

## **ABSTRACT**

### **Objective**

With growing convergence of insurance, banking and capital market, Alternate Risk Transfer (ART) is receiving considerable attention as a risk transfer and financing mechanism. While, financially developed markets have been innovating new instruments to offer greater choice to the investors, insurers and insured, emerging markets, have just about started to realize the potential. This study, aims to understand the ART in its fullness and explore, if some of these could be replicated in the Indian scenario, given its financial market maturity and socio-economic reality.

### **Summary**

Indian insurance market is in the midst of a change, with private insurers just about starting their operations. Insurers may need fresh capital, if they attempt to grow very fast. But, attempt to use the capital market to share risk may be somewhat premature, due to roadblocks in the form of lack of reliable information base. Uncertainties in the capital market may not help the matter either. Case study in coffee exchange indicating lack of liquidity due to absence of speculators and critical mass gives a feel that India may not yet be ready for derivative instruments.

However, increasing severity of losses due to catastrophic events and hardening of reinsurance market, leaves with little option but to prepare for alternative risk transfer mechanism. This is particularly true with private players with low capital base. In the scenario, instruments like finite covers, spread loss covers etc. could be considered as alternatives.

## **ALTERNATE RISK TRANSFER**

### **Definition**

Alternate Risk Transfer is a broad range of new concepts to finance traditional insurance risks as well as non-traditional risks. It is the ceding and assuming of insurance and non-insurance exposure through non-conventional means. The aim of ART is to effect optimized risk transfer at optimal price, through a combination of insurance and other capital market instruments. As ART frequently involves risk retention, some authors prefer to call it Alternative Risk Financing, as, in their view, “financing” encompasses risk retention and risk transfer.

Experts differ as to the instruments and practice that could genuinely be called “Alternative”. However, a few distinguishing attributes [Devine Patrick] common to most ART’s are:

**Characteristics** - ART deals are multidisciplinary as it draws from experience in insurance, risk modeling, capital market, investment banking, taxation, law and actuarial profession. Integrated risk management over a longer time horizon involving multiple contracting parties over multiple jurisdictions are more common with ART than any other risk financing mechanism.

**Capital** - ART involves drawing capital from different sources-banks, capital market, insurers, shareholders etc. and in the process affords opportunity for arbitrage between the price and products available in these markets, given their differential cycles, appetite for risks, cost of capital and regulatory framework.

**Convergence** - Financial deregulation allowing vertical integration and economics of scale in the insurance, banking and investment market are the main propellers of ART growth.

**Constraints** - Most ART deals, till now have been bespoke deals involving high transactional costs, but at the same time providing, wider cover than was ever possible under the conventional insurance programmes. Regulatory and statutory accounting treatment constraints have the potential of stifling the growth of ART in several markets.

### **History of ART**

An enterprise is subject to risks from several sources

Financial risks such as currency, interest rates, credit, commodity price, liquidity, cash flow, pensions cost etc.

Strategic risks such as demand, competition, R & D, M & A etc.

Operational risks such as supply chain, process control, information system, accounting and controls etc.

Hazard risks such as events, products and services, vendors access, contracts, public access etc.

Traditional insurance usually cover the ‘Hazard’ part of the risk. As contracts of indemnity, most insurance contracts do not provide complete protection at economic costs. For example,

shrinkage in market share and brand value following a loss producing event and consequent depression in stock value due to shaken investor confidence are risks that cannot be recouped under traditional insurance covers. A planned loss retention approach by large corporates like Fortune 500 companies, especially in the predictable layer of losses has been the outcome of this realization.

Risk retention through large deductibles and captives has been in vogue for a few decades now. Self-financing through large deductible plans, especially in property and casualty lines of business have been found to be extremely cost effective for large corporates in developed markets. Additionally, offshore captives (term 'captive' originated in Bermuda in the 1960's) were formed to insure property, liability and catastrophic risks of parent companies and affiliates. Favourable tax regime and flexibility in cover spurred the growth of captives in some regions of the world, for example Caribbean, Gibraltar etc. Insurers too found the arrangement attractive to avoid the high reinsurance premium.

Cyclical nature of reinsurance market, with alternate hardening and softening of rates due to demand and supply mismatch, between mid seventies to mid eighties, encouraged large corporate bodies and insurers to seek other avenues of risk financing. It was during this decade that financial reinsurance and capital market products were tapped to add to the risk bearing capacity of the insurance industry. These financial engineering and capital market programmes came to be known as alternate plans to distinguish it from the traditional insurance and reinsurance programmes.

There has been a gradual understanding and maturity in handling ART by the insurers, intermediaries and the corporates since then.

The nineties saw higher institutional participation and launch of sophisticated ART products, especially, securities, futures and options. Chicago Board of Trade (CBOT) launched the PCS index based insurance option in 1995. Thus this decade moved insurance risks into tradable commodity opening the door for a secondary market, unlike the contracts of indemnity in use till then, locking parties into static term period. Second half of nineties saw geographic proliferation, with Japan taking the lead in Asia. Countries like Singapore have also been taking note of developments in the field of ART.

Currently, many insurers seem more amenable to absorbing financial risks and the capital market players accepting insurance risks, for the purpose of improving their return to risk ratio. However, developing countries are largely unaffected by these developments largely, even today.

