# DYNAMIC MODELING OF SHENZHEN'S REAL ESTATE MARKET -- UNDERSTANDING THE OSCILLATION AND TREND



by

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# Dynamic Modeling of Shenzhen's Real Estate Market -- Understanding the Oscillation and Trend

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## ABSTRACT

This thesis studies the causes of long term market oscillations in real estate markets. It tries to answer the question whether Shenzhen's real estate property prices are driven by speculation and will experience "chronic cyclical instability" as seen in many other markets (Sterman, 2000). The real estate model introduced in this paper extends John Sterman's Commodity Model to accommodate the durable nature of real-estate, and introduces features of price speculation. The model is tested and calibrated against California housing market data from 1980 to 2014, and then applied to Shenzhen's real estate market data from 2002 to 2012.

Simulation results show a good match between simulated output and historical records for California, both when speculation is included and when it is omitted. This model suggests that speculative demand is not actively linked to price trends, and that the repeated oscillation in price and construction is consistent with chronic instability caused by long delays in construction capacity development and fast price hill-climbing process. Speculation's influence on price and construction overshoot and undershoot is minimal.

Analyzing Shenzhen's market behavior through this model reveals that government regulations intended for controlling real estate speculation activities actually contributed to market instability. Demonstrating the dynamics of policy resistance, the "unutilized land fee" that intended to speed up the supply of building space to market in fact drove developers to slow down construction, so they could capture gains from rising prices. Government limits on the release of undeveloped land, intended to suppress speculative investment, in fact enabled the dynamic for a long rally in price and slowed construction at the same time. Shenzhen's real estate is expected to experience oscillations in the coming decade just like other regions' markets.

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## Table of Contents

**LIST OF FIGURES AND TABLES**

Figure Page



Table Page

# INTRODUCTION

A real estate market is an inherently complex system. Even in highly developed markets such as the U.S., the question of whether an increase in demand and investment is rational or speculative could be hard to determine. From 1994 to 2005, subprime mortgage loan's share of total home mortgage issued grew from less than 5 percent to 20 percent, and these lower quality loans were packed into mortgage-backed securities (Barth, Li, & Phumiwasana, 2008). The integration of financial instruments into the housing market made real estate systems even harder to analyze. Jay Forrester explained in his book the counterintuitive nature of the outcomes of economic systems such as the one we are studying:

> Complex systems have special responses which cause many of the failures and frustrations experienced in trying improve their behavior... the phrase 'complex system' refers to a high-order, multiple-loop, nonlinear feedback structure. All social systems belong to this class (Forrester, 1969).

Many studies based on existing statistics models were performed prior to 2008, trying to understand the causal relationship of the price movement, but "[f]inding instruments or counter-factual evidence to rule out investment buying in this case, however, seems hopelessly difficult (Wheaton & Nechayev, 2008)." For new markets with limited history, such as China, it is crucial to understand the driving force behind its long term market trend.

Real estate assets are purchased for both consumption and investment purpose (Zhao, 2013). The Chinese real estate market has been booming for over two decades, and there is a growing concern that a property bubble is on the brink of burst (Zhao, 2013). Construction related businesses account for a large percentage of the economic activity in China, and the purchase of properties is one of the most important channels of investment for ordinary Chinese people. According to Ju Zhao, in 2010, real estate related

investment accounted for 13.04% of China's GDP; and in 2005, housing property accounted for 61.13% of household asset for a typical Chinese family (Southern Metropolis Daily, 2011). On one hand, building area accumulation is a sign of economic development of a region and one of the most fundamental resources of future growth in productivity and living standard. On the other hand, when developed and priced at a level mismatched to the real economic and population needs, this could also be a recipe for a disaster (Barth, Li, & Phumiwasana, 2008). It is of great interest of policy makers, economists and businesses to understand the fundamental forces driving the building boom in China, and develop a model to examine how different factors interact with each other over time. This paper focuses its study on the Shenzhen market, for the fact that this is a very young city with more reliable data available.

**Problem Definition**

There is a constant debate in China on whether the prolonged real estate fever is the result of a speculative bubble or is backed by concrete demand because of the economic boom since the "open door policy" of 1978 (Xu, 2012). This debate is hard to settle because there just isn't enough historical data to justify either claim. A statistics oriented model will not be very helpful if the trend has always been going up and there is no "turning point" in historical record. To solve this problem, this paper turns to the fundamental driving forces and dynamics of the system instead, trying to capture the essence of the rapid accumulation in building stock and appreciation in price.

We want to develop an understanding of the Shenzhen real estate market to answer the question whether we are going to see a price and construction crash like what we have seen in the U.S. during the 2008 crisis (DeLong, 2011). The goal is to study the Shenzhen real estate market on a very fundamental level to see whether its reinforcing mechanisms in investment and demand would take over the system, causing a bubble to expand exponentially and then head for a crash, or that there are sufficient balancing mechanisms in the system to balance out the reinforcing loops, and reducing the risk of a hard landing.

## Method

This paper looks at this question from a supply and demand balance perspective, using system dynamics modeling to simulate the behavior of the real estate market. A generic property market dynamic model is developed and tested against California's housing market data, and applies the understanding gained from this procedure on real estate cycles to explain the behavior and makes a projection for one of China's property markets – Shenzhen. The main methodology used to analyze the expansion of the Shenzhen real estate market is system dynamics modeling. Such a model works for two purposes. First is to qualitatively understand the dynamics and driving force of the building area accumulation process. Second is to quantitatively test the theory with historical data. Dynamic modeling visualizes how the process of property development takes place, and offers a solution to easily manipulate individual or a group of variables and see the impact on property development speed and price movement at real time. The rapid price increase and accumulation of building area in Shenzhen is not caused by one single factor, and different time delays in different part of this dynamic makes the system even more complex. It is necessary to see the effect of each variable over an extended period of time, in a way that is highly visualized, so that all stake holders can easily understand the impact of each variable.

This paper develops a generic real estate model that captures the dynamics of the Shenzhen real estate market. It will not only provide a qualitative understanding of the mechanism of the system, but also allow model calibration with historical data, so that the model can be used quantitatively to test theories and show trends. However, this model does not aim to make point predictions of any kind. The trend projection that is described in this paper is only for discussion of the market characteristics. This thesis first tests and calibrates this model based on more detailed California data, and then applies the understanding to the Shenzhen market.

The real estate model introduced in this paper extends John Sterman's Commodity Model to accommodate the durable nature of real-estate, and introduces features of price speculation (Sterman, 2000). It simulates the market behavior through mimicking the delicate balance between demand and supply, which determines the price and then alters investment and customer order. This paper uses data from very different real estate markets across different time scale to demonstrate how the current understanding about commodity markets would provide useful insights into real estate markets as well.

## SHENZHEN AND ITS GROWTH

Established in March of 1979, neighboring Hong Kong and Macau, with a compounded annual growth rate (CAGR) in GDP of 19% from 2002 to 2012, Shenzhen is a young city that is making a big impact globally with its enormous export oriented economy (NBSC, 2014).


Figure 1 Shenzhen's Geographic Location ©2013 Google

It is China's first experiment city for economic reform, home to Shenzhen Stock Exchange, and where the iPhones are made. In 2012, Shenzhen recorded a GDP of USD $205.5 Billion (NBSC, 2014), which was comparable to Portugal's USD $212.4 Billion of the same year (IMF, 2014).

Shenzhen's high economic growth is followed by fast real estate property value appreciation. In preparation of model design and analysis, this chapter studies the foundations of Shenzhen's real estate market through data collected on population, economic output, income and real estate related investment.

### Ten Districts of Shenzhen

The city of Shenzhen is located to the north of Hong Kong, East of Macau, and South of Guangzhou. It covers a total land area of 1,911.64 square kilometers, and consists of ten administrative districts (SZ Government Online, 2014). They are Baoan, Longgang, Nanshan, Pingshan, Guangming, Longhua, Yantian, Futian, Luohu and Dapeng, as shown in Figure 2.

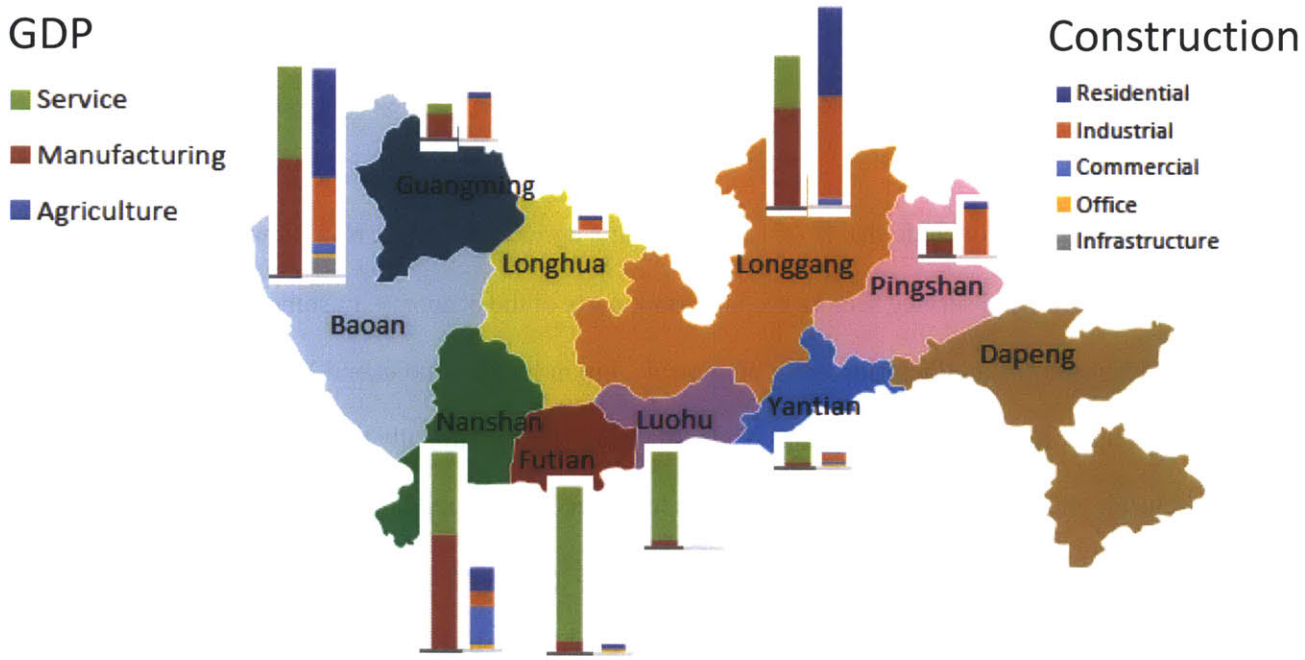


Figure 2 Administrative Districts of Shenzhen

Each of the ten districts of Shenzhen have their distinctive roles in its social and economic system. We will briefly describe the city as a whole, then focus on three economically important districts.

In 2012, Shenzhen's total GDP of RMB ¥1295 Billion could be broken down into a matrix of administrative districts and industry types (Longhua and Daping excluded because of limited data):

| Region | GDP total | | Agriculture | | Manufacturing | | Service | |
|---|---|---|---|---|---|---|---|---|
| **Shenzhen Total** | 1295 | 10.0% | 0.6 | -18.2% | 573.8 | 7.3% | 720.7 | 12.3% |
| **Baoan** | 299.5 | 6.3% | 0.1 | -7.9% | 167.3 | 0.9% | 132.2 | 15.9% |
| **Nanshan** | 283.0 | 11.6% | 0.1 | -27.5% | 166.8 | 10.6% | 116.1 | 13.1% |
| **Futian*** | 237.4 | 9.0% | 0.1 | 50.8% | 18.6 | 4.8% | 218.7 | 9.4% |
| **Longgang** | 217.7 | 10.8% | 0.1 | -15.0% | 141.9 | 10.8% | 75.7 | 10.9% |
| **Luohu*** | 135.9 | 8.6% | 0.0 | -16.1% | 10.7 | 5.6% | 125.2 | 8.9% |
| **Guangming** | 50.4 | 25.1% | 0.1 | -7.9% | 36.2 | 26.7% | 14.2 | 17.0% |
| **Yantian*** | 36.6 | 10.0% | 0.0 | -53.2% | 7.5 | 2.7% | 29.1 | 12.4% |
| **Pingshan** | 34.5 | 15.2% | 0.1 | -15.0% | 24.8 | 15.4% | 9.6 | 15.2% |

Table 1 Shenzhen GDP Breakdown (Billion RMB/Year) and Growth (%/Year)

From Table 1, we can conclude that in 2012, Shenzhen's agriculture output is minimal and shrinking, but both manufacturing and service sectors are important parts of the economy. In some districts, such as Baoan and Nanshan, manufacturing has a bigger role, but in Futian, Luohu and Yantian, the service sector is much stronger. It is worth noticing that while Shenzhen has traditionally been export oriented and manufacturing intense, the economy has experienced a successful "upgrade" to high-tech, finance and creativity oriented structure. Shenzhen has over 6,000 design studios employing over 60 thousand people. It was chosen as Forbes' most innovative city in Mainland China in 2011 (Xue, 2011). For eight consecutive years, Shenzhen has had the largest number of Patent Cooperation Treaty applications among all cities of China. It has the lowest energy and water consumption per 10,000 RMB of GDP generated in 2011 in the country (SZ Government Online, 2014). This trend is expected to continue, which means that the service sector is going to take a larger slice in the economy. In 2012, Shenzhen-Hong Kong Modern Service Industry Cooperation Zone, located in Nanshan district, was officially launched. This is going to be a major driver for the economy for coming decades. The growth rates in Table 1 shows that Shenzhen's agriculture is shrinking, while manufacturing is growing at an average rate of 7.3% and

service at 12.3% annually. In some districts, even some manufacturing intense regions such as Baoan and Nanshan, service is growing much faster. This is because as these regions mature, their cost of production increases. The higher population density has attracted commerce and pushed up property prices. Manufacturing are now moving away from coast districts and into relatively less developed inland districts, like Longgang and Guangming.

