Asset Class: Real Estate

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Introduction
Real estate is an enticing investment vehicle for investors looking to generate income. Whether through owning actual property or having shares in a REIT, real estate has proven to be a reliable asset to generate continuous income. In this report we are going to dive into how both the housing market and REIT market have historically performed, and how we expect them both to perform.

Housing Real Estate
The housing real estate market is a dynamic and ever-evolving sector of the economy that has far-reaching implications for individuals, communities, and the broader financial landscape. The Real estate market plays a pivotal role in shaping our lives, investment strategies, and economic well-being. As we delve into the world of housing real estate, it becomes evident that it is not merely about bricks and mortar; it is a reflection of societal trends, economic conditions, and individual aspirations.

Over the years, the housing market has experienced its fair share of ups and downs, often mirroring the ebbs and flows of the overall economy. It serves as a barometer of economic health, with periods of robust growth reflecting prosperity and stability, while downturns can signal economic challenges and uncertainty. Understanding the dynamics of this market is essential for policymakers, investors, homebuyers, and renters alike, as it informs decisions ranging from monetary policy adjustments to personal financial planning.

Moreover, the housing real estate market is deeply intertwined with the concept of homeownership, which remains a cornerstone of the American Dream and a primary means of wealth accumulation for many. The ability to purchase a home represents not only shelter but also a long-term investment with potential for appreciation. However, this dream has not been equally accessible to all, and disparities in homeownership rates persist along racial, ethnic, and socioeconomic lines. The market's evolution is inextricably linked to the pursuit of housing equity and the quest for affordable and sustainable living options.

REIT

A real estate investment trust, or REIT, is a company “that owns or finances income-producing real estate across a range of property sectors” (Nareit). REITs give investors an opportunity to diversify their assets in real estate, without having to have actual ownership in a property, but through an individual REIT company’s stock, ETF, mutual fund, private REIT, and others. There are also four different types of REITs:

- Equity REITs: Own and/or operate real estate.
- mREITs: Mortgage REITs “provide financing for income-producing real estate by purchasing or originating mortgages and mortgage-backed securities and earning income from the interest on these investments” (Nareit).
- Public non-listed REITs: Similar to equity REIT — registered with SEC, but do not trade on national stock exchanges.
- Private REITs: Similar to equity REIT — private market/investment.

Globally, REITs hold over $4 trillion in gross assets (public REITs $2.5T+ gross assets), including office buildings, apartments, warehouses, and among many others — the REIT continues to generate income by collecting rent on these real estate assets. But, in order to qualify as a REIT, the company must pay out 90% of that taxable income every year in the form of dividends to their shareholders (Figure 1). REITs distribute 90%+ of their taxable income every year for deductions on their corporate income tax — so if they distribute 100% they will owe no corporate income tax and can avoid double taxation. Because of this fact, REITS are commonly seen as a hybrid asset (stock + bond) that can provide diversification for an investor's portfolio. Other requirements to be considered a REIT include having to invest in at least 75% of total assets in real estate, cash, or U.S. Treasuries and derive at least 75% of gross income from rents, interest on mortgages that finance real property, or real estate sales. But, there are risks that come with a REIT — and illiquidity is one of the most prominent. Non-traded REITs are commonly highly illiquid, difficult to value, and are likely required to be held for a certain number of years, making it difficult for investors to decide to invest. For publicly traded REITs, they are susceptible to negative economic conditions as any stock would be, especially rising interest rates. Though REITs carry inherent risks for an investor, they can be an attractive investment vehicle for investors looking to generate further income. REITs have become an established investment opportunity in our global markets, thanks to the tax benefits the company can realize if they establish themselves as a REIT.