## **Current Status**

### *Market*

In terms of market, the US, Caribbean and to some extent UK have been experimenting with alternate market mechanism. A few of the important ART centers are

Europe (Gibraltar, Luxembourg)  
English channel (Guernsey, Jersey)  
Ireland-Irish sea (Dublin, Isle of Man)

North America (Bermuda, Colorado, Vermont)  
Caribbean (Barbados, Cayman Islands)  
Asia (Hong Kong, Singapore)

It may be observed that most ART centers are located close to major markets, taking advantage of favorable regulatory and accounting regime to cater to large insurers and corporates in these markets.

Captives have made excellent strides with some 4,355 captives writing a net premium of over USD 28 Billion across the world during the year 1999 (Best's captive directory 2000). The effectiveness of captives and such self financing schemes can be gauged from the fact that the median liability retention for US business doubled between 1990-1994 to USD 500,000 and that for property coverage tripled during the same period (Survey Tillinghast-Towers Perrin, Stamford and the Risk and Insurance Management society, NY: 1995).

Estimates as regards the penetration of other ART tools vary depending on the definition of "Alternative" adopted by the researcher. It can, however, be safely said that despite some headline hogging deals, ART products have not posed a major dent in the mainline insurance and reinsurance business. According to one estimate, total exposed value covered under modern ART tools is around USD 25 Billion consisting largely of weather derivatives. This is less than 1 % of sums assured by Lloyd's market alone. Global volume for finite risk solutions was estimated at USD 6 Billion (Sigma report 1999), around two third of which came from the United States. An estimated USD 2 Billion worth of insurance linked securities was marketed during the year 1999. Till date an estimated USD 9 Billion limits have been arranged through securitisation, especially contingent capital and catastrophic bonds. This translates into roughly USD 250 M of premium lost to the traditional market which is very small.

However, the above is no indicator of the potential of ART to supplement the risk capacity available in the market or to offer greater choice to investors, insurers and corporates. We would be critically examining ART separately in this report.

### *Participants*

The participants in ART market are

Risk takers and investors such as reinsurers, life assurers, bank traders, capital market investors

Protection seekers like insurers, reinsurers and bank traders

Intermediaries like insurance brokers and investment bankers.

Even though corporates can play a major role in development of ART, till, now they have been lukewarm to the instruments, with few exceptions like Oriental land, operators of Tokyo Disneyland. The reasons for this is explored elsewhere in this report

Most of the deals have till date (some 75 major reported deals since 1996) have been done by reinsurers in Europe and the USA. In addition, a few deals from other regions, like Japan and other bodies like California Electricity Authority, US Automobile Association (USAA) and some banks have also been reported.

## **SURVEY OF ART INSTRUMENTS**

One striking fact about ART is the complete lack of unanimity as to what constitutes ART. Some authors would treat captive as an alternative risk transfer mechanism, but many others would treat this as a conventional tool. One way of classifying the ART is by treating some of the tools as “traditional” and others as the “Emergent” ones based on their usage and acceptance. But, this classification too is not without dispute, as a fairly traditional risk transfer mechanism could be the latest buzzword in some markets.

We have tried to avoid this artificial boundary and instead listed the instruments in a continuum in the order of their closeness to and involvement of traditional insurers vis-à-vis capital market players. This list has no claim to be an exhaustive listing of all ART tools in use all across.

### **Closer to traditional insurance market**

#### *Self- insurance*

Self-insurance is a formal accrual of liability through retention and payment of loss obligation as they become due. Sometimes, especially in the context of workmen compensation and automobile liability, regulation in the form of collaterals and qualification process may add to the administrative hassles. But the low cost of this method makes it an attractive proposition.

#### *Large deductible plans*

Large deductible plans involve deductible ranging from USD 50,000 to USD 250,000 per accident or per occurrence. Usually employed in workers compensation line of business, it provides for insured to retain the cash till actual loss payment. Insurers are still exposed to the credit risk, as the unpaid losses are to be serviced by the insurers. Sometimes, collaterals are used to eliminate the credit risk arising due to inability to pay the loss under deductible.

#### *Retention groups*

Retention groups are pools of similar companies who join to self- insure by forming an entity that retains some risk and obtain reinsurance. A variant of this is a purchasing group which does not retain any risk. The advantage of both of these arrangement is collective bargaining due to inherent spread of risk and economy of scale.

#### *Captives*

Captives refer to specialised insurer or reinsurer created with the sole aim of providing cover to the promoters or affiliates. Most fortune 500 companies make use of captives, to some extent or more. Favourable tax treatment and benign regulatory regime have spurred the growth of captives in some of the regions in the world, for example, Caribbean and Europe.

Captives may be acting as direct underwriter or a frontal operating as a reinsurer. Captives provide high degree of control to the promoters. In view of high administrative costs, innovations in the form of cell captives, rent a captive etc. allow cost sharing by several clients. Under these arrangements, assets of client are protected through legal separation of assets and liabilities of each underwriting account and that of the captive as a whole.

The regulatory regime, especially in relation to admitted and non-admitted reinsures lead to

complications in the arrangement with captives, such as collateral requirements. It may also necessitate maintaining arm's length relationship with the captives in some regions.

