Shuffling Through the Bargain Bin: Real Estate Holdings of Public Firms*

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December 10, 2016

Abstract

Using a novel and detailed transaction-level data set of commercial real estate assets, we construct real estate asset portfolios for a comprehensive set of public firms between 2000 and 2013. We find that bank loan spreads incorporate information not only on the alternative uses of a borrower's real estate portfolio, but also the number of that portfolio's potential buyers. Using surges of foreign investor demand from countries with increased policy uncertainty and also local land-supply elasticity information, we identify plausibly exogenous shocks to commercial real estate prices. We find that, after a region experiences large foreign investor demand, loan spreads become less sensitive to collateral value of real estate holdings.

JEL Classification: G32, G33, R33

Keywords: Bank loan, collateral discount, real estate transactions, foreign demand

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*We thank Brent Ambrose, Itzhak Ben-David, Sreedhar Bharath, Geoffrey Booth, Lauren Cohen, Michelle Lowry, Chris Malloy, Rae Soo Park, Chris Parsons, Bugra Ozel, Amit Seru, Dogan Tirtiroglu, and seminar participants at Ozyegin University, University of Mannheim, University of Cambridge, University of Texas at Dallas, Frankfurt School of Finance and Management, the annual meeting of the German Finance Association, 11th Conference on Asia-Pacific Financial Markets and the annual conference of the Multinational Finance Society for their comments. We are grateful to Real Estate Research Institute (RERI) for financial support and Real Capital Analytics (RCA) for providing us with the commercial real estate transactions data.

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1 Introduction

Public firms invest significant amounts in real estate assets, although they may not operate primarily in the real estate business. While empty offices, warehouses, and idle land offer growth opportunities when companies expand, they often become a burden when companies become distressed. This happens partially because real estate assets are frequently used as collateral to borrow from banks. If the borrower falls short on liquidity and defaults on its debt, the liquidation value of idle properties and the factors that could potentially affect it becomes a concern for the lender.

Although the literature has shown that real estate assets, on average, cannot be traded quickly without compromising significant value, less is known about whether loan contracts incorporate information about a borrower's real estate portfolio characteristics. Our main contribution in this paper is documenting the micro-level factors that affect the liquidation value of commercial real estates, and to test whether information in the borrowers' real estate portfolio holdings is priced in debt markets. Specifically, we study whether banks lend at higher rates due to anticipated losses in the liquidation value if the borrower's asset is not deployable for alternative uses, when potential buyers in the geographical region are limited or when the industry is concentrated such that only a few firms are able to pay for the best-use price. Once we establish these factors, we estimate the potential loss in the value of a firm's real estate portfolio in case of a hypothetical distress scenario to calculate the firm's *collateral discount*. We then investigate whether the firms with higher collateral discounts borrow at higher rates. We use real estate asset demand of foreign investors who face high investment uncertainty in their home country as a plausible exogenous shock to commercial real estate prices to study how exogenous changes in collateral values affect bank loan rates.

In our context, the main mechanism linking real estate prices to debt markets is collateral. Collateral is an important part of debt contracts.[1] For instance, Cvijanovic (2014) illustrates that a one-standard-deviation increase in predicted value of a firm's pledgeable collateral translates into a 3% increase in leverage ratio. Banks often require borrowers to pledge some of their assets, primarily real estate assets, as collateral to secure payments. Collateral increases a lender's incentive to monitor (Rajan and Winton, 1995), and it helps mitigate moral hazard in loan contracting (Boot, Thakor, and Udell, 1991).[2] Analyzing micro-level-value determinants of a major asset class, such as commercial real estate assets, that is often used as collateral is a first-order issue because when firms are financially constrained, a positive shock to the value of their collateral makes it easier to borrow, and therefore to invest (Bernanke and Gertler, 1986; Kiyotaki and Moore, 1997).

Chaney, Sraer, and Thesmar (2012) use this intuition to test whether residential real estate price changes near the firm's headquarters in the U.S. help explain the sensitivity of investment to collateral values. They find that the sensitivity of investment to collateral value is on average twice as large for constrained firms relative to unconstrained firms. They do not investigate the implications of changing collateral values on firms' cost of borrowing but point out that *"...firms take advantage of the appreciated value of their collateral to renegotiate former debt contracts, reimbursing former loans and issuing new, cheaper ones. If this were the case, the marginal interest rates of companies with increasing collateral value should decrease. Unfortunately, Compustat reports only a noisy measure of average interest rates, preventing us from*

[1] According to the Federal Reserve's Surveys of Terms of Business Lending, more than half of the value of all commercial and industrial loans made by domestic banks in the United States is currently secured by collateral (Leitner, 2006).

[2] Collateral can be used to alleviate financial frictions originated by moral hazard and adverse selection effects. See, for example, Aghion and Bolton (1992), Hart and Moore (1994), Hart (1995), Hart and Moore (1998), Bester (1985), Chan and Thakor (1987), Boot, Thakor and Udell (1991), and Boot and Thakor (1994). Berger and Udell (1990) suggest that firms with long-term relationships with a lender are less likely to pledge collateral. Stulz and Johnson (1985) show that secured debt enhances firm value since it reduces the incentive to underinvest, which is the case when a firm relies on equity or unsecured debt. Degryse, Kim, and Ongena (2009) review the empirical evidence on collateral and bank-firm relationships.

testing this natural interpretation of the results. Doing so would require the use of an alternative source of data." By using geographic location and asset type information of public firms' real estate portfolios, rather than historical values of buildings in the headquarter state, we can zoom into unique real estate factors that create variation in collateral values. Combining this data with loan-level data helps us investigate the implications of changing collateral values on borrowing rates.

A positive relation between loan rates and the existence of collateral can arise if banks require collateral from high-default-risk borrowers. This moral hazard-induced selection effect was documented in several papers, including Berger and Udell (1990), John, Lynch, and Puri (2003), and Knox (2005). Hertzel and Officer (2012) also note that loan spreads are higher for loans containing covenants or pledged assets. They argue that this seemingly counterintuitive result can be explained by these variables picking up some component of credit risk that is not captured by other control variables. Benmelech and Bergman (2009, 2011) argue that research designs using extensive margins to study the existence (or value) of collateral and loan rates suffer from endogeneity and selection bias, and suggest that analyzing intensive, rather than the extensive margin of collateral would circumvent these issues. In our research design, we focus on the relation between changes in collateral values of real estate assets (intensive margin) and borrowing rates.

We begin our empirical analysis by investigating the impact of a firm's financial distress on the selling price of its real estate properties. We use various proxies for financial distress such as leverage, industry-adjusted leverage, interest coverage ratio, and an indicator for highly levered firms with low current assets proposed by Pulvino (1998). Consistent with the anecdotal evidence, we find that increasing a firm's leverage from the lowest tercile to the highest tercile corresponds to 22% lower selling price after controlling for a battery of property and seller characteristics.

Assets sold by a distressed firm may be of lower quality if the firm has taken actions that could potentially reduce the quality of the sold assets. For example, a distressed seller is more likely to neglect real estate property maintenance and instead use funds for more immediate purposes, such as servicing a loan due in a short period of time. It is also possible that the same factors that initially placed a firm in a distressed state may also affect the price of the sold asset. An underperforming CEO is more likely to lead the firm into distress and lack the means of finding better deals for the asset being sold. In this scenario, the correlation between a discount and financial distress indicates an unobserved CEO characteristic that is correlated with both factors, but does not necessarily indicate a relationship between seller distress and discounted real estate prices. Our data allow us to investigate metrics that potentially capture the intentions of buyers in a transaction. For example, we observe whether the buyer intention is to renovate, redevelop, occupy, or keep the property as is to sell later (i.e., investment). For certain types of assets, we can even observe occupancy rate, which is defined as the floor space or units occupied by tenants as a percentage of the total leasable area of the building. These measures are useful as they are likely to capture the quality status of real estate at the time of the transaction. An asset purchased with the intention of renovating later is more likely to fetch a lower price since renovation is likely to remedy deficiencies of the property. Likewise, a real estate asset that is not occupied at higher rates signals low demand for the asset, which may be reflective of how well the property has been maintained. Controlling for asset quality using buyer intention, occupancy rate or tenancy does not affect our results, indicating that asset quality is not likely to explain the finding that financially distressed firms sell their properties for lower prices.

Past literature offers clues about which factors could be important determinants of the liquidation values of real estate assets. These factors are asset deployability and availability of potential buyers. An office can be purchased and used by several buyers both within and outside of the seller's industry; thus offices are deployable assets. A distribution center with a specific layout, however, is not a deployable asset since it can only be utilized by a buyer that bears similar characteristics as the seller, such as industry, location, and customer base. Our results show that deployable assets do not suffer large discounts in case of distress, unlike specialized assets.

Shleifer and Vishny (1992) suggest that significant discounts in asset prices can occur if a financially distressed seller is forced to look for transaction opportunities when the best users of the asset are also constrained. The price of a distressed firm's asset is affected simply because potential bidders are operating in similar business lines and are subject to similar shocks. Commercial real estate assets have specific locations that allow us to develop several measures to capture the level of interest in the sold asset.[3] If an asset is located in an area where the number of potential buyers is low, higher discounts can be expected. Using three different measures of potential buyers based on the spatial distribution of industries and firms across the United States, we find that assets are likely to be priced higher in areas with more potential buyers. Furthermore, our results indicate that the number of potential buyers alleviates the discount on distress sales significantly.[4]

After we establish asset deployability and the number of potential buyers as important determinants of the price in a distress sale, we investigate whether banks' pricing of loans

[3]Commercial real estate assets differ from other types of assets that have been studied in literature. Pulvino (1998), for example, uses a large sample of commercial airline transactions in order to show that airlines with low spare debt capacities sell aircraft at a 14% discount relative to the average market price. While commercial aircraft is a very specialized asset type that is likely to be subject to a discount, it is difficult to test the specific predictions of Shleifer and Vishny (1992) using an asset that is hardly deployable in other industries. Financial assets also result in deep discounts if sellers are motivated to unload them quickly. For example, Coval and Stafford (2007) estimate more than 10% gains from buying stocks that experience price pressure due to mutual fund outflows. Albuquerque and Schroth (2015) present evidence that the sale of block holdings might occur at discounts due to search frictions. Finally, Chu (2013) tests the fire sale theory in the context of bank-owned commercial real estate sales during the 2008 financial crisis.