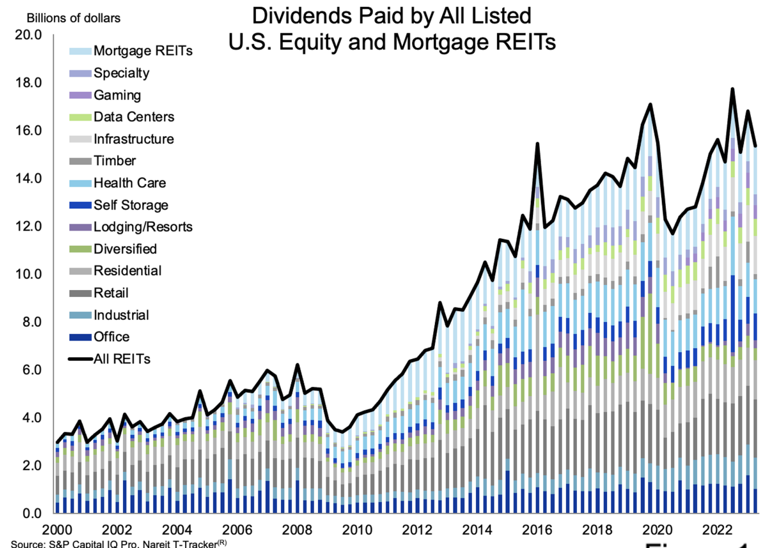


Figure 1

Relative Index

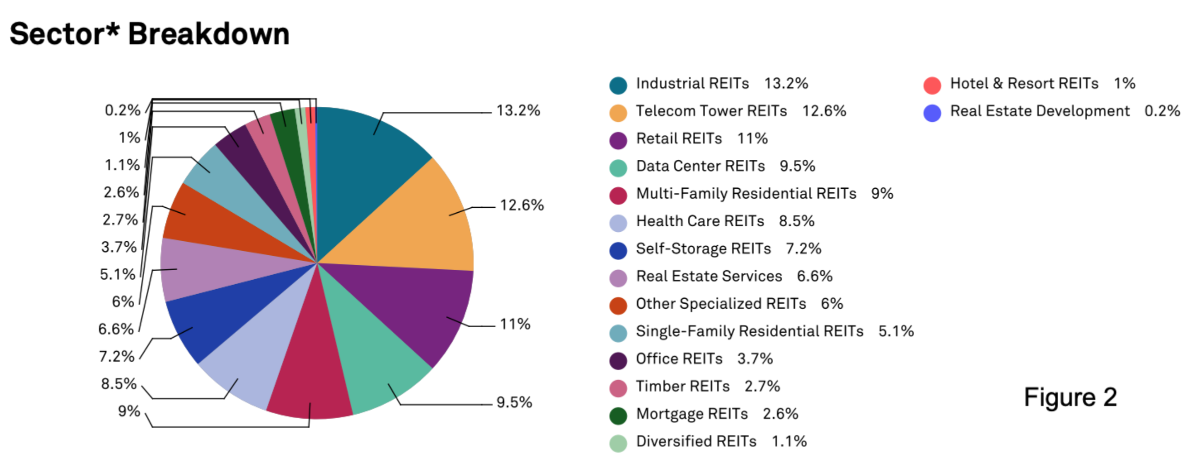


Figure 2

In our analysis of the Dow Jones U.S. Real Estate Index, we examine its composition, with a focus on various sectors, including REITs, real estate services, and real estate development. Figure 2 provides a breakdown of the Index's components.

The largest segment of the index consists of Industrial REITs, accounting for 13.2% of its composition. Interestingly, the second-largest category is Telecommunication towers, which make up 12.6% of the index. This in combination with Data Center REITs account for 22.1% of the index. Telecommunication and data play a pivotal role in our growing digital economy. With each successive generation of wireless technology, data transmission capabilities expand, driving increasing demand for wireless communication. Telecommunication towers and data centers serve as the critical infrastructure that houses key elements of the wireless communication network, contributing significantly to the digital economy. It's worth noting that 80% of U.S. tower capacity is supplied by specialized companies organized as REITs. These Real Estate Investment Trusts have transformed the physical land required for internet infrastructure into investable assets. As we become even more reliant on technology as a species, investments into the digital world will increase.

Historical Performance

In regards to REITs, recent performance has been very volatile. Unsurprisingly, the housing crisis and COVID dramatically affected REITs performance and operating cash flows. A REITs operating cash flow is found through their funds from operations which compares to EPS but adds back depreciation and amortization. During the housing crisis in 2008, REITs FFO plummeted for multiple quarters until the end of 2009 Q1, where FFO increased by 111%+ QoQ (Figure 7). Turning to actual returns of REITs, for over 40 years, REITs have been averaging an over 10% return YoY (Figure 7). Comparing this to recent performance it is clear that REITs have not been performing well in recent times. But, with turn-around after COVID and new-found opportunities in the REIT world, future performance appears to be positive.

Valuation Matrix

The Valuation process for Real Estate and REITS specifically are different from the typical Net Income and earnings models. Important figures when analyzing REITs are Funds from Operations (FFO), Adjusted FFO, Dividends, and Acquisitions/dispositions to name a few. Additionally, the sector the properties fall under plays a vital role in the value of the fund.

