HOW DOES EQUITY-BASED COMMERCIAL REAL ESTATE CROWDFUNDING AFFECT EXPECTED RETURN AND PRINCIPLES OF TRADITIONAL REAL ESTATE INVESTMENT?

by

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Real estate crowdfunding (RECF) is a new and evolving investment vehicle that is disintermediating traditional capital markets. This research is one of the first empirical studies surrounding the RECF space, with the goal of identifying the campaign effects of equity crowdfunding on annualized expected return for commercial real estate projects. This research uses a hand-collected sample of 165 projects from seven leading U.S.-based RECF platforms. I analyze whether property-, campaign-, and financing-data explain annualized expected returns of RECF projects based on traditional real estate investment principles. In line with traditional principles, results show that projects with higher risk (requiring development, redevelopment, or renovations) and shorter anticipated holding periods correlate with higher expected returns. Additionally, an increase in the ratio of crowdfunded equity (equity released to the crowd) to the project's size results in negative expected returns for investors. This signaling would provide evidence that even in the face of disintermediation, actors in this market may provide a certification role.

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SECTION I: Introduction

Real estate as an asset class represents the single largest component of wealth in our society, constituting over 13% of the U.S. gross domestic product annually, exceeding the size of equities, mortgages, bonds, and treasury securities (Bureau of Economic Analysis).[1] The real estate asset class serves as a significant source of value creation in the economy and the largest investment for most families. There is seldom an opportunity for smaller investors to directly invest in commercial real estate (CRE) development and acquisition, an industry historically defined by large capital investments and elite networks. The formation of a new type of crowdfunding security and appearance of CRE web-based crowdfunding platforms may be the closest thing to disrupting the CRE and private capital markets financing relationship. This paper focuses on the convergence of two different investment markets, commercial real estate and crowdfunding.

The volume of private and institutional capital supplied to the U.S. commercial and multifamily real estate market sales reached over $432 billion FY2016.[2] The National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index, which acts as a benchmark for the U.S. real estate market, reported an average annual return of 12.7% in 2015, beating any other U.S. indexes or securities such as the S&P 500 and Dow Jones during that period (NCREIF Index). Real estate developers typically use private capital markets to finance projects, limiting investment opportunities strictly to institutional or wealthy (accredited) investors. Unless small

[1] See Bureau of Economic Analysis, Gross-Domestic-Product-(GDP) by Industry Data, Value added. In 2016, 13.3% of GDP came from real estate, rental, and leasing.
[2] JLL Q4 2016 Investment Outlook, United States

investors have access to a network of private placement transactions, direct CRE investment remains unavailable to most individual portfolios. CRE has typically only been available to small investors through Real Estate Investment Trusts (REIT), a security (fund) that invests in real estate and trades as shares on a stock exchange.

Crowdfunding is just beginning to enter popular vernacular; however, there are different definitions available. The concept of crowdfunding draws its roots from the intersection of microfinance and crowdsourcing. In the case of crowdfunding, the objective is to collect money for investment. As the industry emerges, separate crowdfunding models have developed: (1) Donation-based crowdfunding; (2) Rewards-based; (3) Credit-based (debt); (4) Equity-based. In donation-based crowdfunding, contributors generally donate small capital amounts to a specific, charitable cause (i.e. GoFundMe). Rewards-based crowdfunding involves investors receiving a tangible item or service in return for funds (i.e. Kickstarter, Indiegogo). In credit-based crowdfunding, the crowd lends money with the understanding the loan will be repaid with interest (i.e. Lending Club). Equity crowdfunding is the online process in which the 'crowd' invests in a private security in exchange for ownership (Andrews, 2013). This paper focuses specifically on equity-based crowdfunding, as it relates to direct commercial real estate investment.

Real Estate Crowdfunding termed "RECF" is a new and evolving market, where the efficiencies of technology are consolidating deal flow while adding transparency to investing. Through crowdfunding, an individual investor does not have to rely on networks to locate deals or put up $100,000+ into a single deal. Crowdfunding eliminates any barriers to entry historically associated with real estate development and

acquisition. Real estate developers can rely on platforms to solicit investments and investors can access pre-vetted deals online with as little as $1,000.

