

CONCLUSION

There is a growing debate as to the wisdom of non-real estate companies investing large amounts of scarce capital in real estate. Capital budgeting theory does not suggest firms should be penalized for investing in real estate per se as long as they obtain the proper return for their investment. However, our findings strongly suggest that firms with high degrees of real estate concentration and high levels of risk as measured by beta do experience lower returns. It could be that investors do not wish risky firms to use relatively large amounts of capital to invest in such assets; it also could be that investors do not fully comprehend that ownership of such assets lowers the risk profile of high risk firms, with higher risk firms being penalized inappropriately for the investment in real estate.

While we cannot distinguish between the two explanations in the data, we suspect that both have some basis in truth. If so, non-real estate firms with relatively large amounts of real estate on their books should be encouraged to disgorge at least some of their real estate, as our findings indicate a return bonus will result. That said, any such decision should be approached with caution, as if the investor ignorance effect is predominant and the ultimate outcome is not perfectly clear. In this case, the first few firms are likely to realize return improvements, but if learning occurs because of the asset sales, investors ultimately will become aware that the long-run risk profile of the firm has changed (i.e., increased).

REFERENCES

- Gibbons, M. (1982): "Multivariate Tests of Financial Models: A New Approach," *Journal of Financial Economics*, 10, 3-27.
- Gyourko, Joseph and Donald Keim (1992): "What Does the Stock Market Tell Us About Real Estate?" *AREUEA Journal*, 20, 457-485.
- Gyourko, Joseph and Edward Nelling (1996): "Systematic Risk and Diversification in the Equity REIT Market," *AREUEA Journal*, 24, 493-515.
- Linneman, P. (1998): "The Coming Disposal of Corporate Real Estate," *Zell/Lurie Real Estate Center at Wharton Working Paper*, No. 302. University of Pennsylvania.

¹ This is to control for the possibility that the company's idiosyncratic return and real estate concentration level could be spuriously correlated due to declining companies ending up with high concentrations of real estate as they sell off core assets during their decline

² We also estimate equation (2) by ten selected industries, each of them has at least 25 firms in our final sample. The ten industries are: Food and Kindred Products Industry; Paper and Allied Products Industry; Printing, Publishing and Allied Products Industry; Chemicals and Allied Products Industry; Primary Metal Industry; Fabricated Metal, Excluding Machinery, and Transportation Equipment Industry; Industrial, Commercial Machinery, and Computer Equipment Industry; Electronics, and other Electronic Equipment excluding Computer Industry; Transportation Equipment Industry; and Measuring Instrument, Photo Goods, and Watches Industry. The impact on company returns varies across industries, being greatest in the Electronics Industry. We include the results from the Electronics Industry.

³ We experimented with other beta cutoffs and found similar results for the 0.8 and 1.0 cutoff points.

Real Estate Research Brief

MARCH, 2000



SHOULD CORPORATIONS DISGORGE THEIR REAL ESTATE PROPERTY HOLDINGS?

INTRODUCTION

Around the world, corporations are among the largest owners of real estate assets; and in the United States, they own more than \$1 trillion of real estate or at least five times the value held by publicly traded real estate companies. Corporations not only own their production facilities, but also frequently own their offices, warehouses, and retail outlets. A debate has emerged as to whether it is harmful to these companies to commit so much of their scarce capital to investments outside their core competencies. Many suggest that companies with high capital costs should not own relatively low-return buildings because this creates negative arbitrage (e.g., see Linneman (1998)). However, capital budgeting principles do not support this argument. In truth, the cost of capital depends upon the use to which the capital is put. Thus, a company with a highly cyclical product line and a relatively high capital cost that owns its real estate has less risk exposure than an equivalent firm that leases its space short term.

