

Finance and Development 2

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Swaps and CDS as a good thing?

Evaluation of Module EC4024

Via the Centre for Teaching and Learning. The collector will be closed at 5p.m. Thursday 3 April 2014.

Outline

1 Introduction

- Mitigating Risk
- Swaps

2 Of Risks and Swaps

- Risks
- Drawbacks

3 CDS and the Financial Crisis

Managing Risk I

Everyone manages risk

- ▶ **Households:** natural disasters, sickness or accidents
- ▶ **Firms:** 2008 stock exchange collapse, Mexico '82 default

The activity of managing risk is the very idea of either preventing or diminishing those shocks, either coping with them after they occurred in the most efficient way, with the most appropriate tools.

Managing risk is crucial for developing countries

In order to access the credit market at low costs, developing countries need to have good credit rankings (like the one published by Euromoney). These good rankings are obtained when no or few defaults are called, when stability is obtained.

Managing Risk II

Risk Mitigating Tools

There exist financial instruments that, when properly used, mitigate risk. Swaps are a family of such instruments. This lecture try to answer the question: **Are swap a panacea for developing countries?**

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A toy example

A coffee factory

Lets take the example of an investor wanting to build a coffee factory in his developing country. In order to do that, he takes a loan from a European Bank.

Various risks

- ▶ **Commercial risk** linked to the core business: e.g. is anyone willing to buy his coffee? Are there enough coffee beans produced?
- ▶ **Exchange rate risk**: the investor will have a debt labelled in euro but will have profits in the domestic currency.
- ▶ **Price volatility risk** is due to the fact the price of inputs (coffee beans) or output (coffee) may fluctuate dramatically
- ▶ **Default risk** is the risk that the distributor declares bankruptcy
- ▶ **Risk diversification** is essential to avoid putting all eggs in one basket

Swaps

Definition

A contract in which two parties agree to exchange periodic interest payments, especially when one payment is at a fixed rate and the other varies according to the performance of a reference rate, such as the prime rate.

Timing

- ➊ **Settlement procedures:** the two counterparties agree on: financial flows exchanged, maturity, the terms and legal aspects. Sometimes, down payment equal to 5 or 10% of the amount of the swap is asked as collateral.
- ➋ **Cash flow exchanges:** during the swap, exchanges of cash flows are done according to the terms of the contract.
- ➌ **Liquidation phase:** At the end of the swap, final exchanges of cash flows are done and if the contract expressed an exchange of commodities or currencies, these are liquidated.

But not only risk

Reducing the cost of finance or restructuring debt

- ▶ Borrowing floating vs fixed interest rate
- ▶ Borrowing local vs. foreign

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Example

	Fixed rate	Floating rate
Company A	Treasury + 1.0%	LIBOR+0.4%
Company B	Treasury + 1.5%	LIBOR+0.6%
Difference	0.5%	0.2%

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Absolute vs. comparative advantage

Company has an absolute advantage both on the fixed and floating interest rate and has a comparative advantage on in the fixed market while company B has a comparative advantage on the floating market.

Result

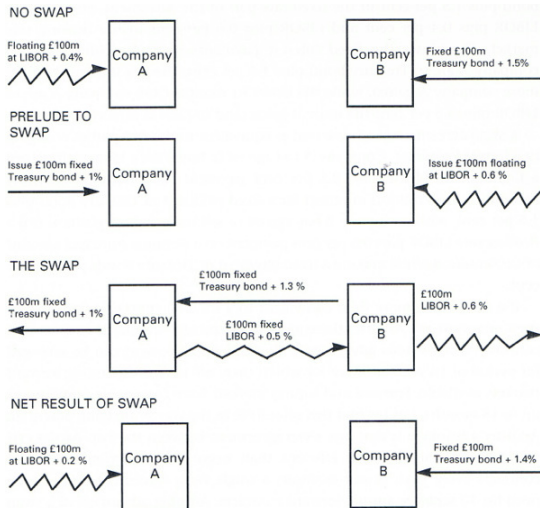


Figure 16.1 A comparative advantage swap

Notes: Squiggly line indicates floating interest rate, straight line indicates fixed interest rate.

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Currency Risk I

Description

The fact that the local currency depreciates in comparison with the loan currency is devastating for an investor

Swap

The currency swap is a contract that stipulates that one contractor delivers a specified amount of one currency in exchange for another specified amount of another currency on a regular basis specified in the swap. This could be seen as fixing the exchange rate for a certain time period and for a certain amount of currency.

Currency Risk II

Toy Example

Investor knows he has to pay €10 000 every month for his credit. He could thus arrange a swap to protect himself against dramatic devaluation of the local currency. For example, he could agree with a European bank the exchange of €10 000 at a fixed exchange rate, every month for the length of his debt contract. This swap will assure him, in exchange of a small fee, that he will be able to pay his liabilities (if he obtain the desired inflow of domestic currency) no matter what is the exchange rate.

