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Advanced Real Estate Finance – Term paper

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An Analysis of the Barriers to Development in the US Commercial Real Estate Derivatives Market.

I. Market Overview

Commercial real estate is an important asset class, but does not yet have a well developed derivatives market in the US. The use of derivatives could improve the functioning of the real estate industry as a whole and this has resulted in significant interest in the development of US commercial property derivatives by key players in all sectors.

In 2005, the National Council of Real Estate Investment Fiduciaries (NCREIF) entered in to an agreement with Credit Suisse (CS), which gave them an exclusive agreement to trade derivatives in the form of swaps on the NCREIF NPI Index. However, significant trading did not materialize and CS relinquished the license in October of 2006. NCREIF recently licensed seven US investment banks and the market has slowly started trading again and it appears that the market is on the brink of a period of rapid growth. The US commercial real estate sector is estimated to be an \$ 8 trillion dollar market and use of property derivatives would allow investors to implement strategies such as hedging market risk, asset allocation, sector rebalancing, international diversification and gaining Alpha.

Derivatives also offer benefits such as low transaction cost, quick execution, the ability to sell short and allow investors to gain or reduce exposure to the commercial real estate asset class without directly buying or selling properties.

The increased liquidity and reduced up front capital requirements provide added flexibility in executing real estate investment strategies and managing risk.

A number of barriers still exists that hinder the successful implementation and growth of real estate derivatives in the US commercial real estate market. But, the market has the ability to educate and guide the investor and end user in order to overcome these barriers and facilitate the successful development of the derivatives market. The knowledge gap between finance and real estate needs to be bridged and end users need to understand the specific problems that derivatives could address in investment and management decisions.

The following paper provides a brief overview of the barriers that hinder the growth of a synthetic market that is on the brink of expanding.

a) Overview of Derivatives:

A derivative is an asset that derives its value from an underlying index or asset e.g. options, futures, swaps. A number of derivative products has been widely used and traded for years e.g. stock options, commodity futures and interest rate swaps. The advent of direct real estate equity derivative products has created the opportunity for similar applications in the US real estate market. These derivative products are essentially based on commercial-property periodic return indexes, and offer futures contracts to allow for synthetic investment and hedging of real-estate market exposure, specifically focused in the commercial real estate sector.

More specifically, following are three examples of real estate derivative products being offered by Credit Suisse in the US and they are all written in the form of swaps on the NCREIF NPI index as mentioned earlier.

They are as follows:

1. Capital Return Swaps, based on the capital value component of the NPI
2. Property Type Total Return Swap, based on the total return (capital value + income) on the property type sub-indices
3. Total Return Swap, based on the NPI total return (capital value + income)

A swap contract is based on a notional amount agreed upon between the two parties to a contract, and at the end of each quarter, cash payments based on this amount is exchanged according to the performance of the underlying NPI index. The contract is specified upfront for a number of years.

b) Benefits to Investors:

Commercial real estate derivatives offer a number of direct benefits to investors and potential end users in the market. However, previous efforts to develop a real estate derivatives markets failed for a variety of reasons that will be discussed in more detail later in the paper.

Derivatives would allow investors to overcome the main disadvantages of private real estate investment, including high transaction cost, long transaction lead time and the lack of liquidity. Once the issues of liquidity, number of dealers and indices have been addressed through active education, investors will be able to position themselves efficiently on both the short and long side of a market. This will allow for more efficient pricing and added flexibility in executing real estate investment strategies.

II. Understanding the Growth & Development of the Real Estate Derivatives Market – The US Model

The slow emergence of a housing derivatives market in the U.S and the commercial property derivatives in the U.K has created interest in the development of the U.S commercial derivatives market. NCREIF has also provided licenses to seven leading investment banks (March of 2007) to use NPI index for financial derivative transactions on U.S. commercial real estate. The agreements are specifically aimed at enhancing liquidity and transparency in the property derivatives market and will expand an NPI licensing initiative introduced by NCREIF in 2005.

All these factors indicate that the derivatives market for US commercial real estate sector appears to be ready for rapid growth if barriers to development could be addressed successfully.

Overcoming these barriers could offer many of the same risk management options that have been available to investors in stocks, bonds and commodities.

III. Analyzing the Barriers to Growth in the US Market

According to a recent MIT thesis (2006)¹ the major concerns of investors are **lack of secondary markets for real estate derivatives, liquidity, pricing, lack of dealers** and confusion amongst dealers of which **US index to use**. A number of other issues have also been discussed by investors and academics at a recent Real Estate Derivatives conference in New York. Amongst these were **education, fund mandates, tax & accounting principles** and again the issue of **pricing**.

¹ Lim, J. Y and Zhang, Y. (2006). A Study on Real Estate Derivatives

Firstly, let's review the issue of **US indices**. Users of commercial real estate derivatives will have the option to choose from a menu of indices that are based on factors such as accuracy, frequency and a range of coverage. Three of the five US indices are transaction based (RCA, GRA and TBI), one uses appraisals (NPI) and the remaining index utilizes rent data (REXX).

Each of the indices has its own characteristics and suitability for use in the market and differences between the indices over any given quarter can be quite large. Also, appraisal based indices have more lag but less volatility than a transaction based index. The NCREIF NPI index is currently the closest to the European Investment Property Data bank (IPD) index. It is important to note that the NPI consists of both equity and leveraged properties, but the leveraged properties are reported on an unleveraged basis.