Luohu, Futian and Yantian are highly developed regions of Shenzhen. Luohu and Futian were the old city center, and Yantian has the 4th busiest port in the world. However, these regions are contributing little to the real estate boom in Shenzhen. Property price is high and room for development is little in these districts. What's fueling the average property price increase in Shenzhen is the appreciation in the value of land and buildings in newer districts. Shenzhen Land & Real Estate Exchange Center publishes the city's land auction records (SLREEC, 2014). This piece of information is very helpful in understanding Shenzhen's trend of development. Appendix I contains full records of this data. I also perform a series of analysis using this data. Figure 3 Breakdown of Land Auctioned by District illustrated the trend in development among different districts. Most of the undeveloped land auctioned during the past decade came from areas outside of the old city center districts. Luohu, Futian, and Yantian together accounts for less than 4 percent of the total land auctioned. A generic real estate model for a highly diverse region like Shenzhen must be able to simulate the overall effect of all districts without going into the shift in development and investment in each individual districts.

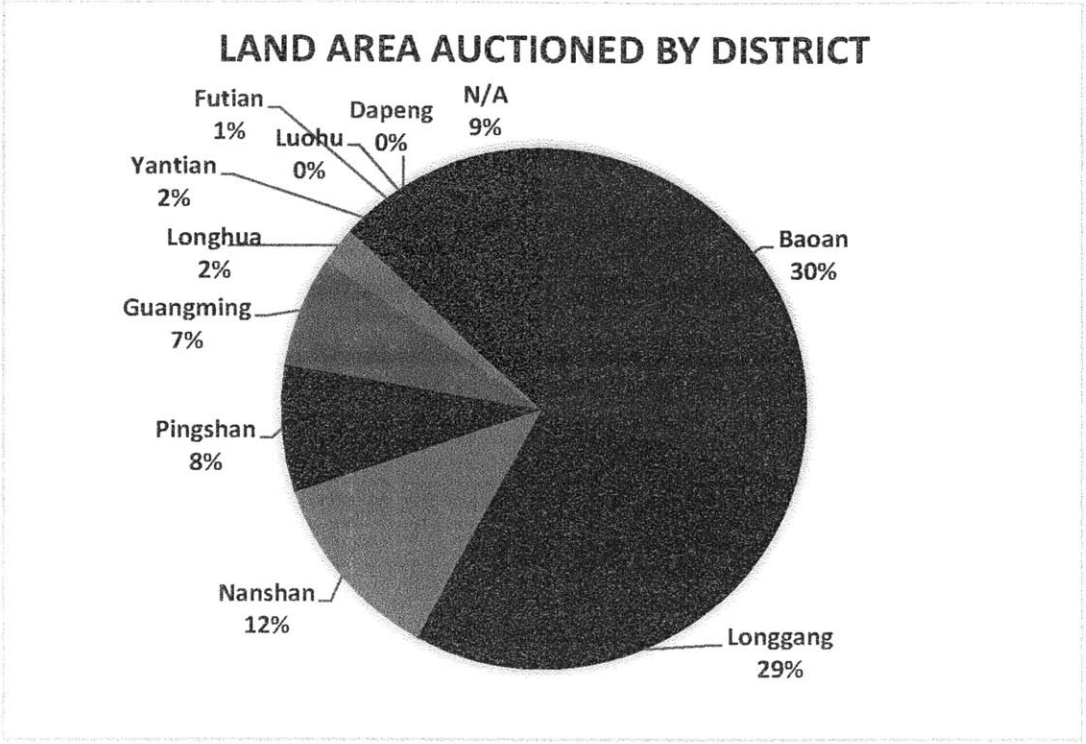


Figure 3 Breakdown of Land Auctioned by District

Figure 4 Land Auctioned by District and Purpose shows that Baoan, Longgang and Nanshan have seen the greatest amount of development in recent years, especially residential, industrial and commercial real estate.

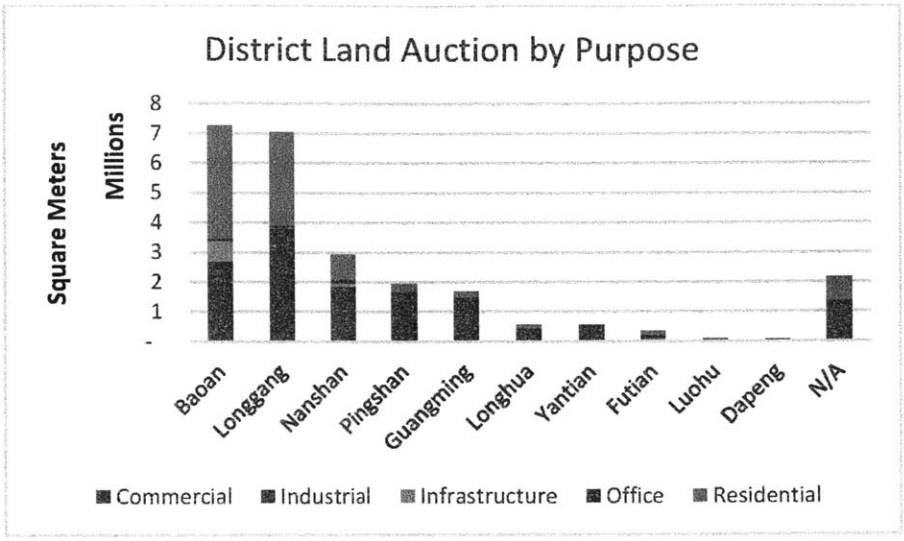


Figure 4 Land Auctioned by District and Purpose

A more focused look on the top 3 fastest growing (in terms of real estate development) districts of Shenzhen reveals a shift in development towards Nanshan district starting 2010. It is in line with government's intention to setup the Shenzhen-Hong Kong Modern Service Industry Cooperation Zone in this district.

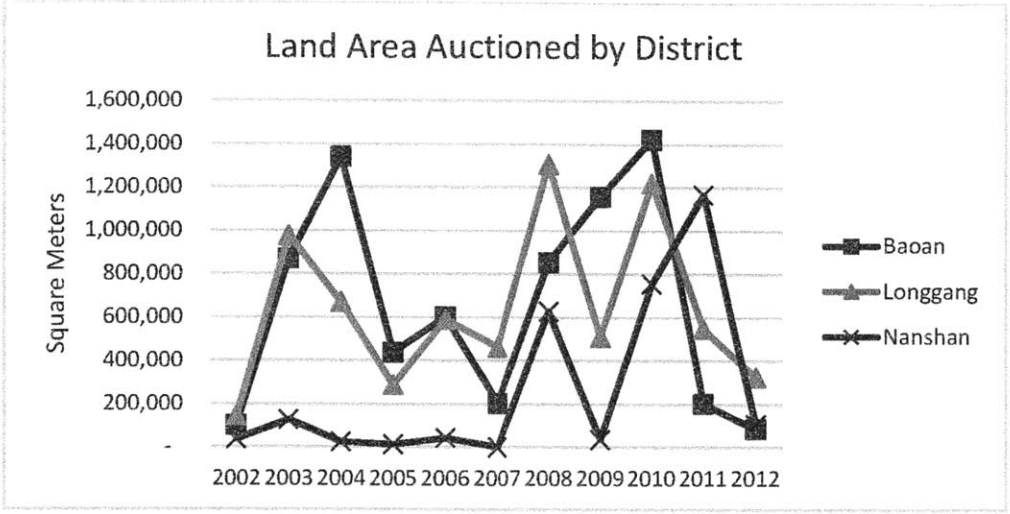


Figure 5 Comparing Baoan, Longgang and Nanshan District

## Real Estate Price

The reason this paper studies the real estate market of Shenzhen is because of its relatively reliable data and mostly uninterrupted boom throughout the history of this young city. The National Bureau of Statistics of China (NBSC) publishes the average price for marketable building space since 2002, up to 2012 by the moment when this paper is completed. Marketable building space is authorized by the government and has the necessary licenses for market transactions between its current owner and any other third party. NBSC records are the best available data for quantifying the price trend of real estate properties in Shenzhen. This data shows that from 2002 to 2012, property price sky rocketed from RMB ¥5,808 to ¥14,662 per square meter, adjusted for inflation. The city's population, economy and income data per capita also experienced high growth, as discussed in later parts of this chapter. The following figure illustrates the movement of Shenzhen's average marketable building space price level.

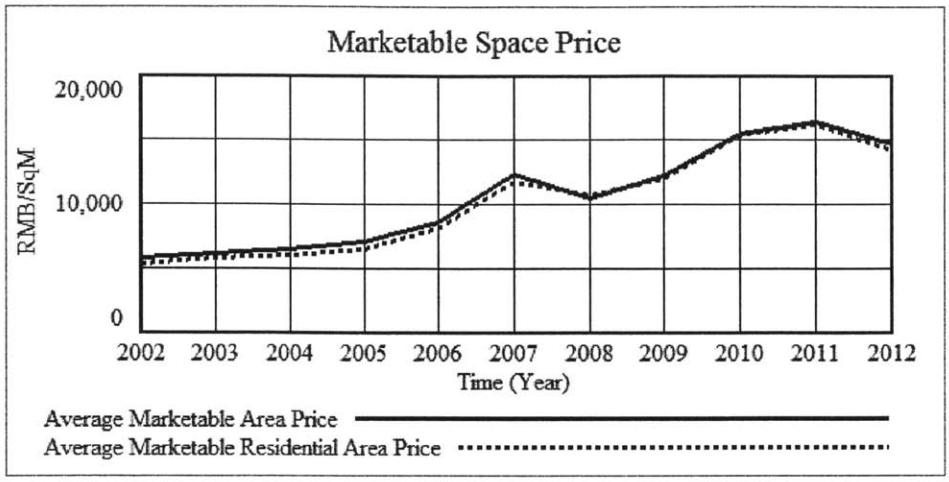


Figure 6 Shenzhen Average Property Price

The above figure shows a strong upward trend for real estate price. The more important point here is that after the global financial crisis of 2008, Shenzhen's real estate market has kept rising.

### Population Composition

Majority of Shenzhen's population have migrated from other parts of the country. Although there are over 10 million residents in the city, only about one fifth has Shenzhen Hukou[1]. The figure below divides the Shenzhen population into two groups: Migrant Worker (MW), those who live in Shenzhen but do not have Shenzhen Hukou; and Permanent Resident (PR), residents of Shenzhen with Hukou.

[1] Hukou is a government issued identification system that links a person's social security and all government sponsored benefits to a county. Not having a Shenzhen Hukou mostly means that the person will either obtain it in the future or move back to the home city where his or her Hukou is located.

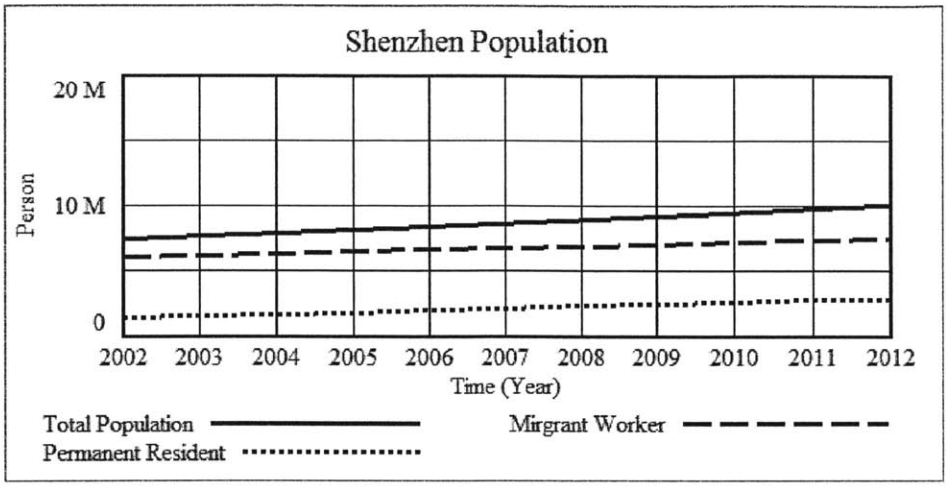


Figure 7 Shenzhen Population

Shenzhen's population growth is maintained at a stable rate of 3% per year, with permanent residents taking on a higher percentage of the composition. This trend has two effects on the property market. First of all, it is mostly the permanent residents or those who plan to become PR of Shenzhen that purchase homes in the city. Higher proportion of PR means higher residential demand. Secondly, settling down in Shenzhen is costly for migrant workers. The shift from manufacturing to service makes Shenzhen more attractive to highly educated work force from other cities, and they will earn a higher wage on average.