FFO

Funds From Operations

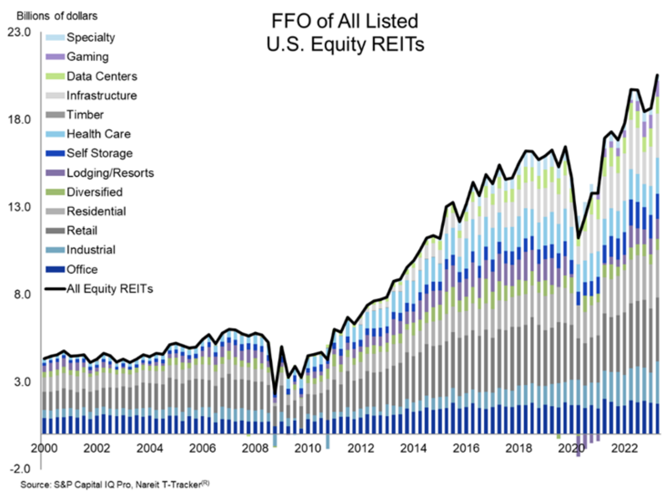
FFO =
Net Income
+ (Depreciation expense + Amortization expense + Losses on sale of assets)
– (Gains on sale of assets + Interest income)

Figure 3

Fund from Operations or FFO is the Net Income equivalent for REITs as it allows investors to analyze the Cash generated from weekly, monthly, or yearly operations. FFO uses the equation to the right because many of the typical rules for Net Income do not apply in the real estate market. Adding back depreciation and amortization is done for an obvious reason and that is land typically only appreciates over time as land will almost always be usable. Next gain or losses on asset sales will be subtracted or added to better represent the cash flows from operations for the company. Finally, the subtraction of the Interest income is due to it not being a part of the operational side. Therefore, it cannot be included in the FFO. AFFO (adjusted Funds from operations) is adjusted based on the specific breakdown of that REIT.

Within the realm of FFOs, there are ratios such as the Price to FFO ratio which measures how well priced the REIT is compared to the general cash flow from FFOs that the REIT generates. This metric is key to analyzing a REIT due to the transparency of how well others value the REIT compared to the true outputs of that specific REIT.

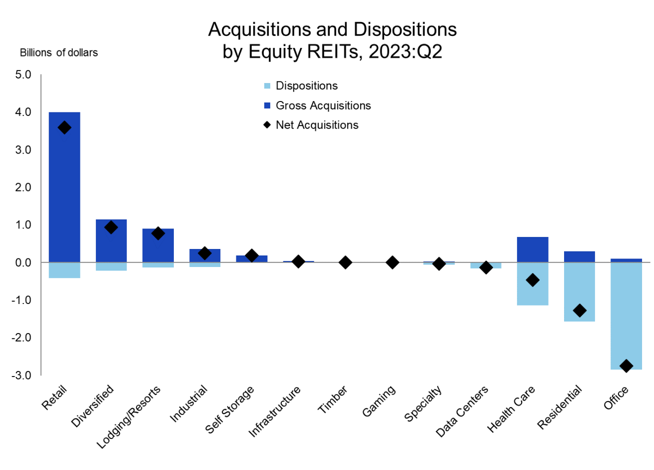
Figure 4



The % change of FFO year-to-year for all listed US Equity REITs varies tremendously. The average yearly growth in the sector has been 8.34% with a standard deviation of 17.82%. These numbers have been affected by major events such as the housing crisis in 2008, which directly impacted the REITS market due to most REITS relying on rents paid for most of the earnings. Factors for these lack of rent payments were occupancy percentage lows, foreclosures, and failures of mortgage-backed securities. When looking at the graph, the residential aspect of that year disappears resulting in major losses of FFOs in that period. The second largest event affecting FFOs in the last decade was Covid-19. This stopped most of the activity in its tracks, therefore FFOs would understandably drop. FFOs dropped by 31.04% between Q2.2019 to Q2.2020. During this time FFOs in retail dropped from $3,210 million to $2,362 million as well as Diversified dropped into the negative. Reasons for this are that with the stoppage of business, Businesses struggled to pay on time. Post-covid though, a strong bounce back occurred for REITs with money being provided from the government towards businesses, retail store investment skyrocketed along with Resorts, and Industrial REITs.

