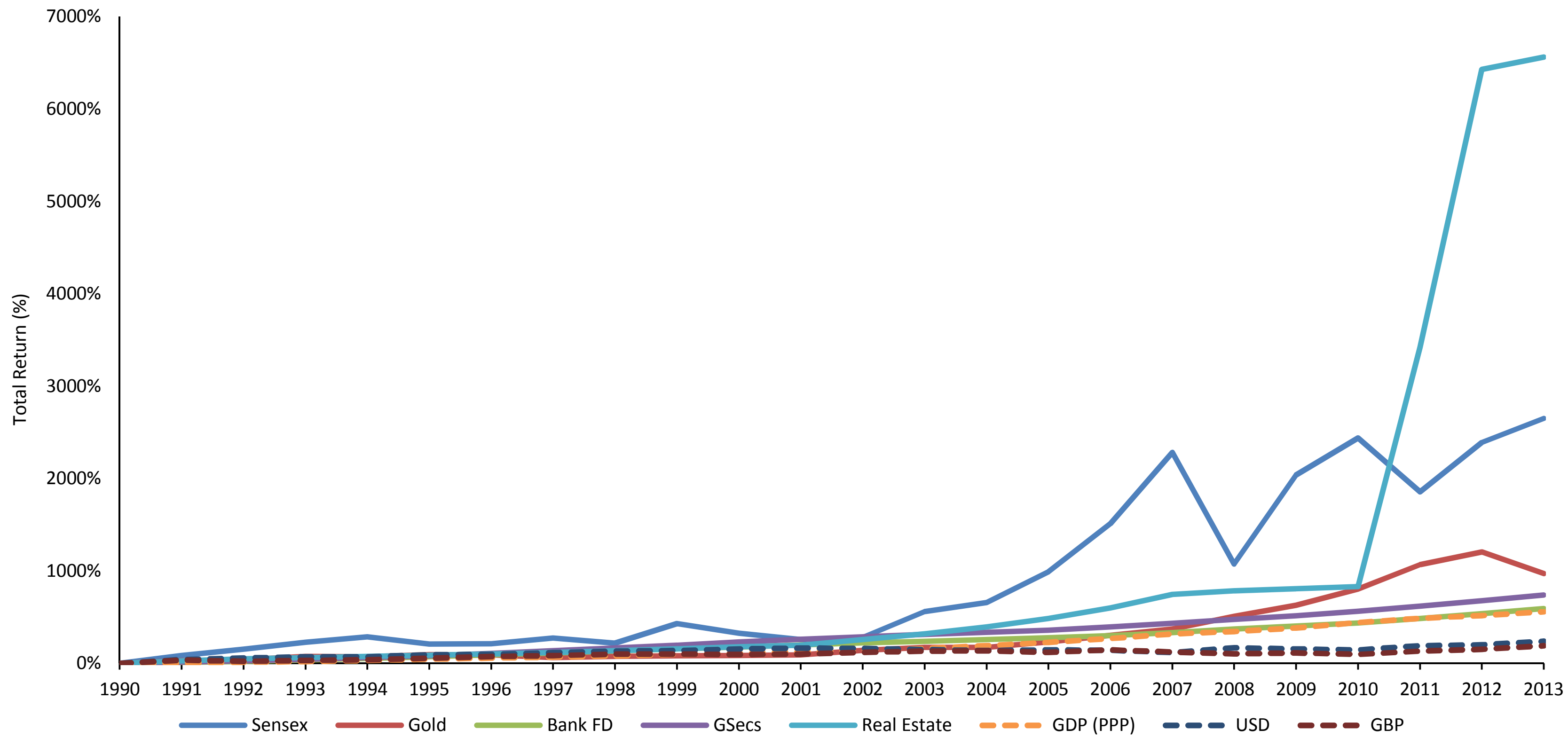
- The real estate market generated a moderately higher return on a real basis, as compared to the US real estate market

- Begs the question – with no significant lift from taking on the higher risk of investing in India (at least in Equities), are foreign investors better off leaving their money in a developed market like the US instead?

** See research methodology notes 1-7. Real estate returns have been calculated based on average circle rates (for all 8 categories) for residential property in Delhi. Please note that real estate as an asset class is highly illiquid, requires high initial investment and active management on the part of investor to realize rental yields*

Since India's economic liberalization, Real estate has outdone every other asset class, giving investors an annualized return of ~20% on a nominal basis*

Returns across various asset classes in India (1991–2013)*



India: Returns across various asset classes (1991–2013)

Period	Asset Classes					Indicators		
	Sensex	Gold	Bank FD	GSecs	Real Estate	GDP (PPP)	USD	GBP
1991–2013	2650%	972%	593%	740%	6562%	559%	241%	192%
IRR	15.5%	10.9%	8.8%	9.7%	20.0%			

*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; All above mentioned returns are on a nominal basis & indexed to 1990; * See research methodology notes 1-7*

GSecs have posted higher returns for most part until 2000, while Real estate has taken over in the recent years, when looking at returns on a 5-year rolling basis*