Due to the infancy of the industry, the term “real estate crowdfunding” does not have a standard definition. For this paper, RECF follows Schweizer and Zhou’s (2016) literature definition:

> *“Real estate crowdfunding is a form of financing in which real estate project developers make an open call on the internet (through specialized platforms) to sell a specified amount of equity- or bond-like shares in a company or project, with the aim of attracting a large group of (primarily accredited) investors.”*

RECF offers investors the ability to choose between debt or equity investment instruments. The instruments differ in returns and risk. Utilizing debt crowdfunding, the investor acts as a lender to the property owner or deal sponsor. The “loan” is secured by the property, as the collateral, and investors receive a fixed rate of return established by the loan’s interest rate (Wardrop, 2010). Equity crowdfunding exists when investors act as shareholders in the property and the risk is proportionate to the amount of capital invested. Investor returns are earned, after mortgage debt has been satisfied, through shares in rental income of the property and the appreciation value upon disposition. The benefit of equity investments is the offer of no cap on returns, contrary to debt that have a ceiling of the fixed payments. However, an increase in expected return is paired with higher risk, such that equity investors are second-in-line, compared to debtholders, to receive payback on investment in the event of a default.

Process/Industry

Regardless of the fundraising process, real estate development and private equity deals are structured in a similar fashion, utilizing both equity and debt capital markets. The cost of a real estate project has a capital structure consisting of a bank loan (majority), real estate developer cash (minority), and the remaining equity that requires investment. This empirical analysis will be centered on the sponsor, also termed "the syndicator" and General Partner (GP). Private equity real estate is often capitalized through a General Partnership/Limited Partnership joint venture (JV). Typically, 90% of the equity is distributed to the limited partners and 10% is kept for the sponsor. The sponsor sources assets, underwrites transactions, negotiates deals, secures financing, performs due diligence, and handles the disposition of assets. A significant value that RECF brings to sponsors is speed and ease of capital raising, allowing entities to expedite the capital raising timeline that traditionally posed as a bottleneck.

Crowdfunding models are still in their infancy but are beginning to gain traction. According to Massolution 2015 Crowdfunding Industry Report, total North American crowdfunding industry fundraising volume in 2015 reached $17.2 billion between all crowdfunding models. Specifically, real estate crowdfunding globally grew 156% to over $2 billion in 2015, with North America remaining the largest region by funding volume.[3]

The JOBS Act: A Paradigm Switch

The greatest accelerator to the growth of the crowdfunding phenomenon was the Jumpstart Our Business Startup Act (JOBS Act) signed into law on April 5, 2012 by

[3] Massolution RE Crowdfunding 2015 Report

President Barack Obama. The purpose of the law was to encourage funding of U.S. small businesses by easing securities regulations ("American Jobs Act"). The JOBS Act was introduced to Congress as an attempt to keep up with the technological innovations introduced in the financial sector. It introduced a new term to securities law, "crowdfunding". The act established the ability for startups and small businesses to raise capital through securities offerings using online crowdfunding. Obama described the act as "a game-changer" for both the crowdfunding industry and for all entrepreneurs.[4] The act allows small companies to access pools of capital from many investors, which was previously only available through large financial channels. Congress amended the Securities Act of 1933 and the Exchange Act of 1934, both longstanding regulations in U.S. history, in the JOBS Act.

The JOBS Act is expansionary by nature and defines a new type of security issued by a company and a new marketplace for these securities (Burgett, 2013). The act opened the door to numerous methods of raising capital; this thesis specifically focuses on one method, "crowdfunding". The largest changes for real estate investing and equity crowdfunding are within Titles II: Access to Capital for Job Creators, III: Crowdfunding, and IV: Small Capital Formation.

SEC Regulations

While the JOBS Act was signed into law in 2012, each component title did not become effective until the SEC completed the rules of administration. Congress charged the SEC with the responsibility of writing the rules to enforce the law. This process has

[4] JOBS Act Bill Signing, https://obamawhitehouse.archives.gov/the-press-office/2012/04/05/remarks-president-jobs-act-bill-signing

proven to be tedious as the SEC slowly releases administrative guidelines. The inception of a new security into the U.S. financial market can create a lot of ambiguity and vulnerability, making it highly scrutinized by the SEC.