Figure 5

Dividends



The next largest aspect of valuation tactics for REITs is their Dividend Payouts. REITs are required to pay investors 90% of their taxable income through dividends. This allows investors to have confidence in receiving payment when the share values have decreased. The Graph (Figure 5) outlines the total Dividend Payout on US REIT Equities showing a constant growth with the exclusion of major world events such as Covid and the 2008 recession. Many REIT companies aim for constant dividend growth, understanding that in a much slower and more stable asset sector, it is important to ensure constant returns along with such high liquidity.

Acquisitions and Dispositions

Though acquisitions and Dispositions are not considered in analyzing FFOs for REITS, these actions still heavily sway the value of the REITs. Looking at the most recent Quarter in 2023, retail real estate has been a large acquisition investment for many REITs. This is because of the current amount of consuming the US population has become accustomed to in this post pandemic era. Not only are the actual stores being utilized, but additionally, distribution centers and warehouses for the goods have become a major focus for companies. On the other side of the coin are the Office spaces. Disposition of Office spaces by REITs have been highly active due to current shifting in work culture. No longer are businesses looking for sky-scrapers to fill with thousands of workers. Working from home has become nearly a staple for many workers and they are not willing to go back. Additionally, businesses are willing to give up these spaces in order to cut costs in the current conditions.

Recent Articles

The first article that we will analyze is a fox business article by Kayla Bailey titled “Redfin CEO issues dire warning on US's 'rock bottom' real estate market: The 'American dream' is in trouble.” The article interviews Redfin’s Ceo Glenn Kelman who talks about how the housing market in the US has hit rock bottom and there is no end in sight.

Glenn Kelman brought to light the concerning state of the housing market in the United States, offering valuable insights into the challenges it currently faces. Central to Kelman's concerns is the persistently high 30-year fixed mortgage rate, which currently hovers around 7.5 percent. This elevated interest rate environment poses a substantial obstacle to prospective homebuyers, diminishing affordability and dampening the overall housing market's vitality. With higher mortgage rates, the dream of homeownership becomes increasingly elusive for many Americans.

While there has been a correction in home prices from their peaks in 2020 and 2021, they still remain significantly above pre-pandemic levels. Home prices are around 40% higher than what they were in 2019. This lingering price inflation further exacerbates the affordability issue, making it difficult for many to enter the housing market. The consequence is a growing gap between those who can afford homes and those who cannot, which has wider socioeconomic implications.

Perhaps the most striking revelation from Kelman's interview is that one in five millennials believes they will never achieve the quintessential "American dream" of owning a home. This statistic underscores the growing skepticism among younger generations about their housing prospects. It's a stark shift from the traditional belief that homeownership is not just a symbol of personal achievement but also a cornerstone of financial security. The implications of this skepticism are profound, as homeownership has historically been one of the most reliable avenues for building long-term wealth. The lack of access to this avenue may hinder the financial well-being of younger generations and reshape the landscape of wealth distribution in the country.

To address these challenges, Glenn Kelman proposes a solution rooted in the construction of more housing. He argues that states with fewer regulations on homebuilding, such as Nevada, Texas, and Florida, have been more successful in boosting housing supply. Expanding the availability of housing, done responsibly and sustainably, could alleviate some of the affordability issues and offer hope for a brighter future in the American housing market. However, this solution also calls for a reevaluation of housing policies and regulations at both the state and federal levels to facilitate such expansion effectively.

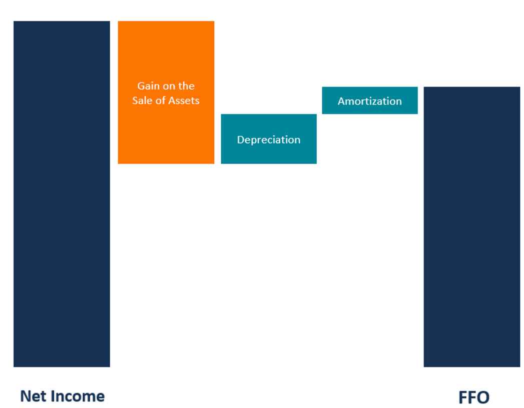
The housing market in the United States is facing multifaceted challenges, including high mortgage rates, persistent price inflation, and growing doubts among younger generations about their prospects of homeownership. The outcome of these challenges not only affects individual aspirations but also holds broader implications for the nation's economic landscape. Glenn Kelman's call for increased housing supply provides a potential path forward, but addressing the housing crisis will require concerted efforts at various levels of government and the real estate industry to ensure that the American dream of homeownership remains attainable for all.

