

EVALUATION OF FINANCIAL LEASING CONTRACTS

A THESIS
SUBMITTED TO THE DEPARTMENT OF MANAGEMENT
AND
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
OF BILKENT UNIVERSITY
FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION

BY
ALİYE NEJLA DEMİRAĞ
FEBRUARY 1992

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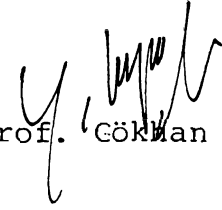
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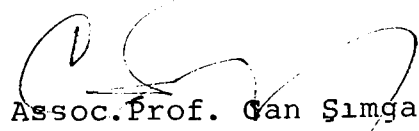
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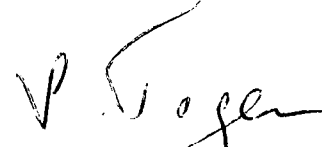
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Assoc.Prof. Can  imga

Approved for the Graduate School of Business Administration.



Prof.Dr. S bidey Togan

ABSTRACT

EVALUATION OF FINANCIAL LEASING

CONTRACTS

BY

DEMİRAĞ, ALİYE NEJLA

SUPERVISOR: Assoc. Prof. Gülnur M. ŞENGÜL

February 1992

In this thesis, the financial leasing contract of company X that decided to acquire a machine, was evaluated. The main concern is whether to obtain the use of the machine by leasing or borrowing to buy. By comparing these two alternatives, the economic attractiveness or profitability of the two alternatives is analysed. These evaluations done by using three different borrowing rates and for two tax paying positions. The value of lease obtained for each case and three different discount rate are compared, the economically benefitable alternative is analysed under Turkish legal framework.

Keywords: Financial leasing contract, evaluation, value of lease, benefitable alternative.

Ö Z E T

FİNANSAL KİRALAMA SÖZLEŞMESİNİN DEĞERLENDİRİLMESİ

DEMİRAÇ, ALİYE NEJLA

YÜKSEK LİSANS TEZİ

İŞLETME ENSTİTÜSÜ

TEZ YÖNETİCİSİ: Ass.Prof. Gülnur M.ŞENGÜL

Şubat 1992

Bu tez, bir firmanın Finansal Kiralama yoluyla sahip olmaya karar verdiği bir makinaya ait finansal kiralama sözleşmesinin değerlendirilmesini incelemektedir. Firma açısından makinanın kiralama yoluyla mı yoksa borçlanarak satınalma yoluyla mı sağlanması seçeneklerinin irdelenmesi, bu tezin özünü oluşturmaktadır. Tezde, her iki alternatif karşılaştırılarak, hangi alternatifin makinanın sağlanması için firma açısından kârlı olacağına karar vermesi ayrıntılı olarak ortaya konulmaktadır. Yapılan değerlendirmede; firmanın kiralama süresi boyunca vergi ödeyeceği ya da vergi ödemeyeceği varsayımlarından hareket edilmiş ve ayrıca firmanın borç almasıyla ilgili olarak üç değişik faiz oranı kullanılmıştır.

Anahtar kelimeler: finansial kiralama kontratı, değerlendirilmesi, kiralamanın değeri, avantajlı seçenek.

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INTRODUCTION

DEFINITION

Leasing can be defined as a contractual relationship in which the owner of the asset or property, the LESSOR grants to a firm or person; the LESSEE the use of the property's services for a specified period of time⁽¹⁶⁾.

Leasing has become a very popular alternative to the outright purchase capital equipment, because it simultaneously, provides for the use of assets and their financing.

Firms lease as an alternative to buying a capital equipment. Computers are often leased, so are trucks, railroadcars etc. The largest group of lessors is equipment manufacturer, and banks get the second importance.

One of the most important type of lease is a financial lease covers a major portion of the asset's useful life. It is long-term and can best be compared to a secured term loan. It is also the most appropriate type of lease for commercial banks.

A financial lease is actually the functional equivalent of a loan in that the lease payments are spread over the useful life of the asset. At the end of the lease, the lessee has the option to purchase the asset at its fair market value.

Responsibility for taxes, insurance, and maintenance rests with the lessee.

PROBLEM DEFINITION AND PURPOSE

Firms face the problem of evaluating financial leases. The purchase and lease alternatives for acquiring an asset can be evaluated by using several methods. One of them is comparing their (net) cash flows. The alternative with the higher NPV of cash flow is preferred and is adapted if its NPV is positive or zero. The decision to lease is a type of capital budgeting problem requiring the application of present value techniques. It also has tax implications, and the relevant after-tax cash flows of the lease and purchase alternatives must be set out with great care. The correct solution requires a comparison of the present value of the loan payments implicit in a lease with the alternative of borrowing funds to purchase the equipment.

Leasing does offer special advantages to some firms under certain circumstances. So, by evaluating financial leasing contracts the firm's lease vs. borrow problem is solved by an appropriate valuation model, then we find the economic attractiveness or profitability of an asset.

By comparing the investments proposals;

- Leasing an asset,
- Borrowing to buy,

leases are evaluated by both the lessee and the lessor. Lessee must determine whether leasing an asset will be less costly than buying it. On the other hand the lessor should also decide whether or not the lease provide a reasonable return.

In this study, a Turkish Company (Company 'X') that decides to acquire a machine, either by lease or by purchase is analysed. The actual leasing contract and the actual borrowing option to purchase are compared in the Turkish legal environment. A lease is comparable to a loan in the sense that the firm is required to make a specified series of payments. Thus, the most appropriate comparison is the cost of lease financing versus the cost of debt financing. By using the Myers, Dills and Bautista Model that will enable financial Managers to choose effectively between those alternatives.

CHAPTER 1

1.1. DEFINITION

Leasing is a contract between the owner of an asset called the lessor and the lessee who is given the right to use the asset against the promise to make a series of payments, the first payment generally made as soon as the lease is initiated.

The lessor in the world is:

1- Frequently a bank or finance house, and usually the leasing business is conducted through a subsidiary.

2- The independent leasing companies run privately without banking affiliations and some are financed on the stock exchange.

3- The subsidiaries of business corporations who invest in assets for leasing to non-connected parties.

The lessees range from industrial corporations, transport companies and service businesses to all kinds of governmental bodies.

They pay lease rentals at regular intervals in advance-monthly, quarterly, half-yearly, and annually. At the end of the period of the lease contract-the primary term-it is possible to buy the asset outright, sometimes the lessee has the legal right to do so. The value of the equipment (asset) at the end of the primary term is known as the residual. It is vitally important for the lessee to know what his position is concerning

this residual, because if he is able to realise some or all of its value this has a profound effect on the cost of the transaction to construct and sign a lease contract is usually known as writing a lease⁽²³⁾.

Leasing simultaneously provides for the use of assets and their financing. One advantage over debt is that the lessor has a better position than a creditor if the user firm experiences financial difficulties. If the lessee does not meet the lease obligations, the lessor has a stronger legal right to take back the asset, because the lessor still legally owns it. The relative tax positions of the lessors and user of assets may also affect the lease versus own decision⁽²⁰⁾.

1.2. HISTORICAL BACKGROUND

In the early twentieth century, leasing of certain specialized types of equipment, for example boot and shoe-making machinery and private telephone equipment continued intermittently in both United Kingdom and United States. During World War II, leasing became a widespread means of financing equipment over the life of cost-plus government contracts. By the end of the 1950s, leasing was sufficiently well developed in the United States for the leasing companies to turn their attention to foreign markets. United States Leasing International set up a Canadian subsidiary. Leasing companies were established in most European Countries, as France, Italy, Germany and so on in the

early 1960s. Also in 1960s, orient leasing company, the first Japanese leasing company, was formed and several Australian finance companies began marketing leasing activities⁽⁷⁾.

Leasing became increasingly popular for a number of reasons. The key attractions for equipment users were that it generally provided 100% finance and enabled firms to increase their overall debt-raising capability by offering cash flow benefits and flexibility. Leasing was aggressively marketed as an alternative to medium-term bank loans, and contractual formalities were completed with great speed by leasing companies. Customers often found that it was faster and simpler to deal with a leasing company than a bank. In Australia, The United Kingdom and The United States, favorable tax regimes also further encourages the growth of leasing.

From the early 1960s, accelerated depreciation allowances and Investment Tax Credit, ITC in the US made tax-based leasing possible. By 1963, the Comptroller of the Currency had decided that banks and industrial corporations could enter the leasing industry and large numbers of new lessors were established by both banks and commercial and industrial corporations. Capital goods manufacturers were quick to incorporate their own leasing companies because of important relationship between competitive medium-term financing and the sale of capital goods. Leasing companies owned by corporations not affiliated to banks became known as captives. But the banks also moved aggressively into

leasing. By the late 1960s both their leasing affiliates and those of the captive leasing companies were powerful competitors to the independents. The spread of leasing has not been confined to the major developed countries of the World. A leasing industry has existed in Zimbabwe since 1960. During the 1970's leasing expanded dramatically. The most important participant in the leasing industries of over 20 developing countries has been International Finance Corporation, IFC, the private sector arm of the World Bank. IFC chose Korea for its first venture, in the mid 1970s. Leasing started in India in 1973, although serious competitors did not enter the market until 1980. By the end of the decade, leasing was widely recognized as a primary source of equipment finance with a number of individual leasing industries reaching maturity. By the end of 1984, there were several hundred leasing companies, primarily focused on small unit value equipment, like sewing machines.

Many leasing product innovations were introduced in 1980s, and there was wide geographic diversification. Sales-aid leasing schemes have been broadened to encompass a wide variety of different types of equipment, and many lessors have added such new items as natural gas pipelines and films, the latest and fastest growing sector in several leasing-to their portfolios. By 1989 IFC's interest in leasing had helped to create or develop leasing in Bangladesh, Botswana, Brazil, Colombia, Dominican Republic, Ecuador, India, Indonesia, Jordan, Korea, Malawi, Pakistan, Peru, Philippines, Portugal, Sri Lanka, Swaziland, Thailand, Tunisia and Turkey.

1.2.1. History in TURKEY

Leasing finance was introduced in Turkey in 1985 with the Law on financial leasing. Leasing is envisaged as one of the means to finance the growth of fixed capital formation over the coming years.

The Turkish Banking System is not willing to supply medium-to long-term loans for investment projects. Available data indicate that the total stock of outstanding bank loans has almost remained constant in real terms since 1980. The share of medium-to long-term loans in the total credit stock, on the other hand, exhibits a declining trend. Similarly, while Turkey's short-term foreign indebtedness has been growing since 1986, medium-term private foreign loans are decreasing both in absolute and relative terms. The need for new sources of finance is obvious and leasing is one of the candidates to fill the gap⁽²⁸⁾.

In 1990, 19 companies were making leasing activity; these are as follows:

1- Financial leasing companies	12
1.a. Bank partnership	9
1.b. Other	3
2- Development and Investment Banks	4
3- Private Finance Associations	3

In 1991, total number of company reached to 24. (see Appendix 1).

Table 1: Leasing activities of financial leasing companies during 1987-1990 periods are as follows: (For domestic leasing)

Years	Number of Transactions	Total Leasing Amount (billion TL)
1987	177	7
1988	279	96
1989	2384	564
1990 (end of Nov.)	2775	814
Total	5340	1432

(Source: Undersecretariat of Treasury and Foreign Trade).

Table 2: Cross-Border Leasing Activities of Financial Leasing Companies in 1986-1990 are as follows:

Years	Number of F. Leasing Contracts	Total Lease Loan (Bil.\$)	Total Lease Loan (Bil.TL)*
1986	3	3300	9
1987	14	36700	110
1988	17	425062	1275
1989	13	125054	375
1990	19	264900	794
Total	65	855151	2563

(*) 18= 3000 TL

(Source: Undersecretariat of Treasury and Foreign Trade).

TABLE 1

TRANSACTIONS OF LEASING COMPANIES OPERATED IN TURKEY

Million ₺.

SECTORS	1986	1987	%	1988	%	1989	%	1990	%	1991*	%	TOTAL
Leasing-amount	-	7.7	100	96	100	564	100	1084	100	1100	100	2854
Computer, office and telecommunication apparatus	-	3.0	40	5.6	6	38	7	150	14	226	21	424.5
Land transportation vehicles	-	2.1	27	64	67	366	65	632	58	530	48	1595
Aircrafts	-	-	-	2.4	3	-	-	0.84	0	97.7	9	101.0
Marine transportation vessels	-	-	-	0.8	1	96	17	46.8	5	8.46	1	153.0
Textile and printing machines	-	1.1	15	3.4	4	4.8	1	44.4	4	32.4	3	86.28
Medical appliances	-	0.5	7	2.1	2	5.6	1	42.2	4	32.5	3	83.13
Other manufacturing machines	-	0.8	11	17	17	52	9	167	15	172	15	410.2
Number of companies	2	4		8		12		20		22		
Number of transactions	-	177		279		2384		2000		1292		

REFERENCE: Undersecretariat of Treasury and Foreign Trade, H. ALİ AKÇA

* Figures are provisional by August 31, 1991

Islamic Banks and several investment banks are also empowered to write leases by virtue of special laws relating to their particular areas of activity. One of the Islamic banks is very active, especially in car leasing. Islamic banks as Albaraka Türk Özel Finans Kurumu A.Ş., Kuveyt Türk Evkaf Özel Finans Kurumu and investment banks do not experience the difficulties encountered by leasing companies as there are no limits imposed on their rental receivables. Another source of unfair competition between leasing companies on the one hand, and Islamic Banks and investment banks on the other is that the latter can channel their funds into financial leases without paying any taxes bank affiliated and privately owned leasing companies are subject to 11% tax on the interest they pay for loans they obtain to finance their activities. A leasing association is in the process of formation.

The Turkish leasing industry is closely controlled and regulated by the Undersecretariat of Treasury.

1.2.1.1. Cross-Border Leasing in TURKEY:

It is expected that cross-border leasing into Turkey will be instrumental in creating new and as yet untapped sources of external finance for the growing needs of the Turkish economy. All cross-border leasing agreements are submitted to the treasury for approval. In 1989 the Treasury started to publish statistics on leasing volume equipment breakdown. While there has been a change between 1988 and 1989 in the composition of machinery and equipment leased into Turkey by Foreign lessors, the most significant development is the sharp fall (about 71%)

TABLE 2

CROSS-BORDER LEASING TRANSACTIONS OF
THE COMPANIES OPERATED ABROAD

THE COMPANIES OPERATED ABROAD											Million Dollar		
SECTORS	1986	%	1987	%	1988	%	1989	%	1990	%	1991*	%	TOTAL
Leasing-amount	3	100	37	100	425	100	125	100	241	100	226	100	994.2
Computer, office and telecommunication apparatus	3	100	28	76	30	7	2	1.6	-	-	-	-	63
Constructions equipments	-	-	-	-	71	17	43	34.4	-	-	-	-	114
Air transportation aircrafts	-	-	-	-	319	75	74	59.2	216	90	220	98	829
Textile and printing machines	-	-	3	8	-	-	1	0.8	-	-	-	-	4
Medical appliances	-	-	1	3	1	0	3	2.4	3	1	5	2	13
Other manufacturing machines	-	-	5	13	4	1	2	1.6	22	9	0.4	-	33.4
Number of transactions	3		13		16		17		16		12		

REFERENCE: Undersecretariat of Treasury and Foreign Trade, H. ALİ AKÇA

* Figures are provisional by August 31, 1991

in rental receivables created in 1989 compared to 1988. It is believed that the main reason for this drastic fall is the Treasury's outright refusal contract not containing high-tech machinery and equipment. There is as yet no official definition of what this high-tech machinery might be.