#### *Multi-line Multi year programmes*

Under a multi-line, multi-year policy, multiple lines of business (liability, property, business interruption etc.) can be covered in a layered approach for a long period. The losses are payable, if the combined loss exceeds a certain level. Even though ML/MY deals are long term in nature thereby reducing the frictional or administrative costs it usually provides flexibility such as increase in capital etc. ML/MY's encourage the buyers to retain higher risks through internal risk diversification and cover "uninsurable" risks like credit risk, political risk and operational risks. Innovations such as double trigger, where by liability is admitted, only if a combination of two risks, say insurance risk and treasury risk operate help in providing wider coverage at economical price.

#### *Time and distance (Financial reinsurance)*

Time and distance products, also called finite or financial reinsurance (in the reinsurance context) have been in vogue for some time. An initial payment of premium to an reinsurer earns interest which is drawn out through successive claims over a period of 3 to 10 years. More than risk transfer, these products affords cash flow stability and protects against the credit risk and timing risk associated with lack of immediate capital. Some other benefits of financial reinsurance are cost stabilization, protection against economically uninsurable and difficult risks such as wide swings in foreign currency exchange rates and deferred taxation. In the UK market, this has been used to handle syndicate's run off of a year in account.

Several variants of Time and distance products are possible even in direct insurance market. For example, a spread loss cover, where instead of an initial premium, successive annual level premium is paid which are invested creating an insurance fund. Claim, if any, is paid out of the fund. Payback like dividends, in case of favourable results, make the deal quite attractive. In the case of spread loss covers also timing risk is covered by the insurer.

Another variant would be a blended finite product, where a part of the fund is used in purchasing catastrophic insurance cover. The insurer may also provide certain additional exposure cover, for a premium that is deducted from the fund. Blended finite product, attempts to provide insurance benefit with cash flow stability through investments.

Yet another variant would be contingent liability cover under which the insured pays a level premium. However, on occurrence of a loss and payment of claim, the premium is suitably adjusted upwards to reflect the claim and interest cost during the unexpired period of the cover.

Financial reinsurance, has been innovated in the case of retrospective covers also, through loss portfolio transfer and adverse development cover. Loss portfolio transfer would appear essentially as a balance sheet clean up operation to remove reserves. Adverse development cover may provide protection against the possibility of actual portfolio loss exceeding the estimated loss.

In all the above cases, the protection is against the cash volatility through risk financing rather than risk transfer. This makes immense sense, as earning stability is rewarded in the market and enhances shareholder value.

## **Closer to capital market**

### *Securitisation*

Securitisation is the mechanism by which income-generating asset can be turned into a capital. In the case of insurance sector, premium income is used as the basis for securitisation which in turn allows insurers to write more business. Securitisation deals enable risk transfer to capital market, especially in respect to high severity, low frequency perils such as hurricane, earthquake and other natural perils.

In many countries, such as in the USA, there are severe regulatory and accounting roadblocks preventing insurers from approaching capital market directly for floating a security. The typical route is through a captive or a special purpose vehicle (SPV) which acts as an interface to the capital market. The insurer enters into a reinsurance contract with the SPV, which then issues equity and liability backed bonds to the capital market related to the performance of the underlying risks ceded.

One of the earliest reinsurance securitisation deals was St. Paul Re in 1996, whereby a wholly owned SPV St George Town Re floated redeemable preferential equity and debt instrument, whose dividends was linked to the performance to the SPV. A part of the proceeds were invested in US Treasury bond.

Most securitisation deals have been in respect of catastrophic risks (also called disaster bonds or Act of God bonds). But, non catastrophe insurance securitisation (Covering large portfolio of homogeneous risks against economy dependent risk) is believed to holds enormous promise for the insurers as it would help them source capital from the capital market and release the capital held in their books for uncertain future claims.

### *Contingent surplus notes*

CSN instrument allows the insurer the right to issue surplus notes in future for cash or liquid assets, upon occurring of pre-specified events or even unconditionally (all purpose). It acts like a standby financing in case of catastrophic losses. Usually, a trust is floated which sells a put option to the insurer in return for option premium. The trust then calls for investment from investors, offering a return higher than say Treasury rates for similar duration, which is then invested in high security instruments such as Treasuries. The option premium enhances the yield for the trust assets and investors. In case of contingency, insurer issues surplus notes to the trust, which in turn issues trust notes to the investors and invests in the insurer. The cost of maintaining this contingent facility is the difference between the coupon on the notes and the yield on the US treasury.

### *Contingency equity put (Cat E Puts)*

Equity put option enable the stock insurers to sell shares of their stock to investors at pre-negotiated prices when the catastrophic losses exceed the pre-specified trigger point. Insurer pays an option premium to the investor for this contingent facility. This facility may be very useful to the insurers, as post loss, the equity price may be down and equity dilution at pre-negotiated price may be an attractive proposition. Protection to the investors through minimum post loss statutory surplus could be built in. Similarly, buy back facility may be provided to allow insurers control their dilution.

### *Insurance derivatives*

A derivative is a financial contract between two or more parties, which is derived from the future value of the underlying asset. The investor buys the position on the value of the underlying asset at some time in the future, which is tradable. In the insurance context, the underlying is the performance of a risk or a portfolio of risks. Derivatives provide a hedging mechanism to the cedent and the reinsurers to hedge their exposure in the underlying risk.

Insurance derivatives in the form of option (upfront payment of premium and claim payment at the end) and swaps (single net payment at the end of the contract- contract for difference) could be based on single event or portfolio of risks and contracted with traders/investors from the banking, commodity and fund management sector. It is usually non-collateralised.

