DERIVATIVES MARKET BEHAVIOUR, RISK EXPOSURE AND AWARENESS AMONG STUDENTS ON DERIVATIVE INDUSTRY

By

KAMALESWARI PALANNAL

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ABSTRACT

Over the years, companies have been using derivatives to hedge their position, financially as business entities. Derivatives do play an increasingly important role over the years as effective tool or mechanism in managing the potential risks of interest rates, currency exchange rates and equally important, equity markets. The main purpose of this particular study is to examine the level of exposure on Derivatives industry among students. This paper also on the other side, aims to highlight on the role of derivatives in market and to give the readers an understanding of this market. The study is based on secondary data with the application of quantitative analysis. It must be mentioned that key findings suggest that future research work in this particular area of interest should clearly define the importance of knowledge to be seeded from the students level itself. The ability to clearly define the root cause will provide the avenue of a more structured and systematic investment method which in return will be the ability to identify the risk and manage the risk effectively to have a high return. The purpose of this paper is as well to provide an insight to students on what derivatives is. Based on my paper, in depth research can be conducted with more various categories to provide a tare research analysis.

On another note, this paper aims to provide an insight in respect of Derivatives markets, the risk exposure and the awareness on Global Banking Markets among students. As highlighted earlier in the problem statement, there is a lack of knowledge and exposure among Malaysians in particular with regards to the Derivatives industry in utilizing more of the derivatives market. Thus, it is important and considered timely for such a study to be conducted specifically at the student level first to understand where is the knowledge gap is obvious.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter provides an overall perspective of the project paper. It provides an introduction about the research background, followed by the problem statement research questions and research objectives.

1.2 Background of the study

A Derivative is a financial instrument which is derived from some other assets such as, index, event, value or condition (also known as the underlying). The basic characteristics of a derivative product include the following: i) agreement between two (2) parties namely, the buyer and seller to exchange cash/assets, ii) over a period of time and iii) based on the value of the underlying assets. Examples of such underlying assets include Foreign Exchange, Interest Rates, Equities/Indices, Credit and Commodities. Risks exist in all kinds of business and tend to increase over the years. Example of events that had occurred in the financial market place which led to such growth in uncertainty is competition, financial innovation, globalization emerging markets and deregulation. Derivative is a business which consists of the highest risk but at the same time gives back a very high return.

Being in the derivatives business and knowing the lack of awareness and knowledge on this motivated me to perform a write up for the readers to have the basic knowledge which will help them in career and investment wise.

In Malaysia, the size of derivatives is still small and does not cover all financial instruments yet. Malaysia set up the first derivative exchange in the year 1980 which was known as Kuala Lumpur

Commodities Exchange (KLCE). Now, it is known as Bursa Malaysia Derivatives Berhad (BMD). Commodity, equity and financial derivatives are being traded in BMD.

In total, there are twelve (12) derivative contracts which are being traded in BMD today. The twelve derivatives contracts are depicted in Table 1 below.

Table 1

Types of Derivatives Traded at BMD

Commodity Derivatives	**Equity Derivatives**	**Financial Derivatives**
Crude Palm Oil Futures (FCPO)	FTSE Bursa Malaysia KLCI Futures (FKLI)	3-Month Kuala Lumpur Interbank Offered Rate Futures (FKB3)
USD Crude Palm Oil Futures (FUPO)	FTSE Bursa Malaysia KLCI Options (OKLI)	3-Year Malaysian Government Securities Futures (FMG3)
Crude Palm Kernel Oil Futures (FPKO)	Single Stock Futures (SSFs)	5-Year Malaysian Government Securities Futures (FMG5)
Gold Futures (FGLD)		
USD RBD Palm Olein Futures (FPOL)		
Options on Crude Palm Oil Futures (OCPO)		

(Source: Bursa Malaysia, 2014)[1]

BMD is the sole derivatives exchange in Malaysia, with 75% being owned by Bursa Malaysia Berhad. The remaining 25% stake is held by Chicago Mercantile Exchange (CME).

1.3 Problem Statement

Trading in Derivatives market has been a growing demand together as a source of income and and also as job opportunities. It's an increasing opportunity for Malaysians to get into derivatives business due to its demand and significant business opportunities around the world today. In view of this, the main reason for a significant increase of demand for Derivatives among companies is the essential need to hedge their position. However, this leads to the questions of how many out there knows the trending of Derivatives in Malaysia? How many of the companies really know that there are so many financial instruments which are being introduced in this market to ease the flow of businesses around the world, the purchase and sales in international currencies around the world, export, import, hedging and many more? Another important question is the extent of behavior of each financial instrument, type of risk exposure in a Derivatives world, and what do the Derivatives apply in their business operations to mitigate the potential risks involved?

What can be done to have such an exposure reached everyone? These are the issues that this study will examine in finding the appropriate answers. Many researchers have conducted some empirical studies on Derivatives growth in the market, the awareness of companies including individuals on the application of derivatives for hedging purpose. The findings of those studies are still mixed. As a whole, the results of findings of such empirical studies remain stagnant with a slow growth percentage of exposure.

[1] http://www.bursamalaysia.com/market/derivatives/

[2] http://www.opf.com.my/futures-products/futures-exchanges/bursa-malaysia-derivatives-bmd/

According to Simon (2012), there are still many out there including the industry people and other stakeholders who have less knowledge of Malaysia in the first place. They are not even aware of what has been going on over the last few years and what the market has to offer. On the other hand, Dr. Rashid Ameer (2010) had suggested in his paper about several important implications for managers and financial regulators. It is important to note that the Malaysian managers are apparently risk averse and do not understand the "upside" of taking position in the derivatives market. Thus, it is critical that they should seek the help of consultants and professional bankers who have the relevant expertise to ascertain the risk appetite of their organizations before taking the position in the derivatives market. This shows that the level of exposure and knowledge around derivatives are still not up to the par hence the need of such a study where it defines the product of the derivatives and the opportunities available in the market are important. This is one of the purposes of this paper in which to examine the level of exposure on Derivatives industry among students and as well aims to highlight on the role of derivatives in market and to give the readers an understanding of this market.

1.4 Research Question

This research is important as it allows me to examine the level of exposure on Derivatives industry among students. This paper provides guidance and the basic level of exposure on Derivatives and its related-risk exposures. This will be a stepping stone towards conducting further research work in future. In this regard, the following issues will be investigated:

i) The knowledge level within students in terms of understanding Derivatives

ii) Students level of interest and passion towards Derivatives industry

1.5 Research Objective

The objective of this paper is to provide an insight in respect of Derivatives markets, the risk exposure and the awareness on Global Banking Markets among students. As highlighted earlier in the problem statement, there is a lack of knowledge and exposure among Malaysians in particular with regards to the Derivatives industry in utilizing more of the derivatives market. Thus, it is important and considered timely for such a study to be conducted specifically at the student level first to understand where is the knowledge gap is obvious.

One of my main objectives here is to provide a paper in which the reader would be able to understand the basic of derivatives and convey the message around, present in class or workspace or trainings. It is an effort to build the knowledge on derivatives.

1.6 Scope and Limitation of the Study

This research work was conducted to determine the level of awareness and exposure among the students in respect of Derivatives and Derivatives markets. The aspect looks into how to create the level of awareness and disseminate the relevant knowledge among the Finance students especially. With the right attitude and personal attributes, it is expected that the future student generation would have the competitive edge to face the realities of life in a rather hostile working environment which is full of complexities and challenges, and also the level of risks which are increasingly sophisticated. For this study, a total number of hundred (100) students were selected from the Finance Domains at Universiti Utara Malaysia (UUM) and Universiti Kebangsaan Malaysia (UKM) respectively.

CHAPTER 2

LITERATURE REVIEW

A literature review is an evaluation and summary of information or data found in other literature that relates to the researcher's study. It gives an overview of what has been said, who are the key writers, what are the prevailing theories and hypotheses, what questions are being asked, and what methods and methodologies are appropriate and useful. This is not a primary research, but used to define your research results. Literature review is to find out various concepts relating to it and the potential relationship between them. (Krishna-Agrawala - April 4, 2010). Although many strands of literature reviews will intertwine and cross over at some point, it is very important that you define the standpoint of your review and understand its parameters, or there is a very real danger that you may stray from the point of your review (Ridley, 2008).

To the best of my knowledge, studies conducted in this area are meagre in which it triggers for a further research to be conducted. Derivatives have a huge responsibility in the market not only as job opportunities but as well for the purpose of investments. It is a great strength to know what Derivatives is and I would like to provide the education on this. Below are some summaries at a high level on what derivatives are and how it will benefit.

As per Simon (2012), there are a lot of people, both in the industry and outside, who don't know much about Malaysia, what has been going on over the last few years and what the market has to offer. On the other hand, as per Dr. Rashid Ameer (Vol.3, No. 2, April 2010, Determinants of Corporate Hedging Practices in Malaysia), he has mentioned that, our paper has several important implications for managers and financial regulators. At present Malaysian managers are risk averse and do not understand the "upside" of taking position in derivatives market. They

should seek the help of consultants and professional bankers to ascertain the risk appetite of their organization before taking the position in the derivatives market. These findings give a hint to start all over from the beginning to identify the gap of knowledge and awareness among us. The best place to start if from an education perspective. This research can be a starter pack for more researches to be done to growth the derivatives in each individual.

Despite its central role in calculus, the concept of derivative is epistemologically difficult for students (Asiala, Cottrill, Dubinsky, & Schwingendorf, 1997; Furinghetti & Paola, 1991). Most students have conceptual difficulties regarding derivative in terms of understanding and giving sense to it (Bezuidenhout, 1998; Hauger, 2000). For example, even if students can give correctly "the slope of the tangent line at a certain point on a graph" definition of derivative, they make wrong interpretations of this definition (Amit & Vinner, 1990; Ubuz, 2001). The students should be focused more to create awareness about the investments in financial markets (M.Nasrin & Moses, Feb 2015). From this point of view, considering derivative relationally is essential to have its conceptual understanding. In this respect, there is a need for studies focusing on students' internal conceptual systems in order to see how students understand and relate the concepts (Clement, 2000; Lakoff & Núñez, 2000).

Today's sophisticated international markets have helped foster the rapid growth in derivative instruments. In the hands of knowledgeable investors, derivatives can derive profit from factors such as changes in interest rates and equity markets around the world, currency exchange rate shifts and changes in global supply and demand. Adding some of the wide variety of derivative instruments available to a traditional portfolio of investments can provide global diversification in financial instruments and currencies, help hedge against inflation and deflation, and generate returns that are not correlated with more traditional investments.