### Average Income Growth

Along with the high growth of the economic output of the city, Shenzhen's residents also experienced tremendous growth in their wealth during the past decade. It is reflected in both the increase in average worker's wage and total savings of residents.

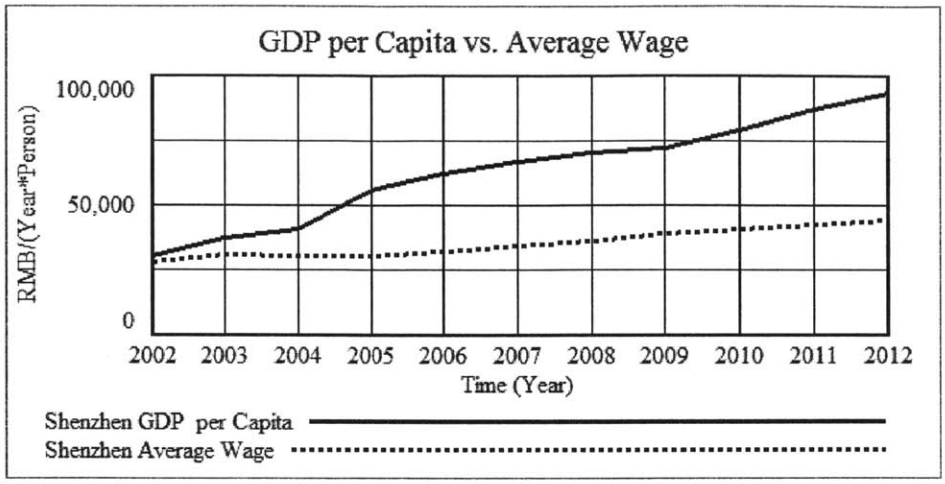


Figure 8 Shenzhen GDP per Capita

During these 11 years, average wage per worker per year had a CAGR of 4% after adjusting for inflation, while GDP per capita had a CAGR of 10%. More importantly in terms of effect on real estate market: the resident accumulated saving per person nearly doubled. Saving per person is roughly 5 times the annual wage, which indicates very high saving rate and little personal investment usual financial instruments.

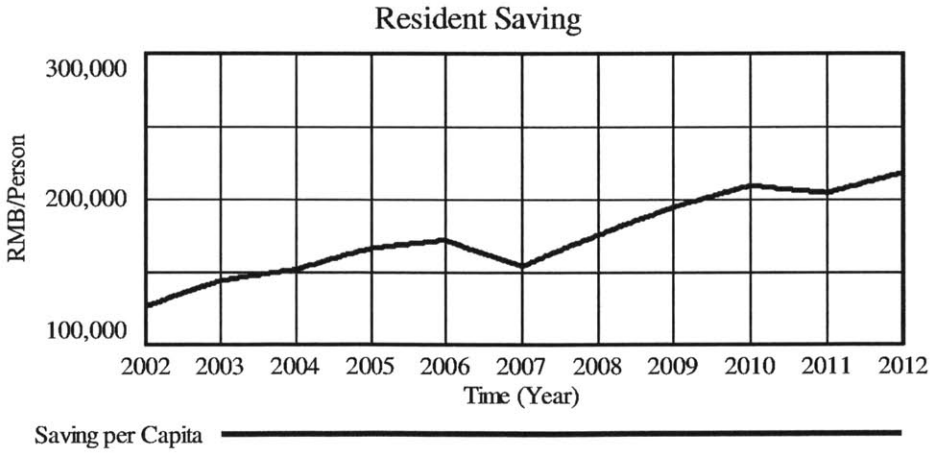


Figure 9 Accumulated Resident Saving

China is known for having one of the highest saving rates in the world, with a national saving rate at around 40% of income (Harbaugh, 2004). This high saving is on one hand preparing for the down-

payment for purchasing homes, but on the other hand enabling higher home prices because without other forms of personal investment, purchasing a home could be the best way to hold value. High property price encourages real estate development, and the Chinese government has been actively trying to control the risk in property market and make sure homes are affordable with a series of policies issued since 2003 (CADRE, 2008). The next part analyzes developers' investment in real estate projects, and government's actions towards controlling this investment through adjusting land supply.

**Property Development Investment and Land Supply**

In merely over 30 years, Shenzhen has built a mega city from scratch (SZ Government News Office, 2013). Going from a small village to a city with total constructed building area of near 800 million square meters takes a lot of investment from both public and private side (Nanfang Daily, 2010). The stock of building space supports Shenzhen's growth in manufacturing and service, but this level of development expansion will not be sustainable indefinitely. Affordable homes is an important indicator of social and economic stability, and the Chinese government has a long history of issuing policies targeted at controlling real estate investment and speculation (CADRE, 2008). In China, all of the major banks are state owned, and all land belongs to the government. Therefore, the government is able to restrict real estate investment by limiting financial resources and by limiting the release of undeveloped land to developers. Following charts illustrate how the government and macroeconomic conditions influence the investment in real estate sector in Shenzhen.

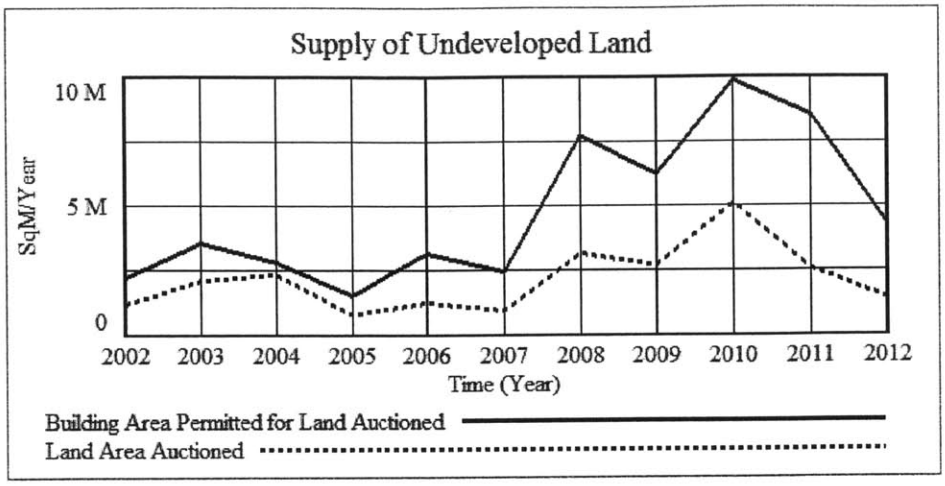


Figure 10 Supply of Undeveloped Land by Shenzhen Government

The figure above shows the total area of land been auctioned by Shenzhen government for the purpose of development in each year from 2002 to 2012. Each piece of land auctioned has a permitted construction area attached to it, effectively giving it a cap on development density. Construction area is greater than land area in the figure because on most land lots, multi-story buildings are planned. From 2003 to 2007, the government issued many policies and regulations aiming at controlling real estate development. However, since 2008, the release of land shows significant increase.

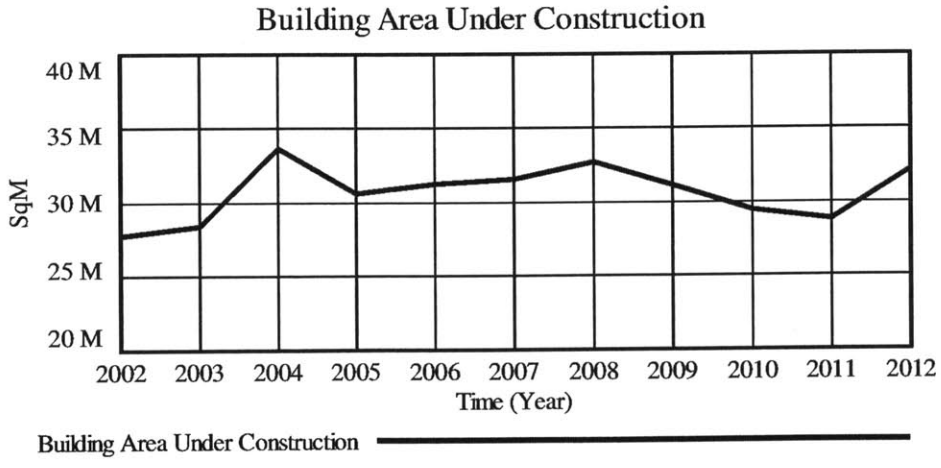


Figure 11 Building Area Under Construction

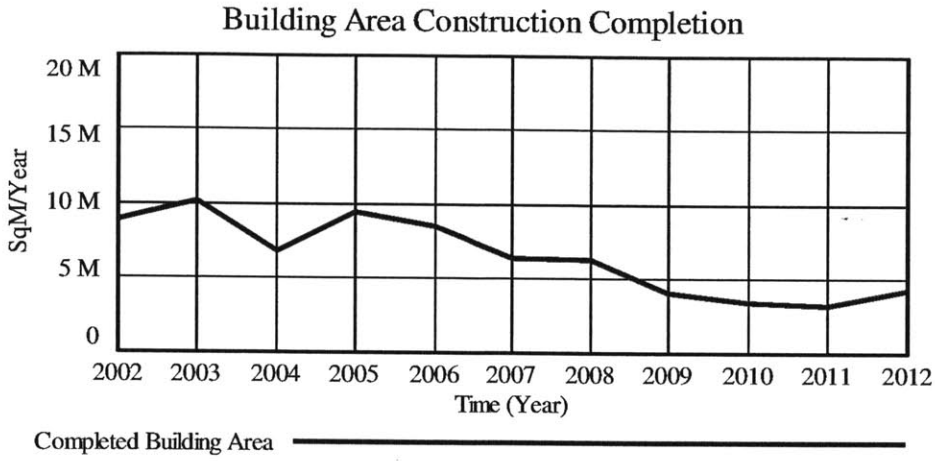


Figure 12 Building Area Construction Completion

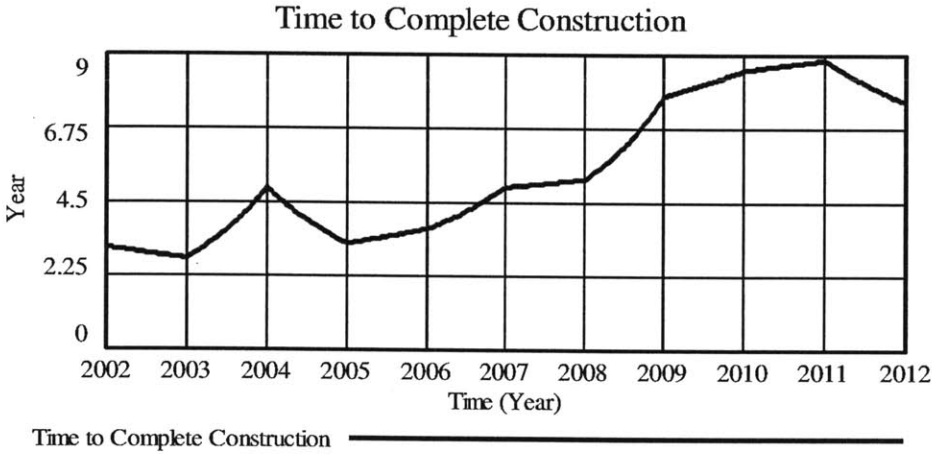


Figure 13 Time to Complete Construction

Over the years, the area under construction has been maintained at a stable level. However, area completed has been decreasing over the years. It means that it's taking developers longer to complete the same amount of building area, as shown in Figure 13 Time to Complete Construction. This is an example of policy resistance. Regulators punish developers who hold unutilized land properties by charging them an "unutilized land fee" (Urban Planning Land and Resources Commission of Shenzhen Municipality, 2013). The government intends to use this policy to encourage speedy development and

increase the supply while restricting on speculation on land asset. This policy forces developers to start construction once they purchase a land lot. However, if land value is raising, it will be more profitable for developers to complete and sell the buildings later, which in effect works against the original intention of the policy.