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FIG. 6 ANNUAL EXCESS RETURNS BY LOW BETA AND HIGH BETA COMPANIES USING POOLED SAMPLES

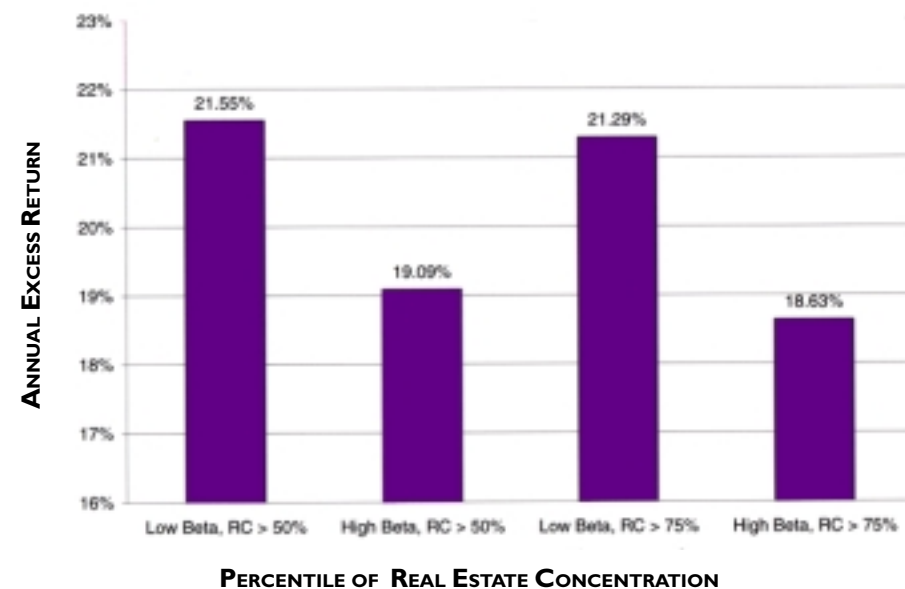
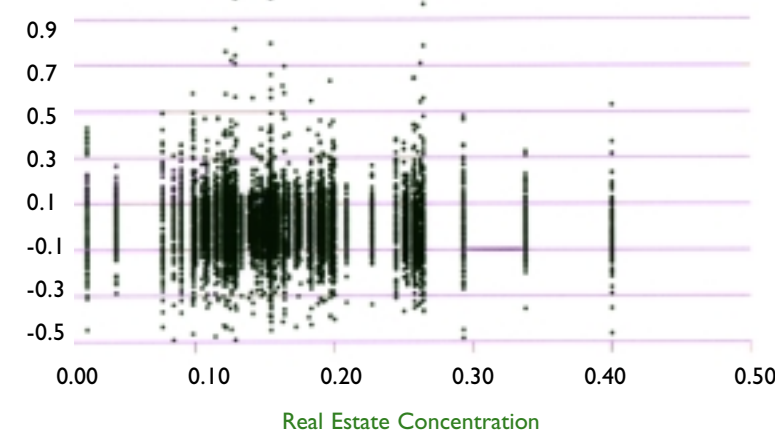


Fig. 1 Plot of Excess Returns on Real Estate Concentration in Electronic Industry



Companies that commit relatively large amounts of capital to real estate could underperform because of their real estate exposure for a variety of reasons.

- 1) These companies may tend to sub-optimally utilize their real estate. In other words, as inefficient real estate users, they may not be earning a high enough risk-adjusted return on their real property assets. If this is the case, we would expect *all* firms with relatively high real estate concentrations to suffer return penalties, not just riskier firms with high costs of capital (unless one thought only risky firms were inefficient real estate investors/users).
- 2) Investors in these companies may not want them to change their risk profiles by committing substantial capital to real estate assets. These investors may desire 'pure plays' if they can diversify risk more cheaply on their own account. In this case, hybrid risks would underperform the pure plays. Since the beta of com-

fectively discount the real estate investment at too high a rate. Firms in industries with less risk than that of real estate would have increased returns for an analogous reason. We have no problem believing that investors in most (non-real estate) firms have little or no idea what real estate holdings the company has; however, we do have a problem believing that investors would remain ignorant for many years.