Academicians and market participants over a period of time contributed immensely to the development, valuation and improvement of these instruments. There is a growing need to develop thorough understanding and insight into the mechanism of derivatives trading. Business schools across nations have made this knowledge part of the curriculum. In Indian universities and institutes of higher learning also, derivatives and risk management has been made an important part of business-related courses (R.Madhumathi & M. Ranganathan, 2012).

Derivatives offer the benefits on both career and investment as an overall. With the expanding and growing market, upcoming generations should take this opportunity to involve in this area. The derivatives market offers unique opportunities for career seekers. If you're hoping to work in this market, remember that like most jobs in finance, it will take education and ambition to rise to the top (Fintotal Students, 2012).

2.1 Definition of Derivatives

As per the definition from Chance and Brooks (2009), derivative is defined as the financial instruments where the return is derived from those of other financial instrument. This means, their performance depends on how other financial instrument performs.

From the definition of Rangarajan K. Sundaram (2013), derivatives is defined as financial instruments whose payoffs derive from other, more primitive financial variables such as a stock price, a commodity price, an index level, an interest rate, or an exchange rate. The world market for derivatives is an immense one. The growth of derivatives usage over the last two decades has been rapid in both advanced economies and emerging markets; in both OTC contracts and those that are exchange-traded and across all underlying classes, including interest-rate, currency, equity, and the most recent addition, credit. Derivatives are enormously useful instruments in the management of risk. They can be used to hedge an existing market exposure (forwards and futures), to obtain downside protection to an exposure even while retaining upside potential (options), to transform the nature of an exposure (swaps), and to obtain insurance against events such as default (credit derivatives).

For corporations and financial institutions looking to manage exchange-rate risk, input costs, financing costs, or credit exposures, these are invaluable features, and explain to a considerable extent the rapid growth of the derivatives market as globalization and global inter-linkages have grown.

As per Mike Singh (2010), trading derivatives will have lesser risk than other trades because investor are not buying into the company or buying the underlying product. Instead, the risk is on the performance. Due to its low risk factor, banks include investment banks and commercial banks, end users such as floor traders, corporations, and mutual and hedge funds, are main types of firms that use derivatives[4].

Mike Singh (2010) also concluded that there are three reasons for derivatives trading. First, trading derivatives are lesser risk than other trades. Second, trading derivatives are a good short term investment. Third, trading derivatives are variety and flexibility. Hence, derivatives trading may be a good trading option if someone is looking outside of trading traditional stocks and bonds[4].

[4]http://www.ukessays.com/dissertation/literature-review/literature-review-on-malaysian-demand-for-derivatives-investment.php (Bursa Malaysia, 2010)

2.2 Derivatives as a Platform to Hedge Risk

There are two benefits which are most widely recognised attributed to derivative instruments, risk management and price discovery. (Kuhlman, B., 2009) Risk management could be the most vital purpose of the derivatives market. Derivatives alter the latter to equal the former by identifying the desired level of risk, and identifying the actual level of risk. Derivatives also used to mitigate the risk of economic loss arising from changes in the value of the underlying. This activity is known as hedging. Alternatively, derivatives can be used by investors to increase the profit arising if the value of the underlying moves in the direction they expect, bearing extra risk by speculations[4]. (Kuhlman, B., 2009)

Hedging is a way to enter into transactions that expose the entity to risk and uncertainty that fully or partially offsets one or more of the entity's other risks and uncertainties. (Elliot, B. and Elliot, J., 2005). One reason why companies attempt to hedge these price changes is because they are risks that are peripheral to the central business in which they operate. Hedging also refers to managing risk to an extent that makes it bearable. (Kameel, A, 2008)

David Harper (2010)[5], in his article, he has mentioned the uses and the functions performed by derivatives are as follow:

i) Foreign Exchange Risk: The risk that changes in the currency exchange rate will have an adverse effect on the company's revenue. It is also known as currency risk.

ii) Interest Rate Risk: Companies can hedge interest-rate risk in various ways. Consider a company wishes to sell a division in one year but the interest rate is expected to fall in the future, then it could purchase (or 'take a long position on') a Treasury futures contract to lock in the interest rate by today. Thus, the company is effectively locking in the future interest rate.

iii) Commodity or Product Input Hedge: This is the risk commonly faced by companies that are heavily sensitive to the price change of raw-material inputs or commodities. For example airline industry, it consumes lots of jet fuel. In the past, most airlines have given a great deal of consideration to hedging against crude-oil price increases.

2.3 Research Theory

2.3.1 Equity

Traders can use derivatives to hedge or mitigate risk in the stock market, by entering into a derivative contract whose value moves in the opposite direction to their underlying position and cancels part or all of it out.

For instance, an individual stock trader can minimise the stock trading risk by hedging using futures market (Exchange-traded derivatives). A stock trader is extremely aware of economy downturn. If the trader expected an economy downturn is coming which will cause the share price to drop, the trader can protect against down fall of stocks equity by opening a short position of the FTSE Bursa Malaysia KLCI Futures (FKLI) to hedge against his stock portfolio[4]. So if the economy downturn does happen, the trader will gain profit from the FKLI. However, there will be a loss if the trader closes the position of the stock during the economy downturn, but the gain from the FKLI will cover some or over the losses from the stock market. Thus, this can reduce the risk by FKLI futures hedging[4].

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[5]Harper, D. (2010). *How companies use derivatives to hedge risk*, March 10, 2010, from http://www.investopedia.com/articles/stocks/04/122204.asp

2.3.2 Commodity

For instance, an airline company which the fuel is the biggest cost item for an airline taken care of, might want to get protection against the fuel price crisis. The airline company might enter into a future contract to hedge the fuel price. They will sign up a future contract with the fuel supplier (OTC derivative), promising that they will buy a certain amount of fuel at a certain price for the next certain months. The contract will definite the price that the airline company to pay for buying the fuel in future. In case the fuel price goes higher than the contract price, then the fuel will have a cheaper price. If the fuel price gone down without the airline company expectation, which mean the contract price, is higher than the market price, in that incident, the airline company might not want to exercise the contract price. In return, the airline company need to pay certain of fund to the fuel supplier as the contract fee[4].

2.3.3 Foreign Exchange (FX)

In international trading, dealings with foreign exchange play a significant role. There will be a significant impact on business decisions and outcomes if got any fluctuations in the foreign exchange rate. Many international trade and business dealings are shelved or become unworthy due to significant exchange rate risk embedded in them. Therefore, companies will use foreign exchange hedging with forwards, future, and option[4]. (Kameel, A., 2008)

2.3.3.1 FX Hedging with Forwards

Foreign exchange forward rate is an agreement between two parties (OTC derivatives) to fix the exchange rate for a future transaction. In Malaysia, there are some banks do provide Forward

Rate Agreements (FRA) service such as Bank Islam Malaysia, Maybank, EON Bank Group, CIMB Bank Group, HSBC Bank Malaysia and many more. A company simply transfer the risk to the bank when they entering into a FRA with a bank. Of course the bank internally will do some kind of arrangement to manage the risk[4]. (Kameel, A., 2008)

2.3.3.2 FX Hedging with Futures

The futures hedging eventually overcome some of the shortcomings of the forward hedging. Both futures contract and forward contract are almost similar, but forward contract is much more liquid because it is traded in an organised exchange trading market - the futures market, which is an ETD derivative. It is similar with buying shares in the stock market where standardised contracts are bought and sold[4]. The futures contract is also a legal contract just like the forward, but the obligation can be eliminate before the expiry of the contract by making an opposite transaction. For futures hedging, the trader needs to buy futures contract if the trader expect there will be appreciation of the currency value, or the trader needs to sell futures contract if the trader expect there will be depreciation of the currency value[4]. (Kameel, A., 2008)

Advantages of Futures Hedging

Liquid and central market - since futures are Exchange-traded derivatives (ETD), trader who has taken a position in the futures market can easily close position at any time.

Leverage - futures have a margin system, where trader controls on a large position with only a small initial deposit. If the futures contract with a value of RM100,000 has an initial margin of RM10,000 then a 1% change in the futures price which is RM1,000, would bring about a 10% change relative to the trader's initial costs[4].

Disadvantages of futures hedging

Initial and daily variation margins - the futures position is tracked on a daily basis, the trader would be required to pay up daily variation margins if got any daily losses. The initial and daily variation margins can cause some cash flow burden on traders[4].

2.3.3.3 FX Hedging with Options

Option is a more flexible instrument than futures. FX option is a contract between two parties (OTC derivative) which is the buyer and the seller. The seller of the option needs to be compensated by paying the premium of the option, for giving the right to buyer to buy (call options) or sell (put options) a specified currency at a specified exchange rate, at or before a specified date[4]. (Hong Leong Bank Malaysia, 2010).

For instance, a trader buys a January RM7.50 Peso call option for RM0.30. Therefore, the trader has the right to buy Peso for RM7.50 per 100 Peso before the contract expired in January. The RM0.30 that paid is the premium for this right, also known as strike price or the exercise price. If the Peso appreciates over RM7.50 per 100 Peso within the expired date, then the trader may exercise his right and buy it for RM7.50 per 100 Peso. If the Peso were to depreciate below RM7.50 per 100 Peso, then the trader may just let the contract expire without taking any action since he is not obligated to buy it at RM7.50 per 100 Peso. If the trader needs physical Peso while the rate depreciates, he may just buy it in the spot market at the new lower rate[4].

Advantages of options hedging

Limited risk - option had unlimited favourable movements, the loss is up to the whole premium paid.

Flexibility - there is neither initial margin nor daily variation margin since the position is not marked to market. This could potentially provide significant cash flow relief to traders.

Disadvantages of options hedging

Expensive - Because options are much more flexible compared to forwards or futures, hence the price is the disadvantage.

2.3.4 Interest Rate

Interest rate swap (IRS) is the exchange of one set of cash flows (based on interest rate specifications) for another. IRS is an agreement between two parties, but occasionally involves more than two, is a type of OTC derivatives. The intention of IRS is to standardised to the requirement of interest rate of the parties involved. IRS can be used by hedgers to manage their fixed or floating assets and liabilities. It also used to hedge against future rise or fall in interest rates[4]. (Maybank, 2008).

The three main types of IRS are:

Fixed-for-fixed swaps - interest rate swaping of both parties with the fixed rates determined before the IRS contract takes effect. Different currency usually involve by each party when Fixed-for-fixed swaps are used (Parsani, V., 2009)[4].

Fixed-for-floating, or "vanilla" swaps - interest rate swaping involve the exchange of a fixed interest payment for a floating interest payment. This is commonly used as a type of investment. The fixed rate payment, also known as the swap rate does not change since it is fixed, while the floating rate payment is linked to several outside index, such as the London Interbank Offered Rate (LIBOR) and goes up and down throughout the period of the contract.

