

The Value of Connections - Evidence from Commercial Real Estate

Walter D'Lima

Florida International University

Overview

- Examine the efficacy of commercial real estate brokers
- Specifically, examine the effect of connections
- Estimate the effect on pricing and liquidity

Overview

- Data suggests a significant variation in brokerage “rolodex”
- Brokers that have served the role in prior transactions increase the price their principals receive and reduce the time on market
- Evidence on the contributory value of connections in the commercial brokerage market

Past Work

- Past work on frictions in real estate brokerage has focused on residential markets
- Not much is known about commercial brokerage
- Focus is on the value of brokers

Past Work

- Numerous studies that link connections to economic outcomes in the finance literature
- Nguyen (2012) - Impact of social connections on the effectiveness of firms' board of directors. Evidence suggest that the CEO is less likely to be dismissed for poor performance when the CEO and directors are connected
- Engelberg et al. (2013) - Effect of CEOs' networks. An additional connection to an outside executive or director increases CEO compensation by \$17,000

Conjecture in this paper

- Brokers have the potential to influence transactions
- They create relationships in the real estate market
- Testable Conjecture - Connections have a positive effect on price and the time on market

Connection between Seller and Broker

- Sellers that repeatedly transact with a specific broker may develop a relationship that has implications on subsequent sale outcomes
- Brokers that are connected to a seller may expend greater effort during the sale of a property as the relative gain from potential future business is higher
- Hence, observed sale prices may be higher in “connected” transactions due to additional effort by brokers resulting in a price premium

Connection between Buyer and Broker

- The set of “connections” for each sale broker may come into play during the marketing of a property
- Brokers may identify a buyer from the set of connections that they have and such a match may be beneficial to the seller
- Sale prices may be higher for transactions that involve a connected buyer as the broker optimally matches the property with a buyer from his/her set of connections and enhances liquidity due to a larger set of potential bidders

Data

- Property transactions from CoStar over the 2010 to 2021 time-frame
- CoStar maintains a comprehensive database of more than 6.8 million commercial assets including 4.3 million verified transactions
- Data includes details on the property and transaction characteristics

Data

- CoStar also records buyer and seller brokers, along with the names of the principals involved in the transaction
- Such information enables to identify “connectedness” between brokers and sellers/buyers

Data

- Primary analysis focuses on four primary property classifications: commercial office, multifamily, industrial and retail
- Since the study is considering the value of connections in commercial brokerage, the analysis is restricted to brokered sales, i.e. sales that have an identified sale broker

Summary Statistics

	N	Mean	P1	P50	P99	SD
Sale Price	302,172	5,460,000.00	285,900.00	1,790,000.00	57,300,000.00	10,400,000.00
Sale Price/Sq. ft.	302,172	232.75	12.52	147.06	1,358.00	399.38
Market Time	189,339	316.06	14.00	185.00	1,911.00	366.71
Assessed Value	302,172	14,400,000.00	10,478.00	1,060,000.00	144,000,000.00	1,430,000,000.00
Building SF	302,172	45,178.36	1,312.00	11,769.00	444,032.00	93,637.72
Land Area SF	302,172	172074.45	1,820.00	40,510.00	1,560,000.00	6,070,000.00
Number Of Floors	302,172	1.95	1.00	1.00	10.00	1.96
Age	302,172	47.83	2.00	42.00	130.00	30.39
Office	302,172	0.22	0.00	0.00	1.00	0.42
Retail	302,172	0.25	0.00	0.00	1.00	0.43
Industrial	302,172	0.23	0.00	0.00	1.00	0.42
Multi-Family	302,172	0.30	0.00	0.00	1.00	0.46
Land	302,172	0.00	0.00	0.00	0.00	0.00
Class A	302,172	0.06	0.00	0.00	1.00	0.23
Class B	302,172	0.40	0.00	0.00	1.00	0.49
Class C	302,172	0.54	0.00	1.00	1.00	0.50
1 Star	302,172	0.05	0.00	0.00	1.00	0.21
2 Star	302,172	0.51	0.00	1.00	1.00	0.50
3 Star	302,172	0.37	0.00	0.00	1.00	0.48
4 Star	302,172	0.07	0.00	0.00	1.00	0.25
5 Star	302,172	0.00	0.00	0.00	0.00	0.07
Broker & Seller - # Past Trans.	302,172	2.10	0.00	0.00	42.00	14.86
Broker & Buyer - # Past Trans.	302,172	1.51	0.00	0.00	32.00	12.27