Options can be based on specified index and can be traded on an exchange allowing anonymity, liquidity and standardized contracts at low transaction costs. It facilitates trading between investors and insurers and affords insurers with opportunity to hedge their exposure in specified risks. One risk to guard against using index based options to hedge risks arises due to basis risk- the risk that the index does not co-relate with the insurers loss experience.

Index based catastrophic insurance option (Call and put option) have been launched in the Chicago Board of Trade (CBOT) in 1995. Nine catastrophic loss indices covering US exposure has been established by property claims services (PCS). Price of the options on the exchange is based on the daily movement of the indices, which reflects estimates of insured catastrophe losses in the covered geographical areas. Each PCS index represents the sum of then current PCS estimates for insured catastrophic losses for the geographical area and the loss period covered divided by USD 100 Million. The contracts pays if the losses, as reported in the indices, hit the strike price. Thus, an insurer may purchase call option based on Florida windstorm index to protect itself from the effect of exposure due to windstorm as reflected in the PCS index hitting a strike price.

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### *Weather derivatives*

This form of derivative, now quite in use in the USA, offer protection against the unseasonal weather for companies in the energy, retail, agricultural, leisure and other industries which are susceptible to weather conditions. In essence the companies pay a fees for earning stability and protection of the bottom line, thereby increasing their shareholder value and rating standing. Weather derivative contracts are defined by location, type (cooling degree days (CDD), heating degree days (HDD), dates, chill wind factor, precipitation etc) strike, cap on loss etc. There are several weather contract indices, but due to active trading by utility industry, temperature, as measured in degree days (measured as difference between average temperature during the day and 65 degree Fahrenheit. If the average temperature is above 65F, the difference is CDD, otherwise HDD) is the most commonly used index. The contracts are normally, written for a season, but can be for a number of years also. Strike is at the agreed value of the index, say degree-days, at which compensation flows from one party to the other. The typical weather derivative products are in the form of put or call option, swaps and collars.

In addition arbitrage opportunity exists under other derivatives also, for example credit derivatives where due to differential perception of risks and market knowledge, differentials pricing of risks is possible.

*Standard asset protection and residual value*

These innovations, especially designed for utility industries offer funding mechanism for risks arising out of decline in asset value due to market price depression for the assets and the produce. Possibly, privileged class of assets (standard assets) could be securitised leading to the revenue stream from this standard asset pool making this asset class more credit worthy than the underlying utility.

*Catex*

Catex is a nationwide computer based trading exchange in the US to facilitate swaps of catastrophic exposure between insurers, reinsurers and self insurers. Swap refers to a transaction involving buying and simultaneous selling of a similar underlying asset or obligation of equivalent capital amount where the exchange of financial arrangements provide both parties more favourable conditions than they would otherwise expect. In Catex, bidders can pursue for trades for different regions, peril groupings, contract types, line of business and insurance products. The price would be subject to the relative value placed on the portfolio being swapped by each party. Portfolio can be swapped in the standard trading blocks of USD 1,000,000 and is subject to co-participation to discourage poor claims handling. For statutory purpose, Catex exchange contracts are treated as reinsurance.

**Major deals**

Some of the innovative ART deals during the past few years have been

<b>Cedant</b>	<b>Capacity</b>	<b>Detail</b>
Swiss Re	USD 16.4 Million	Notes to covers losses due to windstorm in France and hurricanes and Florida and Puerto Rico.
American Re	USD 120 Million	Cat securities to cover against the financial impact of super catastrophe of Midwest earthquake and eastern and gulf coast windstorms. Triggering is based on an index and not the actual insurance loss.
Royal Bank of Canada	CD 200 Million	Portfolio protection and capital retention in times of economic downturn through an option to sell share to Swiss Re.
Munich Re	USD 300 Million	Securitisation to cover exposure due to hurricane in Florida and New York, earthquake in California and windstorm in Europe.
Hannover Re	EUR 200 Million	Securitisation of life reinsurance assets to provide capital in view of high acquisition cost and the German accounting practice of writing the cost during the first year itself.
SAAB	USD 1.3 Billion	Securitisation of deemed leased income from aircraft lease due to market cycles, competition, obsolescence and customer default.

Tokio Marine and State Farm	USD 200 Million	Swap of liabilities on USD 200 M of earthquake cover to diversify global exposure
Clearnet (Clearing house in Paris)		Cover for a layer of 150 Million Euros due to default on bourse members trading.
Disneyland Tokyo	USD 100 Million	Floating rate notes for earthquake within concentric bands surrounding Disneyland.
FIFA	USD 3 Billion	Bond securing possible losses from 2002 and 2006 world cups

[Artemis.com]

Most of the deals relate to catastrophic exposure, mainly hurricane and earthquake in susceptible regions in the USA, Japan and continental Europe.

## **CRITICAL ANALYSIS OF ART**

Alternate risk transfer owes its innovation to the quest for inexpensive risk transfer mechanisms, but its sustenance and growth would depend on the value it brings to the table for the stakeholders—investors, insurers, corporates, governments and the society at large.