Titles I, V, and VI of the JOBS Act became effective immediately, but Titles II, III, and IV awaited more detailed rulemaking by the SEC (H. R.3606 U.S. Congress JOBS Act). The SEC did not meet its original rulemaking deadlines, releasing administrative guidelines periodically since 2012. The first action of the SEC was to address Title II and lift the general solicitation ban on the sale of securities in 2013, an exemption under Regulation D, rule 506(c) of the Securities Act (Rule 506 of Regulation D). This rule alone, allowed for the creation of Real Estate Crowdfunding (RECF) platforms before any of the other rules on each Title were effective. This specific rule allows for general solicitation and mass marketing, including via the internet, of private placement offerings to only accredited investors. The SEC defines an accredited investor as someone who meets one of two requirements: *A net worth, or joint net worth with the person's spouse, that exceeds $1.0 million at the time of the purchase; or an individual with an income exceeding $200,000 for single investors and $300,000 for a married couple in each of the two most recent years*.

In March of 2015, the SEC approved and released the rules addressing Title IV, Small Capital Formation, of the JOBS Act. The approval of Regulation A+ further enhanced fundraising opportunities with the ability to include both accredited and non-accredited investors. Effectively, companies are now capable of soliciting up to $50 million from non-accredited investors using a mini-registration system (Austin, 2015). Real estate developers, operators, and sponsors will now have access to enormous new

pools of direct real estate investors. However, the majority of online platforms launched their offerings using the Regulation D, 506(c) structure, which is strictly for accredited investors.

Lastly, after more than three years, the SEC released the proposed Title III final crowdfunding rules in March of 2016. Ultimately, Title III rules will bring non-accredited investors into the fold for equity crowdfunding in a limited capacity. This new regulation will open the doors to over 300 million potential startup investors looking to get involved in initial capital formation. While Title III does democratize access to startup investment opportunities, it comes with limitations on both the investor and the crowdfunding entity. Most notably, it limits the investment amount companies can raise through crowdfunding offerings to $1 million in a 12-month period. Additionally, investors are subject to annual caps based on the income and wealth of the individual. The crowdfunding limit related to Title III does not apply to the RECF industry because investment opportunities in the direct real estate investment space are only open to accredited investors at this time.

The regulatory process for the JOBS Act has proven to be difficult and incomplete, leaving many parties in both the public and private sectors displeased. The introduction of a new security within the U.S. financial markets requires a robust regulatory structure and this task is compounded by the SEC's mission to protect investors from fraud and misrepresentation. As commercial real estate crowdfunding evolves, SEC rulemaking will continue to adapt to the intricacies of financial technologies and the resulting effects on the general population.

SECTION II: Hypothesis Development

Little empirical research has been conducted surrounding the private CRE market. Property specific data has historically been difficult to obtain as owners of CRE are reluctant to provide proprietary data for academic research and the data often provides only limited information. The choice of which independent variables to include in the analysis is based upon relevant literature on private real estate development and investment in traditional capital markets. There are few studies on the risk-return relationship of private real estate at the property level, but the existing literature allows for a stronger understanding of which variables to control for and their influence on the interpretation of the results. This research explores how property, campaign, and financing characteristics affect expected return for equity-based CRE crowdfunding projects.

The first goal of this research is to predict annualized expected return of RECF projects exclusively from property characteristics. The underlying asset of RECF projects are real properties, where cash-flow risks are largely determined by property characteristics. Physical property variables are a major element of a property's value and, therefore, have a direct impact on returns. The main explanatory variables within property characteristics are *size, development,* and *multifamily*.

H1 (*Property Characteristics*): *The expected return for equity-RECF projects is positively associated with the underlying property's level of development, size, and multifamily status.*

The study explores the effect of size by including the natural log of the dollar amount of the estimated value of the commercial property, *log(size)*.[5] Estimated value is measured by the estimated renovated/repaired value for renovation projects and appraised value for all other projects. The *size* factor in real estate is considered because it has been found to work opposite to the size relationship within the stock market, where larger properties command an expected return premium (Pai, 2007). This could possibly signify an 'illiquidity premium' for larger properties as it may be more difficult to sell in a market downturn. Pai and Geltner find that larger value properties located in top-tier markets exhibit higher returns than smaller properties located in tertiary markets. This variable is expected to be positive because of the risk premium associated with larger, commercial properties.

