Importance & Benefits of Hedging
1. Introduction

2. Why risks emerge and perspectives on their management

   2.1 Price risk management in the commodity economy

   2.2 Hedging using commodity derivatives

3. Importance and benefits of hedging

   3.1 Why hedge? The micro-level arguments

      3.1.1 Analysing risk management in the microeconomic framework

      3.1.2 Theories of hedging

      3.1.3 Hedging acts as an insurance against price risk (price risk insurance theory)

      3.1.4 Portfolio theory

      3.1.5 Hedging facilitates better inventory management

      3.1.6 Hedging ensures continuity of cash flows

      3.1.7 Encouragement to capital investment

      3.1.8 Hedging is essential for enterprises with small market power

      3.1.9 Hedging for enhancing firm's value

   3.2 Why hedge? The macro-level argument

      3.2.1 Hedging: an essential feature for trade-intensive countries

      3.2.2 Existing literature on macro benefits of commodity derivatives

3.3 Why hedge? The strategy argument

   3.3.1 Hedging as a strategic resource

   3.3.2 Capital raising capability

   3.3.3 Lowering distress costs

   3.3.4 Lowering tax liabilities

   3.3.5 Hedging as a tool for corporate governance

4. Direct interventions versus market-based instruments: A comparative analysis

   4.1 Solution: market-based instruments

   4.2 Safety: an additional attribute of exchange-traded derivatives

5. Concluding remarks

Appendix: Concepts on hedge accounting

References
# Inside

## Abstract

1. **Introduction**

2. **Why risks emerge and perspectives on their management**
   - 2.1 Price risk management in the commodity economy
   - 2.2 Hedging using commodity derivatives

3. **Importance and benefits of hedging**
   - 3.1 Why hedge? The micro-level arguments
     - 3.1.1 Analysing risk management in the microeconomic framework
     - 3.1.2 Theories of hedging
     - 3.1.3 Hedging acts as an insurance against price risk (price risk insurance theory)
     - 3.1.4 Portfolio theory
     - 3.1.5 Hedging facilitates better inventory management
     - 3.1.6 Hedging ensures continuity of cash flows
     - 3.1.7 Encouragement to capital investment
     - 3.1.8 Hedging is essential for enterprises with small market power
     - 3.1.9 Hedging for enhancing firm's value
     - 3.1.10 Hedging to earn return
   - 3.2 Why hedge? The macro-level argument
     - 3.2.1 Hedging: an essential feature for trade-intensive countries
     - 3.2.2 Existing literature on macro benefits of commodity derivatives
   - 3.3 Why hedge? The strategy argument
     - 3.3.1 Hedging as a strategic resource
     - 3.3.2 Capital raising capability
     - 3.3.3 Lowering distress costs
     - 3.3.4 Lowering tax liabilities
     - 3.3.5 Hedging as a tool for corporate governance

4. **Direct interventions versus market-based instruments:**
   - A comparative analysis
   - 4.1 Solution: market-based instruments
   - 4.2 Safety: an additional attribute of exchange-traded derivatives

5. **Concluding remarks**

   Appendix: Concepts on hedge accounting

**References**
Abstract

Risks and their management have always been inseparably associated with all forms of economic activities. While the complexities, magnitude and dimensions of economic risks have grown manifold concomitant with the growth and complexity of the world economy, stakeholders exposed to risks have tried to manage their impact through a host of means. A very significant (and growing) risk whose impact encompasses virtually everyone – from the individual’s budget and the company’s bottomline to the economy’s fiscal stability – is that of commodity price volatility. Annualised volatility in one of the most tracked and comprehensive global commodity price index, the S&PGSCI (Standard & Poor Goldman Sachs Commodity Index), was a manageable 13 per cent in 1981, exceeded 20 per cent in almost all years in the new millennium, and surpassed 23 per cent by 2011. Yet, while the risk from commodity price volatility has been unequivocal, measures to manage its impact have been varied, and with mixed results. While companies have resorted to policies such as transfer of risks to upstream/downstream activities, change in input/product mix, etc., governments have often directly intervened in commodity markets to try and arrest volatility and/or to shield stakeholders. Quite often, these measures have been found to be either less efficient or too costly to implement. On the other hand, stakeholders in the commodity economy have gradually come to accept the fact that as against such non-market policy instruments, use of market-based instruments such as exchange-traded derivatives offers a viable and effective alternative.

There is a host of compelling microeconomic and macroeconomic arguments favouring the use of derivatives, or hedging, to manage commodity price volatility. For a firm, hedging provides a useful insurance against adverse commodity price movements, and lowers expenses such as inventory costs. At a broader level, as experiences in several countries have demonstrated, hedging is a convenient tool to manage the impact of unhealthy commodity price movements as a result of macroeconomic stability. Finally, there are also a number of convincing reasons for adopting hedging as a strategic policy instrument – many of which go beyond the immediate need to manage commodity price volatility. It has been theoretically proven and empirically established that hedging lower firms’ tax liability and improve capital raising capability. These benefits, along with the positive effect on firms’ corporate governance (through lowering of agency risk), have meant that hedging provides a source of perceptible differentiation to these entities, which can be viewed as a valuable strategic resource.

Boxes

1. Southwest Airlines: Corporate risk hedging strategies and shareholders’ value creation 09
2. Hedging by the gold mining industry 10
3. RBI policies on hedging of price risk in commodities 11
4. Ernst and Young survey on how Indian companies manage commodity price volatility 12
5. Strategic hedging by two Indian companies 15
6. Can hedging promote sustainable agriculture? 19
7. The superiority of exchange-traded derivatives over OTC derivatives 20
8. Developing countries using market-based instruments for risk management: Two examples 21
Abstract

Risks and their management have always been inseparably associated with all forms of economic activities. While the complexities, magnitude and dimensions of economic risks have grown manifold concomitant with the growth and complexity of the world economy, stakeholders exposed to risks have tried to manage their impact through a host of means. A very significant (and growing) risk whose impact encompasses virtually everyone – from the individual’s budget and the company’s bottomline to the economy’s fiscal stability – is that of commodity price volatility. Annualised volatility in one of the most tracked and comprehensive global commodity price index, the S&P GSCI (Standard & Poor Goldman Sachs Commodity Index), was a manageable 13 per cent in 1981, exceeded 20 per cent in almost all years in the new millennium, and surpassed 23 per cent by 2011. Yet, while the risk from commodity price volatility has been unequivocal, measures to manage its impact have been varied, and with mixed results. While companies have resorted to policies such as transfer of risks to upstream/downstream activities, change in input/product mix, etc., governments have often directly intervened in commodity markets to try and arrest volatility and/or to shield stakeholders. Quite often, these measures have been found to be either less efficient or too costly to implement. On the other hand, stakeholders in the commodity economy have gradually come to accept the fact that against such non-market policy instruments, use of market-based instruments such as exchange-traded derivatives offers a viable and effective alternative.

There is a host of compelling microeconomic and macroeconomic arguments favouring the use of derivatives, or hedging, to manage commodity price volatility. For a firm, hedging provides a useful insurance against adverse commodity price movements, and lowers expenses such as inventory costs. At a broader level, as experiences in several countries have demonstrated, hedging is a convenient tool to manage the impact of unhealthy commodity price movements as a result of macroeconomic stability. Finally, there are also a number of convincing reasons for adopting hedging as a strategic policy instrument – many of which go beyond the immediate need to manage commodity price volatility. It has been theoretically proven and empirically established that hedging lower firms’ tax liability and improve capital raising capability. These benefits, along with the positive effect on firms’ corporate governance (through lowering of agency risk), have meant that hedging provides a source of perceptible differentiation to these entities, which can be viewed as a valuable strategic resource.
1. Introduction

Risk is inherent in human nature. Therefore, it arises in probably every aspect of human endeavour. Interestingly, it is difficult to find a generic definition of the concept of risk, as it arises by taking different forms dependent on the type of human activity. Human attitudes towards risk are borne out of the general notion that economic rewards and risks are almost always highly intertwined, both in quantum as well as in simultaneity. The advancement of human civilisation, when seen as a series of collective rewards reaped by humankind, can inevitably be associated with risk-taking on the part of innovators—individuals and communities. That is probably why sociologist Niklas Luhmann (1996) considered ‘risk’ as a neologism that appeared with the transition from traditional to modern society.

Modern society that has consciously embraced risk, has also taken great efforts to assess its existence, measure its quantum, audit its impact and finally build mechanisms to mitigate its undesirable influence. This paper presents a detailed discussion on the various types of risks associated with one aspect of modern global economy – commodity price volatility. While various mechanisms are adopted by stakeholders adversely affected by commodity price volatility to mitigate the impact of such volatility, the effectiveness of these mechanisms varies widely. In particular, the mechanisms that make use of the institution of market have been found to be potentially more useful for this purpose.

This paper makes a comparative analysis of how and why market-based instruments——i.e., hedging with derivatives——fit in as the most effective risk management solution in the world of commodities. The analysis carried in this paper on the suitability of derivative instruments is not only in relation to the non-market based instruments, but also on the premise of a host of microeconomic, macroeconomic and strategic arguments.

As a concept, risk management dates back thousands of years, when early visionaries tried to identify and deal with manageable risk and evaluate the cost of what they could not control (Bernstein, 1996). In India risk management is not new; evidence suggests that risk management using products similar to commodity futures took place in the country as early as 2000 B.C. (Duffie, 1989).

In Japan, futures contract backed by rice were traded in 1600s (Bernstein, 1996). The advancement of rail road in and around mid-western United States made Chicago the trading hub of grains in the early 1800s. India was not far behind, the first organised commodity futures exchange — Bombay Cotton Futures Exchange was set up in 1875 (Pavaskar, 2000).

As regards risk management in the modern era, the application of statistical and mathematical tools in measuring and managing risks has led to a paradigm shift in the entire risk management function.

The contribution in mathematical modelling by Harry Markowitz (mean-variance theory of portfolio selection) and others in the 1950s provided a framework for portfolio selection and quantifying the risk-return trade-off (Merton, 1995). Further, invention of options pricing formula by Fisher Black and Myron Scholes in 1973 helped in quantifying the risk like never before.

The end of the gold standard and fixed exchange rate regime in the 1970s brought the world economy face to face with a number of ‘unknowns’: Compounding the problem was the oil price crisis twice during the same decade, whereby oil became the source of a major price risk factor (Fattouh, 2007). As a result, price risks quickly emerged as a top concern in risk management world over. Demand increased rapidly for tools to manage risk, and mathematics provided them solutions (Smithson, 1989) in the form of derivatives. Within a few years, institutions and industries that utilised these tools emerged and the word “derivatives” became a commonplace term (Cox, 1985).