The benefits accruing from ART innovations could be broadly summed up as

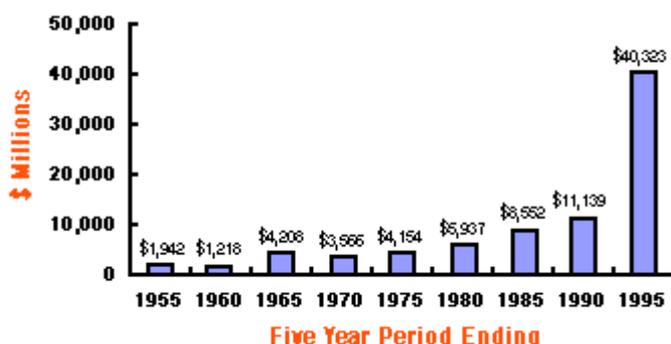
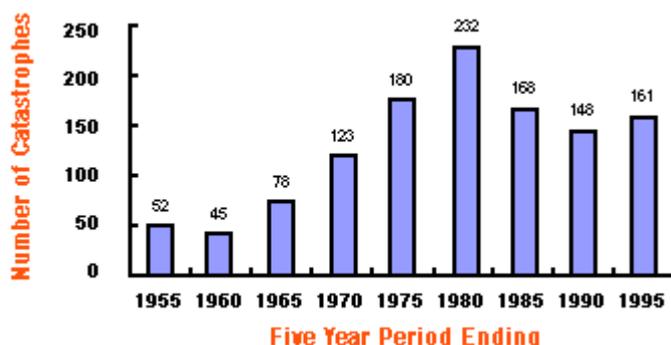
- Higher reward-risk return ratio for the investors
- Increased underwriting capacity and capital for insurers
- Broader choice of coverage and earning stability for corporates
- Spur to financial market growth for the government
- Protection from catastrophic risks for the society at large.

Portfolio theory in Finance states that the return on a well-diversified portfolio depends solely on the market risk (stemming from economy-wide perils). In addition, the Capital Asset Pricing Model states that in an efficient capital market, the return moves with the risk undertaken. Now, the return on instruments linked to natural perils such as earthquake or windstorm provides a good opportunity to diversify the portfolio of an investor and has the potential of increasing his reward-to-risk ratio. This is because, the catastrophe risk is largely uncorrelated with the market risk.

A close examination would reveal that this may not always be true. A large catastrophe has the potential to upset the general economic condition and influence monetary policies leading to risks such as interest rate, exchange rate and currency risks, on which the return of other capital instruments depends. But, then the low possibility of this co-relation does provide a diversification opportunity.

Another benefit to investors accrues due to the aggregation of risks, in the case of instruments linked to catastrophes from an insurer's or reinsurer's portfolio risks. The investors have a better opportunity to understand the risk profile of specific exposure and avoid the insurer's other operational risks. This could lead to a lower cost to the insurer, also as the expected return on this specific exposure would be lower.

Nowhere else is the benefit of ART more evident than in the case of catastrophic risks characterized by high severity and low frequency. The graphs below, in the context of the USA, indicate that while the number of catastrophes has shown a decline, the loss per event and total loss has gone up significantly over the past three decades. It is alarming to see that the property casualty loss during the five years ending 1995, in the US alone, was of the order of USD 50 Billion, given that the property catastrophe reinsurance capacity in the USA is only around USD 20 B. It leaves US insurers with little option but to look at capital market capacity for risk sharing, with its USD 26 trillion investable wealth.



Extracted from “Reinventing Reinsurance Using the Capital Markets” a Zurich Reinsurance Centre report in 1996

While the figures above are illustrative in US context, the factors-rising value of insured property, increasing population density and greater insurance penetration are common across all developed and developing countries

An event risk, like a catastrophic risk affects an insurer in more than one way. Besides decline in profit due to less capital available to write new business and diversion of reserves to settle claims hardening of reinsurance rates cannot be ruled out.

There are two ways to take care of such contingency- ex-ante or ex-post. Ex ante capital exposes the investors to the insurance risk as well as business risks of the insurer, which may not be attractive in terms of rates of return. Abundance of ex-ante capital may lead to abundance of capacity, driving down the premium rates due to undercutting.

Ex-post capital, negotiated and committed beforehand offers several benefits. Risk of default by investors after the event or by insureds refusal to dilute equity (due to its low price) is avoided. There is taxation benefit also, in terms of avoidance of double taxation, unlike ex-ante capital.

Derivatives and securitised insurance products offer ex-post capital. In order to eliminate the exposure arising due to loss exceeding the total capacity leading to insolvency, exchange traded insurance derivatives are being innovated. These instruments are marked to market on a

daily basis in exchanges (say CBOT) where traders are subject to margin calls of performance bonds or securitised instruments.

A larger benefit to economy can accrue, if the cash liberated by the need to maintain less reserve (owing to ex-post protection) could be used for optimal use in the economy. However, most ART instruments require collateralization and hence the true benefit may not be accruing due to cash liberation.

In this present corporate age, loss of market, brand value and lower equity prices following an “insured” event could lead to greater loss than what can be recovered from the insurer under the indemnity contract. As a survey on ART indicates, most significant unprotected risks are operational area risk followed by credit and environmental risks (Marsh’s third annual survey on ART). Several ART deals attempt to provide wider coverage from natural risks (Hazards), operational risk and financial risks covering interest rates, currency, credit risk etc. Frequently, underwriting control like double trigger under multiline- multi year policies help to keep the price of these coverages down. A new term ‘Insuratization’ has been coined to refer to such broad coverages.