[4]Gan (2007) shows that a negative shock to collateral leads to reduced debt capacities and investments of firms. Recent literature about the real effects of collateral supply shocks focuses on real estate collateral. Chaney, Sraer, and Thesmar (2012) study the effect of real estate prices on corporate investment. Mian, Rao, and Sufi (2011) and Mian and Sufi (2011) document the effect of housing prices on household consumption both in the house price run-up of 2002–2006, and in the economic slump of 2007–2009. Adelino, Schoar, and Severino (2015) and Schmalz, Sraer, and Thesmar (2013) explore the impact of house prices on entrepreneurial activity.

reflect these determinants. More specifically, we estimate how much a firm's real estate portfolio would lose value (relative to its current value) in a hypothetical state of the world where the firm is in financial distress. Our results show that a one-standard-deviation increase in our collateral discount measure is associated with a 9-to-16-basis-points (0.08-0.14 standard deviation) decrease in loan spreads. This result complements Benmelech, Garmaise, Moskovitz (2005) who find that asset deployability is related to bank loan rates and Benmelech and Bergman (2009), who find that asset deployability is related to credit spreads. Benmelech, Garmaise, Moskovitz (2005) use a location-specific deployability measure based on commercial zoning regulations which are dictated by local governments. They note that rezoning is typically difficult and costly in terms of time, and expense, and therefore it remains quite stable over time. Our data allow us to observe several property characteristics in detail, which help us develop property-specific deployability and quality metrics that vary both over time and across firms within the same area. Our results are also broadly consistent with Granja, Matvos and Seru (2016) who show that most failed banks are sold very locally such that a geographically proximate bank is more likely to acquire a failed bank.

An important endogeneity concern in our research design is that the determinants of collateral value (asset deployability and/or number of potential buyers of the real estate asset) can be correlated with unobserved firm characteristics. Since these unobserved firm characteristics can affect loan spreads, a correlation between real estate discount and bank loan rates would not necessarily imply a causal relation. In order to investigate this issue deeper, we use significant surges of foreign investor demand from countries with increased policy uncertainty as an exogenous shock to commercial real estate prices as well as land supply elasticity information. Our identification strategy is primarily motivated by the Badarinza and Ramadorai (2015) study which shows that political and economic uncertainty in Southern Europe, China, and East Asia affect the prices of houses in

London areas with high shares of people originating from these regions of the world. Our primary conjecture is that political and economic uncertainty in other countries causes some foreign investors to invest in the U.S. commercial real estate markets, and that this demand will increase real estate values of firms' collateral. If this conjecture is correct, following heightened uncertainty in a given country, we would expect to see relatively higher prices in areas where foreign demand increases over and above the general level of real estate prices for the specific property types. Indeed, we show that firms which happen to have assets in locations that experience this presumably exogenous price appreciation enjoy lower bank rates that we attribute to increased collateral values.

In further analysis, we explore the role of land supply elasticity to gauge the potential impact of abnormal foreign investment shocks. We expect the impact of abnormal foreign investment to be more prominent in areas where local supply of land is relatively inelastic such that increased demand for real estate cannot be absorbed by a simultaneous increase in the supply which in turn raises real estate prices further (Saiz, 2010; Chaney, Sraer, and Thesmar, 2012). To test this conjecture, we use housing supply elasticity from 95 MSAs, estimated by Saiz (2010) who show that estimated elasticities have a very strong correlation with both levels of and changes in house prices. We find that abnormal foreign demand for commercial real estates improve collateral discounts, especially in low land elasticity areas, and this improvement in the collateral discount is reflected as a reduction in the bank lending rates.

2 Data and Summary Statistics

We use the Real Capital Analytics (RCA) database to identify commercial real estate transactions. This database tracks commercial property and portfolio sales in the U.S. of $2.5 million or greater since 2000. RCA's data sources include press releases, news reports, SEC filings, public records, and listing services. As of 2015, the RCA database includes a total of more than $3 trillion U.S.-based commercial real estate deals. Each record in the database contains both property- and transaction-specific information. The property characteristics include property size, physical address, year built, an indicator for the year the property was renovated, an indicator for whether the property is purchased within a portfolio, and an indicator for whether the property is located in a central business district (CBD). The geographic region of the property is denoted by an RCA market identifier, which is an RCA-defined metropolitan area.

We identify both the seller and the buyer of the industrial, retail, and office properties by their full legal corporate names, and hand match RCA seller names with firms in the Compustat Annual Files. Since the capital structure of financial firms (SIC code between 6000 and 6999) is significantly different than the capital structure of industrial firms, we focus only on industrial companies. We also exclude real estate investment trusts (SIC code 6798), since they buy or sell real estate for investment purposes. Utility firms (SIC codes between 4900 and 4999) and government entities (SIC code between 9000 and 9999) are also excluded. Our matching procedure yields 327 unique public firms that were involved in 2,274 transactions. Because our interest lies in relative prices, we use the remaining transactions, whose sellers are not Compustat firms, to calculate the implied price of a property with the same property characteristics, in the same location (RCA market), and in the same quarter. We obtain firm characteristics from Compustat Annual Files.

Data allow us to group each property type into subgroups based on certain asset features. For example, industrial properties include warehouses and flex assets, where the property can be used for both industrial and office activities. Retail properties include malls and strip centers. Offices are divided into two subtypes based on their location as either central business district or suburban area.

In Table 1 we summarize the characteristics of the properties and of the sellers

(Table A1 in the Appendix provides the details of variable construction.) Panel A and Panel B report the summary statistics for the company-level and property-level variables, respectively. One of the most important differences between the sellers and an average Compustat firm size. Since the transactions in our sample exceed $2.5 million, our RCA sample is composed of medium and large firms. Median size measured by natural logarithm of total assets, in our sample is 9.786, whereas Compustat median for the same time period is 5.347. Secondly, the median firm in the RCA sample is more profitable, and has more tangible assets relative to the median firm in Compustat. In the Compustat universe, median *Tangibility* is 0.135, and median *ROA* is 0.054, whereas in our sample they are 0.397 and 0.150, respectively. Finally, *Book Leverage* and *Industry-Adjusted Book Leverage* are higher for sellers compared to the average firm in Compustat. The average property in our sample is about 22 years old and the average price per square foot, is $130. About 12% of the properties in our sample have been previously renovated, and 33.4% of the sales are part of a portfolio transaction.

Panel C of Table 1 shows the distribution of sub-property types for *Industrial*, *Retail* and *Office* properties. *Flex* denotes a property that is flexible in that it can be used for industrial or office activities. While 37.29% of the properties in our sample are industrial, retail properties constitute 44.28% and offices constitute 18.43% of our sample. Panel D of Table 1 also indicates that 28% of the properties in our sample were vacant at the time of the sale and 75% of the buyers' main intention was investment.

3 Real Estate Asset Discount

The price of a commercial real estate asset sold by distressed sellers is significantly lower than the average transaction price in the rest of the sample. In Panel A of Table 2, we report averages of unit property prices, defined as the natural logarithm of price per square feet plus one. We split the sample into three equal-size groups depending on the seller's *Industry-Adjusted Leverage* (at 33rd and 67th percentiles of the sample). Average transaction prices for *Low*, *Medium* and *High Industry-Adjusted Leverage* groups are 4.698, 4.522 and 4.184, respectively. The univariate analysis reveals significant differences between the average prices of leverage terciles, suggesting highly levered firms sell real estate at lower prices.

To control for the effect of confounding factors on the correlation between distress measures and real estate discount, we estimate a model that directly relates the selling price to financial distress. Explanatory variables include various property-specific variables such as the logarithm of the property size, property age dummies, a dummy variable indicating whether the property is renovated at any point in time, a dummy variable indicating whether the property is purchased within a portfolio, a CBD dummy indicating whether the property is located in a central business district, and RCA market-fixed effects as physical location controls. In this specification, we also include the quarter in which the transaction was completed as well as the seller's characteristics.[5] Results in Table 2 Panel B reveal a strong negative relationship between the selling price and the seller's leverage ratio tercile. When all the control variables are included, an increase from the lowest leverage tercile to the highest leverage tercile leads to a 22.6% decrease in price with other variables held constant. This finding is consistent with the real estate appraisers' estimate that rapid real estate sales lead to price discounts of 15% to 25% relative to orderly sales (Shleifer and Vishny, 1992).[6]

[5]We define geographical market-fixed effects and quarter-fixed effects for each property type separately so that we can control for seasonal trends and time-invariant market-specific factors that affect the prices of certain property types only. All company-level variables are measured at least one month and at most eleven months before the transaction date, depending on the selling firm's fiscal year end. Standard errors are clustered at the firm level. Results are robust to two-way clustering at the RCA market and quarter levels.

[6]Note that because the dependent variable equals the logarithm of 1 plus the transaction price, the discount is calculated by taking the exponent of the coefficient. For example, the discount associated with the selling firm's leverage being in the highest tercile equals $1 - exp(\beta_2)$, which is the percentage change in 1+price if the selling firm's leverage changes from the lowest- to the highest-leverage tercile.

We conduct a battery of robustness tests for the baseline model in column (4) of Table 2, Panel B. First, we use several alternative distress proxies, namely *Industry-Adjusted Leverage*, *Leverage*, *Leverage Tercile Dummies*, *High Leverage & Low Current Assets Dummy* and *Interest Coverage Ratio*. Panel A of Table A2 reports the results which point to the same conclusion: The price of commercial real estate sold by distressed sellers is significantly lower than the average transaction price in the rest of the sample.

In Table A2, Panel B, we estimate the baseline model using several different specifications. In column (1), we restrict the sample to the period before 2007. In column (2), we include the seller's industry-fixed effects, where the industries are defined according to two-digit SIC codes. Column (3) focuses on the transactions that are not conducted as part of a portfolio sale. Finally, in the last column, we restrict the sample to properties that are located outside the seller's headquarter state. This specification addresses the possibility of local economic conditions simultaneously affecting real estate prices and the seller's financial health. Results show that our findings are not driven by the recent financial crisis, portfolio sales, or shocks to local economy. While controlling for industry-fixed effects decreases the economic significance of the coefficient estimates for our distress measures, the statistical significance of the coefficient estimates is similar to those estimated in the baseline model.

If the factors that forced the seller to dispose assets at unfavorable prices have also reduced the quality of assets sold, then prices reflect the most up-to-date quality of the assets. Consequently, the finding that distressed sellers transact at lower prices suggests that these properties may be lower quality. Fortunately, our data allow us to observe the buyer intentions that can serve as a proxy for whether buyers are willing to spend extra resources to make the assets more appealing/functional for future use. Specifically, we can observe whether the purpose of the transaction is to occupy, renovate, redevelop or invest. Renovation and redevelopment indicate further commitment, thus potentially requiring buyers to bid lower. We also observe tenancy status as well as occupancy rate, which capture the quality status of a property at the time of the transaction.