This analysis controls for whether the property type is multifamily by including a dummy variable, *multifamily*. This variable takes on a value of one if the property-type identifies as multifamily, five or more units, or zero if the property type is different. Based on this specification, approximately 55% of the project observations in this analysis are multifamily property-type. Examining each commercial property-type separately is unrealistic due to unavailable public data in the crowdfunding space currently. Property-specific characteristics, such as property-type and location, explain a majority of long-term returns in private real estate investment. The NCREIF database

[5] Natural log transformation was applied for the independent variable because of a non-linear relationship between the independent and dependent variables. Distribution of independent variable had a positive skew and logarithm transformation helps fit the variable into a linear model.

indicates that apartment and retail properties have the largest expected returns out of all property types by size and tier.[6]

This analysis also controls for asset risk, measured by level of development (or redevelopment) and major renovation required by the sponsor. This asset risk explanatory variable is represented as a dummy variable, *development.* Expected return of a direct real estate equity investment is a function of the cash flow risks associated with the property, including the level of development or redevelopment required once the property is acquired. The largest cash flow risks are land development projects because of the terms and uncertainties surrounding project budget and disposition. Ultimately, risk is tied strongly with level of development required for the project (Ling, 2013). For this empirical study, projects were categorized from online marketplaces into the real estate private equity four major investment strategies, core, core-plus, value-add, and opportunistic. Each strategy has its own risk-return relationship (Brady, 2016). A designated investment profile provides investors information surrounding the risk, location, occupancy, and state of the property. For RECF campaigns, the sponsor (General Partner) acts as the underwriter and will designate the property's investment profile on the marketplace providing insights to the riskiness of the project. For properties without a designated investment profile, the underwriting sponsor's private equity investment strategy (found on the organization's website) was used in its place. A *development* value of one indicates the property lies within the value-add or opportunistic profile where a greater risk occurs from major renovations or development to the property. A *development* value of zero indicates the

[6] NCREIF Property Index (NPI), https://www.ncreif.org/data-products/property/

project is a core or core plus investment profile, with limited renovation required and ultimately less risk. This variable is expected to be positively related to advertised return because of the risk premium expected by investors for riskier assets.

The second goal of this research is to predict expected return of RECF projects from campaign characteristics. The structure and length of the campaign influences expected returns for investors. Campaign characteristics focus on the sponsor's decisions and platform fixed effects. The major independent variables for campaign characteristics predicting advertised return are *term* and *minimum investment*.

H2 (*Campaign Characteristics*): *The expected return for RECF equity properties is positively associated with the targeted investment holding period and a higher minimum investment, keeping property characteristics constant.*

Term acts as a campaign independent variable that refers to the estimated holding period of the asset until sale. Brick and mortar real estate investments represent illiquid assets; therefore, the property tenure is a crucial variable for investors. The targeted holding period provides investors an idea of how long capital is tied up until the sale of the property. Different property-types and construction plans require different expected holding periods, which can vary from approximately one year to more than ten years. The targeted holding period, *term*, is a factor that may have a significant effect on the expected return. Because RECF investments are mostly illiquid, greater holding periods translate to greater risk. An illiquidity premium is anticipated to compensate for greater systematic risk (Acharya, 2005). The *term* variable is expected

to have a positive effect on advertised return as the illiquidity premium increases with the holding period.

RECF campaigns differ by the *minimum investment* amount required by investors. *Minimum investment* varies across platforms and specific deals, typically ranging from $5,000-$50,000. This study explores the effect of minimum investment by including the natural log of the dollar amount of the minimum investment, *log(min_invest)*.[7] Due to lack of data available from private equity real estate deals for minimum investment requirements, we can borrow from mutual fund empirics. Higher minimum investment requirements for retail and institutional mutual funds are related to higher performance, resulting in higher expected returns (Karceski and James, 2002). Based on mutual fund performances, we can assume that RECF projects with higher minimum investments are related to higher expected returns.