Measure of Connections

- Compute measures that proxy for the connection that a sale broker may have with a seller or buyer
- *Broker & Seller Connection* - Number of sales that a seller has transacted with the sale broker in the 36 months prior to the sale
- *Broker & Buyer Connection* - Number of sales that a buyer has transacted with the sale broker in the 36 months prior to the sale

Top Connections

Broker	Client	Time	Count
CBRE	COLONYCAPITALINC	11-2020	577
CBRE	COLONYCAPITALINC	10-2020	577
CBRE	COLONYCAPITALINC	9-2020	577
CBRE	COLONYCAPITALINC	8-2020	577
CBRE	COLONYCAPITALINC	2-2021	576
CBRE	COLONYCAPITALINC	12-2020	576
CBRE	COLONYCAPITALINC	3-2021	576
CBRE	COLONYCAPITALINC	1-2021	576
CBRE	COLONYCAPITALINC	5-2020	572
CBRE	COLONYCAPITALINC	3-2020	572
CBRE	COLONYCAPITALINC	1-2020	572
CBRE	COLONYCAPITALINC	4-2020	572
CBRE	COLONYCAPITALINC	2-2020	571
CBRE	COLONYCAPITALINC	4-2021	569
CBRE	COLONYCAPITALINC	6-2021	565
CBRE	COLONYCAPITALINC	5-2021	565
CBRE	COLONYCAPITALINC	6-2020	564
CBRE	COLONYCAPITALINC	7-2020	563
CBRE	COLONYCAPITALINC	7-2021	554
CBRE	COLONYCAPITALINC	11-2021	551
CBRE	COLONYCAPITALINC	10-2021	551
CBRE	COLONYCAPITALINC	9-2021	551
CBRE	COLONYCAPITALINC	8-2021	551
CBRE	THEBLACKSTONEGROUPINC	1-2020	498
CBRE	THEBLACKSTONEGROUPINC	2-2020	489
CBRE	THEBLACKSTONEGROUPINC	5-2021	486
CBRE	THEBLACKSTONEGROUPINC	6-2021	485
CBRE	THEBLACKSTONEGROUPINC	10-2021	484
CBRE	THEBLACKSTONEGROUPINC	9-2021	483
CBRE	THEBLACKSTONEGROUPINC	8-2021	482
CBRE	THEBLACKSTONEGROUPINC	11-2020	480
CBRE	THEBLACKSTONEGROUPINC	11-2021	480
CBRE	THEBLACKSTONEGROUPINC	7-2021	480
CBRE	THEBLACKSTONEGROUPINC	1-2021	479
CBRE	THEBLACKSTONEGROUPINC	3-2020	479
CBRE	THEBLACKSTONEGROUPINC	10-2020	479
CBRE	THEBLACKSTONEGROUPINC	2-2021	479
CBRE	THEBLACKSTONEGROUPINC	3-2021	478
CBRE	THEBLACKSTONEGROUPINC	9-2020	478
CBRE	THEBLACKSTONEGROUPINC	4-2020	475
CBRE	THEBLACKSTONEGROUPINC	12-2020	475
CBRE	THEBLACKSTONEGROUPINC	5-2020	474
CBRE	THEBLACKSTONEGROUPINC	4-2021	473
CBRE	THEBLACKSTONEGROUPINC	8-2020	470
CBRE	THEBLACKSTONEGROUPINC	6-2020	470
CBRE	THEBLACKSTONEGROUPINC	7-2020	470
EASTDILSECUREDLLC	THEBLACKSTONEGROUPINC	10-2021	433
EASTDILSECUREDLLC	THEBLACKSTONEGROUPINC	11-2021	432