1.2.1.2. Domestic Leasing:

Domestic Leasing is expected to channel domestic savings into productive investment. Domestic Leasing Companies are required to report the details of each transaction to the Treasury within 20 days after the leasing contract is signed. Domestic leasing companies also required to file their quarterly financial statements with the Treasury. In 1986, there were no leasing contracts within Turkey. Starting in 1987 the Turkish domestic leasing market gathered momentum both in terms of receivables and average size of contracts. A clear trend in favour of car leasing can be observed which is undoubtedly due to the low level of VAT (previously 1% but increased to 10% in late 1989) applied to car leasing contracts as opposed to the 15% on direct purchase.

1.3. ADVANTAGES OF LEASING:

1.3.1. Advantages of Leasing-to a lessee:

1- Leasing provides up to 100% of the cost of the equipment. In many cases no deposits or advance payments are required.

There are exceptions, such as for a lease of very low cost equipment, for a lessee which is a borderline credit risk, or when there is a tax benefit from the lessee making a substantial initial rental. Clearly, any leasing facility which require rentals to be paid in advance is not 100 % financing. Nevertheless, leasing often does provide a higher percentage of financing than an equivalent installment credit facility.

2- Leasing does not tie up valuable working capital or credit lines. A leasing facility preserves liquidity for other more appropriate uses. There may, however, be other sources of finance which a lessee could also tap. It may increase the firm ability to acquire funds. It provides another source of finance to industrial and commercial companies, and helps to vary the borrows portfolio.

3- Leasing offers cash flow benefits; rentals fixed at the inception of a lease assist expense budgeting and cash flow forecasting. The lease term is normally related to the useful life of equipment. Cash flow advantages stem from the upfront capital payments required on a lease compared to other forms of finance, and if late profit and seasonal cash flow considerations are important, the flexibility of lease payment requirements is useful for cash flow purposes.

4- Leasing provides certainty; a lease is non-cancelable, unlike an overdraft which is repayable on demand and may be reduced during a credit squeeze. Budgeting certainty can be obtained through leasing, a factor enhanced when maintenance

costs are fixed in an operating lease contract (cars, containers etc.).

5- Leasing is straightforward; leasing minimizes administrative costs and simplifies tax and accounting procedures. Asset depreciation normally becomes the lessor's responsibility. Documentation is simplified. It is frequently quick and convenient to use lease finance through standardized documentation or to hook new leases on to an original agreed lease document, than to go through other forms of debt and equity acquisition.

6- Leasing is tax efficient; lease rentals are generally fully tax deductible as operating expenses. The tax benefits arising on the acquisition of equipment may also be maximized through a leasing arrangement by reflecting in the rentals the value of an investment incentives⁽²⁶⁾.

7- On-or-off balance sheet considerations; It does not appear on a liability on the lessee's balance sheet.

8- Leasing arrangements are very flexible; Leasing companies have proved more adaptable than banks and financing institutions with regard to contract structures. Rentals payments may be varied according to the revenue expectations of lessees.

9- Leasing can be a hedge against inflation, although in some cases this apparent advantage can be a chimera. In later years in a leasing deal, particularly if the rate is

fixed, you are paying in yesterday's currency units for yesterday's purchase.

10- Long leasing terms are available in most countries with maturing leasing industries.

11- Leasing avoids the necessity of selling equipment no longer wanted.

12- Spending restrictions or restricted loan covenants may be overcome by leasing in some cases.

13- Additional charges in acquiring equipment, such as delivery and installation charges, inspection costs, consultants fees, certain interest charges such as those tied up in advance payments, and other incidental or ancillary costs, may be added to the capital cost of an asset and amortised over the lease period.

14- Operating leases-short-term leases where the asset is not amortised by one customer in one lease contract guard against equipment obsolescence, charges in market conditions, and any situation where the future is uncertain⁽²⁸⁾.

15- Leasing offers the convenience of making one periodic lease payment rather than separate payments for debt service, maintenance costs, insurance, property taxes etc.

1.3.2. The advantages of leasing-to a lessor:

1- Leasing is an additional financial product; leasing is an additional type of finance for a financial institution.

The new business opportunities are opened up by increasing the range of services.

2- Leasing reduces risk; In many parts of the World, it is easier and cheaper for a lessor as owner to repossess leased equipment following a lessee default than it would be for a mortgagee.

3- Leasing may increase profitability; the tax benefits arising from the acquisition of equipment in many countries are normally passed on to the lessees in full by way of reduced rentals. However, a lessor is in a position to earn an additional reward by providing this service.

4- Leasing provides introductions to equipment suppliers; Whenever third party lessor provides a leasing facility, a supplier is involved.

5- Leasing is a simple document, The formalities involved in transacting a lease are straightforward for both a lessee and a lessor. Leasing facilities normally avoid the complexities of a comparable borrowing or capital-raising arrangements. Thus leasing is normally simpler to document.

6- A leasing contract can be closed quickly; leasing decisions are frequently taken quickly by lessees. Comparable banking facilities involve relationship consideration which can lead to delays.

7- Tax shield can be used; sometimes lessors can make better use of depreciation tax shield generated by an asset

than the asset's user. Therefore, it may make sense for the leasing company to own the equipment and pass on some of the tax benefits to the lessee in the form of low lease payments⁽⁷⁾.

1.4. TYPES OF LEASE:

1.4.1. Financial Lease:

Even though there exist many varieties of financial lease, in general, financial leases have most of the following characteristics;

- Long-term commitment between the lessee and the lessor. Generally financial leases are concluded for most of, or all, the useful life of the asset, consequently, total lease payments are close to the value of the asset.

- Non-cancelable commitment.

- The lessee is responsible for maintenance, insurance and the payments of property taxes.

- The lessee may acquire the full ownership of the asset at the end of the lease.

- Financial lease gives the lessee the option of renewing the lease or purchasing the asset at the termination of the lease agreement.

Contracting a financial lease is therefore very close to buying an asset and borrowing money from the bank. In most cases, leased assets are new ones. But sometimes a firm sells

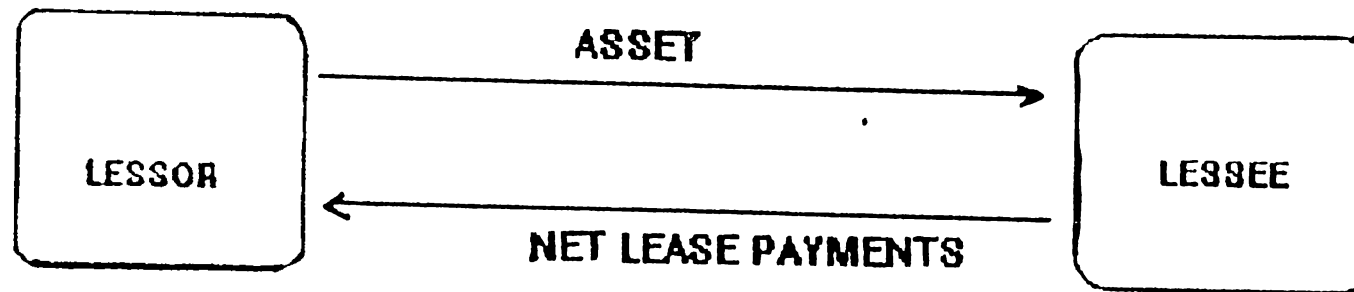


Figure 1 Financial lease arrangement

Lessor

- Owns the asset and lease it for the intermediate or long term
- Does not provide operating services and expenses
- Provides the lessee with the option to renew the lease or purchase the asset upon termination of the lease

Lessee

- Makes lease payments to cover the use of the asset net of any operating expenses
- Cannot cancel the contract except by agreement with the lessor

Source: Essentials of Corporate Finance, Mashe Ben-Harim, Allyn and Bacon, Inc. 1987.

an asset which it already owns to another party and then leases back, as opposed to direct leasing. In some cases, the lessor borrows part of the price of leased asset, using the lease contract as security for the loan. Such arrangements are called leveraged leases⁽¹²⁾.

1.4.2. Operating Leases:

Operating or service leases include both financing and maintenance services. Computers and office copying machines together with automobiles and trucks, are the primary types of equipment covered by operating leases. The leases ordinarily call for the lessor to maintain and service the lease equipment, and the costs of this maintenance are either built into the lease payments or contracted for separately. Another important characteristic of the service lease is that frequently it is not fully amortized. In other words, the payments required under the lease contract are not sufficient to recover the full cost of the equipment.

A final characteristic of service lease is that it contains a cancellation clause giving the lessee the right to cancel the lease and return the equipment before the expiration of the basic agreement. This is an important consideration for the lessee, who can return the equipment if the technological developments render it obsolete, or if it is simply no longer needed. That is cancellation clause is valuable; computers are frequently leased as a short-term cancelable

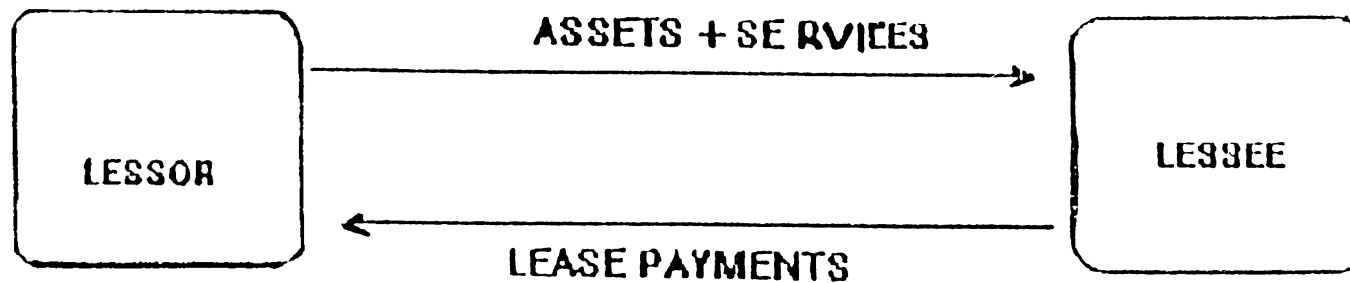


Figure 2 Operating lease arrangement

Lessor

- Owns the asset and leases it for a short term
- Provides all operating services and expenses (maintenance, insurance, property tax)
- Can renew the lease or sell the asset upon termination of the lease contract

Lessee

- Makes lease payments to cover the use of the asset plus operating services and expenses
- Can cancel the agreement on short notice

Source: Essentials of Corporate Finance, Moshe Ben-Horim, Allyn and Bacon Inc. 1987.

basis. It is difficult to estimate how rapidly such equipment will become obsolete, because the technology of computers is advancing rapidly and somewhat unpredictably⁽²⁷⁾.

1.4.3. Sale and Leaseback:

Another type of leasing activity, which can fall into the category of either a finance or operating lease, is the sale and leaseback. Under this arrangement, a firm owning land, buildings or equipment sells the property to a financial institution and simultaneously executes an agreement to lease the property back for certain period under specific terms. The seller, or lessee immediately receives the purchase price put up the buyer, or lessor. At the same time, the lessee retains the use of the property. This parallel is carried over to the financial institution receives a series of equal payments just sufficient to amortize the loan and to provide the lender with a specified rate of return on investment. Under a sale-leaseback arrangement, the lease payments are set up in the same manner. Payments are sufficient to return the full purchase price to the financial institution in addition to providing it with some return on its investment⁽²⁰⁾.

1.4.4. The Full Payout Lease:

The full payout lease, as the term implies, describes a lease which the lessor aims not only to recover the whole

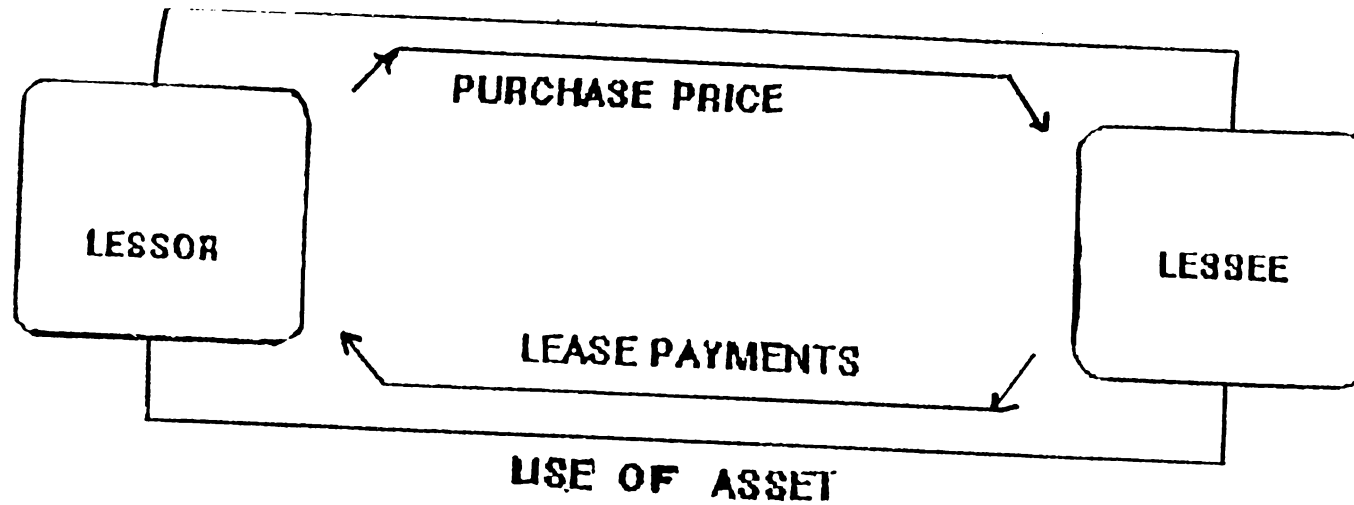


Figure 3 Sale and leaseback arrangement

Lessor

- Purchases the asset from the lessee and assumes ownership
- Pays the lessee an agreed-upon price for the asset
- Leaves the asset in the lessee's possession
- Obtains lease payments under conditions of ordinary financial leases

Lessee

- Sells the asset to the lessor and transfers ownership
- Obtains the agreed-upon price for the asset
- Leases the asset from the lessor; the lessee retains possession of the asset
- Makes lease payments to the lessor under conditions of ordinary financial leases

Source: Essentials of Corporate Finance,

Moshe Ben-Horim, Allyn and Bacon Inc. 1987.

of the initial capital investment out of rentals payable under the contractual arrangement with the lessee, but also to achieve a predetermined yield on the funds employed to finance the investment. The counter part to a full payout lease is the part payout or non payout lease⁽⁷⁾.

1.4.5. The Leverage Lease:

The counterpart to the direct lease is the leveraged lease under which a lessor provides only a proportion of the capital cost from its own funds to purchase equipment for leasing⁽¹²⁾. The proportion generally ranges from 20% to 40% and is known as the equity portion or equity funds. An essential feature of a leveraged lease is that the institutional investors have no recourse to the lessor for repayment of their loans.

The institutional investors, typically insurance companies, pension funds, trusts, foundations and banks are known as debt participants. The lessor, or group of financial or other institutions acting together as the lessor, is known as the equity participant.

Because of the number of parties involved in a leveraged lease, there is frequently a requirement for two additional parties to manager the rights and obligations of the debt and equity participants. These are indenture trustee and the owner trustee.

