

AN EVALUATION OF THE DEVELOPMENT AND GROWTH POTENTIAL OF CREDIT DEFAULT SWAP MARKET IN INDIA

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ABSTRACT: A booming domestic economy and low default rates in the last decade had led banks to lend quite aggressively. Between 2001 and 2010, the total asset size of the Indian banking industry grew by 18% per year on average, from \$250 billion to \$1.3 trillion. The annual rate of credit growth was 23% during 2007-2012, according to the India Brand Equity Foundation. During this period, banks warehoused credit risk. With the massive NPA provisioning undertaken by most PSUs, including the likes of SBI and PNB, a mechanism of credit risk management seems indispensable. Credit Default Swaps, a basic credit derivative product seems the right product at this point of time. There are two schools of thought. One says Credit Derivatives are good and would help the banks in improving their balance sheets. The other school thinks differently. They say as a banker it is the responsibility of the bank to be well aware of the risk it is taking. With the advent of credit derivatives, the banks will be able to shift the credit risk and as such will not scrutinize the credit proposition as well as they should; because they can easily transfer the credit risk by using credit derivatives.

At this juncture, it becomes necessary to identify the problems and prospects for the growth of Credit Default Swaps market in India. Also an effort needs to be made in the direction of learning from the international experiences and finally the customization of the product and strategy for Indian participants. With these points in mind the researcher has conducted a study with the specific title – An evaluation of the development and growth potential of Credit Default Swap Market in India. As per this study, Credit Derivatives are picking slowly in India but the urgency is not yet felt. Corporates in India do not find bond finance an attractive option. It is basically due to a historical dependence on bank finance coupled with high cost of bond issuance and lack of familiarity with the processes and risks involved. A correction in this trend is highly anticipated. Last but not the least, it is important to appreciate that credit risk is not limited to corporate bonds. It is associated with sovereign bonds also as depicted in the European sovereign debt crisis. Considering that FIIs are allowed to invest in Indian bonds and associated risks with rating downgrades; the markets are becoming increasingly vulnerable. Credit Derivatives can be a great saviour in these conditions and can help the bond markets to flourish.

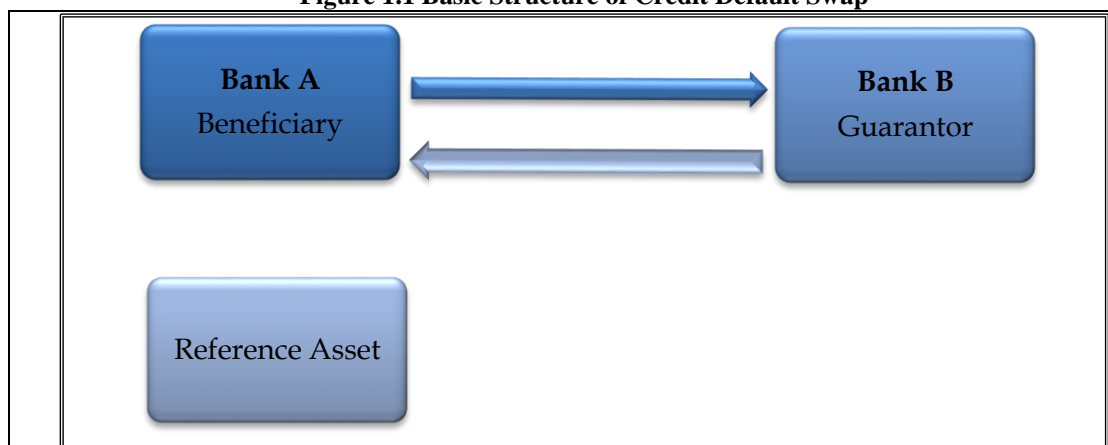
KEY WORDS: Credit Default Swaps, Corporate Debt Markets, Credit Event, Credit Risk

INTRODUCTION

Globally, the most common credit derivative is the Credit Default Swap (CDS). A CDS is a bilateral contract in which a periodic fixed fee or a one-time premium is paid to a protection seller, in return for which the seller will make a payment on the occurrence of a specified credit event. The fee is usually quoted as a basis point multiplier of the nominal value. It is usually paid quarterly in arrears.

The swap can refer to a single asset, known as the reference asset or underlying asset, or a basket of assets. The default payment can be paid in whatever way suits the protection buyer or both counterparties. For example, it may be linked to the change in price of the reference asset or another specified asset, it may be fixed at a predetermined recovery rate, or it may be in the form of actual delivery of the reference asset at a specified price. The basic structure is illustrated here:

Figure 1.1 Basic Structure of Credit Default Swap



The maturity of the credit swap does not have to match the maturity of the reference asset and often does not. On occurrence of a credit event, the swap contract is terminated and a settlement payment made by the protection seller or guarantor to the protection

buyer. This termination value is calculated at the time of the credit event, and the exact procedure that is followed to calculate the termination value will depend on the settlement terms specified in the contract. This will be either a cash settlement or a physical settlement.

Cash settlement: The contract may specify a predetermined payout value on the occurrence of a credit event. This may be the nominal value of the swap contract. Alternatively, the termination payment is calculated as the difference between the nominal value of the reference asset and its market value at the time of the credit event. This arrangement is more common with cash-settled contracts.

