

*Does Better Historical Vacancy Data Lead to Better Leasing Strategies?*

by

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**Abstract**

The CoStar database has provided landlords with more and better data regarding vacancy data and asking rental rate. Indeed, it has now become possible to identify cycles for specific types of real estate and/or by geographical region, like a city or even a neighborhood. Using CoStar data this paper will try to establish whether there is a typical duration of a real estate cycle for a specific geographic region and/or specific type of real estate. If indeed one or more of such cycles can be identified the next step will be to create a leasing strategy with the focus on the term of the lease. For example, when it is a “Landlord Market”, the term should be longer as opposed to when it is a “Tenant Market”. Ideally an optimal active leasing strategy, in terms of length of the lease, can be identified using historical data patterns employing Argus software. This adjustable term leasing strategy, for example 3, 5, 7, or 10 years, can be compared with static leasing models prevalent in that particular market, to see if it is indeed more beneficial/optimal.

**Keywords**

CoStar, Real Estate Market Cycles, Leasing Contracts

## **Introduction**

There is a substantial amount of research done on the drivers of cycles for the various types of real estate. In addition, there has been research done on the optimal leasing strategies for landlords in terms of contract length. With the better availability of data, in the form of the CoStar database, it has finally become possible to combine these two strands of research. The objective of this paper is to provide the landlord with an optimal lease length depending on where the market is on the real estate cycle. Indeed, Leinberger already argued in 1993 that the real estate cycle is the most important determinant of strategy for real estate market participants. It is hoped that this paper will provide information for a more optimal leasing strategy.

For reasons explained later in the paper, the Vacancy Rates will be used as the indicator for the real estate cycle, and based on changes in the Vacancy Rate, an optimal leasing strategy will be developed. It must be clear that this is based on data gathered in the previous real estate cycle, which is not automatically representative of future cycles. Also the data are limited to twelve cities and thus can not be generalized for multiple cities. However, it is very interesting to observe that the length of the cycle very consistent across the different cities.

## **Literature Review**

It was Witten (1987) who observed that every city has its own property cycles, which are unique in length and amplitude. As is shown in this paper, the last cycle is fairly standardized in terms of its length at around eight years with a standard deviation of 10 months. These findings about the length of the cycle differ from the one observed by Wheaton (1987), who, using a sample of ten cities, estimated the length to be between ten and twelve years.

The observation by Witten (1987) that cycles move in “fits and starts” seems at first glance not correct when analyzing Exhibits One and Two. However, those graphs are smoothed and the underlying data creates much rougher cycles as was shown by Geurts and Black (2011)<sup>i</sup>, hence our findings are conform the observations by Witten (1987).

Mueller (2002) provided insights about the real estate cycles at the beginning of the ones that were analyzed in this paper. As is shown in Exhibit Three, the last cycles as measured by vacancy rates, started in 1997 (Chicago), hence when Mueller wrote his paper he was able to ascertain the initial stages of the cycle. However, the cycle ended in 2008 (Chicago and

Boston), thus most of the cycles he was unable to observe at the point of writing. He hypothesized that the next cycles, thus the ones observed in this paper, should be longer than the previous ones, something that turns out to be incorrect, since we found the cycles to be around eight years.

Finally, we substantiate the findings by Wheaton (1987) that the turning points in the cycles, both peaks and troughs, are within one or two years of the combined average.

## **Data Description and Model Development**

CoStar is a commercial real estate research company, containing both rental data as well as sales data, and which is subscription based. Owner of properties and their brokers can list available space for free, which is inputted and verified by a CoStar researcher, of which there are approximately 900. The space is either an 'Entire Floor' or a 'Partial Floor' and each is considered a separate record, see Attachment A for all the fields within an office space record. These records are date stamped when they are entered, updated, or removed from the database.