In Panel C.1 of Table 2 we regress the unit property price on each of the quality proxies, namely buyer purpose, tenancy status and occupancy rate. *Redevelopment/Renovation* is an indicator variable that equals one if the buyer's intention is to renovate or redevelop the property. *Vacant Dummy* indicates that the property is vacant at the time of the sale. *Occupancy Rate* is defined as the floor space or units occupied by tenants as a percentage of the total leasable area of the building. Results in columns (1)-(3) confirm our prior findings: unit price is lower for properties to be renovated after the purchase, vacant properties and properties with low occupancy rate. In columns (4)-(6) of Panel C.1, we regress unit price on each of the quality proxies and the industry-adjusted leverage dummies in order to test whether quality accounts for the impact of leverage on prices. The coefficient estimates for the leverage dummies are significant and their magnitudes are similar to those in our baseline estimation, indicating that our financial distress proxies are not significantly related to the quality of the properties being sold. In Panel C.2, we repeat the analysis for *High Leverage & Low Current Assets Dummy* and *Interest Coverage Ratio*. Overall, results suggest that asset quality, as measured by the proxies we observe, does not vary between financially healthy and distressed sellers.[7]

We now turn our attention to the link between real estate prices and asset deployability. As discussed before, the main prediction of Shleifer and Vishny (1992) is that an asset should sell for less if it is of use to fewer buyers. Our data set allows us to identify the properties that are potentially more deployable than others. Since the same office can be used by firms from different industries, on average, we expect offices to be more in demand than other property types. The variable *Flex* indicates whether a

[7]In unreported results, we estimate a regression equation where asset quality is the dependent variable and the leverage dummies are the explanatory variables. The coefficient estimates for the leverage dummies are insignificant.

property is flexible in that it can be used for both industrial or office activities. Similar to offices, we also expect such properties to attract a larger investor base.

In order to capture the incremental impact of asset deployability on prices, we estimate our baseline specification including interactions between *Office Dummy* and various distress proxies. We also include interactions between *Office Dummy* and our control variables to account for the impact of offices on unit price through channels other than firm distress. The results from multivariate analysis, reported in Panel A of Table 3 indicate that the impact of firm distress is significantly muted for offices and flexible properties, which suggests that generic assets such as offices command higher prices when they are sold by distressed sellers.

If an asset is located in an area where the number of potential buyers is limited, we expect higher discounts. This expectation is motivated by Almazan et al. (2010) who investigate the relation between firms' locations and their corporate finance decisions. They argue that being located within an industry cluster increases opportunities to make acquisitions and, to facilitate those acquisitions, firms within clusters maintain more financial slack. Almazan et al. (2010) find that firms located within industry clusters make more acquisitions and have lower debt ratios and larger cash balances than their industry peers located outside clusters. Motivated by the prevalence of local factors in shaping financial transactions, we test whether the discount is stronger in concentrated industries, where there is a smaller group of potential buyers that could pay for the best-use price. If we find that collateral discount is low or does not exist when there are more potential buyers, that would support Almazan et al. (2010)'s finding such that industry clusters positively affect the transaction price of commercial properties and alleviate the negative impact of distress.

We use three different measures to capture the number of potential buyers. Our first measure is *1-Herfindahl Index* where Herfindahl Index is the sum of squared market shares of firms in the seller's three-digit SIC industry. Second, we calculate the number of companies in the seller's three-digit SIC industry that mention the state of the property in their 10-Ks at least once during the transaction year (Garcia and Norli, 2012). Our last measure is the number of companies in the seller's three-digit SIC industry whose headquarters are located in the same state as the property. We label the last two measures as *10-K Count* and *Headquarters Count*, respectively.

Panel B of Table 3 presents the results. In columns (1), (4) and (7), the coefficient estimates for all three measures are positive and significant, indicating that average unit property price is higher when there are more firms that might potentially be interested in buying the property. Columns (2), (5) and (8) report the coefficient estimates for the number of potential buyers proxies as well as for their interactions with the seller's leverage tercile. The coefficient estimates for the interactions between the high-leverage indicator and the number of potential buyers measures are all positive and statistically significant. For instance, for the measure calculated using headquarters, the coefficient estimate of the interaction term is 0.127 and the direct effect of high leverage is –0.430. This implies that a one-standard-deviation increase in the logarithm of number of potential buyers (1.22) decreases the impact of high leverage from –0.430 to –0.275. Columns (3), (6) and (9) report the results for *Industry-Adjusted Leverage* included as a continuous variable. The interaction terms between *Industry-Adjusted Leverage* and all three potential buyer proxies have positive coefficient estimates that are significant at 5-10% level. Collectively, these results suggest that the discount is low or does not exist when there are more potential buyers.

Real estate assets can be considered as a composite good that can be reduced to its constituent parts. Hedonic models are often used to find the market values of those constituent parts. As a robustness test, we run a hedonic model in which selling price is estimated as a function of a detailed set of property characteristics using a larger sample of transactions. Column (1) and (2) of Table A3 report the estimation results from the first-stage model. In these regressions, we include RCA market X year-fixed effects which control for market-wide events throughout the year. Results show that smaller properties, renovated properties, and properties in central locations have higher values. Next, we estimate *Residual Price* as the difference between actual price and the estimated price, which represents the estimated value of a real estate based on its observable characteristics. Columns (3)-(6) of Table A3 show that our leverage dummies and residual price are negatively related. The economic significance of distress on prices is comparable to those estimated in Table 2: an increase from the lowest leverage tercile to the highest leverage tercile leads to a 22.1% decrease in the residual price.

In Table A5 and A6, we repeat our main tests reported in Tables 2C and Table 3 using residual prices estimated from the hedonic model. We find that results are robust within this different methodology that uses residual prices instead of unit property prices.

4 Real Estate Holdings and Loan Spreads

4.1 Collateral Discount

In this section, we investigate whether firms' cost of debt is related to their real estate portfolios' features. Our analysis in section 3 shows that, if we compare two identical sellers, the one that is financially less healthy gets a lower price for the same property. However this negative effect is weakened if the asset is deployable and/or if the asset has a higher number of potential buyers. Using these insights, we can estimate dollar value of a firm's real estate portfolio in a hypothetical distress scenario, and compare this value to the current market value of the real estate portfolio. The ratio of these two values basically indicates how much discount that the firm will suffer if it gets financially distressed.

To execute this idea, we first construct the real estate portfolios of companies using all the transactions contained in the RCA database. These transactions help us identify the date when the property was acquired and when it was disposed.[8] After constructing real estate portfolios from transaction data, we estimate the unit price for each of the firm's properties twice first, assuming that the leverage equals the firm's current industry-adjusted leverage (*Current Portfolio Value*), and then assuming that the leverage is 25% higher than the industry median (*Hypothetical Portfolio Value*).[9] To estimate the unit price, we use the specifications in Panel A and B of Table 3 which report the positive impact of deployability and potential buyers on distress discount. More specifically, we use the models in column (2) of Panel A and column (9) of Panel B, respectively. These specifications account for property characteristics, firm controls, RCA market-fixed effects and time-fixed effects as well as the direct effects of office dummy and the number of potential buyers. Notice that the contribution of these variables to the estimated values of *Current Portfolio Value* and *Hypothetical Portfolio Value* are the same. The difference between the two portfolio values mainly results from the direct impact of a firm's leverage and its interaction with asset deployability or with the number of potential buyers. Finally, we multiply the estimated unit prices by the size of each property and sum over all properties to calculate *Current Portfolio Value* and *Hypothetical Portfolio Value*.

$$Current\ PV_t = \sum_{i}^{N} Size_i \times E[Price/sqf | Current\ Leverage_{i,t}]$$

$$Hypothetical\ PV_t = \sum_{i}^{N} Size_i \times E[Price/sqf | Hypothetical\ Leverage]$$

[8] A property that was never traded between 2000 and 2013 is not observed in our real estate portfolios. Because we do not observe the unit price of such non-traded real estate assets, we can not determine their contribution to the collateral discount. We discuss the effect of this fact on our findings in later parts of this section.

[9] 25% refers to the 90th percentile value of the industry-adjusted leverage in our sample. We obtain similar results with 20% and 30% cutoff values.

We define the expected collateral discount as follows[10]

$$\textit{Collateral Discount}_t = \textit{Current } PV_t / \textit{Hypothetical } PV_t \textit{ - 1}$$

RCA only tracks transactions that are above a certain threshold (2.5 million USD), therefore our current and hypothetical portfolios are tilted toward large properties. Because our collateral discount measure is the ratio of the two portfolio values, we surmise *Collateral Discount* is neither overstated nor understated due to RCA's coverage choice.

To investigate whether loan spreads vary with expected collateral discount, we obtain loan-level data from Loan Pricing Corporation's (LPC) Dealscan database, which contains detailed information about commercial (primarily syndicated) loans made to U.S. corporations since the 1980s. According to Carey and Hrycray (1999), the Dealscan database covers between 50% and 75% of the value of all commercial loans in the U.S. during the early 1990s with increased coverage after 1995. Our initial sample contains all commercial loans denominated in U.S. dollars. We link the Dealscan data set to the Computstat database using the links provided by Chava and Roberts (2008). While each observation in the Dealscan database represents a facility (or a tranche), multiple facilities with similar loan terms and pricing are frequently packaged into deals. Following Hertzel and Officer (2012), we choose the largest tranche in each deal as our unit of observation. We require no missing data regarding loan amount, loan maturity, loan type and loan purpose.[11]

Following the literature, we evaluate loan prices using all-in-drawn spread, which is

[10] In few instances where *Current PV* is less than *Hypothetical PV*, we normalize the ratio of *Current PV* to *Hypothetical PV* to unity.

[11] Loan types are indicators for term loans, revolver loans < (>=1 year), 364-day facility and others. The primary purpose of the facilities in our sample is acquisition line, CP backup, corporate purposes, debt repayment, takeover or working capital.

the rate a borrower pays in basis points over LIBOR including any recurring annual fees on the loan. Our final sample consists of 1,201 loans with a median (mean) spread of 75 (122) basis points.

Table 4 reports the results from the regression of the loan spread on *Collateral Discount*, and loan- and firm-level controls. In all regressions, we control for industry-adjusted leverage, which accounts for the direct impact of leverage on the estimated collateral discount. Thus, the variation in *Collateral Discount* results from either the interaction of industry-adjusted leverage with the office indicator or with the number of potential buyers. In columns (1)–(3), we use deployability levels, and in columns (4)–(6) we use the number of potential buyer interactions to estimate the wedge between the current and hypothetical portfolio values. Our results in columns (1) and (4) indicate a positive relationship between loan spreads and our collateral discount measure after controlling for firm leverage, industry-fixed effects, and year-fixed effects. More specifically, a one-standard-deviation increase in expected collateral discount resulting from asset deployability (fewer potential buyers) is associated with about 9.39 (16.35) basis points higher loan spreads which translates into a 0.08 (0.14) standard deviation increase in loan spreads.

