

THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Derivatives – A Double Edged Sword

Gita Madhuri

Assistant Professor, Kirloskar Institute of Advanced Management Studies, Pune, India

Abstract:

The Financial Derivatives have earned an extremely significant place among all financial instruments. The derivative segment has registered an explosive growth in India since their launch in year 2000. The derivative market turnover in India has grown from Rs.2365 Cr. in 2000 -2001 to Rs.16807782.22 Cr. in 2012-13. This paper studies the advantages and disadvantages of Derivatives as a Risk management tool, when it is dealt with understanding the market conditions and other macroeconomic variables. This paper analyses the market shares of Derivatives in India and also the different types of derivatives available in the Indian financial markets. The objective of the paper is to understand the benefits to be attained by using Derivatives as Risk management tool rather than banning it as a lethal or complex instrument. The challenge today is to design a framework to mitigate Risks and promote transparency of the Derivatives market.

1. Introduction

In the present era of globalization and liberalization across the world, we witnessed a multiple growth in the volume of international trade and business. As a result, the demand for international money and financial instruments increased significantly. The increased trade and usage of instruments also meant that there is a substantial increase in the risk to the corporate world. The need to mitigate such risks has led to the inception of new financial instruments called Derivatives

Options belong to the class of instruments referred to as Derivatives. The Price of the derivative instrument is derived from the value of the underlying asset. An appropriate pricing mechanism is required to aid the traders in pricing of options for making profits. With the existence of many stochastic and non-stochastic models, the traders are perplexed about the appropriate model to be used. Many of the option pricing models are highly complex and involve rigorous mathematical computations. Hence Options traders normally do not depend on theories. They may take decision based on market conditions but avoid fragility of the theories.

1.1. Derivatives in India

Derivatives though not new to India, but modern Financial Derivatives is yet a recent Phenomenon in India. RBI has permitted banks and financial Institutions to use derivatives –interest rate swaps, currency swaps and forward rate agreements for their ALM purposes since January 2000. However forward contracts which are the simplest form of Derivative products have been permitted by RBI since 1970.

1.2. Derivatives Permitted by SEBI in Capital Market

Product	Underlying	Trading since
BSE Sensex futures	BSE Sensex	9th June 2000
BSE Sensex Options	BSE Sensex	9Th June 2000
BSE stock Options	Individual stocks	9th July 2000
Nifty Futures	S&P CNX Nifty Index	12th June 2000
Nifty options	S&P CNX Nifty Index	4th June 2001
Nifty stock options	Individual stocks	2nd July 2001

Table 1

2. Derivatives – A Risk Management Tool

Though derivatives have come into existence as tools for risk management, they are also prone to many risks. These risks associated with Derivatives are Credit, market, liquidity, legal, operational.

Credit risk is the counterparty risk, which could be pre settlement or Post settlement risk.

Current Credit risk occurs when the counterparty defaults before the settlement date. A settlement risk is the credit exposure on the settlement date. While the current credit exposure is equal to the replacement value of the contract it is very difficult to measure the contingent credit rate exposure because it involves predicting future movement of market prices of the underlying and the related variables.

2.1. Market Risk

This risk is basically a price risk which includes an interest risk, forex risk, commodity prices and equity prices depending upon the derivatives used.

The measurement of market risk is done through VaR approach.

This risk is managed by using delta, gamma, vega, theta and rho of the portfolio.

2.2. Liquidity Risk

This risk could be a specific liquidity risk when relates to specific products or markets. When the risk relates to general funding of derivative activities it is a general liquidity risk.

Liquidity risk can be quantified and mitigated through its funding / liquidity plans.

2.3. Operational Risks

When there is inadequate system, procedure, lack of internal control, technical failure, fraud by employees such a risk is called operational risk.

Though it is very difficult to quantify the Operational risk it can be evaluated by what-if analysis and worst case scenario analysis.

2.4. Legal Risk

Legal risk came into sharp focus in 1990 in the case of Hammersmith and Fulham when they borrowed money from the government and entered into interest rate swaps with the local banks. In 1988 the interest rates went up steeply and British Govt concluded that the local authorities did not have power to enter swap and was illegal and on hearing the court decision the international banks lost about 550Million.

Legal risk can be mitigated by following standard international documentation and also seeking legal counsel even in the case of slightest doubt.

3. Derivatives –Mismanaged Risky Tool

3.1. Long Term Capital Management

Hedge fund of Myron Scholes and Robert Merton set up in 1992 has returned an Excess Capital to investors, i.e. it earned net profit of more than 40% and Excess capital was amounting to \$2. 7Billion. In 1998, LTCM increased its portfolio of assets to \$1.25 trillion, against underlying Equity of \$4.72 billion.

But by September 1998, the total value of assets in the world markets declined by US \$3 trillion. By September 1998 LTCM lost 90% of its value and had to be bailed out to the tune of US \$ 3.6 billion by a group of 14 major US and European banks, at the behest of US Federal Reserve. True to the conviction the tremors of this mishap continue to be felt around the globe till date.

3.2. Few Other Derivative Disasters

Year	Name of the Institution	Estimated Losses (in Millions)
1990	Hammersmith & Fulham	GBP 550
1994	Procter & Gamble	\$157
1994	Air Products & Chemicals	\$113
1994	Gibson Greetings	\$19.70
1994	Kashima Oil	\$1.45
1994	orange County	\$1.70

Table 2

3.3. What Went Wrong?

3.3.1. Lack of Firm Wide Risk Management Policy

In the case of LTCM, Barings and MGRM a clearly defined institution wide risk management policy would have avoided the crisis. Barings bank is a classic example of operational risk in that the segregation of front and back offices was not ensured. NatWest Markets represents a case of model risk as a result of which options were wrongly valued.