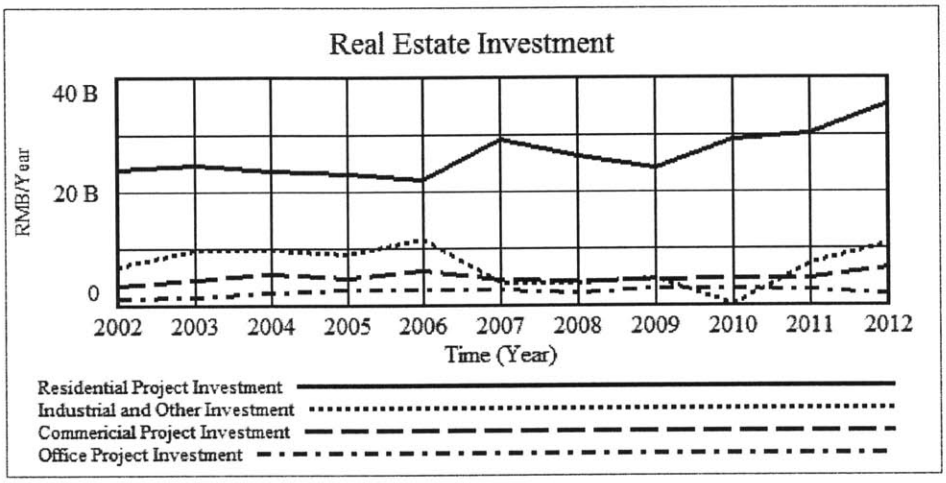


Figure 14 Investment in Real Estate by Project Type

Figure 14 Investment in Real Estate by Project Type shows that investment in residential properties far surpass all other types. Scherbina and Schlusche note that the housing market is more prone to speculative behavior than other types of real estate markets (Scherbina & Schlusche, 2012).

### Limitations in Data Availability

In order to sustain the economic growth China has been enjoying, both policy makers and business leaders demand better statistics data to help them make important decisions. Starting mid 1990's, more and more data are collected by National Bureau of Statistics of China (NBSC). From early 2000's, the annual census report was improved to the point that allowed us to analyze a region's demography and economy as detailed as shown above. While this is a huge improvement in a short period of time, this set

of data is still unusable for either statistical analysis or any of the real estate market dynamic analysis performed to date.

There are three limiting factors: First, available data only go back for a little more than 10 years, and many data are collected on an annual basis. What's rendering the explanatory power of these data even more, is the fact that China has not had a recession in a very long time. In order words, there is no "turning point" in this data. If everything is just going up, then any model can fit well into that pattern. It will not be possible to really test a model or a regression without at least one shift in the direction of the trend that is under examination.

Second, most data are only publicly available on a broad city wide basis. There is no way of drilling down to each district to analyze the market from bottom up. Shenzhen as a whole is shifting rapidly from an industrial production based economy to a more diverse economy. While some districts are still developing industrial parks and building up their economic output through industry, many others are now focusing on finance, commerce, service or even creative designing. Shenzhen on one hand has some of the busiest industrial parks in the country, but on the other hand also has the largest floor space of "green buildings" in the country (Askci, 2014). The cost and price for these buildings are vastly different. It will be very difficult to analyze the whole region's property market without regional data.

Third and most importantly, China still misses some crucial categories of statistics record to perform the kind of study that has been conducted in developed countries. In his 1989 thesis, "Understanding the Boston Real Estate Market: A System Dynamics Approach," Peter Genta designs a comprehensive model for Boston's housing market using rent, vacancy, low income population, condo versus detached homes, and tax data (Genta, 1989). None of these categories of data are available in China. There is simply no reliable data on some of the most basic numbers needed for traditional real estate market analysis, such as vacancy rate and rent index.

Ruling out the possibility of building a model that sits on fine-grained local data, this paper analyzes the real estate market using the frame developed for commodity market: based on demand and supply balance. By building a generic real estate model that can capture the development, sales, holding and demolition procedure within the property market, it allows us to examine any regional market with very limited information. While such a model is not ideal for point prediction, it offers insight into the dynamics of the market: why the trend, and why the oscillation. It also answers the important question we are asking: *is there a property bubble building up in Shenzhen*?

This generic model will be tested against California data for following reasons: California has very reliable historical data; it recently experienced the full cycle of the largest housing bubble in its history; and its most important record could be traced back to 1980, which could be used to test the model for long-term, multiple cycle behavior. Testing the model using California data not only validates the design of the model, it also offers an opportunity to understand the behavior of a real estate market, which will shed light into the understanding of Shenzhen's market condition.

## MODEL DESIGN

To design a generic model that simulates the dynamics common in different real estate markets, we start with John Sterman's Commodity Model, described in his textbook, Business Dynamics: Systems Thinking and Modeling for a Complex World, Chapter 20 (Sterman, 2000). The basic concept of the commodity model is based on demand and supply that is balanced by price. A simplified illustration of such market structure is described in Sterman's textbook, Chapter 5.

The price of a product is compared against the price of substitutes for consumers, and against the cost of production for suppliers. Consumers and Suppliers then decide on how much to consume and produce accordingly. This relationship between consumption and supply then determines the prevalent market price. System reaches equilibrium through this process. When price is higher than equilibrium price, consumers will demand less and suppliers produce more, causing the supply over demand ratio to rise – price falls. When price is lower than equilibrium price, consumers will demand more and suppliers produce less, resulting in a higher price. However, the system may take some time before it reaches equilibrium because there will be longer delays in production change than demand change. We will see oscillation in such a system, where production would overshoot because of the delay in satisfying demand, followed by a collapse because of over capacity developed during this period. A speculation component might be added to some markets where the products can be stored for resale later.

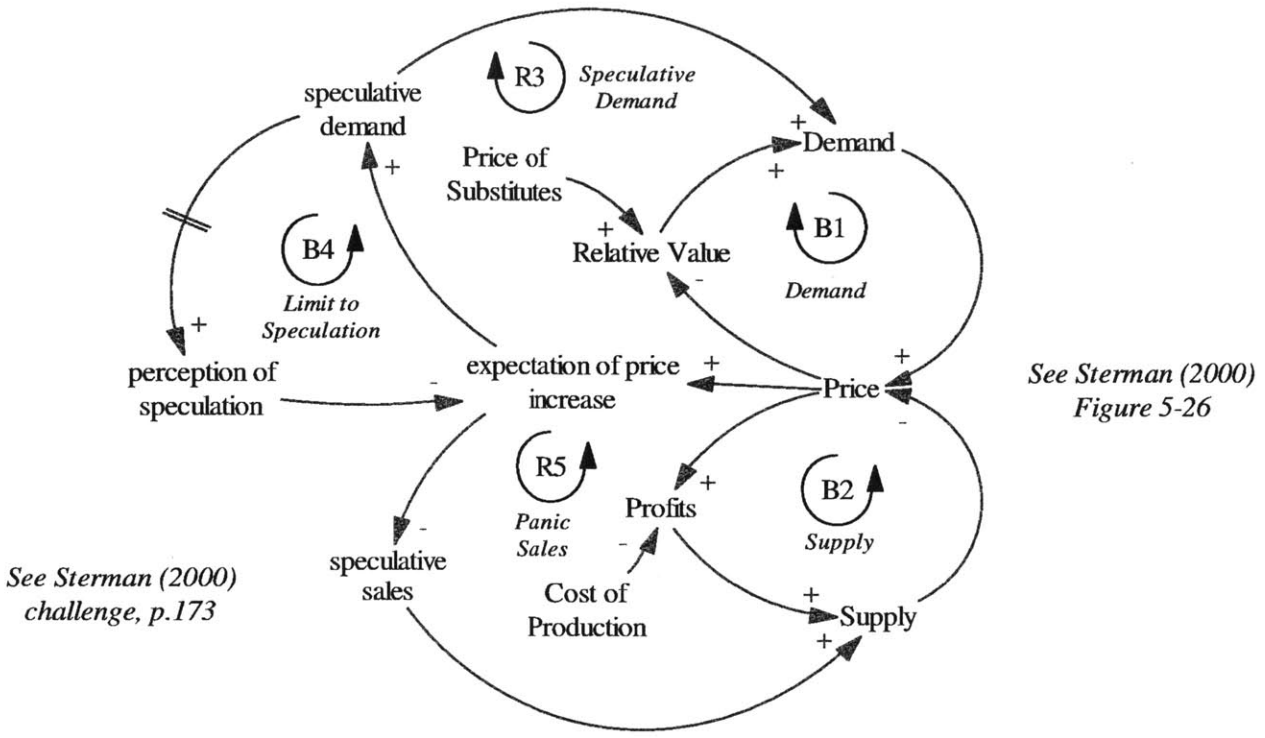


Figure 15 Supply and Demand Balance with Speculation

In a market with speculation, an increase in price causes an expectation in a higher price for the future, and investors increase their purchasing rate and reduce their sales rate. This speculation behavior breaks the equilibrium described above, causing a bubble. The bubble would eventually burst because after a long delay, the perception of speculation would increase sales rate (speculative sales) and decrease purchasing rate (speculative demand). When price starts to fall, speculative inventories will pour into the market and price crashes. This process further intensifies the overshoot and collapse cycle of the system.

The commodity model introduced in Business Dynamics is a perfect example of a supply-demand balance system. This thesis tries to further develop this model to test real estate markets using this framework. Sterman concludes that "[m]ost commodities...experience cycles in prices and production with characteristic periods, amplitudes and phases. Industries with long construction delays and long asset

lifetimes such as...real estate likewise exhibit strong cyclical dynamics" (Sterman, 2000). This is a point that the modeling simulation presented here tries to confirm.

A commodity market is similar to a real estate market in following aspects: Both markets have long capacity development delays and life time of capacities. Price-setting process is instantaneous and it is based on a bidding system for market clearance. Over a longer time horizon, excluding the random variations, the demand is stable. For commodity, it's driven by the rate of consumption by downstream industries; and for real estate, it's by population growth, holding other variables constant. Price will rise when there is a low inventory coverage (property available for purchase divided by the rate of property sold), and it will fall when the inventory coverage is higher than its equilibrium level. Cost of production is relatively stable. The production cost of commodity is composed of variable cost and fixed cost. The development cost of real estate projects is composed of land value and construction cost. When the production cost is low relative to price level, the capacity utilization will be high, so that the producers can take advantage of the short term price level. Same is true for real estate. This capacity utilization mechanism is carried over from commodity model to real estate model. When producers expect that profitability will be high for the long term, new capacity will be developed. Same is also true for real estate. More workers will be hired and trained, and more heavy equipment will be purchased. This mechanism is represented in Desired Capital and Capital Stock loops. More capital means more capacity, and with a higher utilization rate, production output will rise and inventory coverage fall. This is the most fundamental production to price balancing loop that is shared by commodity production and real estate development.

While it is reasonable to presume that the most fundamental mechanism of the commodity production-to-consumption dynamic is similar to that of the property market, there are some key differences. First and most important: Sterman's commodity model assumes goods are non-durable. Customers purchase the quantity they need and that quantity is out of the system. Opposite to that, properties are durable goods

with a very long life span. When a home is purchased, it does not leave the system, but rather just moves from a stock called Homes Available for Purchase to another stock called Homes Unavailable for Purchase, through a rate of Home Sales. The total stock only reduces through a very slow rate of Demolition. What's making this procedure even more complex is that stock for sale takes input from two sources. It can be accumulated through new development, and through sales of existing properties. In this case, stock unavailable for purchase will move into stock available for purchase through the rate of Listing for Sale.

The second modifications that needs to be done to the commodity model is the addition of a speculation dynamic. Investors can purchase and hold real estate assets in anticipation of capital appreciation. This paper tests the effect of added speculation in this system, and tries to determine how much role does speculative investment play in the business cycle of real estate markets.

With the key differences between the commodity model and real estate model explained, the following sections explain the overall concept and the details of every part of the real estate model. Functions not listed in this paper are meant to be the same as Sterman's commodity model.

### Overview of the Generic Real Estate Model

There are four major parts in Sterman's commodity model: Production & Inventory, Production Capacity, Demand, and Price. Each part has several smaller components, and all parts are interconnected to simulate the dynamics in commodity markets. Based on this structure, the generic real estate model this thesis tests also contains four corresponding major parts: Construction & Stock, Construction Capacity, Demand, and Price:

1. Construction and Stock:

The Construction and Stock module is the part that consumers see and interact with in a real estate market. This part describes the development of a real estate project, the sales of the project, and its demolition after certain years of service. This is where the inventory coverage ratio and capacity utilization ratio are discovered. All inputs coming into this visible part of the market is determined in the three following, less visible modules.

2. Construction Capacity:

   The Construction Capacity describes the behavior of real estate developers. This module is composed of two smaller parts. First is Desired Capital, which is the result of comparing the long term expected price to the expected cost of development. The second part is Construction Capacity. It takes desired capital as an input, and through a delayed capital acquisition rate, it derives at capital stock, which is then converted into Construction Capacity that feeds into the Construction Start Rate.