Rolling 5-year returns across various asset classes in India (1991–2013)*

Period	Asset Classes					Indicators	
	Sensex	Gold	Bank FD	GSecs	Real Estate	GDP (PPP)	USD
1991-1995	209%	96%	73%	83%	87%	46%	94%
1992-1996	70%	46%	76%	85%	58%	53%	39%
1993-1997	48%	18%	76%	86%	46%	50%	35%
1994-1998	-2%	0%	73%	85%	47%	50%	35%
1995-1999	37%	5%	67%	85%	48%	48%	39%
1996-2000	38%	-6%	61%	80%	50%	44%	33%
1997-2001	15%	1%	56%	73%	48%	41%	35%
1998-2002	1%	46%	51%	64%	63%	40%	22%
1999-2003	107%	55%	45%	56%	77%	44%	7%
2000-2004	43%	50%	39%	47%	92%	49%	0%
2001-2005	155%	80%	36%	39%	109%	58%	-3%
2002-2006	348%	110%	33%	37%	135%	65%	-8%
2003-2007	528%	97%	34%	38%	137%	76%	-18%
2004-2008	78%	123%	39%	39%	111%	70%	7%
2005-2009	182%	167%	42%	41%	83%	65%	7%
2006-2010	133%	172%	43%	44%	59%	64%	-1%
2007-2011	21%	191%	46%	45%	404%	58%	20%
2008-2012	4%	176%	47%	46%	670%	48%	40%
2009-2013	134%	76%	47%	45%	652%	48%	27%
Key	Highest				Lowest		

Real estate has consistently performed the best over the period under study, with the highest return being ~670% during 2008–12 and the worst being ~46% during 1993–97

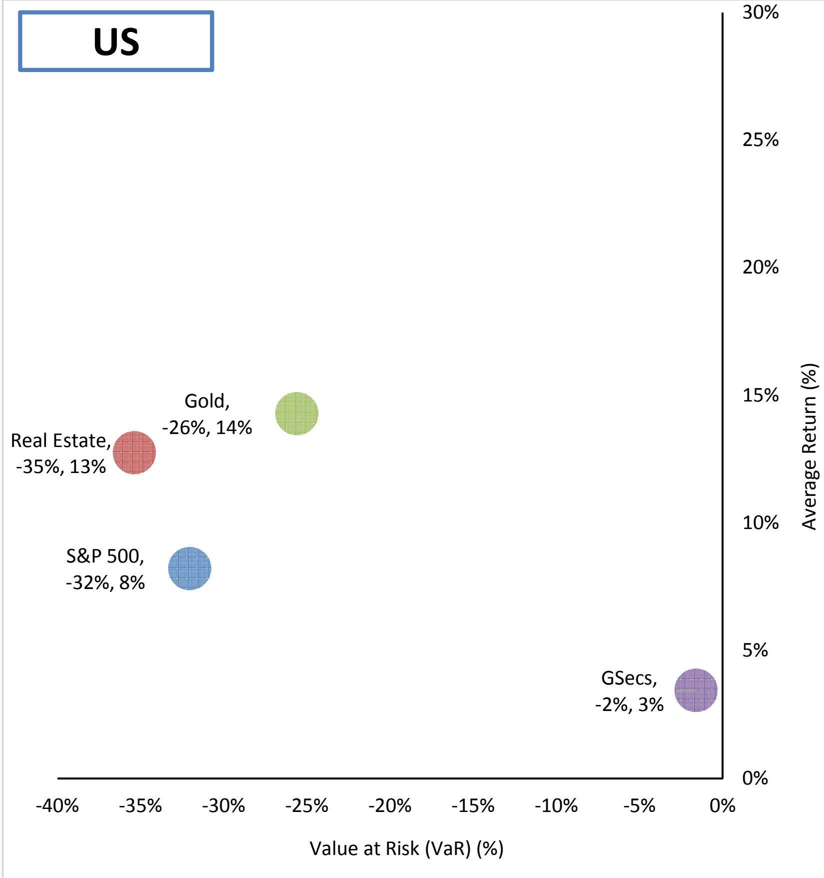
In the 1990s, GSecs were leading with returns as high as ~86% during 1993–97, while their lowest returns were 37% during 2002–06

During 2003–07, Equities (BSE Sensex) were the best performers with returns of ~528%; however, they were at the bottommost with (2)% returns during 1994–98

*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; All above mentioned returns are on a nominal basis indexed to the beginning of the respective period; * See research methodology notes 1-7*

Attendant risk is also high for high performers such as Equities and Real estate with VaR of ~(60)% and ~(24)%, respectively, in India (since 2002)

Risk-Return for various asset classes in India and the US (2002–13)[1]