Real life example

Thailand has used currency swaps. The Ministry of Finance arranged with U.S. and Japan bank to exchange floating-interest payments for fixed-interest payments (or fixed-interest for floating-interest). In March 1988, Thai officials invited several U.S. bank to bid for two (seven-year) U.S. dollar fixed-interest swap of about \$70 million (Claessens 1993).

Price Volatility Risk I

Description

The risk that the prices of inputs may increase dramatically or that the price of output may decrease considerably.

Swap

A commodity swap is a purely financial contract agreed between the producer/consumer of the commodity and the bank. The bank will guarantee the selling price of a certain quantity of commodity but the bank won't actually buy the commodity. Most of the actors in this market are usually only intermediate. They lay off their risk by offsetting the swaps meaning that the risk of a swap with a producer is compensated with an identical reverse swap with a consumer.

Price Volatility Risk II

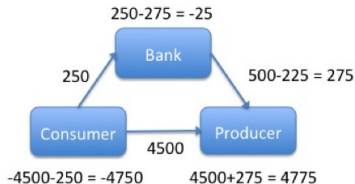
Toy Example I

Lets take the example of a bank having two swaps: one with a producer guarantying the price of a commodity for a quantity of 100 at a price of 50, and the second with a consumer guarantying the price of the same commodity for the same quantity and price. The percentage the bank receives is 5% of the fixed price for the consumer and 5% of the current price for the producer. The following schema shows two possibilities: either the current price when liquidating the swap is 45 or it is 55. The schema shows only the financial flows and the costs and/or benefits for each of the actors.

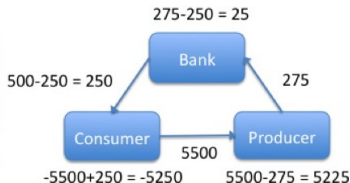
Price Volatility Risk III

Variable	value
Fixed Price	50
Percentage	5
Quantity	100

Variable	value
Current price	45
Buying price	47,5
Selling price	47,75



Variable	value
Current price	55
Buying price	52,5
Selling price	52,25



Price Volatility Risk IV

Toy Example I

This schema shows that when the price is high, the profit for the producer is lowered (because of the premium paid to the bank): the real selling price is then 52,25 instead of 55 but when the prices are low, the producer has a real price of 47,75 instead of 45. The same observations apply for the consumer. In general the swap guarantees that the losses and the gain will be minored assuring stability. The profit of the bank is not assured as the bank present a deficit in the first situation. From these examples, it is clear why banks ask for a larger premium when the price of the commodity is highly volatile.

Default Risk

The risk that a borrower declares default is expected to be higher in developing countries. This implies a higher country risk and thus a higher interest rate for loans. But this also implies that banks are afraid that they won't get their money back. In order to prevent that, JPMorgan Chase invented in the mid 1990s the Credit Default Swap (CDS) (Philips 2008). The CDS is an instrument that allows the bank to be covered in the case of default on a loan. A third actor would assume the risk in exchange for regular payments.

Risk diversification I

Description

It is important to diversify risks. Insurance companies, banks and others investors have always tried to diversify their risk. However, in some countries, the limits on foreign investments are strict. The fear of capital flight, the shortage of foreign exchange reserves and the desire to stimulate the development of local capital market and the local economy in general have driven the implementation of limiting policies.

Swap

Investor that already own domestic investments engage in a swap with a foreign investor (typically an investment bank). The total return on domestic stock market is exchanged annually for the total return on the world stock markets, allowing thus the two investor to enter new markets and thus diversify their risk without initial payment (and thus alleviating the risk of capital flight).

Risk diversification II

Real Life Example

Asset swaps have been effectively used by South Africa in order to permit risk diversification in the mean of foreign investment respecting the strict limitations.

For example, a South-African pension fund may be contracting an asset swap with an investment bank in London for a principal amount of \$1 billion. If, ex post, the world stock markets earns 9% and the South-African markets earn 10%, there is only a flow of $(.10-.09)*\$1$ billion = \$10 million out of the country. This money is paid at a time when the South-African economy is doing well and thus at the best time. On the contrary, if the world stock markets earn 9% and the domestic markets earn 7%, the inflow will be $(.09-.07)*\$1$ billion = \$20 million; a cash inflow when foreign currency is more than welcome.

Misuses I

Down payment

Low (5%-10%) or no down payment allow someone to contract a lot of swaps with little money. If the down payment were 50%, the number of swap contracted by anyone could be more regulated.

Naked swaps

At liquidation only the margins could be paid but not the exchange of the commodities or currencies recorded in the contract. E.g. a swap contracted on the purchase of 100Euro at the exchange rate of 1.4\$ per Euro. If at the end of the swap, the exchange rate is 1.5, only the margin (i.e. 10\$) will be paid and no exchange of currency will be done. If this is allowed, speculation is prevailing.

Misuses II

Basket Commodities Swaps

Some swaps are contracted on a basket of commodities. Those swaps are no more used to prevent the producers from facing a decrease in prices but are used as speculative instruments. The idea of those swaps is to bet on the increase or decrease of the commodities prices.