Floating-for-floating swaps - interest rate swaping of both parties have floating interest payments rates involved. The floating rates are based on different indexes, so each party is betting that their own original floating rate will raise and the opposite party original floating rate will fall, making a profit off the difference[4]. (Parsani, V., 2009)

2.3.4.1 Interest rate option hedging

Interest Rates Option (IRO) gives the trader the right but not the obligation, to fix the interest rate on a future loan or deposit, for a pre-determined amount which starts on an agreed future date. It also means to give the trader a right, but not obligation to lock in a predetermined fixed rate. A premium cost is payable upfront[4]. (RHB Banking Group, 2009).

Yeow Pooi Ling, 2009, wrote in the Star Business mention that there is more demand for interest rate swaps from corporate clients given the present low interest rate environment[4]. IRS is useful a tool for businesses with long-term non-fixed rate loans to transfer the interest rate risk to the financial markets via intermediaries such as banks. Sachi Ratnajoothy said that IRS enables businesses to better manage their liability profiles without altering the underlying loans[4].

By utilising IRS and foreign exchange hedging products, business owners could limit their risk exposure while having the peace of mind to focus on growing the business as those risks were

transferred to intermediaries like banks. The IRS and forex hedging could become a disadvantage to companies, depending on the direction of the interest rate and currencies; they offered a form of certainty in terms of cash flow management[4]. (Gan. KK., 2009)

2.3.5 Collateral

We have looked the use of Derivatives to hedge risk. How about the risk in the Derivatives business itself? Market fluctuations, new regulations and many others factors post a significant risk to the transactions done in derivatives. Collateral is one of the ways to mitigate the credit risk between both parties.

The growing demand for collateral is set against a shrinking range of assets that is perceived as safe, mainly as a result of market uncertainty and heightened awareness of risk. Collateralising OTC derivatives in the bilateral (non-centrally cleared) market has historically been discretionary. Since the financial crisis, however, market participants have significantly increased their reliance on collateral which is now a widely used method to mitigate counterparty credit risk in this market. The values of non-cash collateral fluctuates with interest rates, liquidity and other market variables, and are thus vary with market conditions. This imposes an additional risk arising in the event of counterparty default: the risk of an adverse change in the collateral value before it can be liquidated to provide for the losses on the in-the-money derivatives position[6]. (Che Sidanus and Filip Zikes, October 2012, OTC Derivatives reform and collateral demand impact)

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[4]http://www.ukessays.com/dissertation/literature-review/literature-review-on-malaysian-demand-for-derivatives-investment.php (Bursa Malaysia, 2010)

Within days of the insolvency, many hedge funds using Lehman's prime brokerage solution discovered that the collateral they had placed with Lehman was now comingled with other assets, and would not be available to them until the bankruptcy court process in the UK was completed. Indeed, it emerged that Lehman Brothers had used the more lax regulatory environments in the UK to re-hypothecate clients' assets and achieve higher leverage than would have been possible under the US rules. This triggered a "flight to quality" and a new drive to ensure full segregation of collateral posted with Dealers and Prime Brokers[7]. (Rashad Kurbanov, 2011, navigating collateral management in OTC derivatives)

Having segregated collateral for centrally cleared OTC Derivatives, money managers looking to further reduce risk with their Dealers have begun segregating margin with third party custodians in bankruptcy-protected vehicles for all un-cleared OTC Derivatives[7]. Major custodian banks are developing new services to meet this demand from the buy-side. In the wake of the Lehman Brothers collapse, many buy-side participants—primarily money managers and hedge funds—began to segregate their collateral postings and excess cash balances at custodian accounts to ensure their "recoverability"[7].

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[6] Che Sidanus and Filip Zikes, Financial Stability Paper No. 18 – October 2012, OTC derivatives reform and collateral demand impact, Bank Of England.

[7] Rashad Kurbanov, 2011 Investance group, Navigating collateral management in OTC derivatives, http://www.investance.com/sites/default/files/Investance_POV_Navigating_Collateral_Management_OTC.pdfhttp://en.wikipedia.org/wiki/Hedge_(finance)

Table below list down the purpose of Derivative use among the different type of Market Participants.

Table 2.0

Purpose of Derivative use among the different type of Market Participants

Asian Market Participant	Primary Purpose of Derivatives Use
Banks, Brokers (Dealers)	Traditional role as market-makers across multiple OTC derivatives products; participate in dealer-to-dealer and dealer-to-client markets; demand comes from serving corporate customers including other FIs and issuers of offshore and onshore instruments. Offshore investors look for relatively high yield while onshore investors look for diversification.
Hedge Funds (Financial Institution)	Engage in OTC derivatives to return superior risk-adjusted returns to investors; OTC instruments can be used in tandem with cash products
Commercial Banks (Financial Institution)	Transact in OTC derivatives for proprietary trading purposes and to manage assets, liabilities and structural positions. Hedging involves managing exposures to interest rate, foreign currency, and credit risks arising from banking activities.
Central Banks (Financial Institution)	More limited; use FX swaps for two main purposes including domestic liquidity management and shifting settlements forward in time.
Corporates (Non-Financial Institution)	Use multiple OTC instruments for hedging; use cross currency interest rate swaps to hedge interest rate risk and cash flow hedges to hedge currency risk arising from issued bonds. Use cross currency swaps as net investment hedges for foreign currency exchange risk on international operations. Use forward foreign exchange contracts as cash flow hedges for exposure to foreign currency exchange risks arising from forecasted or committed expenditure. Use OTC commodity derivatives, often with international counterparties and exchanges to hedge exposure due to commodity import and export.

Source: Oliver Wyman, April 23, 2013, THE ASIAN OTC DERIVATIVES MARKETS, Celent Securities & Investments Team.

CHAPTER 3

DERIVATIVES AND RISK EXPOSURE

3.0 DERIVATIVES

Derivatives are contracts that's value is "derived" from the price of something else or can be said as an instrument used for transferring risk from one party to another. There are two methods of Derivatives trading. One of the methods is "Over-the-Counter derivatives (OTC)". This is the largest market for derivatives and trading is done directly between two parties. OTC is made out of banks and other highly sophisticated parties (hedge funds). Furthermore, there is no central counterparty under OTC. Examples of products in OTC are Interest Rate, Credit, Equity, and Currency. The second method would be "Exchange-traded derivatives (ETD)". In this method, trading is done via exchanges. For example, Korea Exchange, Eurex, Chicago Mercantile Exchange (CME) and many more. The benefit in this method will be "less counterparty risk" since it's a clearing house. Types of products will be Futures and Options.

Please find below the summary of the contract types;

Table 3.0

Contract Types and Underlying

UNDERLYING	CONTRACT TYPES				
	Exchange-Traded Futures	Exchange-Traded Options	OTC Swap	OTC Forward	OTC Option
Equity	DJIA Index future Single-stock future	Option on DJIA Index future Single-share option	Equity Swap	Back-To-Back Repurchase agreement	Stock Option Warrant Turbo Warrant
Interest Rate	Eurodollar future Euribor Future	Option on Eurodollar future Option on Euribor future	Interest Rate Swap	Forward Rate Agreement	Interest Rate Cap and floor Swaption Basis Swap Bond Option
Credit	Bond Future	Option on Bond future	Credit Default Swap Total Return Swap	Repurchase Agreement	Credit Default Option
Foreign Exchange	Currency future	Option on Currency future	Currency Swap	Currency forward	Currency Option
Commodity	WTI Crude oil futures	Weather derivatives	Commodity swap	Iron ore Forward contract	Gold Option

Source: HSBC Business School

The participants of the Derivatives market are such as Dealers / Market Makers, Hedgers (Corporates, Individuals, and Banks) and Speculators / Arbitrageurs (Proprietary Traders, Hedge Funds). Derivatives are used by Investors for so many reasons. First is to provide leverage (gearing), such that a small movement in the underlying value can cause a large difference in the value of derivative. Derivatives also used to speculate and make a profit if the value of the underlying asset moves the way they expect (example; moves in a given direction, stays in or out of a specific range, reaches a certain level). On the other hand, derivatives are used to hedge or mitigate risk in the underlying, by entering into a derivative contract whose values moves in the opposite direction to their underlying position and cancel part or all of it out. Furthermore, it is also used to obtain exposure to the underlying where it is not possible to trade in the underlying (example; weather derivatives). Finally but not last, derivatives are used to create option ability where the value of the derivative is linked to a specific condition or event (example; the underlying reaching a specific price level).

Let's look at the difference between OTC and Exchange Traded Products.

Table 3.0.1

OTC vs. Exchange Traded Products

OTC	ETP
Two counterparties (bilateral contract) can directly agree about a deal via the computer or the telephone	Offer and demand centralized by the clearing house
Custom-build product	Standardized product
Less transparency	Legal publication, transparency
Existing of non-payment risk	Almost no counterpart risk / non-payment risk
Example of products: IRS, FRA, Cap and Floor, Swaption and more	Example of products: Futures, Shares, Listed Options, Bonds, Convertible Bonds

Source: HSBC Business School

3.1 The International Swaps and Derivatives Association (ISDA)

ISDA is a trade organization of participants in the market for OTC Derivatives. The headquartered is sited in New York. ISDA is created in 1985 as the International Swap Dealers Association. The name changed to International Swaps and Derivatives Association as the focus now is to improve the broad derivatives markets (example: instead of just the interest rate swap contracts). ISDA has the largest financial association by members firm. The members are from major institutions, businesses, governmental entities and other end users. ISDA has created a standardized contract (the ISDA Master Agreement) to enter into derivatives transactions. ISDA also produces a CSA (Credit Support Annex) which further allows parties to an ISDA Master Agreement to mitigate their credit risk by requiring the party which is "out-of-the-money" to post collateral (usually cash, government securities or highly rated bonds) corresponding to the amount which would be payable by that party were all the outstanding transactions. Collateral other than cash is usually discounted for risk, that is, the pledger would have to post collateral in excess of the potential settlement amount. We will discuss further on Collateral under the Risk Exposure topic.

ISDA Master Agreement contains the general terms and conditions of derivative transactions between the two parties. It does not include details of any specific derivatives transactions that have been entered into. ISDA functionally organise Legal and Documentation, Risk Management, Public Policy, Research, Market Infrastructure, Accounting and Tax and Protocol Management. ISDA foster safe and efficient derivatives markets to facilitate effective risk management for all users of derivatives products.

One of the primary purposes of the Master Agreement is to ensure the enforceability of Close

Out Netting. This, upon default, all the positive and negative mark-to-market (MTM) values in a trade portfolio can be added together resulting in one amount that needs to be paid to one party. Master Agreement provides opportunities to agree more sophisticated/robust credit risk mitigation provision than provided by Long Form Confirmations.