The CoStar research team proactively calls the listing owner or broker about these availability records every 30 days. In addition, the owners and brokers are highly motivated to communicate with CoStar and provide updates and new availabilities, since CoStar's major subscriber group is the local commercial brokerage community, and they are the ones who are working with potential tenant and will show and help lease up the available space. Although both asking rental rates and vacancy rates are available in the CoStar database, the authors will use vacancy rates to identify the real estate cycles. There is a theoretical argument and a more practical argument, which has to do with the usability of these two variables available in the CoStar database. In a competitive market for space, vacancy is more transparent for renters looking for space, as opposed to the rental rates, which are subject to asymmetric information. Arguable the landlord knows the final terms under which she or he would be willing to rent out the space, something unknown to the tenant. However, depending on the vacancy rates the landlord will be forced, or at least be more likely to divulge to the tenants, their terms in order to come to an agreement. Indeed, when there is a high demand and low vacancy rate the landlords will see more potential tenants with whom they can negotiate and they do not have to lower their rates or provide concessions as fast as when the vacancy is high. On the other hand, when facing high vacancy rates landlords will

compete for the scarce tenants and will compete with each other and thus reveal more information about their final terms, thus reducing the asymmetric information problem that exists between the two. Hence Vacancy Rates drive the ultimate rent that is negotiated and not the other way around. This leads to the conclusion that Vacancy Rates should be used to identify the real estate cycles and not rental rates, because Vacancy Rates are a precise number and is not subject to negotiations.

The more practical argument centers on the Asking Rent, which is the published and/or quoted rent given by the landlord or current tenant who is trying to sub-lease part or all of its space and is the rent that is initially obtained. The Asking Rent is often quoted as a range, for example \$25,00-30.00 per Square Foot, since the owner cannot quote a specific rent without knowing the tenants credit, space use, build out, term and options, and how aggressive his competitors are. Hence the final rent for the space may look much different from the Asking Rent, since it depends on the unique circumstances of each deal.

As a consequence the Vacancy Rate is a more reliable indicator of cycles than Asking Rent, given the inherent unknown factors associated with the latter. Landlords will report the asking rents to CoStar; however, there is very little incentive to give out all the terms and conditions to CoStar after the lease is done. The final effective rent is a function of contract negotiations and there are unobservable factors influencing the final result, like concession by the landlord for improvements to facilitate the tenant and possible free rent for a specific number of months. On the other hand, the vacancy on an individual unit, building or aggregated up to submarket or market is accurate and thus a better determinant of the market conditions.

Indeed, demand for space or lack thereof is driving vacancy and as such the vacancy rate can be seen as a measurement of the health of the business activity in a particular submarket. As the business activity in a submarket improves, vacancy will go down; however, from a practical viewpoint it is impossible that vacancy will drop to zero. There is an absolute minimum vacancy level that is needed in every market, which is called the “friction vacancy”. There are always tenants moving in and out and the space is temporarily vacant as landlords try to find a new tenant, negotiate with the tenant, and subsequently improve the space to facilitate the tenants’ requests. Hence it takes time between one tenant moving out and another tenant moving in and during this time the space is listed as being vacant. This is a normal occurrence to facilitate transactions, and indeed a necessary occurrence, which will

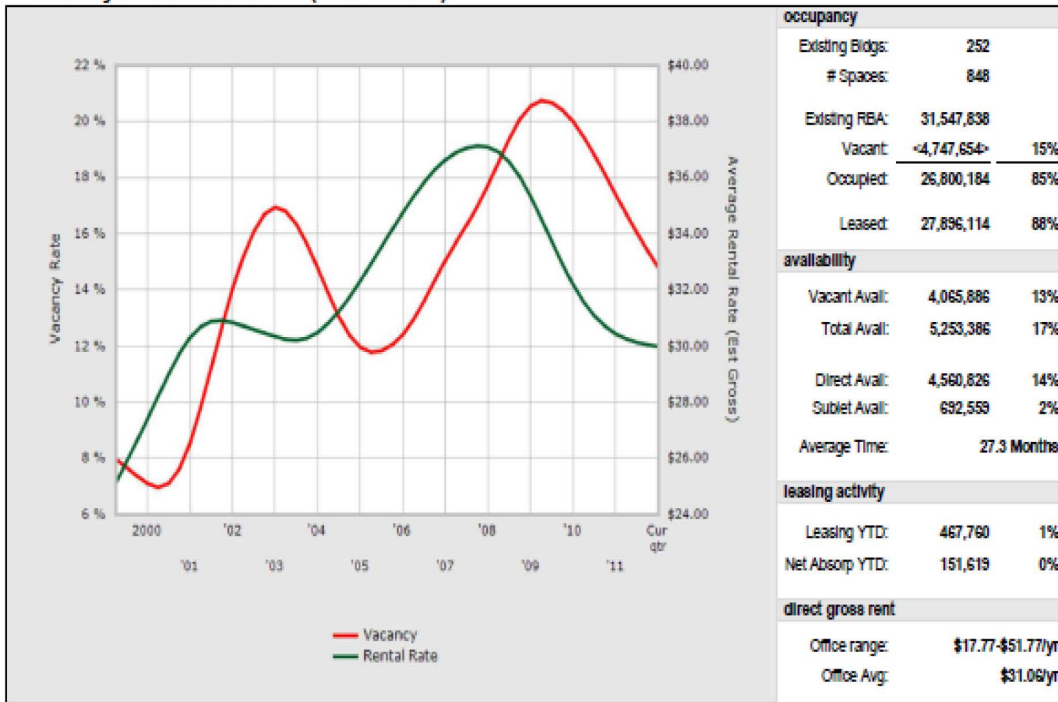
happen even when the market is booming, thus demand is higher than supply, and vacancy theoretically should be zero. However, there will be times when a market will settle on a temporarily low, which is not the friction vacancy.