Since the 1990s, there has been considerable activity in the fields of risk measurement and management, particularly as it is related to the mathematics of finance. Scientific approach to risk reached general professions during this decade, when the power of personal computing allowed for widespread data collection and number crunching. As a result, risk itself became a concept to be quantified and studied. It became understood that not only was it possible in...
some cases to reduce risk by choosing the appropriate policy, but it was also possible to assign a value to risk reduction and hence pay an individual to accept risk or, conversely, to accept payment to assume someone else's risk (Pulleyblank, 2003).

This paper is divided into five sections. Section 2 delves deeper into the concept of risks and their management with particular reference to those arising in the commodity economy. The traditional techniques of commodity risk management are also discussed, along with a snapshot of various derivative instruments, which are used to hedge against commodity price volatility.

Section 3 analyses commodity price risks and their management in three different frameworks – putting forth the microeconomic, the macroeconomic and finally the strategic arguments for hedging against commodity price risks faced by firms and nations. Section 4 discusses the merits of managing commodity price volatility using transparent market-based instruments, such as exchange-traded commodity derivatives, in relation to non-market mechanisms. Finally, Section 5 concludes with the inference that commodity price volatility is here to stay; and hence, there are compelling strategic reasons for hedging against them for attaining sustainability.

This paper also carries an Appendix, which is a detailed discussion on various aspects Hedge Accounting, without the knowledge of which a paper on benefits of hedging, would remain incomplete.
2. Why risks emerge and perspectives on their management

It is important to mention that there are three types of risks that can be witnessed in markets. These can be classified as: Market Risk, Credit Risk and Operational Risk (Pulleyblank, 2003). The first, market risk, refers to the risk to an institution resulting from movements in market prices, in particular, changes in interest rates, foreign exchange rates, and equity and commodity prices (MAS, 2006). The second, credit risk, attempts to place a value on the uncertainty associated with an account receivable. The third, operational risk, is the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems, or from external events (BIS, 2001).

Economic risk management is a process that deals with the uncertainties resulting from transactions occurring in markets. Essentially, this involves assessing the risks facing an organisation and developing management strategies consistent with its internal priorities and policies (Horcher, 2005). The breaking of the national economic boundaries by the forces of globalisation has made economic risk management an essential function for organisations (and countries). While on the one hand, globalisation has opened up a host of opportunities for various liberalising economies, risks in a globalising world often originate with events occurring thousands of miles away. Such events might have little linkage with the real domestic market, and yet make domestic organisations susceptible to high risks. The proliferation of Information and Communication Technology (ICT) often makes subsequent market reactions occur quickly and in a more volatile manner.

2.1 Price Risk Management in the Commodity Economy

Arguably, the impact of price volatility on the real economy is the greatest in the commodity economy. Since the commodity price volatility touches virtually every economic entity—from individuals, to organisations, to the economy—risk management in the commodity economy assumes a great importance. Individuals need to manage this risk to protect their real incomes, firms to protect their bottom-lines and competitiveness, and the economy to protect its macroeconomic stability. Volatile raw material and commodity prices are affecting every industry: from white goods, electronics, automotive, and fast moving consumer goods to supermarkets.

To overcome the threat of volatile commodity prices, various techniques have been tried and tested with various degrees of success. For companies exposed to commodity price risks, the unchecked volatility can quickly wipe out its profitability. To overcome the perils of volatility, traditionally, commodity buyers relied on long-term supply contracts, backward integration, material substitutions, etc. However, with a growing recognition of pricing risks in many markets, long-term fixed-price supply contracts have become difficult to negotiate. In the face of rising prices amidst increasing volatility and uncertain demand outlook, both buyers and sellers have migrated to risk-sharing and price smoothing contracts as a way to adopt a middle path. Under a typical long-term supply contract the buyers and sellers agree to a price corridor, wherein the price cap is set above the current market benchmark. The buyer absorbs any fall in price up to the floor, and the seller absorbs price increase up to the ceiling, for the tenure of the contract. The commodity super-cycle and the increased volatility in commodity markets post financial crisis has disrupted this arrangement. A case in point is the iron ore miners’ recent decision to move from long-term supply contracts to annual quarterly, monthly contracts, and even selling the commodity at the prevailing spot market prices (Blas, 2010).

In an attempt to insulate themselves from the fluctuation in raw material prices, secure uninterrupted supply and boost operating margins, large corporates adopt backward integration, wherein they acquired the raw material sources. A case in point is the slew of coal mine purchases in Australia, South Africa and Indonesia by Indian steel companies and power utilities. But this strategy is very costly and capital intensive. It is also fraught with political risks as the local government may any day change its export policies (Thakur, 2011).

A research note by Deutsche Bank (2010) identifies four traditional methods of commodity price risk management at the firm level:
1. **Upstream risk transfer to suppliers**

Companies often employ sourcing and contracting techniques to limit suppliers’ ability to pass on additional costs. Diversifying the supplier base for priority raw materials gives companies negotiation leverage and limits the power of individual suppliers when prices spike. In some circumstances, it is possible to partner with suppliers to share supply chain risk (such as using fixed, long-term contracts).

2. **Downstream risk**

Transfer of risks to customers’ companies sometimes include terms and conditions in contracts to adjust the timing of contract expiration and the risk exposure, where both let them pass on the additional costs to consumers. For example, when volumes are agreed upon for a long-term basis, pricing is updated frequently as the market changes. Other approaches include using public indices, using “collars” to restrict price changes to a specified range, and matching the contract’s terms with those of suppliers’ contracts.

When faced with a 42 per cent increase in energy costs during the first quarter of 2008, Dow Chemical Company increased prices by almost 20 per cent—the biggest one-time hike in the company’s 111-year history.

3. **Risk transfer to outside entities**

Apart from directly transferring risks outside the firm, some companies manage to transfer risk externally by collaborating with other companies in pursuit of shared goals. Such cooperation can create a win/win situation that reduces both cost and risk. For instance, a manufacturer can gain access to raw materials outside its home market by contracting to swap or share raw materials with another manufacturer, allowing both companies to reduce costs and giving them the flexibility to minimise supply chain risk.

4. **Internal risk mitigation**

For internal risk mitigation, the key is to develop flexibility in product development and manufacturing operations. This lets companies switch to cheaper raw materials when prices rise or shift production to different geographic locations that have cost advantages.

Companies can also stockpile an inventory of raw materials when prices are low and draw on these when prices spike. While there are costs associated with maintaining high volumes of inventory, they may be justified by the benefits when prices for raw materials are highly volatile.

Many companies are known to have stepped up their R&D efforts in search of inputs that can substitute the existing ones suffering high price volatility, or redesigning products, or even re-engineering production processes that can entail saving on input requirements. For example, as grapefruit oil prices shot up from US$10 a pound to US$70, following a series of weather-induced supply shocks in the USA in 2008, beverage and fragrance producing companies that used grapefruit oil as a key ingredient were forced to find alternatives. Many of them successfully reformulated their recipes using other ingredients. Today these companies have attained long-term risk mitigation on this front.

Many firms attempt internal risk mitigation by making the supply chain more efficient. This has been attained by companies (such as P&G) by basing manufacturing sites closer to consumer centres or sources of primary raw materials, in order to decrease transportation costs. Walmart’s famed hub and spoke model of sourcing has enabled it to remain cost-competitive and sustain the top position in the list of Fortune 500 companies year after year. Many companies also enter into strategic relationships with their suppliers or procurers, investing in the supply chain of the latter to make it more efficient and reap the resultant economies of scale.

2.2 **Hedging using commodity derivatives**

Notwithstanding the varying levels of success of risk management techniques discussed in the previous section, there are several reasons why it is necessary to manage risks using hedging devices such as commodity derivatives. Detailed discussions on the benefits of hedging follow in the following sections. Thanks to the advancement of financial risk management, market-based tools such as commodity futures, options, swaps and swaptions have enabled some of the most effective risk management practices today. These tools are not only cheaper compared to other alternatives discussed above, but also are some of the most effective instruments in managing price volatilities.

In the table on page 6, we provide a snapshot of the popular types of derivatives contracts, indicating their main advantages and disadvantages.
<table>
<thead>
<tr>
<th>Products</th>
<th>Features and Advantages</th>
<th>Disadvantages and Risks</th>
</tr>
</thead>
</table>
| **Forwards**<sup>(1)</sup> | • An over-the-counter (OTC) instrument;  
• Customised contract between the two parties, in terms of size, quality and delivery date;  
• Usually involves no 'upfront' payment and 'cash' changes hands only at the expiry of the contract; | • It is negotiated between two parties and is not marketable;  
• OTC markets, where forward contracts are traded, are generally opaque, as trades are not compulsorily reported and transaction prices are unknown to the outside world;  
• Closing out the position to limit the losses may not be unilaterally possible; |
| **Futures**<sup>(2)</sup> | • Standardised contract in terms of contract size, delivery dates, quality, trading hours, tick size, and maximum daily price limits;  
• Exchange traded; hence, zero counterparty risk;  
• Involves a 'down payment' known as the initial margin<sup>(3)</sup>;  
• Transparent pricing  
• Contract can be closed out prior to its maturity (giving an opportunity to cut losses); | • Requires active portfolio management as losing positions leads to margin calls;  
• Standardisation can have an impact on hedging, as delivery dates and terms are not flexible;  
• Do not cover basis risk<sup>(4)</sup>; |
| **Options**<sup>(5)</sup> | • Helps to lock-in the price but without the compulsion to honour the contract, especially to benefit from favourable price movements;  
• No margin calls for options buyers;  
• Risk is limited for the buyer of options contract, i.e., he/she can at the most lose the contracts premium;  
• More suitable for risk averse participants such as farmers and small commercial players;  
• Options can be exercised or offset before expiration;  
• Generally, a very liquid market allowing the producer to quickly reverse positions. | • Does not cover basis risk;  
• Premium requires to be paid upfront by options buyer;  
• Premium payable for the options contract may at times be "too high" as compared with the rights granted by the contract;  
• Options are in specified quantity (contract size) and represent some standard quality;  
• Using options requires thorough understanding of futures and options markets |
| **Swaps**<sup>(6)</sup> | • Traded in OTC markets;  
• Customised transactions, perfectly suiting hedging needs;  
• Provides a choice to set the currency you require;  
• Useful for hedging against the spread between prices of the final product and that of raw materials;  
• Generally no upfront payment | • Transaction may turn costly if the swap is terminated before the expiry of the contract;  
• Generally, the contract sizes are large, hence, not suitable for small commercial players;  
• Challenge to achieve an agreement among different parties;  
• Time consuming commerce due to the long negotiations process; |

---

<sup>(1)</sup> A cash market transaction in which delivery of the commodity is deferred until after the contract has been made. Although the delivery is made in the future, the price is determined on the initial trade date.  
http://www.investopedia.com/terms/f/forwardcontract.asp#axzz1yv9vju

<sup>(2)</sup> Futures contracts are exchange-traded legal agreements to buy or sell goods for a specified delivery future date at a price agreed today. http://www.lme.com/what_contracts_options.asp

<sup>(3)</sup> The initial margin is primarily a deposit to ensure both parties to the contract do not default.

