CMA Students Newsletter (For Final Students)

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Put – Call Parity

As different variables have varying impact on the prices of call and put options,it is quite likely that the prices of call and put options on the same stock are interrelated.

We can understand this relationship between the call price and the put price by considering two portfolios as follows. Consider portfolio A consisting of a European call option and a cash equal to $Xe^{-r(T-t)}$ and another portfolio B consisting of a European put option and a share. (The underlying asset for the options is the same share which is part of portfolio B).

The value of both the portfolios at the expiration of the options will be the same viz. max (S_T ,X).

Value at Expiration Date T		
	$S_T > X$	$S_T < X$
Call + Cash	$(S_T – X) + X = S_T$	0+X=X
Put + Stock	$0 + S_T = S_T$	$(X – S_T) + S$

The present values of these two portfolios which have equal future values will also be equal.

That is, $c + Xe^{-r(T-t)} = p + S$

This relationship is called the put-call parity.

c= European call price

p= European put price

S= Stock price

X=Strike price of the option

r= Risk-free rate

(T – t)= Time to expiration.

If this relationship does not hold, then there will be arbitrage opportunities. It is evident from the above relationship that the value of a European call with a certain exercise price and a certain exercise date can be deduced from the value of the put option with the same exercise price and date, and viceversa.

Though the above relationship holds good only for European options ,we can also derive a similar relationship for the American option on non-dividend paying stock.

Since P>p where P is the price of the American put option,

$P > c + Xe^{-r(T-t)} – S$

It can be easily proved that an American call option on a non-dividend paying stock should never be exercised prior to expiration date. Therefore, an American call option on a non-dividend paying stock is worth as much as the corresponding call option on the same stock.

Thus C=c,where C is the price of the American call option,

$P > C + Xe^{-r(T-t)} – S$

$C – P < S - Xe^{-r(T-t)}$

This is an equivalent put-call parity relationship between American call and put options, where C and PO are American call and American put prices respectively.

Example 1 :

DESCO has both European call and put options traded on NSE. Both options have same exercise price of ₹40 and both expire in one year. DESCO does not pay any dividends. The call and the put are currently selling for ₹8 & ₹2 respectively. The risk free rate of interest is 10 % p.a. What should the stock price of DESCO trade in order to prevent arbitrage?

Solution 1:

According to put-call parity,for two options with the same strike price and time to expiration, the cost of a call must equal the cost of a put plus the cost of the stock minus the present value of the strike price.

According to Put-Call Parity,

C = P + S – PV(X)

Where C = the cost of a call option

P = the cost of a put option

S = the current price of the underlying asset

PV(X)= the present value of the strike price

Solving for the stock price, this equation shows that the stock price must equal the cost of a call minus the cost of a put plus the present value of the strike price.

Put-Call Parity: S = C-P + PV(X)

The cost of a call with a strike of ₹40 written on DESCO Stock is ₹8.

The cost of a put with a strike of ₹40 written on DESCO Stock is ₹2.

The present value of the strike price is ₹36.36 (= ₹40/1.10)

S= C-P + PV (X)

= ₹8 - ₹2 + ₹36.36

= ₹42.36

The price of DESCO stock must be ₹42.36 per share in order to prevent arbitrage.

Example 2:

Examine whether the put call parity is violated. Given X= ₹50 , S= ₹50 Put = ₹8, r = 10% and T= 3 months, Call= ₹6. If yes, explain the arbitrage process.

Solution 2:

We are given X=50, S=50, P =8, r =10% T= 3m and C =6

We know put call parity is given by:

S +P = C +PV(X)

LHS = S + p = 50 + 8 = 58

RHS = C + PV (X) = 6 + 50/(1+ 0.1 × 3/12)= 54.78

So, LHS is not equal to RHS.

We can say put call parity is violated. Thus we have an arbitrage opportunity.

	Today		At expiry	
	S=50	S>50	S<50	S=50
Buy Call	-6.00	(S-50)	0	0
Deposit PV(X)	-48.78	+50	+50	+50
Sell Stock	+50	-S	-S	-S
Sell Put	+8.00	0	-(50-S)	0
Net Inflow	+3.22	0	0	0

Here we sell the overvalued portfolio (LHS) i.e. we sell a put option and stock. We simultaneously buy under-valued portfolio (RHS) of call and we deposit PV(X). Therefore we have the following gain of ₹3.22 today.