Bottom Connections

Broker	Client	Time	Count
ERAVALLEYPROREALTY	RONALDWILBOURN	Aug-21	1
048REALTY	KICKAPOOPROPERTIES	Jan-13	1
CUSHMANWAKEFIELDINC	ADVANCEREAITYINVESTORS	Aug-19	1
COLLIERSINTERNATIONALSAVANNAH	SOUTHEASTERNINVESTMENTPARTNERSALBANYLLP	Feb-13	1
COLLIERSINTERNATIONAL	ADVANCEDEROSIONSOLUTIONS	Nov-17	1
SOUTHBAYREALTYLLC	SOUTHBAYREALTYLLC	Nov-21	1
CENTURY21WORDENGREEN	KAMSAIYAM	Jan-13	1
KELLERWILLIAMSCPRELLC	SCANDIAAPTSLLC	Oct-15	1
ASSOCIATEDCOMMERCIALBROKERS	RPROPERTIES	Nov-18	1
LEEASSOCIATESCOMMERCIALREALESTATESERVICES	MICHAELSSHEPHARD	Apr-18	1
COLLIERSINTERNATIONAL	HSM	Apr-17	1
HAAGBROWNCOMMERCIAL	SEELEYWALLIS	Sep-14	1
HMXREALTYADVISORS	RONALDHANSON	Apr-17	1
JOHNBARKERREALTY	INDUSTRIALMETALCRAFT	Jan-19	1
HMXREALTYADVISORS	VEREITINC	Mar-17	1
MARYYELTONREALTYLLC	SOUTHERNBANK	Aug-14	1
REEDBMCLINTOCKASSOCIATES	REEDBSUSANJMCCLINTOCK	Oct-17	1
KESSINGERHUNTERCOMPANY	SKATESLLC	Oct-13	1
MORGANSKENDERIANINVESTMENTREGP	JORGENSENFAMILYTRUST	Oct-13	1
COLDWELLBANKERCOMMERCIAL	BRIANAMELIWU	Feb-18	1
THOMASCOMPANY	DRAWBRIDGESPECIALOPPORTUNITIESFUNDLP	May-18	1
MORGANSKENDERIANINVESTMENTREGP	JASONSREBECCALFINNEY	Oct-13	1
REMAXESTATEPROPERTIES	HALEYKIRBYLARSON	Aug-13	1
COLLIERSINTERNATIONAL	BFADVERTISINGINC	Apr-14	1
STARNERCOMMERCIALREALESTATE	3SPROVIDENCELLC	Oct-13	1
EASTDILSECUREDLLC	MANULIFEFINANCIALCORPORATION	Oct-13	1
LEGACYREALESTATEADVISORSLLC	TPMPROPERTIES	Aug-18	1
SVN	PHILLIPLAIRD	Oct-18	1
MARCUSMILICHAP	WOODSIDEHEALTH	Oct-21	1
MORGANSKENDERIANINVESTMENTREGP	HUICHENYUANKAO	Oct-13	1
REMAXKEYSTONE	GREGGKARENSILVER	Oct-17	1
HENRYSMILLER	WESTDIXONHOLDINGCOLLC	Feb-14	1
MORGANSKENDERIANINVESTMENTREGP	HAROLDLGAYLEHIGGINSTRUST	Oct-13	1
SVNLDENVERCOMMERCIAL	SAMUELMICK	Mar-16	1
MORGANSKENDERIANINVESTMENTREGP	EQUITYEXCHANGE	Sep-17	1
NAINPDODGE	SPIRITREALTYCAPITALINC	Apr-19	1
JLL	LUISFELIPEMALO	Sep-17	1
ADAMMLEACHLAWOFFICES	LEIGHANNEKNADLER	Sep-17	1