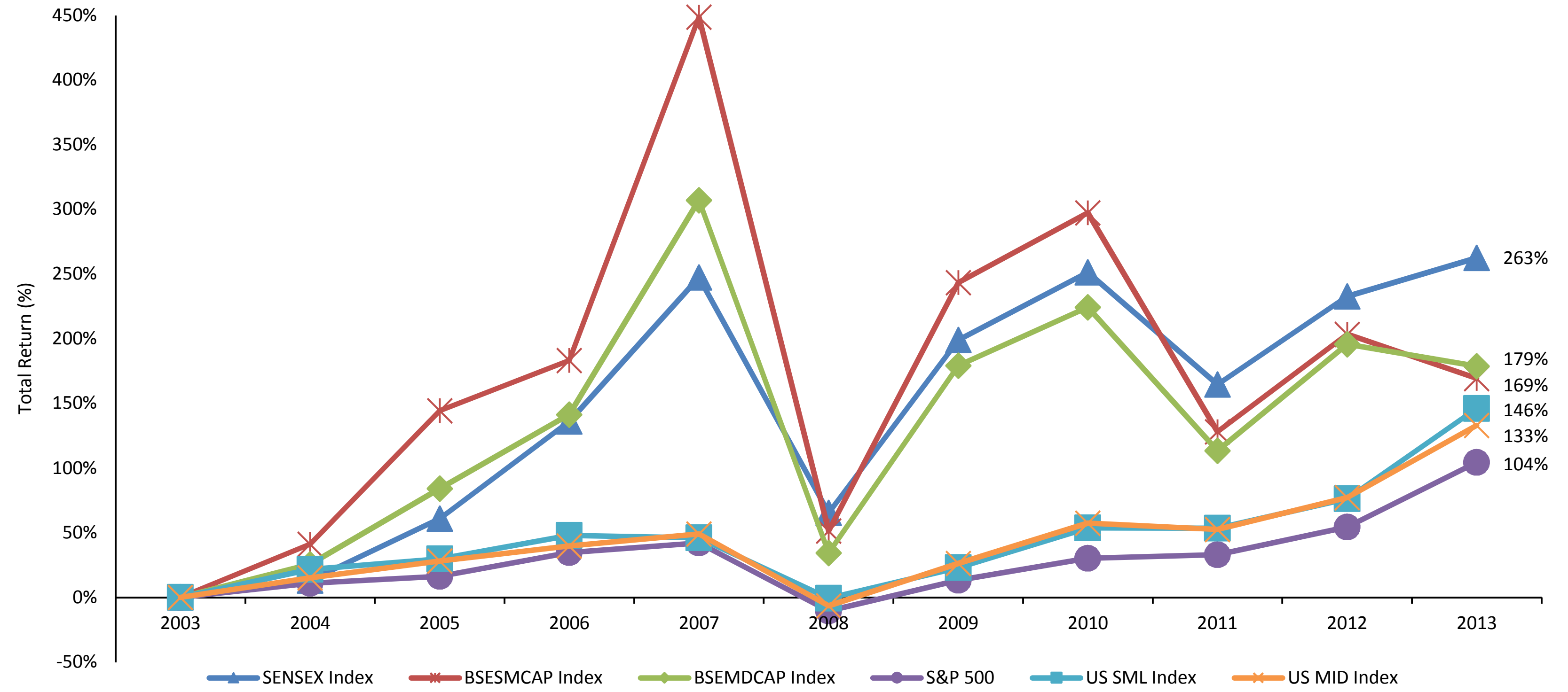


Following the housing bubble burst and mortgage crisis of 2008, Real estate in the US has VaR of ~(35)% while it continues to deliver a YOY average return of 13%*

*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; 1 - Value at Risk (VaR) has been calculated for a duration of 1 year and z-statistic for one-tailed test (-1.65) at 95% confidence level using the volatility of year-on-year returns on a nominal basis; * See research methodology note 13*

In the last decade, emerging market equities (India) have outperformed a mature market like the US, with Sensex returning an IRR of ~14% on a nominal basis*

Returns across various equity indices on a nominal basis (2004–13)



Returns across various equity indices on a nominal basis (2004–13)						
Period	India			US		
	SENSEX Index	BSESMCAP Index	BSEMDCAP Index	S&P 500	SML Index	MID Index
2004–13	263%	169%	179%	104%	146%	133%
IRR	13.7%	10.4%	10.8%	7.4%	9.4%	8.8%

Sources: Bloomberg; All above mentioned returns are on a nominal basis indexed to 2003;
** See research methodology note 14*

When comparing real returns between India and the US, India-based returns are almost equal to those in the US

Returns across various asset classes for India and the US (1991–2013)*

Return on asset class for period 1991–2013 (Nominal Basis)		Return on asset class for period 1991–2013 (Real Basis) [1]	
India	**US**	**India**	**US**
Sensex 2650% (IRR: 15.5%)	**S&P 500** 802% (IRR: 10.0%)	**Sensex** 380% (IRR: 7.1%)	**S&P 500** 406% (IRR: 7.3%)
Gold 972% (IRR: 10.9%)	**Gold** 212% (IRR: 5.1%)	**Gold** 87% (IRR: 2.8%)	**Gold** 75% (IRR: 2.5%)
Bank FD 593% (IRR: 8.8%)	**Bank CD** 133% (IRR: 3.8%)	**Bank FD** 21% (IRR: 0.8%)	**Bank CD** 31% (IRR: 1.2%)
GSecs 740% (IRR: 9.7%)	**GSecs** 185% (IRR: 4.7%)	**GSecs** 47% (IRR: 1.7%)	**GSecs** 60% (IRR: 2.1%)
Real Estate 6562% (IRR: 20.0%)	**Real Estate** 1226% (IRR: 11.9%)	**Real Estate** 1063% (IRR: 11.3%)	**Real Estate** 644% (IRR: 9.1%)
GDP 559%	**GDP** 180%	**GDP** 310%	**GDP** 76%

For international investors, currency fluctuations would have eroded returns as INR depreciated as much as ~241% against USD in nominal terms