MAKE OR BUY DECISION

Make-or-Buy decision (also called the outsourcing decision) is a judgment made by management whether to make a component internally or buy it from the market.

While making the decision, both qualitative and quantitative factors must be considered.

- Examples of the qualitative factors in make-or-buy decision are: control over quality of the component, reliability of suppliers, and impact of the decision on suppliers and customers, etc.
- The quantitative factors are actually the incremental costs resulting from making or buying the component. For example: incremental production cost per unit, purchase cost per unit, production capacity available to manufacture the component, etc.

The make-or-buy decision is the act of making a strategic choice between producing an item internally (in-house) or buying it externally (from an outside supplier). The buy side of the decision also is referred to as outsourcing. Make-or-buy decisions usually arise when a firm that has developed a product or part—or significantly modified a product or part—is having trouble with current suppliers, or has diminishing capacity or changing demand.

Factors that may influence firms to make in house:

- Cost considerations (less expensive to make the part)
- Desire to integrate plant operations
- Productive use of excess plant capacity to help absorb fixed overhead (using existing idle capacity)
- Need to exert direct control over production and/or quality
- Better quality control
- Unreliable suppliers
- No competent suppliers
- Desire to maintain a stable workforce (in periods of declining sales)
- Quantity too small to interest a supplier
- Control of lead time, transportation, and warehousing costs

- Greater assurance of continual supply
- Provision of a second source
- Political, social or environmental reasons (union pressure)
- Emotion (e.g., pride)

Factors that may influence firms to buy a part externally include:

- Lack of expertise
- Suppliers' research and specialized know-how exceeds that of the buyer
- cost considerations (less expensive to buy the item)
- Small-volume requirements
- Limited production facilities or insufficient capacity
- Desire to maintain a multiple-source policy
- Indirect managerial control considerations
- Procurement and inventory considerations
- Brand preference
- Item not essential to the firm's strategy

Elements of the "make" analysis include:

- Incremental inventory-carrying costs
- Direct labour costs
- Incremental factory overhead costs
- Delivered purchased material costs
- Incremental managerial costs
- Any follow-on costs stemming from quality and related problems
- Incremental purchasing costs
- Incremental capital costs

Cost considerations for the "buy" analysis include:

- Purchase price of the part
- Transportation costs
- Receiving and inspection costs
- Incremental purchasing costs
- Any follow-on costs related to quality or service

The following example illustrates the numerical part of a simple make-or-buy decision.

Example 1:

The estimated costs of producing 6,000 units of a component are:

	Per Unit	Total
Direct Material	₹10	₹60,000
Direct Labourr	8	48,000
Applied Variable Factory Overhead	9	54,000
Applied Fixed Factory Overhead	12	72,000
₹1.5 per direct labour		
	₹39	₹234,000

The same component can be purchased from market at a price of ₹29 per unit. If the component is purchased from market, 25% of the fixed factory overhead will be saved. Should the component be purchased from the market?

Solution

	Per Unit		Total	
	Make	Buy	Make	Buy
Purchase Price		₹29		₹174,000
Direct Material	₹10		₹60,000	
Direct Labor	8		48,000	
Variable Overhead	9		54,000	
Relevant Fixed Overhead	3		18,000	
Total Relevant Costs	₹30	₹29	₹180,000	₹174,000
Difference in Favour of Buying		₹1		₹6,000

Decision: Components should buy from market.

Example 2:

Nicky & Co. Ltd. has three divisions each of which makes a different product. The budgeted data for the next year is as follows:

Division	A	B	C
Sales	₹1,12,000	₹56,000	₹84,000
Direct material	14,000	7,000	14,000
Direct labour	5,600	7,000	22,400
Variable overhead	14,000	7,000	28,000
Fixed cost	28,000	14,000	28,000
Total cost	61,600	35,000	92,400

The management is considering to close down Division C. There is no possibility of reducing variable costs. Advise, whether or not Division C should be closed down.