Physical settlement: On occurrence of a credit event, the buyer delivers the reference asset to the seller, in return for which the seller pays the face value of the delivered asset to the buyer. The contract may specify a number of alternative assets that the buyer can deliver; these are known as deliverable obligations. This may apply when a swap has been entered into on a reference name rather than a specific obligation issued by that name. Where more than one deliverable obligation is specified, the protection buyer will invariably deliver the asset that is the cheapest on the list of eligible assets (cheapest to deliver).

In theory, the value of protection is identical irrespective of which settlement option is selected. However, under physical settlement the protection seller can gain if there is a recovery value that can be extracted from the defaulted asset; or its value may rise as the fortunes of the issuer improve. Despite this, swap market-making banks often prefer cash settlement as there is less administration associated with it. It is also more suitable when the swap is used as a part of a synthetic structured product, because such vehicles may not be set up to take delivery of physical assets. Another advantage of cash settlement is that it does not expose the protection buyer to any risks should there not be any deliverable assets in the market, for instance due to shortage of liquidity in the market. If this happens, the buyer may find the value of its settlement payment reduced.

Nevertheless, physical settlement is widely used because counterparties wish to avoid the difficulties associated with determining the market value of the reference asset under cash settlement. Physical settlement also permits the protection seller to take part in the creditor negotiations with the reference entity's administrators, which may result in improved terms for them as holders of the asset.

Example: XYZ plc credit spreads are currently trading at 120 basis points (bps) relative to government issued securities for five-year maturities and 195 bps for 10-year maturities. A portfolio manager hedges a \$10m holding of a 10-year paper by purchasing the following CDS, written on the five year bond. This hedge protects for the first five years of the holding, and in the event of XYZ's credit spread widening, will increase in value and may be sold on before expiry at profit. The 10-year bond holding also earns 75 bps over the shorter-term paper for the portfolio manager.

Term: 5 years **Reference Credit:** XYZ plc 5 yr bond **Swap Premium:** 3.35%

Credit event payout date: The business day following occurrence of specified credit event

Default payment: Nominal value of bond \times [100 – Price of bond after credit event]

Assume now that midway into the life of the swap there is a technical default on the XYZ plc five-year bond, such that its price now stands at \$28. Under the terms of the swap the protection buyer delivers the bond to the protection seller, who pays out \$7.2m to the protection buyer.

The CDS enables one party to transfer its credit risk exposure to another party. Banks may use default swaps to trade sovereign and corporate credit spreads without trading the actual assets themselves; for example, someone who has gone long a default swap (the protection buyer) will gain if the reference asset obligor suffers a rating downgrade or defaults, and can sell the default swap at a profit if he can find a counterparty buyer. This is because the cost of protection on the reference asset will have increased as a result of the credit event. The original buyer of the default swap may never have owned a bond issued by the reference asset obligor.

LITERATURE REVIEW

The international journals had a good number of papers which were based on different economies, mostly developed. This section deals with the relevant works, their objectives, methodologies and most importantly their findings.

Developing Corporate Bond Markets in Asia by Jacob Gyntelberg, Guonan Ma & Eli Remolona

BIS Papers No 26, BIS/PBC Seminar Proceedings, Kunming, China, November 2005

Conclusion: In their effort to develop their local currency corporate bond markets, policymakers in some Asian countries face fundamental questions. In the case of primary markets, should they emphasise further growth even if issuance remains concentrated in quasi-government issuers and those with explicit or implicit credit guarantees? Or should they focus their efforts on disclosure rules, accounting standards and transparency so that investors can get the information they need for assessing credit risk for a broader range of potential issuers? While concentrating on the first goal may be a good way to start, is it time to develop a culture of credit assessment and pricing of credit risk? In the case of the secondary markets, the policy questions have to do with whether to focus on developing market microstructure, on diversifying the investor base or strengthening the institutions that foster flows of market-relevant information. These approaches are not necessarily substitutes and may be pursued together for greater effectiveness. In practice, however, developing market structures - for example, setting up fixed income exchanges - appears to be the most straightforward approach, while the others appear more complex. Nonetheless, diversifying the investor base and improving the flow of market-relevant information are perhaps more important in the long run.

Development of Japan's Credit Markets by Hibiki Ichiue, Bank of Japan

BIS Papers No 26, BIS/PBC Seminar Proceedings, Kunming, China, November 2005

Conclusion: This paper can be summarised by the following three points.

- a) First, although bank loans have dominated the Japanese credit market, the corporate bond market, along with the secondary syndicated loan market and securitisation of credit receivables and equipment leases, has played an important role since the financial crisis. The infrastructure of the credit market is reasonably well developed, and is expected to support the Japanese economy during the next credit down-cycle.
- b) Second, investment opportunities in Japan's credit market are limited. The Samurai bond market is enabling Japanese investors to invest in Asian companies, and cross-border syndicated loans may play a greater role in future.
- c) Finally, deregulation, such as the abolition of bond issue standards, was a prerequisite for the development of the credit market. Measures by the BOJ, such as outright purchases of ABSs and ABCPs and publishing statistics and surveys on credit markets, have helped to enlarge the investor base, as well as develop a new financing channel for companies, particularly small and medium-sized enterprises.