The third goal of this research is to predict expected return of RECF projects from financing characteristics. The financing decisions and capital stack structure made by the sponsor effect investment returns. Specifically, this research explores how *leverage* and *crowdfunding ratio* predict expected returns.

H3 (*Financing Characteristics*): *RECF project's expected return is positively related to leverage and negatively related to crowdfunded ratio, keeping property characteristics constant.*

The explanatory variables related to *financing characteristics* for RECF include *leverage* and *crowdfunded ratio*. *Leverage* represents the loan amount of the project

[7] Natural log transformation is used once again for the same reasons given in footnote 3

divided by the size or appraised value of the property. A close relationship exists between capital structure for a CRE deal and cash flow risk. A return predictive variable related to the financing structure of each real estate deal is the Loan-to-Value (LTV) ratio. Although this empirical analysis focuses solely on equity-based RECF deals, a property's *leverage* represents a source of financial risk for equity investors. As debtholders are usually paid first in cases of default, an increase in *leverage* (higher LTV) increases equity investor risk due to no value remaining after debtholder payment. Imposing higher *leverage* in the financing structure passes excess risk to the equity investor which translates to higher expected equity returns.

The *crowdfunded ratio*, the percentage of equity capital raised by the crowd for projects, may influence the annualized expected return. *Crowdfunded ratio* may be one of the determinants of crowdfunding success as it relates to expected return, and is the only explanatory variable that addresses signaling influence from sponsors. Ahlers, et al (2005) presented the first-ever empirical examination of signaling within the equity crowdfunding context. They found a negative relationship between the amount of equity sold to investors and funding success. Ahlers, et al argue that indirect investment in an entrepreneur's own project, in other words keeping more equity, is an effective way to signal quality. Although CRE assets differ from venture capitalism investments, the equity signal is still relevant. Sponsors, as the underwriters of the project, allocate a portion of the overall financing to the crowd. The greater the *crowdfunded ratio* indicates that the sponsor is signaling "less skin in the game" and vice versa. *Crowdfunded ratio* variable is expected to have a negative relationship with annualized expected return.

SECTION III: Data & Methodology

This analysis looks to explain advertised expected returns of RECF projects by several predictor variables. These variables allow the study to control for correlations among the predictors and the expected returns. The analysis employs an ordinary least squared (OLS), linear regression where the dependent variable is the targeted Internal Rate of Return (IRR) of direct commercial real estate investments. All data for the following independent variables was collected from RECF platform marketplaces and online commercial real estate brokerage marketplaces. This study examined 165 commercial projects that involved equity crowdfunding from seven leading U.S.-based RECF platforms: 1) CrowdStreet, 2) Real Crowd, 3) iFunding, 4) EarlyShares, 5) Equity Multiple, 6) Acquire Real Estate, 7) RealtyShares. These specific platforms were selected because they have areas of operations on in the U.S., offer equity financing projects, serve commercial properties, have similar fundraising procedures, and they all present information in a similar fashion. This study investigates funded RECF deals from Q4 2015 through Q1 2017. It includes commercial real estate deals across all property-types, investment profiles, and locations.

The breakdown of projects by platform and property-type composition for this study can be found in Table 1. Among all commercial projects, multifamily projects make up 55% of the total subtotal. Some platforms (e.g. Acquire Real Estate & Equity Multiple) are relatively new and thus list fewer campaigns than more established platforms (e.g. Crowdstreet & RealtyShares). Additionally, platforms specialize in specific strategies and crowdfunding securities. For example, CrowdStreet specializes in equity financing projects for commercial real estate only. RealtyShares provides both

equity and debt crowdfunding vehicles, but has a higher percentage of residential properties available for investment on the marketplace. Figure 2 provides a platform overview that addresses specific strategies. For this research, only equity CRE projects were collected for analysis.

All data for this study was hand-collected through investor registration in the above marketplaces. For each RECF project, missing property- and financing-data was complemented with additional research into CRE brokerage sales. Figure 3 provides the correlation coefficients for the main independent variables. Figure 4 gives descriptive statistics for the 165 RECF campaigns sample.