The industry standard for documenting collateral arrangements is the ISDA CSA. The CSA is privately negotiated document between the two trading parties. It outlines the operational practises and key economic details that govern a collateral relationship. CSA's are tailored to each individual Master by way of the "Elections and Variables" section where the negotiable collateral provisions are recorded. CSA also allows margin call to follow and secure Credit risk exposure.

3.2 DERIVATIVES PRODUCTS

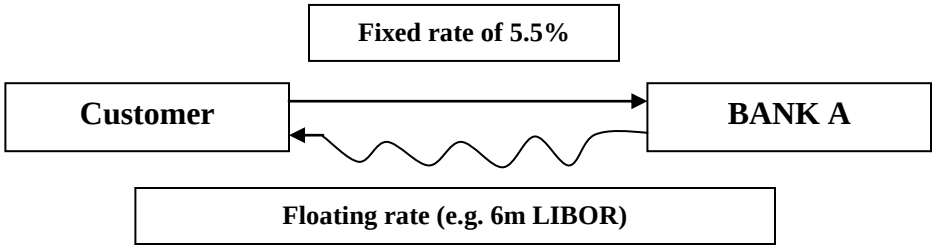
3.2.1 INTEREST RATE

Interest Rate Derivatives (IRD) are the largest market in the world. IRD is a financial instrument based on an underlying financial security whose value is affected by changes in interest rates. IRD are hedges used by institutional investors such as banks to combat the changes in market interest rates. Individual investors are more likely to use IRD as a speculative tool with the hope to profit from their guesses about which direction market interest rates will move.

Swaps are a bilateral agreement committing each party to exchange of an underlying performance and give something in exchange for something else. There are few types of Swaps in Derivatives such as Interest Rate Swaps, Forward Rate Agreements, Currency Swaps, Equity Swaps, Credit Default Swaps and many more. Interest rate swaps are agreements by which two parties agree to pay each other interest on a notional amount over a defined period, but calculated according to a different interest basis.

Figure 3.2.1

Interest Rate Swaps (IRS) – The Basics



There are few reasons for the existence of IRS. One of it is fixing the Financing cost which means to convert existing debt (liabilities) from one basis to another and to convert existing investment (asset) from one basis to another. Next is the ability to reverse previously arranged fixed rate funding to a floating rate basis or vice versa. IRS also give opportunity to achieve lowest borrowing cost possible for both swap counterparties for the desired currency and interest basis (Cross Currency Swaps). In addition, companies can utilize their Credit rating to offer lower cost funding which is actually a comparative advantage. Lastly but not least, IRS enables companies to achieve desired liability mix.

There are 3 branches under IRD as below;

i) Cross Currency Swap – exchange notional at maturity (can be exchange in the start of the transactions also)

ii) IRS – do not exchange notional/principal

iii) Basis Swap – the exchange of the rate will be the same until the end

Swaption is an option to enter into IRS. There are two types of swaption which is Payer and Receiver swaption. Under both, buyer has the right to enter swap. The difference is, under Payer, fixed are paid and floating are received and this is vice versa for Buyer swaption. Three famous swaption styles are as follow;

i) American – Buyer allowed to enter swaption any day that falls within the range of two dates

ii) European – Buyer can only choose to enter into swap on the maturity date

iii) Bermudan – Buyer allowed to enter swap only on specific dates that falls within the range from start date to end date.

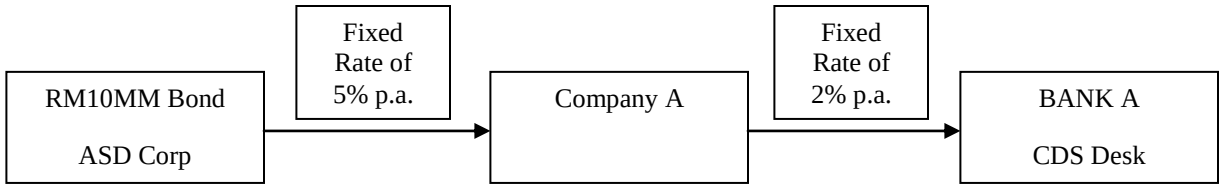
3.2.2 Credit

Credit Derivatives is an instrument that transfers specific aspects of the Credit Risk on a specified debt (underlying Bond, Loan, or any other Financial Asset), also known or referred to as the Reference entity. The issue of the debt can take the form of a corporate, sovereign or any form of legal entity that has incurred debt. Credit Risk is the risk that the market value of a financial instrument will change as a result of a change in the credit rating of instrument or issuer or due to the failure by the issuer to meet its contractual obligations (Default Risk).

Credit Default Swap (CDS) defines as one party (protection seller) agrees to compensate the other party (protection buyer) if a particular company or sovereign experiences one of a number of defined events (credit events) which indicates it is unable or may be unable to service its debts. The protection seller is paid a fee or premium.

Figure 3.2.2

Example of credit Default Swaps



BOND	CDS
Company A buys a 5 year RM10mm Bond issued by ASD Corporation and receives coupon of 5% p.a.	Company A then enters into CDS with Bank A maturing in 5 years.
	Company A pay 2% p.a. to Bank A
Benefit to Company A	**Benefit to Bank A**
Risk Reduction	Income via premium

Some of the factors that will affect the premium in CDS are the maturity and credit quality. The longer the maturity of the trade, the larger the exposure and consequently the larger the fee is. On the other hand, the greater the credit rating of the protection seller and the lower the correlation with the underlying asset, the higher the premium will be. The greater the credit rating of the underlying asset (in general), the lower the premium will be.

Buyer reduces Credit risk through protection from "Credit Events" such as;

i) Bankruptcy – the reference entity is declared Bankrupt

ii) Failure to Pay – the reference entity defaults on one of its Bond or Loan payments

iii) Obligation Default – the reference entity defaults on any of its obligations

iv) Restructuring – the obligations of the reference entity are restructured

v) Repudiation/Moratorium (act of refuse to pay) – the government declare a moratorium (delay in the payment of debt)

vi) Obligation Acceleration – method of payment is speed up by demand of receiving book.

Credit Default Swap can be thought of as being similar to insurance policies. In an insurance policy, a regular premium is paid to gain cover. This is similar to the premium paid in a Credit Default Swap agreement. If no claim is made, the insurance company or Protection Seller simply collects the premium as income for the life of the agreement. But, if an event should occur, credit event is determined by regulators and the determination of payout percentage is not necessarily in full.

Total Return Swap (TRS) is a swap agreement in which one party makes payments based on a set rate, either fixed or variable, while the other party makes payments based on the return of an underlying asset, which includes both the income it generates and any capital gains. TRS as well is a bilateral financial transaction where the counterparties swap the total return of a single asset or basket of assets in exchange for periodic cash flows, typically a floating rate such as LIBOR +/- a basis point spread and a guarantee against any capital losses. A TRS is similar to a plain vanilla swap except the deal is structured such that the total return (cash flows plus capital appreciation/depreciation) is exchanged, rather than just the cash flows.

A key feature of a TRS is that the parties do not transfer actual ownership of the assets, as occurs in a repo transaction. This allows greater flexibility and reduced up-front capital to execute a valuable trade. This also means Total Return Swaps can be more highly leveraged, making them a favorite of hedge funds. A TRS is made up of two legs, the Return Leg (Total Return Leg) and the Funding Leg. The reference asset or basket of assets exists on the Return Leg. The cash flow payment stream exists on the Funding Leg.

3.2.3 EQUITY

Equity is an agreement between two parties to exchange the return on equity price, basket or index for fixed/floating return. As per Investopedia, Equity derivative is a derivative instrument with underlying assets based on equity securities. An equity derivative's value will fluctuate with changes in its underlying asset's equity, which is usually measured by share price

Equity derivatives can be used by investors to hedge the risk associated with taking a position in stock by setting limits to the losses incurred by either a short or long position in a company's shares. Investors will receive this insurance by paying the cost of the derivative contract, which is referred to as a premium. If an investor purchases a stock, they can protect against a loss in share value by purchasing a put option. On the other hand, if the investor has shorted shares, they can hedge against a gain in share price by purchasing a call option.

Options are the most common equity derivatives because they directly grant the holder the right to buy or sell equity at a predetermined value. More complex equity derivatives include equity index swaps, convertible bonds or stock index futures. Equity Swap (EQS) is an exchange of cash flows between two parties that allows each party to diversify its income, while still holding its original assets. EQS are typically used in situation where there are legal restrictions on foreign ownership of cash equities. It is also used in the situation where there are tax disadvantages to holding/disposing of cash equities. It is expensive due to costs (commission, custody, tax and more) to purchase the physical shares. On the other hand, it is as well used in the situation where market liquidity in the underlying equities is limited.

3.2.4 Commodity

It's an ETD or OTC with an underlying reference based on nonfinancial commodities including chemicals, energy, base and precious metals, livestock, grains and softs. [9] The buyer of a derivative contract buys the right to exchange a commodity for a certain price at a future date. Although this person is a contract buyer, he may be buying or selling the commodity. He does not have to pay the full value of amount of the commodity that he is investing in. He only needs to pay a small percentage, known as the margin price. The contract seller is the person who accepts a margin. He agrees that on a certain date he will buy or sell the commodity stated in the contract at a certain price. Both parties are generally required to honor the agreement despite losses. [10]

Commodity future contract is an agreement for buying or selling a commodity for a predetermined delivery price at a specific future time. Futures are standardized contracts that are traded on organized futures exchanges that ensure performance of the contracts and this remove the default risk. Commodity option contract is where the commodity option holder has the right, but not the obligation to buy (or sell) a specific quantity of a commodity at a specified price on or before a specified date.

[9] S. Danilinaand, The Law Dictionary, England.

[10] Wise Geek, 2015, Commodity Derivatives, US

3.2.5 OPTION

Before we get into the biggest chunk of derivatives which is FX, let's look at option. An option is a contract that confers upon **the buyer** the **right** but not the **obligation**, to **buy or sell** the underlying at a given price on or before a given date. In derivatives, we have few types of Option's such as FX Option, Equity Option, Credit Default Option, Precious Metal option and many more.