The Costs and Benefits of Developing Debt Markets: Hong Kong's Experience by Guorong Jiang, Nancy Tang and Eve Law

BIS Series, BIS Papers chapters with number 11-07, 2002

Conclusion: There are substantial macroeconomic and microeconomic benefits in a well developed bond market. Microeconomic efficiency gains, through diversification and control of credit and liquidity risks, improved corporate governance and better pricing of risks, are likely to have the macroeconomic effect of reducing the probability of financial crises and limiting any negative effects from them. However, it should be noted that there are also risks arising from the development of debt markets, which may act as a potential channel for spreading financial contagion. In addition, the debate on the relative merits of a bank-based versus a market-based financial system is far from conclusive, despite the potential efficiency gains discussed above. Levine (2000) examines the relationship between financial structure and economic growth based on a broad, cross-country database. He finds no cross country empirical evidence favouring either market-based or bank-based financial systems. Neither system is particularly effective at promoting growth; "countries with well developed banks but poorly developed markets do not perform notably differently from those with very well developed markets but poorly developed banks, or than those with more balanced financial systems after controlling for overall financial development". However, the study does find that the legal system is a crucial factor in financial development and that better developed financial systems enhance growth.

As a result, policy efforts should not be directed at favouring a particular financial structure, such as bond markets over the banking sector. Instead, efforts should be directed at improving the functioning of the financial sector, whether it is bank-based or market-based. This highlights the importance of efforts to build an efficient market infrastructure and to reduce information asymmetries. Such efforts also help realize the full potential of efficiency gains from the debt market and limit the downside risks of herding behaviour often observed in emerging bond markets. In particular, improvements in market transparency such as accounting and disclosure standards, and the establishment of a legal and regulatory framework consistent with international best practice and with strong enforcement, will help investors to differentiate better among emerging markets at times of pressure and reduce contagion effects. The recent decline in the cross-correlation of the emerging debt markets could be partly attributed to international efforts in this area.

The HKMA, together with other government regulatory and supervisory agencies, has focused its efforts over the past decade in developing a supportive environment in which a well functioning debt market in Hong Kong can grow. The Exchange Fund Bills and Notes programmes introduced in 1990 established a benchmark yield curve extending to 10 years. A market-making system has been set up, and efficient clearing and settlement systems, for both Hong Kong dollar and US dollar payments and instruments, are in operation. In addition to the establishment of an efficient market infrastructure, the accounting and disclosure standards are high by international standards, and have constantly been improved to match international best practice, and a transparent legal and regulatory framework ensures that market discipline functions effectively.

Credit Derivatives and Structured Credit: The Nascent Markets of Asia and The Pacific by Eli M Remolona and Ilhyock Shim

BIS Quarterly Review, June 2008

Conclusion: Credit risk market innovations such as single-name CDS contracts, traded CDS indices and CDOs have made significant inroads in Asia and the Pacific. Single-name CDS referring to almost a thousand Asia-Pacific entities now trade in the market. There are actively traded CDS indices, separately covering names in Asia (excluding Japan), Japan and Australia. Synthetic CDO deals have been put together with names from within the region, albeit in combination with names from elsewhere. In 2006, a surge of bond issuance in the region provided a major boost to the use of these innovations. This growth, however, has been interrupted by the recent global financial turmoil, which has caused spreads to widen sharply even for Asian names and reduced investors' interest in structured credit. Nonetheless, active trading in CDS indices has continued and the markets in the region are likely to resume their growth once global conditions settle down. These markets have been confined to international investors, and

greater issuance of local currency debt by lower-rated borrowers in the region would induce more active participation by domestic investors.

Meanwhile, Asian market participants will draw lessons from the recent global market turbulence. They have seen the limitations to the use of complex financial structures and the inadequacies of risk management approaches used by financial institutions. Although the borrowers in Asia-Pacific credit markets appear to have strong fundamentals, the authorities in the region may wish to strengthen market oversight and encourage more robust risk management before fostering further development of new credit risk instruments.

Credit Derivatives in Banking: Useful Tools for Managing Risk? by Gregory R. Duffee and Chunsheng Zhou

Journal of Monetary Economics, 2001

Conclusion: A model of a bank that has an opportunity to make loans was constructed. The risk of loan default can expose the bank to its own financial distress. The bank can sell any fraction of the loan in order to reduce its expected costs of distress, but because the bank has superior information about loan quality, the loan sale market is affected by an asymmetric-information problem. The researchers built in a role for credit derivatives in the model by assuming that the magnitude of the asymmetric information varies during the life of the loan. A credit-derivative contract that transfers the loan's risk when the lemons problem is smallest can be used by the bank to reduce its risk of financial distress. If the asymmetric information problem is sufficiently severe, the loan-sale market will be of only limited use to banks, and thus the opportunity to use credit derivatives will be valuable to the bank. However, when one considers the effects that a credit-derivatives market has on other markets for sharing risks, the introduction of a credit-derivatives market does not necessarily benefit the bank. If, prior to this introduction, the asymmetric-information problem was not severe enough to limit the use of the loan-sale market, the addition of a market in credit derivatives can be harmful. The new market can alter investors' expectations of the quality of loans sold in the loan-sale market and thereby dramatically change the nature of equilibrium in this market. Thus, although the credit-derivatives market will be useful to the bank, its presence makes the loan-sale market much less useful. We find that if the asymmetric-information problem is one of adverse selection, the net effect is to leave the bank worse off, while if the problem is one of moral hazard, the bank is better off.

Has the CDS Market lowered the cost of Corporate Debt? by Adam B. Ashcraft, and Joao A.C. Santos

Journal of Monetary Economics, No. 4, May 2009

Conclusion: The conclusions derived in this paper are at two levels:

- a) Preliminary
- b) Final

Preliminary Conclusion

- # No impact of CDS trading for the average firm.
- # It is possible that the benefits are concentrated in risky and opaque firms.
- # Spreads of safe / transparent firms decrease relative to risky / opaque firms.
- # These results do not support the diversification or information channels.
- # It is possible, though, that risky and opaque might be capturing CDS market illiquidity.