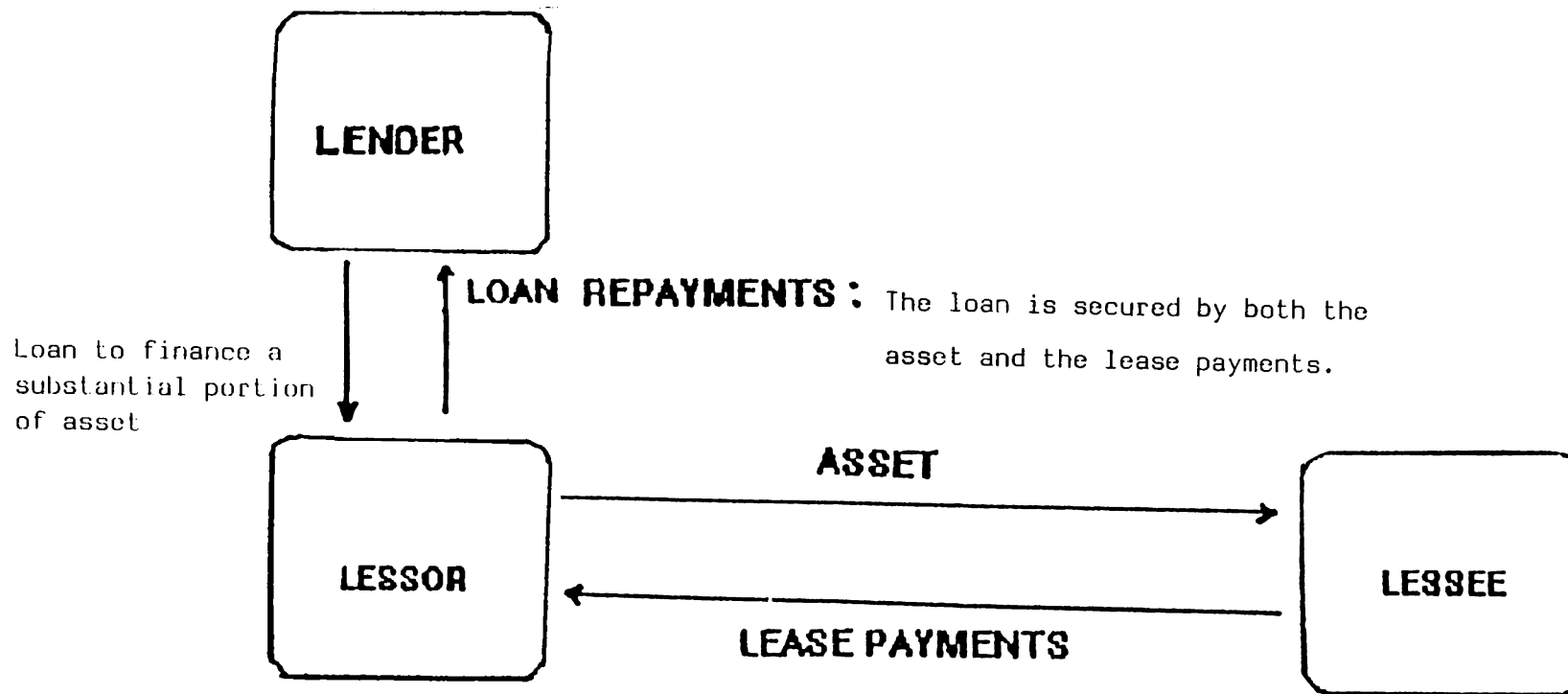


Figure 4 Leveraged lease arrangement

Lessor

- Owns the asset and receives the depreciation tax shelter
- Borrows against a substantial portion of the asset and secures the loan by pledging the asset and the lease payments
- Repays the loan from lease payments; any excess of lease payments over the payments to the lender is kept by the lessor

Lessee

- Makes lease payments to lessor
- There is basically no difference from the lessee's point of view whether the lease is leveraged or not

Source: Essentials of Corporate Finance, Moshe Ben-Horim, Allyn and Bacon Inc. 1987.

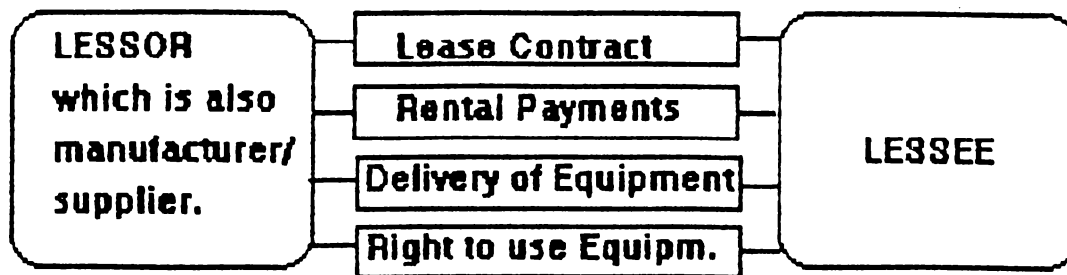


Figure 5 Two-Party Leasing Relationship

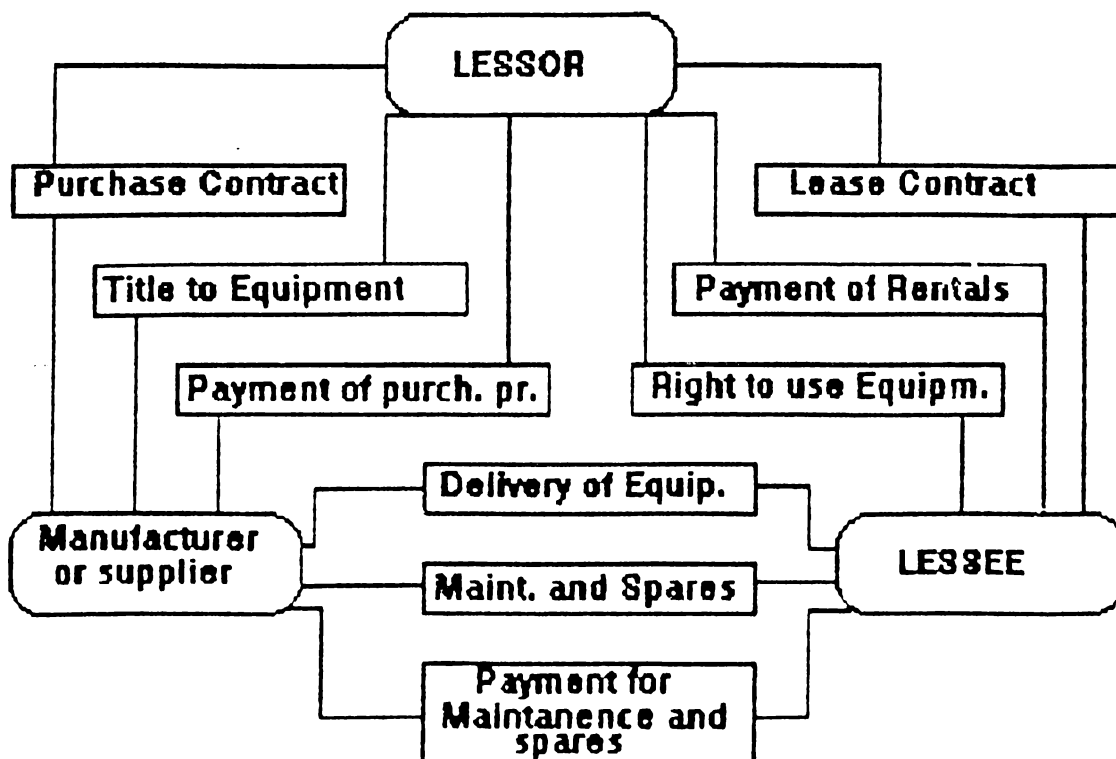


Figure 6 Three-Party Leasing Relationship

Source: Leasing Finance (Euromoney Publications), Tom CLARK.

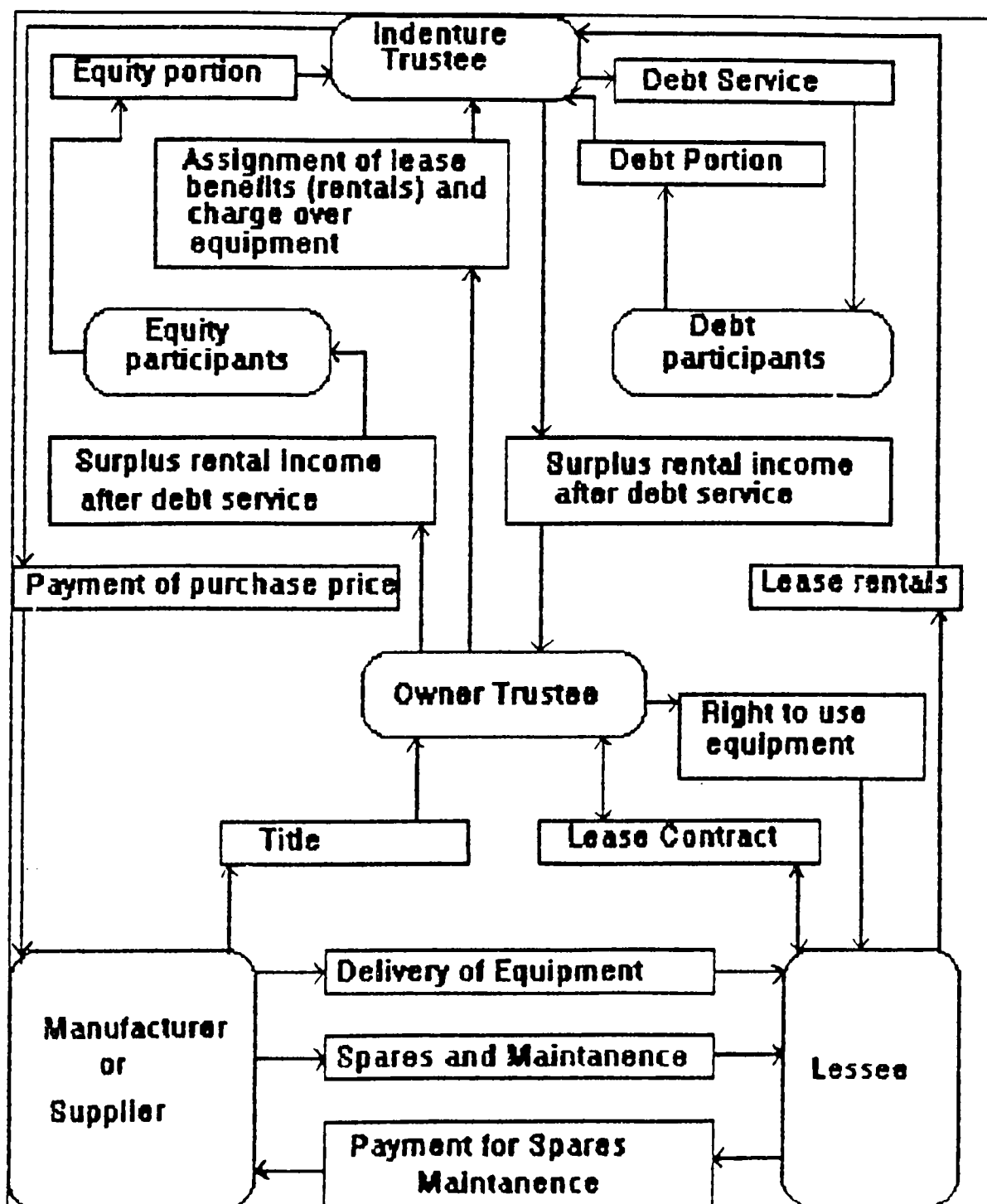


Figure 7 The Relationship Between Parties to a Leveraged Lease

Source: Leasing Finance (Euromoney Publications), Tom CLARK.

The indenture trustee receives the funds required to purchase the equipment from the debt and equity participants and pays the equipment supplier. The indenture trustee also holds the charge over the leased asset and the assignment of the lease agreement and distributes the rental income received from the lessee first to debt participants and any surplus to the equity participants.

The owner trustee, not normally required unless there is more than one equity participant, acts as the nominal lessor or agent for the equity participants.

The costs involved in arranging, documenting and managing a leveraged lease are often substantial. As a result of the cost involved and the type of equipment leased, leverage leases tend to be for periods of over 5 years, 7-15 year lease terms are typical while terms of 25 years and longer are not unknown ⁽⁷⁾.

1.4.6. The Capital Lease:

A lease is classified as a capital lease if it meets any of the following criteria:

- The lease arrangement is so structured as to transfer ownership of the equipment from the lessor to the lessee at the end of the lease term.
- The lessee has an option to purchase the equipment at a bargain price.
- The non-cancelable period of the lease is equal to 75% or more of the useful life of the equipment as estimated

at the inception of the lease.

- The present value of the minimum lease payments is equal to, or more than 90 % of, the fair market value of the equipment⁽⁷⁾.

1.4.7. True Lease:

If a lease in a particular country conforms to the local rules and regulations, it may be considered to be a true lease in that country. Confusion arises because a true lease in one country does not necessarily constitute a true lease in another. For example, a true lease in France or Indonesia containing a purchase option would not be a true lease in the United Kingdom.

1.4.7.1. True Lease For Turkey:

Financial leasing in Turkey is governed by Law No 3226, Law on Financial Leasing and a number of government decrees, regulations, and communiques issued. The purpose of Law No 3226 is to regulate Financial Leasing activities as a means of finance.

The law does not define what leasing is but it closely early cancellation of the agreement if the leased asset.

1- Has certain technological and economic characteristic which limit its use to less than four years, and

2- Can be the subject of a new lease agreement.

The lease agreement is drawn and registered by a notary public. In the case of cross-border leases the agreement is registered by the Undersecretariat of Treasury. Real right acquisition claims by third parties cannot be entertained after registration.

The lease agreement may contain a purchase option at the end of the lease term. This option may be nominal or substantial. Duly incorporated companies only with a paid-up capital of a minimum of 1.000.000.-TL. can be lessors.

If the total rental receivables of a leasing company from a single lessee exceed the limits allowed in the legislation, that portion of the rentals over and above the legal limit must be guaranteed by a bank which does not have any equity participation in the leasing company.

The basis for calculating the legal limits is the sum of the leasing company's equity.

The limits are as follows:

1.25 % of the basis for projects not qualifying for investment incentives,

2.40 % of the basis for projects qualifying for investment incentives,

3.75 % of the basis if a special permission is obtained from the Undersecretariat of Treasury.

The Law requires that the leased asset must be insured for and regulates the legal nature and structure of the leasing

agreement and the rights and duties of the contracting parties.

Within the context of this law, the following terms shall have the meanings as explained below:

The lease - Financial Leasing Contract,
The lessor - Financial Leasing Company,
The lessee - The party who accepts financial leasing,
Assets - The goods subject to financial leasing,
Lease Payment-Amount of lease payment.

Movable and unmovable goods of any description, with the exception of intangibles and industrial rights such as patents, can be leased.

The law requires that the goods to be leased must be selected by the lessee and purchased or otherwise acquired by the lessor as demanded by the former. Throughout the lease term the lessor keeps the ownership of the leased asset, thus enjoying all the benefits associated with ownership, while the lessee has the right to use the asset without interference from the lessor and third parties.