Summary Statistics

	N	Mean	P1	P50	P99	SD
Sale Price	302,172	5,460,000.00	285,900.00	1,790,000.00	57,300,000.00	10,400,000.00
Sale Price/Sq. ft.	302,172	232.75	12.52	147.06	1,358.00	399.38
Market Time	189,339	316.06	14.00	185.00	1,911.00	366.71
Assessed Value	302,172	14,400,000.00	10,478.00	1,060,000.00	144,000,000.00	1,430,000,000.00
Building SF	302,172	45,178.36	1,312.00	11,769.00	444,032.00	93,637.72
Land Area SF	302,172	172074.45	1,820.00	40,510.00	1,560,000.00	6,070,000.00
Number Of Floors	302,172	1.95	1.00	1.00	10.00	1.96
Age	302,172	47.83	2.00	42.00	130.00	30.39
Office	302,172	0.22	0.00	0.00	1.00	0.42
Retail	302,172	0.25	0.00	0.00	1.00	0.43
Industrial	302,172	0.23	0.00	0.00	1.00	0.42
Multi-Family	302,172	0.30	0.00	0.00	1.00	0.46
Land	302,172	0.00	0.00	0.00	0.00	0.00
Class A	302,172	0.06	0.00	0.00	1.00	0.23
Class B	302,172	0.40	0.00	0.00	1.00	0.49
Class C	302,172	0.54	0.00	1.00	1.00	0.50
1 Star	302,172	0.05	0.00	0.00	1.00	0.21
2 Star	302,172	0.51	0.00	1.00	1.00	0.50
3 Star	302,172	0.37	0.00	0.00	1.00	0.48
4 Star	302,172	0.07	0.00	0.00	1.00	0.25
5 Star	302,172	0.00	0.00	0.00	0.00	0.07
Broker & Seller - # Past Trans.	302,172	2.10	0.00	0.00	42.00	14.86
Broker & Buyer - # Past Trans.	302,172	1.51	0.00	0.00	32.00	12.27

Empirical Model

- Model Price/Sq. ft. and Time on Market
- Include an array of controls and fixed effects

Modeling Price

	(1) ln(Sale Price/Sq. ft.)	(2) ln(Sale Price/Sq. ft.)
Broker & Seller - # Past Trans.	-0.0003*** (0.0001)	0.0011*** (0.0001)
Broker & Buyer - # Past Trans.	0.0004** (0.0001)	0.0017*** (0.0001)
Broker & Seller - # Past Trans. × Broker & Buyer - # Past Trans.	-0.0000*** (0.0000)	-0.0000*** (0.0000)
Assessed Value		-0.0000 (0.0000)
Building SF		-0.0186*** (0.0003)
Land Area SF		0.0005*** (0.0001)
Number Of Floors		-0.0121*** (0.0010)
Age		-0.0046*** (0.0001)
Multi-Family		0.5641*** (0.0037)
Office		0.5727*** (0.0039)
Retail		1.0518*** (0.0043)
2 Star		-0.2096*** (0.0062)
3 Star		-0.1514*** (0.0068)
4 Star		0.0725*** (0.0096)
5 Star		0.3125*** (0.0190)
B		-0.0852*** (0.0063)
C		-0.1458*** (0.0069)
Constant	4.9755*** (0.0018)	4.6713*** (0.0282)
Month-Year f.e.	No	Yes
City f.e.	No	Yes
Adjusted- R^2		0.59
N	302172.00	302172.00

Modeling Price - Economic Significance

- A one standard deviation increase in the number of sales that a seller has transacted with the sale broker in the 36 months prior to the sale is associated with a 1.6% higher sale price per sq. ft.
- A one standard deviation increase in the number of sales that a buyer has transacted with the sale broker in the 36 months prior to the sale is associated with a 2.1% higher sale price per sq. ft.

Modeling Liquidity

	(1)	(2)
	ln(Market Time)	ln(Market Time)
Broker & Seller - # Past Trans.	-0.0095*** (0.0008)	-0.0086*** (0.0007)
Broker & Buyer - # Past Trans.	-0.0100*** (0.0008)	-0.0090*** (0.0007)
Broker & Seller - # Past Trans. × Broker & Buyer - # Past Trans.	0.0001*** (0.0000)	0.0001*** (0.0000)
Assessed Value		-0.0000 (0.0000)
Building SF		-0.0005 (0.0004)
Land Area SF		0.0005 (0.0003)
Number Of Floors		0.0011 (0.0017)
Age		0.0013*** (0.0001)
Multi-Family		-0.6014*** (0.0074)
Office		-0.0125 (0.0077)
Retail		-0.1537*** (0.0073)
2 Star		0.0834*** (0.0108)
3 Star		0.0821*** (0.0118)
4 Star		0.0104 (0.0180)
5 Star		-0.0220 (0.0590)
B		0.1096*** (0.0154)
C		0.1257*** (0.0163)
Constant	5.2835*** (0.0024)	5.3531*** (0.0524)
Month-Year f.e.	No	Yes
City f.e.	No	Yes
Adjusted- R^2	0.08	0.13
N	189339.00	189339.00