Final Conclusion

- # The impact of borrower risk and opaqueness is independent of CDS market liquidity.
- # Liquid CDS trading has a positive impact on spreads for the average firm.

The Development of Local Debt Markets in Asia by Mangal Goswami & Sunil Sharma

IMF Working paper WP/11/132, June 2011

Conclusion: The key challenge in Asia is to generate financial assets in line with its economic growth that can provide the underlying collateral for expanding fixed-income markets and hence domestic and regional investment opportunities. Shortage of good quality financial assets can lead to speculative valuations in emerging markets and contribute to global imbalances. A significant proportion of Asian corporations have credit ratings below investment grade. Besides inhibiting issuance, the low ratings preclude certain investors from having these assets in their portfolios. However, with growth in residential mortgages and other household debt instruments, the region has the potential to substantially broaden and deepen the collateral pool available for underpinning regional and local fixed-income markets.

The issue of critical size could be addressed through an integrated regional market for local currency bonds that provides greater scale, efficiency, and access. Regional cooperation through ASEAN+3, ABMI, and ABFs could be used to catalyze improvements in bond markets and increase financial market integration. Though difficult, especially given the heterogeneity of issuance jurisdictions, Asian emerging markets have to work further towards harmonizing market infrastructure, notably in trading and clearing platforms, custody arrangements, as well as in standardizing valuation rules. To this end, countries should continue to raise domestic standards in line with international best practice.

Furthermore, incentives at the firm level must also be examined to assess why bond finance is not yet an attractive option in many countries. Much of it could be due to inertia stemming from a historical dependence on bank finance, high costs of bond issuance, and lack of familiarity with the processes and risks involved in tapping markets.

Emerging Asia also needs to foster a credit culture to deepen its local debt markets. For now, the equity culture—combined with the comfortable liquidity position of banks and corporations—may be a hurdle for further expansion of local bond markets. However, in some countries (e.g., China and India), there are signs that economic growth is catalysing a paradigmatic shift toward broader capital market development as the demand for corporate credit rises. Moreover, the fact that Asian corporations, which have historically been reliant on bank financing, were able to turn to local corporate bond markets when banks reduced lending during the global crisis, augurs well for market development (IMF (2010)). While it is difficult to define what constitutes a critical market size in terms of debt volume and number of issuers, the expansion in local debt markets in Asia could be rapid given the region's expected growth trajectory.

An exhaustive search for studies relevant to credit derivatives in India did not yield any satisfactory results. It is thus that the proposed research was thought of.

Close linkages were found with several papers talking about the development of bond markets and credit derivatives market in the Asian region. But there are fundamental differences in the Indian conditions as compared to the Asian conditions. Asia, among other nations, primarily comprises of Japan and Singapore. The latest addition can be considered as China where the financial market reforms are taking place at a fast pace. India is just not in the same league. Despite that a lot of debt market demographics in the broader Asian region are applicable to India.

This paper is an attempt to fill the gap in the available literature on the topic concerning India.

PROBLEM STATEMENT

A booming domestic economy and low default rates in the last decade had led banks to lend quite aggressively. Between 2001 and 2010, the total asset size of the Indian banking industry grew by 18% per year on average, from \$250 billion to \$1.3 trillion. The annual rate of credit growth was 23% during 2007-2012, according to the India Brand Equity Foundation. During this period, banks warehoused credit risk. "However, if things were to change, there is no instrument available through which banks can hedge their credit risk since the secondary loan market is almost non-existent," Vaidya Nathan adds. "Given the context and timing, credit derivatives would be an important mechanism for banks to manage credit risk on their balance sheets."

The banking industry is struggling to comply with the BASEL III norms. Nevertheless, the Indian banking industry, under the able leadership of RBI, seems poised for growth. It is time, we start taking risks in Debt. Hopefully, the markets will grow as they did when derivatives in equities were introduced.

Although currently an infant in India, the Credit Derivatives market holds immense potential. The scenarios and factors such as opening up of the insurance sector, relief to investors, tax benefits to corporates and proxy hedges outlined above could provide the necessary impetus to the credit derivatives market to develop in India, boosting yields and lowering risks for both the corporate as well as the banking sector. At this juncture, it becomes necessary to identify the problems and prospects for the growth of Credit Default Swaps market in India. Also an effort needs to be made in the direction of learning from the international experiences and finally the customization of the product and strategy for Indian participants.

With all the above points in mind the researcher has conducted a study with the specific title – An evaluation of the development and growth potential of Credit Default Swap Market in India.

RESEARCH OBJECTIVES

1. To analyze the growth and prospects of Credit Default Swaps in India
2. To search for possible cost effective alternatives to Credit Default Swaps, which help in transferring credit risk, if they exist.

RESEARCH HYPOTHESES

H₀₁: A significant number of respondents think that Credit Derivatives have tremendous growth opportunity in India

H₀₂: A significant number of respondents perceive Credit Derivatives as efficient instruments in managing credit risk

H₀₃: A significant number of respondents feel that they are under-utilizing Credit Derivatives

H₀₄: A significant number of respondents are not comfortable using Credit Derivatives

H₀₅: The market in the past did not provide the necessary credit risk protection to banks and financial institutions.

H₀₆: Credit derivatives are developed and are extensively used to provide a solution to the inefficiencies in the credit market.