In return for the right to use the asset the lessee makes rental payments, as determined in the lease agreement, which may be denominated in Turkish Lira or in any convertible foreign currency. Payments may be fixed or variable. The minimum uncancellable period for a lease agreement is four years. The two exceptions to this general rule allow the duration of the lease and the insurance premiums be paid by the lessee.

If the lessee defaults on lease payments the lessor must grant 30 days grace before abolishing the contract. This grace period is 60 days for contracts containing a purchase option.

In the case of domestic leases Where both the lessor and the lessee are domiciled in Turkey the incentives that have been granted to the lessee are transferred to and enjoyed by the lessor.

In the cross-border transactions where the lessor is a foreign leasing company, all the incentives, with the exception of customs tax exemption, disappear. The customs tax exemption is granted to the lessee.

When the lease expires after a minimum period of four years and the lessee wishes to exercise the purchase option, the customs tax calculated at least four years previously becomes payable. If there is no purchase option or if the lessee does not exercise the purchase option the leased asset is returned to the foreign lessor and bank letter of guarantee deposited with the customs administration is cancelled. The lessee is entitled to demand extension of the lease term during which the leased asset can be used without paying the customs tax. Under present regulations, investment projects involving imported construction machinery do not qualify for investment incentives if they are financed through leasing although such projects enjoy incentives if financed in any other way. In cross-border leases, annual rental payments to the foreign

leasing company can not be less than \$ 25,000.

There are no accounting rules specific to leasing. Leasing companies keep their accounts in accordance with the Tax Procedural Law whereby the leased asset and depreciated over its useful economic life either on a straight-line or accelerated basis. Rentals received by the lessor are recognized as income. The asset does not appear on the lessee's balance sheet and the lessee charges rental payments to expense as full tax deductible.

Corporations are subject to 46 % tax on their gross income. Leasing companies pay 1 % VAT on their general purchases destined for leasing, 6 % on trucks and commercial vehicles, and 20 % for cars, and charge 1 %, 6 %, or 20 % on their rentals (28) .

1.4.8. Direct or Single Investor Lease:

A lease is classified as a direct lease or a single lease if the lessor provides the whole of the purchase price for the leased asset from its own resources including any borrowings for which the lessor is principally liable. A direct lease can be either a two party or three party relationship arises when the lessor is also the manufacturer or supplier of the equipment to be leased.

In such relationships, the lessor is often a subsidiary of the manufacturer or supplier. Such a lessor is usually known

as a captive lessor. A captive lessor may also be a joint venture between an independent or bank lessor and the manufacturer or supplier.

Both an operating and finance lease can be either a two-party or three party relationship⁽¹⁸⁾.

1.4.9. Domestic and International Leasing:

1.4.9.1. Domestic Leasing:

The leasing of equipment by a lessor located in one country to a lessee in the same country is referred to as domestic leasing, although it can have an international flavour. For example, the equipment supplier may be located in another country or the lessor may be a subsidiary of a foreign company (Making it overseas domestic leasing business for the parent company). Most leases are domestic.

1.4.9.2. Cross-Border Leasing:

The leasing of equipment by a lessor located in one country to a lessee in another country is known as cross-border leasing. Complications abound especially if the equipment supplier is based in a third country and the source of funding for the lease is in a fourth. Obstacles faced when arranging a cross-border lease include:

- applicable law
- currency risks
- exchange controls

- import and export permits and duties
- income and withholding taxes
- enforcement difficulties and
- different accounting and reporting requirements.

Despite the difficulties, many cross-border leases have been successfully concluded⁽⁷⁾.

CHAPTER 2

2.1. QUANTITATIVE MODELS FOR LEASE EVALUATION

Several Models have been proposed in the finance literature as well as in promotional material circulated by lessor, as how to evaluate whether an asset should be purchased or leased.

2.1.1. Capital Budgeting Approach:

The model requires the determination of the NPV of the direct cash flow resulting from leasing rather than borrowing to purchase an asset. The direct cash flow from leasing is discounted using average cost of capital.

Capital budgeting is concerned with the ways in which firms evaluate the economic attractiveness of long lived investment proposals and rank those proposals that have been found attractive⁽¹⁸⁾.

Johnson and Lewellen Model in 1987 can be given as capital budgeting approach. In this model, decision rule recommends that the desirability of alternative courses of investment action be determined on the basis of their respective net present value⁽¹⁵⁾.

2.1.2. Financing Approach:

In financing approach; leasing is accepted as a financing alternative and then the net benefit of leasing is computed. However, it is accepted that leasing and investment decisions are independent of each other. Only projects which are given

an investment decision, are analyzed for lease evaluation. This is a deficiency of this approach.

Beechy Method can be given as financing approach. The analysis of financial leases has generally involved calculating the cash flow (after taxes) of the lease and of the alternative loan, and then discounting these cash flows at the cost of capital. This type of analysis does take into account all of the cash flow effects of leasing, including the tax benefits of depreciation and interest under borrowing, but the method of discounting is incorrect, for it uses a technique of investment analysis to evaluate financing alternatives⁽²⁾.

Vancil⁽²⁵⁾ and Bower⁽⁶⁾ both offered techniques to evaluate the cost of leases. And also, G.B.Mitchell commented as a method which was similar to Beechy's Method for the evaluation of financial leases⁽³⁾.

2.1.3. Investment and Financing Decision:

2.1.3.1. Schall Model:

The net benefit to the firm from purchasing an asset is its net present value. The asset should be purchased only if the net present value is positive. Leasing is an alternative way to obtain use of an asset. To determine whether leasing or buying an asset is better, the net present value of the asset is cash flows to the lessee under the lease must be compared with the NPV of the asset if purchased. The alternative with the higher net present value of cash flows is preferred and is

adopted if its net present value is positive or zero.

Assumptions:

- The capital markets are competitive,
- No transaction costs (including bankruptcy costs),
- Corporate tax exists.

Investors are indifferent between an equal amount of dividend and capital gain income received in the same period. An asset should be obtained only if the result is an increase in shareholder wealth, the method of financing should be that which raises that wealth by the greatest amount. An asset can be acquired by means of lease or purchase⁽²¹⁾. The lease and purchase cash flows generally have different distributions and risk, and the decision to acquire the asset can not be separated from the financing decisions.

2.1.3.2. Myers, Dill and Bautista Model:

This model is simple for evaluating financial lease contracts. It is used to solve the firm's lease vs. borrow-to-buy problem, and to examine the economic rationale for leasing. The decision to lease and other use of financing instruments is done by the lessee and the lessor. The analysis applies the adjusted present value methodology⁽¹⁷⁾.

MDB Approach is similar to that of Shall although they take it further than he does. The lease valuation formula is useful and interesting in several respects.

1. It is simple and easy to use. The decision maker need only discount the after-tax lease payments and depreciation tax shields at an adjusted discount rate r^* , which is calculated from Modigliani and Miller's Formula for the weighted average cost of capital.
2. The formula solves simultaneously for the value of lease contract and the value of the equivalent loan; that is, the value of debt displaced by the lease. Simultaneous solution is necessary because the value of the lease depends on the amount of debt displaced also depends on the value of the lease.
3. The formula implies a time pattern of displaced debt. Lease contract is signed at $t=0$ and extending to $t=H$. This period covers most or all of the leased asset's expected economic life. Lease contract is analyzed from the lessee's point of view:
 1. The asset's residual value as of $t=H$ is lost.
 2. Depreciation tax shields generated by the asset are also lost.
 3. The firm is legally obligated to pay the agreed lease payments which are tax-deductible from $t=1$ to H .
 4. Lease displaces debt. It uses up some of the firm's debt capacity. However, it relieves the firm of having to finance the asset from other sources.
 5. The lessor may assume some of the operating costs the asset (maintenance, insurance etc.).

6. The lessor usually obtains use of the investment tax credit.

It is convenient to start by analyzing the contract from the lessee's view point. As it turns out the lessor's analysis is exactly the same except for a reversal of signs.

VALUE OF THE LEASE CONTRACT:

It is defined that the value of the lease contract as the advantage of leasing vs. normal financing:

$$V_0 = 1 - PV [P_t (1-T)] - PV [b_t T] + PV [rTD_t] \quad (2.1)$$

where;

$PV \{ \}$: refers to present value of the cash flow (at $t=0$).

$1 - PV [P_t (1-T)]$: After tax cash flows of lease itself.

$PV [b_t T]$: Depreciation tax shield lost by the lessee.

$PV [rTD_t]$: The tax shield lost.

Notations:

P_t : Lease payment in t per dollar of asset leased.

b_t : Depreciation per dollar of the leased asset's value;

$b_1, b_2, \dots, b_h$ is the depreciation schedule.

r : The firm's borrowing rate.

D_t : Debt displaced in t per dollar of asset leased.

T : The Marginal corporate income tax rate.

V_t : The value of the lease contract at t per dollar of asset leased.

Equation (2.1) does embody following assumptions:

1. It assumes the Modigliani-Miller view that the only advantage of debt financing is the tax savings generated by deductibility of interest from taxable income.
2. It assumes dividend policies irrelevant and therefore excludes transaction costs.
3. It assumes that the 'risk-independence' or 'value additivity' principle holds.

The third assumption means that V_0 is simply the sum of the market values of the separate cash flow streams.

As a first approximation the PVs may be estimated by discounting at r , the firm's marginal borrowing rate.

$$V_0 = 1 - \sum_{t=1}^H \frac{P_t (1-T)}{(1+r)^t} - \sum_{t=1}^H \frac{b_t T}{(1+r)^t} + \sum_{t=1}^H \frac{rTD_t}{(1+r)^t} \quad (2.2)$$

In equation (2.2) it is assumed that the stream of lease payments and tax shields have the same risk characteristics on the stream of interest and principal payments on the firm's debt. This is clearly reasonable for the lease payments P_t since the lease is so closely analogous to borrowing.

DEPT POLICY:

Assumptions:

In the absence of leasing ($L=0$), the firm will borrow the optimal amount Z_t which depends on:

1. The value and business risk characteristic of the firm's assets.
2. The value of tax shields generated by depreciation and interest.

$$Z_t = \hat{Z}_t + \sum_{\tau=t+1}^{\infty} \frac{S + rTY\tau}{(1+r)^{\tau-t}} \quad (2.3)$$

Z_t : Optimal borrowing excluding any contribution to debt capacity made by depreciation and interest tax shields., assumed constant.

S_t : The aggregate amount of depreciation tax shields available to the firm.

Y : Debt capital at period $t+1$.

T : Firm's marginal tax rate.

This equation (2.3) also implies that the firm borrows 100 % of the value of depreciation and interest tax shields. The lease payments P_tL are contractual obligations of the firm, hardly distinguishable from obligations to make interest and principal payments on the firm's debt. Therefore:

$$Y_t + \sum_{\tau=t+1}^H \frac{L_t P_tL}{(1+r)^{\tau-t}} = \hat{Z}_t + \sum_{\tau=t+1}^H \frac{S_t + rTY\tau}{(1+r)^{\tau-t}} + \sum_{\tau=t+1}^H \frac{L_t TP_tL}{(1+r)^{\tau-t}} \quad (2.4)$$

To summarize, above equation contains three important assumptions;

1. Interest tax shields make corporate borrowing valuable, so that the debt capacity constraint is always binding.

2. Firms borrow 100 % of the value of the tax shields generated by interest, depreciation and lease payments.
3. The firm regards lease payments as contractual obligations, equivalent to interest and principal payments on the firm's debt.

By using MDB's Formula; the value of the lease contract is calculated as follows;

$$V_o = \text{Value of the lease contract} = I_o - \sum_{t=1}^H \frac{L_t (1-T) + TD_t}{(1+r^*)^t} \quad (2.5)$$

This is the basic lease valuation formula that was developed from the lessee's point of view. To use it, the financial manager needs only to know:

- The schedule of lease payments,
- The asset's tax depreciation schedule,
- The corporation's borrowing rate,
- Firm's marginal tax rate.

(In practice he would also adjust for loss of the asset's salvage value and investment tax credit and also for any operating cash assumed by the lessor.)

$$V_o_{\text{lessee}} = 1 - \sum_{t=1}^H \frac{P_t (1-T) + b_t T}{(1+r^*)^t} \quad (2.6)$$

$$V_o_{\text{lessor}} = -1 + \sum_{t=1}^H \frac{T b_t + P_t (1-T)}{(1+r^*)^t} \quad (2.6.1)$$

Underlying equation (2.6) is the assumption that the lease obligations P_t and various tax shields displaced debt on a dollar-for-dollar basis. The corresponding assumption for the lessor is 100% debt financing, which is evidently unrealistic.

The lease payments and various tax shields support at most of debt per dollar of asset leased.

$$V_0 = -1 + \sum_{t=1}^H \frac{btT + P_t(1-T)}{(1+r(1-\lambda T))^t} \quad (2.7)$$

The only difference between equation (2.7) and (2.6.1) is the discount rate used.

It is known evident that the $r^* = r(1-T)$ used to discount lease payments in equation (2.6) not an after-tax cost of debt but a weighted average cost of capital computed according to the Modigliani-Miller (MM) formula⁽⁴⁾.

$$\text{The MM formula is } p^* = P(1+T) \quad (2.8)$$

p^* : the weighted average cost of capital, or hurdle rate appropriate for discounting project cash flows.

P : The appropriate project hurdle rate assuming perfect capital markets and all-equity financing.

λ : the project's marginal contribution to the firm's debt capacity as a proportion of the project's present value.

$\lambda=1$ then $p^* = r^* = r(1-T)$

Second important point comparing the investment proposals (lease vs. purchase) is the value of leasing and equivalent loan should be solved simultaneously;

We have now established that leasing displaces debt. The evaluating leases, the real problem is to work out exactly how much debt is displaced by leasing at each point in time. Therefore, we must identify an equivalent loan; a loan that matches the lease liability at each point in time or in other words; a loan which commits the firm to exactly the same cash outflows as the lease would.

In MDB's derivation on debt capacity displaced by a lease is conceived as a PV, and this must be estimated simultaneously with the value of the lease⁽⁹⁾. The debt displaced by the lease is amount necessary to make the cash flows in each future period for buy and borrow exactly the same as those for leasing. Therefore, we may analyze the lease by making a lease vs. buy and borrow comparison, where the borrowing is chosen to equate the cash flows of the alternatives in each future period. This is quite different from the more usual form of lease vs. borrow analysis, where the asset's purchase price is borrowed and repaid according to some arbitrary repayment schedule.

The necessary comparisons can be illustrated Figures 8, 9, 10, 11.

Figure 8 shows the time-profile of the after-tax cash flows, $P_t(1-T)$, required to lease an asset.

Figure 9 shows the cash flows for the purchase of the asset if no debt is used. The cash flows for the purchase of the asset if no debt is used. The cash flows comprise an initial outflow of \$C and inflows of bT from the depreciation tax savings.

Figure 10 : A possible schedule of cash flows for borrowing and repayment.

Figure 11 : Borrowing used to give purchase the same profile of cash flows as for leasing. This is accomplished when the loan repayment in each period (interest after-tax plus repayment of principal) is equal to the sum of the corresponding after-tax lease payment and depreciation tax saving (that is, $P_t (1-T) + b T$).

We have now identified the schedule of the interest and repayments (after taxes). We must now calculate the amount that is borrowed.

The amount borrowed, B_0 is given by;

$$B_0 = \sum_{t=0}^H \frac{P_t (1-T) + b_t T}{(1+r^*)^t} \quad \begin{array}{l} \text{H:final period of} \\ \text{the lease.} \end{array} \quad (2.9)$$

NET BENEFIT OF LEASING:

I_0 : Purchase cost

B_0 : the amount borrowed.