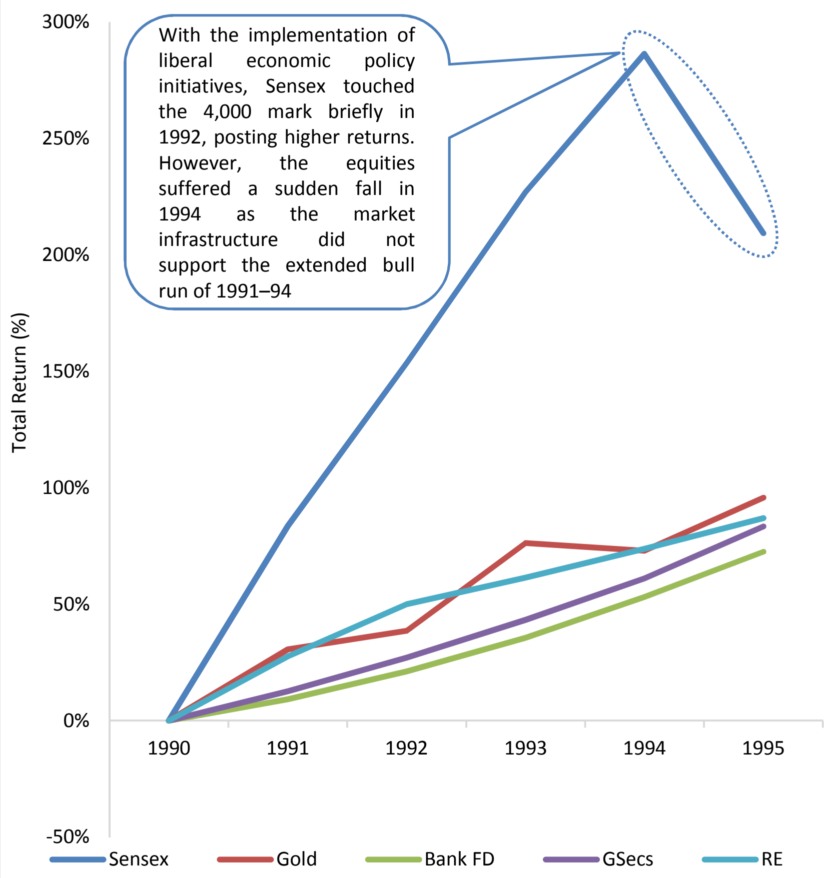
Should one REAL-LY be investing in India?

*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; * See research methodology notes 1-12; 1 – Real Returns have been calculated by adjusting for inflation – CPI*

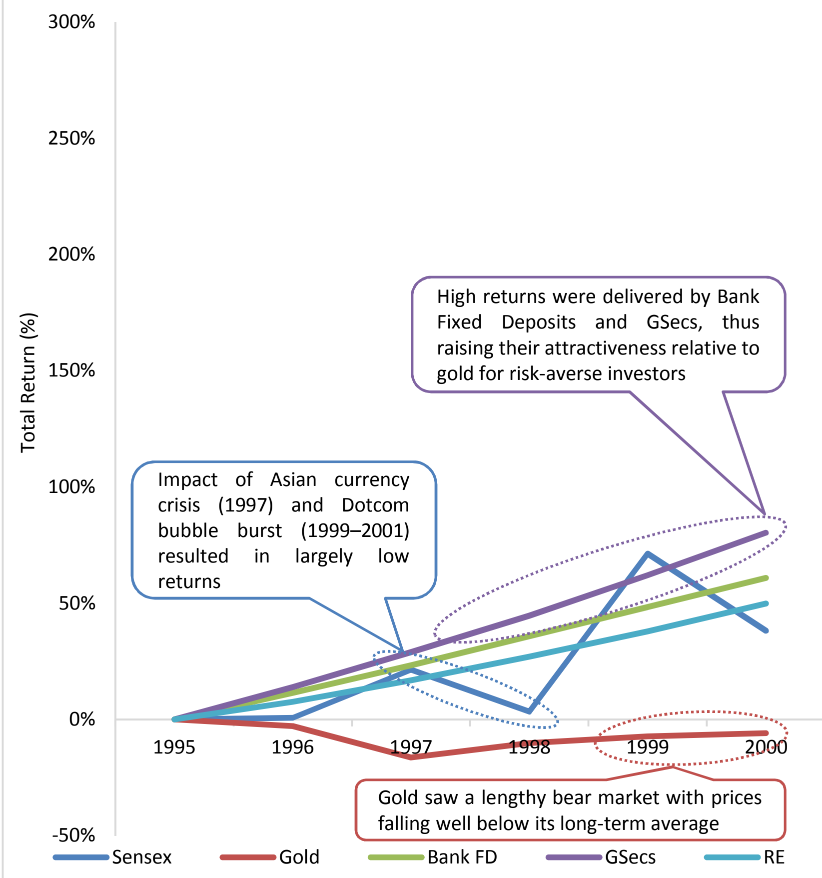
Appendix

In the aftermath of economic reforms in India, equities shot up returning ~209% during 1991–95, with GSecs being the worst performer with ~63% returns

Returns on nominal basis (1991–1995)



Returns on nominal basis (1996–2000)