Solution:

Marginal Cost Statement

Division	A	B	C
Sales	₹1,12,000	₹56,000	₹84,000
Marginal cost	33,600	21,000	64,400
Contribution	78,400	35,000	19,600
Fixed cost	28,000	14,000	28,000
Profit	50,400	21,000	(8,400)

Total net profit from all products = ₹ 63,000.
As division C is making a contribution of ₹19.600 towards recovery of fixed cost, it will not be in the interest of the company to discontinue product C.

FAQS ON TAX DEDUCTED AT SOURCE (TDS)

What is tax deducted at source?

For quick and efficient collection of taxes, the Income-tax Law has incorporated a system of deduction of tax at the point of generation of income. This system is called as **Tax Deducted at Source**, commonly known as TDS. Under this system tax is deducted at the origin of the income. Tax is deducted by the payer and the same is directly remitted to the Government by the payer on behalf of the payee.

The provisions of deduction of tax at source are applicable to several payments such as salary, interest, commission, brokerage, professional fees, royalty, contract payments, etc. In respect of payments to which the TDS provisions apply, the payer has to deduct tax at source on the payments made by him and he has to deposit the tax deducted by him to the credit of the Government. The following illustration will explain the TDS mechanism.

What are the payments covered under the TDS mechanism?

Sections 192 to 196D give various items in respect of which tax is to be deducted at source. Following is the list of items covered under the TDS mechanism:

Section reference	Nature of payment
192	Salary (to resident as well as non-resident)
193	Interest on securities
194	Dividends (dividends on which dividend distribution tax is levied under section 115-O are exempt from tax and hence are not liable to TDS)
194A	Interest other than interest on securities
194B	Winnings from lottery or crossword puzzle or card game or other game of any sort (to resident as well as non-resident)
194BB	Winnings from horse races (to resident as well as non-resident)
194C	Payment or credit to a resident contractor/sub-contractor
194D	Insurance commission
194E	Payment to non-resident sportsman or sports association
194EE	Payment in respect of deposits under National Savings Scheme, 1987
194F	Payment on account of repurchase of units of Mutual Fund or Unit Trust of India
194G	Commission on sale of lottery tickets
194H	Commission or brokerage
194I	Rent of land or building or furniture or fitting or plant or machinery
194IA	Payment/credit of consideration to a resident-transferor for transfer of any immovable property (other than rural agricultural land)

194J	Professional fees, technical fees, royalty or remuneration to a director
194LA	Payment of compensation on compulsory acquisition of certain immovable property
194LB	Payment/credit by way of interest by infrastructure debt fund to a non-resident
194LC	Payment/credit of interest by an Indian specified company on foreign currency approved loan/longterm infrastructure bonds from outside India
194LD	Interest on a rupee denominated bond of an Indian company or Government security (from June 1, 2013)
195	Payment/credit of other sum to a non-resident
196B	Payment/credit of income from units (including long-term capital gains on transfer of such units) to an offshore fund
196C	Payment/credit of interest of foreign currency bonds or GDR (including long-term capital gains on transfer of such bonds) (not being dividend referred to in section 115-O)
196D	Payment/credit of income from securities (not being dividend, short-term or long-term capital gain) to Foreign Institutional Investors

Is there any minimum amount upto which tax is not deducted?

In respect of various items liable to TDS, the Income-tax Law has prescribed a threshold limit. If the expenditure incurred/payment made during the year is below the threshold limit, then there is no requirement to deduct tax at source. Following list gives the threshold limit in respect of various items covered by TDS provisions:

Limit	Nature of payment
(*)	Salaries
₹ 5,000	Interest other than interest on securities (the limit is ₹ 10,000 for interest on time deposits with banks/ co-operative society engaged in banking business and Senior Citizen Saving Schemes, 2004 of post office)
₹ 10,000	Winnings from lottery or crossword puzzle or card game or other game of any sort
₹ 5,000	Winnings from horse races
₹ 30,000 per contract and ₹ 75,000 for aggregate amount during the year	Payment or credit to a resident contractor/sub-contractor
₹ 20,000	Insurance commission
₹ 1,000	Commission on sale of lottery tickets
₹ 2,500	Payment in respect of deposits under National Savings Scheme, 1987
₹ 5,000	Commission or brokerage