The difference between I_0 and B_0 is the amount which would be saved in the initial period by leasing. Since the

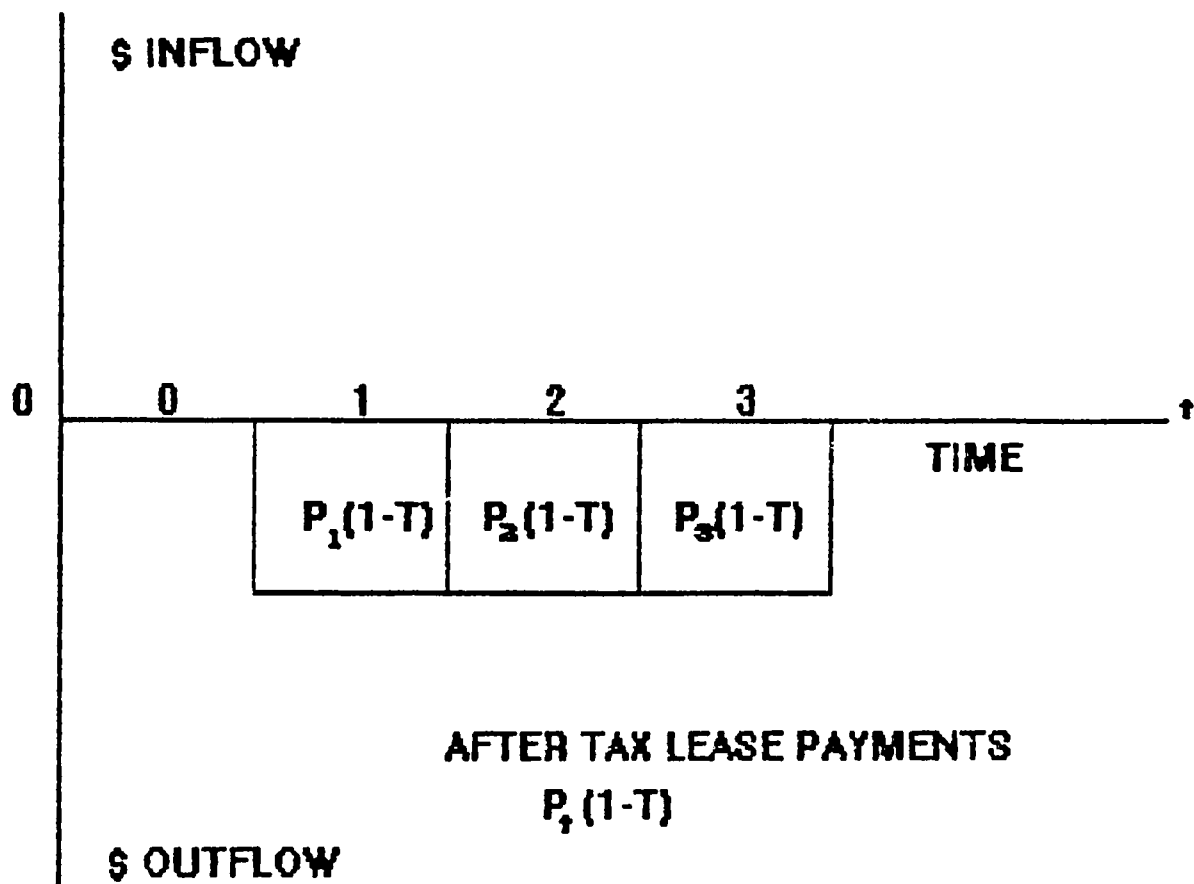


Figure 8 Time Profile: After Tax Lease Payments

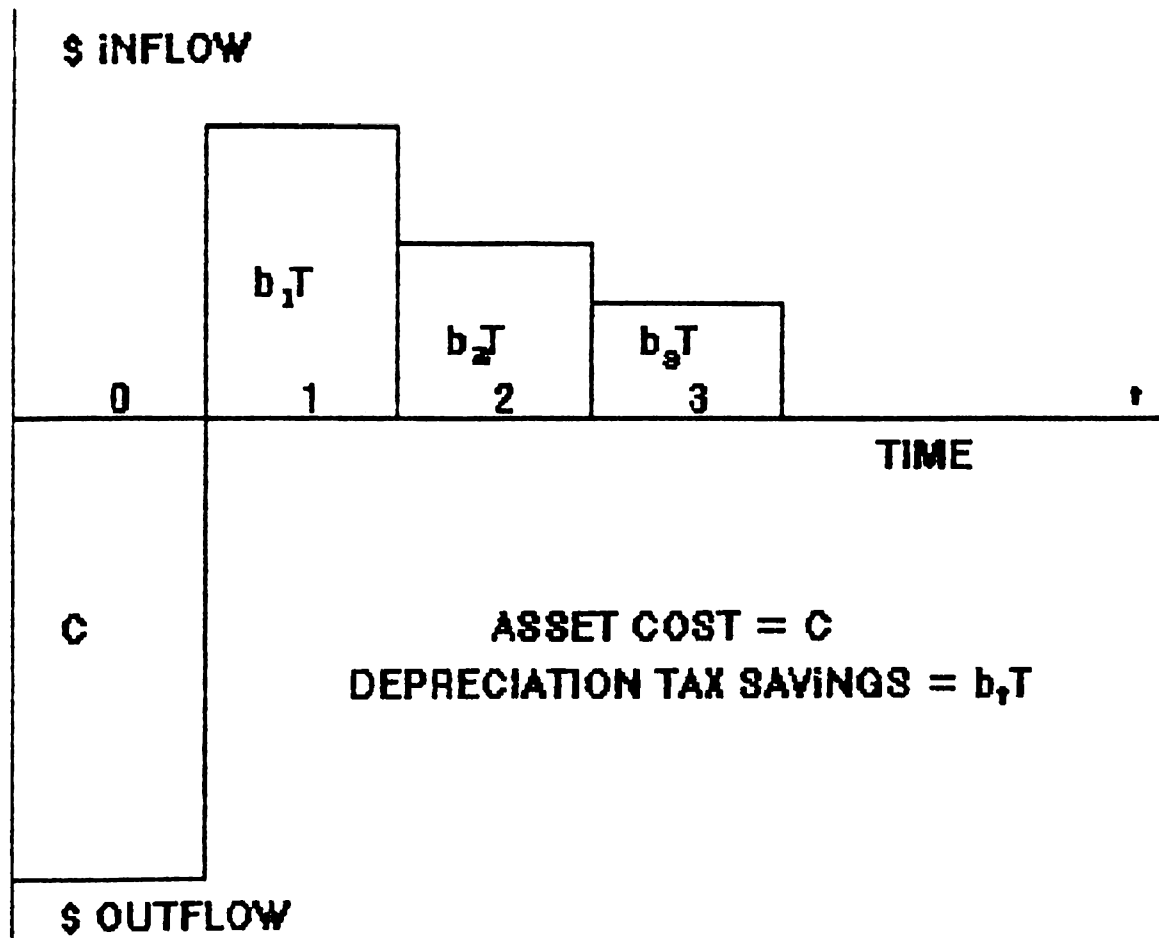


Figure 2 Time Profile: Cash Flows for Purchase

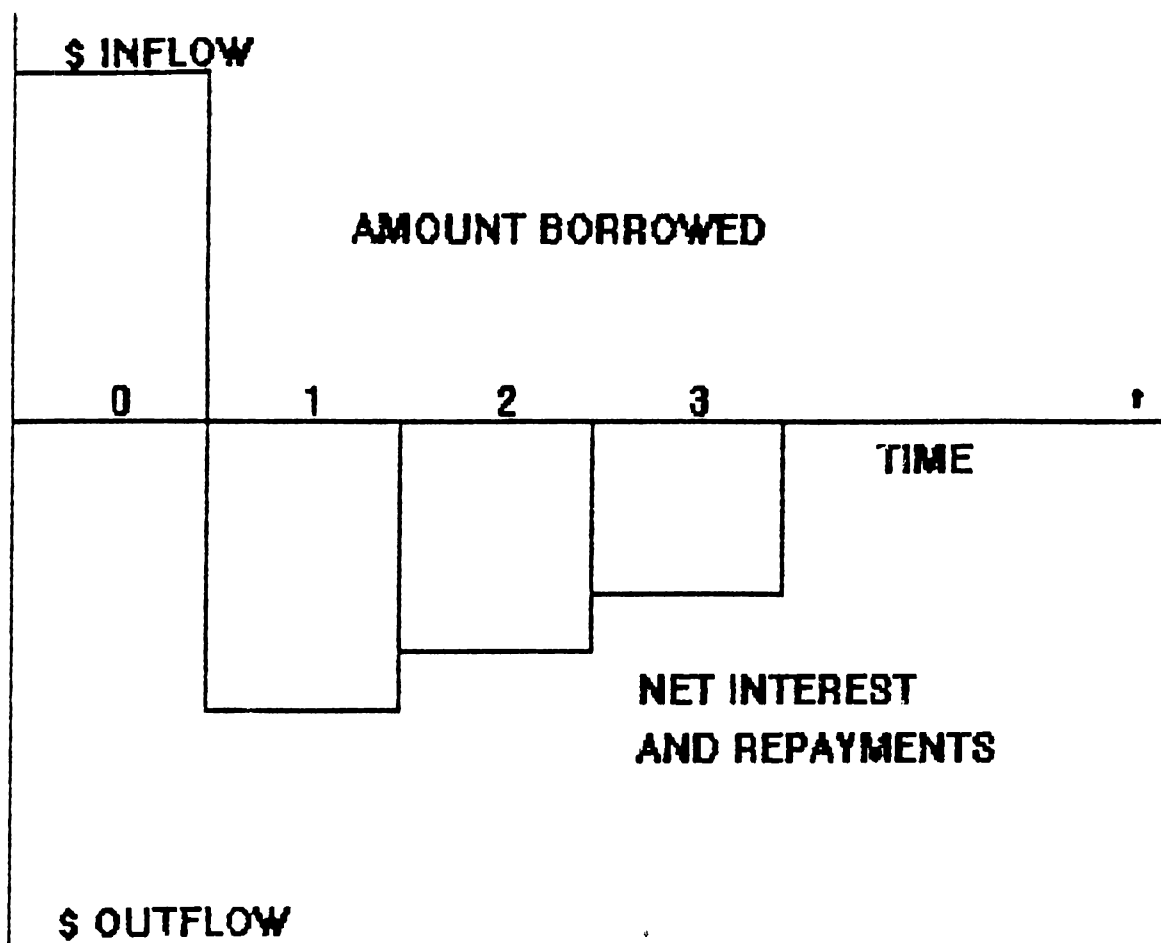


Figure 10 Time Profile: Borrowing and Repayment

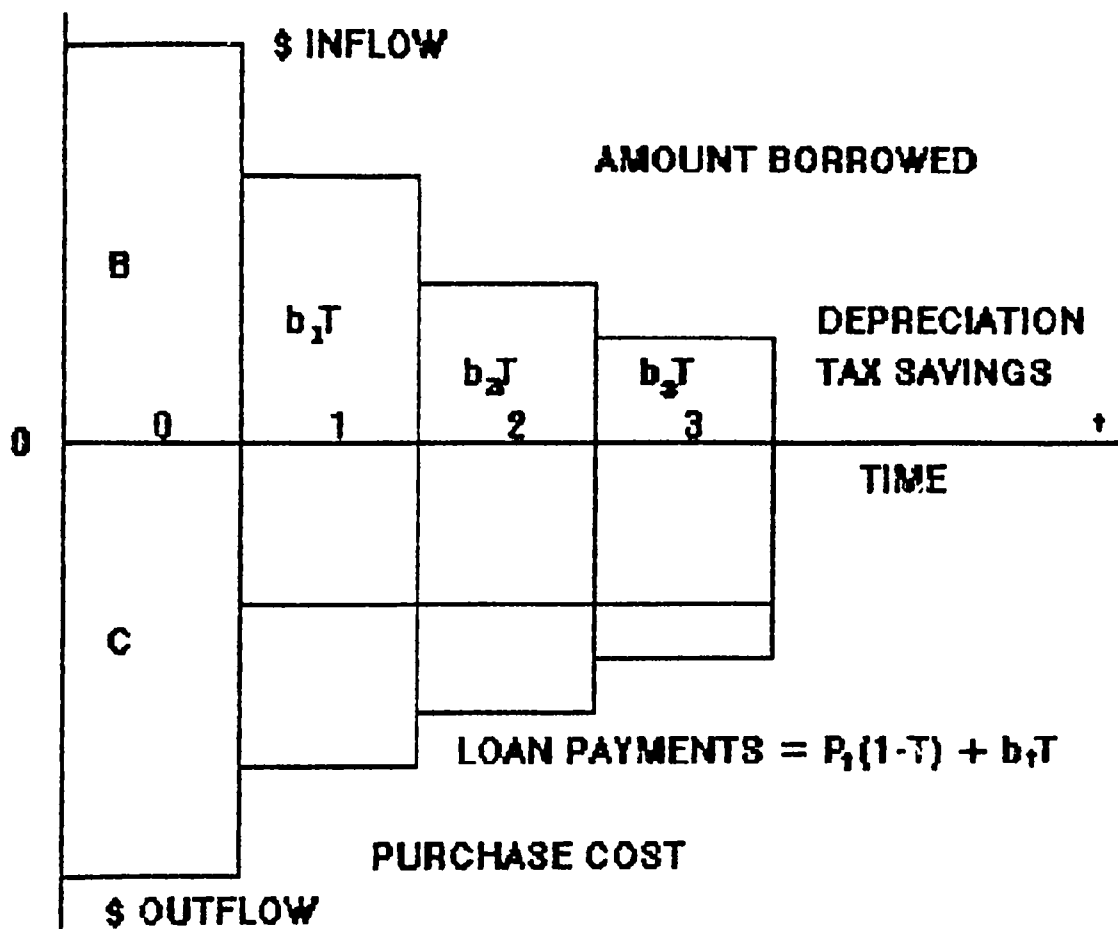


Figure 11 Time Profile: Purchase with Borrowing

cash flows in all future periods are identical, the difference in initial cash flows gives the present value.

$$NBL = I_0 - B_0 = I_0 - \sum_{t=1}^H \frac{Lt(1-T) + TDt}{(1+r^*)^t} \quad (2.10)$$

Leasing Decision From The Lessor's point of View.

From the lessor's, the analysis is exactly same except that the signs of all cash flows are reversed.

Consequently,

$$NBL = -I_0 + \sum_{t=1}^n \frac{Lt(1-T) + TDt}{(1+k^*)^t} \quad (2.11)$$

the discount rate for using the valuation of lease contracts from the lessor's point of view is the weighted average cost of capital of lessor.

$$\begin{aligned} NBL &= -I_0 + \sum_{t=1}^N \frac{Lt(1-T) + TDt}{(1+k^*)^t} = 0 \\ (\text{lessor}) \end{aligned}$$

$$\begin{aligned} NBL &= -I_0 - \sum_{t=1}^N \frac{Lt(1-T) + TDt}{(1+r^*)^t} \\ (\text{lessee}) \end{aligned}$$

it can be written;

$$r^*r(1-T) = k^*$$

$$\begin{aligned} \text{Then } NBL &= I_0 - \sum_{t=1}^n \frac{Lt(1-T) + TD}{(1+k^*)^t} \\ (\text{Lessee}) \end{aligned} \quad (2.11.1)$$

$$\begin{aligned} \text{That is; } NBL &= NBL \\ (\text{Lessor}) & \quad (\text{Lessee}) \end{aligned} = 0.$$

2.2. QUALITATIVE DETERMINANTS OF THE LEASE EVALUATION:

The coexistence of both leased and purchased asset suggests that the net benefits of leasing are uniformly neither positive nor negative. The concentration of leases in certain industries and for certain assets implies that there are predictable cross-sectional differences in the net benefits of leasing.