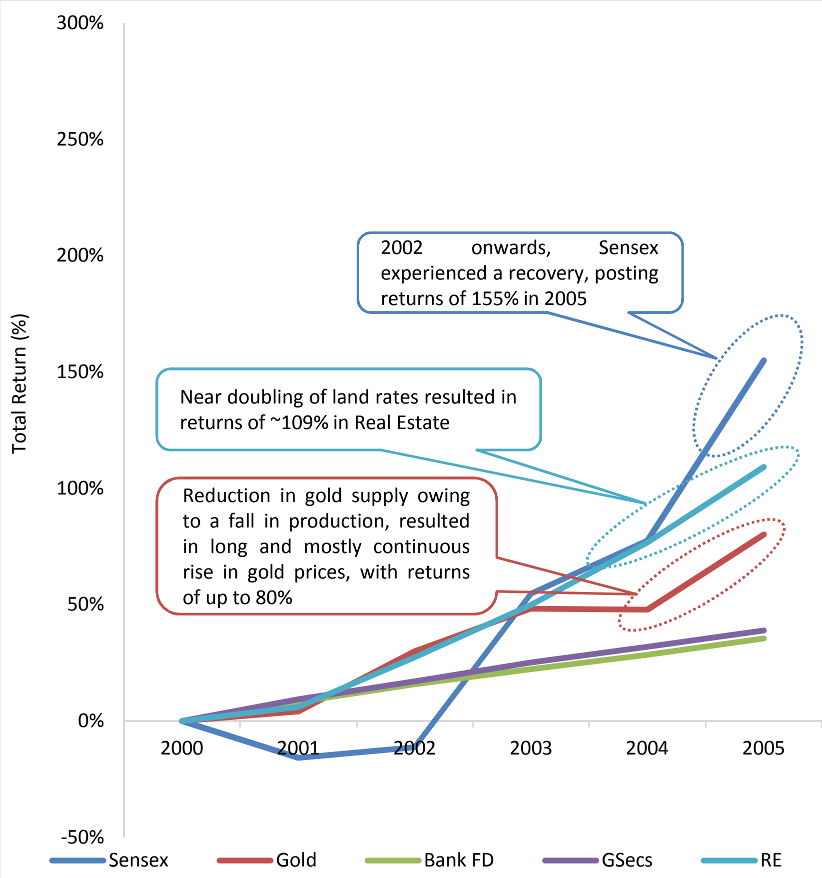


Gold appears to have taken a hit during 1996–2000 with returns of ~(6%) and the investors taking shelter under the safety of GSecs with a return of ~80%

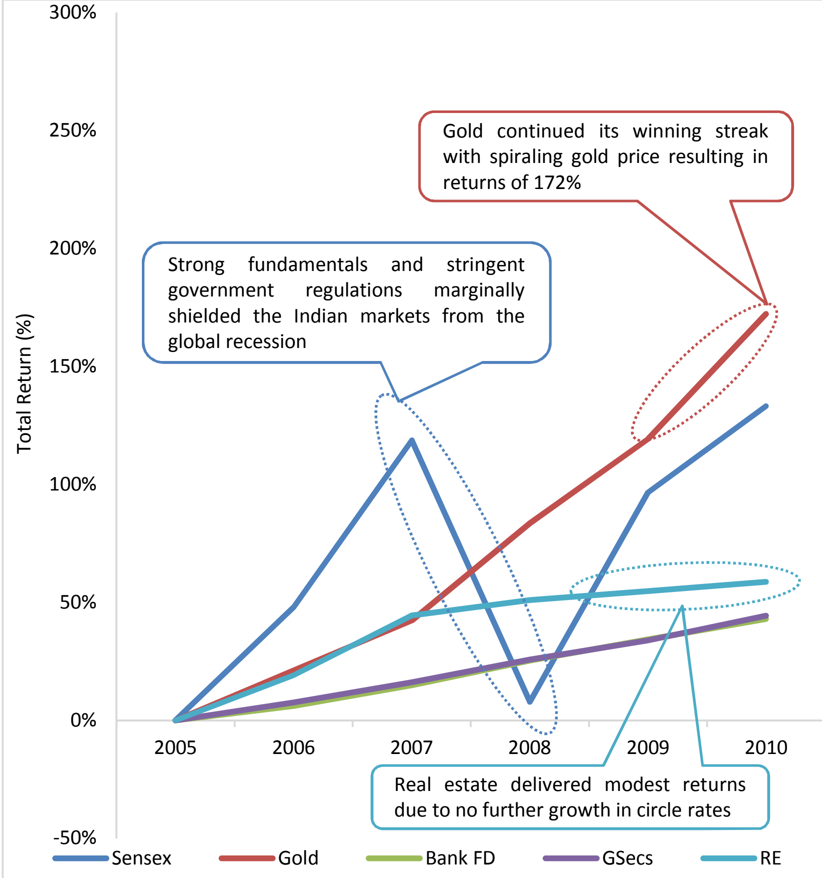
*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; *All above mentioned returns are on a nominal basis indexed to the beginning of the respective period; * See research methodology notes 1-7*

Recovery in equities led to returns of ~155% during 2001–05, while Bank fixed deposits and GSecs posted the lowest returns

Returns on nominal basis (2001–05)



Returns on nominal basis (2006–10)