Figure 1: Sample Construction

This table gives the RECF platforms for each equity campaign launch and the specific commercial real estate property-types examined in this study. Information comes from the respective webpage. Note that full information was not available for all platforms.

Sample by Real Estate Crowdfunding Platform

	Equity Projects
RECF Platform	
CrowdStreet	49
iFunding	9
RealtyShares	15
Real Crowd	63
Acquire Real Estate	7
Equity Multiple	13
EarlyShares	9
Total	**165**

Commercial Property-Types	
Multifamily	90
Office	22
Retail	21
Hotel	16
Industrial	8
Other	8
Total	**165**

Figure 2: Sample Construction

This figure gives the RECF platforms for each equity campaign launch and the specific commercial real estate property-types examined in this study. Information comes from the respective webpage. Note that full information was not available for all platforms

Platform	Crowdstreet	iFunding	Real Crowd	RealtyShares	Equity Multiple	EarlyShares	Acquire Real Estate
Raised Capital ($)	$1.7bn	N/A	$2.6bn	N/A	$300m	$300m	N/A
Commercial/ Residential	Commercial	Commercial	Commercial	Commercial & Residential	Commercial	Commercial	Commercial
Equity/Debt	Equity	Equity & Debt	Equity	Equity & Debt	Equity & Debt	Equity & Debt	Equity & Debt
Number of Members	10,000+	N/A	20,000+	92,000+	N/A	N/A	N/A
# of Projects	92	N/A	N/A	550	N/A	N/A	11
Founding Date	2013	2012	2013	2013	2013	2011	2014
Type of Investors	Accredited Investors	Accredited Investors	Accredited Investors	Accredited Investors	Accredited Investors	Accredited Investors	Accredited Investors
Type of Properties	Multifamily, single family, student housing, office, retail, industrial	Multifamily, office, industrial, retail, hospitality, and land	Multifamily, retial, office, industrial, development, and funds	Multifamily, residential, office, industrial, self-storage, retial, medical office,	Multifamily, office, industrial, retail, hospitality	Multifamily, office, industrial, retail, hospitality	Multifamily, office, industrial, retail, hospitality

Figure 3: Correlations between Independent Variables

VARIABLES	*Exp Return*	*development*	*log(size)*	*multifamily*	*term*	*log(min invest)*	*leverage*	*cf ratio*
Exp Return	1.0000							
development	0.3402	1.0000						
log(size)	0.1608	-0.0580	1.0000					
multifamily	0.1157	0.0820	0.0630	1.0000				
term	-0.2219	-0.1405	0.2539	-0.0441	1.0000			
log(min invest)	0.1206	-0.1148	0.3385	0.0510	0.2430	1.0000		
leverage	0.2038	0.0356	0.0672	0.4331	0.0541	0.1218	1.0000	
cf ratio	-0.2218	0.0331	-0.1852	-0.0031	-0.1519	0.2528	-0.0612	1.0000

Figure 4: Summary Statistics of Variables

VARIABLE	Obs	Mean	Std. Dev.	Min	Max
development	164	0.726	0.448	0.00	1.00
size	95	7.044	0.427	5.56	7.97
multifamily	165	0.558	0.498	0.00	1.00
term	154	4.807	2.019	0.83	10.00
min invest	135	4.303	0.341	3.00	4.88
leverage	55	0.704	0.081	0.57	0.93
cf ratio	83	0.274	0.368	0.00	2.86

Four OLS regressions were employed in this thesis, which include a combination of the previously discussed independent variables. The regression equations used in the analysis are detailed below and the results are presented in Figure 6. Regression equations (1) - (3) directly address hypotheses 1-3. OLS regression (4) includes all explanatory variables discussed previously and their effect on expected return.