As a consequence of these facts the cycles are indicated by demand for space, something that Mueller already observed in the seminal paper of 1995 (*Real Estate Finance*). The authors of this paper extend his analysis in that they identify the typical length of the cycle in the United States and that they link the stages of the cycle, as characterized by demand, to the length of the lease contract.

It must be clear that there are four stages in a vacancy cycle, namely 1) Max Vacancy Trough, where vacancy is the highest, 2) Declining Vacancy Recovery, where vacancies are declining, 3) Minimum Vacancy Peak, where vacancies are at their lowest, and finally 4) Growing Vacancy Recession, where vacancies are increasing again. Using CoStar data the authors have identified that the typical length of the cycle from Max Vacancy to Max Vacancy takes approximately eight years, 7.75 years to be exact, see Exhibit Three. This was a constant finding for the major cities analyzed in this paper.<sup>ii</sup>

It will come as no surprise that different cities have different economic cycles. This has been shown in the literature before, for example Williams (1996) showed that MSA-pairs in the United States have different correlation coefficients for the period July 1981 to July 1990. Exhibits One and Two show two of the total of twelve cities<sup>iii</sup> researched for this paper, namely San Diego (1999-2012) and Washington DC (1993-2012).

**San Diego Market Class A Office  
Vacancy & Rental Rates (Smoothed)**



occupancy		
Existing Bldgs:	252	
# Spaces:	848	
Existing RBA:	31,547,838	
Vacant:	<4,747,654>	15%
Occupied:	26,800,184	85%
Leased:	27,896,114	88%
availability		
Vacant Avail:	4,065,886	13%
Total Avail:	5,253,386	17%
Direct Avail:	4,560,826	14%
Sublet Avail:	692,559	2%
Average Time:	27.3 Months	
leasing activity		
Leasing YTD:	467,760	1%
Net Absorp YTD:	151,619	0%
direct gross rent		
Office range:	\$17.77-\$51.77/yr	
Office Avg:	\$31.06/yr	