An example of such innovative coverage is the Oriental Land co (owner of Tokyo Disneyland) Concentric Re cover, where the return on bond was linked to occurrence of an earthquake of a pre-specified magnitude with epicenter within a radius of 100 KM from the theme park irrespective of the actual damage to the property. In real life, loss of gate collection, due to adverse sentiments, at the Disneyland could be much more than what could be covered under the insurance plan. The above deal is significant for two more reasons- Direct access by a non-insurer to the capital market and secondly, protection against loss to a mixed portfolio of uncorrelated risks, rather than a single catastrophe.

The benefit of broad operational risk coverage would become very apparent, if we consider insurance as a contingent equity. A small premium affords a firm to operate with lower true equity financing permitting higher return on equity, safely ensconced in the fact that contingent equity is available from insurance company. But then this is not possible, if the covers provided by the insurers are restricted, especially operational risks are excluded. From the insurers point of view, underwriting for such broader coverage pose challenge, as industry specific risks need to be understood and factored into the price. This leads to search for ART to provide a more meaningful benefit to the firm.

Other innovations provide more of financial stability than risk transfer. For example, finite insurance provides earning stability and reduces uncertainty related to most insurance transactions, as the term and payments are pre-fixed. For an insurer, frequently, financial reinsurance plans sometimes provide protection from the uncollectibility, unaffordability and unavailability of traditional RI protection.

In some of the countries, where the sovereign rate is poor (e.g. Argentina, Chile, Brazil and Mexico), insurers face a prohibitively high cost of capital, despite sound fundamentals. Alternate financial institutions can provide guaranty to these insurers to help them improve credit rating.

Despite the innovative benefits offered by the ART tools, its usage has some what been restricted, especially by the corporate sector. Even the insurers are yet to exploit the potential of ART, as even in the USA, it is estimated that less than 1% of ART’s were employed to

hedge premiums in respect of catastrophic lines, partly due to lack of depth in hedging and arbitrage techniques among insurers.

The reasons are not very difficult to seek. Most ART deals are bespoke ones and the friction cost is very high as compared to traditional covers making it useful only for very large deals. The time it takes to tailor a deal that builds in industry specific adequate covers may be quite long.

Development of standard ART covers could lead to quicker turnaround time and make it less expensive. An example could be drawn from the derivatives market, where standardization such as International Swaps and Derivatives Association (ISDA) designed forms have laid the foundation of legal framework for the dealings. A common framework contract defining disclosure, nature of losses covered and dispute resolution on the lines of ISDA based transaction may help standardize and therefore speed up ART transactions.

From the risk manager's perspective, its infancy, lack of awareness and lack of post contract inflexibility are major obstacles.

For an investor into capital market lead ART tools, some of the obstacles are

#### Liquidity

Index linked insurance derivative options premium is a function of market demand. Because of their limited risk and reward, the call spreads are currently used as hedging device and not for speculative trading. This results in inability to liquidate the position quickly.

#### Price comparison

The catastrophic component of the event risk securities are not fully understood by the investors, especially as it is perceived to be based on circumstances outside their control. In addition, computer based modeling, relying on certain assumptions, say, related to weather losses may not lead to a precise scientific application due to lack of statistical evidence. As a result, the higher rate of return is not compensation enough, especially as they lack standards to compare these products in the non-insurance context to independently verify price.

There are some regulatory and accounting related conventions that inhibit the growth of alternative market. Insurance premium contribution is tax deductible. Most ART tools are not.

From an insurers perspective, in his capacity of buyer of risk transfer instrument, traditional reinsurance qualifies for accounting treatment and has positive bearing on financial and solvency ratios. However, scrutinizing instruments do not qualify for the same. In the USA, risk based capital calculation would not give credit for securitised risk management measures. The same is true for asset calculation if the proceeds from a bond is not invested in US government securities.

As an example, risk transfer through reinsurance to a wholly owned captive would not be eligible for risk reduction consideration, from solvency angle. Nor would it be in case of issue of a CAT bond. The insurer must have arm's length relationship with the captive reinsurer. Hence, the insurer needs to sponsor a charitable foundation to own the SPV captive. This SPV can approach the capital market for funding. But, it being a non-admitted reinsurer, it has to create collateral through a trust in favour of the reinsured company. When the losses have been paid off, within the specified period and/or the bonds redeemed, the SPV captive is

finally closed and the surplus distributed to the shareholders, the charitable trust. From tax angle, it is favourable to set up captive in offshore location. But all these add to the cost of the entire transaction.

Again in the USA, except for a couple of states, speculative trading in futures and options is disallowed. The same is true for surplus notes, which being subordinated debt, issuance and repayment is subject to regulatory approval. Accounting treatment of income arising out of hedging and non hedging activities remain nebulous.

There is a case to align solvency regulation, accounting practices and tax laws to spur the growth of ART instruments.

One reason for insurers lack of interest in securitisation could be the fact that they are usually not short of capital. Securitisation of risks could mean parting with some of the profit with the investors. This may not be attractive; unless the existing capital is better utilized by increased underwriting or else capital base is decreased.

One of the reasons for insurers to cold shoulder ART mechanism could be the fear that this would lead to capital market to offer formidable competition to the insurance players, given their financial muscle.

Insurance is a highly leveraged activity, as the aggregate exposure is several hundred times the capital of the insurer. This calls for underwriting expertise and ability to predict and manage exposure through aggregation of large number of similar and dissimilar risks. This itself could offer significant entry barrier to non-insurers. Besides, a highly leveraged activity, like insurance, is best run as a limited liability firm rather than taking it on the balance sheet of the bank, or any other institution.