In columns (2) and (5), we control for the current value of real estate holdings so that we can account for the variation in *Collateral Discount* that is not related to the property values in case of a potential distress state. The coefficient estimates are very similar to those reported in columns (1) and (4) suggesting that our results are mainly driven by the hypothetical portfolio value.

Strahan (1999) investigates the impact of non-price terms of loans on loan pricing and shows that, although secured loans have higher expected rates of recovery in default, they carry 32% to 51% higher interest rates than unsecured loans. Furthermore, loans to small firms, firms with low ratings, and firms with little cash available to service debt are more likely to be secured by collateral. Consistent with the literature, we find that the average spread is higher for secured loans. In columns (3) and (6), we interact our collateral discount measure with the *Secured Loan Dummy.* The coefficient estimates of both the secured loan indicator and our collateral discount variable are positive, but the main effect of collateral discount is not statistically significant. The coefficient estimate of the interaction term is positive, suggesting that collateral discount is an important factor in pricing particularly of those loans that are backed by a collateral.

A property that was never traded between 2000 and 2013 is not observed in our real estate portfolios. Because we do not observe the unit price of such non-traded real estate assets, we perform the following analysis to gauge the importance of this issue on the measurement of collateral discount: Using a logit regression model, we estimate the likelihood of a property being sold in a given year as a function of the property's market liquidity, other property characteristics, firm controls, as well as RCA market- and year-fixed effects. We use *Annual Sales Volume* to measure the liquidity of a property's market, which is the annual sales volume in that RCA market, defined for each property type separately. We also calculate the percentile rank of a property in the firm's portfolio based on *Annual Sales Volume* of its market and property type. Table A7 reports the coefficient estimates which indicate that a one-standard-deviation increase in *Ln(Annual Sales Volume)* results in a 0.152 standard-deviation increase in the log odds of a property being sold. These results suggest that firms choose to sell the assets that are less likely to be discounted in distress, indicating that collateral discount coefficient, if anything, is *underestimated.* We also note that, in our sample, the average ratio of the real estate portfolio value to tangible assets is 8.38%.[12] Because tangible assets include several asset types (such as machinery), this ratio presents considerable variation across industries.

[12]In 1993, the last year in which the SEC required firms to report the accumulated depreciation of buildings, 54% of Compustat firms reported some real estate ownership on their balance sheet (Cvijanovic., 2014).

For example, industries that employ large amounts of heavy equipment (such as airlines or mining) have a mean ratio of less than 1%. For industries that are more likely to own real estate properties (such as retail), the ratio goes up to 17%. In our specification, industry-fixed effects enable us to capture across-industry variation in terms of the share of real estate properties in the tangible assets. Moreover, we include the value of property, plant and equipment (scaled by total assets) to capture the effect of tangible assets on loan rates (see Acharya et al., 2013).[13]

To sum up, our findings suggest that when banks price collateral, they consider marketability of a borrower's real estate portfolio in case of a distress scenario. A borrower with assets that are not deployable for alternative uses borrows at higher rates. Likewise, a borrower faces a higher loan rate if its real estate assets are located in an area where potential buyers in that geographical region are limited, when the industry is concentrated and few firms are able to pay for the best-use price. The link between a firm's real estate holdings, an asset type that is frequently used in almost all industries, and bank loan rates collaborates the findings of Benmelech and Bergman (2009) which uses data from airline industry and show that debt tranches that are secured by more deployable collateral exhibit lower credit spreads.

4.2 Foreign Investment as a Shock to Collateral

Our analysis in the previous section suggests that capital markets price a potential decrease in the collateral value in a distress state. This result mainly follows from the variation in the location and property types that firms hold in their real estate portfolios. It is possible that an unobserved factor drive both loan rates and also real estate prices when two variables are not directly related to each other. For example, some of the determinants of collateral value (i.e., asset deployability and/or number of

[13]Controlling for the size of real estate holdings relative tangible assets does not change our results.

potential buyers of the real estate asset) can be correlated with unobserved firm characteristics. If these unobserved firm characteristics affect loan spreads, then a correlation between real estate discount and bank loan rates would not necessarily imply a causal relation. To address this particular endongeneity issue, we need exogenous changes in collateral values that can not be attributed to firm characteristics.

We use significant surges in commercial real estate demand attributed to *foreign investors from countries with increased policy uncertainty* as an exogenous shock to commercial real estate prices. Our conjecture is that political and economic uncertainty in other countries will cause some foreign investors to invest in the U.S. commercial real estate markets, and this demand will increase the values of firms' collateral. If this conjecture is correct, following heightened uncertainty in a given country, we would expect to see relatively higher real estate prices in areas where this particular form of foreign demand increases over and above the general level of real estate prices for the specific property types. This particular identification strategy is similar to the strategy utilized in Badarinza and Ramadorai (2015). In their study, Badarinza and Ramadorai (2015) show that the demand of Southern Europe, China, and East Asia (places with higher political and economic uncertainty) affect house prices in London areas where the presence of people originating from these regions is significant.

In Table 5, we investigate the link between commercial real estate prices and foreign investment from countries with elevated uncertainty. We regress the natural logarithm of average price per square feet for the property types apartment, industrial, office, and retail in a given RCA market on *Investment from Countries with Increased Uncertainty* which is defined as the natural logarithm of total commercial real estate purchases of investors from countries with increased policy uncertainty (in million dollars) plus one. We obtain average real estate prices from RCA available for the 66 major RCA markets. In order to determine the countries with increased policy uncertainty, we calculate the annual average policy uncertainty index of Baker, Bloom, and Davis (2015) that is available for Australia, Canada, China, France, Germany, India, Italy, Japan, Netherlands, Russia, South Korea, Spain, UK. Then, we assign a country to the increased uncertainty category if its policy uncertainty index is in the top quintile of its time-series distribution. Since average prices are defined at the property type and market level, we control for property type-fixed effects as well as quarter- and market-fixed effects. The results show that after controlling for various factors, increased foreign demand is accompanied by higher commercial real estate prices in the U.S. A 5% increase in foreign investment generates about 0.11% increase average prices assuming the specification given in column (5).

In our final analysis (untabulated), we test whether the impact of abnormal commercial real estate demand of foreign investors from high policy uncertainty places is distinct from the impact of demand coming from other countries. To do this, we first regress *Investment from Countries with Increased Uncertainty* on *Investment from Other Countries*, and property type, quarter and market fixed effects, and extract the *Residual Investment*.[14] We then regress average prices on *Residual Investment*. Results show that after accounting for the common variation in foreign investment, investment from countries with increased uncertainty is still positively associated with average real estate prices (t=3.85), suggesting commercial real estate demand of foreign investors from high policy uncertainty places is distinct from that of other countries with respect to its impact on real estate prices.

After establishing the link between property prices and foreign investment, we now turn our attention on sudden changes in investment from countries with increased policy uncertainty and loan spreads. In order to detect property types and markets that receive abnormal investments from countries with elevated uncertainty, we again estimate the *Residual Investment*, this time using annualized investments. We assume

[14]Since average property prices are available at a quarterly frequency, we estimate this particular regression for quarterly investment.

that a property is exposed to abnormal foreign investment from high policy uncertainty countries if the *Residual Investment* for its market and property type is in the top quintile of the distribution. The indicator variable *I(Abnormal Investment*$_t$*>0)* equals one if *at least one* of the properties of the firm is located in a market that received abnormal investment from increased uncertainty countries in year t. Table 6 reports the results from the regression of loan spreads on *I(Abnormal Investment*$_t$*>0)* which indicate that firms with real estate properties that are located in areas with abnormal foreign investment pay about 18 basis points less on bank loan spreads relative to others.

Next, we analyze the differential impact of foreign investment on the loan spreads of firms with high collateral discount. Again, our primary conjecture is that political and economic uncertainty in other countries will cause some foreign investors to invest in the U.S. commercial real estate markets, and this demand will increase the values of firms' collateral. If our conjecture is correct, then increased collateral values should lead to reduction in loan spreads particularly for those firms with high collateral discount. In column (2), we interact *I(Abnormal Investment*$_t$*>0)* with our collateral discount measure. The main effect of the collateral discount measure is positive and significant. The interaction term between our collateral discount measure and *I(Abnormal Investment*$_t$*>0)* dummy has a negative coefficient estimate, suggesting that increased foreign investment reduces loan spreads more for firms with high collateral discount. In other words, firms that happen to have assets in locations experiencing this presumably exogenous price appreciation enjoy lower bank rates that we attribute to increased collateral values.

In column (3), we interact *I(Abnormal Investment*$_t$*>0)* dummy with the secured loan indicator to test whether the existence of a collateral backing up the loan can account for the effect of our collateral discount measure. This additional interaction term does not result in a significant change in the coefficient estimate of the interaction term between *I(Abnormal Investment*$_t$*>0)* and *Collateral Discount*, suggesting that our discount measure contains information beyond the existence of a collateral attached to the loan. In columns (4)-(6), we repeat the same analysis using *Collateral Discount* based on the number of potential buyers and find similar results.

Next, we explore the cross-sectional variation in the relationship between foreign investment and real estate prices using land-supply elasticity. More specifically, we expect the impact of abnormal foreign investment to be more prominent in areas where local supply of land is relatively inelastic such that increased demand for real estate cannot be absorbed by a simultaneous increase in the supply which in turn raises real estate prices further (Saiz, 2010; Chaney, Sraer, and Thesmar, 2012).

In order to test whether the impact of foreign investment exposure is amplified for firms with real estate holdings mainly located in areas with low supply elasticity, we obtain housing supply elasticities from Saiz (2010), which are available for 95 MSAs with population over 500,000 in 2000. The estimated supply elasticities range between 0.60 and 5.45, the low values suggesting that the land supply is constrained. Saiz (2010) shows that estimated elasticities have a very strong correlation with both levels of and changes in house prices. We split the RCA markets into two equally sized groups with respect to their supply elasticities, and determine the real estate properties that are located in areas with low supply elasticity. Then, we calculate the percentage of a firm's real estate portfolio value that is located in an inelastic market *and* simultaneously received abnormal investment from countries with increased uncertainty. We define a dummy variable *I(Abnormal Investment - Low Elasticity > 0)* to indicate that a firm has *at least one* property located in an area with low supply elasticity and abnormal investment from countries with increased uncertainty.[15] In Table 7, we regress loan spreads on the interaction term between our collateral discount measure and this indicator variable. The interaction term's coefficient estimates in columns (1) and (2) are significantly larger than the coefficient estimates of the interaction term between *I(Abnormal Investment*$_t$*>0)* and *Collateral Discount* given in columns (3) and (6) of Table 6, which indicates that abnormal foreign demand for commercial real estates increases collateral values in low land elasticity areas, and this improvement in the collateral discount is reflected as a reduction in the bank lending rates.