Exhibit One: Vacancy and Rental Rates for San Diego

**Washington, DC Market Class A Office  
Vacancy & Rental Rates (Smoothed)**

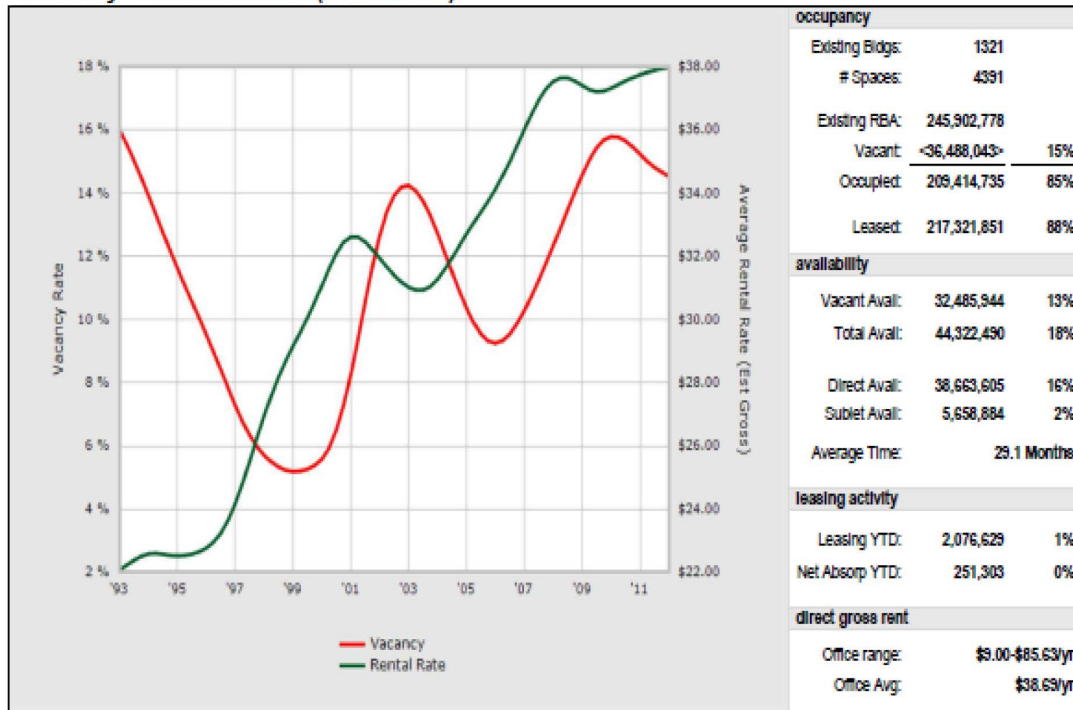


Exhibit Two: Vacancy and Rental Rates Levels for Washington DC

As can be seen the cycles are of different length and amplitude. It is possible though to standardize the length of the cycles, where latest city cycles are expressed as a multiplier of the Atlanta cycle. The authors chose Atlanta, because its length, namely 7.75 years, is the closest to the average of all twelve cities, which 7.77 years. The standard deviation of the length of the cycle for the twelve cities is 1.40 years. As can be seen from Exhibit Three some cities, for example Chicago and New York City, have a longer cycle, 1.35 times and 1.26 times respectively, while other cities have a shorter cycle. Examples of the latter are San Diego and Los Angeles with cycles that are 0.65 times and 0.87 times of the Atlanta cycle. The results are fairly homogenous and when removing the low and high outliers, thus San Diego and Chicago, the average is still 7.77 years, but the standard deviation is reduced to a mere 0.84 years, thus 10 months.



<b>Market</b>	<b>Start Date</b>	<b>Finish Date</b>	<b>Length in Years</b>	<b>Standardized Length</b>
<b>Atlanta</b>	12/1999	9/2007	7.75	1.00
<b>Boston</b>	3/2000	6/2008	8.25	1.06
<b>Chicago</b>	12/1997	3/2008	10.50	1.35
<b>Dallas</b>	3/1999	12/2006	7.50	0.97
<b>Denver</b>	12/1999	12/2007	8.00	1.03
<b>Los Angeles</b>	6/2000	3/2007	6.75	0.87
<b>New York City</b>	3/2000	12/2007	9.75	1.26
<b>Philadelphia</b>	3/2000	9/2007	7.50	0.97
<b>San Diego</b>	6/2000	6/2005	5.00	0.65
<b>San Francisco</b>	12/1999	12/2007	8.00	1.03
<b>Seattle</b>	3/2000	6/2007	7.25	0.94
<b>Washington DC</b>	3/1999	3/2006	7.00	0.90

Exhibit Three: Length of the Last Real Estate Cycle for Twelve US Cities

Although at first sight it looks like the cycles are very much in sync, there is a second factor that needs to be analyzed, namely the change in Vacancy Rate during the cycle. Exhibit Four shows this, with the calculated difference in the third column. It is interesting to observe that all cities, except Los Angeles, have a higher vacancy rate at the end of the cycle compared with the beginning of the cycle.

<b>Market</b>	<b>Starting Vacancy Rate</b>	<b>Ending Vacancy Rate</b>	<b>Difference</b>	<b>Standardized Difference</b>
<b>Atlanta</b>	8.1	14.6	6.5	1.59
<b>Boston</b>	5	10.4	5.4	1.32
<b>Chicago</b>	7	13.9	6.9	1.68
<b>Dallas</b>	13.4	15.9	2.5	0.61
<b>Denver</b>	7	12.1	5.1	1.24
<b>Los Angeles</b>	12.5	9.4	-3.1	-0.76
<b>New York City</b>	3.3	5.8	2.5	0.61
<b>Philadelphia</b>	7.3	10.6	3.3	0.80
<b>San Diego</b>	7	11.8	4.8	1.17
<b>San Francisco</b>	3.1	9.2	6.1	1.49
<b>Seattle</b>	1.1	7.3	6.2	1.51
<b>Washington DC</b>	5.2	9.3	4.1	1.00