Most security deals also acknowledge the need for underwriting expertise as evident from the fact that they cover portfolio of risks packaged by an insurer / reinsurers.

## **ART IN ASIAN CONTEXT**

ART is in its infancy in Asia, except possibly Japan where some of the ART's products have been successfully issued including Toki marine EQ bonds, Yasuda's typhoon bonds, Mitsui's earthquake swaps and Tokyo's Disneyland earthquake bonds.

Inadequate understanding of ART and lack of professional ART underwriting expertise could be the key inhibitive factors to growth of ART in Asia. Some of the countries in the region, for instance, Monetary Authority of Singapore (MAS) Singapore has taken some steps to create a favourable regime to help ART grow.

Financial reinsurance has been in use in Asia for some time now, some times as modified co-insurance. However, the lack of clarity on regulation has led to uncertainty as regards its acceptance. Institutionalization of financial reinsurance has been done in Singapore recently in the year 1999 by the Monetary Authority, through its notices 208 and 316. The notice allows insurers to enter into financial reinsurance, but authority has to approve each and every transaction. Secondly, element of significant risk transfer would be necessary in each case. The notice explains that significant risk transfer is assumed to have occurred, if it is reasonably possible that the reinsurer may realise a significant loss and it is reasonably possible to have a significant range of outcomes under the contract. The notice therefore provides some leeway in designing instrument so long as it is within the broad prescription, and of course, approved by the authorities.

In addition, MAS has indicated that they have been studying the issues relating to formation of rent-a-captive and protected cell companies in Singapore. It also is keen to see the structuring and issuance of insurance linked securities out of Singapore in an attempt to develop the capital market.

Currently, most insurers in the region have been cautious about embracing ART's, while as the regulators are studying the approach they need to take on ART. However, some of the governments are actively using capital market tools to spread risk. It is reported that after the Chi Chi earthquake in Taiwan in 1999, due to which the loss due to business interruption and loss of reputation and brand value to computer chip manufacturers was many times larger than the physical loss, Govt. is actively looking at introduction of national insurance scheme for earthquake and other disasters. Same is true for Indonesia, where national earthquake insurance pool is under consideration.

It is believed that Asian insurers can benefit a lot from ART innovations. Due to economic set back to the Asian economies in the late nineties, premium shrinkage and poor return on investments coupled with inflationary loss trends lead to volatile profit for Asian insurers. The way to overcome this is through focusing on profitable line of business which are inherently more volatile. Volatility management through alternative risk transfer components such as finite risk reinsurance and blended insurance risk transfer could be looked at as complementary to traditional reinsurance programmes by these insurers. Possibly contingent liquidity cover with insurance triggers could also be looked at to protect against large insurance event risk, as well as non-insurance risks under appropriate integrated risk management concept.

Experts believe that insurers in emerging markets should be looking more at surplus reliefs,

spread loss and aggregate Excess of Loss covers rather than exotic security and derivative products

It is hoped that in due course, with increasing financial convergence, ART solutions would be integrated into the distribution channels of reinsurance companies, insurance companies and banks to offer customers a full range of services and products.

### **What is required for ART?**

Development of ART centre depends on creation of an environment of partnership between government and insurance industry. This includes an effective regulatory framework and prudent accounting standards including sound capital, surplus and solvency requirements and ease of access to financial services. Governmental support in the form of efficient and low tax structure and free flow of funds are also important. Infrastructural facility, such as telecommunication facility are also important for transparency and efficiency in dealings. Above all, there is a need to develop high caliber of insurance expertise and technical knowledge. [Krishnan]

### **INDIAN SCENARIO**

On the capital market side, India has 20 regional exchanges, with Mumbai Stock Exchange (market capital on 31<sup>st</sup> March 2000 Rs 912,843 crores = USD194 Billion) being the largest. At the national level, there are three exchanges, National Stock Exchange (market cap on 31<sup>st</sup> March 2000 Rs 1,020,426 crores = USD 217 Billion), OTCEI and Interconnected Stock Exchange of India. All exchanges use screen based trading now. In addition, facilitating services like depositories like Stock holding corporation etc. are also in place. The capital market is regulated by the Securities and Exchange Board of India. Investors are mainly corporates, Foreign Institutional Investors representing provident funds, Mutual funds, Trusts, Asset Management companies, Pension funds etc.

As of March 2000, a total of 9,861 companies were listed at all stock exchanges and the turnover of all stock exchanges during the year 1999-2000 was Rs 2,067,030 crores (USD 440 Billion). Wholesale debt market capitalisation at NSC during the year 2000-2001 was Rs 580,835 crores (USD 123 Billion)

### **Critical appraisal of ART in Indian context**

Any appraisal of ART in India and our readiness to embrace ART and benefit from it should be based on analysis of financial market maturity and efficiency in India, especially the capital market and the insurance market.

Indian insurance market has been recently liberalised. Existing companies appear well capitalized with their impressive reserves accumulated over the years of good performance and prudent investments. There may not, therefore be any need for fresh capital injunction, unless, Indian insurers plan to integrate their market to global insurers in a big way through large inward exposure. However, as the Indian economy grows (Annual growth rate over 6

%) and greater insurance awareness and penetration accrues, need for fresh capital injunction may be felt, if the rate of internal reserve creation is not adequate. This may be a possibility, as competition and gradual dilution of tariff regime may lead to lower premium, which may affect investment surplus and the underwriting results.