<sup>(4)</sup> Basis is the difference between the price of a futures contract and the spot price of the underlying commodity.

<sup>(5)</sup> Options contract is a financial derivative that represents a contract sold by one party (options writer) to another party (options buyer). Options contracts give trade hedges and investors a more flexible alternative to futures-exchange trading. When buying an options contract, the purchaser (taker) does not enter into a firm obligation. He/she simply purchases a choice of action. This choice gives the genuine trade hedge an opportunity to lock in a fixed price while maintaining the ability to abandon the option in order to take advantage of favourable price movements. http://www.lme.com/what_contracts_options.asp

<sup>(6)</sup> Commodity swap refers to a transaction wherein one party pays (once or periodically) floating amounts in a specified currency calculated from the notional amount in the given currency and a floating price, and a second party pays (once or periodically) fixed amounts in the same currency calculated from the same notional amount at a fixed price. This product serves to hedge risks resulting from price fluctuations for the given commodity. Only the price difference is settled monetarily, not the notional amounts. http://www.unicreditbank.cz/en/web/corporate-public-sector/treasury/commodity-risk/commodity-swap
3. Importance and benefits of hedging

Commodity price risk management is crucial for stabilising incomes of corporates, individuals (especially farmers) and the economy. Even if reducing risks may not always improve earnings in the short run, failure to manage risks has direct repercussions on the risk-bearers’ long-term incomes, market stability and, in case of agriculture, food security. Indeed, a host of factors is expected to increase manifold, in times to come, including the two main risks faced by farmers: yield volatility and price volatility.

Structural factors such as increased demand from an increasing population and income growth, along with supply constraints such as scarcity of water, arable land and energy are expected to be major contributors to this volatility. At the same time, it is increasingly being believed that climate change will drive an increased occurrence of extreme weather events, which will negatively affect agricultural yields and increase volatility in prices. Tighter stocks are likely to exacerbate the situation further. Moreover, some commodity usage patterns are increasingly getting interlinked, so that the demand/supply volatility in one often gets manifested as price volatility in the other. For instance, increasingly, food and oil prices are linked closely due to the use of agricultural crops for energy production and agricultural production’s reliance on energy inputs. Thus, a potential increase in volatility in energy markets (in a context of tight supply) spills over to agricultural markets.

Risk exposure at the macroeconomic level can quickly transform into risks for firms that may or may not have the wherewithal to manage them.

However, even if they do have the wherewithal, commodity price volatility can and does impact their bottom-lines significantly. In a Research Note, Deloitte (2006) notes that in the six years since 2000, there has been “...greater instability in the price of energy sources and basic feedstocks such as oil and natural gas, with a broad ripple effect in chemicals to basic metals to plastics. This volatility is the result of supply issues as well as changes in global consumption and demand. Because raw material costs generally cannot be transferred quickly and efficiently down the value chain, volatility is leading to weaker, more unpredictable earnings and depressed share prices. In fact over the past 18 months, there has been an increase of companies that have missed the earnings targets they provide to investors and analysts while misidentifying the true cause of the problem.”

Apart from the microeconomic and macroeconomic arguments for hedging, there is a host of strategic reasons for seeking protection from commodity price volatility. Hedging provides differentiation to firms in a highly competitive environment, an edge that goes beyond protection of bottom-lines. Besides saving on managerial costs relating to managing price volatility, hedging also significantly lowers the distress costs in the event of adverse circumstances confronting a firm.

This benefit of hedging, which raises firms’ value and lowers their capital cost, is indeed an inimitable strategic resource.

The above arguments are discussed in detail below.

3.1 Why hedge? The Micro-level arguments

The activity of hedging is undertaken mainly for shielding the revenue streams, profitability and balance sheets of companies against adverse price movements and cyclical reversals. Maniar (2010), in a survey of 500 corporate enterprises in India, established three major answers to the question: Why do companies hedge? The most important reason adduced in the survey was ‘to reduce the volatility of the cash flows’. Next in importance was, ‘maximising shareholder value’; and then, ‘reducing volatility of reported accounting earnings’.

In order to gain the most from hedging, it is very essential to identify and understand the objectives behind hedging. A good hedging practice, hence, encompasses efforts on the part of companies to get a clear picture of their risk profile, their risk appetite and benefits from risk aversion by hedging.

A properly designed hedging strategy enables corporations to reduce risks. Hedging does not eliminate risks but helps to transform risks.

Hedging, hence, forms an integral part of the risk management strategies and has various advantages.
3.1.1 Analyzing risk management in the micro-economic framework

In a classic Modigliani Miller model, which is bereft of market imperfections and characterized with symmetric information, no taxation and no transaction costs, the need for risk mitigation or hedging does not arise. Unfortunately, the reality is very different from the Modigliani Miller Model.

As market imperfections are more of a norm than exception, it makes risk mitigation an imperative exercise. The significance of hedging arises due to the omnipresence of various risks faced by all stakeholders. Risks at the microeconomic level can be broadly classified into operating risks and financial risks, which further can be of several types, as depicted in Figure 1.

While the former pertain to risks associated with manufacturing processes, the latter refers to a wide spectrum of risks companies and producers face on account of various factors such as: interest rates, exchange rates, stock prices and commodity prices. These financial risks are all-pervasive, in every business. The wide spectrum of risks emanating on account of price volatility of various commodities that enter production processes make it necessary to reduce these risks, and hedging helps to reduce risks. Hedging has been defined to mean the “mitigation of risk in accordance with management’s analysis of the profile and dynamics of financial and other risks, and within the boards expressed appetite for risk” (Rockman et al., 2003).

These financial risks can be transferred by the presence of efficient markets, which help to reduce the risks. An essential feature of hedging is that the trader synchronizes his/her positions in two markets, one is generally the “cash” or “spot” market (the market for immediate delivery), while the other is the derivatives market (Johnson, 1960). Hedging is about balancing risk appetite against the unknown upside and downside in markets.

3.1.2 Theories of hedging

An array of Research work on the topic of hedging has its theoretical underpinnings that date back to Keynes (1939) and Hicks (1939). The Keynes–Hicks hypothesis states that risk reduction is the prime motive of hedging and hedgers pay a premium to speculators who assume these risks. Traditionally, hedging has been motivated by the desire to reduce risk by taking a position opposite to the exposure. Hedging is defined as taking equal but opposite positions in the cash and futures market. The quest for better hedge has always been elusive. The traditional theory of hedging has been modified by Working (1948) and Markowitz (1959) who broadened the motives of hedging. A spate of literature has been written justifying the significance of hedging theories, reinstating the motives and benefits of hedging.

Those benefits are classified as under:

3.1.3 Hedging acts as an insurance against price risk (Price Risk Insurance theory):

This is the most traditional theory justifying the merit of hedging. Basically hedging provides insurance against risks arising out of price fluctuations. Smith (1922), Marshall (1919), Keynes (1930), Hicks (1939) and Kaldor (1939) defined and discussed hedging as a risk mitigation tool. The price risk mitigation argument remained central to the existence of hedging. Blau (1944) stated “commodity futures exchanges are market organisations especially developed for facilitating the shifting of risks due to unknown future changes in commodity prices; i.e., risks which are of such a nature that they cannot be covered by means of ordinary insurance.”

3.1.4 Portfolio theory

The portfolio theory states that hedging is primarily used for insuring against risks, but it integrates risk avoidance with expected profit maximisation. The theoretical framework has been used by Stein (1961) and Johnson (1960) to explain hedging to mitigate risk and earn returns.
Importance & Benefits of Hedging

3.1.1 Analysing risk management in the micro-economic framework

- Manufacturing
- Inflation
- Interest Rates
- Market Risks
- Corporate Risks
- Liquidity Risks
- Contingent Credit Lines
- Weather
- Regulatory Controls
- Systems

As market imperfections are more of a norm, than rare, understanding risk management is essential for business success. Hedging is the principal activity of risk management.

3.1.2 Theories of hedging

Hedging is defined as taking equal but opposite positions to ensure the financial viability of the sector which lost US$2bn in the first quarter of 2009, due to the absence of hedging (Moss, 2009). According to ATA (American Trans Air), the airline industry, in 2008, hedged to the tune of 50 per cent on an average. Yet, Southwest Airlines hedged almost 95 per cent of its fuel costs till 2009. The Dallas-based carrier has been admired for the success of its hedging programme by many in the industry. Hedging allowed the airline to sustain its capital plans and to signal to the market that its current investment level is a good proxy of its future investment levels.

The fact that Southwest Airline’s management announced plans to make sustained growth in the middle of the 2008 oil price crisis, gave a strong signal on how much the airline valued its hedging practices. Although hedging is a common practice in the airline industry, there are critical factors that need careful consideration before a successful hedge is placed. Factors such as:

- the type of derivative used, the underlying commodities used for hedging, the hedge ratio, and hedge terms are some of the critical factors.

Commodity Contracts Used

Southwest Airlines hedged jet fuel with derivatives of several commodities, including crude oil, heating oil and unleaded gasoline. The use of a particular commodity was chosen on the basis of both liquidity and basis risks. Heating oil allowed airlines to hedge as far as two years into the future, as its price moved more closely with jet fuel.

The Hedge Ratio

Southwest Airline’s hedging strategy was not unique compared to others in the industry, but the noticeable feature of its hedging strategy was the percentage the firm hedged over a seven-year period (67 per cent hedge by Southwest, as against 43 per cent by the industry standards).

The Hedge Term

Southwest Airlines’ hedging strategy was based on a highly structured periodical plan where the company hedged with a five/six-year time window.