The Black-Scholes model for calculating the premium of an option was introduced in 1973 in a paper entitled, "The Pricing of Options and Corporate Liabilities" published in the Journal of Political Economy. The formula was developed by three economists – Fischer Black, Myron Scholes and Robert Merton. This model is a mathematical model of a financial market containing certain derivative investment instruments. The Black-Scholes model is used to calculate the theoretical price of European put and call options, ignoring any dividends paid during the option's lifetime. While the original Black-Scholes model did not take into consideration the effects of dividends paid during the life of the option, the model can be adapted to account for dividends by determining the ex-dividend date value of the underlying stock. [11]

Factor's that influencing the option premium is:

i) Current market interest rate
ii) Current spot price of underlying asset and trend
iii) Strike (and its relationship to the current spot price)
iv) Expiration Date (maturity)
v) Volatility of the underlying market (historical and expected volatility)
vi) Who is buying (can they trade anywhere else)

[11] http://www.investopedia.com/university/options-pricing/black-scholes-model.asp

Table 3.2.5.0

Basic features of an Option

	Call Option	Put Option
Buyer	Has the right to **BUY** (or call) the underlying	Has the right to **SELL** (or put) the underlying
Seller	Has the obligation to SELL the underlying, if required	Has the obligation to BUY the underlying, if required

Table 3.2.5.1

Summary of descriptions of Option

	CALL OPTION Right to buy underlying asset at a pre-agreed price but NO obligation			PUT OPTION Right to sell underlying asset at a pre-agreed price but NO obligation		
	Delivery Obligation	Premium	Profit and Loss	Delivery Obligation	Premium	Profit and Loss
BUYER	Right to retrieve underlying asset Pay a pre-agreed price lower than current market	Maximum loss is capped at the Premium that is paid	Potential to make unlimited profit Asset price – (Strike + Premium)	Right to deliver the underlying Asset Receive a pre-agreed price higher than current market price	Maximum loss is capped at the Premium that is paid	Potential to make limited profit Strike – (Asset Price + Premium)
SELLER	Must be prepared to deliver the Asset Receive a pre-agreed price lower than current market price	Maximum profit is the Premium received	Potential to incur unlimited loss Asset Price – (Strike + Premium)	Must be prepared to take delivery of Asset Pay a pre-agreed price higher than the current market price	Maximum profit is the premium received	Potential to incur limited loss Strike – (Asset Price + Premium)

Option Pricing is a measure of the expected movement in the price over the life of the option. The higher the volatility, the greater it will be the probability of a price other than the current market price. There is few kind of Exotic Options, First, Barrier option. Its payoff depends on whether or not the underlying asset has reached or exceeded a predetermined price. There are two types of barrier option which is knock-in where it defines the right to purchase the underlying at an agreed strike price only kicks in when the price hits the agreed upon 'barrier'. Knock-out defines the right to purchase the underlying at an agreed strike price expires worthless, or is "knocked out" when the price hits the agreed upon 'barrier'. Second example of exotic option is the "Chooser Option". It gives Investors the right to choose whether the option is a put or a call at a certain point during the option's life. Next is the "Binary Option". Payout is fixed after the underlying stock exceeds the predetermined threshold or strike price. Also referred to as "digital" or "all-or-nothing option". Finally, it's the "Asian Option". Payoff depends on the average price of the underlying asset over a certain period of time as opposed to at maturity. It is also known as an average option.

3.2.6 FOREIGN EXCHANGE (FX)

Exchange means currencies are used to buy goods and services. In return for currency, goods are exchanged. The price of goods fluctuates depending upon demand/supply. There are many factors affecting the demand/supply of the goods. In FX market, instead of exchanging currency for goods and services, currency is exchanged for another currency. The price of one currency relative to another fluctuates depending upon demand. FX market is the largest market in the world and it's an OTC market. FX Market participants are such as Central Banks, Large Investment Companies, Retail Traders, Brokers, Individual, Corporations, Banks and other Financial Institutions.

In FX market, price of one country's currency expressed in another country's currency is referred to as FX Rate. Every FX rate is quoted in relation to a pair of currencies. The rate quoted is calculated against a certain amount of the counter currency. The base currency is the first of the pair and the counter currency is the second. Most currencies are quoted directly against the USD, with the USD as the base currency. This convention goes back to the Bretton Woods Accord. The four main exceptions to this rule are the EUR, AUD, GBP and NZD which are all quoted as base.

3.2.6.1 FX OPTION (FXO)

FXO means a currency option is the right but not the obligation to buy (in the case of a call) or sell (in the case of a put) a set amount of one currency for another at a predetermined price at a predetermined time in the future. The two parties to a currency option contract are the option buyer and the option seller/writer. The option buyer may, for an agreed upon price called the premium, purchase from the option writer a commitment that the option writer will sell (or purchase) a specified amount of a foreign currency upon demand. The option extends only until the expiration date. The rate at which one currency can be purchased or sold is one of the terms of the option and is called the strike price. The total description of a currency option includes the underlying currencies, the contract size, the expiration date, the exercise price as well as whether the option is a call option or a put option on the underlying currency. An FXO can be either American-style or European-style.

Why FX Option? Options allow individuals and firms to hedge against the risk of wide fluctuations in currency prices; they also allow speculators to gamble for large profits with limited liability. For example a GBP/USD FXO might be specified by a contract giving the owner the right but not the obligation to sell £1,000,000 and buy $2,000,000 on December 31. In this case the pre-agreed exchange rate, or strike price, is 2.0000 USD per GBP) or 0.2000 GBP per USD) and the notionals are £1,000,000 and $2,000,000. If the rate is lower than 2.0000 come December 31 (say at 1.9000), meaning that the dollar is stronger and the pound is weaker, then the option will be exercised, allowing the owner to sell GBP at 2.0000 and immediately buy it back in the spot market at 1.9000, making a profit of (2.0000 GBP/USD – 1.9000 GBP/USD)*1,000,000 GBP = 100,000 USD in the process. If they immediately exchange their profit into GBP this amounts to 100,000/1.9000 = 52,631.58 GBP.

3.2.6.2 FX FORWARD (FXF)

An FX Forward is an agreement to purchase or sell a set amount of a foreign currency at a specified price for settlement at a predetermined future date, or within a predetermined window of time. Closed forwards must be settled on a specified date. Open forwards set a window of time during which any portion of the contract can be settled, as long as the entire contract is settled by the end date.

Why FXF? FXF help investors manage the risk inherent in currency markets by predetermining the rate and date on which they will purchase or sell a given amount of foreign exchange. Using FX forwards, one can protect costs on products and services purchased abroad, protect profit margins on products and services sold abroad and Lock-in exchange rates as much as a year in advance. Some of the characteristics of FXF are;

i) two currencies
ii) Fixed maturity
iii) Simultaneously settlement of both currencies
iv) Forward rate is to be agreed at point of trading
v) Maturity is calculated from the Start Date
vi) on Balance Sheet – part of Asset and Liability

3.2.6.3 FX SWAP (FSW)

It is an agreement between two parties to exchange two currencies at a certain exchange rate at a certain time in the future. For example, if a company knows that it will need GBP in the future and another company knows that it will need USD, they agree to swap the two at the agreed-upon exchange rate. This eliminates the risk that the exchange rate will change in a way that is disadvantages to one party or the other. FSW is an agreement between two parties that consists of two legs which is a spot transaction and a forward transaction. These two legs are executed simultaneously for the same quantity and therefore offset each other. The purpose of the FSW is to hedge risk, speculation and the need to exchange one currency for another currency on one day and then re-exchange those currencies at a later date.

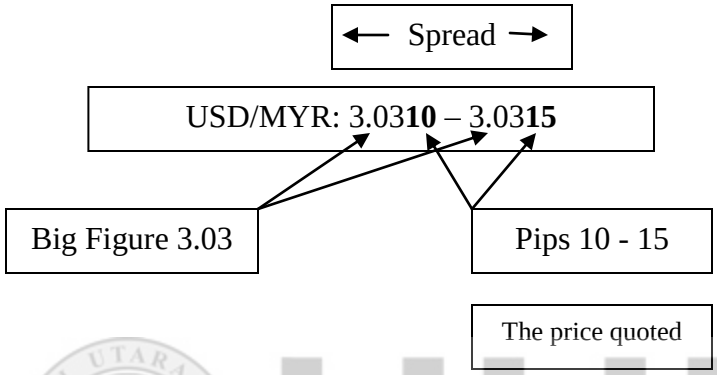
The advantages of FSW are, it provides protection against unfavorable currency movements. It also allows offsetting FX commitments where you will be receiving a currency on one date but need to made payment (in that currency) at a later date. Last but not least, we can avoid paying standard difference between bid/offer prices at inception rate. The disadvantage is, give-up the benefit from favorable currency movements.

Why FSW? Imagine you currently have EUR 500k in currency available to your firm, sitting in a bank account in Europe, invested at short –term rates. You have a funding requirement of USD 450k for the three months in the US and wish to utilize your EUR funds to meet this funding requirement. You do not wish to take any foreign exchange risk on this transaction. A FSW transaction allows you to utilize the funds you have in one currency to fund obligations denominated in a different currency, without incurring foreign exchange risk It is an effective and efficient cash management tool for companies that have assets and liabilities denominated in

different currencies. On the near date, you swap one currency for another at an agreed foreign exchange rate and agree to swap the currencies back again on a future (far) date at a price agreed upon at the inception of the swap.

Figure 3.2.6.3

Bid and Offer



3.2.6.4 Non-Deliverable Forward (NDF)

NDF is a short-term forward contract on a thinly traded or nonconvertible foreign currency not otherwise internationally traded. NDF are also known as Contract for Difference. Contracts in NDF market are settled in cash and the profit or loss is the difference between an exchange rate agreed upon on a fixing date and the spot rate at the time on the settlement date. NDFs are typically quoted for time periods of one month to one year and are quoted and settled in USD.

An NDF is used when the client needs to hedge against a currency that does not have a deliverable market offshore, including Taiwan (TWD), Korean Won (KRW), Chinese Yuan (CNY), and Brazilian Real (BRL) as examples. NDFs can also be used to reduce the settlement risk on transactions.

3.2.6.5 FX SPOT (FXS)

FXS is the purchase or sale of a foreign currency or commodity for immediate delivery. Spot trades are settled "on the spot", as opposed to at a set date in the future. It is also known as "cash trades". Spot trades are the opposite of futures contracts, which usually expire well before any physical delivery. FX contracts are the most common kind of spot trades. If these kinds of contracts are not settled immediately, traders would expect to be compensated for their time value of their money for the duration of the delivery. Because these contracts are settled electronically, the forex market is essentially instantaneous.

The spot market is the market for immediate delivery and settlement of currencies. In other words, if you want to buy a currency today, for delivery today, at a price made today, you buy it in the spot market. The spot exchange rate is highly sensitive to changes in an economy's fortunes. This is simply because it is the first step in all international fund flows – and spot deals can be done within a few seconds.

Major currency spot markets are the world's most liquid cash markets and prices can change thousands of times a day as new buy and sell orders are executed. In the spot market, the exchange rate is agreed on the trade date with the date of exchange as soon as possible thereafter. The standard time for 'immediate' settlement is two business days after the trade date (T + 2). This is called the 'spot value date'. So, for example, a standard spot trade agreed on June 13 is said to be for value on 15 June; unless either financial center has a holiday on the 14^{th} or 15^{th}, in which case it will be for value on the 16^{th}. Weekends similarly extend the spot value date.