RESEARCH DESIGN

This being an exploratory study to begin with, the research methodology adopted was 'Concept Development' followed by 'Problem Definition', then 'Objective Setting', subsequently 'Defining the Hypothesis', then 'Selection of Information', then 'Data Collection', then 'Statistical Processing' of the data, then "Data Interpretation and finally 'Conclusion' of the study.

Data Collection and Sources of Data

While conducting this Research the sources for the collection of data were as follows:

Primary data: Data which is collected at first hand, either by the researcher or by someone else especially for the purpose of the study is known as Primary Data. Sources of primary data are Interview method and E Questionnaire in this case.

E – Questionnaire is the latest technique used for primary data collection. This has been possible due to the internet technology development. As mentioned, Credit Derivatives is yet to be popularized in India. It therefore implies that the researcher will have to study the developed markets where Credit Derivatives are popular and traded. Practically it is very difficult to visit these places personally and conduct interviews. E – Questionnaires prove very handy in these circumstances.

The data is to be collected through primary source of data with the use of questionnaire. The survey will be conducted over the sample size of 500 respondents.

Secondary data: Data which exists and is used earlier for some other purpose is known as secondary data in the hands of the marketing researcher.

Secondary Data constitutes use of documentary sources such as magazines, books, Internet sources, Technical papers, Company websites, journals, manuals, newspapers etc.

Sampling Frame

Respondents working with Banks and Financial Institutions: 210

Debt Fund managers from Abroad – Mutual Fund Managers, Hedge Fund Managers, Income Fund Managers working with Insurance Companies: 42

Academicians in India and Abroad: 204

Method of Data Collection:

As mentioned above, the sample frame comprises of respondents from different categories. One segment of respondents is based abroad. Also, the Credit Derivatives market in particular and Debt Market in general is not highly developed in India. Therefore to get a high number of respondents who have a fair idea of credit derivatives is a very remote possibility. Thus the sampling technique would essentially be convenient sampling.

The data will be collected from E-Surveys which will also be used for designing the researcher's individual questionnaire.

QUESTIONNAIRE DESIGN:

The sampling frame was basically divided into two sets and then subsequently into three sub-sets. The two broad sets were Academicians and Industry Practitioners. Academicians in India and Abroad were clubbed together to form a sub-set. The Industry Practitioners in India and Abroad comprised two different sub-sets.

A pilot study was conducted for testing the interpretation and required up-gradations if any. At the end of the pilot study the questionnaire was suitably upgraded as per the suggestions of the industry practitioners and academicians.

The final questionnaire was then converted into an e-questionnaire and was then circulated through the internet.

The questionnaire was then standardized using Cronbach's alpha. Cronbach's alpha is a useful statistic for investigating the internal consistency of a questionnaire. The results of which are mentioned a little later in this chapter.

Method of Data Analysis

SPSS was used along with statistical tools such as Correlation, Mean and Standard Deviation for the analysis of tabulated data. A 5% level of significance was considered as acceptable for establishing the strength of the hypothesis – whether it holds or not.

Data Analysis and Interpretation

After the collection of data, the data was coded and tabulated. Subsequently the data was verified and validated before representation. Then descriptive statistical inferences were drawn based on which observations and findings were recorded and conclusions formed.

DATA FROM RESPONDENTS

Chart 1.1 Respondents' Statistics

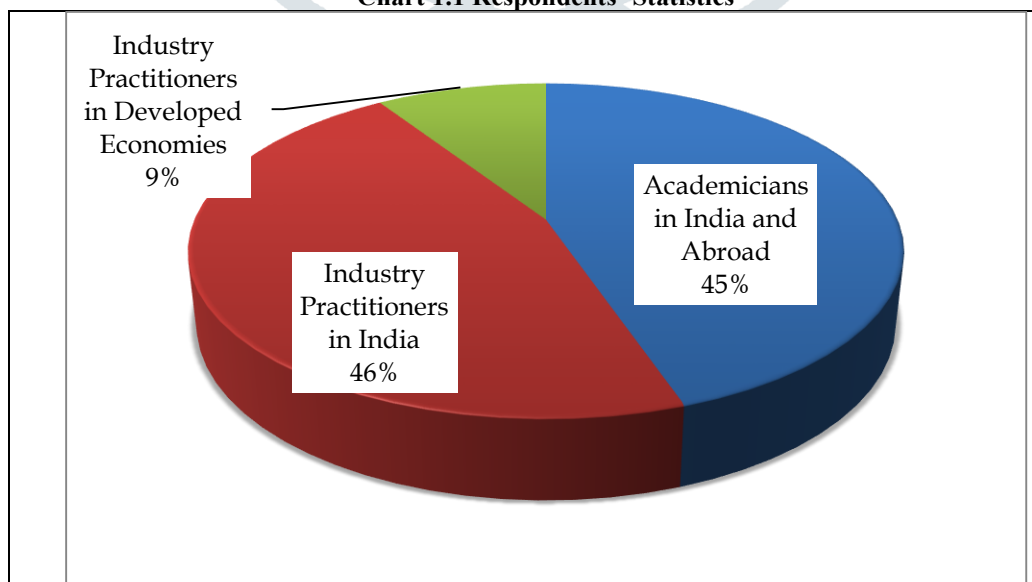


Table 1.1 Respondents' Statistics

Respondent Category	Sample Size
Academicians in India and Abroad	204
Industry Practitioners in India	210
Industry Practitioners in Developed Economies	42

In all 456 respondents' feedback was taken for analysis. The break-up is as shown above.