The next article we used to analyze REITs was “REITs show strength in the post-pandemic recovery” written by Haendel St. Juste of Mizuho group, written Oct. 13, 2021. When analyzing the post pandemic REIT market, there is endless positivity. Though some sectors would not rebound as well as others, the attitude is positive. The impact on the real estate market was felt but not in a totally negative way. Looking at REITS specifically, tenants who struggled to pay rent were replaced with those who could pay it even in a troubling time. This secured a possibly more steady fixed-income for property owners and therefore investors in real estate and REITs. Retail continues to grow outwards not only in local shopping, but fulfillment and distribution centers. Though real estate prices will continue to rise and some will struggle, investors will continue to achieve positive numbers through rising value and replacement renters.

Analytical Tool

Like all stocks, companies, etc., REITs too have a methodology to value their operating performance, using funds from operations (FFO). A REITs FFO is calculated by adding net income, amortization, depreciation, and then subtracting capital gains from property sales (Figure 6). Again, like other stocks who use earnings per share for valuation purposes, REITs can use FFO/share as a valuation method. Though EPS and FFO/share can both accurately compute operating cash flow — the two

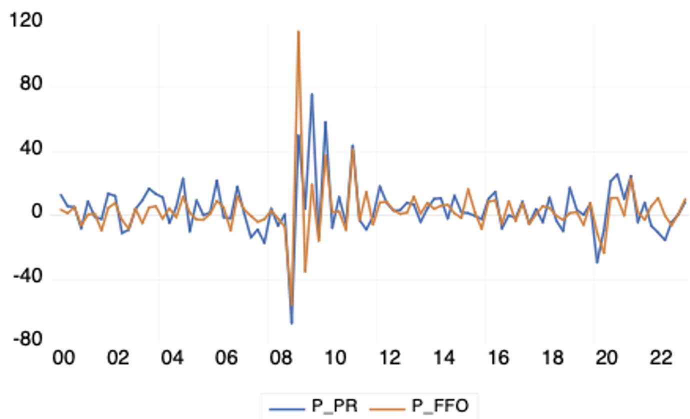
Figure 6



formulas are inherently different in regards to the real estate asset. Due to the nature of real estate being a real asset, depreciation and amortization expenses play an impactful role. REITs are commonly more susceptible to these expenses, so depreciation and amortization are added back to the formula. Depreciation and amortization are the REITs largest expenses, but they do not affect cash flow — so it is unfair to the REIT to use EPS to value the operating income. If EPS was used, the value would be extremely low compared to what it realistically should be, again due to the high values of depreciation and amortization.

So, given the impact that FFO has on a REITs performance, we decided to test the relationship between the two. During discovery, we came across Nareit — a REIT tracker. Nareit had a broad selection of REIT data ranging back to the first quarter of 2000, which we felt was an appropriate number of observations. “The NAREIT T-Tracker shows the industry’s operating performance as measured by total FFO has increased 18.1 percent on an average annual basis over the past five years, and average annual FFO per share has increased 2.7 percent over the same period” (Nareit). Using this data and EViews, an econometrics software, we found that percentage change in price (p_pr) and percentage change in FFO (p_ffo) chart trends commonly mirror each other (Figure 7). An interesting fact to point out is that the quarter after the housing crisis ended, FFO QoQ went up 111% – this proves that the REITs are a robust, but very volatile industry. Going off of this information, we decided to test the correlation between the two to determine if FFO did actually have an impact on the dependent variable, p_pr. After finding the correlation between p_pr and p_ffo to be 0.69 (Figure 8) and testing the significance of that correlation coefficient, we found that this correlation is significant at the 0.05 level (Appendix 2). Now understanding that these two variables are positively correlated with each other, future performance can be calculated based on the change in FFO.

(Figure 7)



	P_PR	P_FFO
P_PR	1.000000	0.690684
P_FFO	0.690684	1.000000

(Figure 8)

The first analytical method we decided to use to predict the dependent variable, p_pr, was the least squares method. After completing the model in EViews, we found that for every 1% increase in funds from operations, the share price will increase by 0.71% (Appendix 3). This again shows a positive correlation between the two, but is not a common valuation metric in regards to investments. A more common model is the Monte Carlo Simulation — a method that analyzes historic data to output a range of potential future values. Setting up this model (Appendix 4) we found that historically, the volatility of p_ffo has been extremely volatile, reaching 16%+ in the 93 observations. Running the simulation (with 5k+ rows) we found that over the next 3 years, FFO across the entire REIT industry will grow 30%+ (Appendix 4). Turning back to the significance of the correlation we found between FFO and price, this Monte Carlo simulation recommends that the REIT industry will perform positively during the next 3 years.