- 4) Another reason that riskier, higher cost of capital companies could suffer return penalties for owning a lot of real estate is that such a use of corporate capital may constitute a poor duration match with the firm's product cycle. Since high cost of capital firms tend to be subject to more cyclical volatility, it is likely that their real estate needs will likewise vary. Ownership implies a long-term commitment of a company's scarce corporate capital that may be inconsistent with its capital requirements. As a result, the firm could

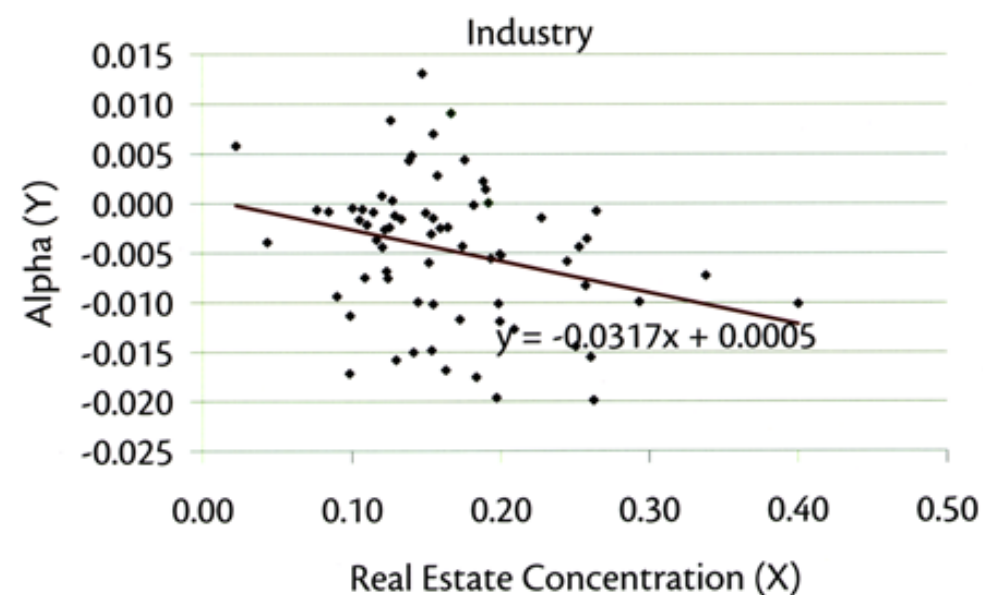
miss out on profitable projects, resulting in lower returns in the long run. (Note that investors do not need to know anything about a company's real estate holdings for this to occur.)

Neither theory nor speculation can take us much further. What is needed now is a test of whether firms that own relatively large amounts of real estate do in fact perform differently from those that do not, and if so, whether this is the case for all such firms or only relatively high cost of capital firms.

We have proposed and carried out such a test, examining firm-level returns for 718 companies in 57 different non-real estate industries to see whether more real property ownership is associated with lower returns.

Employing a two-stage regression approach, with a simple capital asset pricing model (CAPM) estimated in stage one, we find a statistically and economically significant negative relation between the idiosyncratic component of firm return and the degree of real estate ownership—for high cost of capital firms only. This is the first study of which we are aware that documents any meaningful negative relation between firm returns and the degree of real estate ownership over a long holding period.

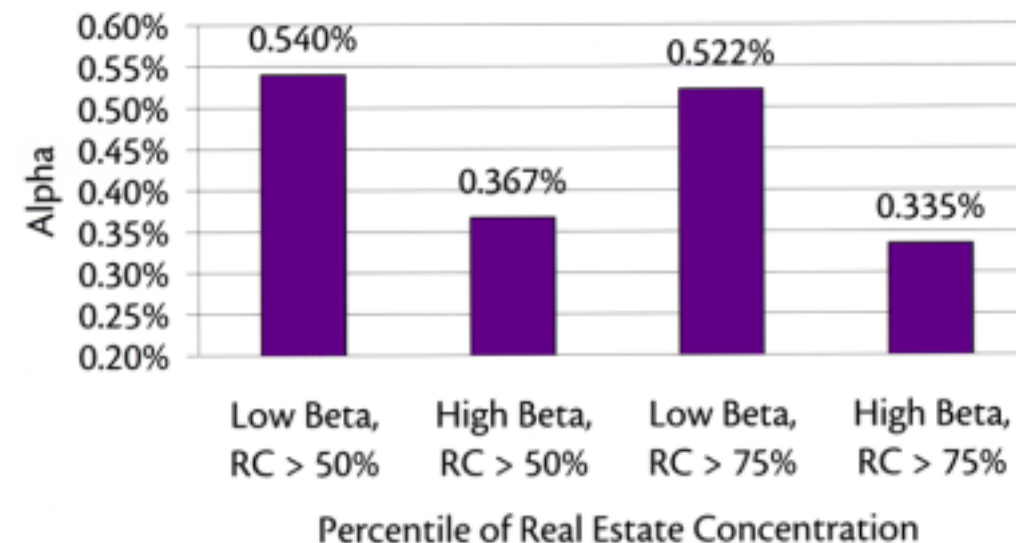
Fig. 2 Plot of Idiosyncratic Components of Excess Returns on Real Estate Concentration in Electronics Industry