3. Demand:

   The Demand module puts together two kinds of demands: real demand and speculative demand. Real demand is driven by population growth. The stock of real demand equals the number of households in a housing market, or equals space per person times total population in a general real estate market. The speculative demand is determined by the rate at which the price changes. The input for this module is demographic information, price trend, and mortgage rate. These two types of demand are combined with expected demolition to derive an indicated customer order. If the customer order rate is positive, it feeds into the property sales rate. If it is negative, which only happens when there is a high speculative sale, it feeds into the property listing for sale rate.

4. Price:

The Price module simulates the pricing procedure that happens in each transaction, but is represented here as a market behavior as a whole. It generates what the price should be based on previous pricing level and the inventory coverage ratio from the Construction and Stock module. The price variable generated here will feed into all other three modules. This part also houses the price trend component. Price Trend is the driving force behind speculative demand.

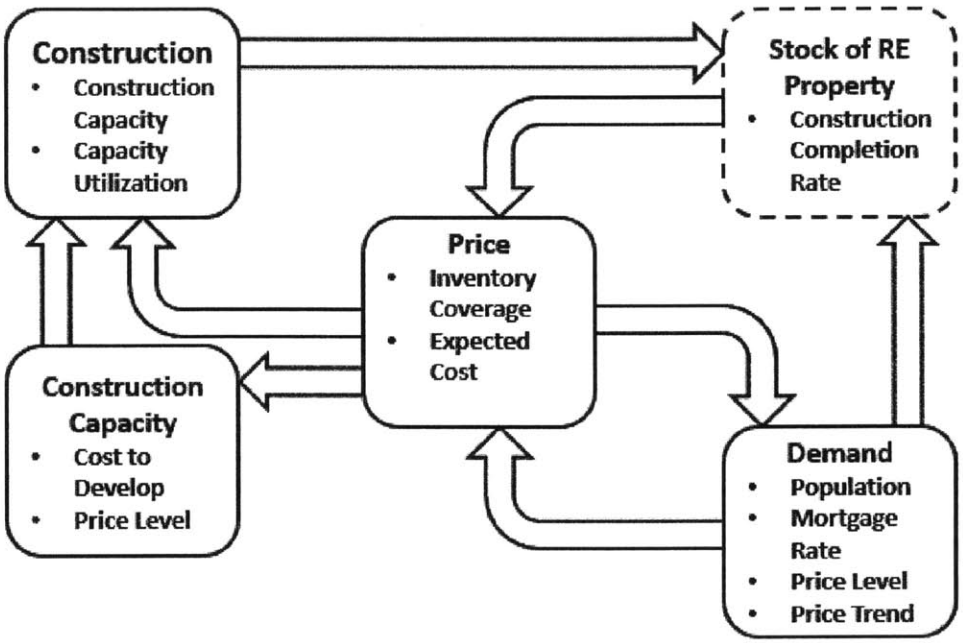


Figure 16 Overview of the Generic Housing Model

Other than these four major modules, there are many smaller components that support them. In order to simulate the investment behavior in real estate assets for capital gain, a speculation component is created and added into the demand module of Sterman's commodity framework. Following is a description of each of the modules. I will first describe the corresponding design in Sterman's commodity model for each component, then discuss the modification made to suit the real estate market.

### Construction and Stock Module

The Construction and Stock module corresponds to the "Production & Inventory" module in Sterman's commodity model (Sterman, 2000). "Production & Inventory" describes the flow of inventory from Production Start to Shipment. Production Start feeds into WIP Inventory, which after a Manufacturing Cycle Time delay, becomes Inventory. The stock of Inventory is then decreased through a Shipment Rate. The ratio of Inventory over Shipment Rate is Inventory Coverage. Production Start rate is the product of Production Capacity and Capacity Utilization. Capacity Utilization is determined by Expected Markup, which equals to Short Run Expected Price over Expected Variable Costs.

Figure 17 Construction and Stock Module describes this component in the real estate model. The basic structure is the same as the commodity model. However, because real estate assets can be held and resold later by owner, there is a stock added after the sales to represent assets held by owners. This stock increases as inventory (Homes Available for Purchase) are sold. It decrease with resale (Homes Listing for Sale) and demolition (Home Demolition).

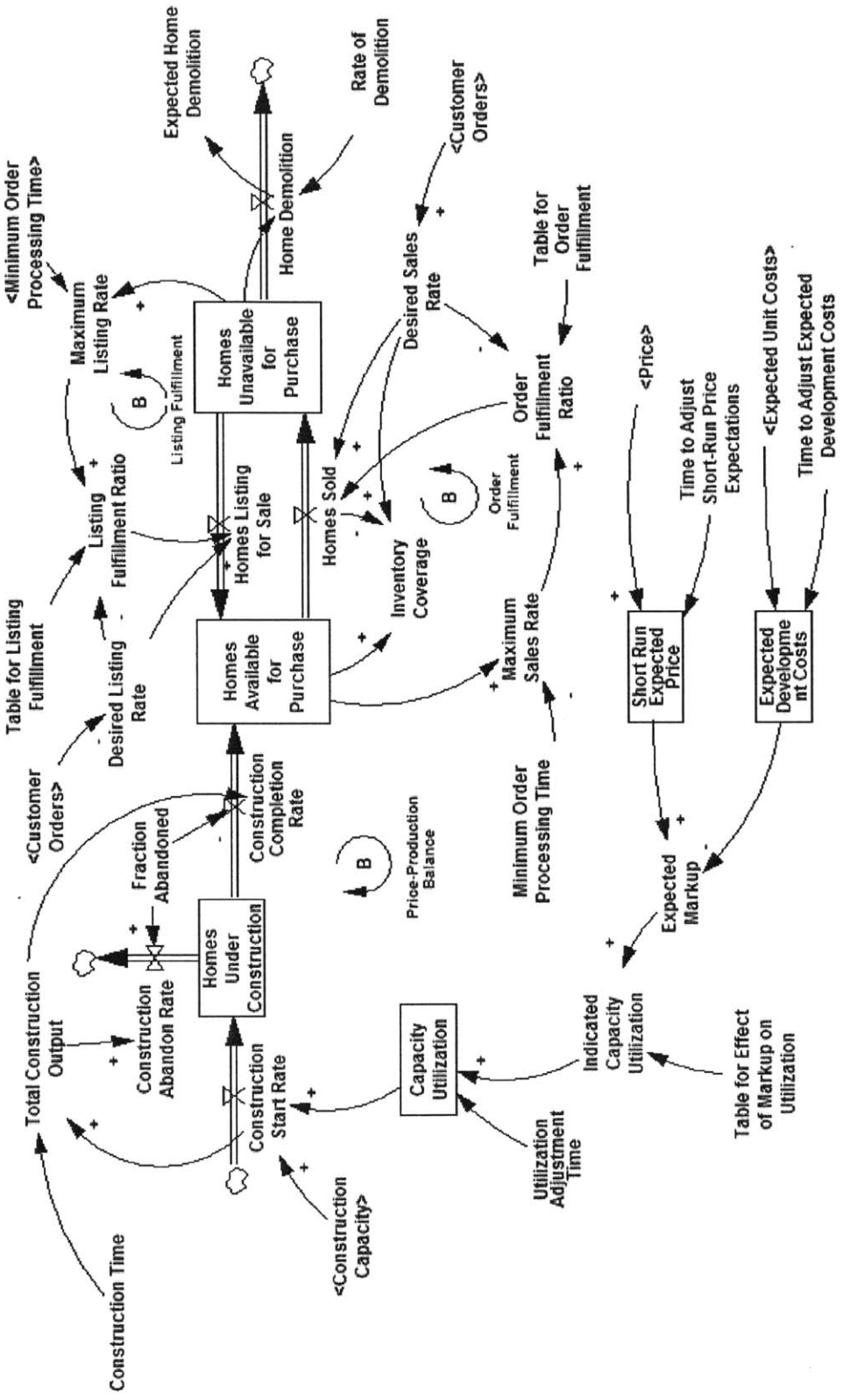


Figure 17 Construction and Stock Module

Following are the description of each components of this module:

1. Homes Under Construction:

   Homes Under Construction is the stock of housing units that is currently under development. It is the integral of Construction Start Rate minus the sum of Construction Abandon Rate and Construction Completion Rate.

2. Homes Available for Purchase:

   This is the stock of homes in the market listed for sale. It is the integral of Construction Completion Rate plus Homes Listing for Sale minus Homes Sold. It includes newly developed homes and pre-owned homes that are listed by their previous owner.

3. Homes Unavailable for Purchase:

   Homes Unavailable for Purchase is the stock of all homes that are in usable condition, but are not listed for sale. It could be homes occupied by owner, homes occupied by renter, second homes, vacation homes or investments homes. This stock is the integral of Homes Sold minus Homes Listing for Sale and Home Demolition.

4. Construction Start Rate:

   Construction Start Rate measures the construction start volume in terms of number of homes per year at any point of time (each calculation time step). It is the result of total Construction Capacity multiplied by Capacity Utilization.

5. Construction Completion Rate and Construction Abandon Rate:

Construction Completion and Abandon Rates are the result of a third order exponential delay of the Construction Start Rate, with a Construction Time (or delay time) of one year. This one year delay time is derived from the average home permit authorized to construction start time plus the average construction start to completion time. Because this model uses one stock to represent both authorized but not started and started construction, these two periods of time are put together to form a single delay time.

When there are multiple exists for a third Order exponential delay, there needs to be a total output ratio, then divide this total output ratio between two actual exists.

*Total Construction Output = DELAY3 (Construction Start Rate, Construction Time)*

*Construction Abandon Rate = Fraction Abandoned * Total Construction Output*

*Construction Completion Rate = (1-Fraction Abandoned) * Total Construction Output*

6. Homes Sold and Homes Listing for Sale:

   As described above, the rate of sales or listing is determined by customer order, which is the netted number of consumers selling and buying. If the customer order number is positive, it means that there are more consumers buying than selling at that point of time, and the Homes Sold rate will be positive, and Homes Listing for Sale rate will be zero. In other words, the stock of homes available for sale will decrease. If Customer Order is negative, it means there are more consumers selling than buying, and the Homes Listing for Sale rate will be positive and Homes Sold rate will equal to zero. Homes Available for Sale will increase.

   *Desired Sales Rate = MAX (Customer Orders, 0)*

*Desired Listing Rate = MAX (-Customer Orders, 0)*

Because of the limited amount of supply from the stock of homes, the rate of transaction will slow down when the inventory runs low, and this ensures that the stock never reaches below zero. Homes Sold or Listing equals the desired rate times fulfillment ratio. The lookup table here takes the maximum sales rate over desired rate as the input and generates fulfillment ratio as the output. This lookup table is unchanged from Sterman's the commodity model (Sterman, 2000).

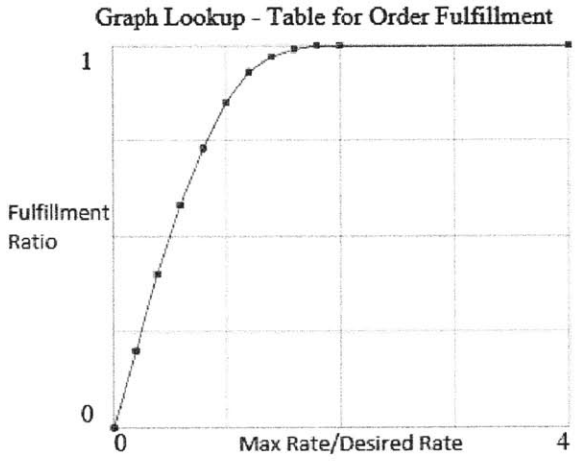


Figure 18 Table for Order Fulfillment Ratio (Sterman, 2000)

7. Home Demolition:

   Most buildings will be demolished after certain years of usage. Home Demolition is the product of Homes Unavailable for Purchase and Rate of Demolition. Calculated using actual total home units and actual construction rate from 2000 to 2008, the rate of demolition is assumed to be 0.25% of Homes Unavailable for Purchase per year.

8. Inventory Coverage:

Inventory coverage is the indicator of the balance between demand and supply. It equals to Homes Available for Purchase divided by Homes Sold. It is measured in years, meaning how many years of supply is in the stock of listed homes given the rate of sales at the moment. This is the most important indicator for price. Low Inventory Coverage results in multiple buyers bidding on the same house and price goes up; high Inventory Coverage results in sellers compete for potential buyer and lower their price.

*Inventory Coverage = IF THEN ELSE (Homes Sold = 0, IF THEN ELSE (Desired Sales Rate = 0, 1, 0), Homes Available for Purchase / Homes Sold)*

Inventory Coverage calculation needs to avoid the denominator equals zero. There are two situations when Homes Sold would become zero, one is when Desired Rate is zero, and the other is when Fulfillment Ratio equals zero. The formula distinguishes these two situations and gives a corresponding response according to that.

9. Capacity Utilization:

   Capacity Utilization is result of developers and home builder's collective opinion on the short run expected price versus cost, or the short run profit. If the profitability is expected to be high during a time frame of a development project, the developer will utilize more capacities to construct more homes in order to gain more profit; the opposite if the profitability is low in the short run. The conversion from profitability into Capacity Utilization depends on a Lookup Table for Markup on Utilization. The real estate model uses the assumptions used in Sterman's Commodity Model (Sterman, 2000).