To sum up, we identify changes in collateral values that are likely to be attributed to exogenous factors using abnormal commercial real estate demand coming from countries with increased policy uncertainty and local land supply elasticity. The evidence presented in Table 6 and Table 7 are helpful in alleviating the concern that an unobserved factor drives both loan rates and real estate prices when two variables are not directly related to each other.

Conclusion

We investigate whether information contained in the commercial real estate price changes are reflected in loan prices. We show that banks price loan spreads in such a way that they increase with expected real estate discounts. If real estate assets have alternative uses or are located in areas with more potential buyers, the discount is significantly mitigated or eliminated completely. More importantly, we do not find evidence that distressed assets in our sample are of lower quality. If anything, distressed sellers are more likely to sell their better assets to mitigate the rushed sale discount. Using local land supply elasticity information and significant surges of foreign investor demand from countries

[15]We obtain similar results if we use a higher threshold for the number of properties to define the indicator variable but the power of test goes down since the precision that comes with a higher threshold comes at the cost of low statistical power.

with increased policy uncertainty as an exogenous shock to commercial real estate prices, we find that the firms which happen to have assets in locations that experience this presumably exogenous price appreciation enjoy lower bank rates that we attribute to increased collateral values.

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Table 1: Descriptive Statistics

This table summarizes the characteristics of the properties and the sellers we analyze in this study. Our sample is restricted to properties sold by non-financial firms, and covers the period between 2000 and 2013. Panel A reports the summary statistics for the company-level variables. *Leverage* is the ratio of total book debt to book value of assets, *Industry-Adjusted Leverage* equals book leverage minus median industry leverage, where industries are defined according to the three-digit SIC codes. *High Leverage & Low Current Assets Dummy* indicates that the seller's leverage is above the industry median and its current assets are below the industry median. *Interest Coverage Ratio* is the ratio of income before depreciation divided by interest expense, for which the negative values are normalized to zero and values above 50 are normalized to 50. *Tangibility* is defined as the ratio of property, plant, and equipment (PPE) to total assets, return on assets (*ROA*) is defined as operating income scaled by total assets, and *Market-to-Book Ratio* is the ratio between the market value and the book value of total assets. All ratio variables are winsorized at the top and bottom 2.5%. Panel B reports the summary statistics for property characteristics. *Unit Property Price* equals the natural logarithm of price per square feet plus one. *Size* is the natural logarithm of property size measured in square feet ($Ln(sqf)$). *Renovated* equals one if there is non-missing data for the year that the property was renovated or expanded. *Portfolio* indicates that the sale is part of a portfolio transaction. *CBD* is a dummy variable that takes one if the property is located in a central business district or in the downtown of a city. *Occupancy Rate* is defined as the percentage of floor space or units occupied by tenants as compared to the total leasable area of the building at the time of a sale. Panel C shows the distribution of subtypes for *Industrial*, *Retail* and *Office* properties. *Flex* denotes a property that is flexible in that it can be used for both industrial or office activities. Panel D shows the distribution of properties by *Vacancy* and *Buyer Purpose*. *Single Tenant* is a property that is fully occupied by a single user. *Vacant* indicates that the property is not occupied at the time of the sale. *Occupancy* is a buyer's objective representing a property that is purchased for use by the buyer in the conduct of business.

Panel A: Company Characteristics	**Mean**	**St. Dev.**	**p25**	**Median**	**p75**	**N**
Leverage	0.262	0.161	0.155	0.258	0.353	2,274
Industry-Adjusted Leverage	0.059	0.174	-0.051	0.055	0.179	2,274
Interest Covarage Ratio	15.979	15.865	4.568	9.196	21.802	2,218
High Leverage & Low Current Assets Dummy	0.403	0.491	0	0	1	2,175
ROA	0.136	0.084	0.088	0.150	0.178	2,274
Tangibility	0.365	0.184	0.196	0.397	0.541	2,274
Market-to-Book	1.448	0.897	0.849	1.265	1.702	2,274
Ln(Assets)	9.473	1.629	8.219	9.786	10.421	2,274

Panel B: Property Characteristics	**Mean**	**St. Dev.**	**p25**	**Median**	**p75**	**N**
Ln(Price/sqf)	4.467	0.939	3.812	4.518	5.128	2,274
Ln(sqf)	11.414	1.298	10.659	11.501	12.268	2,274
Age	21.991	18.332	9	18	31	2,274
Renovated Dummy	0.120	0.325	0	0	0	2,274
Portfolio Dummy	0.334	0.472	0	0	1	2,274
CBD Dummy	0.051	0.219	0	0	0	2,274
Occupancy Rate	0.777	0.402	0.86	1	1	1,649

Table 1 Cont.: Descriptive Statistics

Panel C: Property Subtypes

Type	**Frequency**	**Percent**
	Industrial	
Flex	244	28.47
Warehouse	21	69.1
N/A	583	2.43
Total	848	
	Retail	
Mall	891	88.45
Strip	23	9.2
N/A	93	2.35
Total	1,007	
	Office	
CBD	63	15.42
Sub	345	82.09
N/A	11	2.49
Total	419	

Panel D: Vacancy and Buyer Purpose

Type	**Frequency**	**Percent**
	Vacancy	
Multi Tenant	262	13.48
Single Tenant	1,135	58.41
Vacant	546	28.10
Total	1943	
	Buyer Purpose	
Investment	1,711	75.44
Occupancy	316	13.93
Redevelopment/Renovation	241	10.63
Total	2,268	

Table 2: Transaction Price and Firm Distress

Panel A reports the average transaction price for sellers in different industry-adjusted leverage terciles. We split the sample into three equal-size groups depending on the seller's *Industry-Adjusted Leverage*. *Medium (High) Ind.-Adj. Leverage Dummy* takes one if the seller's industry-adjusted leverage is between the 33^{rd} and 67^{th} (above the 67^{th}) percentile of the sample. Panel B reports the results from the regression of *Unit Property Price* on industry-adjusted leverage dummies. Panel C investigates the impact of quality on *Unit Property Price*. *Redevelopment/Renovation* is an indicator variable that equals one if the buyer's intention is to renovate or redevelop the property. *Vacant Dummy* indicates that the property is vacant at the time of the sale. *Occupancy Rate* is defined as the floor space or units occupied by tenants as a percentage of the total leasable area of the building. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Standard errors are clustered at the firm level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

Panel A: Univariate Analysis of Distress and Prices

Leverage Tercile	*Average Unit Property Price*	*N*		*Difference in Avr. Unit Property Prices*	*t-stat*
Low Leverage	4.698	759	High-Low	-0.515	(10.72***)
Medium Leverage	4.522	752	High-Medium	-0.339	(7.35***)
High Leverage	4.184	763	Medium-Low	-0.176	(3.76***)

Panel B: Multivariate Analysis of Distress and Prices

	Unit Property Price			
	(1)	(2)	(3)	(4)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$	-0.210**	-0.171**	-0.201**	-0.179**
	(-2.150)	(-2.428)	(-2.349)	(-2.465)
High Ind.-Adj. Leverage Dummy$_{t-1}$	-0.320***	-0.239***	-0.340***	-0.256***
	(-3.638)	(-2.937)	(-3.809)	(-2.996)
ROA$_{t-1}$			-0.879**	-0.583
			(-2.277)	(-1.629)
Tangibility$_{t-1}$			-0.139	-0.009
			(-0.853)	(-0.058)
Market-to-book$_{t-1}$			0.021	0.020
			(0.940)	(0.799)
Ln(Assets$_{t-1}$)			0.004	-0.002
			(0.192)	(-0.113)
Property Characteristics	Included	Included	Included	Included
Quarter FE		Included		Included
Market FE			Included	Included
Adjusted R-squared	0.459	0.616	0.580	0.617
Observations	2,274	2,274	2,274	2,274

Table 2 Cont.: Transaction Price and Firm Distress

Panel C: Asset Quality and Price

	Unit Property Price					
Panel C.1	(1)	(2)	(3)	(4)	(5)	(6)
Redevelopment/Renovation$_t$	-0.097*			-0.082		
	(-1.767)			(-1.488)		
Vacant Dummy$_t$		-0.373***			-0.349***	
		(-6.484)			(-6.711)	
Occupancy Rate$_t$			0.320***			0.306***
			(5.515)			(5.684)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$				-0.175**	-0.164**	-0.194**
				(-2.400)	(-2.067)	(-2.513)
High Ind.-Adj. Leverage Dummy$_{t-1}$				-0.250***	-0.219**	-0.266***
				(-2.902)	(-2.439)	(-2.907)
Property Characteristics	Included	Included	Included	Included	Included	Included
Firm Controls	Included	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.609	0.615	0.606	0.617	0.621	0.615
Observations	2,268	1,949	1,649	2,268	1,949	1,649

Panel C.2	(1)	(2)	(3)	(4)	(5)	(6)
Redevelopment/Renovation$_t$	-0.092			-0.098*		
	(-1.635)			(-1.820)		
Vacant Dummy$_t$		-0.375***			-0.329***	
		(-6.807)			(-6.519)	
Occupancy Rate$_t$			0.322***			0.283***
			(5.754)			(5.319)
High Leverage & Low Current Assets Dummy$_{t-1}$	-0.150**	-0.132*	-0.175**			
	(-2.215)	(-1.900)	(-2.307)			
Interest Coverage Ratio$_{t-1}$				0.009***	0.007**	0.007**
				(3.048)	(2.498)	(2.229)
Property Characteristics	Included	Included	Included	Included	Included	Included
Firm Controls	Included	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.602	0.615	0.607	0.607	0.609	0.596
Observations	2,169	1,884	1,587	2,212	1,904	1,605

Table 3: Asset Deployability and Potential Buyers

This table investigates the impact of asset deployability (Panel A) and the number of potential buyers (Panal B) on distress discount. *Office Dummy* is an indicator variable takes one for offices and for properties that can be used for both industrial or office activities. The number of potential buyers is measured by one of the following three variables: (i) *1-Herfindahl Index* is the Herfindahl Index of sales based on the firm's three-digit SIC industry, (ii) *10-K Count* is the number of companies in the seller firm's three-digit SIC industry who mentions the state of the property in its 10-Ks at least once during the year preceding the transaction (Garcia and Norli, 2012), (iii) *Headquarters count* is the number of companies in the seller firm's three-digit SIC industry whose headquarters are located in the same state as the property. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Standard errors are clustered at the firm level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

