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ОЦЕНКА ДОХОДНОСТИ ПО ДОГОВОРУ ФИНАНСОВОГО ЛИЗИНГА

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Аннотация

Оценка договорных отношений лизинга производится в настоящее время скорее теоретически, чем эмпирически. Основная причина отставания практического анализа заключается в отсутствии полномасштабной базы данных по лизинговым сделкам, поскольку она складывается на основе заключения коммерческих соглашений, порой являющихся закрытыми данными. По этой причине мы провели ограниченное эмпирическое исследование. Дальнейшие исследования представляют собой более сложное и углубленное понимание того, какие описательные характеристики представлены в настоящей статье в сравнении с оценкой их надежности в отношении имеющихся данных и теории.

Ключевые слова: лизинг, доходность/окупаемость, риск

AN ASSESSMENT OF THE ELEMENTS OF YIELDS AND OR RETURNS ON FINANCE LEASE ARRANGEMENTS

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Abstract

Assessment of commercial lease arrangements has developed theoretically than empirically at a quite faster pace. The main disparity regarding the pace it has moved so far has been by virtue of the theoretical development whereas the

evidence base is hardly explained due to inaccessible large sized database composed of commercial leasing arrangements. Because of this there has been limited empirical studies on the subject matter. Further preliminary studies have more sophisticated and or advanced insight which thus report descriptive features of the samples as against an assessment of their reliability in respect of data and theory.

Keywords: Leasing, yield/returns, risk

Introduction

It is undeniable that our appreciation of the lease finance market has increased due to preliminary studies conducted. We however by this paper try to expatiate on previous study of the parameters of leasing arrangements by assessing the factors of the yields of a comparatively large equitably heterogeneous, and generally illustrative sample of finance leases. We however examine the valuation of lease agreements.

Methodology

To start with, we assess the theoretical models as illustrated in the works of [1] as well as that of [2]. We then employ the Sharpe-Lintner single-period {CAPM} Capital Asset Pricing Model. In the works of [1], their work however established the fact that the yield of a single-period lease tends to positively related to the risk-free rate of return at a particular point in time and also it is negatively related to the covariance existing between the market rate of return and that of the leased asset's degree of economic decline. [2] however consolidate the single-period outcome from that of [1] Miller and Upton with that of the multi-period valuation methods of the works of [3] in developing a multi-period model for the assessment of finance leases.

The works of the parties implied that the equilibrium yield of a finance lease is positively related to the multi-period risk-free rate of interest and negatively related to the discounted value of the covariance that exist between the market factor as well as the natural log of (1-) the rate of economic depreciation of the

leased asset. We however realized that the yields on finance lease arrangements are consistent with the forecasts of the theoretical models as employed in the works of [1] and [2].

The works of [1][2] were conducted within a perfect capital market where leases were considered default-free. On the premise of a perfect capital market with default-free leases, there is the need to take into account factors not limited to cost of transaction, asymmetric information, conducted search costs, as well as the risk of default. Because of this, other explanatory variables are taken into account in our regression analysis. We then realize statistically significant proxies for our transaction cost as well as that of asymmetric information and cost conducted on searches; on the other hand, we realized that from the outcomes employed our proxies for default risk were however mixed. Further, our study yielded numerous empirical outcomes that back and balance previous descriptive findings of the leasing environment.

Formulating a model for evaluating finance leases

In a finance lease arrangement, the lessee (i.e. the borrower) is required to make do all rental payments as agreed upon under the terms of the lease agreement. On or before the maturity date of the lease arrangement, the residual value of the leased asset on the other hand reverts to the lessor; the lessor can however re-lease or further sell the asset to a third party in the open market, or maybe could decide to use the asset internally as part of the lessors assets. The works of [1] indicated that in a single-period capital asset pricing model framework, the equilibrium lease payment on a single-period finance lease could be stated as

$$L_{it} = \left[R_f - \beta_{it}\left[R_m - R_f\right] + d_{it}\right]A_{it}, \qquad \text{eqn (1)}$$

we define the parameters as;

- L_{it}, the equilibrium lease payment for the use of an asset i to t;
- A_{it} the commencement period of market value of asset i;

- R_f the risk-free rate of interest;
- R_m the expected rate of return on the market portfolio;
- d_{it} the expected rate of economic depreciation of asset i during time period t; and
- $B_{it} = cov(d_{it,}R_{mt}) \, /var \, (R_{mt})$ the standard capital asset pricing measure of the relative non-diversifiable risk of an asset i in time period t.
- $Cov \, (d_{it}, R_{mt})$ is the covariance between an asset's rate of economic depreciation and the market return in time period t as well as $var \, (R_{mt})$ is the variance of the market return in time period t.

In this regard, the equilibrium lease payment must compensate the lessor for:

- the capital invested I n the asset at the risk-free rate $R_f . A_{it}$
- the expected loss of capital due to expected depreciation of the lease asset $d_{it} . A_{it}$
- the non-diversifiable risk assumed by the lessor. since the lease payment is however risk free in nature, the assumed risk by the lessor is however the risk related to the tentative end of the period of the residual value of the lease asset.

This risk is indicated by the model $\boldsymbol{-\beta_{it}[R_m - R_f]A_{it}}$. (The negative result is due to the change in asset value and is measured as capital depreciation instead of capital appreciation.)