₹ 1,80,000	Rent of land or building or furniture or fitting or plant and machinery
₹ 50,00,000	Payment/credit of consideration to a resident transferor for transfer of any immovable property (other than rural agricultural land)
₹ 30,000	Professional fees, technical fees or royalty (no limit for remuneration to a director)
₹ 2,00,000	Payment of compensation on compulsory acquisition of certain immovable property

(*) No tax is to be deducted if the taxable salary (after allowing certain deductions under section 80C to section 80U) does not exceed the basic exemption limit applicable in case of an individual taxpayer (*i.e.*, ₹ 2,00,000 or ₹ 2,50,000 or ₹ 5,00,000, as the case may be).

What are the due dates for filing quarterly TDS Returns?

The due dates for filing quarterly TDS returns, both electronic and paper are as under:

Quarter	Due Date for Government Deductors	Due Date for Other deductor
April to June	31 July	15 July
4July to September	31 October	15 October
October to December	31 January	15 January
January to March	15 May	15 May

What is due date for remittance of TDS certificates? (Form-16 and Form-16A)

In this regard, your attention is invited to the CBDT circulars 04/2013 dated 17.04.2013, No. 03/2011 dated 13.05.2011 and No. 01/2012 dated 09.04.2012 on the **Issuance of certificate for Tax Deducted at Source** in Form 16/16A as per IT Rules 1962. It is now **mandatory for all deductors to issue TDS certificates after generating and downloading the same from "TDS Reconciliation Analysis and Correction Enabling System"** or http://www.tdscpc.gov.in (hereinafter called TRACES Portal).

In view of above circulars, it may kindly be noted that the TDS Certificates **downloaded only from TRACES Portal** will be valid. Certificates issued in any other form or manner will not comply to the requirements referred in the Income-tax Act 1961 read with relevant Rules and Circulars issued in this behalf from time to time.

Please be advised that under the provisions of section 203 of the Income Tax Act, 1961 read with rule 31A, Certificate of tax deducted at source is to be **furnished within fifteen (15) days from the due date for furnishing the statement** of tax deducted at source. Failure to comply with the provisions of the Act will attract **penalty under the provisions of section 272A of the Act, a sum of one hundred rupees for every day** during which the failure continues.

Difference between TDS and TCS?

TDS is Tax deducted at source and TCS is tax collected at source. The meaning can be understood from its definition itself. TDS is for expense and where as TCS is for revenue (Ex- scrap sale).

Whether any person is exempted from TDS deduction? Is there any such relaxation? If so what is the procedure that should be followed?

A) Yes, if the assessing officer is satisfied that the total income of the recipient is below the basic exemption limit or the tax liability of the person is NIL, he should, on an application in Form-13, may issue a certificate on a plain paper for deduction of tax at lower rate or no deduction of tax.

Difference between Form-15G and Form-15H?

Form-15G: It is declaration given by an individual or other person (not being a company or firm) to the person responsible for deducting tax at source not to deduct tax, since the total income including the current receipts will not exceed the maximum amount which is not chargeable to income tax.

Form-15H: It is declaration given by an individual who is the age of 60 years or more to the person responsible for deducting tax at source not to deduct tax, since the total income including the current receipts will not exceed the maximum amount which is not chargeable to income tax.

Whether conversion of out standing interest on loan into loan attracts TDS?

There are two situations generally we come across while dealing the above case-

(i) Interest payment to banks/financial institutions- Any interest paid or credited to the banks/financial institutions is not subject to tax deduction U/S 194(3)(iii), hence TDS is not required to be made on interest payments.

Even the interest payments does not attract TDS provisions, hence there is no question of TDS in case of capitalization of interest on loan as loan.

(ii) Interest payments to others (other than persons those who are covered under 194(3)(iii))- According to sec 194A, TDS is to be made at the time of credit or payment which ever earlier.