The primary provisions which differ across assets are depreciation and the investment tax credit. It is observed that systematically different leasing decisions within the same firm for assets with the same tax treatment. For example, office buildings appear to explain these aspects of corporate leasing policy.

Taxes are important in determining the identity of lessor and lessee, but are less important in identifying specific assets to be leased.

The non-tax incentives affecting leasing policy is examined as follows:

2.2.1. User Characteristics Affecting the Leasing Decision:

While incentives established through financial contracts, compensation contracts and ownership structure are not asset specific, and thus cannot explain which of the Firm's assets

will be leased, they do help identify firms that have special incentives to lease or buy.

Three non-tax incentives for corporate leasing policy which do vary across different assets, are examined.

1. Sensitivity to Use and Maintenance Decisions.

Generally, an asset's value is affected by its history of use and maintenance. If an asset is owned and used by the same agent, then use and maintenance incentives are internalized--there are direct private incentives to maximize value. But a lessee does not have the right to an asset's residual value and hence has less incentive to care for the asset ⁽¹⁾.

If the contractual provisions of lease contract do not internalize effectively the incentive to provide maintenance abuse of the asset by the lessee will be anticipated by the lessor and reflected in the schedule of lease payments. The more sensitive the value of an asset to use and maintenance decisions, the higher the probability that the asset will be purchased rather than leased.

High forecasted abuse and the resulting high lease rates lead to the further problem of adverse selection by lessees. Specifically, if the lease payment is high relative to the purchase price, a lessee anticipating moderate use of the asset will tend to purchase the asset, and thus the fraction of lessees abusing the asset will increase.

Within a corporation there is already a separation of the use rights to an asset from the claim to the asset's residual value. Thus, asset owned by corporations should be abused more and less well maintained than similar assets owned by individuals. A difference in use and maintenance decisions between leased and owned corporate assets is expected because of the differential incentives of corporate managers to the monitor the use and maintenance of the asset services acquired through lease-vs-purchase.

2. Firm Specific Assets:

An asset highly specialized to a particular user is more highly valued by that organization than in its best alternative use. The lease of organization-specific assets generates agency costs in the form of significant additional negotiation, administration and enforcement costs due to the conflicts between lessor and lessee. These conflicts arise over the division of the value in excess of the alternative.

3. Expected Period of Asset Use:

The demand for firm specific assets typically extends to most of the asset's useful life, however the demand for many general assets (nonfirm-specific) is relatively short. If the useful life of an asset is significantly longer than the period over which a particular firm expects to use the asset, and the cost of ownership transfer are significant, then there can be advantages to leasing rather than buying the asset. Short-term

leases reduce expenditures on information about quality⁽¹⁰⁾. For example, a lessee of an automobile is less concerned about the condition of the motor, transmission, or cooling system than a potential purchaser of the vehicle.

4. Financial Incentives of Leases:

Long-term, non-cancellable lease commits the firm to use a particular set of assets over the life of the lease and thus controls the asset-substitution problem.

The option to enter long-term, non-cancelable leases also affects the incentive problems. This option controls the underinvestment project and segregate the claim on the project's cash flows⁽²³⁾. Thus, some new positive net PV projects will be undertaken if the use of the assets is acquired through long term leases or if the project is financed with secured debt.

While a long-term lease is similar to secured debt in a number of dimensions, it differs in others. In a lease, the lessor retains title to the asset, and the lessee uses the asset only as long as there is no default on the lease payments. The lessee defaults on the lease payments, it is simpler for a lessor to regain physical possession of a leased asset either prior to or after the declaration of bankruptcy than for a secured debtholder to acquire the pledged asset.

5. Compensation-Related Incentives to Lease:

Management compensation plans can create incentives to lease. For example, a manager whose bonus depends on the return on invested capital will argue strongly to lease rather than purchase. With a purchase, the denominator of the performance measure increases, perhaps dramatically. This incentive can be controlled by including the capitalized value of the lease payments in the calculation of invested capital.

6. Specialization in Risk-Bearing:

The individual proprietorship is more efficient form of organization than the corporation. However, ownership of the capital assets makes it more difficult for the proprietor to reduce risk through diversification. The proprietor can mitigate this problem by leasing the assets required. Thus, leasing reduces the concentration of wealth in the one activity, and can facilitate a more efficient allocation of risk-bearing.

2.2.2. Lessor Characteristics Affecting the Leasing Decisions:

The following non-tax incentives for a corporate leasing policy vary both across potential lessors and across assets, they also help identify which assets will be leased.

1. Price Discrimination Opportunities:

If a manufacturer has some degree of market power in the market for a specific asset, then becoming a lessor can

provide additional opportunities to extract rents by circumventing provisions which prohibit differential pricing of the same good. The other method of price discrimination entails charging different prices to different leasing customers whose demands are correlated with one or more of the characteristics of the lease, (eg: the provision of maintenance services). In such a cases the lessor may be able to use these characteristics to segment the relevant market by demand elasticity and thus to increase profits. In each of these cases the effectiveness of the resulting second degree price discrimination is limited by the availability of close substitutes.

If a manufacturer has a monopoly and thus can control the total supply of a durable asset, his ability to extract price above a marginal cost can still be restricted by customers expectations. If the monopolists can only sell the asset, he will produce as long as price exceeds marginal cost. But potential customers, forecasting this behaviour, have no incentive to pay more than marginal cost. Brealey and Myers⁽⁴⁾ argue that if a manufacturer can affect the rate of technological obsolescence, that manufacturer has an incentive to offer the lease.

2. Comparative Advantage in Opposing of the Asset:

If the lessor has a comparative advantage in disposing of the asset, this provides an incentive to lease. For example Levellen, Long and Mc Connel⁽¹⁹⁾ state "the lessor may be more

active or skillfull in dealing in the associated second-hand asset market, his specialized knowledge may give him an edge."

Three potential sources of this comparative advantage are:

a) The reduction in search, information and transaction costs associated with the lessor's provision of a centralized market place for the asset⁽⁵⁾.

b) The reduction in service cost from reusing components of previously leased machines in the repair and maintenance of current machines.

c) The reduction in production costs from reusing components of previously leased machines in the manufacture of new.

"This comparative advantage of lessor over user is buy, itself, insufficient to provide an incentive to lease in order to favour leasing, the cost reduction must not be available to buyers on similar terms. But manufacturers who take used assets in trade, offer purchasers access to this comparative advantage, thus eliminating a differential advantage to leasing "(22).

2.2.3. The Inflation Effect in the Valuation of Leasing Contract:

Inflation affects the real value of tax liabilities on income. Under current tax laws, real tax payments may vary with the rate of inflation even if inflation does not affect other

pretax real flows. Therefore, fully anticipated inflation may have real effects on the firm's investment decisions. Two such affects have been commonly;

1- The real tax shield on depreciation decreases with inflation because depreciation allowances for tax purposes are based on historical costs rather than on current nominal values (Depreciation Effect)⁽¹³⁾.

2- The real tax subsidy on interest deductions increases with inflation because firms are allowed to deduct interest expenses at nominal rather than real rates (The Interest Effect).

The interest effect can be derived as follows⁽¹⁴⁾;

$$r^* = \frac{1 + (1-T) ((1+r)(1+\pi) - 1)}{1+\pi} - 1 \quad (2.12)$$

$$r^* = (1-T) r - \frac{T\pi}{1+\pi} \quad (2.12.1)$$

r : real interest rate

T : Corporate tax rate

π : Expected inflation rate

r^* : Real cost of borrowing

With no inflation anticipated $r^* = (1-T)r$

However, when $\pi > 0$ $r^* = -T/(1+T)$

implying that the real cost of debt declines with expected inflation.

Thus the impact of inflation on firms investment decision depends upon which of these two effect dominates.

CHAPTER 3

3.1. FINANCIAL LEASING LAW IN TURKEY:

In the first Article of Financial Leasing Law, the purpose of the law which is to regulate financial leasing activities as a means of finance is explained. The scope of the law is stated in Article 2. The law embodies the provisions which regulate the rights and obligations of the parties concerned and defines the legal structure of the Lease. The terms within the context of this law are defined in Article 3.

Article 4 is related to the Financial Leasing Contract (the Lease): The lease establishes that the possession of the Assets that are purchased or procured or otherwise acquired from a third party by Lessor as demanded and specified by the Lessee, will be left with and for the full benefit of the Lessee in return for Lease Payments and under the condition that the Lease will not be cancelled for a predetermined period of time.

Article 5, Assets subject to the lease can be both movable or immovable. Intangibles and industrial rights such as patents can not be subject to a lease agreement.

Article 6, the periods of lease payment and the lease payment which can be fixed and variable, will be determined by the parties. They may be denominated in Turkish Liras or in any convertible foreign currency accepted by the Central Bank of The Republic of Turkey. In cross-border leases, the lease payments can not be less than the equivalent of \$ 25,000

in Turkish Liras per annum. The Council of Ministers authorized to increase this amount or reduce it back to the original amount.

Article 7, The minimum incancellable period for a lease agreement is four years. The regulation to be issued by the Council of Ministers will determine the conditions under which the leasing period can be shortened.

Article 8, The lease agreement is drawn by a Notary Public. A lease pertaining movable assets will be registered in a special registry at a notary public located in the domicile of the lessee. A lease pertaining immovable assets will be registered in the land register. Real right acquisition claims by third parties on the assets subject to financial lease cannot be entertained after registration. In the case of cross-border leases, the agreement registered by the Under secreteriat of Treasury.

Article 9, The ownership of the asset subject to financial leasing rests with the lessor. The parties can agree that the lessee may have the option the purchase the assets at the end of the lease period. This option may be nominal or substantial.

Article 10, Leasing companies can only be established as dully corporated companies. The establishment of leasing companies and their branch offices and the establishment of branch offices in Turkey by foreign companies is subject to the permission of the Ministry to which Undersecreteriat of Treasury and Foreign Trade is attached. The provisions of the Law No 6224 on the Encouragement of Foreign Capital are reserved.

Article 11, The paid-in capital of a leasing company will not be less than TL. 1 billion. In order to establish branch offices in Turkey, foreign leasing companies should have a minimum paid-in capital in Turkish Liras equivalent to \$ 2 million. The Council of the Ministers is authorized to increase this amount by up to five times.

Article 12, The Council of Ministers is authorized to establish limits on the volume of financial leasing activities of leasing companies as well as principles, rules and amounts of leasing activities to be performed with their shareholders and associated companies.

Article 13, The lessee is the possessor of the assets subject to the lease during the tenure of the lease and has the right to derive benefit thereof in accordance with the purpose of the lease. The lessee is obligated to utilize the assets subject to the lease with due care according to the provisions and conditions stated in the lease. Unless, otherwise stated in the lease, the lessee is responsible for the protection and maintenance of the assets and has to be all charges for the maintenance and repairs thereof.

Article 14, The lessee is responsible for the loss and damage of the assets during tenure of the lease. The lessee's obligation is limited to amounts uncovered by the insurance compensation. However, the lessee will pay this obligation concurrent with the lease payments.

Article 15, The lessee can not transfer to the other parties its possession rights of the assets subject to financial lease.

Article 16, Article 106 of the Turkish Code of obligations will be applicable if the asset subject to financial lease are delivered to the lessee by the lessor due to lessor's failure to execute necessary contracts on time with the manufacturer or the supplier of the assets or due to lessor's failure to make necessary payments or for any other reasons.

Article 17, The assets subject to the lease are under ownership of the lessor. The lessor must insure the assets subject to the lease during the tenure of the lease. The insurance premiums will be paid by the lessee.

Article 18, Unless otherwise stated in the lease, the lessor can not transfer the ownership of the asset to a third party. If the right of transfer is incorporated in the lease, then the ownership can only be transferred to another lessor. The new lessor is obliged to comply with the provisions of the lease. The validity of the transfer is subject to the notification of the lessee thereof.

Article 19, In the case of bankruptcy of the lessee and prior to the establishment of the bankruptcy bureau in accordance with the provisions of article 221 of the Code of Bankruptcy and Execution, the bankruptcy officer separates the assets subject to financial lease from other assets held by the lessee.

Objections to the decision of the bankruptcy offices can be filed within seven days. If a lien is initiated against the lessee, the lien execution officer will rule exempt the assets subject to the financial lease from execution. Objections to the decision of the execution officer can be filed within seven days. All objections will be finalized within one month by the appropriate authority.

Article 20, In the case of bankruptcy of the lessor, the lease remains valid against the board of bankruptcy until the end of the lease period.

If a lien is initiated against the lessor, the asset subject to the financial lease can not be attached during the tenure of the lease.

Article 21, The lease will be terminated at the end of its duration. However, the parties may demand to extend its duration by informing each other three months prior to the termination date, either with existing or new conditions. The extension of the lease is subject to the approval of both parties.

Article 22, Unless, otherwise stated in the lease, the lease terminates in cases of bankruptcy of or initiation of a lien against the lessee, death of the lessee or loss of capacity to act or liquidation of the lessee's company.

Article 23, If the lessee defaults on lease payments, the lessor must grant 30 days grace before abolishing the

contract. This grace period is 60 days for contracts containing a purchase option. The lease may be cancelled one of the parties can not be expected to continue due to breach by the other party.

Article 24, When the lease terminates, the lessee who does not have the right to buy the leased assets as stated in the lease or choose not to purchase the assets is obliged to return the asset subject to financial lease immediately.

Article 25, If the lease is cancelled by the lessor, then the lessee is obliged to return the assets to pay all future lease payments and to pay for all damages of the lessor. If the lease is cancelled by the lessee, then the lessee is obliged to return the assets and may demand compensation from the lessor for his damages.

Article 26, In the absence of provisions in this Law, the general provisions of the Code of Obligations apply to lease. The provisions relating to individual contracts apply provided that they comply with the nature of the lease.

Article 27, some articles of Civil Code and the Code of Obligations and the provisions of the Law No:6570 concerning Rentals of Immovable Properties are not applicable to the lease.

Article 28, In case an investment totally or partially be undertaken by means of financial leasing of assets which otherwise would have been purchased by the lessee, the lessor is entitled to any incentives granted to the lessee under an

incentive certificate in accordance with the principles to be determined by the State Planning Organization within the context of the legislation on incentives.

Article 29, With regard to customs taxes, the provisions which apply to the assets imported under a lease contract between a foreign leasing company and the lessee are defined.

Article 30, The lease is exempt from any kind of taxes, duties, and charges. The Council Ministers has the authority to decrease the rate of withholding tax to nil while calculating the taxes that accrue on the earnings of the corporations with limited liabilities or to increase the tax rate to the level prescribed for corporations.

Article 31, Court actions deriving from leases are considered commercial court actions.

3.2. REGULATION REGARDING THE DETERMINATION OF PERIODS AND LIMITS FOR FINANCIAL LEASING ACTIVITIES:

Regulation regarding "Determination of Periods and Limits for Financial Leasing Activities" is published in the Official Gazette no 18882 dated September 28th, 1985.