Robustness Checks

- Subset of transactions that do not have a buyer broker involved
- Subset of transactions that do not have the same broker representing the seller and buyer
- Alternate measure - the dollar amount of transactions that the sale broker has transacted with the seller or the buyer in the 36 months prior to sale

Robustness Check - Subsets of the Data

	(1) ln(Sale Price/Sq. ft.)	(2) ln(Market Time)	(3) ln(Sale Price/Sq. ft.)	(4) ln(Market Time)
Broker & Seller - # Past Trans.	0.0009*** (0.0001)	-0.0098*** (0.0011)	0.0011*** (0.0001)	-0.0090*** (0.0008)
Broker & Buyer - # Past Trans.	0.0014*** (0.0001)	-0.0075*** (0.0007)	0.0015*** (0.0001)	-0.0086*** (0.0007)
Broker & Seller - # Past Trans. × Broker & Buyer - # Past Trans.	-0.0000*** (0.0000)	0.0001*** (0.0000)	-0.0000*** (0.0000)	0.0001*** (0.0000)
Assessed Value	0.0000* (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)
Building SF	-0.0147*** (0.0003)	-0.0035*** (0.0006)	-0.0174*** (0.0003)	-0.0011*** (0.0004)
Land Area SF	0.0004*** (0.0001)	0.0548*** (0.0122)	0.0005*** (0.0002)	0.0006* (0.0003)
Number Of Floors	-0.0071*** (0.0012)	-0.0012 (0.0022)	-0.0107*** (0.0010)	-0.0001 (0.0018)
Age	-0.0051*** (0.0001)	0.0013*** (0.0002)	-0.0047*** (0.0001)	0.0013*** (0.0001)
Multi-Family	0.5739*** (0.0058)	-0.5039*** (0.0119)	0.5825*** (0.0043)	-0.5802*** (0.0085)
Office	0.5973*** (0.0059)	-0.0098 (0.0122)	0.5797*** (0.0044)	-0.0142* (0.0086)
Retail	1.0773*** (0.0064)	-0.0960*** (0.0114)	1.0616*** (0.0049)	-0.1428*** (0.0082)
2 Star	-0.2211*** (0.0100)	0.0744*** (0.0172)	-0.2149*** (0.0072)	0.0975*** (0.0123)
3 Star	-0.1689*** (0.0107)	0.0323* (0.0187)	-0.1608*** (0.0078)	0.0945*** (0.0134)
4 Star	0.0363*** (0.0134)	-0.0410 (0.0259)	0.0492*** (0.0107)	0.0228 (0.0200)
5 Star	0.2298*** (0.0224)	-0.1837*** (0.0710)	0.2676*** (0.0205)	-0.0346 (0.0632)
B	-0.0711*** (0.0076)	0.1295*** (0.0197)	-0.0877*** (0.0067)	0.1262*** (0.0166)
C	-0.1268*** (0.0089)	0.1638*** (0.0215)	-0.1524*** (0.0075)	0.1526*** (0.0177)
Constant	4.5376*** (0.0552)	5.2622*** (0.0990)	4.6500*** (0.0329)	5.3001*** (0.0607)
Month-Year f.e.	Yes	Yes	Yes	Yes
City f.e.	Yes	Yes	Yes	Yes
Adjusted- R^2	0.57	0.12	0.59	0.12
N	140781.00	85,623.00	226882.00	148524.00