Panel A: Asset Deployability

	Unit Property Price			
	(1)	(2)	(3)	(4)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$	-0.183**			
	(-2.132)			
X Office Dummy	0.110			
	(1.039)			
High Ind.-Adj. Leverage Dummy$_{t-1}$	-0.314***			
	(-3.226)			
X Office Dummy	0.244**			
	(2.099)			
Industry-Adjusted Leverage$_{t-1}$		-0.607***		
		(-3.404)		
X Office Dummy		0.395*		
		(1.681)		
Interest Coverage Ratio$_{t-1}$			0.010***	
			(3.265)	
X Office Dummy			-0.009**	
			(-2.413)	
High Leverage & Low Current Assets Dummy$_{t-1}$				-0.210***
				(-2.672)
X Office Dummy				0.197**
				(2.056)
Property Characteristics	Included	Included	Included	Included
Firm Controls	Included	Included	Included	Included
Office Interactions	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included
Market FE	Included	Included	Included	Included
Adjusted R-squared	0.638	0.636	0.629	0.625
Observations	2,274	2,274	2,218	2,175

Table 3 cont.: Asset Deployability and Potential Buyers

Panel B: Potential Buyers

	Unit Property Price								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1-Herfindahl Index	0.562***	0.233	0.437***						
	(3.962)	(1.400)	(3.519)						
10-K Count				0.050***	0.029	0.050***			
				(3.038)	(1.254)	(3.159)			
Headquarter Count							0.061***	0.014	0.063***
							(3.195)	(0.522)	(3.278)
Medium Ind.-Adj. Leverage Dummy_{t-1}		-0.263*			-0.166*			-0.212**	
		(-1.692)			(-1.710)			(-2.458)	
X Number of Buyers		0.105			-0.007			0.033	
		(0.530)			(-0.238)			(1.008)	
High Ind.-Adj. Leverage Dummy_{t-1}		-0.664***			-0.482***			-0.430***	
		(-3.916)			(-4.153)			(-4.469)	
X Number of Buyers		0.590***			0.096***			0.127***	
		(2.802)			(2.799)			(3.669)	
Industry-Adjusted Leverage_{t-1}			-1.442***			-0.953***			-0.827***
			(-2.730)			(-4.068)			(-4.083)
X Number of Buyers			1.171*			0.159**			0.162**
			(1.852)			(2.100)			(2.031)
Property Characteristics	Included	Included	Included	Included	Included	Included	Included	Included	Included
Firm Controls	Included	Included	Included	Included	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.618	0.627	0.625	0.611	0.623	0.620	0.611	0.625	0.621
Observations	2,274	2,274	2,274	2,274	2,274	2,274	2,274	2,274	2,274

Table 4: Loan Spreads and Collateral Discount

This table reports the results from the regression of loan spreads on *Collateral Discount*, which is defined as the ratio of current real estate portfolio value (*Current PV*) to its hypothetical value (*Hypothetical PV*). *Current PV* is the sum of the predicted values of the properties in a firm's portfolio. *Hypothetical PV* is the estimated portfolio value assuming that the firm has an industry-adjusted leverage ratio that equals to the 90th percentile of its sample distribution. Portfolio values are estimated twice based on two different models. In particular, we use the specifications in Panel A and B of Table 3 which report the positive impact of deployability and potential buyers on distress discount, respectively. *Loan Spread* is all-in-drawn spread, which is the amount the borrower pays in basis points over LIBOR including any recurring annual fees on the loan. Other variables are defined in Table 1. Standard errors are clustered at the firm level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Loan Spread					
	Asset Deployability			*Number of Potential Buyers*		
	(1)	(2)	(3)	(4)	(5)	(6)
Collateral Discount$_t$	100.999**	105.740**	26.732	138.530***	143.279***	86.646
	(2.125)	(2.160)	(0.466)	(2.746)	(2.839)	(1.645)
Ind.-Adj. Leverage$_{t-1}$	106.127***	109.405***	114.849***	146.901***	151.623***	162.641***
	(4.284)	(4.241)	(4.427)	(5.157)	(5.308)	(5.447)
Secured Loan Dummy$_t$=Yes	74.703***	74.415***	56.472***	73.063***	72.748***	48.054***
	(8.744)	(8.639)	(4.240)	(8.578)	(8.488)	(3.441)
X Collateral Discount$_t$			153.550**			148.474***
			(2.318)			(2.711)
Secured Loan Dummy$_t$=Missing	2.876	3.009	-7.644	2.709	2.889	-5.752
	(0.627)	(0.656)	(-0.973)	(0.592)	(0.631)	(-0.640)
X Collateral Discount$_t$			91.454			48.552
			(1.553)			(1.080)
Ln(Portfolio Value$_t$)		1.841	1.448		2.055	1.742
		(0.629)	(0.496)		(0.719)	(0.615)
ROA$_{t-1}$	-346.388***	-344.106***	-340.648***	-349.975***	-347.512***	-344.645***
	(-5.626)	(-5.572)	(-5.580)	(-5.602)	(-5.556)	(-5.633)
Tangibility$_{t-1}$	26.698	24.657	24.956	23.605	21.183	20.816
	(1.500)	(1.335)	(1.431)	(1.313)	(1.136)	(1.201)
Market-to-book$_{t-1}$	-3.834	-3.967	-3.888	-3.434	-3.542	-3.186
	(-1.197)	(-1.240)	(-1.224)	(-1.080)	(-1.115)	(-1.022)
Ln(Assets$_{t-1}$)	-4.123	-4.794	-4.745	-3.715	-4.445	-4.425
	(-1.222)	(-1.377)	(-1.359)	(-1.080)	(-1.239)	(-1.225)
Ln(Loan Maturity$_t$)	-3.294	-3.340	-3.282	-3.913	-3.970	-4.507
	(-0.334)	(-0.338)	(-0.334)	(-0.402)	(-0.408)	(-0.472)
Ln(Loan Amount$_t$)	-11.175***	-11.226***	-11.590***	-11.447***	-11.511***	-11.914***
	(-3.134)	(-3.135)	(-3.255)	(-3.178)	(-3.184)	(-3.331)
Loan Type Dummy	Included	Included	Included	Included	Included	Included
Loan Purpose Dummy	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.678	0.678	0.679	0.680	0.680	0.682
Observations	1,201	1,201	1,201	1,201	1,201	1,201

Table 5: Foreign Investment and Commercial Real Estate Prices

This table investigates the impact of foreign investment on commercial real estate prices. We regress quarterly *Average Unit Property Price*, defined as the natural logarithm of average price per square feet for industrial properties, offices, retail properties and apartments, on *Investment from Countries with Increased Uncertainty.* We assume that a country has increased policy uncertainty if the annual average policy uncertainty index (Baker, Bloom, and Davis, 2015) for that country is in the top quintile of its time-series distribution. *Investment from Countries with Increased Uncertainty* is the natural logarithm of total real estate purchases of countries with increased policy uncertainty (in million dollars) plus one, defined at the RCA market and property type level. Standard errors are clustered at the market level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Average Unit Property Price				
	(1)	(2)	(3)	(4)	(5)
Investment from Countries with Increased Uncertainty	0.066***	0.061***	0.028***	0.016**	0.0218***
	(4.253)	(3.426)	(3.844)	(2.091)	(3.364)
Property Type FE	Included	Included	Included	Included	
Quarter FE		Included		Included	
Market FE			Included	Included	
Quarter FE X Property Type FE					Included
Market FE X Property Type FE					Included
Adjusted R-squared	0.331	0.369	0.639	0.681	0.739
Observations	13,962	13,962	13,962	13,962	13,962

Table 6: Loan Spreads and Foreign Investment

This table reports the results from the regression of loan spreads on a firm's exposure to markets that received abnormal investments from countries with increased policy uncertainty. In order to detect property types and markets with abnormal investment, we first estimate the residuals from the regression of *Investment from Countries with Increased Uncertainty* on *Investment from Other Countries.* A property is subject to abnormal foreign investment if the predicted residual for its type and market is in the top 10% of the distribution. *I(Abnormal Investment$_t$>0)* is a dummy variable that equals one if at least one of the properties of the firm is located in a market that received abnormal investment from increased uncertainty countries in year t. Standard errors are clustered at the firm level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Loan Spread					
	Asset Deployability			*Number of Potential Buyers*		
	(1)	(2)	(3)	(4)	(5)	(6)
I(Abnormal Investment$_t$ > 0)	-18.818**	7.920	14.010	-18.622**	25.423	29.619
	(-2.492)	(0.625)	(0.993)	(-2.483)	(1.207)	(1.378)
X Collateral Discount$_t$		-195.514**	-178.129**		-228.156**	-206.314*
		(-2.323)	(-2.042)		(-2.027)	(-1.772)
X Secured Dummy$_t$=Yes			-17.669			-16.995
			(-1.128)			(-1.092)
X Ind.-Adj. Leverage$_{t-1}$		-140.073***	-124.905**		-197.798**	-176.156**
		(-2.605)	(-2.299)		(-2.369)	(-2.052)
Collateral Discount$_t$		113.973**	110.909**		154.081***	150.611***
		(2.242)	(2.149)		(2.873)	(2.809)
Ind.-Adj. Leverage$_{t-1}$	72.917***	120.136***	118.148***	73.131***	164.058***	161.312***
	(3.949)	(4.584)	(4.422)	(3.947)	(5.499)	(5.351)
Secured Dummy$_t$=Yes	73.593***	74.297***	78.149***	73.706***	73.120***	76.802***
	(8.422)	(8.686)	(8.366)	(8.454)	(8.654)	(8.385)
Secured Dummy$_t$=Missing	2.749	3.535	5.153	2.782	3.154	4.862
	(0.602)	(0.777)	(0.983)	(0.610)	(0.699)	(0.937)
X I(Abnormal Investment$_t$ > 0)			-7.915			-8.372
			(-0.689)			(-0.722)
Firm Controls	Included	Included	Included	Included	Included	Included
Loan Controls	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.678	0.681	0.681	0.678	0.682	0.682
Observations	1,201	1,201	1,201	1,201	1,201	1,201