Figure 5: OLS Regressions

(1)

$$Exp\_Return_{it} = \alpha_i + \beta_1 development_i + \beta_2 log(size)_i + \beta_3 multifamily_i + \epsilon_i$$

(2)

$$Exp\_Return_{it} = \alpha_i + \beta_1 development_i + \beta_2 log(size)_i + \beta_3 multifamily_i + \beta_4 term_i + \beta_5 log(min\_invest)_i + \epsilon_i$$

(3)

$$Exp\_Return_{it} = \alpha_i + \beta_1 development_i + \beta_2 log(size)_i + \beta_3 multifamily_i + \beta_4 leverage_i + \beta_5 cf\_ratio_i + \epsilon_i$$

(4)

$$Exp\_Return_{it} = \alpha_i + \beta_1 development_i + \beta_2 log(size)_i + \beta_3 multifamily_i + \beta_4 term_i + \beta_5 log(min\_invest)_i + \beta_6 leverage_i + \beta_7 cf\_ratio_i + \epsilon_i$$

SECTION IV: Results

Figure 6: Regressions

Regressions on the determinants of change in the dependent variable, expected return annualized for investors. *Development* is a dummy variable which takes the value of one if the investment profile of the real estate asset is either value-add or opportunistic. *Size* indicates the size of the commercial real estate property in terms of "as-is" appraised value or renovated/repaired value. *Multifamily* is a dummy variable that takes the value of one if the property-type is an apartment complex with 5+ units. *Term* indicates the targeted investment hold period in years. *Minimum Investment* is the minimum dollar amount requirement for each deal available to investors. *Leverage* is the ratio of debt financing to estimated value (size) of the property. *Crowdfunded Ratio* is the ratio of crowdfunding utilized to finance the total transaction divided by the estimated value (size) of the property.[8]

	Dependent Variable: Expected Return			
	(1)	(2)	(3)	(4)
Property Characteristics				
Development	0.039***	0.041***	0.040***	0.038**
	(3.78)	(3.26)	(2.97)	(2.61)
Size	.004	.009	.014	.012
	(.37)	(.67)	(.89)	(.72)
Multifamily	.011	.012	-.0001	-.001
	(1.18)	(1.23)	(-0.09)	(-.11)
Campaign Characteristics				
Term	-	-.006**	-	-.006**
		(-2.58)		(-2.36)
Minimum Investment	-	.004	-	.041*
		(.819)		(1.78)
Financing Characteristics				
Leverage	-	-	.111	.095
			(1.39)	(1.10)
Crowdfunded Ratio	-	-	-.043	-.075**
			(-1.42)	(-2.28)
Constant	0.122	.098	-.011	-.119
	(1.55)	(1.07)	(-.09)	(-.92)
Observations	93	78	53	49
R-squared	0.168	0.269	0.219	0.337

coeffecient, t-statistic in parentheses

*** p<0.01, ** p<0.05, * p<0.10

[8] Each regression has a slightly different sample size because Stata, the statistical software employed to run this analysis, omits observations that are missing data on at least one of the independent variables.

Figure 6 presents the results for the multivariable analysis. In model (1), the analysis primarily considers property characteristics as explanatory factors, addressing Hypothesis 1. In model (2), campaign characteristics, *term* and *min investment*, are added as independent variables, addressing Hypothesis 2. Model (3) addresses Hypothesis 3, looking at financing characteristics, *leverage* and *crowdfunded ratio*, paired with property characteristics in relation to expected return. Model (4) incorporates all independent variables into the regression model to analyze the relationship between property, financing, and campaign characteristics and the combined effect on annualized expected return.

In line with Hypothesis 1, model (1) indicated that all three *property characteristic* variables, *development, size*, and *multifamily*, have positive effects on annualized expected return. This confirms the principles of investment risk and property-type in the RECF market. If the project involves development or redevelopment, as opposed to refinance, minor renovations, or lease-up, is larger in size (value), and multifamily property-type, the expected return is higher in most of the models. However, the coefficient estimates for *size* and *multifamily* are insignificant in most cases. Although *multifamily* is positive in models (1) and (2), it becomes negative in the remaining models after adding more controls.

The variable of risk, measured by development or redevelopment required for the project, *development,* is of particular interest because it has not been examined in relevant literature pertaining to RECF. The estimated coefficient for this variable is significant at the 1% level and, as expected, has a positive correlation with the annualized expected return for investors. *Development* is the most accurate indicator of

risk level out of all explanatory variables, as it signified whether the sponsor planned major renovations or development on each project. To better understand this important variable, its relationship with the independent variable, *term*, which is additionally significant at the 5% level throughout this analysis, requires examination. Figure 3 shows the correlation between *development* and *term* as -14.05%. The interpretation of this negative correlation is that projects within the value-add and opportunistic category, requiring heavier renovation/development, are typically held for shorter periods due to the risk associated with the project. Core and core plus assets are less risky and therefore bought and held for longer terms to generate sustained cash flows. *Development* proves to be the most significant variable explaining expected returns, with an average coefficient of .04.