3.3 RISK EXPOSURE

Risk arises when there is any uncertainty in an outcome. It's a combination of danger and opportunity. There are few types of risks involved in a Derivatives business. Yes, Derivative itself it's an opportunity to hedge risk. However, there are as well risk involve in a derivatives transactions.

Hedging is a type of transaction that limits investment risk with the use of derivatives, such as options and futures contracts. Hedging transactions purchase opposite positions in the market in order to ensure a certain amount of gain or loss on a trade. They are employed by portfolio managers to reduce portfolio risk and volatility or lock in profits.

Hedging can reduce underinvestment costs (Myers 1977; Bessembinder, 1991) since it reduces the probability of financial distress by shielding future stream of cash flows from the changes in the exchange rates. According to Froot, Scharfstein, and Stein (1993) hedging ensure that a firm has sufficient internal funds which would enable it to avoid unnecessary fluctuations in either investment spending or external financing and so increases firm value.

Now let's look at some of the important type of risk we can encounter in derivatives. Firstly is the 'Market Risk'. It means the potential risk of loss of earnings or capital, arising from a reduction in the value of financial instruments. In simple terms, an investor is exposed to market risk as soon as a financial product is purchased. Next is 'Credit Risk'. Credit risk relates to lending or agreeing to trade with another counterparty. Will the other counterparty pay or deliver the asset they have undertaken to deliver on the due date? Institutions accept credit risk in order to earn revenue. They lend to firms with a higher risk because of the potential for higher returns. 'Operation' is another type of risk which is defines as the risk of loss arising through fraud,

unauthorized activities, error, omission, inefficiency, system failure or external event. Factors that affecting all this is mainly due to Interest Rate, Stock prices, FX Rates and Commodity price. Settlement risk occurs when the settlement does not take place as expected.

How do we overcome this? How do we minimize the risk in derivatives transactions? There will be two answers that I would like to provide here. One of it is "Regulatory Control". There are lots of Regulatory in place to make sure the process run efficiently and to mitigate the risk. By complying with regulations and procedures, this will enhance the quality of the transaction as well. Regulations like Sarbanes-Oxley Act (SOX), Markets in Financial Institutions Directive (MiFID), Basel iii, European Market Infrastructure Regulation (EMIR), Dodd-Frank Act (DFA) and many more are created to identify the risk evolved around derivatives and to mitigate this. This will also prevent any fraud events from taking place.

The second way will be the 'Collateral'. The main idea of Collateral Business is to be able to manage counterparty risk on transaction which is highly exposed to market risk in accordance with legal agreement. Legal agreements refer to ISDA, CSA, confirmations, Long Form Confirmation or any other agreements in accordance with country rule and Law. Collateral is an amount paid or received to cover the risk. Collateral are being imposed to all the financial instruments which are covered under CSA. Margin call will be issued according to this. Margin call is an amount asks when difference between deposit and exposure is higher than deposit in accordance with agreement term.

Below are some examples of situation on when the collateral is exchange;

i) Bank ASD has a credit risk on a counterparty

> Counterparty will deliver some collateral to HSBC (example: D-Day and D + 1)

ii) Bank ASD have a credit risk on a counterparty but have too much of Collateral

> Bank ASD will return collateral to Counterparty (example: D + 2)

iii) Counterparty has a credit risk on bank ASD and Bank ASD have collateral

> Bank ASD will return all collateral held and deliver some collateral to Counterparty (example D + 3)

iv) Counterparty has a credit risk on Bank ASD and Bank ASD will return collateral to counterparty

> Bank ASD will deliver some collateral to Counterparty (example: D + 4)

v) Counterparty has a credit risk on Bank ASD but have too much of collateral

> Counterparty will return some collateral to Bank ASD (example: D + 5)

Regulations has become very much tighter nowadays. More regulations are in place due to the fraud and the risk involve in the derivatives business. Anti-Money Laundering is one of the hottest topic around Derivatives business. Recently, HSBC International Bank were fined due to the Anti-Money Laundering activities and few weeks ago, BNP Paribas, another International Bank were fined billions and loss the opportunity to trade for a year in certain countries. On the other hand, Collateral becomes very demanding and a very high important business after the collapse of Lehman Brothers. Regulations and collateral are very important for us to avoid falling down deeper in derivatives world.

CHAPTER 4
RESEARCH METHODOLOGY

4.1 Research Framework

This chapter outlines the design of the research and describing the sample population including the procedures of the sample and also the methods that were used for data collection.

4.2 Research Design

As one of the focuses of the study is to examine the level of knowledge and exposure that students have with regard to the Derivatives industry, the target respondents are the students themselves. The sample size comprises 50 students each from Universiti Utara Malaysia (UUM) and Univerisiti Kebangsaan Malaysia (UKM) from the total of 350 students from both the Universities. The research work adopted a quantitative approach and used secondary data for this particular study. I took a very simple and straight forward approach to have the data require collected for an **easy readable** and **understandable format**.

4.3 Data Collection Method

Sample students were selected based on the Finance Courses in two (2) Universities namely, Universiti Utara Malaysia (UUM) and Universiti Kebangsaan Malaysia (UKM) respectively. The required data were collected from the students of Finance courses by having questionnaires distributed. The first step in the data analysis plan was to examine the data or "screen" the data. According to Hayes (2005), he suggested that data screening is necessary to ensure that data are accurate and research conclusions are correct.

4.4 Sampling Method

A simple and straight forward probability sampling was done with the Finance students as respondents. A total number of 100 students from two Universities were selected in view of studying the students' basic understanding of derivatives market and its exposure. Only 29% (100 out of 350 students) population selected as to define the result in more transparent, a readable numbers, simple statistic which conveys the result in a simpler and understandable way. This will be a starter to have the research being expanded in future.

A preliminary questionnaire was developed in English, and retranslated several times until it was user friendly and captured the desired constructs. Once refined, the final instrument was collected using questionnaire. The list of the questions is attached in the appendix. All of the questions were measured using "Yes", "No" and subjective questions relating to the topic of this research. The respondents were asked to answer the questions according to their knowledge and background in Derivatives.

My aim is to give the responder a user-friendly material to be look through and respond. This as well creates the comfort level to respond and as well to brainstorm on their experience in this topic.

CHAPTER 5

RESULT AND DISCUSSION

There were six (6) questions asked in the Survey Questionnaires being given to the respondents. Below are the answers provided by the respondents surveyed.

How many of us being in finance line is aware of such product. How can knowing the business will benefit us? This paper will explain what the derivatives business is all about.

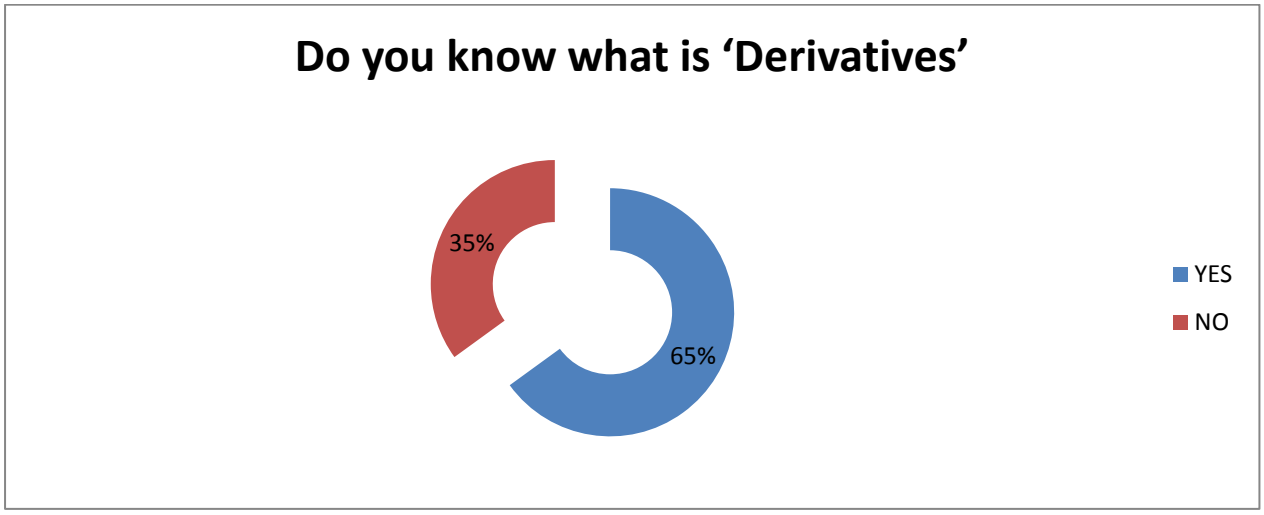
Banks such as Hong Kong & Shanghai Banking Corporation (HSBC), Citibank, Royal Bank of Canada (RBC), Standard Chartered International (SCOPE), JP Morgan & Asset Management (JPMC), Deutsche Bank (DBK), and BNP Paribas (BNPP) has stepped in their derivatives business in Malaysia.

This creates a huge investment and job opportunities for the people here. How is Malaysia going to adopt the business? Instead of hiring the experts from different countries, we should build the expert over here in Malaysia. This is my point on why I want to have the education spread on derivatives. Not many aware of this industry which is growing rapidly in Malaysia.

I would like to take the first step by providing the education and awareness on Derivatives which will definitely benefit everyone.

QUESTION 1

Do you know what is 'Derivatives'?

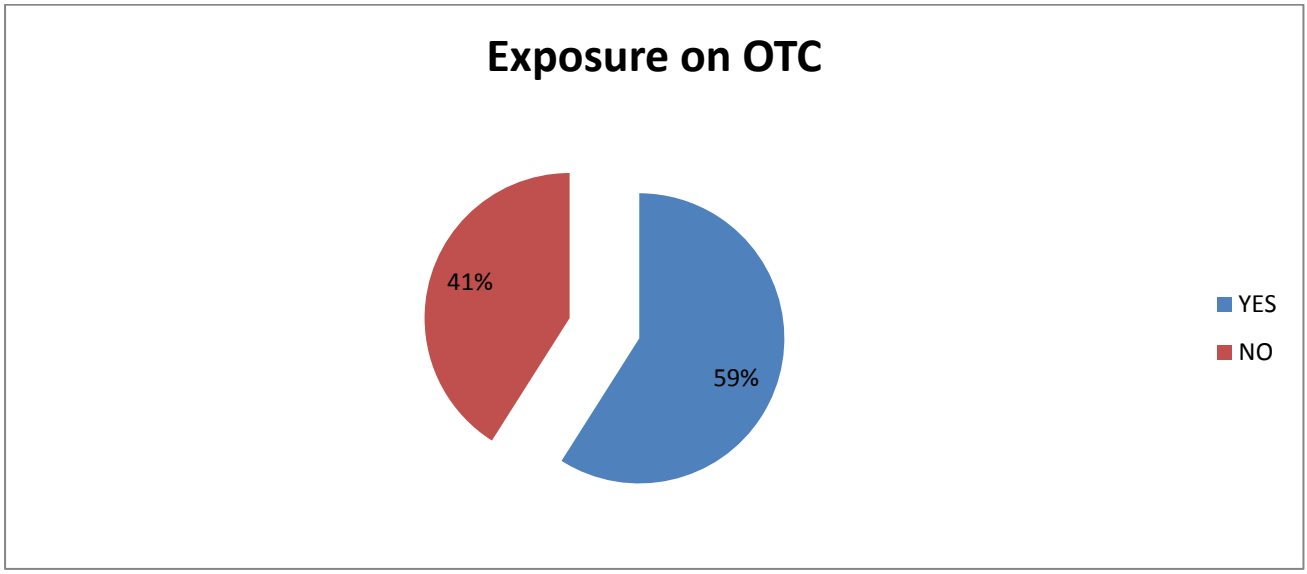


From the above chart, only 65% of the students do know what Derivatives meant. This is considered a good result as we only have remaining 35% of the students who are not aware what this industry is about. Where is the gap coming from? Is this from education? Do they really understand what Derivatives means? There is a need to analyse more on what is the reason on the lack of exposure. 65% might look big but as a student, one should have 100% of knowledge on this industry at least at the basic level.