Table 7: Loan Spreads and Land Supply Elasticity

We obtain land supply elasticities from Saiz (2010), which are available for 95 MSAs, and range between 0.60 and 5.45. We split the RCA markets into two equally sized groups with respect to their land elasticities, and then determine the real estate properties located in areas with below-median supply elasticity. Next, we calculate the percentage of a firm's real estate portfolio value that is located in an inelastic market *and* received abnormal investment from countries with increased uncertainty. *I(Abnormal Investment-Low Elasticity > 0)* is an indicator variable that equals one if a firm has *at least one* property located in an area with low supply elasticity and abnormal investment from countries with increased uncertainty. Standard errors are clustered at the firm level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Loan Spread	
	Asset Deployability	*Number of Potential Buyers*
	(1)	(2)
I(Abnormal Investment-Low Elasticity > 0)	26.669	60.595
	(1.139)	(1.645)
X Collateral Discount$_t$	-301.558**	-391.623**
	(-2.103)	(-2.086)
X Secured Dummy$_t$=Yes	21.681	25.798
	(0.725)	(0.810)
X Ind.-Adj. Leverage$_{t-1}$	-192.977**	-294.373**
	(-2.139)	(-2.329)
Collateral Discount$_t$	115.275**	156.230***
	(2.344)	(3.041)
Ind.-Adj. Leverage$_{t-1}$	115.750***	162.271***
	(4.482)	(5.576)
Secured Dummy$_t$=Yes	73.138***	71.287***
	(8.174)	(8.053)
Secured Dummy$_t$=Missing	3.681	3.561
	(0.762)	(0.744)
X I(Abnormal Investment-Low Elasticity > 0)	-7.717	-8.323
	(-0.511)	(-0.532)
Firm Controls	Included	Included
Loan Controls	Included	Included
Year FE	Included	Included
Industry FE	Included	Included
Adjusted R-squared	0.678	0.680
Observations	1,201	1,201

Table A1: Variable Definitions

This table presents the definitions of the variables used in this paper. Panel A includes the definitions of company-level variables obtained from Compustat Annual Files. All ratio variables in this panel are winsorized at the 2.5% and 97.5%. Panel B lists the definitions of property characteristics obtained from RCA Database. All company-level variables are measured at least one month and at most eleven months before the transaction date, depending on the firm's fiscal year end month. For instance, if the property was sold in December and the company's fiscal year ends in November, then the company controls are measured in that November, whereas if the property was sold in January and the company's fiscal year ends in February, then the company controls are measured in February prior to the sale. Panel C presents the definitions of loan-level variables from Dealscan.

Panel A: Company Variables

Variable	Definition	Compustat Item Name
ROA	Operating Income / Assets	**oibdp / at**
Tangibility	Net PPE / Assets	**ppent / at**
MVA	Market Value of Assets	**prccf** × **cshpri** + (**dltt** + **dlc**) + **pstkl**
Market-to-book	MVA / Total Book Assets	(**prccf** × **cshpri** + (**dltt** + **dlc**) + **pstkl**) / **at**
Ln(Assets)	Ln(Total Book Assets)	**ln(at)**
Total Debt	Short-Term Debt + Long-Term Debt	**dltt + dlc**
Leverage	Total Debt / Total Book Assets	**(dltt + dlc) / at**
Interest Coverage	Operating Income / Interest Expense	**oibdp / xint**
Ind.-Adj. Leverage	Leverage - Median Industry Leverage	
Median Industry Leverage	Calculated based on 3-digit SIC industry. If there are less than 5 firms in the 3-digit SIC industry, Fama-French 49 industries or 2-digit SIC industry definitions are used.	
Herfindahl Index	Sum of squared market shares of all firms in the same three-digit SIC industry	

Panel B: Property Variables

Variable	Definition
Unit Property Price	Ln[(price / square feet) + 1]
Size	Ln(square feet)
Age	Six categories: ≤10, between 11 and 20, 21 and 30, 31 and 40, 41 and 50, and above 50
Renovated Dummy	= 1 if there is non-missing data for the year that the property was renovated or expanded
Portfolio Dummy	= 1 if the sale is part of a portfolio transaction
CBD Dummy	= 1 if the property is located in a central business district or in the downtown of a city
Occupancy Rate	The floor space or units occupied by tenants as a percentage of the total leasable area of the building at the time of a sale
Flex	Denotes a property that is flexible in that it can be used for industrial or office activities
Average Unit Property Price	Natural logarithm of average price per square feet for property types Apartment, Industrial, Office and Retail

Panel C: Loan Variables

Variable	Definition
Spread	All-in-drawn spread winsorized at the 2.5% and 97.5%
Loan Amount	Loan amount in dollars
Loan Maturity	Loan maturity period in months
Loan Type	An indicator with one of the following values: term loan, revolver loan < 1 year, revolver loan ≥ 1 year, 364-day facility and others
Loan Purpose	An indicator with one of the following values: acquisition, corporate purposes, CP backup, debt repayment, takeover and others

Table A2: Robustness Tests (Unit Property Price)

Panel A reports the estimation results for the specification in column (4) of Table 2 (baseline model) using alternative distress proxies. Panel B reports the results from the robustness tests of the baseline model for different specifications and subsamples. Column (1) estimates the baseline model for the subsample before 2007. Column (2) includes two-digit SIC industry-fixed effects. The sample in column (3) is restricted to sales that are not part of a portfolio transaction. Column (4) restricts the sample to properties that are located in a different state than the seller's headquarters. Standard errors are clustered at the firm level. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Unit Property Price				
Panel A	(1)	(2)	(3)	(4)	(5)
Industry-Adjusted Leverage$_{t-1}$	-0.551***				
	(-3.393)				
Leverage$_{t-1}$		-0.659***			
		(-4.638)			
Medium Leverage Dummy$_{t-1}$			-0.181**		
			(-2.428)		
High Leverage Dummy$_{t-1}$			-0.229***		
			(-3.270)		
High Leverage & Low Current Assets Dummy$_{t-1}$				-0.155**	
				(-2.310)	
Interest Coverage Ratio$_{t-1}$					0.009***
					(3.075)
Property Characteristics	Included	Included	Included	Included	Included
Firm Controls	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included
Adjusted R-squared	0.615	0.617	0.614	0.601	0.606
Observations	2,274	2,274	2,274	2,175	2,218

Table A2 Cont.: Robustness Tests (Unit Property Price)

	Unit Property Price			
Panel B	(1)	(2)	(3)	(4)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$	-0.192***	-0.121**	-0.190***	-0.234**
	(-2.913)	(-2.486)	(-3.199)	(-2.488)
High Ind.-Adj. Leverage Dummy$_{t-1}$	-0.208**	-0.165***	-0.276***	-0.341***
	(-2.336)	(-3.118)	(-3.738)	(-3.208)
Adjusted R-squared	0.520	0.646	0.645	0.618
Observations	1,097	2,274	1,515	1,785
Industry-Adjusted Leverage$_{t-1}$	-0.457**	-0.392***	-0.650***	-0.705***
	(-2.594)	(-3.296)	(-4.559)	(-3.390)
Adjusted R-squared	0.520	0.647	0.645	0.615
Observations	1,097	2,274	1,515	1,785
High Leverage & Low Current Assets Dummy$_{t-1}$	-0.197***	-0.099**	-0.170***	-0.188**
	(-3.244)	(-2.512)	(-2.745)	(-2.200)
Adjusted R-squared	0.509	0.638	0.627	0.598
Observations	1,057	2,175	1,454	1,701
Interest Coverage Ratio$_{t-1}$	0.006**	0.004**	0.010***	0.011***
	(2.236)	(2.356)	(3.756)	(3.019)
Adjusted R-squared	0.505	0.634	0.627	0.605
Observations	1,067	2,218	1,461	1,741
Property Characteristics	Included	Included	Included	Included
Firm Controls	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included
Market FE	Included	Included	Included	Included
Industry FE		Included		

Table A3: Hedonic Model and Firm Distress

Columns (1)-(2) report the estimation results of the hedonic model where we regress *Unit Property Price* on various observable property characteristics. In column (2), we include property characteristics as well as their interactions with property type indicators. The reported coefficient estimates are for the reference property type (*Apartment*). Columns (3)-(6) report the coefficient estimates from the regression of the residuals estimated in column (2) on leverage tercile dummies and firm characteristics. In columns (1) and (2), standard errors are clustered at the RCA market level and in columns (3)-(6) at the firm level. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Unit Property Price (First Stage)		*Residual Price (Second Stage)*			
	(1)	(2)	(3)	(4)	(5)	(6)
Property Size	-0.180***	-0.047**				
	(-15.833)	(-2.101)				
Age Group 1	-0.241***	-0.291***				
	(-21.243)	(-13.986)				
Age Group 2	-0.401***	-0.473***				
	(-24.121)	(-14.259)				
Age Group 3	-0.476***	-0.548***				
	(-19.413)	(-13.576)				
Age Group 4	-0.487***	-0.458***				
	(-15.398)	(-6.472)				
Age Group 5	-0.468***	-0.569***				
	(-15.137)	(-9.422)				
Renovated	0.132***	0.087***				
	(9.066)	(2.974)				
Portfolio	0.002	-0.032				
	(0.121)	(-1.196)				
Central Business District	0.373***	0.347***				
	(4.804)	(4.094)				
Medium Ind.-Adj. Leverage Dummy$_{t-1}$			-0.192***	-0.180**	-0.184**	-0.165**
			(-2.657)	(-2.266)	(-2.397)	(-2.120)
High Ind.-Adj. Leverage Dummy$_{t-1}$			-0.224***	-0.267***	-0.211**	-0.250**
			(-2.777)	(-2.940)	(-2.373)	(-2.549)
ROA$_{t-1}$			-0.482*	-0.422	-0.560*	-0.374
			(-1.883)	(-1.320)	(-1.778)	(-1.080)
Tangibility$_{t-1}$			-0.029	0.011	-0.070	-0.031
			(-0.222)	(0.067)	(-0.434)	(-0.175)
Market-to-book$_{t-1}$			0.041	0.022	0.047*	0.029
			(1.615)	(0.844)	(1.843)	(1.086)
Ln(Assets$_{t-1}$)			-0.022	-0.019	-0.018	-0.021
			(-1.426)	(-1.171)	(-1.013)	(-1.284)
Quarter FE	Included	Included		Included		Included
Market X Year FE	Included	Included				
Property Type Interactions		Included				
Market FE					Included	Included
Adjusted R-squared	0.565	0.587	0.034	0.052	0.073	0.084
Observations	30,310	30,310	2,274	2,274	2,274	2,274

Table A4: Robustness Tests (Residual Price)

Panel A reports the estimation results for the specification in column (6) of Table A3 using alternative distress proxies. Panel B reports the results from the robustness tests of the baseline model for different specifications and subsamples. Column (1) estimates the baseline model for the subsample before 2007. Column (2) includes two-digit SIC industry-fixed effects. The sample in column (3) is restricted to sales that are not part of a portfolio transaction. Column (4) restricts the sample to properties that are located in a different state than the seller's headquarters. Standard errors are clustered at the firm level. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Residual Price				
Panel A	(1)	(2)	(3)	(4)	(5)
Industry-Adjusted Leverage$_{t-1}$	-0.506***				
	(-2.705)				
Leverage$_{t-1}$		-0.572***			
		(-3.648)			
Medium Leverage Dummy$_{t-1}$			-0.195**		
			(-2.126)		
High Leverage Dummy$_{t-1}$			-0.187**		
			(-2.320)		
High Leverage & Low Current Assets Dummy$_{t-1}$				-0.166**	
				(-2.179)	
Interest Coverage Ratio$_{t-1}$					0.009***
					(2.838)
Firm Controls	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included
Adjusted R-squared	0.078	0.080	0.077	0.074	0.093
Observations	2,274	2,274	2,274	2,175	2,218