Campaign characteristics prove to be some of the most important factors in explaining advertised returns. The coefficient estimates of *term* are consistent and highly statistically significant across all model specifications, indicating a negative relationship between holding period length and expected returns, contrary to Hypothesis 2. This is most likely because of the correlation and association with *development*, level of risk, which proves to have a greater effect on expected return. In line with Hypothesis 2, *min investment* is positively associated with expected return, however, only slightly significant across some of the model specifications. For example, a 1-standard deviation increase in *minimum investment* is associated with a .41% premium, based on model (4).

According to the regression results presented in Figure 6 model (3) - (4), financing characteristic *leverage* has a positive effect on annualized expected return.

Unexpectedly, the *leverage* variable is not significant at any level. Although this estimated coefficient is not statistically significant, the analysis shows that a larger *leverage* ratio indicates a slight positive expected annual return for investors.

The *crowdfunded ratio* variable is of particular interest in this analysis because of the signaling effect to investors described earlier. This theory has not been examined in relevant literature pertaining to CRE. The estimated coefficient for *crowdfunded ratio* is statistically significant at the 5% level in model (4) and, as expected, has a negative correlation with the expected return. This indicates that more equity released to the crowd by the sponsor relative to the *size* of the project translates to lower expected return for investors. However, greater crowd participation in projects with less risk and, therefore, lower expected returns may be a conscious choice for sponsors selecting which projects to open to the public. Sponsor's goal within RECF is to maximize project funding chances, where complexity and project risk is lower for less sophisticated investors. The idea that more complex deals are typically self-selected privately by sponsors, which consist of higher expected returns as a form of compensation. Oppositely, higher *crowdfunding ratios* are negatively associated with expected returns. For investors, the amount of equity available to the crowd can act as a signal for the relative risk-level, complexity, and expected return of online projects.

Baseline results largely support Hypotheses 1-3, and suggest significant relationships among expected return and property, campaign, and financing characteristics, most notably, *development*, *term* and *crowdfunded ratio*.

SECTION V: Conclusion

To identify the effects of equity crowdfunding on annualized expected return of commercial real estate projects, an empirical analysis on 165 equity crowdfunded CRE projects was performed.[9] The analysis resulted in significant expected returns for crowdfunded projects for three notable, independent variables: the dummy variable indicating whether the project required development, redevelopment, or renovation, the *term* variable indicating the expected hold period in years, and examining the project's equity crowdfunding available as a percentage of the project's total value, *crowdfunded ratio*.

The inconsistencies related to explanatory variables, such as *term* and *minimum investment*, may be attributable to factors other than the crowdfunding effect, such as specific property-type data constraints. The evidence pertaining to the project's crowdfunded ratio provides insight on how sponsors' crowdfunding capital formation may signal potential risk levels and expected returns for online projects.

There are shortcomings to this analysis that need to be acknowledged. Due to the nature of the industry and the accredited investor regulatory requirements on most platforms, comprehensive and coordinated data is difficult to obtain. Data collection restrictions caused missing data for select observations. Additionally, location plays an instrumental role in commercial real estate valuation and investment. Unfortunately, a standardized independent variable for location did not appear within this study due to the inability to obtain proper database entrance.

[9] Although the full sample was not used in all analyses because of missing data for select observations

This research did not identify all effects equity CRE crowdfunding has on expected return, but instead provided a baseline understanding of some explanatory variables that play a role in the current RECF landscape. Further examination of the realized returns and how it compares with expected returns for both crowdfunded and non-crowdfunded projects should be examined and identified with rigorous analysis. Additionally, further examination regarding sponsor co-investment, crowdfunded ratio, and the role of signaling for crowdfunded projects is required. Once a comprehensive analysis is completed with regard to the equity commercial real estate crowdfunding, there will be a more complete understanding of how this new security affects sponsors and investors involved in the event.

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