So many questions can be asked from the above chart. Following questions and the summary of the questionnaires might provide answers to some of the questions which are running on the background of the chart.

QUESTION 2

Do you know what OTC (Over-The-Counter) is?

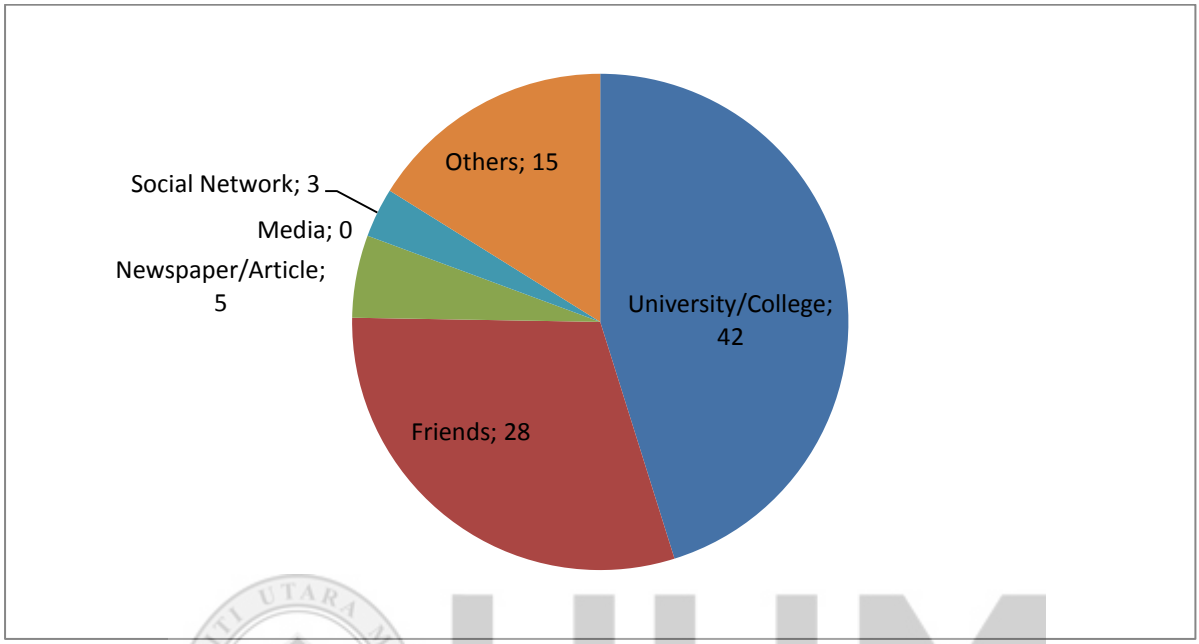


OTC is where trading is done directly between two (2) parties without any supervision of an exchange. From the above chart, we can see that only 59% of the students who understand what OTC means in Derivatives. The remaining 41% does not have the exposure on this market although some of them do know what Derivatives means. It is not quite possible to know that they are aware of Derivatives but not OTC based from the chart in question one where only 35% does not have the exposure on Derivatives.

The result for the second question is also not at a satisfactory level as we can see only average of half of the students do not understand what OTC means actually. As Banking and Finance students, it's questionable on why is there a lack of exposure on this on this set of students. Thus, the root cause needs to be identified then.

QUESTION 3

If yes, please advise on how do you got to know about Derivatives?



From this third question, the result shows that the highest vote goes to University/College with 42 students followed by Friends at 28. "Others" have the highest number as well which 15 students compared to Newspaper/Article (5), Social Network (3) and Media (0).

This shows that the main contributor to the exposure in Derivatives industry for students is the Learning zone itself which is the University/College, Friends and "Others". What is the category in "Others" actually? As per the Questionnaire, the participants have answered that the "Others" comprised the working experience which is their working place. In Malaysia, we do have quite a number of companies that transact the Derivatives business here (other than Bursa Malaysia) such as, HSBC Electronic data Processing, SCOPE International, CITI Group and the Royal Bank of Canada. All this processes are offshored from foreign countries. The working experience as well gives them a room to share with their friends and University mates.

University/College contributions are low from this survey. It leads with below half of the percentage. Are the courses offered inadequate? Were the courses offered as core courses or elective courses? Do students put in enough efforts to understand what is being taught or just studying for the sake to pass the paper? Further in depth research need to be performed in order to analyse the slow movement and lack of exposure in a University environment.

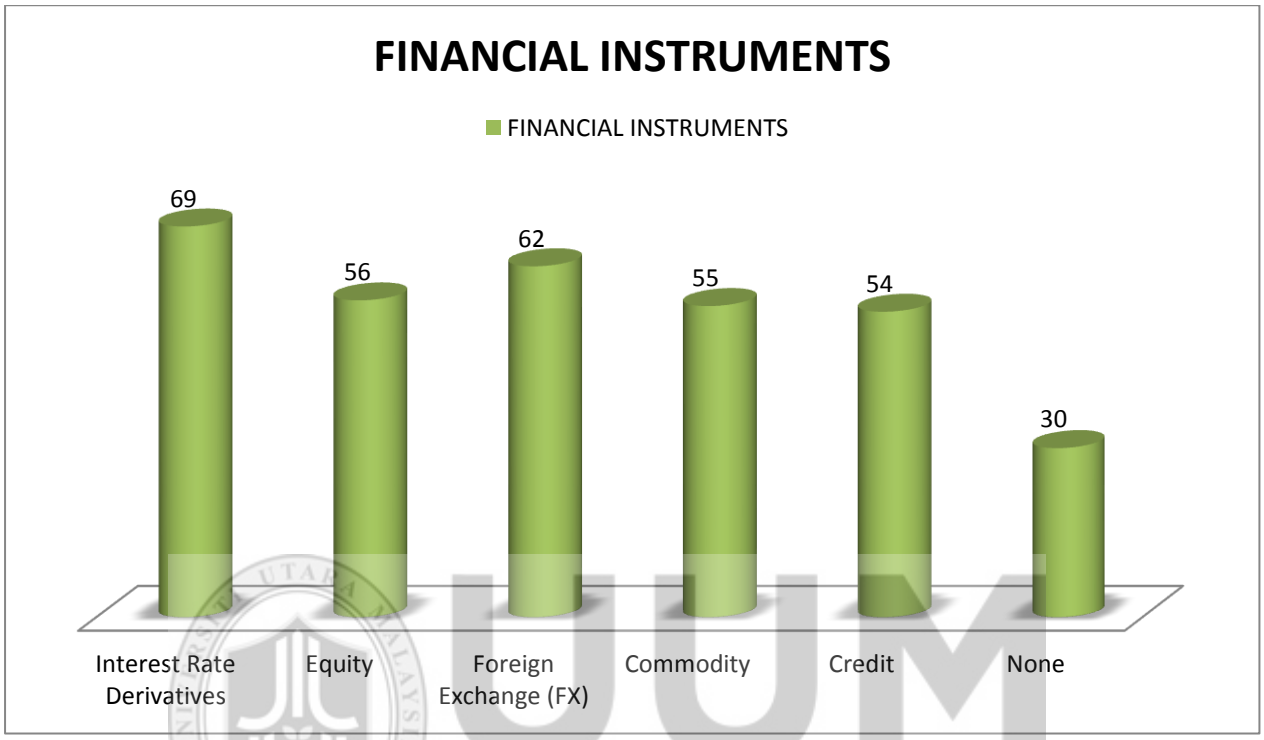
"Friends" category does contribute a high impact on the exposure of this industry. This can be done through informal discussion, lunch out and in any occasion where they share thoughts of what they learned or what they experienced in their working environment.

Exposure does not come only from studies. This can be contributed in many ways.

QUESTION 4

Please tick if you know any of the financial instruments listed below.

(can be more than 1 choice)

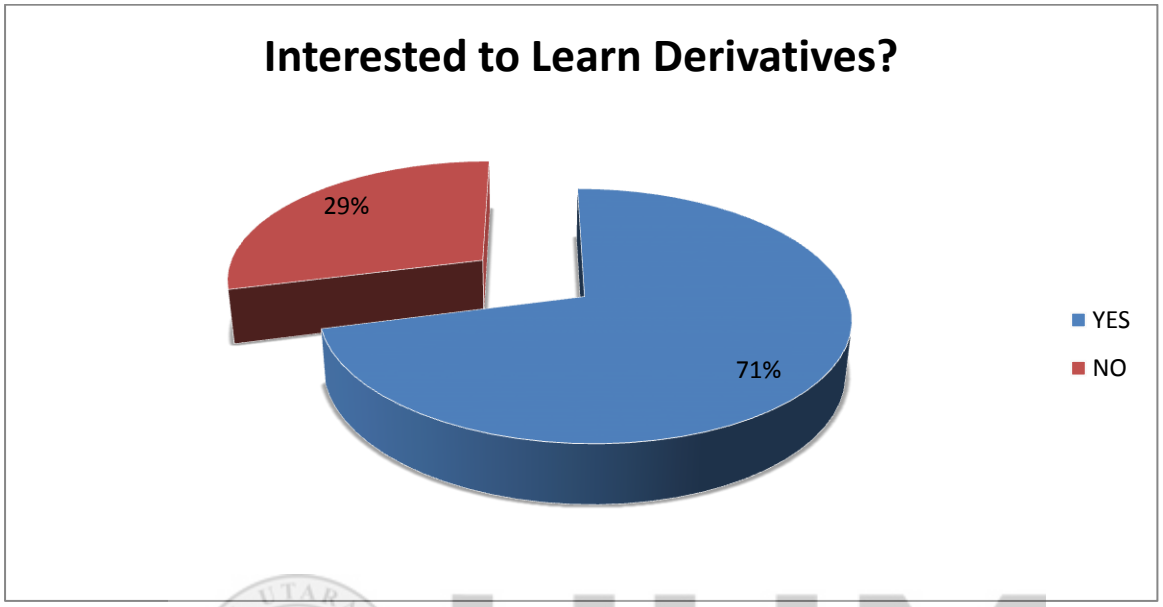


Looking at the result on the exposure of the financial instruments among students, the numbers are at a satisfactory level as all the financial instruments have been chosen by more than 50 students each. Highest sits on Interest Rate Derivatives with 69 students, followed by FX at 62, Equity 56, Commodity 55 and Credit 54.