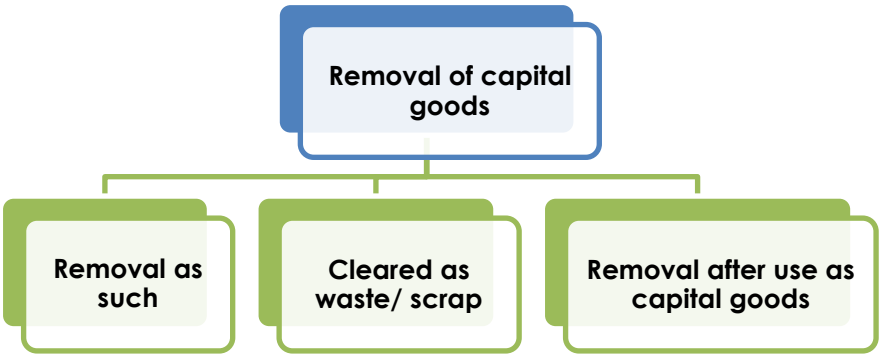
So the liability to deduct TDS arises at the time of credit or payment, where as the conversion of interest out standing into loan arises after a long period from the time interest liability becomes due for payment. This is due to inability of the borrower in making the interest payments.

There is a point of timing difference between the interest due and conversion of interest into loan.

Hence the liability to deduct TDS arises only at the time the interest becomes due but not at the time of conversion of interest outstanding into loan.

EFFECT IN CENVAT CREDIT: REMOVAL OF CAPITAL GOODS

Cenvat credit scheme is devised to allow credit of duties of excise and additional duties on customs paid on inputs and capital goods and service tax paid on input services. The Cenvat credit can be reversed by way of removal of capital goods in the following manners:



(1) **Removal as such i.e. without being used [Rule 3(5) of Cenvat Credit Rules, 2004]:** When capital goods, on which CENVAT credit has been taken, are removed as such from the factory, or premises of the provider of output service, the manufacturer of the final products or provider of output service, as the case may be, shall pay an amount equal to the credit availed in respect of such inputs or capital goods. Such removal shall be made under the cover of an invoice referred to in rule 9.

Illustration 1.

A Ltd. purchased capital goods for ₹ 8,00,000 plus excise duty @12.36% on 01.04.2014. The Cenvat credit was taken accordingly. The said capital goods were removed without being used on 15.04.2014 at a transaction value of ₹ 5,00,000. Compute the amount of Cenvat credit to be reversed.

Answer:

In the above case, the provisions of Rule 3(5) shall be applicable. Since the capital goods are removed without use, the company will be required to pay an amount equal to Cenvat credit availed in respect of capital goods, i.e. ₹ 98,880.

(2) **Removal after use as capital goods [Rule 3(5)(a) of Cenvat Credit Rules, 2004]:** if the capital goods, on which CENVAT Credit has been taken, are removed after being used as capital goods, then amount required to be paid shall be the higher of the two:

(A) Limit based on straight line method percentage point credit:

Types of capital goods	Amount of Cenvat credit to be paid shall be:
Other than computers and computer peripherals	Amount of Cenvat credit taken thereon **Less:** 2.5% of such credit calculated by straight line method for each quarter of a year or part thereof from the date of taking the Cenvat credit [The life of the capital goods is assumed to be 10 years]
Computer & computer peripherals	Amount of Cenvat credit taken thereon **Less:** Percentage of credit taken in the following manner: • for each quarter in the first year @10% • for each quarter in the second year @8% • for each quarter in the third year @5% • for each quarter in the fourth & fifth year @1% [The life of the computer & computer peripherals is assumed to be 5 years]

(B) Transaction value × Rate of duty: Amount equal to duty leviable on transaction value.

Illustration 2.

A Ltd. purchased capital goods for ₹ 8,00,000 plus excise duty @12.36% on 01.04.2014. The Cenvat credit was taken accordingly. The said capital goods were removed after use on 10.04.2015 at a transaction value of ₹ 6,00,000 . Compute the amount of Cenvat credit to be reversed.

Answer:

In this case, the provisions of Rule 3(5A) will be applicable and the manufacturer shall be required to pay higher of the following amounts:

- Amount of Cenvat credit taken less 2.5% per quarter or part thereof of use, i.e. ₹ 98,880 – 2.5% × 5 quarter of ₹ 98,880 = ₹ 86,520.
- Excise duty payable on transaction value, i.e. ₹ 6,00,000 × 12.36% = ₹ 74,160.