Exhibit Four: Change in Vacancy Rate for Twelve US Cities during the Last Real Estate Cycle

As can be seen from Exhibit Four all cities, except Los Angeles, experienced an Ending Vacancy that is higher than the Beginning Vacancy. There are several reasons for this, for example lower economic activity leading to less need of office space, and/or the addition of more office buildings to the existing stock. The average increase in vacancy rate is 4.19% and 4.85% if Los Angeles is removed as the outlier, with a standard deviation of 2.74% and 1.57% respectively. The last column reports the standardized difference versus Washington DC, which is the city with the closest increase in vacancy rate during the cycle. The biggest increase in vacancy is recorded in Chicago where the vacancy increased 6.9% over the cycle, which amounts to 1.68 higher than the average.

<b>Market</b>	<b>High Date</b>	<b>High Rate</b>	<b>Upward Swing</b>	<b>Downward Swing</b>
<b>Atlanta</b>	9/2003	19.6%	11.5%	5%
<b>Boston</b>	12/2003	17%	12%	6.6%
<b>Chicago</b>	9/2004	18.2%	11.2%	4.3%
<b>Dallas</b>	9/2003	19.7%	6.3%	3.8%
<b>Denver</b>	9/2003	19.4%	12.4%	7.3%
<b>Los Angeles</b>	12/2002	16.2%	3.7%	6.8%
<b>New York City</b>	9/2003	10%	6.7%	4.2%
<b>Philadelphia</b>	3/2004	15.6%	8.3%	5%
<b>San Diego</b>	3/2003	16.9%	9.9%	5.1%
<b>San Francisco</b>	12/1999	19.9%	16.8%	10.7%
<b>Seattle</b>	3/2003	13.5%	12.4%	6.2%
<b>Washington DC</b>	3/2003	14.1%	8.9%	4.8%

Exhibit Five: Amplitude of the Last Real Estate Cycle for Twelve US Cities

From Exhibit Five it becomes clear that the highest vacancy rate of 19.9% was recorded in San Francisco in December 1999, with Dallas (19.7%), Atlanta (19.6%), and Denver (19.4) close behind with the interesting observation that all cities reached their highest vacancy in the same month, namely September 2003. Indeed, San Francisco is the only city for which the vacancy peaked before the recession that followed 9/11/2001. That same city had also the largest decrease in vacancy from its high, namely 10.7%, which is by far the largest decrease, since the second highest, 7.3%, is recorded in Denver. Arguably building activity in San Francisco slowed down before 9/11 because of the burst

of the DotCom bubble, which was centered in Silicon Valley. Hence San Francisco had already gone through the worst, but did benefit of the upswing of the economy after the FED lowered the rates after 9/11.

With the exception of San Francisco, the high vacancy rates are all clustered between December 2002 in Los Angeles (16.2%) and September 2004 in Chicago (18.2%). Thus within 21 months eleven of the largest real estate markets in the United States experienced the peak of vacancy rates with an average rate of 16.4% and a standard deviation of 3%. New York, which saw its vacancy also peak in September 2003 was affected the least with a vacancy rate of 10%, proving that this is the most resilient office market in the country.

The city that recovered the least in the last cycle is Dallas with 3.8%. The average recovery rate is 5.4% with a standard deviation of 1.2%, as opposed to the average increase in the vacancy rate which was 9.4% with a standard deviation of 2.9%.<sup>iv</sup> Hence on average the cities only recovered 57.5% of the increase in vacancy during the recessionary period of the last real estate cycle.

### **Leasing Strategies**

It becomes now possible to hypothesize what the optimal length of a lease contract would be, from the viewpoint of the landlord, depending on the stage of the vacancy cycle. It is observed that landlords across the United States have a tendency to offer standard lease terms of 1-3, 3-5, and 5-10 years, regardless of the city that the building they are leasing is located. Based on the research presented in this paper it would behoove landlords to adopt their leases to the length of the city cycle. Or differently stated, by adapting the length of the lease to the stage of the cycle, a landlord would optimize their rental income.

Starting at the Trough, when vacancy is peaking, the landlord would want a lease term of half the cycle length. Since empirical evidence presented earlier in this paper points to a cycle length of 8 years, the optimal lease length is 4 years. Once that lease expires the market should be around its peak and the new lease term should be eight years. Indeed, the Peak is the other extreme of the cycle, namely the moment that the market hits the aforementioned friction vacancy or another low, and the landlord should want a long term

lease, hence eight years. The caveat is of course that past performance is no guarantee for future results.