Any kind of the following exceptions can allow the early cancellation (less than 4 years) of the agreement:

- Assets having depreciation lives less than four years.
- Assets to be approved by the Undersecretariat of Treasury and Foreign Trade as having useful lives less than 4

years due to their technological and economical specifications.

- Assets which will be leased again at the termination of the lease.

The basis for computing the legal limits is the sum of the leasing company's equity:

- Total receivables of lessors in terms of the lease payments from a single real or legal person can not exceed 25% of their ratio.

- This ratio is 40% for activities in the sectors stated in the annual programmes of the Government's Development Plan, activities promoting exports and leasing activities for use in contracting services to be performed abroad. This ratio can be increased for sizeable leases with the approval of the Undersecretariat of Treasury and Foreign Trade.

- Any single sizeable lease payment can not exceed 75% of the total equity of the lessor and the total of lease payments for the lessor can not exceed 5 times its equity. Total liabilities of lessors can not exceed 15 times their equity. The term 'equity' implies the amount calculated by aggregating the paid-in capital or capital appropriated for Turkey of the lessors and their reserves, less their losses for the period.

This regulation will come into force on the date of its publication.

The provisions of this regulation will be executed by the Ministry to which the Undersecretariat of Treasury and Foreign Trade is attached.

3.3. REGULATIONS REGARDING THE PROCEDURES AND PRINCIPLES FOR CUSTOM TAXES, DUTIES, CHARGES, AND VALUE ADDED TAXES ON ASSETS:

1- Taxable income reduction incentives:

The lessor who is the owner of the asset will benefit from taxable income reduction incentives in the case of an investment.

Financial Leasing Companies operating in accordance with the Law No.3226 on Financial Leasing benefit from taxable income reduction incentives within the framework of the principles. According to this, the assets subject to financial leasing will be new. As prescribed in Article 5 of the Financial Leasing Law, all kinds of movable and immovable assets may be subject to financial leasing. However, intangibles and industrial rights such as patents can not be subject to financial leasing. A new asset is defined to mean that the asset has not been in use at home or abroad before. However, according to supplementary article 3 of the Law on income Taxes regarding taxable income reduction incentives, marine vessels and air vehicles that has been used abroad will be considered as new in terms of taxable income reduction incentives applications, subject to the approval of the State Planning Organization.

However, although being subject to financial leasing, employee lodgings and furnishing thereof, land, spare parts supply, installations, machinery and transportation vehicles exclusive of the main project can not benefit from taxable income reduction incentives albeit being new. For example, financial leasing company (A) leases a piece of land that it owns to company (B) within the framework of Financial Leasing Law for a period of 30 years. Although company (B) undertakes an investment with an incentive certificate on the leased land, the Financial Leasing Company (A) will not be eligible for taxable income reduction incentives on the land that it has leased.

Within the framework of the provision as prescribed in Article 18 of the Financial Leasing Law, the new lessor will be entitled to enjoy the remaining portion of taxable income reduction incentives in accordance with supplementary Article 5 of the Law on Income Taxes regarding taxable income reduction incentives, if the asset subject to lease is sold to another lessor.

If a financial lease is cancelled to the agreed termination date due to reasons beyond those specified in article 22 of the Financial Leasing Law, the taxes avoided by the lessor in terms of incentives will become due with related fines. However, if the asset related to an incentive certificate which is subject to a financial lease will be sold to the lessee during the tenure of the lease and prior to the completion of the investment, the taxable income reduction incentives will be

applied in accordance with supplementary article 5 of the Law on Income Taxes regarding taxable income reduction incentives and the purchaser of the asset subject to lease will benefit from the remaining taxable income reduction incentives.

If the asset subject to the lease will be returned to the lessor within the framework of the provisions of Financial Leasing Law and prior to completion of the investment due to reasons specified in article 22 of the Financial Leasing Law or to those beyond the lessor's control, then:

- The lessor will enjoy taxable income reduction incentives if the original lessee returns the asset unused and if the asset is afterwards leased to another investor possessing an incentive certificate.

- The taxes avoided by the lessor in terms of incentives will be collected from the lessor with related fines if the asset is returned used.

2- Custom Exemption:

If the financial leasing company is foreign leasing company, provisions regarding customs in Article 29 are valid. The provisions of the temporary tax exemption regime apply during the tenure of the lease if the assets have been brought into Turkey under a lease which does not embody the right to purchase the assets or where the assets have not been granted customs exemption albeit the issuance of an incentive certificate.

A guarantee is required to cover future taxes that might be levied on such assets brought into Turkey in this manner. However, the guarantee will be released in accordance with the general provisions in case the assets are not imported permanently or returned to the lessor at the termination of the lease.

If the assets subject to financial leasing are to remain in Turkey and be permanently imported at the termination of the lease, the custom taxes to be collected will be calculated on the original price of the assets and at the foreign currency conversion rate prevailing at the date the tax obligations arose.

3- Exemption of tax, duty and charge:

According to Article 30 of the Financial Leasing Law, the financial leasing contracts are exempt from any kind of taxes, duties and charges. The Council of Ministers has the authority to decrease the rate of withholding tax to nil while calculating the taxes that will accrue on the earnings of the corporations with limited liabilities or to increase the tax rate to the level prescribed for corporations.

4- Value Added Tax (VAT):

Value added tax is not mentioned in Financial Leasing Law. Leasing Companies pay 1 % VAT on their general purchases destined for leasing in the Value Added Tax Law. The low level of VAT on car leasing contracts at 1 % increased to 10 %

in late 1989. Today, leasing companies pay 20% VAT on car leasing. Leasing companies pay also 6% on trucks and commercial vehicles, and 20% on cars, and charges 1 %, 6 % or 20 % on their rentals.

CHAPTER 4

4.1. VALUATION APPLICATION IN TURKEY:

In the analysis of the lease or borrow-to-buy decision, the purpose is to examine the nature of corporate decision to lease or borrow-to-buy assets by using the appropriate model that will enable financial managers to choose effectively between those alternatives.

The issue of how to value a financial lease must be examined carefully and the financial lease alternative must be compared to other investment proposals. Firstly, we will deal with leases where there is buy or lease option, as a financing decision, and the firm has already made the decision to acquire the asset. Then we will discuss the situation where the firm must decide whether or not borrow-to-buy, lease or do nothing. Finally, it can be concluded that many financial leases are very similar to debt and should be treated in essential the same manner on debt.

The model which was improved by S.Myers, D.A.Dill and A.J.Bautista, is appropriate for evaluating financial lease contracts when the firm is in a tax-paying position and can realize in each year the entire tax-shield associated with the expenses for a lease or borrow-to-buy decision.

Using the MDB's Model, the value of the lease contract is calculated by knowing the schedule of the lease payments, the asset's tax depreciation schedule, the corporation's borrowing rate and firm's marginal tax rate.

J.R.Franks and S.D.Hodges extended the lease valuation model formulated by MDB. Their model is appropriate for a firm currently in a non-tax paying position but believes it will commence paying taxes at the same specific future date.

In MDB's model, to compare lease-vs-borrowing alternatives, the key concept is the need to neutralize the financial risk between the two alternative financing methods. The value of leasing and equivalent loan should be solved simultaneously. The real issue is to work out correctly how much debt is displaced by leasing at each point in time. So, an equivalent loan which commits the firm to exactly the same cash outflows as the lease would, must be determined. That is, the net cash flows of the two financing alternatives are equivalent, with the exception of year 0. The cash flows in all future periods are identical, the difference in initial net cash flows between lease and purchase decisions gives the net present value. Net present value (NPV) of the lease is simply the value of the lease. A negative value for a lease indicates that leasing will not be more economically beneficial than borrowing-to-buy. A positive value means that leasing will be more economically beneficial. However, leasing will be attractive only if NPV of the asset assuming normal financing is positive and the value of lease is positive, or if the sum of the NPV of the asset assuming normal financing and the value of the lease is positive.

4.1.1. Case Study: Financial Leasing Contract Requirements:

In this Study: The purpose is to value a financial lease contract in comparison to the case of borrowing to buy.

For this analysis a Financial Lease Contract from the Albaraka Türk Özel Finans Kurumu A.Ş. is used. According to this financial lease contract; a financial Leasing Company Leases a Machine worth 100,000,000 TL. for years to Company X for purposes of its investment related to an incentive certificate and within the framework of Financial Leasing Law. The lessee (Company X) should have sufficient capital, necessary expertise to perform leasing activities, and good credit standings which conform to the law and related legislation. These requirements were investigated and evaluated by the Financial Leasing Company (in this case the lessor was a bank). Then, the financial leasing contract was signed.

The lease payments can be in Turkish Liras or in any convertible foreign currency (in this situation TL) accepted by The Central Bank of The Republic of Turkey.

The lease payments and its periods were decided by both parties. The first payment was made when the lease was initiated. The other lease payments will be semiannually 39137500 TL. The lessee is responsible for the protection and maintenance of the asset (Machine). The parties can agree that the lessee can have the option to purchase the asset at the end of the lease period. The beginning date of Financial Leasing was 05.06.1990 and final date 07.05.1994.

The following factors are important for evaluation of financial leasing contract:

1- Residual Value: The lessor will own the property upon the expiration of the lease. The value of the property upon the time is called residual value. A financial lease often provides for the lessee to enjoy the full benefit of the residual value of the asset at the end of the lease period. In this financial lease contract which was evaluated, the residual value was 50,000 TL. nominal value.

2- Investment Tax Credit:

Investment tax credit : Investment amount x 30% x 46%
Firm's Marginal Tax Rate: 46%

It is assumed that the computation of the firm's profit will be done at the end of the year, then, the investment tax savings will be provided also on 07.11.1990.

3- Depreciation Tax Shields:

In this analysis, four years declining balance depreciation method was used.

$$2 \text{ (BV/n)}$$

BV: Undepreciated Book Value of the asset at the start of the year.

n : Depreciable life of the asset.

Depreciation Table:

	Asset Book Value	Depreciation	Tax Shield
1990	100,000,000 TL.	50,000,000 TL.	23,000,000 TL.
1991	50,000,000 TL.	25,000,000 TL.	11,500,000 TL.
1992	25,000,000 TL.	12,507,000 TL.	5,750,000 TL.
1993	12,500,000 TL.	12,500,000 TL.	5,750,000 TL.

4- Operating Cost Difference:

In the financial leasing contract, the lessee is responsible for the protection, maintenance, repairs, charges and insurance. Therefore, this leasing is a true lease. There is no operating cost difference between the financial lease and purchase options from a lessee point of view. If the leasing is not a true lease, all of these expenses must be subtracted from the lease payments to find the net lease payments.

In our analysis, the assumption is that there is no operating cost difference between lease and purchase options.

4.2. NET BENEFIT COMPUTATION OF LEASING (NBL):

When a firm prefers to lease an asset rather than borrow money to purchase the same asset, the decision will have an impact on the firm's cash flow. These are:

There will be a cash inflow equivalent to the cost of the asset. The lessee can or can not forgo some tax credit.

The lessee must make periodic lease payments over the life of the lessee. These payments need not be the same in each period. The lease payments are fully deductible for tax purposes if the lease is a true lease. The tax shield is equal to the lease payment times the lessee's marginal tax rate. The lessee forgoes the tax shield provided by the depreciation allowances since it does not own the asset. The tax shield resulting from depreciation is the product of the lessee's marginal tax rate times the depreciation allowance. (There will be a cash outlay representing the lost after-tax proceeds from the residual value of the asset.)

As we mentioned in Chapter 2, cash flows for leasing an asset is shown in Table 5. In the first part of the Table 5, lease payments and lease tax shield are indicated. The difference between these values gives us net cash flow of leasing.

In the second part of Table 5, cash flow of purchase option is shown and purchase cost, investment tax credit, and depreciation tax savings are indicated.

Lease payments, tax shield due to leasing, investment tax credit and depreciation tax savings, and residual value give the cash outflow of that period.

The net cash flows of the two financing alternatives are equivalent with the exception of year 0, when the equivalent loan for the lease must be determined. The discount rate which will be used, is the after-tax firm's cost of borrowing.

After finding the present value of the cash outflow and the amount that is borrowed for the purchase option, the principles repayments, interest on loan and interest tax shields are calculated.

Net cash flow of purchase option at the end of the second part, and the net cash flow of lease option at the end of the first part must be equal with each other except period 0.

Equivalent loan used to give the same profile of cash flows as for leasing, payments are seen in third part of the table. At the end of the table b, the difference in the initial cash flows of leasing and purchase options gives the net benefit of leasing.

In this analysis after identifying the cash flow of lease option, it was assumed that the firm's borrowing rate for six months will be 45% which is the going rate in the market. The marginal tax rate is 46%, for corporations then, firm's after-tax borrowing rate for 6 months will be (24.3%) was used and the equivalent loan was found to be 106,792,143 TL.

In that case, we had an expense of 21,134,250 TL. in the initial period of leasing the asset. For purchasing option, the net cash flow in the initial period was 6,792,143 TL. Then the net value (NPV) of the lease is (27,926,393,096) TL. Therefore we conclude that leasing is not benefitable if the firm's borrowing rate is 90%. By increasing the firm's borrowing rate, benefits provided by financial leasing will also show an

increase. The model that we are applying our analysis is very sensitive for the firm's borrowing rate.

The value of lease according to Myers-Dills-Bautista Model Show that if the firm is in a taxpaying position and can realize in each year the entire tax shield associated with the expenses for a lease or borrow-to-buy decision. The expenses for a lease is (21,134,250,000)TL. The NPV of the Lease will be as shown in Table 8a. If the firm is in a non-tax paying position during the leasing periods, the NPV of the lease will be as shown in 8.b. When the Company is in a non-tax paying position during the leasing periods, the firm can not benefit the investment tax credit, depreciation tax shield and interest tax shield.

This is a case study which evaluates the financial leasing contract of Company X that decided to acquire a machine, in comparison to the alternative financing method. Evaluation of the leasing contract is made by using three different borrowing rates for the company and by using two tax paying positions (tax-paying position or not) during the lease period, Myers, Dills and Bautista Lease Evaluation Model (MDB Model) is used to evaluate the leasing contract. The results with the actual borrowing rate (90% simple interest rate per annum) show that the company is in a tax-paying position during the leasing period; the value (NPV) of lease is (27,926,393,096) TL. and if the company is in a non-tax-paying position during the leasing period, the value (NPV) of lease is (19,658,643,703) TL. Accordingly; in a non-tax paying

position, the value (NPV) of lease is higher than the tax paying, but the expenses incurred in the case leasing is higher than the expenses incurred in the case of borrowing-to-buy, so the borrow-to-buy decision should be preferred by company X.

The Annual borrowing rate that makes the value (NPV) of lease zero that is the borrowing rate that makes the value (NPV) of lease equal to the value (NPV) of borrow-to-buy, is 151 % if the firm is in a tax paying position and is 124 % if the firm is in a non-tax paying position. The company should prefer the leasing to borrow-to-buy if borrowing rate is above 151 % and the company is in a tax-paying position and if borrowing rate is above 124 % and the company is in a non-tax paying position.