Conclusion

Adopting a flexible hedging strategy, committing to a more aggressive hedged percentage and taking long-term positions, made Southwest’s jet fuel hedging programme a success. The losses suffered by the airline in 2009 on account of the drop in oil prices still does not undermine the value of the airline’s hedging programme, for the volatility in the commodity market during the period reached a level beyond predictable. Southwest Airlines’ hedging strategy worked because the airline adjusted its hedge every year based on short-term needs in terms of quantity and prices. This was reflective of a highly consistent and systematic approach, which took into account long term planning and forecasting efforts, often ignored by other airline companies.

Source: Massimo (2009)

3.1.5 Hedging facilitates better inventory management

As increasing price volatility affects inventory management solutions, firms are increasingly seeking recourse to inventory managers and logistics with firms looking for procurement managers and logistics companies who have better knowledge of hedging. Goel and Gutierrez (2011) investigate inventory risk caused by fluctuating procurement price, and suggest that it is possible to reduce inventory-related costs by trading appropriate numbers of futures/forward commodity contracts for effective hedging.

The hedging and price discovery functions of futures markets enhance the efficiency of production, storage and marketing operations. Apart from price risk management, there are a lot of positive externalities associated with...
hedging. An industry which benefits the most from hedging is gold mining. Illustrated on the next page is a case to show the gains derived from hedging by this industry.

3.1.6 Hedging ensures continuity of cash flows:
Price volatility has an adverse effect on the revenue streams and can disrupt cash flows. Hedging insulates the firms from such volatile price movements, and ensures uninterrupted and stable revenue streams. Companies, by choosing to hedge, can bring about certainty in their production process, and ensure continuity of cash flows. This is especially true for small firms, characterised by high costs, which are probably unwilling to accept the reduced risk for additional, risk-mitigated profits. Thus, the certainty in production planning at guaranteed minimum prices by using commodity futures to hedge, protects both a company’s future and that of its employees.

3.1.7 Hedging encourages capital investment
Hedging practices over a continuous period of time tantamounts to guaranteed and assured market price for hedgers. These practices bestow commodity producers with a guaranteed price over a period of time. By locking input prices, firms are able to protect themselves against the rising operating costs, and therefore, make concrete plans on capital formation and expansion.

The Reserve Bank of India (RBI) recognises the importance of hedging by firms. Owing to regulatory restrictions in the Indian commodity derivatives market, RBI has allowed Indian firms to hedge on offshore exchanges. A snapshot of RBI’s policies in this regard is provided in Box 3.

3.1.8 Hedging is essential for enterprises with Small Market Power
While hedging helps all firms to mitigate the effects of commodity price volatility, the impact of hedging is related to the structure of markets. In a market structure characterised by small firms with low market power, it becomes essential for firms to hedge, since these firms have little control over input prices and are simply price takers. An empirical study (De Angelis and Ravid, 2010) has made a case analysis of output and input industries, wherein it is stated that in the “output” industries, 64 per cent of the firms with low market power hedge commodity risks as opposed to 18 per cent of the firms with high market power. This makes a strong case for hedging in an industrial structure with many players and lower market power.

3.1.9 Hedging for enhancing a firm’s value
In the overall strategy of management, reducing corporate risk is an essential feature. As already stated, several market imperfections make risk management an essential objective for firms. These market imperfections contribute in reducing the value of firms by making volatility an expensive proposition. The imperfections, in turn, contribute to other market deficiencies such as expensive external financing (Froot et al, 1993); financial distress costs (Myers, 1977; Smith and Stulz, 1985); agency costs; and costs pertaining to managerial risk aversion. These imperfections have an adverse impact on a firm’s value. By helping reduce costs stemming from such imperfections (Detailed explanation in Section 3.3), hedging enhances a firm’s value.

HEDGING BY THE GOLD MINING INDUSTRY

The gold mining industry provides a classic case of hedging. Being an industry which is very homogenous in nature, it suffers from high exposure to gold prices and volatility. In addition, it does not offer much scope for vertical integration and diversification, unlike the oil and gas industry. Gold price risk can be easily hedged by investors, if they so choose, using for instance exchange-listed futures. Various researchers have examined how this industry has benefited from hedging.

Tufano (1996) had done a case study for the gold mining industry, which confirms that firms in this industry hedge their own production. He found that almost all firms in the gold mining industry employ some form of hedging in gold-derivatives markets. Adam and Fernando (2006) showed that firms with gold hedging programmes have consistently realised economically significant cash flow gains over the period 1990 to 2000. Similarly, Jin and Jorion (2007) studied the hedging activities of 44 North American gold mining firms from 1991 to 2000 and showed that hedging with derivatives reduces risk from gold price exposure of most firms.
3.1.10 Hedging to earn returns

Working (1962) gave the various dimensions of hedging by classifying it into activities undertaken for several different purposes.

**RBI POLICIES ON HEDGING OF PRICE RISK IN COMMODITIES (AS ON FEBRUARY 29, 2012)**

A person resident in India is permitted to enter into a contract in a commodity exchange or market outside India to hedge price risk in commodities imported/exported, domestic transactions, freight risk, etc., through the Authorised Dealer Category-I (AD Category-I) banks. The role of Authorised Dealer banks, here, is primarily to provide facilities for remitting foreign currency amounts towards margin requirements from time to time, subject to verification of the underlying exposure. There are two channels through which residents can undertake hedge: Authorised Dealers’ Delegated Route and Reserve Bank’s Approval Route.

1. **What are the hedging facilities available to oil companies?**
   - The Reserve Bank, through the approval/delegated routes, has permitted following facilities for oil price hedging:
     - Hedging of exposures arising from import of crude oil and export of petroleum products based on underlying contracts.
     - Hedging of exposures arising from import of crude oil based on past performance—up to 50 per cent of the volume of actual imports during the previous year or 50 per cent of the average volume of imports during the previous three financial years, whichever is higher.
     - Hedging of inventory up to 50 per cent of the volumes in the quarter preceding the previous quarter.
     - Hedging of exposures arising from domestic purchase of crude and sale of petroleum products on the basis of underlying contracts.
     - Hedging of exposures on import/export of jet fuel and domestic purchase of jet fuel by users, i.e., domestic airline companies.

2. **Which are the entities permitted to hedge oil price risk?**
   - Domestic oil refining and marketing companies are permitted to hedge their price risks on crude oil and petroleum products on overseas exchanges/markets to modulate the impact of adverse price fluctuations.
   - Domestic users of aviation turbine fuel (ATF) are also permitted to hedge their ATF price risks on overseas exchanges/in OTC markets.

3. **What are the commodities, other than petroleum and petroleum products, which could be hedged on international exchanges?**
   - The Reserve Bank has permitted companies to hedge price risks in import/export any commodity (except gold, silver, platinum) on the international commodity exchanges/markets under the delegated route. The eligible company interested in hedging price risks in respect of its import/export may apply to any AD Category-I bank.
   - The Reserve Bank has also permitted companies listed on a recognised stock exchange to hedge price risks in respect of domestic purchase and sale of aluminium, copper, lead, nickel, and zinc under the delegated route. The eligible company interested in hedging price risk in respect of above commodities may apply to any AD Category-I bank.

4. **What are the hedging facilities permitted for entities in Special Economic Zones (SEZs)?**
   - AD Category-I banks are permitted to allow entities in Special Economic Zones to undertake hedging transactions on the overseas commodity exchanges/markets to hedge their commodity price risks on import/export. Such transactions are permitted only when the SEZ unit is completely isolated from financial contacts of its parent or subsidiary in the mainland or within the SEZs as far as import/export transactions are concerned.

Source: Hedging of Price Risks in Commodities, FAQs, RBI; http://rbi.org.in/scripts/FAQView.aspx?id=74
He classified hedging to include carrying charge hedging, operational hedging, selective hedging, anticipatory hedging, and pure risk avoidance hedging. Quite unconventionally, he considered hedging, not only as a means to insure against price risks, but also generate returns. These arguments make hedging an important business decision for corporates.

3.2 Why hedge? The Macro-level argument

As mentioned above, increasing globalisation of domestic economies and development of Information and Communications Technology (ICT) have meant that the impact of agricultural yields arising in one part of the world get quickly transmitted as price signals to the rest of the world. It is also believed that globalisation is likely to drive an increased frequency of pest or disease outbreaks, thanks to the lowering of barriers in international trade, leading to volatility in agricultural outputs. Technological progress and trade liberalisation, by allowing faster and greater responses to shocks, may somewhat reduce the volatility of commodity prices but this is unlikely to be enough to balance out the other factors.

ERNST & YOUNG SURVEY ON HOW INDIAN COMPANIES MANAGE COMMODITY PRICES VOLATILITY

Professional services firm Ernst & Young on December 16, 2008 released its survey entitled, “Commodity price risk management survey 2008.” The survey captures views of senior executives from more than 45 Indian companies across sectors having exposure to a wide range of commodities including non-ferrous metals, oil and petroleum products, precious metals, agro and soft commodities. Responses were compiled from companies across the value chain including producers, processors and end-users.

Key findings —

1. Maturity of commodity price risk management operations appears to be greater among producers and processors. Consumers are becoming increasingly aware of the importance of commodity price risk management, as its impact on the bottom line is being increasingly felt.
2. Hedging programmes are still generally short-sighted, driven to a large extent by market views and not always aligned with the risk philosophy of companies.
3. While companies understand the need for hedging and the instruments available, the finer aspects of hedging, such as basis risk and timing risk, which can significantly affect hedge cash flows, are often ignored.
4. The instruments used for hedging tend to be plain vanilla and are generally limited to futures and forward contracts. Companies do not generally explore the use of customised instruments depending on their exposure profile.
5. Companies show an appreciation of the need for oversight. However, little is done to enforce sustainable oversight and governance.
6. Cash flows from hedges and underlying exposures are generally viewed in isolation. The position that is defined for the purpose of assessing the underlying exposure is generally vague. This may prevent a holistic performance reporting.
7. Mark to market remains the single most important measure used for performance measurement and reporting.
8. Investment in human resources to manage the function is still fairly low and most commodity price risk management functions are staffed with less than five persons.
9. Operational risk is not perceived as a major issue. This has resulted in less than an optimal level of investment in streamlining operations and putting in place a robust control mechanism.
10. There are continuing concerns relating to the accuracy of reporting and accounting for hedging operations.