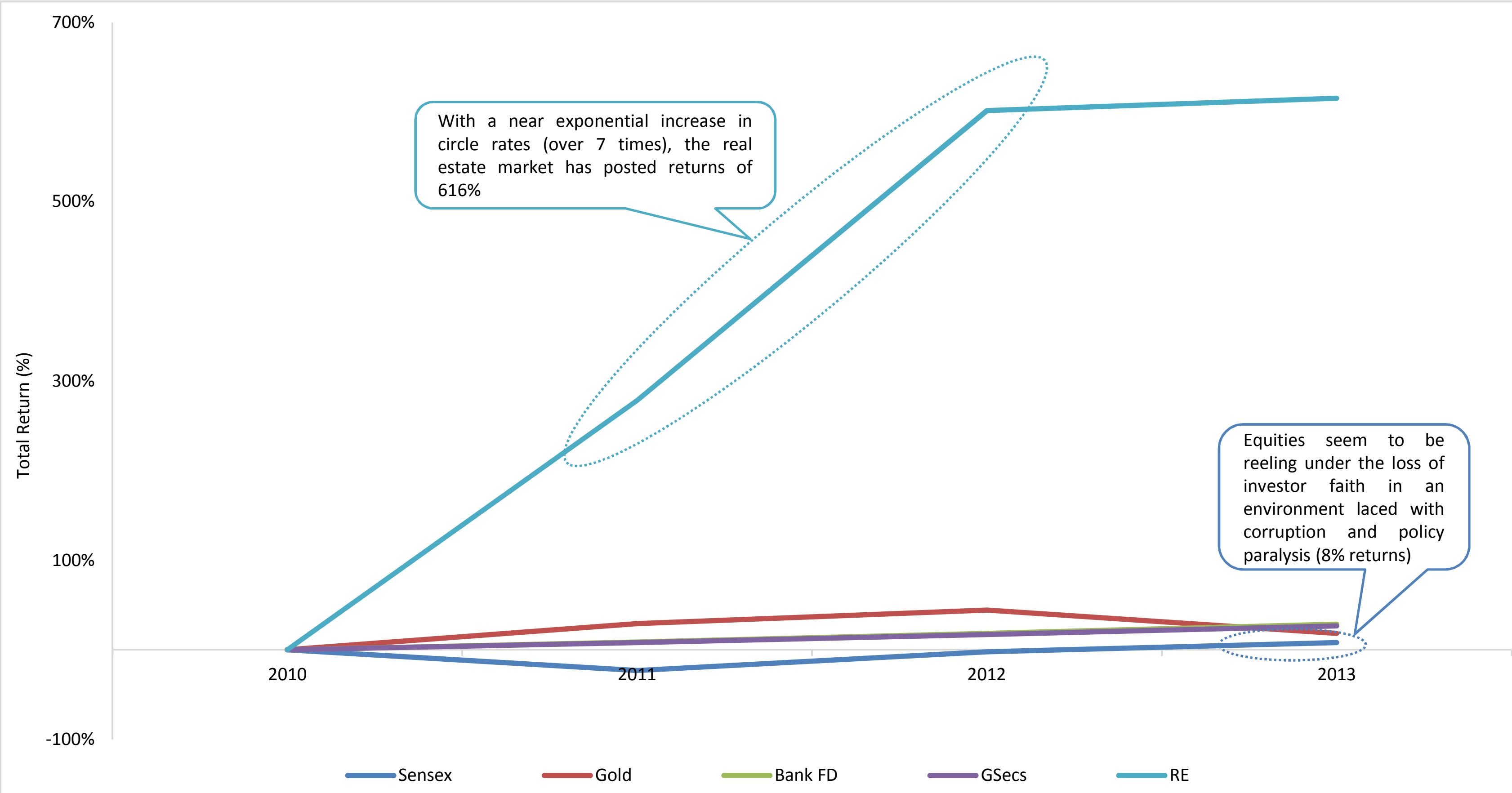


Continued recovery from the late 1990s crisis was followed by the US sub-prime mortgage crisis, which resulted in the most severe global recession since the Great Depression of 1930s

*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; *All above mentioned returns are on a nominal basis indexed to the beginning of the respective period; * See research methodology notes 1-7*

For the past three years, returns from all other asset classes seemed lackluster in the face of the astonishing returns of 616% by the Real estate market

Returns on nominal basis (2011–13)



*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; *All above mentioned returns are on a nominal basis indexed to the beginning of the respective period; * See research methodology notes 1-7*

Rolling 5-year returns on real basis – adjusted for Inflation (CPI) from 1991 to 2013

Period	Asset Classes					Indicators	
	Sensex	Gold	Bank FD	GSecs	Real Estate	GDP (Real)	USD
1991-1995	91%	21%	6%	28%	15%	28%	20%
1992-1996	8%	-7%	13%	18%	1%	37%	-11%
1993-1997	-3%	-22%	15%	22%	-4%	35%	-11%
1994-1998	-39%	-38%	8%	15%	-8%	37%	-16%
1995-1999	-9%	-30%	11%	23%	-1%	38%	-8%
1996-2000	-3%	-34%	13%	27%	6%	34%	-7%
1997-2001	-15%	-26%	15%	28%	9%	30%	-1%
1998-2002	-23%	11%	15%	24%	24%	30%	-7%
1999-2003	71%	28%	20%	29%	46%	32%	-11%
2000-2004	18%	23%	15%	21%	58%	33%	-18%
2001-2005	109%	48%	11%	14%	71%	39%	-21%
2002-2006	259%	68%	6%	9%	88%	45%	-27%
2003-2007	393%	55%	5%	8%	86%	53%	-36%
2004-2008	33%	66%	4%	4%	57%	47%	-20%
2005-2009	95%	84%	-2%	-3%	26%	48%	-26%
2006-2010	52%	77%	-7%	-6%	3%	49%	-35%
2007-2011	-22%	86%	-6%	-7%	223%	45%	-23%
2008-2012	-36%	70%	-9%	-10%	375%	37%	-14%
2009-2013	42%	7%	-11%	-12%	356%	38%	-23%
Key	Highest				Lowest		

*Sources: Bloomberg; World Gold Council; DEA – Ministry of Finance; GNCTD, LDO; *All above mentioned returns are on a real basis adjusted for inflation – CPI and indexed to the beginning of the respective period; * See research methodology notes 1-7*

Research Methodology

All returns are calculated on a gross basis, which is before taking into consideration general costs relating to acquisition, holding, and disposal of the asset including tax implications associated for an individual investor:

1. Compounded returns are calculated over the 23-year period from January 1, 1991 to December 31, 2013. The performances (or returns) equal the per-annum compound returns that an investment would have generated over the stated period
2. Real Estate in India: The real estate performance has been measured, based on the average of the land rates[7] and circle rates[8] as issued from time to time by the land/urban development authorities for residential property in Delhi (Capital of India)
   - During 1991–2006, Land and Development Office (LDO) came out with land rates[7] for different categories of properties, which have been used to measure the performance. Average land rates have been taken for residential property in Delhi
   - From 2007 onwards, GNCTD transitioned to the regime of circle rates[8] for various categories of properties. Average circle rates have been taken for residential property in Delhi
   - Rental yields[9] have been sourced from various new reports for the respective periods. For periods where the data was unavailable, lower limit of succeeding year's rental yields (in case of a range) have been assumed
3. The performance of Government of India (GoI) bonds is measured based on the coupons on the 10-year securities issued each year[3] starting 1992 (in case of multiple issuances in any year, average of coupons has been taken as a measure of return, and in case of no issuance in a year, the preceding year's coupons have been assumed; however, for the year 1991, the coupons for 1992 have been assumed). The total return that an investor might have received (before taxes and transaction costs) is assumed to be coupons and issue & redemption of bond is assumed to be at par
4. The Indian equities performance is measured based on the S&P BSE Sensex Index[2], which is a free-float market-weighted stock market index of 30 well-established and financially sound companies listed on the Bombay Stock Exchange. The Sensex measures the return that an investor might have received (before taxes and transaction costs) in the form of capital gains or losses. Separately, dividend yields for each year (starting 1991) have been taken from Vector Grader[6] (for 1991–99) and from Bloomberg[6] for the year 2000 onwards. The dividend yield has been added to the capital gain to realize the total return for any particular year
5. For commodities, we have taken Gold performance, which has been measured based on price series from the World Gold Council[5] in INR terms and USD terms (for commodities performance in the US). The return is assumed to be in the form of capital gains or losses based on price appreciation/declines without any intervening period returns during the holding period
6. Returns from bank fixed deposits have been measured by taking the average rate of interest (month on month) offered by the State Bank of India[2] on fixed deposits of maturity 1–3 years during a particular year from 1991 onwards

Research Methodology

7. The indicators for GDP and Forex market performance are based on the GDP and INR/USD & INR/GBP exchange rate[2], respectively. For forex, the end of period closing bids have been taken starting January 1, 1991 from Bloomberg. The return is assumed to accrue to investor by exchange rate fluctuations with investor gaining when INR depreciates vis-à-vis USD and vice versa without any intervening period returns during the holding period. For GDP, nominal GDP (PPP)[1] and real GDP[1] figures have been taken as an indicator for performance in nominal and real terms, respectively
8. The US equities performance is measured based on the S&P 500 Index[2] from 1991 to 2013 for comparative performance of equity segments. The S&P 500 Index measures the total return that an investor might have received (before taxes and transaction costs) in the form of capital gains or losses and dividend reinvestment (imputation tax credits are excluded)
9. The US government securities performance has been measured based on the performance of USGG10YR[2] index starting January 1, 1991. The index measures the yields on 10-year US Treasuries, where yields are yield to maturity and pre-tax. The rates comprise Generic United States on-the-run government bill/note/bond indices
10. The Real estate performance in the US is based on the FNERTR index, a free-float market capitalization-weighted index measuring equity tax-qualified real estate investments trusts, which meet minimum size and liquidity criteria[2]
11. The performance of bank certificate of deposits (CDs) in the US is based on the annualized rate of interest that a bank will charge for lending or pay for borrowing a currency for a specific tenor from 1996 onwards. Due to lack of data availability, the rate for 1996 has been assumed for 1991 to 1995. When entering a deposit contract both the seller and buyer will agree upon the currency, principle amount, day count convention, maturity, and interest rate[2]
12. The inflation is measured on the basis of change in the average consumer prices using the Consumer Price Index (CPI). This information is provided by the International Monetary Fund[1]
13. Value at Risk (VaR) has been computed as a risk measure using the z-statistic for one-tailed test (-1.65) at a confidence level of 95%, for the duration of one year, on the basis of volatility as measured by the standard deviation in YOY returns for each asset class. These have been mapped against the average YOY returns for each asset class, creating a risk–return profile for each asset class for both India and the US. The risk-return analysis has been done for a 12-year period from 2002 to 2013`
    - For the purpose of risk-return analysis for India, real estate performance has been measured on the basis of the National Housing Board Residex index for Delhi and GSecs performance has been measured by GIND10YR index from 2002 onwards
14. The performance of various equity segments in India and the US is based on the various indices, which are representative of the respective segments, namely S&P BSE Sensex, S&P BSESMCAP, and S&P BSEMDCAP for India and S&P 500, SML, and MID index for the US from January 1, 2004 onwards[2]