RELIABILITY TESTING**Table 1.2 Reliability Testing for All Respondents**

Case Processing Summary			
		N	%
Cases	Valid	456	100.0
	Excluded ^a	0	.0
	Total	456	100.0
a. List-wise deletion based on all variables in the procedure.			
Reliability Statistics			
Cronbach's Alpha		N of Items	
.472		17	

It is slightly on the lower side. But the same can be taken as a result of high level of ignorance and familiarity among the respondents. A careful investigation will suggest that the reliability coefficient for practitioners is satisfactory but the overall reliability coefficient is lower because of lower degree of agreement among the academicians from India and abroad.

Table 1.3 Reliability Testing for Respondents (ex academicians)

Case Processing Summary			
		N	%
Cases	Valid	252	100.0
	Excluded ^a	0	.0
	Total	252	100.0
a. List-wise deletion based on all variables in the procedure.			
Reliability Statistics			
Cronbach's Alpha		N of Items	
.748		17	

ANALYSIS OF RESPONSES**Table 1.4 Growth of Credit Derivatives in India**

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>Credit Derivatives have tremendous growth opportunity in India.</i>	2	4	3

Comment: The industry practitioners in India are quite optimistic about the future of credit derivatives in India; the academia, on the other hand, is negative and the industry practitioners abroad are not certain about the growth opportunity for credit derivatives in India.

Table 1.5 Alternatives of Credit Derivatives

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>Other products which can be used in place of Credit Derivatives are not as efficient as Credit Derivatives.</i>	4	4	3

Comment: The academicians and the industry practitioners in India agree that Credit Derivatives are efficient instruments. The industry practitioners in the developed nations are divided about the efficiency of credit derivatives. The uncertainty can be attributed to the unfamiliarity with the Indian working conditions.

A notable feature here is that the academicians feel that credit derivatives are efficient instruments. If they are efficient there is no reason why Credit Derivatives will not grow in India. But the previous chart shows that the academia is negative about the growth opportunity for Credit Derivatives in India. It just goes to reinstate the fact that the teaching fraternity is not familiar with credit derivatives.

Table 1.6 Efficiency of Credit Derivatives in managing Credit Risk

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>Credit Derivatives are efficient instruments for managing credit risk.</i>	5	5	4

Comment: Almost all the respondents have a high degree of agreement that credit derivatives are efficient instruments for managing credit risk. Similar to the previous statement, the contradiction in the response by academia is evident.

Table 1.7 Cost competitiveness of Credit Default Swaps

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>In terms of Cost-Competitiveness Credit Default Swaps are better placed than other instruments for hedging credit risk and related purposes.</i>	4	4	4

Comment: Regarding cost competitiveness, respondents from all categories agree that credit derivatives, in terms of costs, are more competitive.

Table 1.8 Use of Credit Derivatives by Organizations

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>As an organization we are under-utilizing credit derivatives.</i>	3	5	3

Comment: Credit Derivatives are yet to make a head-way in India. So, understandably, the Industry practitioners in India find that they are under-utilizing credit derivatives. The surprise factor is the Industry practitioners abroad.

The question was posed to the academia with a belief that they might be participating in the credit derivative market as consultants. But the group is divided and none of them except one, agreed to being consultant in the credit derivative market.

Table 1.9 Individual comfort in using Credit Derivatives

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>I'm not very comfortable in using Credit Derivatives.</i>	2	2	3

Comment: On one side the reality is that credit derivative is yet to take-off in India. Surprisingly, the academicians in India and abroad and the Industry practitioners in India suggest that they are comfortable in using credit derivatives. The Industry practitioners from developed countries are divided in their response. It is worth noting that the credit derivative market is quite developed in the economically developed economies.

Table 1.10 Existence of a market structure for safeguarding against credit risk

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>The market in the past did not provide the necessary credit risk protection to banks and financial institutions.</i>	3	4	4

Comment: The academicians are divided in their responses; but the industry practitioners in India and abroad agree that earlier there was no product which could give the necessary credit protection to the banks and financial institutions which is derived from credit derivative products. Specifically, the benefit could be attributed to the off-balance sheet transactions facilitated by credit derivatives. The Basel III norms have further accentuated the significance of the said benefit.

Table 1.11 Development of Credit Derivative products

Response Summary	Respondents' Affiliation		
Question Statement	Academicians in India and Abroad	Industry Practitioners in India	Industry Practitioners Abroad
<i>Credit derivatives are developed and are extensively used to provide a solution to the inefficiencies in the credit market.</i>	4	4	3

Comment: The academicians in India and abroad and the Industry practitioners in India agree that credit derivatives are developed and extensively used to provide a solution to the inefficiencies in the credit market. The Industry practitioners in developed economies are divided in their response.

HYPOTHESIS TESTING USING T-TEST

H₀₁: *A significant number of respondents think that Credit Derivatives have tremendous growth opportunity in India.*

Question Statements:

Credit Derivatives have tremendous growth opportunity in India.

Table 1.12 T-Test results for H₀₁

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
H _{O1}	456	3.1491	1.71218	.08018		
One-Sample Test						
	Test Value = 3					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H _{O1}	1.860	455	.064	.14912	-.0084	.3067

Comment: The hypothesis here is $\mu = 3$ with a 95% level of confidence. The sig value is .064, which is above .05. Thus, the null hypothesis has to be accepted. Therefore it can be concluded that the overall group of respondents is divided in their response. Overall the group is neither in agreement or disagreement.