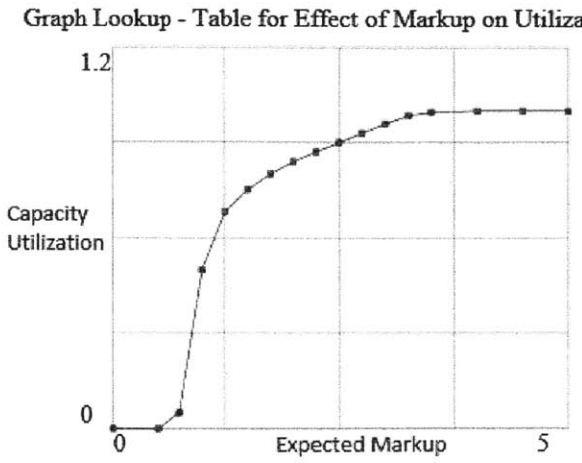


Figure 19 Table for Effect of Markup on Utilization (Sterman, 2000)

## Capacity Module

This module corresponds to the Production Capacity and Desired Capacity components of Sterman's commodity model (Sterman, 2000). Production Capacity is derived from Capital Stock times Capital Productivity. Capital Stock is generated from Desired Capital, through a series of indicated capital order calculation and acquisition delay. The process of which desired capital is indicated and then acquired based on profitability is the same for both commodity market and real estate market. Therefore, no structural changes are made to this part. The figures and description below explain how this design is applied in the real estate market.

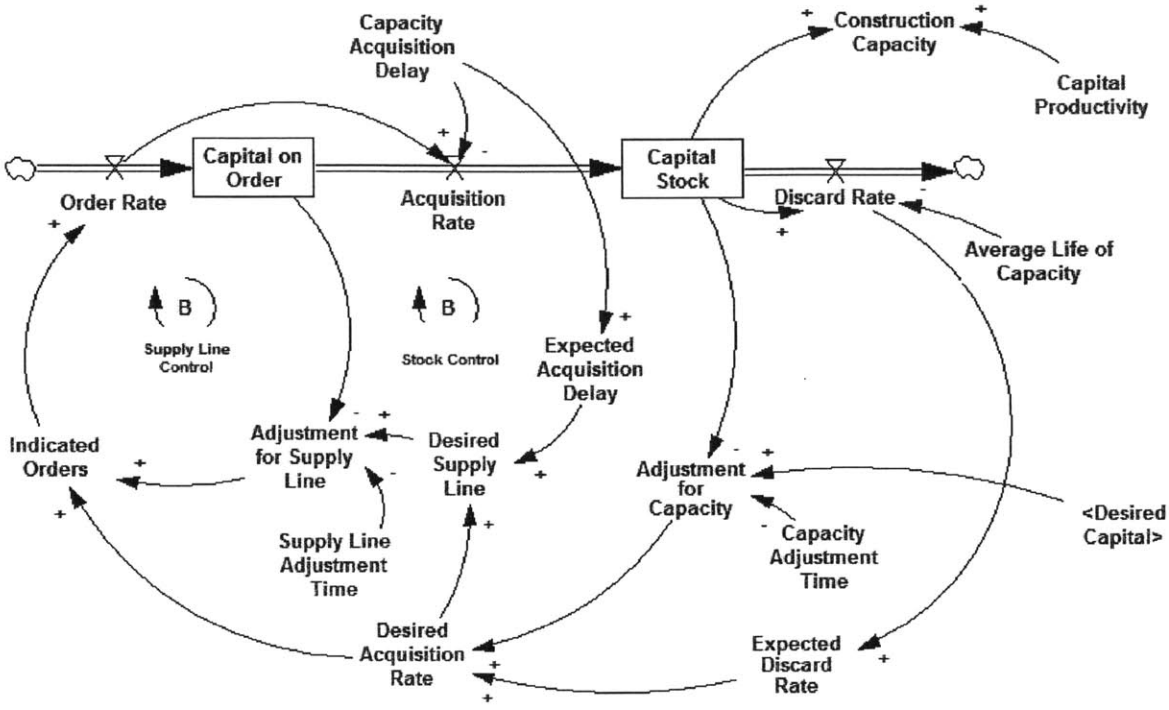


Figure 20 Construction Capacity

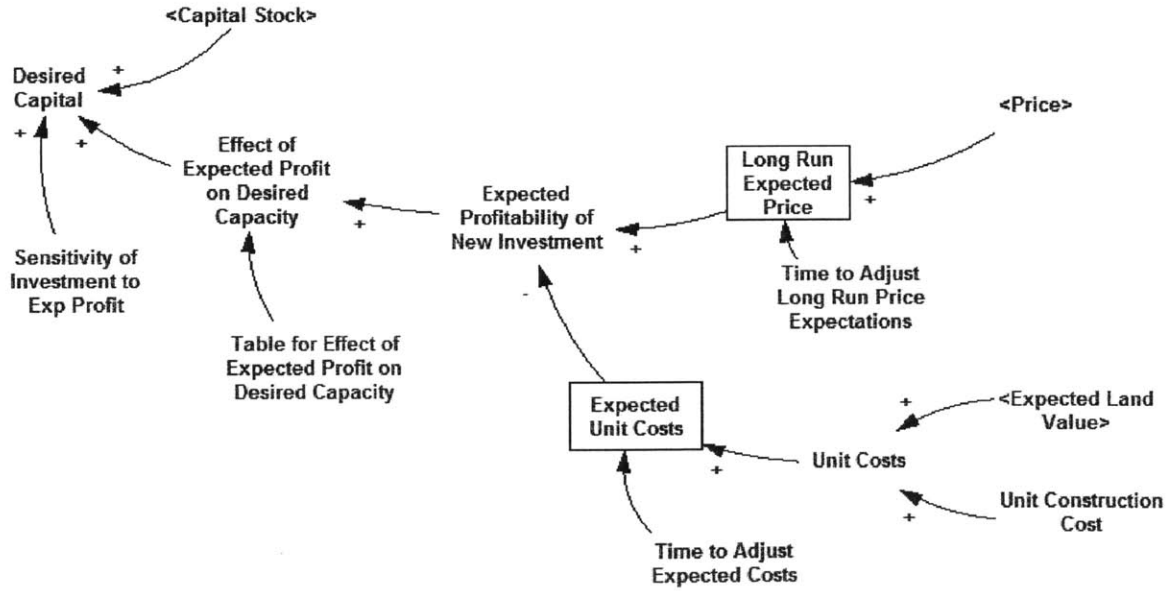


Figure 21 Desired Capital

1. Expected Land Value

Expected Land Value is simulated in this model as a fraction of Investors' Expected Price.

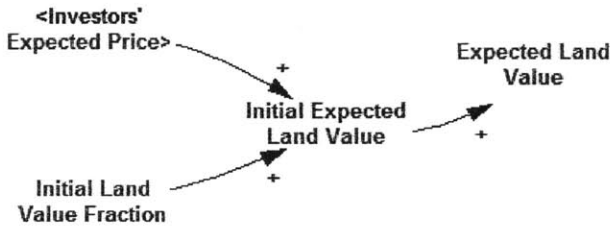


Figure 22 Unit Land Value

2. Unit Construction Cost

   Unlike land value, Unit Construction Cost is a constant number, measured in dollar per home.

3. Table for Effect of Expected Profit on Desired Capacity

   Desired Capacity depends on Expected Profit. When expected profit is high, developers will demand higher capacity, vice versa. The function between these two variables is calculated through a lookup table. The real estate model uses the lookup table found in Sterman's commodity model.

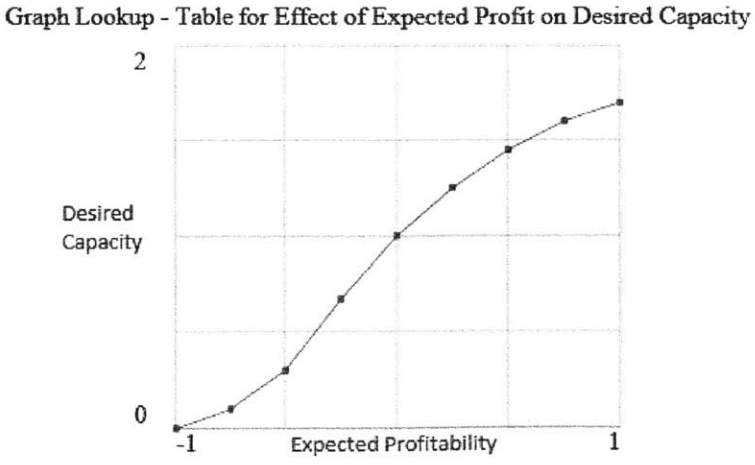


Figure 23 Effect of Expected Profit on Desired Capacity (Sterman, 2000)

**Demand Module**

In Sterman's commodity model, demand is expressed as Customer Orders, and it is the result of a reference demand adjusted by price and elasticity (Sterman, 2000). Reference demand is a constant, and it is assumed that at equilibrium price, the demand and customer order will stay constant. When price increases, Indicated Industry Demand will decrease and so will Customer Orders. The magnitude of the drop in demand is determined by Reference Industry Demand Elasticity. However, in the real estate model, Customer Orders consists of Primary Home Demand (real demand), Speculation Demand (demand to hold properties in anticipation of future real demand at a higher price) and Expected Home Demolition. Primary Home Demand is equivalent to Industry Demand, and it is the result of the increase in households, and adjusted by Reference Primary Home Demand Elasticity. The other two types of demands are result of changes to the model structure in order to represent the real estate market. They are directly added to Customers Orders in the real estate model.

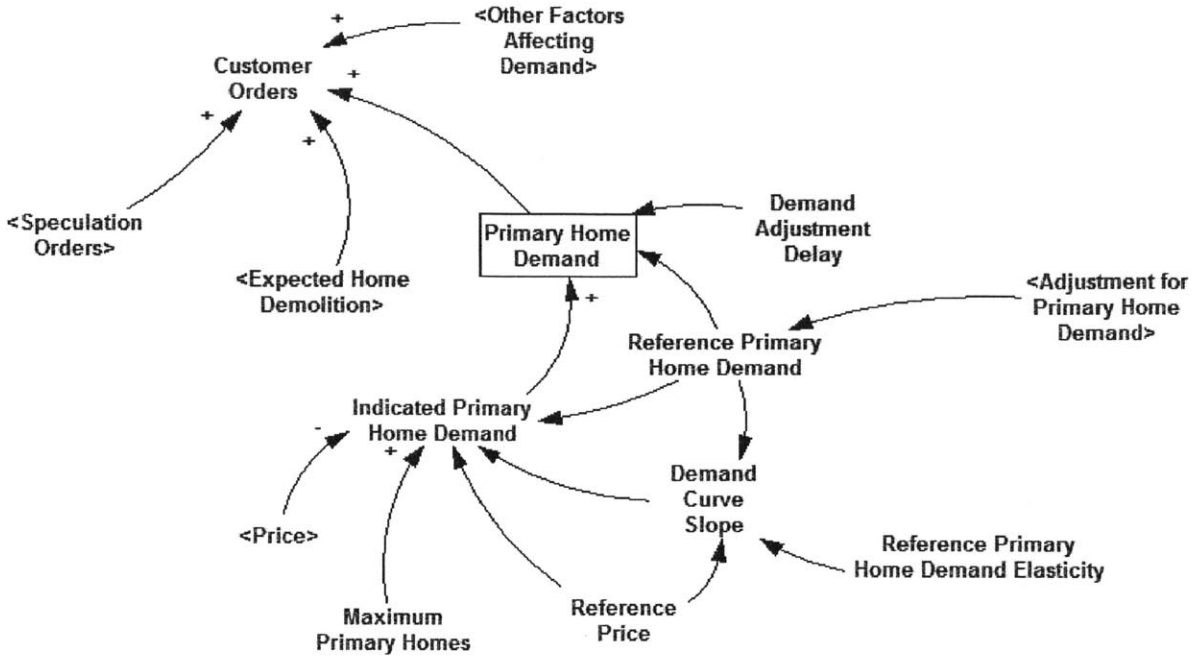


Figure 24 Customer Order Component

Primary Home Demand is adjusted according to price, so that if the price is higher than the Reference Price (less affordable), this demand will be lower than indicated. If the price is low (more affordable), it will be higher than indicated. This adjustment is done through discounting the Reference Primary Home Demand based on the ratio of Price over Reference Price, with the effect of Price Elasticity of Demand. All these simulation mechanisms are identical to Sterman's Commodity Model, and only the variables are changed according to calibration results to fit the characteristics of a real estate market.

Speculation Orders and Expected Home demolition are combined with Primary Home Demand to form Customer Orders.

The Reference Primary Home Demand equals to Adjustment for Primary Home Demand, which is the gap between total number of households (represented in the model as Desired Occupied Home Units) and home units actually occupied by households as their primary homes (Primary Home Stock).