mercial real estate is estimated to be in the 0.8-0.9 range (see Gyourko & Keim (1992)), most of the impact would fall on relatively risky, higher cost of capital firms as there are fewer industries with less systematic risk than real estate.

- 3) Investor ignorance is another reason for underperformance by firms that invest a lot in real estate ownership. In this case, only firms in industries with costs of capital above that for commercial real estate would be negatively impacted. If investors in these companies do not fully perceive the lower risk associated with real property ownership, they ef-

Fig. 4 Plot of Idiosyncratic Component of Monthly Excess Returns by Low Beta and High Beta Companies Using Pooled Sample



EMPIRICAL TEST AND RESULTS

Our empirical test is based on the NYSE, AMEX, and NASDAQ monthly stock data maintained by the Center for Research in Security Prices (CRSP) and the Standard & Poor's COMPUSTAT annual industrial data. The empirical test examines the non-systematic, or idiosyncratic, component of returns to 718 companies in 57 different non-real estate industries to see if it is associated with the concentration of real estate ownership. The test includes a number of control variables such as: (a) industry fixed effects; (b) firm size; (c) the company's performance¹; (d) whether the company's estimated beta is below that associated with commercial real estate; and (e) the company's leverage ratios.

Ideally, such a test should be carried by industry. However, the limited number of firms that satisfy our data-screening criteria in each industry may affect the power of our test. Therefore, we conducted our test using a pooled sample by combining all the industries together and controlling for industry fixed effects in all specifications.² To deal with potential bias due to differences in firms' leverage ratios, we also estimate the first stage CAPM using equity and asset betas.

The key features of the relation between real estate concentration and firm returns can be seen in Figures 1 and 2. Specifically, Figure 1 plots mean excess return (ERET) against real estate concentration for each firm in the electronics industry. The raw data do not indicate any relationship between excess returns and the degree of real estate concentration in assets—in this industry or any

other for which there is a reasonable sample size. However, Figure 2 presents a very different picture with its plot of the idiosyncratic component of excess return against the measure of real estate concentration. Even though this is a simple plot of the raw data, the regression line draws the clear negative relationship. That is, once systematic risk is controlled for, the higher is an electronics firm's real estate concentration, the lower its idiosyncratic return component.

Figure 3 plots the weighted average of the idiosyncratic component of returns by degree of real estate concentration for all firms in the pooled sample based on our two-stage estimations. The difference in a company's idiosyncratic return, α , is about 0.15% per month for relatively high versus low real estate concentration firms. Figure 4 reports α 's for all high real estate concentration firms split by whether firm beta is greater or less than 0.9. A comparison of Figure 4 with Figure 3 shows that the idiosyncratic component for low beta firms is virtually identical to that for low real estate concentration firms. However, the idiosyncratic component for high beta firms is much lower. Effectively, all of the return differential is reflected in high risk firms. In other words, if we convert the differences in a company's idiosyncratic return into differences in the company's annual return, the result shows there is a nearly 2.4 percentage point difference in annual return between high and low real estate concentration firms, and this difference is associated virtually exclusively with the riskier firms with betas in excess of 0.9.³