Table A4 Cont.: Robustness Tests (Residual Price)

	Residual Price			
Panel B	(1)	(2)	(3)	(4)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$	-0.163***	-0.096**	-0.189***	-0.205*
	(-2.731)	(-2.039)	(-3.004)	(-1.918)
High Ind.-Adj. Leverage Dummy$_{t-1}$	-0.171*	-0.135***	-0.280***	-0.326**
	(-1.930)	(-2.650)	(-3.125)	(-2.498)
Adjusted R-squared	0.043	0.169	0.082	0.085
Observations	1,097	2,274	1,515	1,785
Industry-Adjusted Leverage$_{t-1}$	-0.388**	-0.320***	-0.640***	-0.644**
	(-2.291)	(-2.748)	(-3.704)	(-2.503)
Adjusted R-squared	0.042	0.169	0.080	0.077
Observations	1,097	2,274	1,515	1,785
High Leverage & Low Current Assets Dummy$_{t-1}$	-0.206***	-0.077**	-0.188**	-0.206**
	(-3.275)	(-2.032)	(-2.567)	(-1.983)
Adjusted R-squared	0.043	0.172	0.065	0.072
Observations	1,057	2,175	1,454	1,701
Interest Coverage Ratio$_{t-1}$	0.006**	0.004**	0.010***	0.012***
	(2.314)	(2.206)	(3.137)	(2.716)
Adjusted R-squared	0.050	0.162	0.088	0.092
Observations	1,067	2,218	1,461	1,741
Firm Controls	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included
Market FE	Included	Included	Included	Included
Industry FE		Included		

Table A5: Residual Prices and Quality Proxies

This table reports the results from the regression of *Residual Price* on each of the quality proxies. *Redevelopment/Renovation* is an indicator variable that equals one if the buyer's intention is to renovate or redevelop the property. *Vacant Dummy* indicates that the property is vacant at the time of the sale. *Occupancy Rate* is defined as the floor space or units occupied by tenants as a percentage of the total leasable area of the building. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Standard errors are clustered at the firm level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Residual Price					
Panel A.1	(1)	(2)	(3)	(4)	(5)	(6)
Redevelopment/Renovation	-0.196***			-0.181***		
	(-3.385)			(-3.157)		
Vacant Dummy		-0.354***			-0.335***	
		(-5.612)			(-6.078)	
Occupancy Rate			0.289***			0.284***
			(5.140)			(5.280)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$				-0.161**	-0.159*	-0.164**
				(-2.091)	(-1.825)	(-1.998)
High Ind.-Adj. Leverage Dummy$_{t-1}$				-0.238**	-0.225**	-0.249**
				(-2.435)	(-2.172)	(-2.499)
Firm Controls	Included	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.073	0.124	0.100	0.090	0.138	0.117
Observations	2,268	1,949	1,649	2,268	1,949	1,649

Panel A.2	(1)	(2)	(3)	(4)	(5)	(6)
Redevelopment/Renovation	-0.181***			-0.181***		
	(-3.056)			(-3.463)		
Vacant Dummy		-0.356***			-0.303***	
		(-6.056)			(-5.971)	
Occupancy Rate			0.293***			0.248***
			(5.365)			(4.671)
High Leverage & Low Current Assets Dummy$_{t-1}$	-0.157**	-0.149*	-0.171**			
	(-2.063)	(-1.858)	(-2.074)			
Interest Coverage Ratio$_{t-1}$				0.009***	0.008**	0.007*
				(2.799)	(2.349)	(1.939)
Firm Controls	Included	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.080	0.136	0.115	0.099	0.139	0.108
Observations	2,169	1,884	1,587	2,212	1,904	1,605

Table A6: Asset Deployability and Potential Buyers (Residual Prices)

This table reports the results from the regression of residual prices on firm distress with asset deployability interactions (Panel A) and with the number of potential buyer interactions (Panal B). *Office Dummy* is an indicator variable takes one for offices and for properties that can be used for both industrial or office activities. The number of potential buyers is measured by one of the following three variables: (i) *1-Herfindahl Index* is the Herfindahl Index of sales based on the firm's three-digit SIC industry, (ii) *10-K Count* is the number of companies in the seller firm's three-digit SIC industry that mentions the state of the property in its 10-Ks at least once during the year preceding the transaction (Garcia and Norli, 2012), (iii) *Headquarters count* is the number of companies in the seller firm's three-digit SIC industry whose headquarters are located in the same state as the property. Standard errors are clustered at the firm level. Market-fixed effects and quarter-fixed effects are defined for each property type separately. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

Panel A: Asset Deployability

	Residual Price			
	(1)	(2)	(3)	(4)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$	-0.185*			
	(-1.785)			
X Office Dummy	0.100			
	(0.843)			
High Ind.-Adj. Leverage Dummy$_{t-1}$	-0.349***			
	(-2.762)			
X Office Dummy	0.293**			
	(2.142)			
Industry-Adjusted Leverage$_{t-1}$		-0.663***		
		(-2.730)		
X Office Dummy		0.473*		
		(1.694)		
Interest Coverage Ratio$_{t-1}$			0.012***	
			(3.175)	
X Office Dummy			-0.011***	
			(-2.653)	
High Leverage & Low Current Assets Dummy$_{t-1}$				-0.245**
				(-2.400)
X Office Dummy				0.226**
				(1.983)
Firm Controls	Included	Included	Included	Included
Office Interactions	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included
Market FE	Included	Included	Included	Included
Adjusted R-squared	2,274	2,274	2,218	2,175
Observations	0.108	0.101	0.120	0.099

Table A6 Cont.: Asset Deployability and Potential Buyers (Residual Prices)

Panel B: Potential Buyers

	Residual Price								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1-Herfindahl Index	0.582***	0.272*	0.467***						
	(3.871)	(1.700)	(3.792)						
10-K Count				0.046***	0.031	0.049***			
				(2.989)	(1.390)	(3.192)			
Headquarter Count							0.049**	0.013	0.053***
							(2.562)	(0.465)	(2.763)
Medium Ind.-Adj. Leverage Dummy$_{t-1}$		-0.229			-0.166			-0.189**	
		(-1.507)			(-1.523)			(-1.969)	
X Number of Buyers		0.082			0.002			0.024	
		(0.443)			(0.068)			(0.667)	
High Ind.-Adj. Leverage Dummy$_{t-1}$		-0.628***			-0.427***			-0.397***	
		(-3.301)			(-3.201)			(-3.400)	
X Number of Buyers		0.556**			0.074**			0.106***	
		(2.555)			(2.215)			(2.907)	
Industry-Adjusted Leverage$_{t-1}$			-1.299**			-0.840***			-0.733***
			(-2.218)			(-3.139)			(-3.043)
X Number of Buyers			1.056			0.128*			0.131
			(1.575)			(1.738)			(1.637)
Firm Controls	Included	Included	Included	Included	Included	Included	Included	Included	Included
Quarter FE	Included	Included	Included	Included	Included	Included	Included	Included	Included
Market FE	Included	Included	Included	Included	Included	Included	Included	Included	Included
Adjusted R-squared	0.090	0.109	0.103	0.070	0.095	0.089	0.069	0.097	0.087
Observations	2,274	2,274	2,274	2,274	2,274	2,274	2,274	2,274	2,274

Table A7: Liquidity and Asset Selection

This table reports the coefficient estimates from the logit regression of *Sold Asset Indicator* that equals one if a property was sold in a given year and zero otherwise, on our liquidity proxies as well as various property characteristics and firm controls. *Ln(Annual Sales Volume)* is the natural logarithm of annual sales volume in a given RCA market, defined for each property type separately. *Portfolio Volume Rank* represents the portfolio (percentile) ranking of the RCA market where the property is located in with respect to the *Annual Sales Volume*. Standard errors are clustered at the firm level. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***, respectively.

	Sold Asset Indicator			
	(1)	(2)	(3)	(4)
Ln(Total Sales Volume)	0.176***		0.224***	
	(4.420)		(5.309)	
Portfolio Volume Rank		0.272**		0.196
		(2.194)		(1.319)
Property Size	0.028	0.036	-0.004	0.005
	(0.831)	(1.053)	(-0.092)	(0.122)
Age Group 1	0.135	0.146	0.098	0.104
	(0.967)	(1.021)	(0.585)	(0.621)
Age Group 2	-0.004	0.005	-0.011	-0.006
	(-0.026)	(0.031)	(-0.066)	(-0.035)
Age Group 3	-0.131	-0.123	-0.186	-0.175
	(-1.048)	(-0.975)	(-1.235)	(-1.163)
Age Group 4	-0.039	-0.034	-0.114	-0.108
	(-0.262)	(-0.232)	(-0.597)	(-0.565)
Age Group 5	-0.003	0.005	-0.050	-0.030
	(-0.023)	(0.031)	(-0.281)	(-0.173)
Renovated	0.153	0.156	0.263**	0.265**
	(1.406)	(1.447)	(2.256)	(2.295)
Central Business District	-0.216	-0.221	-0.243	-0.251
	(-1.285)	(-1.312)	(-1.338)	(-1.392)
Office	-0.122	-0.009	-0.136	0.006
	(-1.133)	(-0.094)	(-1.021)	(0.043)
Retail	-0.201*	-0.158	0.001	0.074
	(-1.790)	(-1.409)	(0.005)	(0.462)
Portfolio	0.704***	0.717***	0.934***	0.939***
	(3.766)	(3.821)	(3.148)	(3.144)
Ind.-Adj. Leverage$_{t-1}$	1.015**	1.035**	1.551	1.574
	(2.066)	(2.101)	(1.155)	(1.181)
ROA$_{t-1}$	-2.590**	-2.676***	-4.568**	-4.518**
	(-2.541)	(-2.671)	(-2.139)	(-2.124)
Tangibility$_{t-1}$	-0.755***	-0.784***	-3.064*	-3.230**
	(-2.946)	(-3.046)	(-1.940)	(-2.039)
Market-to-book$_{t-1}$	-0.052	-0.042	0.160	0.166
	(-0.625)	(-0.504)	(1.484)	(1.531)
Ln(Assets$_{t-1}$)	0.065	0.062	-0.419	-0.413
	(1.600)	(1.526)	(-1.628)	(-1.613)
Year FE	Included	Included	Included	Included
Market FE	Included	Included	Included	Included
Firm FE			Included	Included
Observations	20,588	20,588	19,671	19,671