3.3.2. Losing Sight of Worst Case Scenarios

In all the above cases the maximum exposures which an institution can take in case the market scenario turns to the worst was not considered.

3.3.3. Lack of Understanding by Senior Management

In many of the above cases the senior management were not fully aware of the type of derivatives used, leave alone the payoffs associated therewith.

4. Conclusion-Derivatives a Double Edged Sword

4.1. "A Perfect Hedge is Available Only in a Japanese Garden -Unknown"

The hedging process in derivatives is initiated by taking an opposite position in the derivatives market to that of the cash or underlying market. It actually means that if we are losing in the physical market or cash market, we tend to gain in the derivatives market by the position we have taken.

For example, if the increase in interest rates in a given situation can cause us loss in the underlying matter, then we should be taking position in the derivatives market that we gain by increasing interest rates in the future.

If the gain in derivatives market and the loss made in the cash market are equal, then it is called as Perfect Hedge. But rarely Perfect Hedge is possible in the real market. It is a Utopian World in which it can exist.

Hence Derivatives more often offset the losses incurred in the cash market so as to reduce the overall adverse effect to the user. The purpose of using derivatives for risk management is to stabilize total profits but rarely for adding more profits.

It can be concluded that derivatives are mostly used more in financial sense than in the physical sense, which means that they are more used for cash settlement rather than Physical delivery of the underlying asset.

Derivatives markets perform functions of Price Discovery, Risk management and Transactional Efficiency.

Derivatives can also be used for the purpose of market making, hedging, speculating, and /or arbitraging.

Warren Buffet has commented Derivatives as Time bombs for the economic system and called them financial weapons of mass destruction. Derivatives are like electricity when handled properly can bring immense wealth and when mishandled can be dangerous and lethal.

5. References

- i. Avadhani, S. (2000). Investment Management and Mutual Funds (2nd Edition).
- ii. Hull J. (1995). Introduction to Futures and Options Market (1st Edition).
- iii. Don.M.Chance. Introduction to Derivatives and Risk Management (3rd edition).
- iv. Sahoo (1997). Financial Derivatives and its products (2nd Edition).
- v. Baig, T., Goldfajn, I. (1999). "Financial Market Contagion in the Asian Crisis", IMF Staff Papers, 46
- vi. Bank of England (1992). Report of the Board of Banking Supervision Inquiry into the Circumstances of the Collapse of Barings, Londra: HMSO Publications. Acest raport este disponibil pe site-ul IFCI, risk.ifci.ch
- vii. Barton, J. (2001). "Does the Use of Financial Derivatives Affect Earnings management Decisions?", The Accounting Review, Vol. 76, No. 1, pp. 1-26
- viii. Bekaert, G., Campbell, R.H., Angela, Ng (2003). "Market Integration and Contagion", Journal of Business, 78, pp. 1-31
- ix. Bertero, E., Mayer, C. (1989). "Structure and performance: Global interdependence of stock markets around the crash of October 1987", 307, C.E.P.R. Discussion Papers
- x. Bhaduri, R., Meissner, G., Youn, J. (2007). "Hedging Liquidity Risk", Journal of Alternative Investments, Winter Center for International Securities and Derivatives Markets (2006). The Benefits of Managed Futures
- xi. Cox, H.S., Schwebach, G.R. (2002). "Insurance Futures and Hedging Insurance Price Risk", The Journal of Risk and Insurance, Vol. 59, No. 4, pp. 628-644
- xii. Das, S. (2004). Swaps/Financial Derivatives. Products, Pricing Applications and Risk Management, Third Edition, Vol. 3, John Wiley & Sons.
- xiii. Deutsche Bundesbank (2009). Financial Stability Review, pp. 69-83
- xiv. Dodd, R. (2002). "The Structure of OTC Derivatives Markets", The Financier, Vol. 9, No. 1-4
- xv. Hull, C.J. (2000). Options, Futures and other Derivatives, fifth edition, Prentice Hall, New Jersey
- xvi. ISDA Consultative Report (2011). Principles for financial market infrastructures, 22th July Laws, J., Thompson, J. (2002). Hedging effectiveness of stock index futures, Paper, Centre for
- xvii. International Banking, Economics and Finance (CIBEF), Liverpool John Moores University 102
- xviii. Lin, Justin Yifu (2008). The Impact of Financial Crisis on Developing Countries, Korea Development Institute, Seoul, October 31
- xix. Păun, Ioana-Diana (2013). Managementul riscului investițiilor în titluri derivate, Teza de doctorat
- xx. Stulz, R.M. (2004). "Should we Fear Derivatives?", Journal of Economic Perspectives, Vol. 18, No. 3, Summer, pp. 173-192
- xxi. Statistical release: OTC derivatives statistics at the end-December 2011, BIS, May 2012
- xxii. Ahuja, L. Narender (2005). Commodity Derivatives Market in India: Development, Regulation and Future Prospects. IBRC Athens 2005.
- xxiii. Fitch Ratings (2004). Fixed Income Derivatives---A Survey of the Indian Market, retrieved from: www.fitchratings.com.
- xxiv. Habibullah (2003), retrieved from: http://files.embedit.in/embedit.in/files/8OxCrHwRoN/1/page_63.swf, 08th December, 2012; 9:56 am.
- xxv. Hathaway, Kate (October 1988), "Regulatory parameters associated with successful derivatives", Chartered Secretary, Volume XXVII, Number: 10, Pp. 981-988
- xxvi. Jason Greenspan (1997). Financial Futures and Options in Indian Perspective. Jaico Publishing House.