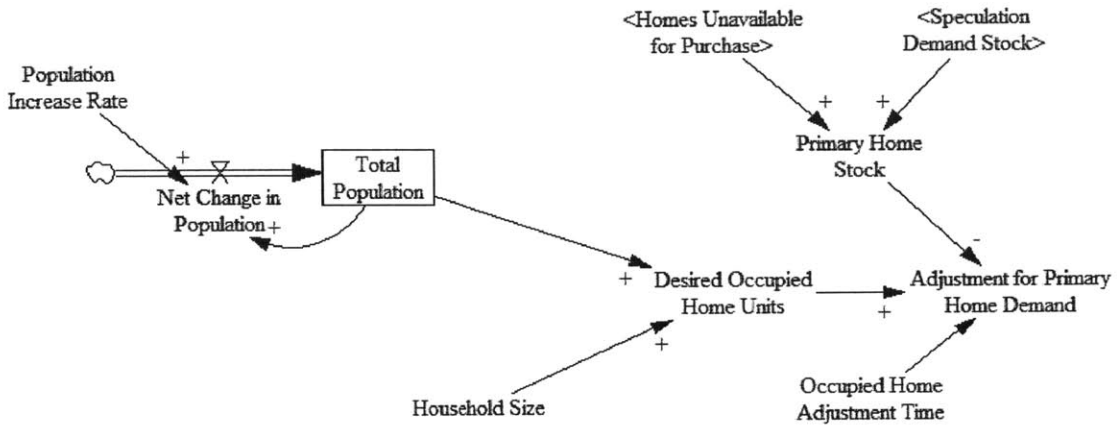


Figure 25 Adjustment for Primary Home Demand

In Primary Home Stock, Speculation Demand Stock is subtracted from Homes Unavailable for Purchase. This is because the definition of speculation demand in this model is the demand beyond real demand (number of households). In other words, these homes are held by investors and are left vacant.

*Total Population = INTEG (Net Change in Population)*

*Net Change in Population = Population Increase Rate * Total Population*

*Desired Occupied Home Units = Total Population / Household Size*

*Primary Home Stock = Homes Unavailable for Purchase - Speculation Demand Stock*

*Adjustment for Primary Home Demand = (Desired Occupied Home Units - Primary Home Stock) / Occupied Home Adjustment Time*

a. Total Population:

Total Population is simulated using starting population level, and adjusted by a net rate of change in population (Population Increase Rate).

b. Household Size:

Household Size is set as a constant number in this model.

c. Desired Occupied Home Units:

Desired Occupied Home Units equals to Total Population divided by Household Size.

Speculation Demand is another variable that determines Customer Orders in the real estate model. This is a major change to Sterman's commodity model. It requires more attention and is described in detail in the section after we discuss Price.

**Price Module**

The Price Module is the information hub that balances all other modules in Sterman's commodity model. It takes the Inventory Coverage ratio and Expected Production Costs to derive at Price. This price figure after a delay in adjusting traders' expectations, becomes Traders' Expected Price. The value of Price at any given point in time is the product of this expected price times the effect of costs on price and effect of inventory coverage on price.

For the real estate model, the price setting mechanism is identical to the commodity model. However, in order to support the calculation of speculation demand in the real estate model, a price trend perception component is added. This component compares the price level over a time horizon to derive at a traders'

perception in price trend. This trend perception model is introduced in Business Dynamics, Chapter 16 (Sterman, 2000). There is no structural change to this model. Coefficients are calibrated along with other parameters of the real estate model.

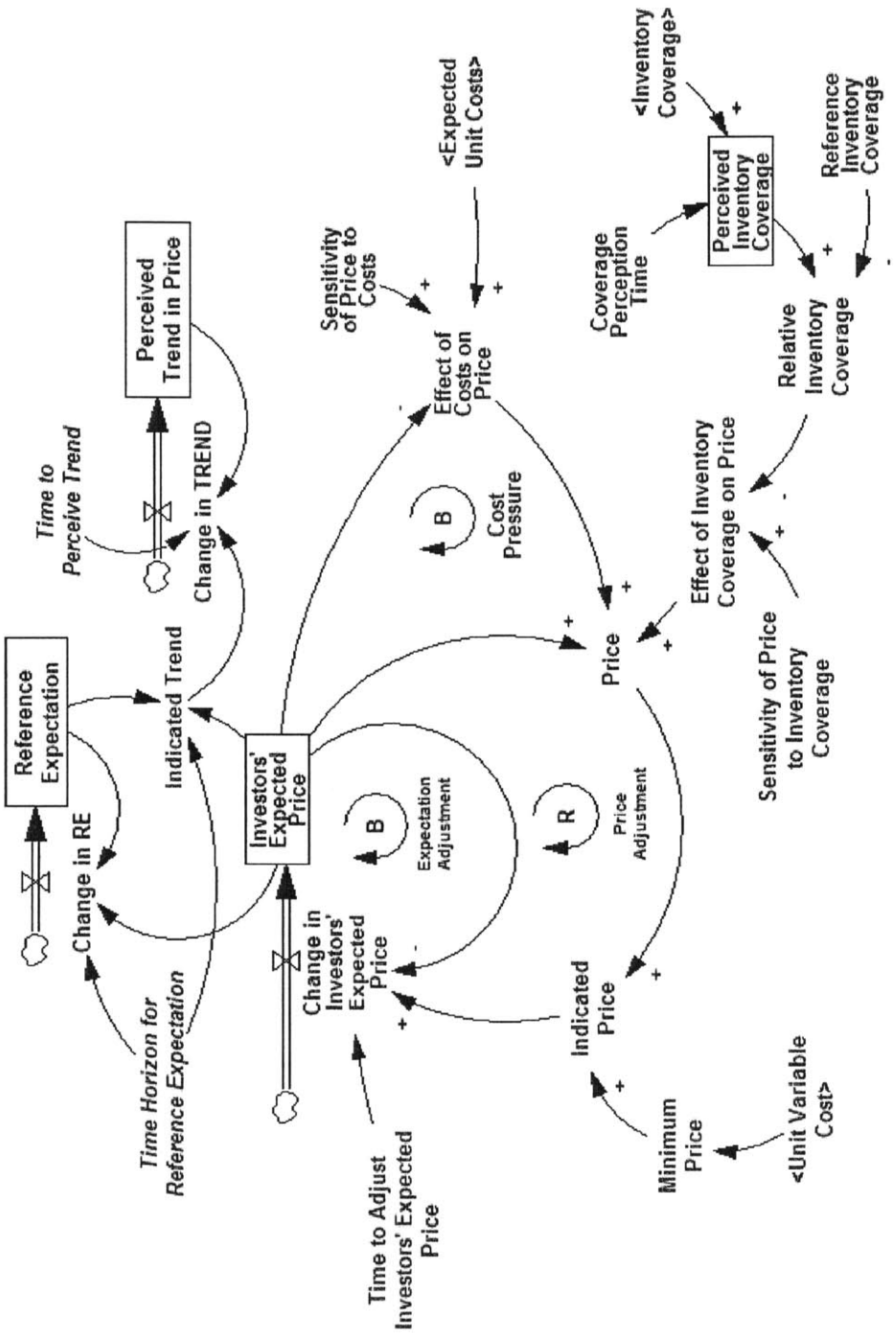


Figure 26 Price Module

1. Relative Inventory Coverage:

Relative Inventory Coverage is the ratio of Perceived Inventory Coverage versus Reference Inventory Coverage. The reference number is the result of model calibration.

2. Price:

   The price at any point of time is determined by the price of the previous period adjusted by the effect of inventory coverage and the effect of cost.

3. Investor's Expected Price:

   Investor's Expected Price is the result of the latest Indicated Price and the Expected Price from the previous period. This stock simulates how investors change their pricing outlook over time.

4. Reference Expectation:

   Reference Expectation maintains investors' expectation from previous periods. It adjusts according to the new Investor's Expected Price, with a time delay indicated in Time Horizon for Reference Expectation.

5. Perceived Trend in Price:

   Perceived Trend in Price is calculated using the difference between Reference Expectation and the latest Investors' Expected Price, adjusted by Time Horizon for Reference Expectation.

**Speculation Demand**

Speculation Demand is an important addition to the commodity model to simulate investors' behavior of holding excess stock in anticipation of future consumption demand at a higher price. It is driven by the trend in price. Perceived Trend in Price is compared with Mortgage Rate to generate Price Trend Ratio. In

here, Mortgage Rate serves as an indicator for required rate of return on the capital that is used to purchase the home, and so it is equal to the required rate of appreciation on capital. When Perceived Trend in Price is greater than Mortgage Rate, it means that capital appreciation is expected to be greater than cost of capital, and so the speculation demand will increase, vice versa. Mortgage Rate is taken as an exogenous factor in this model.

Speculation Demand Stock is the cumulated number of homes that is held by investors for the purpose of anticipating on future real demand at a price higher than current price (capital gain).

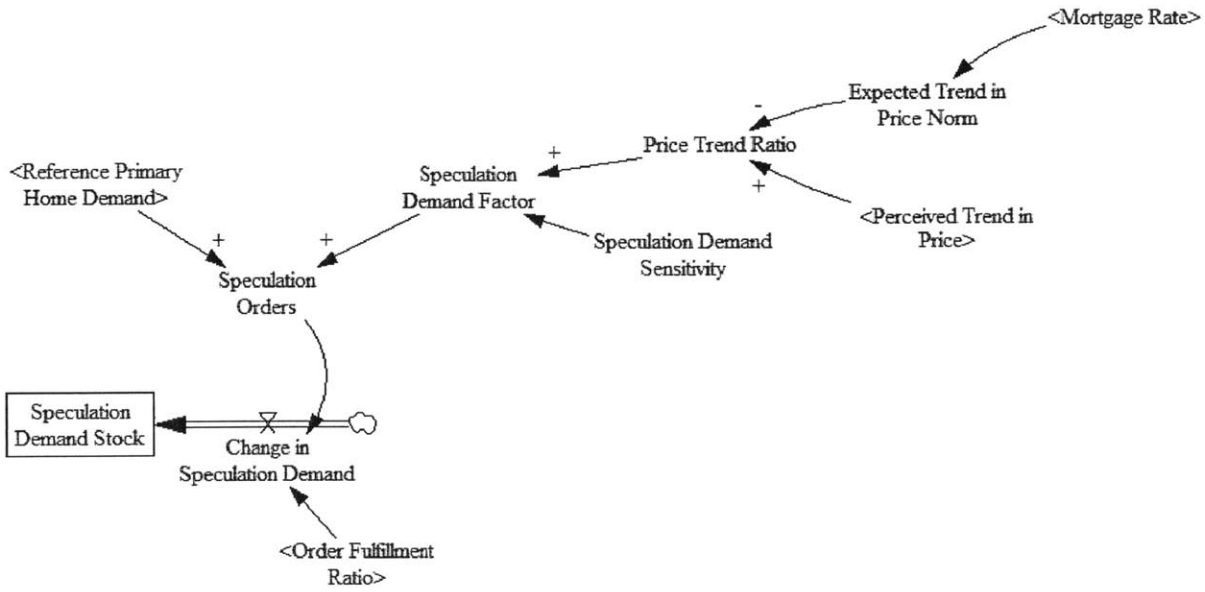


Figure 27 Speculation Demand

1. Speculation Demand Factor:

*Speculation Demand Factor = Speculation Demand Sensitivity * Price Trend Ratio*

2. Speculation Orders:

   Speculation Orders is the result of a base speculation rate times Speculation Demand Factor. While it is clear that Speculation Demand Factor is determined by excess capital gain, the baseline for Speculation Order is not so easy to determine. This baseline has to take macro-economic conditions and anticipated population growth into consideration, so we must find an indicator that incorporates these factors. This model uses the Reference Primary Home Demand as the baseline because this figure is determined by long term population growth ratio and household size, and it indicates the real demand over the current stock of homes that serves as primary homes.

   *Speculation Orders = Speculation Demand Factor * Reference Primary Home Demand*

**Scope of the Model**

Because of the need to apply this model on markets with very limited data availability and the fact that the main objective is to understand the market behavior and trend, the scope of this model is limited. Population and households (or total desired building space) are simulated, but only in a very simple manner to represent the real trend. The economic condition is not simulated. It is assumed that the exogenous economy is on a stable growth, and the oscillation in real estate market is driven by its own demand, supply and stock balance. This model does not take income level into consideration. It is assumed that real income is on a stable rise and is not a major factor driving demand. This model also assumes that construction cost is stable. There is no interaction between capacity fluctuation and the cost of building capacity.

In an economy where the output and personal income is rising much faster than inflation, the reference price would also change. The level of affordable price will be rising as wealth is building up. Without

simulating economic output and average income per person, it will not be possible to simulate a moving reference price. This paper compensates this problem by calibrating the model to have a reference price that can capture the average affordable price during the period under consideration. This is an area where this model can improve, which will be able to generate more accurate point predictions. Nevertheless, for the purpose of market analysis, a calibrated reference price will be able to generate results that can deepen one's understanding of a specific real estate market.