On the other hand, we can see that there are around 30 students who do not have exposure in any of the financial instruments. This is due to the lack of exposure on the Derivatives market itself. How to overcome this? How to increase the level of knowledge among students in this Derivatives market as Derivatives is one of the world's expanding markets and currently seem to be in high demand? Further analysis can provide an insight on this.

QUESTION 5

Do you have interest to learn Derivatives market?

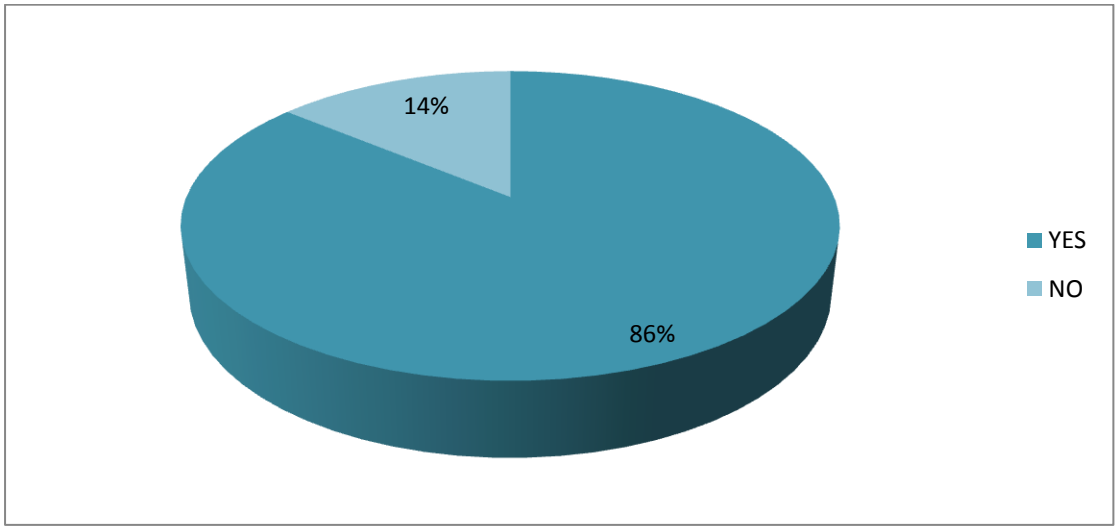


It is great to see the high percentage of students who show the interest to get themselves indulge in derivatives knowledge especially in terms of how to utilise the factors around to deliver the knowledge that are needed. Students are the future assets of any country and that includes Malaysia. It's very important to prepare them early so that they acquire the right personality traits and perhaps more importantly, the right attitude as a potentially dynamic professional of the future who makes the Nation proud.

71% success shows the interest to learn the Derivatives industry and the remaining 29% did not show a positive response. This can be due to the complication of this market, different personal interest on the knowledge and future job scope or can be anything. To feed the knowledge to the students can be done by teaching and practical lessons. Practical lessons give more understanding and a better picture of this industry. We must discard the mentality and attitude from students who are learning just for the sake of passing the examination rather than to excel in one's particular area of specialization.

QUESTION 6

Are you aware that Malaysia does Derivative business?



This question as well provide a very positive response on the knowledge that the students have about the Malaysian market with 86% of students seem to be aware of the Derivatives business that is expanding in Malaysia at this point in time. The remaining 14% is a small number which can be rectified in many ways.

In Malaysia for instance, the Derivatives market is not huge but it is rather convincing to note that it is expanding positively. Currently, we are indulging in Commodity, Equity and Financial Derivatives. On a positive note however, it appears that many more opportunities are on the way to our Malaysian market. It is a fast growing industry which gives a good opportunity for students to be successful in the immediate future within the world financial industry on the whole.

All this knowledge and related information could possibly be delivered effectively through education and training. This calls for the proactive role of the Universities and Colleges including other Institutions of Higher Learning in Malaysia. Apart from the educational process, it is vitally important for students in this increasingly popular domain are being

provided with appropriate training with relevant skills to be acquired from time to time. With a highly coordinated and integrated approach, Malaysia will be proud to have a new generation of dynamic students with the right attitude and essential attributes to ensure the achievement of national goal and aspirations.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

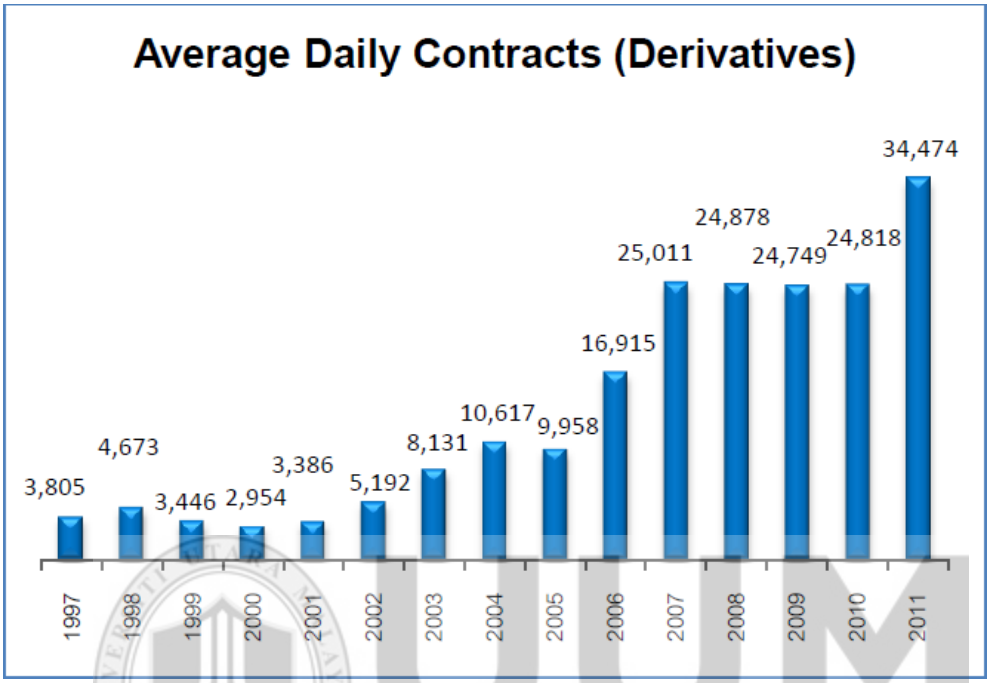
This study examined the exposure on derivatives from a sample of 100 University students from both Universiti Utara Malaysia (UUM) and Universiti Kebangsaan Malaysia (UKM). From the questionnaires that have been distributed, we can conclude that the exposure on Derivatives among students is still near the border as it scores only 65% of the total students. Even though we have 65% of students who has the exposure on Derivatives, its only 59% who is aware on what does the OTC means. Does this means that students do understand what really the Derivative industry means and how it works? Or it's just the definition of Derivatives that they know.

Product knowledge as well is at the par only with Interest Rate score the highest with 69 students, followed by FX (62 students), Equity (56 students), Commodity (55 students) and Credit (54 students). However, we can see the amount of interest the students has to learn about Derivatives is satisfactory. The survey gave a score of 71% saying yes to get to know what the derivatives has got for them. And its impressive that our students do aware of this industry being performing in Malaysia with 86% of scores.

As Banking or Finance students, they should be aware of this Industry that is growing widely around the world. This industry gives a significant impact in the market. Why there is lack of knowledge among the students? Is this due to insufficient learning course or the method of delivery of the subject down to students? Why this question is raised because of the questionnaire which gives only 42 students who has the exposure on this market through University learning's. Friends and working experience falls the next with score of 28 and 15.

From my personal experienced, I grasp the knowledge of Derivatives through my working

experienced. This helps me a lot when I enrol for the course in University. It gives a better picture of understanding as I can see how it works.



Source: Data Sales and Marketing, Information Services, Bursa Malaysia (infoservices@bursamalaysia.com)

The above graph shows a good example on how the Derivatives market is growing in our country Malaysia. 15 years of history started from 3,805 contracts in 1997 up to 34,474 contracts in 2011. That is a tremendous success and a well growth in our own market. This as well leads to a great opportunity such as job opportunities, investment opportunities and so forth. This should be educated to our upcoming generation who will lead the country to the eyes in the International Market.

What I would like to recommend from this study is to deliver the knowledge down to students from a comprehensive training classes which includes video's (for example "Rogue Trader" movie), samples of how transaction is done in the market, history, newspaper articles and more practical things. Knowledge that delivered just by books, grabs less attention from the students as they will only want to learn to pass the examination. This approach of lessons will give the students to get themselves indulge in Derivatives. Furthermore, this will make students more keen to learn and start to explore more by reading newspapers, watching news, catching up with people on this industries in social media and so on as students will be excited that something that they learn is all around them and this makes them to get involved.

Teaching students just by the definition will not contribute to successful and knowledgeable students. What can we do better to prepare our students to be competitive in the market globally? Is the courses offered need to be reviewed? What can we feed the students who are waiting to be feed for knowledge? There are lots of questions can be derived from this paper. A further and in-depth research need to be done to dig out the root cause on the lack of exposure and what can be done overcome this.

Hope this paper gives a basic insight on Derivatives and gives information for further research to be executed.

FUTURE OF THE STUDY

Although this study is limited in terms of the number of participants, the results indicate that issues raised require further attention, and that studies should be conducted on more extensive suggestions. For example, this study provides evidence on the lack of knowledge among students in Derivatives industry. Derivatives provide a wide knowledge on the market in the world. As a student in Finance and Banking, its essential to have a strong knowledge as this is a growing industry which provides lots of opportunities to upcoming generations on job opportunity and investments.

Hope this paper provides the basic knowledge on what derivatives is. Part of my objective is to provide the knowledge on derivatives to as many people as I can and educate them on this part of interesting market. I believe this paper will be a trigger to start on a research which will benefit wider audiences.

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