Secondly, **liquidity** and **lack of dealers** go hand in hand. Professor David Geltner (MIT) noted the "chicken and the egg problem" – that users are reluctant to enter the market due to a lack of liquidity and, at the same time, liquidity providers are hesitant because of the few users. Educating both sides of the market and providing strong leadership by reputable market participants will provide the only immediate solution and create a greater sense of comfort with the trading of derivatives at this point in time. There is a huge need for the end users to be educated and understand the implication of positioning themselves on both the short and the long side of the market.

Thirdly, efficient **pricing** of derivatives is one of the most important considerations and requires knowledge of both derivatives and indices. This again brings us back to the issue of educating the market, but in the end it, is still currently an OTC market and two parties can agree to whatever they want. The market has an important role to play in addressing the regulatory barriers to growth and promote the use of derivatives.

Two examples of these barriers are **fund mandates** and **tax/accounting principles**. In the UK prior to 2002 many fund mandates prohibited funds from trading property derivatives. Rupert Clark, Head of Property at Hermes UK (70Bn under management), was a big proponent for the use of derivatives, but had to actively work on changing fund mandates over the course of 2002 – 2004, in order to trade property derivatives.

IV. Understanding the Mechanics Behind Real Estate Derivatives – The UK Model

Real estate derivatives have existed in the UK for more than a decade and the market has actively worked to overcome the initial barriers to efficient market development and growth. However, it has only been the last two years' growth in volume that has proven that the market is increasing in liquidity, dealers and overall confidence. According to IPD the total cumulative notional amount traded in the first quarter of 2007 in the UK is 6,512,000,000 GBP. Most of the trades to date are Property Index Certificates (PIC's) or total return swaps traded against LIBOR, for a term between one and three years on the IPD. It is important to note that it took the market over ten years to develop to this point.

The UK market has addressed pricing and education issues head on. Top financial firms often team up real estate and financial brokers to sell derivatives in order to bridge the gap between corporate finance and real estate. A number of the largest institutional firms such as Hermes and Prudential, in combination with IPD and Investment Property Forum have encourage the marked development in property derivatives by taking an active role in educating investors via training events and conferences.

The US has always been at the forefront of innovative financial development but the UK has clearly shown faster market growth over the past decade.

There are a number of reasons for the speed of general acceptance and use of property derivatives in the UK. Firstly, the market is more comfortable with the IPD index (as opposed to the NPI index in the US) due to the long standing respect of the appraisal profession in the UK. Secondly, real estate transaction cost tends to be higher in the UK than in the US, which ultimately makes derivatives use more attractive in the UK. Thirdly, one of the major benefits is the large number of UK investment banks that are licensed to trade property derivatives, and this essentially allows for more efficient price discovery which in turn increases liquidity.

V. Risks Associated With Real Estate Derivatives: The Issue with Pricing

As discussed earlier, pricing is arguably the most importance issue in real estate derivatives and the literature on pricing of derivatives is somewhat limited. In a recent MIT Thesis (2006)² two methods of pricing were discussed: one method through arbitrage and the other through equilibrium analysis. The arbitrage method's assumptions made the analysis too strict and unrealistic, while equilibrium pricing proved to be a more intuitive. The authors stated that equilibrium pricing was based on the principle that the "expected total return risk premium per unit of risk should be constant within and across the relevant asset markets."

Pricing in the market may still purely be return based, and if real estate derivatives are a more liquid way to invest in real estate, shouldn't the price also reflect a liquidity premium? Finally, the lagging nature of appraisal based indices reduces the risk associated with investing in an index and this could also affect pricing.

Even considering all the abovementioned issues, pricing in the current market appears to be driven by supply and demand in the marketplace.

² Lim, J. Y and Zhang, Y. (2006). A Study on Real Estate Derivatives

An increase in the number of market participants will allow for a unified view and essentially more efficient pricing of derivatives that could lead the underlying real estate market.

VI. Expected US Market Growth & Market Expansion

Are US buyers and lenders ready for derivative products to truly hedge their investments? For the first time choices exist, but does the end user know which management and investment problems derivatives could address. According to one speaker at the recent Derivatives Conference in NY the main obstacles to overcome are as follows:

Market education is still a crucial factor to address. Educators need to focus on the liquidity provider, brokers, index provider and end user so that clients can identify how derivatives could offer solutions their current investment and management problems. A number of regulatory issues also need to be address such as capital gains, hedge accounting and foreign investor treatment. The benefits to foreign investors are huge and they need to clearly understand how to access international markets and opportunities.

The market also needs to encourage end-user involvement by identifying exactly which parties will be the early adopters and how they could position themselves through derivatives e.g. pension funds, private equity, hedge funds etc. One simply cannot compare derivative transaction cost to the cost of buying and selling real estate; and only through greater availability of pricing information to end users will crossover investors become dedicated investors.

VII. Conclusion

Ultimately, commercial real estate derivatives will allow the physical side of the commercial-real-estate industry to function less inhibited by the investment side of the industry. Decisions made regarding the management and development of the physical asset will no longer be constrained by the needs of investors who essentially lack expertise and interest in real estate as a physical asset and rather make their decisions based on the investment criteria of the money providers. This will allow developers and managers to generate greater profit opportunities by utilizing their expertise and skills to focus in their areas of expertise and generate a positive alpha. Also, investors whose interest in real estate is purely financial will be able to execute their strategies more efficiently, with lower transaction cost, management cost and the opportunity for more efficient diversification.

The market shows potential for real growth but we have a long way to go in educating both the market, the end user, and overcoming the current barriers to development in the US real estate derivatives market.