According to Hemal Shah, Associate Director, Financial Risk Services, Ernst & Young, “Unprecedented volatility in commodity markets has threatened structured margins in fundamental businesses like never before. For the first time price risk management is being seen as an all pervasive function touching every aspect of the business cycle. Commodity price risk management is no longer limited to hedging. It is about managing price risk across the value chain.”

Source: Ernst and Young, 2008
Besides, the rules governing international trade, a’la the WTO, also restrict state action against preventing external volatility from being transmitted to the domestic economy, if they are deemed ‘protectionist’.

3.2.1 Hedging: an essential feature for trade-intensive countries

Hedging is an essential feature for large number of trade-intensive countries who rely heavily on commodities for their export revenue or import demand. In many developing countries export baskets consist primarily of raw material commodities, such as crude oil (Venezuela, Nigeria, and the Republic of Congo), copper (Chile and Zambia) and agricultural commodities, such as tobacco (Malawi). These export-led economies are highly susceptible to the price volatility of the two or three commodities that feature in their export basket.

Any supply bottlenecks or shortages in these vital commodities have negative consequences on the countries’ economies and GDP rates. Firstly, a fall in price of these commodities adversely impacts a country’s export earnings along with its national income.

The impairment in export earnings and fluctuations in revenue collections would affect the fiscal balances of economies whose revenues rely heavily on commodity-related taxes, royalties, and dividend income (in heavily state-owned commodity sectors) (Becker, et al 2007).

In order to circumvent the vagaries of export earnings, many countries (such as Chile and Russia) create a resource fund to insulate their economies against the volatile export earnings driven by volatility of commodity prices.

However, hedging using commodity derivatives is a better strategy for the countries that can use these instruments to smoothen commodity-related revenues. Daniel (2001) explains why hedging in oil price risk markets could be a solution to transfer the oil price risk from oil producing countries to others that are better able to bear it.

Many developing countries are seeking recourse to commodity derivative markets to hedge their export earnings from commodity price risks (Larson, Varangis, and Yabuki, 1998). Hence, commodity exporters can tide against volatile prices of export commodities by hedging these commodities and save on resources by accumulating assets in commodity stabilisation funds. This is particularly useful if hedging leads to a reduction in the need to hold precious foreign exchange in stabilisation funds.

Hedging, in the case of commodity exporters, also enhances domestic welfare by smoothening of export incomes. In addition, by reducing the downside risk in export income, hedging improves the country’s ability to borrow abroad by allowing it to issue more default-free external debt.

3.2.2 Existing literature on macro benefits of commodity derivatives

A spate of literature which exists analyses the merits of hedging, especially in emerging markets. These theoretical arguments give useful insights on the merits of hedging. The theoretical rationale on the importance of hedging is buttressed with lot of empirical investigation.

Lokare (2007) mentions of several studies that conclude that market-based derivative instruments are not only superior but also at times the only solution to manage commodity price volatility. “…Market based risk management instruments, despite several limitations, offer a promising alternative to traditional stabilisation schemes” (World Bank, 1994). They are being particularly sought worldwide”…as the general macroeconomic stance shifts away from intervention and more specifically to that of supply control (Morgan, 2000).

Moreover, in view of the fiscal pressure and obligation under WTO to reduce direct support to agriculture, there has been a policy shift towards market oriented approach. Hence, the case for the development of commodity derivatives market world over was advanced more forcefully since the demise of aggregate intervention policies such as International Commodity Agreements (Gilbert, 1996) and the failure of large-scale international financing schemes such as the IMF’s Compensatory Finance Fund, etc., (Herrmann et al, 1993). McKinnon (1967) explored the use of futures markets as an alternative to buffer stocks. Later, Gilbert (1985) demonstrated that hedging on forward markets could substitute for some of the welfare gains normally associated with buffer stocks. Gemmill (1985) argued that futures markets for cocoa, coffee and sugar would provide an attractive mechanism for hedging export-earnings risks and that forward contracts could be substantially cheaper than buffer-stock operations. Rolfo (1980) investigated the use of futures for cocoa producer prices and calculated the optimal hedge ratio in the presence of both production (output) and price volatility. Overdahl (1986) demonstrated the benefits of oil futures markets for oil-producing states.
The usefulness of commodity derivatives in hedging, leading to spin-off benefits such as price stabilisation has also been well-documented. Lokare (2007) mentions several studies, which particularly find the price stabilisation function of commodity derivatives. For instance, Newbery (1990) observes that since forward markets reduce risk, they encourage fringe firms to supply more output, and thus, reduce the spot price. Furthermore, forward markets concentrate trading in one location and reduce information and other transaction costs, which can also lower prices. Similarly, he also mentions studies by Netz (1995) and Morgan (1999), which conclude that the level of inventories held in the spot market are determined by the basis and ensure a more efficient process of private storage, which in turn, ensures a smoother pattern of prices in the spot market. According to Turnovsky and Campbell (1985), as forward markets reduce the price risk of holding inventories, larger inventories are held and prices tend to stabilise as a consequence.

Lokare (2007) mentions several studies citing empirical evidence on the price stabilisation function. Varangis and Larson (1996), for instance, cite several examples in the case of cotton and oil in Mexico and Algeria, where groups of producers are represented by agents who trade on their behalf. In doing so, minimum prices for output could be guaranteed, and thus, risk is reduced for an individual trader for the cost of a small premium. Other such examples are provided by Claessens and Duncan (1993) and World Bank (1999).

There is, therefore, a considerable consensus that the derivatives markets play a significant role in shaping the investment decisions of the market intermediaries, and in smoothening price volatility at the macro level. In many developing nations, institutions such as banks and cooperatives are being encouraged to hedge on the commodity derivatives market. Often, such efforts are supported by the respective national governments or multilateral institutions such as the World Bank.

3.3 Why hedge? The strategy argument

As stated in Section 3.1.1, risks that enterprises encounter can be broadly classified as: operating risk and financial risk. For most firms, especially the non-financial ones, operating risk is embedded in the nature of their businesses and therefore cannot be avoided. On the other hand, financial risk is faced by enterprises due to their exposure to markets such as those for foreign exchange and commodities, arising from volatility in prices. It is often asserted that while most of the financial risks should be hedged due to their direct impact on cash flows, the operating risks may be left un-hedged because (a) these are innate to risks associated with industries (or beta risks), which even competitors face and (b) absence of large, efficient markets through which these risks can be transferred.

However, when looked at from such a reductionist point of view, the question of risk management tends to lose its strategic importance for firms (and when the logic is expanded, to the economy). In determining the manage-worthiness of risks, an enterprise needs to distinguish between the risks the enterprise is rewarded to take from the ones it is not. Most enterprises, for instance, will find that they are rewarded by shareholders, for taking risks associated with their primary business activities such as more efficient operating processes, product development, etc. For example, an airline company will be rewarded (i.e., its stock price will appreciate) if it develops a superior supply chain policy that locks in fuel prices at fixed levels while assuring continuous fuel supply over the period of this lock-in. Thus, risk management through hedging is a strategic issue which goes beyond the tactical solutions that firms may seek in just managing cash flow volatility.

3.3.1 Hedging as a strategic resource

One of the biggest strategic use of hedging as a corporate practice is, probably, the force multiplier it acts as in the resource pool of firms. By locking in prices of inputs and outputs, hedging releases valuable resources which can be better deployed for the firm’s growth. Similarly, the ability of the firm to stabilise its costs and hence control its pricing policy is itself a valuable resource of the firm. Following the theory of Resource Based View (RBV) of the firm (Rumelt, 1984; Hamel & Prahlad, 1994), this control over price stabilisation is an inimitable resource. It has the potential to be a source of differentiation to the firm, bestowing competitive advantage over its competitors. In this way, firms can turn price volatility in raw materials and finished products into a key differentiator, giving them more opportunity to reduce costs, achieve higher average profitability and expand market share. In a Research Note, Deloitte notes that commodity price volatility in recent years is leading to perceptibly weaker and more unpredictable earnings and
**Importance and Benefits of Hedging**

**Box 5**

**STRATEGIC HEDGING BY TWO INDIAN COMPANIES**

Hedging by **Dabur** and **Emami** are examples of corporate risk management done by the Indian companies. Dabur manufactures products such as hair oil, shampoos, toothpastes and health supplements among others. In 2008, the cost of raw materials such as crude palm oil, wheat, etc., rose up by 50 per cent. With an intent to protect the company’s revenues from volatility in commodity prices, Dabur decided to hedge on commodity exchanges in India and abroad.

Dabur’s strategy behind hedging is explained by its executive vice-president, supply management Mr. Jude Magima, he said “Given the high rate of volatility in the domestic and international market, it is a key initiative in terms of sourcing primarily for our international operations”.

Dabur India Ltd. benefited by hedging around 12 products on commodity exchanges as it managed to beat its competitors by controlling its costs. Dabur India Ltd. saved about 25 per cent of the total sourcing costs on commodities such as spices, sugar and jowar. When other competing firms increased the prices of their products by up to 20 per cent, because of the steep rise in commodity prices, Dabur raised prices by only 5 per cent.

Hedging undoubtedly is an important tool for price risk management for companies such as Dabur. Raw materials account for substantial costs for most consumer product companies. Dabur saved about ₹2 crore by sourcing 10 per cent of its raw material through the international exchanges in the last three months of fiscal 2009. From 2009-10 onwards, Dabur planned to source 50 per cent of its raw material through trading on international exchanges, which is an exponential increase in the way a consumer product company will source its raw materials.

Like Dabur, Emami Ltd, which makes a range of personal care products, also began hedging on commodity exchanges. Aditya Agarwal, Director, Emami, said, “Hedging helps us cover our risks. We will soon begin trading on CBOT for Soya.”


Depressed share prices. However, differences in technology, product mix, geography and management information among firms in a competitive environment means that these consequences are not being felt to the same extent by all organizations. As a result, relative competitive positions are being built by successfully managing these risks.

Even disregarding the risk mitigating ability of commodity derivatives, at the least, a pro-active policy of risk management using derivatives can delay the impact of higher prices, opening a window of time to adjust operational processes to new conditions in the supply markets. Booz & Co.(2009), in a Research Note, argues that such a strategic approach can also limit the damage that commodity price volatility and supply disruptions can inflict on quarterly earnings targets, and leave the company better positioned for the turbulent years to come. Thus, the goal of a successful commodities hedging strategy is threefold: to secure supply, mitigate risk and minimise price volatility.