In a Recession, where the market is characterized as a tenant market, since rents are decreasing as vacancy levels are increasing, the tenant has more bargaining power when negotiating with a landlord. This means that landlords will need to make more concessions in terms of free rent and/or work, to entice tenants to rent in his or her building. The natural inclination of the landlord is to require a longer lease term to amortize these concessions. However, that is not the most optimal strategy as the empirical data shows. Indeed, if vacancy has increased less than two years in a row, the optimal length of the lease is 4 years, since that would mean a renewal at or near the top of the market. Only when vacancy has gone up for more than two years in a row, landlords should switch to long term leases, namely 8 years.

Finally, in a Recovery the landlord should offer a short-term lease to renew at or near the peak of the market. The length of the lease is a function on how long the peak is expected to be away, which is a function of the steepness of the recovery.

The amplitude has no bearing on the strategy, since the strategy is driven by the length of the cycle. However, the amplitude has an impact on the final result, i.e. how much a landlord can improve his results by applying the strategy outlined in the previous section vis-à-vis a static approach of standardized lease lengths. The bigger the amplitude the more profitable the strategy will be. Hence cities with big swings from Trough to Peak, like San Francisco, stand to gain more than cities with smaller swings like Dallas, since in the latter city the rental income varies much less over time.

## **Conclusions**

Using actual vacancy data from the CoStar database the authors have identified the average length of the last cycle in twelve major American cities, namely 7.75 years, and the average increase in Vacancy Rates, namely 4.19%. The length of the cycle is fairly consistent across the cities, with a standard deviation of only 17 months; however the standard deviation of the Vacancy Rate is 2.74%.

Although clearly past returns is no guarantee for future results, if the 8 years is used as the “average” or “standard” length of a cycle, landlords should pursue the following leasing strategy:

- 1) When Vacancy Rates are at their highest, they should offer four year leases, while when they are at their lowest the optimal lease length is eight years.
- 2) If vacancy has increased less than two years in a row, the optimal length of the lease is 4 years, since that would mean a renewal at or near the top of the market.
- 3) If vacancy has gone up for more than two years in a row, landlords should switch to long term leases, namely 8 years.
- 4) In the case of declining vacancy the leasing strategy should be reversed, namely if vacancy has decreased for less than two years the optimal length of the lease is 8 years, while if vacancy has decreased for more than two years the optimal length of the lease is four years.

There is another finding that is not dependent upon the debatable assumption that the information gleaned from the previous cycle will be useful for the next cycle, and that is related to the friction vacancy. Since all cities have higher vacancy rates than at the beginning of the last real estate cycle, it seems that this vacancy reflects excess capacity and that the next cycle needs to be longer than the previous cycle. Although it is impossible to predict the length of the cycle, if the landlord believes that the length of the real estate cycle is ten years, he or she should adjust the strategy outlined above accordingly.

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**Exhibit A: List of Data Fields relevant to Available Space**

1. Available Space in SF(Size)
2. Maximum Contiguous in Building
3. Entire Floor or Partial Floor
4. Floor
5. Space Use
  - a. Office
  - b. Retail
  - c. Flex
  - d. Warehouse
  - e. Medical
6. Space Type
  - a. New
  - b. Direct
  - c. Sublet
7. Asking Rent (\$/SF/yr)
8. Services
  - a. +Elec & Clean
  - b. Full Service Gross
  - c. Net
  - d. Plus All Utilities
  - e. Plus Cleaning
  - f. Plus Electric
  - g. Negotiable
  - h. etc.
9. Escalations
10. Expense Stops
11. Terms in Years
  - a. 1-3
  - b. 3-5
  - c. 5-10
  - d. etc.
12. Occupancy

- a. Arranged
  - b. Vacant
  - c. 30-60-90 days
13. Condition
- a. As-Is
14. Build Out
15. Days on Market
16. Month to Delivery
17. Space Notes (Text Field)
18. Floor Plan (graphics)

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<sup>i</sup> In particular see Figure Two and Figure Three in that paper.

<sup>ii</sup> Only the dataset for Atlanta was long enough to observe two cycles. The information for the second cycle is included in the data reported in this paper. The results for the first cycle for Atlanta does not materially change the conclusions found in this paper.

<sup>iii</sup> Originally we included Houston; however there is no full cycle observable in the data.

<sup>iv</sup> In both calculations San Francisco is excluded from the average and standard deviation.