The case of private insurers is completely different. Based on minimum statutory capital of Rs 100 crores (USD 21 Million), the need to maintain solvency will propel the need for capital injunction by the promoters till the time the ventures start generating internal surplus. It is not known, if they could be permitted to raise capital from the market, using risk securitisation route.

Looking into the future, for possible ART instruments in India, indicates several roadblocks. Capital market is information hungry and any decision for capital market investment is firmly routed in information- in case of insurance, past performance, loss database especially those relating to catastrophe losses, loss movements, risk transfer mechanism in place, internal controls over portfolio and processes, data intensive modeling such as co-relation risks etc. become critical inputs. Most private players have modern computerized systems in place. Incumbents have also started computerisation on a large scale and it is hoped that in future, much more informed decision-making can be made based on accumulated data.

If one were to look at the stock market, the investor confidence is quite low, following recent allegations of insider trading and various scams. In terms of sophistication of instruments, especially in the futures and options segment, Indian market has just started taking its first stride in this direction. National Stock exchange has started trading in stock market index based futures (based on S&P CNX Nifty) towards the middle of June 2000. But the average daily trading value has been between Rs 10 crores (USD 2.1 M) to Rs 20 crores (USD 4.2 M). European style option based on same index has been introduced towards the beginning of June 2001. The market response to this is yet to be assessed.

The stock market remains the most active segment of all exchanges. However, derivative instruments are yet to catch in the stock market. In order to understand the commodity market, a brief analysis of coffee exchange, based at Bangalore revealed the following.

The global coffee market is estimated at USD 8 Billion. The tow largest exchanges at New York and London trade around USD 1 Billion every day. This would mean that the entire market volume is traded every 8 days on these exchanges ! In India, the coffee market is estimated at Rs 1500 crores (USD 319 Million). By the global standard, it should be trading around Rs 100 crores (USD 47 Million) every day. It does only Rs 10 Lakhs (USD 210,000) even after it has been in existence for over three years now.

The reasons for this are not far to seek. A market requires end consumers (roasters), producers, traders and speculators to create liquidity. Speculators create the market, while as others deal in the underlying and would use the market to hedge their risk. But the liquidity in the market is totally absent, due to lack of interest from speculators. Unwinding a position is extremely difficult. This is a chicken and egg story. Traders do not participate, as the liquidity is not there. And because they do not participate, liquidity is not there! In essence there is need to educate the traders and attract speculators. This would again call for information dissemination to help build the market. The result is the lost opportunity to hedge risks by the coffee traders. Coffee market moves based on frost loss to Brazilian crop. May be, they could have options available in India against natural disaster worldwide!

The situation is similar in other commodity exchanges, for example pepper exchange at Cochin. Essentially, these are too small to be viable for speculative trading. And it is the speculators who create liquidity to the market. It may be worthwhile exploring creation of a central commodity exchange for all commodities, underlying, and making use of information technology.

Taking a cue from the above, it can easily be assumed that trading of insurance based derivatives, is not yet a viable proposition in Indian situation. This takes away, one opportunity to hedge the risk by insurers and reduce their dependence on reinsurance market.

Let us now turn to protection against catastrophe losses through risk transfer to capital market through securitisation. Till last year, market retention (reflecting the retention of all the then subsidiary companies of GIC) were protected through layers of Excess of loss cover. In the past Excess of loss covers have shown volatility due to catastrophic losses.

In terms of catastrophe losses, in the recent past, some of the major losses have been estimated at (Estimated Gross market loss to insurers)

Gujarat Cyclone 1998 – Rs 1000 crores (USD 212 Million)

Orissa Cyclone 1999 – Rs 500 Crores (USD 106 Million)

Gujarat Earthquake 2001 – Not known

Gujarat cyclone affected some of the most industrialized parts of India and affected some of the large industrial units. Thanks to some good underwriting and also low penetration in non-industrial segment, a substantial part was recoverable from the reinsurers.

But this security not be available for long. Greater awareness of risks lurking around, especially after the earthquake of 2001 leading to higher penetration of market, coupled with secular economic growth and industrialisation would lead to higher severity of catastrophic losses in the future, in India and the insurers need to plan in that direction. The need for this could be felt much earlier, if Indian insurers take higher lines in international market, though it is not clear, if a company can issue cat bonds in India to transfer the risk of a windstorm in Florida.

Insurers in the private sector may not yet be ripe for capital market instruments for risk transfer. But given their smaller capital base, it is felt that finite loss covers, including spread loss and blended covers could be usefully employed to protect their portfolio.

Several small countries have done exceedingly well as financial centres, especially for reinsurers. In addition to often-repeated names, Labuan, in Malaysia has also emerged as a regional reinsurance centre. Singapore has ambition of becoming a financial market hub. Could these be replicated in India also, say for captives in this region? This would possibly call for suitable taxation structure

As India takes its stride towards an economic super power status, its financial market needs to evolve in terms of breadth and depth. Insurance market is no exception. While it may appear that the country is not yet ripe for many types of ART mechanism in terms of scale and scope, the preparation in this direction needs to start now. This would in turn call for developing necessary risk management expertise and also greater clarity in accounting and

regulatory guidelines.