CONGRUENT

Ground Rents – A Risk Based Valuation

Leaseholders are typically required to pay ground rent to the freeholder. This is a contractual obligation that lasts until the expiry of their lease. Ground rent is usually an annual payment, with increases at some well-defined intervals e.g. 10, 15, or 20 years. In the majority of cases these increases are linked to an inflation index such as the UK RPI or CPI. Most leaseholders do not understand the long-term significance of this link, nor are they aware of the financial impact - until they seek to acquire the ground rents e.g. if they wish to exercise their right of enfranchisement from the freeholder (who may be an investor if the ground rents have been sold to a third party.)

Investor demand

In recent years there has been significant interest in ground rents from investors. This demand is driven predominately by institutional investors who are looking to acquire long-dated inflation-linked assets to match (or hedge) long dated liabilities. At first sight the asset-income profile is appealing - extremely long-dated with increases linked to inflation - which is not too dissimilar to the cash-flow profile of the pension liabilities of an Insurance company or pension fund. Ground rents offer a significant return over other comparable inflation-linked assets e.g. UK government inflation-linked bonds; however this additional return is actually compensation for a number of additional risks:

1. *Credit risk*. This arises because the obligor may not be able to pay the cash-flow on the due date. Governments are deemed (near) risk free but other counterparties (even banks) require an investor to be compensated through additional income on the asset.

2. *Liquidity risk*. Some assets can be bought and sold freely in the market e.g. government bonds or high quality corporate bonds. Other assets e.g. non-investment grade or structured bonds are less liquid and the ability for the investor to liquidate the asset could be limited or, in the extreme, non-existent.

3. *Structuring risk*. Some assets that have complex legal structures may give rise to "event" risk. The pricing of such risk can prove to be difficult so investors may demand a significant compensation for this risk.

The market for ground rents is not liquid, compared to (say) a market for government bonds where an investor is typically quoted a two-way market allowing him to buy or sell at a relatively small cost (the bid-offer spread represents this transaction cost). Liquidity is further impaired by the leaseholders' right to purchase the ground rents from the freeholder e.g. through Right of First Refusal or an Enfranchisement process. Ground rents are not freely

transferable by the seller and a price may only be achieved by a lengthy negotiation process with the buyer or through a court/tribunal assisted process.

The credit risk component of the spread is usually not significant due to the over collateralisation of ground rents by the lease property (a non-payment of ground rents could result in forfeiture of lease assets) and therefore the dominant components of the spread are the liquidity and structuring risk components.

Valuation of ground rents

Future cash-flows from financial assets - either fixed or variable e.g. based on an index - can be discounted to arrive at a net present value. A set of market indicators may be chosen to project future inflation-linked cash-flows and a different set of market indicators may be chosen to discount these cash-flows. A further adjustment may be applied to reflect the fact that the cash-flows have additional risk or uncertainty that is not implied by the market rates used - this can be reflected in the form of a spread over the benchmark rates.

Cashflows from ground rents can therefore be valued using information from the OTC derivatives market using UK RPI swaps and GBP LIBOR interest rate swaps. Market quotes are available up to 60 years. Any difference between the net present value using this market data and the traded price of the asset (either in the primary or secondary market) can be reflected as a "break-even" spread over these benchmark rates. The break-even spread is the additional compensation an investor would need to earn to reflect additional risk assumed. The level of this spread is driven by market perception of the risks that I have noted above e.g. credit, liquidity and structuring risk.

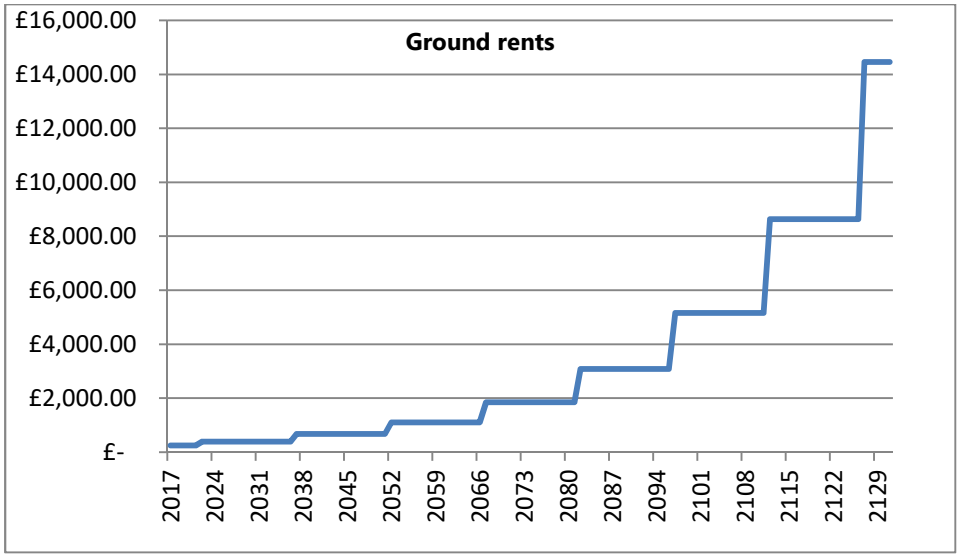
The valuation approach can be summarised as follows:

1) Project future ground rent cash-flows using OTC UK RPI Swaps curves
2) Discount, to the valuation date, the projected cash-flows using OTC GBP LIBOR Interest Rate Swap curves
3) Adjust the discounting scheme by a spread to reflect the additional risk (as implied by secondary / primary market ground rents of similar risk profile)

An example valuation

A lease is created in July 2007 for 125 years (i.e. to July 2132) where each leaseholder is required to pay an annual ground rent of £250. This ground rent in linked to UK RPI and the initial ground rents are increased every 15 years by the ratio of the UK RPI at the payment date to the UK RPI on the lease creation date.

The UK RPI on July 2007 was 206.10. The future ground rent cash-flows as implied by the above OTC market data as of the 21 November 2016 is represented in the graph below.



The table below summarises the above information:

RPI uplifts every 15 years				
Payment date	Base ground rent		RPI adjusted ground rent	
Jul-2022	£	250.00	£	393.08
Jul-2037	£	250.00	£	678.43
Jul-2052	£	250.00	£	1,107.82
Jul-2067	£	250.00	£	1,849.92
Jul-2082	£	250.00	£	3,082.77
Jul-2097	£	250.00	£	5,160.22
Jul-2112	£	250.00	£	8,637.66
Jul-2127	£	250.00	£	14,458.52

Discounting the above future UK RPI-adjusted cash-flow using GBP LIBOR Interest Rate Swaps gives rise to a net present value of £103,346.07!

However one needs to adjust this net present value to reflect the compensation for additional risks noted earlier. The following table shows the impact on the net present value of spreads of an additional 1% to 5%:

Spread	**NPV**
0%	103,346.07
1%	50,410.62
2%	27,322.90
3%	16,524.48
4%	11,050.28
5%	8,026.34

Clearly the net present value of grounds rents is highly sensitive to the choice of spread - which is driven by secondary market considerations.

Conclusion

Prospective investors in leasehold properties typically do not understand the significance of the inflation uplift in ground rents. A combination of high inflation and low interest rates in the UK (mainly due to the effect of the UK leaving the European Union) has caused ground rent investments to be highly valuable. Obviously this has a negative impact on leaseholders who wish to purchase the ground rents e.g. as part of an enfranchisement process.

The valuation of ground rents may follow a market based risk approach as detailed in this note e.g. use of OTC market data – however the valuation is highly sensitive to the choice of spread - which requires expert market knowledge.