Fraud

Swaps may be structured such that they have the same expected payment flow as a loan. It is not complicated to structure a floating for fixed swap such as the inflows are positive during the first year while negative after (see the following chart). Fraudster could thus gain deceptive rewards (Rutten 2003).

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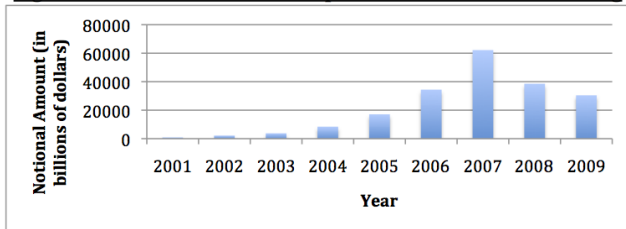
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Multi-name instruments

Where the CDS is insuring against the default of a portfolio of firms or debt (e.g. pool of subprime residential mortgage-backed securities -RMBS-)

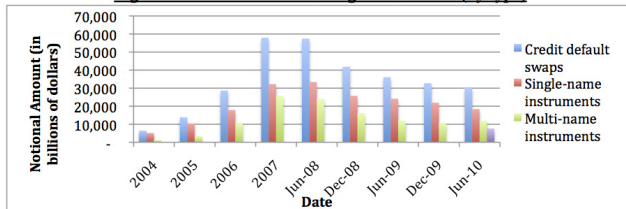
A couple of figures

Figure 2: Total Credit Default Swap Notional Amounts Outstanding



Source: International Swaps and Derivatives Association, Inc.

Figure 3: Amounts Outstanding of OTC CDS (by type)



Source: Bank of International Settlements

Figure : Source: Mirochnik (2010)

Counterparty and Systemic risks

Daisy chains

Swap dealers hedge protection by buying equivalent protection from another dealer which might do the same. Counterparty risk thus decrease because of the daisy chains.

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Posted Collateral as percentage of CDS National Amount outstanding

Year	Collateral
2001	47.56%
2003	26.91%
2005	7.77%
2007	3.42%
2009	10.36%

Table : Source: ISDA Margin Survey, 2010 and Mirochnik 2010

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The counterparts risk can easily become systemic risk if the ultimate seller has written a large amount of contracts.

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AIG Collateral Postings (in millions of dollars)

Collateral Posting	31/12/07	31/3/08	30/6/08	30/9/08
Foreign Regulatory Capital	-	212	319	443
Multi-sector CDO	2,718	7,590	13,241	31,469
Corporate	161	368	259	902
Total Collateral Postings	2,879	8,170	13,819	32,814

Empty creditor problem I

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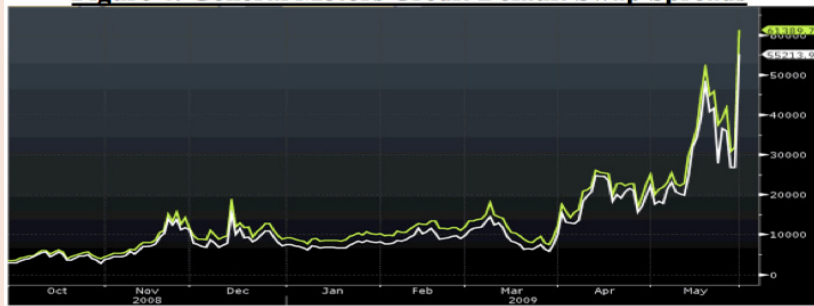
GM case. Source: Mirochnik (2010)

In December 2008, the Bush administration gave GM a \$13.4 billion bridge loan to keep the company afloat. On June 2, 2009, GM filed for bankruptcy. Prior to filing for bankruptcy, GM attempted to restructure its debt obligations. Hedge funds and other “CDS holders would make a net profit of \$2.4 billion if GM were to default.”

Empty creditor problem II

GM case. Source: Mirochnik (2010)

Figure 4: General Motors Credit Default Swap Spreads



Source: Bloomberg

CDS spreads and private to public diffusion of shocks

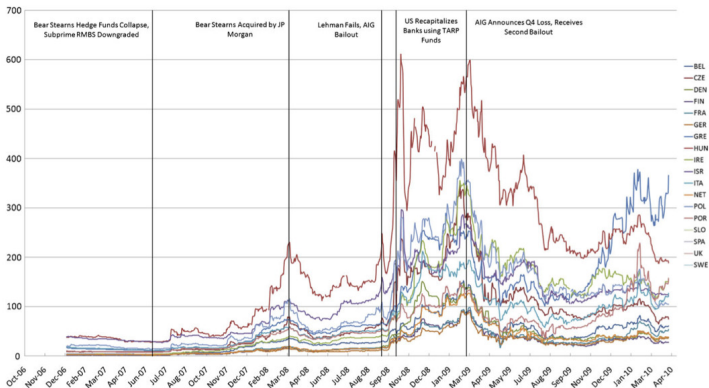


Figure 1. Sovereign CDS spreads for advanced economies: 10-year maturity mid in basis points.

Figure : Source: Dieckmann and Plank (2012)

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