H₀₂: *A significant number of respondents perceive Credit Derivatives as efficient instruments for managing credit risk.*

Question Statements:

Other products which can be used in place of Credit Derivatives are not as efficient as Credit Derivatives.

Credit Derivatives are efficient instruments for managing credit risk.

In terms of Cost-Competitiveness Credit Default Swaps are better placed than other instruments for hedging credit risk and related purposes.

Table 1.13 T-Test results for H₀₂

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
H02	456	4.1287	.79560	.03726		
One-Sample Test						
	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H02	30.293	455	.000	1.1.2865	1.0554	1.2019

Comment: The hypothesis here is $\mu = 3$ with a 95% level of confidence. The sig value is .000, which is below .05. Thus, the null hypothesis has to be rejected. The mean value is 4.1287, which tells that the respondents agree that credit derivatives are efficient instruments for managing risk.

H₀₃: *A significant number of respondents feel that they are under-utilizing Credit Derivatives.*

Question Statements:

As an organization we are under-utilizing credit derivatives.

Table 1.14 T-Test results for H₀₃

One-Sample Statistics						
	N		Mean	Std. Deviation	Std. Error Mean	
H ₀₃	456		3.8421	.99298	.04650	
One-Sample Test						
	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H ₀₃	18.11	455	.000	.84211	.7507	.9335

Comment: The hypothesis here is $\mu = 3$ with a 95% level of confidence. The sig value is .000, which is below .05. Thus, the null hypothesis has to be rejected. The mean value is 3.8421, which suggests that the respondents agree that they are under-utilizing credit derivatives.

H₀₄: A significant number of respondents are not comfortable using Credit Derivatives.

Question Statements:

I'm not very comfortable in using Credit Derivatives.

Table 1.15 T-Test results for H₀₄

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
H ₀₄	456	2.0351	1.01358	.04747		
One-Sample Test						
	Test Value = 3					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H ₀₄	42.875	455	.000	2.03509	1.9418	2.1284

Comment: The hypothesis here is $\mu = 3$ with a 95% level of confidence. The sig value is .000, which is below .05. Thus, the null hypothesis has to be rejected. The mean value is 2.0351, which suggests that the respondents disagree that they are comfortable in using credit derivatives.

H₀₅: The market in the past did not provide the necessary credit risk protection to banks and financial institutions.

Question Statements:

The market in the past did not provide the necessary credit risk protection to banks and financial institutions.

Table 1.16 T-Test results for H₀₅

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
H ₀₅	456	3.4956	1.01634	.04759		
One-Sample Test						
	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H ₀₅	10.413	455	.000	.49561	.4021	.5891

Comment: The hypothesis here is $\mu = 3$ with a 95% level of confidence. The sig value is .000, which is below .05. Thus, the null hypothesis has to be rejected. The mean value is 3.4956, which suggests that the respondents agree that the market in the past did not provide the necessary credit protection to banks and financial institutions as they get from credit derivatives.

H₀₆: Credit derivatives are developed and are extensively used to provide a solution to the inefficiencies in the credit market.

Question Statements:

Credit derivatives are developed and are extensively used to provide a solution to the inefficiencies in the credit market.

Table 1.17 T-Test results for H_{06}

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
H ₀₆	456	3.7105	.93971	.04401		
One-Sample Test						
	Test Value = 3					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H ₀₆	16.146	455	.000	.71053	.6240	.7970

Comment: The hypothesis here is $\mu = 3$ with a 95% level of confidence. The sig value is .000, which is below .05. Thus, the null hypothesis has to be rejected. The mean value is 3.7105, which suggests that the respondents agree that credit derivatives are developed products and are an answer to the inefficiencies of the credit market.

PROSPECTS OF CREDIT DERIVATIVES IN INDIA

As late as January 2012, there was a paper by Darrell Duffie – “Market Making Under the Proposed Volcker Rule”. In this paper, there is an analysis of the Dodd – Frank Act (applicable in US after the sub-prime crisis). The act puts limitations on market making by banks. The researcher concludes that the Act shall have a negative impact on the credit derivatives market. With this consideration it can be concluded that as such the credit derivative market is not going to be as attractive a market as it used to be before the sub-prime crisis.

In our analysis, though the industry practitioners in India (on an aggregate basis) think that the credit derivative market shall grow; statistically the respondents are divided.

In this paper, the researcher concludes that given the present level of negligible activity in the Credit Derivatives market (a single trade since November 2011) the markets shall grow. But it shall remain a subdued market and rightly so.

OTHER FINDINGS

- # Credit Derivatives are under utilized in India.
- # There is significant difference between risks managed by credit derivatives and risks managed by other instruments like financial guarantees.
- # Retail investors cannot participate in the credit derivative market as per the RBI guidelines.
- # Commercial Banks, NBFCs, PDs, Mutual Funds, Insurance Companies and FIs can be potential users of Credit Derivatives.
- # The ticket size is quite large, which again precludes retail investors from participating in the bond markets and consequently credit derivative markets.
- # As per the Indian conditions, trading strategies involving CDS are possible.

CONCLUSION

Credit Derivatives is picking slowly in India. As such the urgency is not felt. As the Indian economy is growing, banks are also growing. Thus there is no hurry.

There are two schools of thought. One says Credit Derivatives are good and would help the banks in improving their balance sheets. The other school thinks differently. They say as a banker it is the responsibility of the bank to be well aware of the risk it is taking. With the advent of credit derivatives, the banks will be able to shift the credit risk and as such will not scrutinize the credit proposition as well as they should; because they can easily transfer the credit risk by using credit derivatives.