If we are to change equation (1) to the form of a yield, it is however equal to the relationship to the standard (CAPM) Capital Asset Pricing Model

$$y_{it} = R_f - \beta_{it}[R_m - R_f] \qquad \text{eqn (2)}$$

we realize from eqn (2) that our expected yield on the lease, $\boldsymbol{y_{it}}$, is however a positive function of the current single period risk-free rate of interest and also its a negative function of the leased asset's non-diversifiable risk in the residual value

[2] also in their works employed the Rubinstein's model for assessing risky cash flows as a way of expanding the works of [1] to a multi-period framework. In their framework, they considered the equilibrium yield of an N-period, the finance lease is also a function of the multi-period risk-free rate of interest whereas the non-diversifiable end of lease risk related to the residual value of the asset. This is due to the fact that the lease is anticipated as default-free, this notwithstanding, it is only the discounted value of the residual value risk which is relevant in determining the lease payment. To demonstrate, the equilibrium situation for a multi-period non-cancellable finance lease we can then express it as

$$A_{io} = \sum_{t=0}^{N-1} \frac{L_{it}}{(1+R_f)^t} + S_{io}^N \,, \qquad \text{eqn (3)}$$

in this case S_{io}^N is the current market value of the residual value of the leased asset at the maturity date of the lease (i.e., at time N). we then rewrite the expression of the residual value using the works of [2] as below eqn (4):

$$S_{i0}^N = \frac{\lambda_i^N A_{i0}}{(1+R_f)^N} \,, \qquad (4)$$

also in this case we have $\lambda_i = (1 - d_i)e^{cov(l.y)}\, d_i$ as the expected rate of economic depreciation of the leased asset i, with $cov(l, y)$ as the covariance existing between the natural log of 1 less the random rate of economic depreciation of an asset I with a random market factor y. we however construe the $cov(l.y)$ as $cov\,(-d_i, -R_m) = cov\,(a_i, -R_m = -cov\,(a_i, R_m,$ this is almost equal to the negative of the traditional measure of the systematic risk of an asset (the ä also denotes the random growth).

It is worthy to know that the risk-free rate, the expected rate of economic depreciation, and the covariance are all assumed to be constant over a period of

time, and as such the time can be omitted. We then realize the single-period case, risk is however entered into the equilibrium in determining the rate of a finance lease payment just because there is uncertainty in the residual value of the lease asset in the end run. This notwithstanding, it is only the non-diversifiable risk which is associated to the asset's residual value which is relevant determining the lease payments. Also, since the lessor assumes the risk of the residual value only during termination of the lease, it is only the discounted value of residual value risk which is relevant in the determination of the lease payment Lt. In determining the yield of a multi-period lease our eqn (3) can be rewritten to show below as eqn (5)

$$A_{io} = \sum_{t=0}^{N-1} \frac{L_{it}}{(1+y)^t} + \frac{S^N}{(1+y)^N}, \qquad \text{eqn (5)}$$

it could be explained for y, that is S^N is considered as the expected residual value of the leased asset in time period N with the lease payment Li being constant across time period. Since Li is considered a positive function of R f, our return on the lease is likewise a positive function of Rf. Since Li is also considered a negative function of the covariance risk, y is correspondingly a negative function of covariance risk. This expression could however be stated in terms of capital appreciation, where the Li in the expression would be considered a positive function of the non-diversifiable risk of the residual value.

Also, in a lease arrangement, the cost of transaction is in per-unit costs of writing the agreement, thus specifying the security arrangements, also identifying the asset to be leased, further negotiating the terms of the lease arrangement etc. it is important to note that majority of these costs are fixed and independent of the type of the lessee, the lessor, as well as the type of asset to be leased. therefore, the cost of transaction negatively proportional with the cost of the lease asset. The costs of transactions are determined by the lessor through lease payments over time. We could also show that the return on a lease is an

inverse function of the lease asset's value. In doing so we assume a perpetual lease where

$$y = \frac{L_i}{A_{io}} \qquad \text{eqn (6)}$$

is the lease's yield in the event there is no cost of transaction; but however, with a fixed transaction cost which is incorporated in the lease payment periodically over the life of the lease arrangement

$$y = \frac{L_i^*}{A_{i0}} = \frac{L_i + c}{A_{i0}} = \frac{L_i}{A_{i0}} + \frac{c}{A_{i0}}, \qquad \text{eqn (7)}$$

in the expression L_i^* is however the total periodic lease payment whereas c is the unobservable transaction cost incorporated in the lease payment.

L_i however, increases proportionately as A increases, that is for $\frac{L_i}{A_{i0}}$ to remains constant. since c is fixed, $\frac{c}{A_{i0}}$ declines as increases and, therefore, y declines as A_{i0} increases. We can however show that the lease return is inversely correlated to the capital cost of the leased asset.

Moreover, since $\frac{c}{A_{i0}}$ advances towards zero as A 10 becomes enormous, for leases which the assets are higher priced, the transaction costs have less significant components of the lease returns and, for leases with lower priced assets, the transaction costs will however have a more significant component of the returns.

Conclusion

In a situation where the potential for default is known, there is relevance in the asymmetric information. i.e. when the lessor has information about the financial situation of the lessee, the lease returns will accurately reflect the potential default of the lessee and lease returns will be negatively related to the lessee's financial situation.

In the event of absence of perfect information i.e. no asymmetric information, the lease returns will be a negative function of the lessee's financial condition and it will be negatively related to the quality of information about the lessee. In the works of [4] Akerlof (1970), that the absence of asymmetric information, the lessor will take on the worst situation and the lease returns will be high commensurately. This is to say lease returns will be negatively related to the financial situation of the lessee and to the quality of asymmetric information available to the lessor.

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