Thus, unlike the view that beta-risks of firms can be tolerated, from a strategic point of view, it is as important to hedge such risks as it is to mitigate financial risks if only to leverage on the resources that hedging releases. In doing so, hedging allows the firm’s management to exercise better control over the its economic performance. Finally, by employing risk management tools such as hedging through a well-laid Risk Management Policy, management can communicate the strategic and tactical goals and their achievability to investors and therefore be better equipped to achieve the firm's objectives.

**3.3.2 Capital raising capability**

Related to the above strategic argument favouring hedging is the potential of firms to reduce the cost of capital and enhance the ability to finance growth. High cash flow volatility adversely impacts a firm’s debt capacity and its credit-worthiness. Volatility in earnings becomes a big avoidable cost if the firm is forced to forego profitable opportunities related to its comparative advantages or based on its resource.
An empirical study (Geczy et al, 1997) investigated on the reasons for firms to use derivatives as hedge instruments. The researchers studied the characteristics of Fortune 500 non-financial corporations, which seemed potentially exposed to some financial risks in 1990. They found that approximately 41 per cent of the firms (sample representing 372 companies) had used different derivative instruments to hedge their risks. The study concluded that firms with greater growth opportunities and tighter financial constraints are more likely to use derivatives. They explain this as an attempt by firms to reduce fluctuations in cash flows, to be able to raise capital for growth opportunities. This attribute of hedging has been corroborated by several well-cited studies. Jensen and Meckling (1976), for instance, note the risk-related costs for firms raising new capital. If firms wish to raise new capital through equity, new shares would have to be issued at a discount, since markets cannot distinguish between the firms raising risk capital for good investments from those doing so for poor investments. If risk-capital is raised through debt, lenders would demand a risk premium for firm-specific risks. Similarly, Froot, Scharfstein and Stein (1993) note that hedging stabilises the operating cash flow of firms, which make them less dependent on external sources for financing their investment plans and increasing the firm value.

3.3.3 Lowering distress costs
The ability to raise capital assumes supreme importance in the event of a real or perceived distress faced by a firm. Every business faces the possibility of distress under adverse circumstances (Damodaran, 2008). Even perceived circumstances of distress can be costly for firms – often in the range of 20 per cent to 40 per cent of the firm’s value (Shapiro and Titman, 1985).

In the extreme event, distress can lead to bankruptcy. Hence, it is prudent for firms to protect themselves from the risk of distress events by hedging against them. Damodaran (2008) estimates that the payoff from lower distress costs can show up in the firm’s value in one of the two ways. In a conventional discounted cash flow valuation, the effect is likely to manifest itself as a lower cost of capital (through a lower cost of debt) and a higher value.

In the adjusted present value approach, the expected bankruptcy costs will be reduced as a consequence of hedging. To the extent that the increase in value from reducing distress costs exceeds the cost of hedging, the value of the firm will increase.

When likely distress costs are large, benefits from hedging (by way of savings on distress costs) are likely to be significant. Kale and Noe (1990) note that hedging can increase the value of firms which are highly levered, i.e. carry significant debt loads. Finally, by reducing the cost of financial distress, hedging can also enhance credit quality and reduce the cost of debt financing (Chidambaran, Fernando and Spindt, 2001).

3.3.4 Lowering tax liabilities
A more visible strategic reason for hedging is the immediate impact it can have on tax liabilities of firms. Under a progressive taxation regime, losses of firms can be carried over for a finite number of years only. Over a medium to long run, therefore, volatile earnings induce higher taxation than stable earnings. Stulz (1996), empirically proved this argument to hold good in any regime marked by convexity of the tax code (i.e. increasing marginal tax rates), limits on the use of tax-loss carry forward and minimum tax rates.

A second tax saving from hedging arises from the increasing debt capacity of companies, which in turn increases the interest tax deductions. Graham et al (2002), performed empirical testing for 442 firms and found that the statistical benefit from increased debt capacity was 1.1 per cent of the value of these firms. They also found that firms hedge to reduce the expected cost of financial distress. Thus, higher tax benefit is a tangible outcome from hedging, which, however, should not overshadow the clear benefits of risk management bestowed by this practice.

3.3.5 Hedging as a tool for corporate governance
An important strategic function fulfilled through hedging lies in its role in corporate governance of firms. In a typical example of ‘agency risk’, it is possible to argue that managers of firms act in their self-interest, rather than in the interests of shareholders.

While investors want the management to take risks in the interest of the firm and the financial results of a firm provide signals to boards and investors concerning the skills of its management, it is rather difficult for shareholders and the Board to differentiate between risk-taking behavior of managers that is desirable from the risk-taking activity that leads to volatility in earnings, caused by
management incompetence. This difficulty in identifying the value-creating from value-destroying risks in firms often leads to Boards seeking management action to eschew all types of risks. Often, managerial incentive structure (including performance measure) is linked to the extent of risk mitigated by managers. Besides, there may not be sufficient human resources in the firm to identify, manage and remove the undesirable risks from those that are desirable.

As a result of these two factors, managers may reject investments that add value to the firm in the long run, simply because the firm-specific risk exposure, encompassing both the undesirable and desirable risks, seems to build up.

Hedging allows a way out of this dichotomy. By driving a wedge between risks that are external to the firm from those that are internal and then establishing a well-thought-out Risk Management Policy that seeks to transfer avoidable risks out of the firm in a transparent manner, hedging can delineate between the two types of risks.

By transferring the external and avoidable risks through a large external market such as the commodity derivatives market, hedging also enables investors to segregate between legitimate and reckless risk-taking management behavior. Thus, hedging can promote sound corporate governance practices by providing a solution to investors to assess managerial performance.

This attribute of hedging has been analysed by DeMarzo and Duffie (1995) from the viewpoint of company disclosure and informational advantages for investors when companies hedge risk. They note that the benefit of hedging is that it allows investors to gauge management quality more easily by stripping extraneous noise from the process. They conclude that investors assume that firms with more stable earnings have superior managers.
4. Direct interventions versus market-based instruments: A comparative analysis

National governments in almost all countries have, at some point or other, attempted to shield their citizens from adverse commodity price movements through direct interventions in commodity markets. Such interventions are rapidly losing their significance as viable policy options, primarily because of the limitations that are discussed below. Besides, the rules governing international trade, *a la* the WTO, also restrict state action against preventing external volatility from being transmitted to the domestic economy if they are deemed ‘protectionist’. Non-permissibility under WTO (or other supranational treaties) notwithstanding, countries have attempted various ways to manage commodity price volatility through non-market instruments. The results have almost always been dismal. Some of such attempts have been:

1. **Trade interventions** through import tariffs and export subsidies. Although a country’s import/export restrictions may bring some short-term relief to a few farmers/domestic consumers, economic analysis clearly shows that their overall impact on the domestic economy and on the rest of the world is negative in the long run. This is because border protection only shifts price variability from one market to another, with the threat of retaliatory action from trading partners.

2. **Price support** through direct public intervention.

   Direct public interventions too come with a host of associated problems:

   a. This has been found to be less effective in developing nations, since the price reduction achieved is mostly captured by other agents of the agricultural supply chain (viz. input suppliers, processors, traders, etc.), and less by the farmers it is supposed to help.

   b. Direct interventions distort price signals to producers, leading to skewed pattern of production, unrelated to fundamental factors of demand and supply.

   c. In many fragile agricultural ecosystems, distorted price signals incentivise intensification of crop production, with deleterious effects on the environment, deteriorating soil and water quality, biodiversity, etc and may even be source of conflicts over resources. A case in point is the conflict in two southern states over river water. Many experts (Ghosh and Bandopadhyay, 2009) attribute the conflict in large measure to the switching from more natural coarse cereals to water-intensive paddy cultivation, a result of increasing relative support prices of paddy.

   d. Raising the prices of commodities, thus incomes, in proportion to production means that larger producers benefit more. This issue is more acute in countries like India where the distribution of land or production is more skewed (Deutsche Bank, 2010)

   e. Implementing price support for farmers implies raising the prices for consumers, which puts poorer consumers at a disadvantage. In democratic developing countries where the state attempts to absorb the price shock from the consumers too, the socio-politically acceptable mechanism of achieving this opposite dual objective often leads to sub-optimal results and is fiscally unsustainable.

3. **Income Insurance**: Many downside problems listed are found in income insurance schemes designed against adverse price movements. This particularly holds true for government-sponsored income insurance schemes. Indeed, globally, there are a few examples of successful crop insurance programs without heavy reliance on Government subsidies (Skees, Hazel and Marinda, 1999) or the problems of moral hazard, adverse selection and high administrative costs (Lokare, 2007).

4. **International market stabilisation policies**: In the absence of adequate stocks, fluctuations in world prices basically reflect global supply and demand positions for individual commodities. In order to stabilise international prices, some experts have been advocating a mechanism to ensure that stocks are built up during periods of
low prices (and supply gluts) and released during high-price periods. However, past attempts to establish international commodity agreements going back to the 1940s have not been very successful at stabilising prices, or being implemented at all (Matthews, 2010).

Following the 2007-2008 food price crisis, numerous proposals have been put forward regarding the establishment of reserves, including an internationally coordinated strategic reserve system for food grains. But maintaining an international strategic reserve has its own set of problems – it involves dealing with the challenges of determining optimum stock levels and coping with the uncertainties the reserve may cause in the market place. It also involves operationalising an intelligence unit that would provide information to a decision-making body maintaining the reserve. Thus, besides interfering with the market forces, the strategic reserve system runs the risk of being very difficult, if not impossible to implement.

4.1 **Solution: market-based instruments**

Given the high degree of risks associated with commodities and the limitations of interventionist policies as stated above, there appears to be few alternatives to market-based instruments as hedging solutions. Market-based solutions like derivatives not only unburden the government of fiscal resources to make public policies sustainable, but in many cases, provide an effective means to block the adverse effects of volatility.

**CAN HEDGING PROMOTE SUSTAINABLE AGRICULTURE?**

Cooper et al. (2009), Birdlife International (2010) and some others identify a wide range of ‘public goods’ associated with agriculture, many of which are environmental/ecological: agricultural biodiversity, water quality, water availability, soil functionality, climate stability (in terms of carbon sequestration), etc. There are also social public policy objectives associated with agriculture: food security, rural employment creation, etc. Being public goods, there is a general undersupply of such goods wherever they are characterised by positive externalities and oversupply wherever negative externalities exist. For instance, there are evidences of a continuous depletion of groundwater reserves and high rates of soil erosion and degradation in almost all parts of India.