Glossary

Term	Description
BSEMDCAP Index	The S&P BSE Mid-Cap Index is a free-float market capitalization index based on the smallest 15% market capitalization of the BSE India exchange. The base value of the index is 899 effective April 1, 2003
BSESMCAP Index	The S&P BSE Small-Cap Index is a free-float market capitalization index based on the smallest 5% market capitalization of the BSE India exchange. The base value of the index is 835 effective April 1, 2003
Confidence Level	Confidence level indicates the degree of confidence that a given VaR number will not be exceeded. The higher the confidence level, the lower probability it will be exceeded. However, the higher the confidence level, the higher the VaR number. Confidence levels generally range between 90% and 99%
DEA	Department of Economic Affairs, Ministry of Finance, Government of India
FNERTR Index	It is a free-float market capitalization-weighted index measuring equity tax-qualified real estate investments trusts, which meet minimum size and liquidity criteria and are traded on the New York Stock Exchange, the American Stock Exchange, and the NASDAQ National Market System. The index is part of the FTSE NAREIT US Real Estate Index Series and effective December 20, 2010, its ticker has been changed to FTSE NAREIT
GDP (PPP)	GDP based on purchasing power parity (PPP) is nominal gross domestic product converted to international dollars using purchasing power parity rates
GDP (Real)	Real GDP is an inflation-adjusted measure that reflects the value of all goods and services produced in a given year, expressed in base-year prices
GNCTD	Government of National Capital Territory of Delhi
GSecs	Government of India 10-year bond is a dated (long-term) government security that carries a fixed or floating coupon (interest rate), payable on face value at fixed time periods (usually half-yearly)
Inflation – CPI	A consumer price index (CPI) measures changes in the prices of goods and services that households consume. It is expressed in annual percentages of year-on-year changes in the average consumer prices
Internal Rate of Return (IRR)	The IRR on an investment is the "annualized effective compounded return rate" or "rate of return" that makes the NPV of all cash flows (both positive and negative) from a particular investment equal to zero. The higher an investment's IRR, the more desirable it is

Glossary

Term	Description
LDO	Land and Development Office
MID Index	Standard and Poor's Midcap 400 Index is a capitalization-weighted index that measures the performance of the mid-range sector of the US stock market. The index was developed with a base level of 100 as on December 31, 1990. To be included in the index, a stock must have a total market capitalization of US$ 750 MN – US$ 3.3 BN
Return on Nominal Basis	It is an unadjusted rate of return, which often reflects the current situation, and does not make adjustments to reflect factors such as seasonality or inflation, which provide a more accurate measure in real terms
Return on Real Basis	Return on real basis is a value that has been adjusted from a nominal return to remove the effects of inflation
S&P 500	Standard and Poor's 500 Index is a capitalization-weighted index of 500 stocks. The index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries. The index was developed with a base level of 10 for the 1941–1943 base period
Sensex	The S&P BSE Sensex Index is a cap-weighted index. The index members have been selected on the basis of liquidity, depth, and floating-stock-adjustment depth and industry representation. Sensex has a base date and value of 100 in 1978–1979. It shifted to free-float methodology on September 1, 2003
SML Index	Standard & Poor's Small cap 600 Index is a capitalization-weighted index that measures the performance of select US stocks with a small market capitalization. The index was developed with a base value of 100 as on December 31, 1993
USGG10YR Index	It is the index of yields on 10-year US Treasuries. Yields are yield to maturity and pre-tax. The rates comprise Generic United States on-the-run government bill/note/bond indices
Value at Risk (VaR)	VaR is a statistical technique used to measure and quantify the level of financial risk within a firm or investment portfolio over a specific time frame. It measures the potential loss in value of a risky asset or portfolio over a defined period for a given confidence interval. Thus, if the VaR on an asset is US$ 100 MN at a one-week, 95% confidence level, there is a only a 5% chance that the value of the asset will drop more than US$ 100 MN over any given week

Bibliography

1. World Economic Outlook Database 2013 - International Monetary Fund
   http://www.imf.org/external/pubs/ft/weo/2013/02/weodata/index.aspx
2. Bloomberg Database
3. Indian Handbook of Statistics on Indian Central Government Debt
   http://finmin.nic.in/the_ministry/dept_eco_affairs/middle_office/handbook_stat_Debt.pdf
4. Gold Prices by World Gold Council. http://www.gold.org/download/value/stats/statistics/xls/gold_prices.xls
5. Explaining the Gold rate. http://goldratefortoday.org/explaining-gold-rate/
6. Dividend yield for BSE Sensex. http://www.vectorgrader.com/indicators/india-sensex-dividend-yield (1991–1999) and Bloomberg (2000–2013)
7. Schedule of Land Rates in Delhi (1987–2000). http://ldo.nic.in/LANDRATES.htm
8. Circle Rates in Delhi:
   - http://www.delhi.gov.in/wps/wcm/connect/DoIT_Revenue/revenue/home/registration+acts+and+rules/manuals%2Cnotifications%2Corders/notification3548 (2007)
   - http://www.delhi.gov.in/wps/wcm/connect/861b460045b2ce9181a79fc1c1f135e9/Notification_4_2_11.pdf?MOD=AJPERES&lmod=-1886102825 (2011)
   - http://www.delhi.gov.in/wps/wcm/connect/0cf4ac004fa360359b21dffb6b929e93/NOTIFICATION+919+DATED+15-11-20110001.pdf?MOD=AJPERES&lmod=-1414804978&CACHEID=0cf4ac004fa360359b21dffb6b929e93&lmod=-1414804978&CACHEID=0cf4ac004fa360359b21dffb6b929e93 (2011)
   - http://www.delhi.gov.in/wps/wcm/connect/DoIT_Revenue/revenue/our+services/notification+-+revised+circle+rate+notification+dated+04-12-2012 (2012)
9. Rental yields in Delhi:
   - http://www.sip.org.sg/Planews/pdf/SIA.presented.pdf
   - http://www.scmp.com/article/1003109/fears-housing-bubble
   - http://www.hindustantimes.com/business-news/businessrealestate/property-rental-yields-decline/article1-737108.aspx
   - http://www.hindustantimes.com/business-news/businessrealestate/metro-rental-yields-hit-record-lows-in-2012/article1-962497.aspx
   - http://m.economictimes.com/markets/real-estate/realty-trends/indian-rental-returns-among-lowest-globally/articleshow/25802501.cms