Robustness Check - Alternate Measure of Connections Based on Dollar Amount

	(1) ln(Sale Price/Sq. ft.)	(2) ln(Market Time)
Broker & Seller - \$ Past Trans.	0.0030*** (0.0005)	-0.0135*** (0.0024)
Broker & Buyer - \$ Past Trans.	0.0000*** (0.0000)	-0.0000*** (0.0000)
Broker & Seller - \$ Past Trans. × Broker & Buyer - \$ Past Trans.	-0.0000*** (0.0000)	0.0000* (0.0000)
Assessed Value	-0.0001*** (0.0000)	-0.0002* (0.0001)
Building SF	-0.0108*** (0.0003)	-0.0004 (0.0009)
Land Area SF	0.0005** (0.0002)	0.0001 (0.0003)
Number Of Floors	0.0053*** (0.0018)	-0.0057 (0.0040)
Age	-0.0046*** (0.0002)	0.0006 (0.0005)
Multi-Family	0.5645*** (0.0099)	-0.3390*** (0.0309)
Office	0.5972*** (0.0122)	0.0170 (0.0345)
Retail	1.3358*** (0.0156)	-0.0241 (0.0362)
2 Star	-0.3058*** (0.0384)	0.0056 (0.0693)
3 Star	-0.2790*** (0.0388)	-0.0262 (0.0712)
4 Star	-0.1242*** (0.0402)	-0.0561 (0.0789)
5 Star	0.0045 (0.0441)	-0.2547** (0.1223)
B	-0.0683*** (0.0100)	0.0337 (0.0348)
C	-0.1009*** (0.0132)	0.0380 (0.0416)
Constant	4.7005*** (0.0708)	5.0854*** (0.1535)
Month-Year f.e.	Yes	Yes
City f.e.	Yes	Yes
Adjusted- R^2	0.63	0.21
N	39,678.00	14,668.00

Modeling Connections

- Linear Probability Model to examine the occurrence of a connected intermediary
- *Connected Broker & Buyer* is a binary variable coded one if the number of transactions where the sale broker has transacted with the buyer in the 36 months prior to sale is greater than or equal to one
- *Connected Broker & Seller* is a binary variable that takes a value of one if the number of transactions where the sale broker has transacted with the seller in the 36 months prior to sale is greater than or equal to one

Modeling Connections

	(1)	(2)
	Connected Broker & Buyer	Connected Broker & Seller
Assessed Value	0.0000 (0.0000)	0.0000 (0.0000)
Building SF	0.0052*** (0.0002)	0.0039*** (0.0001)
Land Area SF	0.0001 (0.0001)	-0.0002*** (0.0000)
Number Of Floors	-0.0008* (0.0005)	0.0010** (0.0005)
Age	-0.0003*** (0.0000)	-0.0008*** (0.0000)
Multi-Family	0.0317*** (0.0020)	0.0410*** (0.0022)
Office	-0.0169*** (0.0019)	0.0002 (0.0022)
Retail	-0.0311*** (0.0018)	0.0101*** (0.0021)
2 Star	0.0139*** (0.0020)	0.0195*** (0.0026)
3 Star	0.0469*** (0.0024)	0.0630*** (0.0030)
4 Star	0.0908*** (0.0050)	0.0937*** (0.0054)
5 Star	0.1050*** (0.0140)	0.1387*** (0.0138)
B	-0.0752*** (0.0045)	-0.0735*** (0.0048)
C	-0.0834*** (0.0047)	-0.0921*** (0.0050)
Distant Buyer	0.1196*** (0.0018)	
Distant Seller		0.1487*** (0.0019)
Constant	0.0241*** (0.0075)	0.0154* (0.0084)
Month-Year f.e.	Yes	Yes
City f.e.	Yes	Yes
Adjusted- R^2	0.16	0.16
N	297837.00	293980.00

Modeling Buyer and Broker Connections

- Transaction involves a buyer that is connected with the sale broker for properties that are larger in terms of building square footage, have a smaller number of floors, are newer, and rated higher
- Relative to Industrial, connected brokers are significantly more likely to be engaged in multifamily transactions, while the inverse is true for office and retail
- The links between buyers and brokers are more prevalent in transactions involving high caliber properties

Modeling Buyer and Broker Connections

- The coefficient for Distant Buyer is positive and statistically significant
- This implies that the sale transaction is more likely to involve a buyer that is connected with the sale broker for buyers that are distant
- An interpretation may be that connected brokers enhance the auction house by bringing distant buyers to the table

Modeling Seller and Broker Connections

- Sellers are more likely to contract with brokers they have prior experience with for transactions involving properties that are newer and of a better quality
- The sale transaction is more likely to involve a seller that is connected with the sale broker for sellers that are distant

Potential Path Forward

- Effect of connections based on market conditions
- Matched Sample Approach

Summary

- First view on the value of connections in the context of commercial real estate
- Comprehensive dataset that enables the measurement of connections
- Evidence suggests that connections have a positive effect on pricing and liquidity

Summary

- Results suggest that a sale transaction is more likely to involve a buyer that is connected with the sale broker for buyers that are distant
- This may highlight the channel and imply that connected brokers enhance the auction house through distant buyers

Thanks! Questions?