According to standard economic theory, collective social welfare can be increased if the suppliers of agricultural public goods internalise and monetise the costs and benefits arising out of their supply. This requires extensive government/legislative action. But till this happens, farmers can be incentivised to adopt agricultural practices that provide optimal supply of the public goods. This can be done by influencing agricultural practices that impact the supply of such public goods, e.g. practices relating to agricultural land use, farming systems, use of resources such as water and soil, patterns of drainage and irrigation, etc.

Some farming practices that may be deployed in order to secure sustainable benefits include:

- Practices that are generally less intrusive on the environment,
- Practices leading to improvements in energy efficiency as well as reductions in greenhouse gas emissions,
- Practices designed to address a specific ecological concern, such as fast depletion of groundwater resources.

While there could be many incentive structures to influence farming practices towards optimal supply of public goods, the most workable among them could be to build systems that stabilize farmers’ income. In this respect, the role of commodity derivatives could be significant. By encouraging farmers to hedge through exchange-traded derivatives, incomes of farmers can be protected from volatility. Stable incomes, in turn, can incentivise farmers to plan long term and, therefore, adopt farming practices which are sustainable. This is particularly relevant in areas where farmers are already aware of the ecological stress on existing natural resources but see little alternative to resorting to intensive agriculture on account of volatility in production and prices. It is possible that in many areas, volatility itself is a result of depletion of natural resources.

Secondly, prices of tradable weather derivative products such as Rain Index are nothing other than market perceptions about likely moisture stress in the future. While these products provide protection against crop failure arising from recalcitrant weather conditions, they are also powerful information tools that provide updates about the likely weather scenario. To that extent, these derivative products enable farmers, even when they are not trading them, to plan crops and agricultural practices for possible water shortages, thus helping implement sustainable agriculture.

Partly adapted from Research Note of Deutsche Bank (2010)
work, but also liberates policy-makers from the uncertainty associated with policy designs, that often seek to attain multiple objectives. Besides, as discussed earlier in this paper, market-based solutions meet the twin objectives of effectiveness while being cheap sources of risk management. Both these attributes are of particular relevance to a developing economy such as India, characterised by a large number of small stakeholders, viz. farmers, traders, SMEs, etc. Their exposure to price volatility often wipes off their entire incomes. Thus the regulators and commodity exchanges in countries like India and China expend considerable resources on taking the commodity futures market to the small stakeholders, thereby soaring the demand for exchange-traded commodity derivatives in these countries. It is for the same reason that some governments encourage farmers to use futures markets, mostly by providing them information and technical advice. For instance, the government of Mexico provides subsidies to farmers who buy commodity options on the US futures markets.

In developing nations, apart from the certainty of incomes and costs that the commodity derivatives market provides, the indirect impact of this market has been huge and perceptible. The commodity derivatives market and the price information it disseminates is the single largest contributor to unifying the fragmented markets that characterise the agrarian economy in these markets. To the farmers, this market provides an unparalleled source of market-based information on the likely movement of current and future prices of commodities. This information is of immense strategic value to them, on the basis of which they decide on the crop to sow, time of sale etc.

Availability and use of market-based sources of price information can also lead to sustainable agriculture, as discussed in Box 5.

While market-based instruments have proven to be effective risk management instruments, skeptics have questioned this function of some types of over-the-counter (OTC) derivatives. Indeed, under a lax regulatory environment, some OTC derivatives, being leveraged products, have compounded the risks in some markets, rather than mitigating them.

4.2 Safety: an additional attribute of exchange-traded derivatives

Herein lies the element of safety, along with efficiency and cost effectiveness of one class of derivatives – namely, the exchange-traded derivatives. With the exchange and central clearing house assuming risks of trade, counterparty risk is completely eliminated in the exchange-traded derivatives market. This attribute has assumed such a high level of importance in the revamped regulatory system world over after the financial crisis of 2008/2009, that there is a general unanimity in the perception that exchange-traded and exchange-cleared derivative products are far superior to OTC derivatives. Indeed, according to data from

THE SUPERIORITY OF EXCHANGE-TRADED DERIVATIVES OVER OTC DERIVATIVES

- While price transparency is hallmark of exchange traded derivatives, anonymity of trading participants help to evade any reputation risk.
- Price discovery is a very important function of exchange-traded derivatives market, which is missing in the OTC market.
- The management of counter-party (credit) risk is centralised and located with exchange. Hence trading participants carries no counterparty default risk.
- There are formal documented rules/mechanisms for ensuring market stability and integrity, and for safeguarding the collective interests of market participants.
- There are formal limits on individual positions, leverage, or margining, which prevent undue speculation.
- Rigorous financial standards and surveillance procedures adopted by exchanges as well as the market regulator ensure that operations in the market are safe, fair and orderly.
- The exchange traded derivatives market is regulated by a regulatory authority and the exchange’s self-regulatory organisation.
the Bank of International Settlements (BIS), the gross market value of non-exchange traded forward commodity contracts crashed by more than 10 per cent from USD 545 billion to USD 487 billion over the period December 2009 – December 2011. Yet, between 2009 and 2011, the number of exchange-traded futures contracts increased from 2199 million to 2582 million, an increase of more than 17 per cent (source: FIA). Thus, the benefits of transparent and well-regulated exchange-traded commodity futures are gaining visibility amongst the market players, more so after the global economic downturn.

The safety of hedging through exchange-traded derivatives has been recognised even by the International Organization of Securities Commissions (IOSCO), which is the umbrella body of national financial regulators. The Technical Committee on OTC Derivatives Regulation of IOSCO had published a Report in February 2011 on OTC derivative regulation.

This was in response to the G-20 Leaders’ commitments on this issue and their stated objectives of improving transparency, mitigating systemic risk, and protecting the derivatives markets against market abuse.

The report concluded that it is appropriate to trade in standardised derivatives contracts with a suitable degree of liquidity on organised platforms, and that a flexible approach to defining what constitutes an organised platform for derivatives trading would maximise the number of standardised derivative products that can be appropriately traded on these venues. It identified characteristics that an organised platform should exhibit in order to fulfill the G-20 Leaders’ objectives, as well as the benefits and costs associated with transitioning trading of derivatives from OTC venues onto organised platforms.

It also presents a range of actions that regulators may choose to take to increase organised platform trading of OTC derivatives products. Thus, appropriate measures need to be put in place in India too for a more effective regulation of the OTC derivatives market and its harmonisation with the exchange-traded derivatives market.

**DEVELOPING COUNTRIES USING MARKET-BASED INSTRUMENTS FOR RISK MANAGEMENT: TWO EXAMPLES**

Of all the coffee-producing countries, Brazil is probably the one where farmers use market based risk management instruments the most. This has been made possible by two factors. First, medium-sized farms and large plantations account for a large share of production—the average farm size in Brazil is nine hectares. Second, Brazil’s government has promoted the development of so-called Cédulas de Produto Rural (CPRs), bonds issued by producers (farmers and cooperatives) which confer title on future production. CPRs can then be used to raise finance, and this is often used to make forward contracts and risk management possible. In a survey among coffee farmers in 1999, it was found that 48 per cent of farmers issued CPRs with as their main objective the obtaining of crop finance, and 28 per cent had as their main objective the obtaining of a price guarantee; for 22 per cent, the CPR was used to obtain both objectives.

Guatemala has relatively high levels of producer hedging because of a long-standing training and capacity-building program by the country’s National Coffee Growers’ Federation (Anacafé), a private non-profit organisation. In 1994, it introduced a coffee credit system aiming to improve the access of coffee producers to commercial bank financing. Use of risk management instruments is a prerequisite for participation in the credit program. It considerably reduces the risk to the banks, allowing them to provide credit to coffee farmers at lower interest rates (according to Anacafé’s estimates, this led to interest rate savings for farmers of over 10 per cent of the loan value—approximately USD 2 million per year). Farmers normally hedge their price risk through an exporter with whom they negotiate a pricing formula. In interviews in the early years of this decade, when coffee prices had reached historic lows, farmers stated that their hedging policy has been crucial for their survival.

5. Concluding remarks

Unprecedented volatility in commodity prices has been a source of great risks, impacting economies and stakeholders within them on an unprecedented scale. In this context, price risk management is being seen as an all pervasive function for planners in charge of managing them – whether for countries or for firms. As is evident from this paper, at a broader level, hedging is not just limited to commodity price risk management. “It is about managing price risk across the value chain.” (Ernst & Young, 2008).

Hedging using commodity derivatives remains the best means to achieve this goal. Managing price volatility through hedging is, therefore, a function that goes beyond objectives that seek to maximize bottomlines. It is part of a larger mission that seeks to capture the greatest value at each node of the commodity value chain. This is as true of firms as it is for countries with high commodity intensity. Given the high and increasing volatility of commodity prices, the strategic importance of price risk management through hedging should, therefore, be never undermined.
APPENDIX

Concepts on Hedge Accounting

Introduction

Having known hedging as a concept and its criticality, it is necessary that some of the important microstructure issues connected with actual participation in the commodity derivatives market are discussed. Arguably, one of the most important issues confronted by participants in this market is understanding the implications of accounting of such hedge transactions, considering the requirements of accounting standards. Many stakeholders encountering commodity price volatility often desist from participating in the derivatives market. This is due to lack of understanding of the principles that guide the accounting of hedge positions and its implications on profit / loss.

Hedge accounting, in its simplest terms, is the recording of the techniques that enables economic agents (such as companies) to match the profit-and-loss impact of their hedges with the items they are hedging (Wilson, 2011). As such, the basic concept of ‘hedge’ denotes a mechanism where an entity takes preventive measure against the possible change of price of an asset or a change in fair value or future cash flows i.e. it neutralizes the risk as far as possible. Hence a ‘perfect hedge’ eliminates the price risk totally; but in practice, it is a rare event. In this context, hedge accounting assumes significance as proper accounting compliances would not only clearly account for impact of hedging and the risk neutralized therein but would also enable the stakeholders to be aware of real financial status of an entity.

Despite the complexities for new adopters, and the onerous criteria of international and domestic hedge accounting standards, over 80 per cent of Fortune 500 companies apply hedge accounting to some extent in their financial statements. Hence, as Wilson (2011) pointed out, these companies are seeking a ‘stability premium’. In a survey by Citibank (Wilson, ibid.), Stability Premium has been identified as a premium which shareholders are willing to pay for company’s stable earnings, which can be reflected by the application of hedge accounting. The survey notes that this premium has notably increased since the financial crisis of 2008.