Recommendations

Real Estate

Looking ahead in terms of the housing market, the outlook appears rather bleak. With the Federal Reserve showing no signs of lowering interest rates anytime soon, the affordability of homes is not expected to improve. To achieve a full recovery in the housing market, several crucial factors must come into play. Firstly, the inventory of homes available for sale needs to increase significantly. This can be achieved through the construction of new homes, which, ideally, would exert downward pressure on home prices, ultimately stabilizing them. Additionally, interest rates will need to decrease, but this reduction should not happen too rapidly. A sudden and steep decline in interest rates could result in a surge of demand that negates any progress made, causing home prices to rebound. In summary, the current outlook for the housing market is not very promising for the next 6-12 months.

REIT

Closing on the REIT outlook, both of my analytical tools have recommended that the REIT outlook for the next 3 years will be strong and positive growth. This growth is thanks to “economic trends continuing to support business fundamentals in commercial real estate” (Nareit), strong historic performance within the asset class, post-covid return to office protocol, and many others. One new found factor we found interesting about REITs is the increase of data centers within a REITs portfolio. As companies continue to move cloud-based and cloud-based companies continue to purchase more data centers – this brings further positive potential to the REIT asset class. And though this information wants to make me feel strong about this asset class, it is still a great unknown. An article Morningstar stated that “although there has been a meaningful increase in interest rates, they remain well below historical averages, and there is risk that they will increase further, which we would view as a major headwind for REIT performance and valuations, due to potentially higher debt financing costs, potential pressure on traditional after-interest expense measures of REIT cash flow (such as FFO, AFFO, and FAD), and potentially higher cap rates, which could pressure investment spreads” (Morningstar). Though the REIT industry has experienced positive growth in recent times, fiscal policy, and more specifically interest rates, heavily impact the REIT industry. Because of rising interest rates commercial real estate now has to deal with higher lending rates, when their business model worked hand-in-hand with low rates. Though the outlook for the economy has not been appearing promising, the REIT industry has historically been capable of climbing back up from their downfall. In my opinion, though we may not believe that broad REIT share prices will increase by 30%+, we do expect a positive future outlook for the REIT industry during the next 3 years.

Appendix #1 Sources

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Appendix #2: Testing the significance of correlation coefficient

	A	B	C
1	Testing the significance of r (correlation coefficient)		
2			
3	tm =	r*(n-2)^(1/2)/(1-(r^2))^(1/2)	
4			
5	r =	0.690684	
6	n =	92	
7			
8	tm =	9.060835299	
9			
10			
11		Since 9.06>1.662 - r is significant at 0.05.	
12			

Appendix #3: Least Squares

```
Substituted Coefficients:
============================
P_PR = 2.10 + 0.71*P_FFO
```

Appendix #4: Monte Carlo Simulation

	A	B	C
1	date	6/31/23 (end of Q2)	
2	Current Value	$ 20,558.92	<- Total FFO
3	Average Return	2.86%	<- FFO YoY
4	std. dv.	16.487%	<- FFO YoY
5			
6			
7			
8			
9	Year.Quarter	Return	Ending Value
10	23.3	0.128685292	23,204.55
11	23.4	-0.212963392	18,262.83
12	24.1	0.010245608	18,449.95
13	24.2	0.399138253	25,814.02
14	24.3	0.14727785	29,615.86
15	24.4	0.152130026	34,121.32
16	25.1	-0.006729645	33,891.69
17	25.2	-0.242601146	25,669.53
18	25.3	-0.170480136	21,293.39
19	25.4	0.425303281	30,349.53
20	26.1	0.043200392	31,660.64
21	26.2	0.119618803	35,447.85
22			

Min	4,326.50		
Max	169,182.34		
Mean	28,849.53		
std. dv.	19,005.07		
Median	25,216.92		
5%	8,926.71	11,632.21	VAR
10%	11,226.78		
25%	16,488.00		
50%	25,216.92		
75%	35,917.19		
90%	49,722.85		
95%	62,510.40		