TABLE 5 EVALUATION OF LEASE VERSUS BORROW-TO-BUY DECISION
(FIRM IS IN A TAX PAYING POSITION EVERY PERIOD)

PERIODS	07.06.1990	07.11.1990	07.05.1991	07.11.1991	07.05.1992	07.11.1992	07.05.1993	07.11.1993	07.05.1994
	0	1	2	3	4	5	6	7	8
LEASING CASH FLOWS									
Lease payments :	(39,137,500.000)	(39,137,500.000)	(39,137,500.000)	(39,137,500.000)	(39,137,500.000)	(39,137,500.000)	(39,137,500.000)	(39,137,500.000)	
Tax shield :	19,003,250.000	19,003,250.000	19,003,250.000	19,003,250.000	19,003,250.000	19,003,250.000	19,003,250.000	19,003,250.000	19,003,250.000
Net Cash Flow :	(20,134,250.000)	(20,134,250.000)	(20,134,250.000)	(20,134,250.000)	(20,134,250.000)	(20,134,250.000)	(20,134,250.000)	(20,134,250.000)	(20,134,250.000)
PURCHASING CASH FLOWS									
Purchase cost :	(100,000,000.000)								
Tax Credit :		13,900,000.000							
Residual Value :									
Depreciation Tax Shield :		22,202,000.000		11,520,000.000		5,750,000.000		5,750,000.000	27,000.000
Loan :	100,792,143.000								
Principal Repayment :		(21,623,759.251)	(2,955,812.749)	(15,174,075.247)	(7,361,373.532)	(14,900,139.739)	(12,772,935.904)	(21,624,273.539)	(21,721,749)
Interest on Loan :		(43,055,464.350)	(23,663,772.637)	(32,333,656.950)	(23,525,823.099)	(22,192,704.099)	(21,497,613.699)	(19,740,997.539)	(19,774,541)
Interest Tax Shield :		22,125,973.501	15,485,335.435	14,573,432.197	11,732,446.621	12,209,643.956	7,124,304.500	4,490,720.655	4,435,299
Net Cash Flow :	8,792,143.000	(21,134,250.000)	(21,134,250.000)	(21,134,250.000)	(21,134,250.000)	(21,134,250.000)	(21,134,250.000)	(21,134,250.000)	(21,134,250.000)
Loan Account :									
Previous Balances :	0.000	100,792,143.000	74,809,383.749	71,952,571.000	56,678,495.753	49,317,122.001	34,419,930.435	21,645,994.532	21,721,221
Principal Repayment (-Loan) :	0.000	(21,623,759.251)	(2,955,812.749)	(15,174,075.247)	(7,361,373.532)	(14,900,139.739)	(12,772,935.904)	(21,624,273.539)	(21,721,749)
New Balance :	100,792,143.000	74,809,383.749	71,952,571.000	56,678,495.753	49,317,122.001	34,419,930.435	21,645,994.532	21,721,221	(21,721,749)

=====

VALUE (NPV) OF LEASE : (27,629,393.098)

=====

TABLE 6 SUMMARY OF DIRECT CASH FLOW FROM LEASING : COMPANY X
END OF FISCAL YEAR

PERIODS :	07.06.1990	07.11.1990	07.06.1991	07.11.1991	07.06.1992	07.11.1992	07.06.1993	07.11.1993	07.06.1994
0001 OF MACHINE	0	1	1	3	4	5	6	7	8
0002 INVESTMENT TAX CREDIT	100.000.000.000								
0003 PAYMENT		(12.900.000.000)							
0004 TAX SHIELD FROM LEASE PAYMENT	(39.137.500.000)	(39.137.500.000)	(39.137.500.000)	(39.137.500.000)	(39.137.500.000)	(39.137.500.000)	(39.137.500.000)	(39.137.500.000)	0.000
0005 DEPRECIATION TAX SHIELD	19.000.000.000	19.000.000.000	19.000.000.000	19.000.000.000	19.000.000.000	19.000.000.000	19.000.000.000	19.000.000.000	0.000
0006 RESIDUAL VALUE		(20.200.000.000)		(11.500.000.000)		(5.750.000.000)		(5.750.000.000)	
									(27.000.000)

0007 TOTAL	70.862.500.000	(57.937.500.000)	(20.137.500.000)	(20.637.500.000)	(20.137.500.000)	(20.387.500.000)	(20.137.500.000)	(20.637.500.000)	(27.000.000)
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TABLE 6 a

WORKSHEET FOR DETERMINING THE VALUE OF A LEASE-TAX PAYING POSITION

END OF SIX MONTHS	DIRECT CASH FLOW FROM LEASING	PV OF 1 \$ AT 24.3 % (*)	PRESENT VALUE
0	73,863,750.000	1.000000000	73,863,750.000
1	(57,834,250.000)	0.80450533	(46,608,407.080)
2	(21,134,250.000)	0.64722966	(13,676,692.391)
3	(32,834,250.000)	0.52068884	(16,992,616.272)
4	(21,134,250.000)	0.41890494	(8,853,241.801)
5	(26,834,250.000)	0.33701122	(9,060,293.826)
6	(21,134,250.000)	0.27112729	(5,730,071.862)
7	(26,834,250.000)	0.21812332	(5,864,081.866)
8	(27,020.000)	0.17546135	(4,737.996)

=====

VALUE (NPV) OF LEASE : (27,929,393.096)

=====

NOTE : Discount Rate = 90 %

(*)Adjusted Discount Rate= $r(1-T)=0.9*(6/12)*(1-0.46)=0.243$

TABLE 6 b

WORKSHEET FOR DETERMINING THE VALUE OF A LEASE-TAX PAYING POSITION

END OF SIX MONTHS	DIRECT CASH FLOW FROM LEASING	PV OF 1 \$ AT 40.82 % (*)	PRESENT VALUE
0	78,865,750.000	1.000000	78,865,750
1	(57,934,250.000)	0.71010	(41,139,111)
2	(21,134,250.000)	0.50420	(10,655,889)
3	(32,634,250.000)	0.35810	(11,686,325)
4	(21,134,250.000)	0.25420	(5,372,326)
5	(26,884,250.000)	0.18050	(4,852,607)
6	(21,134,250.000)	0.12828	(2,711,292)
7	(26,884,250.000)	0.09100	(2,446,466)
8	(27,000.000)	0.06460	(1,744)
=====			
VALUE (NPV) OF LEASE			0.000
=====			

NOTE ! Discount Rate = 151.185 %

(*) Adjusted Discount Rate = $r(1-T) = 1.51185 * (6/12) * (1-0.46) = 0.4082$

TABLE 6 c

WORKSHEET FOR DETERMINING THE VALUE OF A LEASE-TAX PAYING POSITION

END OF SIX DIRECT CASH FLOW MONTHS	FROM LEASING	PV OF 1 \$ AT 43.2 % (*)	PRESENT VALUE
0	78,865,750.000	1.00000000	78,865,750.000
1	(57,884,250.000)	0.69832402	(40,458,878.492)
2	(21,134,250.000)	0.48765644	(10,306,253.121)
3	(33,884,250.000)	0.34054221	(11,113,339.513)
4	(21,134,250.000)	0.23780380	(5,025,910.709)
5	(28,884,250.000)	0.16606760	(4,464,602.864)
6	(21,134,250.000)	0.11596899	(2,450,917.725)
7	(28,884,250.000)	0.08098393	(2,177,192.349)
8	(27,000.000)	0.05655303	(1,526.932)

=====

VALUE (NPV) OF LEASE :

=====

2,869,128.276

NOTE ! Discount Rate = 160 %

(*) Adjusted Discount Rate = $r(1-T)=1.6*(6/12)*(1-0.46)=0.432$

TABLE 7

EVALUATION OF LEASE VERSUS BORROW-TO-BUY DECISION
 FIRM IS IN NOW - TAX PAYING POSITION EVERY PERIOD)

TABLE 7 a

WORKSHEET FOR DETERMINING THE VALUE OF LEASE

PERIOD	DIRECT CASH FLOW FROM LEASING	PRESENT VALUE OF 1 \$ AT 45 % (*)	PRESENT VALUE
=====	=====	=====	=====
0	60,862,500.000	1.000	60,862,500.000
1-7	(39,137,500.000)	2.057	(80,513,584.964)
8	(50,000.000)	0.051	(2,558.739)

=====

VALUE (NPV) OF LEASE (19,658,643.703)

=====

(*) Discount Rate = 90 %

TABLE 7 b

WORKSHEET FOR DETERMINING THE VALUE OF LEASE

PERIOD	DIRECT CASH FLOW FROM LEASING	PRESENT VALUE OF 1 \$ AT 62.1 % (*)	PRESENT VALUE
=====	=====	=====	=====
0	60,862,500.000	1.000	60,862,500
1-7	(39,137,500.000)	1.556	(60,861,451)
8	(50,000.000)	0.021	(1,049)

=====

VALUE (NPV) OF LEASE 0.000

=====

(*) Discount Rate = 124.2 %

TABLE 7 c
WORKSHEET FOR DETERMINING THE VALUE OF LEASE

PERIOD	DIRECT CASH FLOW FROM LEASING	PRESENT VALUE OF 1 \$ AT 20.0 % (*)	PRESENT VALUE
0	60,862,500.000	1.000	60,862,500
1-7	(39,137,500.000)	1.230	(48,122,785)
8	(50,000.000)	0.009	(454)

=====

VALUE (NPV) OF LEASE	12,739,261.024
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=====

(*) Discount Rate = 160 %

TABLE 8 THE VALUE OF LEASE FOR THREE

DIFFERENT DISCOUNT RATE

TABLE 8 a

THE FIRM IS IN A TAX PAYING POSITION :

FIRM'S BORROWING RATE	VALUE (NPV) OF LEASE
160 %	2,869,123.276
151.185 %	0.000
90 %	(27,926,393.096)

TABLE 8 b

THE FIRM IS IN A NON - TAX PAYING POSITION :

FIRM'S BORROWING RATE	VALUE (NPV) OF LEASE
160 %	12,739,261.024
124.2 %	0.000
90 %	(19,658,643.703)

CONCLUSION

This thesis is a case study which evaluates the financial leasing contract of a Turkish Company that decided to acquire a machine, in comparison to the financing method borrow-to-buy.

First part of the thesis defines leasing and describes types of leasing including the historical background of leasing both in the world and in Turkey. Next, Quantitative models for lease evaluation that are used to make purchase or lease decision are discussed. Then, Financial Leasing in Turkey, and legal regulations about the financial leasing activities as a means of finance are discussed by using laws, government decrees, regulations, and comminiques.

Finally (by using Myers, Dills and Bautista lease evaluation Model (1976), an actual leasing contract is evaluated. This evaluation is made by using three different borrowing rates for the company and by using two tax paying positions during lease period. In Turkey, under the actual borrowing rate 90 %, borrow-and-buy should be preferred to leasing under both tax paying position.

Under the Turkish legal framework for leasing, leasing should be preferred to borrow-and-buy if the annual borrowing rate is above 151 % and the company is in a tax paying position, and if borrowing rate is above 124 % and the company is in a non-tax paying position.

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TÜRKİYE'DE YERLEŞİK KİRALAYAN ŞİRKETLER

A. (FINANCIAL LEASING COMPANY VE MEVZUAT GEREĞİ KİRALAMA İŞLEMİ YAPABİLEN ŞİRKETLER)

1. İKTİSAT FİNANSAL KİRALAMA A.Ş.
2. YAPI VE KREDİ FİNANSAL KİRALAMA A.Ş.
3. MENGERLER FİNANSAL KİRALAMA A.Ş.
4. İŞ GENEL FİNANSAL KİRALAMA A.Ş.
5. VOLKAN FİNANSAL KİRALAMA A.Ş.
6. VAKIF FİNANSAL KİRALAMA A.Ş.
7. BNP-AK-DRESDNER FİNANSAL KİRALAMA A.Ş.
8. ULUSLARARASI FİNANSAL KİRALAMA A.Ş.
9. FİNANS FİNANSAL KİRALAMA A.Ş.
10. TYT FİNANSAL KİRALAMA A.Ş.
11. GÖKÇE FİNANSAL KİRALAMA A.Ş.
12. GARANTİ FİNANSAL KİRALAMA A.Ş.
13. BİLMAR FİNANSAL KİRALAMA A.Ş.
14. ZİRAAT FİNANSAL KİRALAMA A.Ş.
15. HALK BANK FİNANSAL KİRALAMA A.Ş.
16. SİSTEM FİNANSAL KİRALAMA A.Ş.

B. KALKINMA VE YATIRIM BANKASI

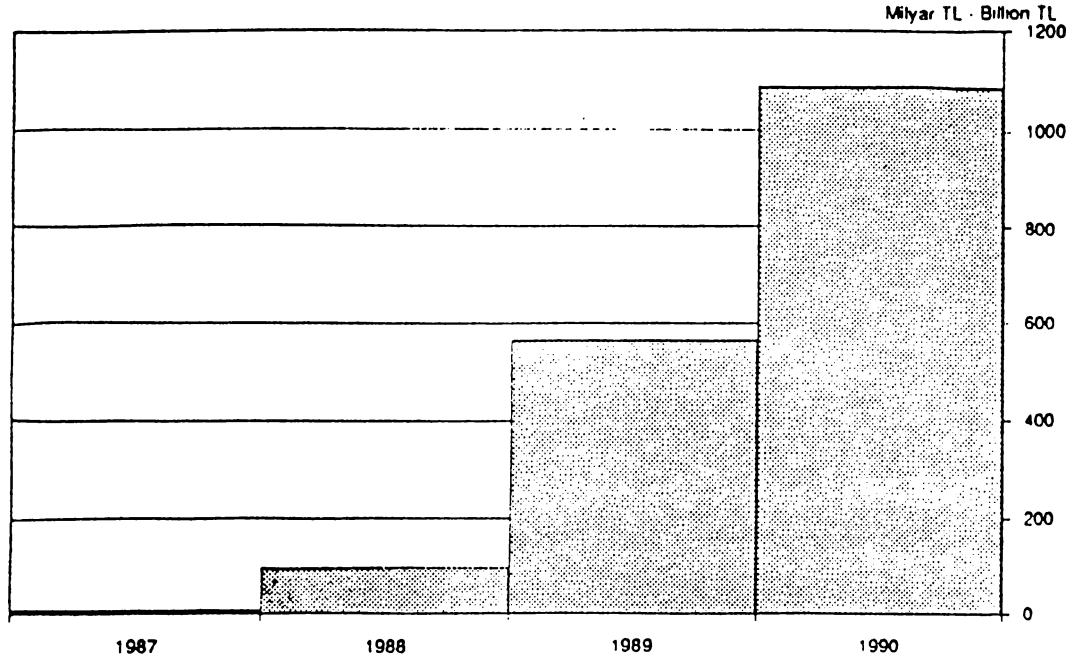
1. T.SİNAİ KALKINMA BANKASI
2. T.KALKINMA BANKASI
3. BİRLEŞİK YATIRIM BANKASI
4. TÜRK MERCHANT BANKASI A.Ş.
5. İEKFEN YATIRIM VE FİNANS BANKASI

C. ÖZEL FİNANS KURUMLARI

1. ALBARAKA TÜRK ÖZEL FİNANS KURUMU A.Ş.
2. FAISAL FİNANS KURUMU
3. KUVEYT TÜRK EVKAF ÖZEL FİNANS KURUMU

APPENDIX 2

77. TÜRKİYE'DE YERLEŞİK ŞİRKETLERİN YAPTIKLARI KİRALAMALAR 77. TRANSACTION OF LEASING COMPANIES OPERATED IN TURKEY



APPENDIX 3

78. YURT DIŞINDA YERLEŞİK ŞİRKETLERİN YAPTIKLARI KİRALAMALAR 78. CROSS-BORDER LEASING TRANSACTIONS OPERATED ABROAD