Practice in India

The Accounting Standard-30 (AS 30) on financial instruments: recognition and measurement provides the principles to be followed for the accounting of hedged transactions. This is done through financial instruments like forward foreign exchange contracts, foreign currency derivatives, commodity derivatives and others. AS 30 issued by the Institute of Chartered Accountants of India lays down the principles for accounting of hedges and is recommendatory in nature.

The same is yet is to be notified by NACAS (National Advisory Committee on Accounting Standards). However, as per the Standard, small and medium-sized entities are exempted from its applicability. The detailed applicability of AS 30 is governed by the announcement of the ICAI regarding AS 30.

ENTITIES EXEMPTED FROM AS 30

Small and medium-sized entity, as defined below:

(i) whose equity or debt securities are not listed or are not in the process of listing on any stock exchange, whether in India or outside India;

(ii) which is not a bank (including co-operative bank), financial institution or any entity carrying on insurance business;

(iii) whose turnover (excluding other income) does not exceed rupees fifty crore in the immediately preceding accounting year;

(iv) which does not have borrowings (including public deposits) in excess of rupees ten crore at any time during the immediately preceding accounting year; and

(v) which is not a holding or subsidiary entity of an entity which is not a small and medium-sized entity.
AS30 lays down the principles of recognition and measurement for accounting for financial instruments and hedging instruments, well designated as hedged items. This Standard does not restrict the circumstances in which a derivative may be designated as a hedging instrument provided the conditions are met, except for some written options.

However, a non-derivative financial asset or a non-derivative financial liability may be designated as a hedging instrument only for a hedge of a foreign currency risk. Accounting treatment for each hedge instrument varies as per the classification of hedge.

Hedge accounting (AS30) currently followed in India

For the purpose of hedge accounting to be applicable to an entity, the following four pre-conditions relating thereto should exist:

1. There has to be a hedged item;
2. There has to be a hedging instrument;
3. There has to be a relationship between the hedged item and the hedging instrument; and
4. The relationship should be effective so as to offset the effects on profit or loss of changes in the fair value of the hedging instrument and the hedged item.

Hedged Item:

A hedged item is an asset, liability, firm commitment, highly probable forecast transaction or net investment in a foreign operation that (a) exposes the entity to risk of changes in fair value or future cash flows, and (b) is designated as being hedged. The fundamental principle to qualify as a hedged item is that it should have an exposure to risk that could affect the Profit and Loss Account.

A recognised asset/liability; an unrecognised firm commitment; a highly probable forecasted external transaction; net investment in a foreign operation; a non-financial asset (commodities), such as inventory, or a non-financial liability for the risk of changes in the fair value. etc. can be classified as hedged items. However, a derivative cannot be designated as a hedged item, exception being an embedded purchase option that is hedged with a written option.

Hedging Instrument:

A hedging instrument is (a) a designated derivative or (b) for a hedge of the risk of changes in foreign currency exchange rates only, a designated non-derivative financial asset or non-derivative financial liability whose fair value or cash flows are expected to offset changes in the fair value or cash flows of a designated hedged item.

For example, a derivative contract is a hedge instrument if it can manage the price risk of the ‘hedge item’ effectively. Or in other words, if an entity is holding a commodity whose price risk depends on interest rate fluctuations, an interest rate derivative can be used to offset the price risk of that particular commodity, provided both the instruments have strong correlation at the base level.

Notably, a single hedging instrument may be designated as a hedge for more than one type of risk provided that the risks being hedged can be identified clearly; the effectiveness of the hedge can be demonstrated; and it is possible to ensure that there is specific designation of the hedging instrument and the different risk positions.

Hedging Relationship:

Hedging relationships are of three types:

a. Fair value hedge: a hedge of the exposure to changes in fair value of a recognised asset or liability or an unrecognised firm commitment, or an identified portion of such an asset, liability or firm commitment, that is attributable to a particular risk and could affect profit or loss.

b. Cash flow hedge: a hedge of the exposure to variability in cash flows that (i) is attributable to a particular risk associated with a recognised asset or liability (such as all or some future interest payments on variable rate debt) or a highly probable forecast transaction and (ii) could affect profit or loss.

c. Hedge of a net investment in a foreign operation as defined in AS 11.

Detailed description of the above three hedge relationships as explained by Iyer (2008) is as follows:

• Fair Value Hedge:

The objective of the fair value hedge is to offset in Profit and Loss (P&L) Account the change in the fair value of the hedged item with the change in the fair value of the derivative. In case of hedging through commodity derivatives, losses or gains from re-measuring the derivative at fair value are recognised in P&L Account. The risk being hedged in a fair value hedge is a change in the fair value of an asset or a liability. For example -
changes in fair value may arise through changes in interest rates (for fixed-rate loans), foreign exchange rates, equity prices or commodity prices.

Thus, Effect on P&L Account of Fair Value Hedge =
Changes in the Fair Value of the Hedging Instrument +
Changes in the Fair Value of the Hedged Item in respect to the risk being hedge.

- **Cash Flow Hedge**

A cash flow hedge is a hedge of the exposure to variability in cash flows that:

a. Is attributable to a particular risk associated with a recognised asset or liability, or a highly probable external forecast transaction; and

b. Could affect reported P&L Account

The risk being hedged in a cash flow hedge is the exposure to variability in cash flows that is attributable to a particular risk and could affect the income statement. Volatility in future cash flows will result from the changes in interest rates, exchange rates, equity prices or commodity prices.

Accounting for a cash flow hedge depends on its effectiveness. The portion of gain or loss on the hedging instrument that is determined to be an effective hedge is recognised directly in a separate reserve called Hedging Reserve in Reserves and Surplus which is not a free reserve. Any ineffective portion of fair value movement on the hedging instrument is recorded immediately in P&L Account.

- **Net Investment Hedge**

A net investment hedge is a hedge of the foreign currency exposure arising from the reporting entity’s interest in the net assets of a foreign operation. The hedging instrument may be either a derivative or a non-derivative. An entity may have overseas subsidiaries, associates, joint ventures or branches (‘foreign operations’). It may hedge the currency risk associated with the translation of the net assets of these foreign operations into the group’s currency.

The **accounting treatment of net investment hedge is as under:**

a. The effective portion of the gain or loss on the hedging instrument is recognised in Hedging Reserve Account. Gains or losses relating to the ineffective portion of the hedge are recognised immediately in P&L Account.
Recognition and Measurement. As such, there are no material differences between AS 30 and IAS 39.

Convergence of international standards and emergence of IND AS 39

Accounting standards are authoritative statements aimed at narrowing the areas of differences and varieties in accounting practices (Okaro, 2002). Therefore, converging these standards (at international level) reduces the differences in financial reporting practices between nations for comparability and interpretation in international financial statements.

Ebimobowei (2012) shows that converging accounting standards is an important goal because of the current globalised nature of businesses worldwide and also because of the benefits that nations stand to achieve from convergence of standards.

Thus, the convergence of accounting standards refers to the global goal for establishing a single set of accounting standards that will be used internationally, and in particular the effort to reduce the differences between the US Generally Accepted Accounting Principles (US GAAP), and the International Financial Reporting Standards (IFRS).

A 2007 report by PricewaterhouseCoopers (PwC) stated that convergence of accounting standards would contribute to the flow of international investment and benefit “all capital markets stakeholders” because the convergence would:

- render international investments more comparable to investors;
- reduce the cost of complying with accounting requirements for global businesses;
- potentially establish a more transparent accounting system with greater accountability;
- reduce "operational challenges" for accounting firms; and
- give standard-setters the opportunity to "improve the reporting model."

To move forward on the convergence, the Indian Accounting Standards, (abbreviated as IND AS) have emerged. IND AS are a set of 35 Indian Accounting Standards notified by the Ministry of Corporate Affairs (MCA), Government of India in February 2011, which are converged with International Financial Reporting Standards (IFRS). These accounting standards are formulated by Accounting Standards Board of Institute of the ICAI and notified by the MCA with the date of implementation to be notified at a later date. The IND AS are named and numbered in the same way as the corresponding IFRS.

As on date, the Ministry of Corporate Affairs has notified 35 Indian Accounting Standards (IND AS). However, action on the convergence has not progressed much after this notification and the rest of the standards have not been notified yet. According to ICAI, the deferral is owing to revision in some key IFRS by the International Accounting Standard Board (IASB). It is believed that these standards may be applicable from 2013. Besides, the implementation of IND AS would require resolution of taxation issues relating to the transition to IND AS. Hence, in its recommendation to the MCA, the Institute of Chartered Accountants of India (ICAI) has proposed April 1, 2013 as the new implementation date for IND AS.

Hedge accounting – Crucial but with disciplined approach

While hedging aims to mitigate the impact of economic risks on an entity’s performance, hedge accounting enables the accounting of gains and losses on the hedging instrument to be recognised in the income statement in the same period as offsetting losses and gains on the hedged item, a matching concept (PwC, 2005).

Strict criteria as laid down by the accounting standards, including the existence of formal documentation and the achievement of effectiveness tests, must be met at inception and throughout the term of the hedge relationship in order for hedge accounting to be effectively applied.
applied. This would require appropriate systems and procedures in place. Further, if any of the criteria for hedge accounting is no longer met, hedge accounting must be discontinued prospectively.

The currently followed accounting standard in India for hedge accounting mentions that under AS 30, forward contracts should not be used for speculative purposes. Further, any MTM gains or losses on outstanding derivatives contracts (for hedging purpose) are recognised in the hedge reserve account and, on settlement of contract, the actual gain or loss is recognised in the P&L account.

This is unlike the earlier accounting norm wherein, all the gains or losses were recognised in the P&L account. As a result, in a period of high volatility in exchange rates or significant change in interest rate, commodity prices, the P&L account could witness corresponding swings in financials. Thus the adoption of AS 30 can shield the P&L account from high volatility.

In the earlier paras, we have stated the salient features of hedge accounting in the present scenario briefly. However, the entities adopting and implementing hedge accounting should understand the requirements and implications of AS 30 fully so that the requirements of the Standard (AS 30) are fully met.
References


References

CONTRIBUTORS

Project Head
Dr. Nilanjana Ghosh, Chief Economist

Research & Strategy - Content
Debojyoti Dey, AVP
Nazir Ahmed Moulvi, Manager
Niteen Jain, Manager

Communications - Content editing
Sandhya Kedlaya, AVP
Shivani Sharma, Manager

Communications - Design & layout
Sanjana Bhosale, Sr. Manager
Rajendra Mayekar, Sr. Executive