Here it is important to mention about the RBI. The RBI had first come up with the draft guidelines on credit default swaps (CDS) in May 2007. But it stopped further action and waited for the sub-prime crisis to unfold. It was only in November 2011 that it came up with the final guidelines. A look at the guidelines assures that RBI has done the homework and credit derivatives shall not be misused. It has come up with CDS to help the corporate bond markets to pick up.

Corporates in India do not find bond finance an attractive option. It is basically due to a historical dependence on bank finance coupled with high cost of bond issuance and lack of familiarity with the processes and risks involved. A correction in this trend is highly anticipated.

Last but not the least, it is important to appreciate that credit risk is not limited to corporate bonds. It is associated with sovereign bonds also as depicted in the European sovereign debt crisis. Considering that FIIs are allowed to invest in Indian bonds and associated risks with rating downgrades; the markets are becoming increasingly vulnerable. Credit Derivatives can be a great saviour in these conditions and can help the bond markets to flourish.

SUGGESTIONS

1. There is already an off-shore credit derivative market based on underlying Indian debt paper such as Reliance, IDBI, ICICI, SBI, etc. These corporates don't find it attractive enough to raise money in India due to high interest rates coupled with high cost of issuance. The RBI needs to address these areas to make the local bond markets attractive for the Indian corporates.
 2. The way forward for the Indian Debt market is to popularize the corporate bonds' indices. At the same time, it is important to bring in transparency in the way these indices are prepared and managed. For instance, which papers are selected, what is the criteria for selection of the papers, how valuations take place, etc. Something similar to the stock indices like Nifty, where there is very high transparency.
- It is quite possible that the way index derivatives have become popular, credit derivatives with bond indices as the underlying would also become popular. The indices would help in basis trades but with more transparency as similar natured indices would be used for differently rated bonds.
3. There is a need for training. FIMMDA has already taken the initiative and has conducted a workshop on valuation of CDS. But there is a long way to go. Additionally, there could be an exam which makes market participants eligible to trade in credit derivatives. At present, the tool is made available but its know-how is missing.
 4. Equity derivatives became successful because they were an answer to the hyper volatility in the stock markets. Bonds cannot be expected to be so volatile. In that case the obvious question that remains is – Do we really have a case for Credit Default Swaps. But any help that the CDS market can render to the Corporate Bond markets should be welcome to de-risk the banking system.
 5. The Debt Market is dominated by Government Bonds – either G. Sec. or PSU Bonds. PSUs when disinvested will be at par with other corporates. And then their bonds will be equal to those of other corporates'.
 6. On the other hand, huge conglomerates in India take pride in their 'zero – debt' status. For instance, Reliance Industries Ltd. was a debt free company and in the last five years it has continuously decreased the debt component. Theoretically the only leverage that they have is operating leverage. It is thus advisable that companies should be open to financial leveraging. It is the mind set which can bring some vibrancy in the bond markets.

LIMITATIONS OF THE STUDY

The researcher has made all possible efforts to collect necessary facts and data. Suitable and appropriate methods were adopted for data evaluation. However, in spite of sincere efforts the research has certain limitations which the researcher has accepted with due modesty. The limitations observed by the researcher are listed below:

- # The research was conducted with the corporate bond market as the backdrop. This was so because credit risk is prominent in the corporate bond markets. But this does not mean that sovereign bonds are out of the purview of credit risk and credit derivatives. But they have been ignored.
- # The tool for data collection was e-questionnaire. It was thus not possible for the researcher to evaluate/observe the respondents. This factor might pose its own limitations. But a test of reliability – Cronbach's Alpha was used. The findings and conclusions were accordingly attuned.
- # This study deals with Credit Derivatives in India. But as late as June 2013, there has been no activity in this market. It is thus that most conclusions are drawn from the research work done in advanced economies. Here it is worth noting that the underlying bond markets are characteristically different.
- # Credit derivative is yet to take-off in India. Thus the trading strategies, specific to India, could not be studied in greater detail. The researcher did meet the person who did the single deal in the credit derivative market and incorporated his views.
- # Data depends on the degree of agreement of respondents, which may not yield concrete results as views of respondents may change over a period of time.
- # Data collected from the internet is assumed to be true and correct but cannot be verified for its correctness.
- # The secondary support data predominantly includes the data published in various news papers and journals.
- # The testing of hypothesis is at 5% level of significance thus leaving only 95% confidence in findings and interpretations.

A LOOK FORWARD

A research like this leaves many unanswered questions which form a part of either exploratory or causal research for further researches. The study which started from the study of existing literature i.e. previous research ended with addition to existing body of knowledge in terms of the research methodology, findings and discussions on various issues related to bankers and portfolio managers and their need to protect from credit risk. The following section enlists the areas for future research:

Credit Derivative is basically an over the counter (OTC) product. The United States have come up with the Dodd Frank Act in order to regulate this side of the financial markets a little better. For this they propose that all trades go through a Central Counterparty (CCP). Presently, RBI has given preventive guidelines to control the contagion effect. But in future as the market activity picks up, it might be interesting to study the possibility of a CCP in India as well.

As mentioned before, pricing of credit risk is critical for the credit derivative market. At present, RBI and FIMMDA have advised to use the pricing model given by ISDA. It should be important to test the suitability of the model in the Indian context.

In spite of the limitations of the study, the researchers considers this as a fruitful research and wants to contribute in every possible manner in case of further studies on this topic.

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