Thus, the company will be required to pay ₹ 86,520.

(3) Capital goods cleared as waste/ scrap [Rule 3(5A)(b) of Cenvat Credit Rules, 2004]: If the capital goods are cleared as waste and scrap, the manufacturer shall pay an amount equal to the duty leviable on transaction value.

Illustration 3.

A Ltd. purchased capital goods for ₹ 8,00,000 plus excise duty @12.36% on 01.04.2012. The Cenvat credit was taken accordingly. The said capital goods were removed without being used on 15.10.2014 at a transaction value of ₹ 50,000. Compute the amount of Cenvat credit to be reversed.

Answer:

In this case, as the capital goods are cleared as waste and scrap, the manufacturer shall pay an amount equal to the duty leviable on transaction value, i.e. ₹ 50,000 × 12.36% = ₹ 6,180.

Timings of reversal: The amount payable under Rule 3(5), and 3(5A), unless specified otherwise, shall be paid by the manufacturer of goods or the provider of output services —

- by debiting the Cenvat credit or otherwise
- on or before 5th day of the following month except for the month of March, where such payment shall be made on or before the 31st March.

Removal of destroyed capital goods: If destroyed capital goods are removed, then —

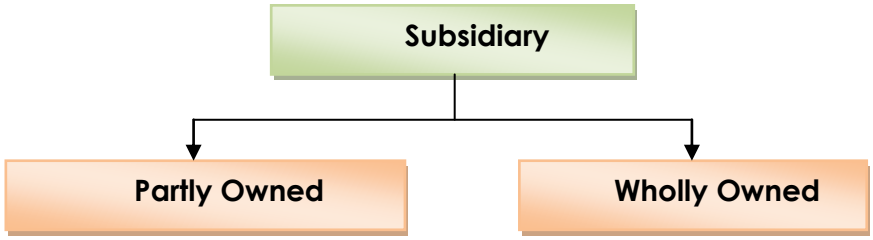
- such removal shall not fall under 'removal as such' under Rule 3(5)
- but, on waste/ scrap, payment under Rule 3(5A) shall be required to be made.

However, if destroyed capital goods are never removed, no reversal can be sought.

Recovery of Cenvat credit wrongly taken or erroneously refunded: If the manufacturer of goods or the provider of output service fails to pay the amount payable under Rule 3(5A), it shall be recovered in the manner as provided in Rule 14, for recovery of Cenvat credit wrongly taken and utilised.

TYPES OF SUBSIDIARY COMPANIES

A subsidiary company can be a wholly owned subsidiary company or a partly owned subsidiary company.



Wholly Owned Subsidiary

If the holding company owns the total of the issued share capital of the subsidiary then it is a wholly Owned Subsidiary.

Partly Owned Subsidiary

If the holding company does not hold all the shares, then it is a Partly Owned Subsidiary.

The shares of the subsidiary company held by outsiders i.e. other than the Holding company are in aggregate termed as Minority Interest.

Dates to be Considered in Holding Company Problems

Date of Acquisition

It is the date on which the holding company acquires the shares of the subsidiary company.
A holding company can purchase the shares in more than one lot.
In that case date of acquisition can be more than one.

For example:

A Ltd. purchased 3,000 shares of B Ltd. on 1.01.2014 again it purchased 4,000 shares on 30.06.2014 —
Here the dates of acquisition are both 1.01.2014 and 30.06.2014.

Date of Holding

It is the date on which the purchasing company acquires the percentage of holding i.e. it quires such number of equity shares which represents 50% or more of the subsidiary company is known as the Date of Holding.

In the previous example:

If the total Issued, paid up shares of B Ltd. is 10,000 then, by purchasing the second lot of 4,000 shares A Ltd. will acquire 70% i.e. more than 50% of B Ltd. Hence in that case the date of holding will be 30.06.2014

Date of Consolidation

After acquiring the holding interest the Holding Company prepares the Consolidated Balance Sheet to report the consolidated position of the Holding and the Subsidiary companies in a combined form as on the Balance Sheet Date immediately after the date of holding as per AS – 21 [Consolidated Financial Statement].

In the above case of A Ltd. and B Ltd. the date of Consolidation would be 31.03.2015