Another factor that has a big impact on real estate markets is government regulations on developing, selling and buying of properties. This also includes the government's policies towards financial institutions that help bring funding into the real estate market. These factors are also not simulated directly in this model. They will have an impact on the development and price of properties. Their impact is represented to a degree in simulation results through taking exogenous variables such as interest rate and land value.

## MODEL TESTING USING CALIFORNIA DATA

The real estate model is tested and calibrated using California housing market data, from 1980 to 2012. This model runs were performed on system dynamics software Vensim DSS, by VENTANA systems Inc. The calibration process is reported in accordance with "Reporting Guidelines for Simulation-Based Research in Social Science" (Ramandad & Sterman, 2012).

### Real Estate Model Testing Without Speculation Behavior

From 1980 to 2012, California experienced two housing market price cycles, one peaked around 1990 and the other in 2008. These two cycles make a good benchmark for model testing. The first test run constrained the Speculation Sensitivity to 0. In other words, the model was tested first assuming speculation played no role in determining booms and busts of price. Running the model as described generates a good fit for both price and construction over this 32-year period.

The Price is compared against Case-Shiller Price Index numbers. S&P/Case-Shiller publishes the home price indices for U.S. major cities. This model uses the average of three indices (LAX, SFO and SAN) as the benchmark for California home price (S&P Dow Jones Indices LLC., 2014). Construction Start rate is checked against data published by U.S. Census Bureau. Before a home construct project begins, it must obtain building permit from California Building Departments. The data collected is in unit of homes, including both single-family home units and multi-family units (US Census Bureau, 2014). The Mortgage Rate used for California simulations is the 30-year home mortgage rate published by Federal Reserve Bank of St. Louis (St. Louis Fed, 2014).

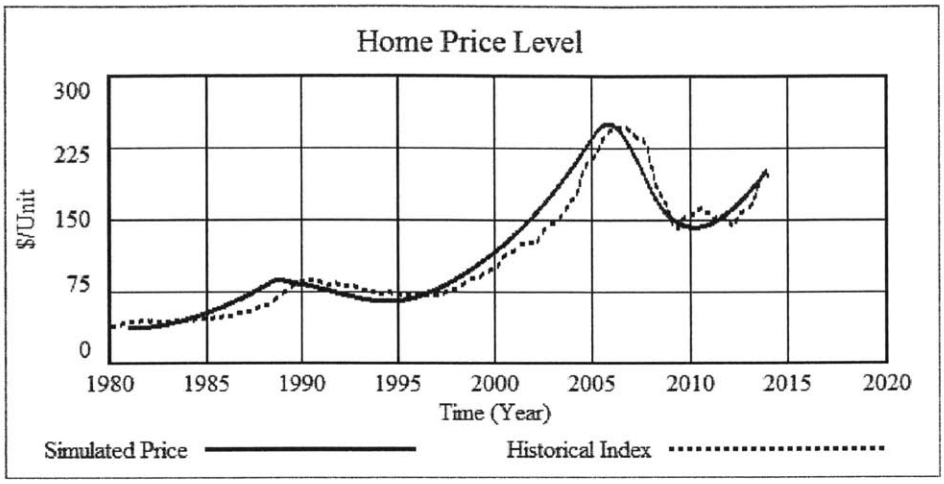


Figure 28 Simulated Price Level vs. Actual Index Level

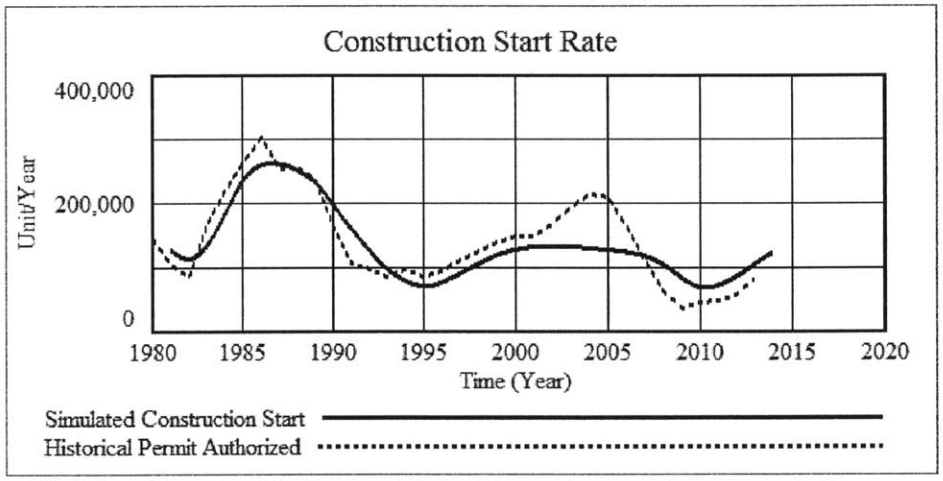


Figure 29 Simulated Construction Start Rate vs. Actual Home Construction Permit Authorized


Figure 30 U.S. 30 Year Mortgage Rate

As one can see from above figures, the simulation run reproduces the two cycles in price and construction in California. The magnitude of the cycles are different between production and price. For price, the first peak around 1990 was much lower than the peak around 2008; but for construction, the first peak around 1986 was higher than the second boom between 2000 and 2008. It's interesting to see that the construction actually slows down before price does. Nevertheless, the oscillation waves are wider for construction than price, and it takes longer time to construction to scale back when price starts to fall. The reason for this type of behavior will be discussed in later chapters, after more test runs are presented.

Other than the price and construction simulation results, some variables also provide important insight into the mechanism of the real estate market and how each factor contributes to the dynamic of the market.

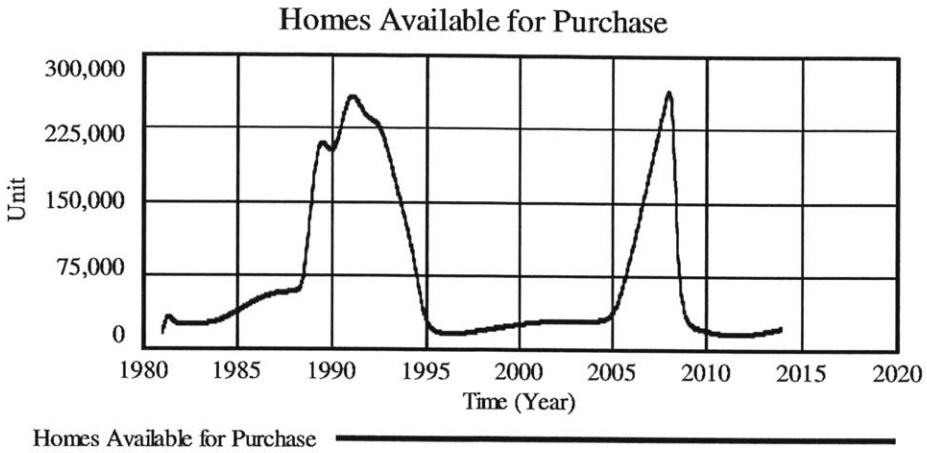


Figure 31 Homes Available for Purchase


Figure 32 Homes Unavailable for Purchase

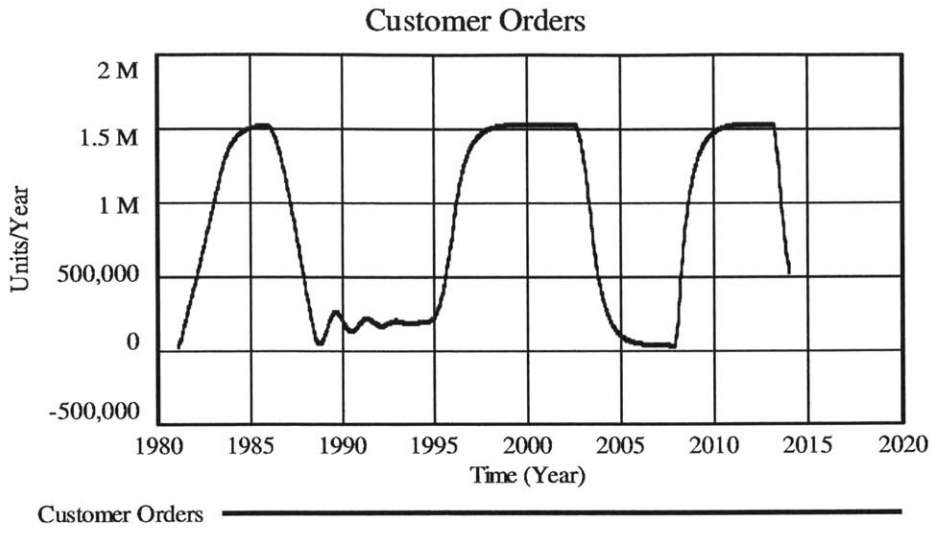


Figure 33 Customer Orders of Homes

As one would expect, during a market boom period, Customer Orders quickly rise, but it takes much longer for inventory to catchup with the demand. As production builds up, previously unsatisfied demand is satisfied, and orders start to decrease. However, it again takes much more time for the construction side to perceive the decrease in demand and cut back on production. Homes Available for Purchase becomes too great compared to Homes Sold, and Price falls.

### Real Estate Model Testing With Speculation Added

The second testing run added another degree of freedom for model calibration: Speculation Sensitivity. Surprisingly, the added degree of freedom did not improve the calibration result. The optimization result shows that the optimal Speculation Sensitivity is 0.001, and in terms of benchmark comparison, it is identical to the case when the Speculation Sensitivity is set to 0. This finding contradicts with the initial hypothesis about the impact of active speculation activity on home prices. The best fit model run shows that speculation behavior does not play any significant role in the boom and bust of a real estate cycle. To

further test this finding, I limited the boundaries of Speculation Sensitivity to between 0.1 and 1. The results are as following:

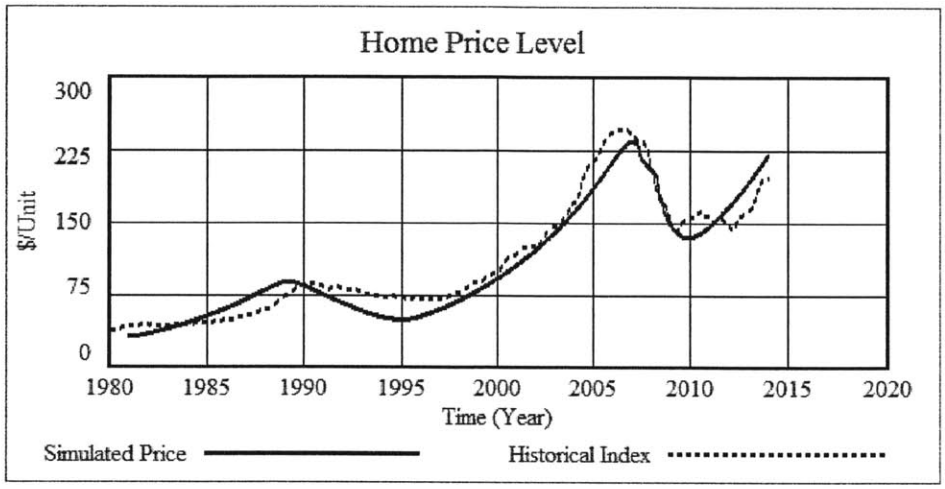


Figure 34 Simulated Price Level vs. Actual Index Level

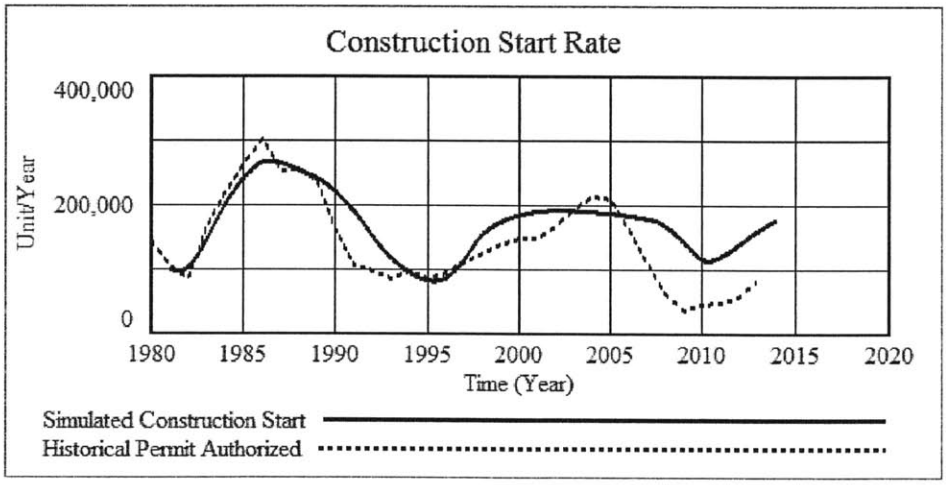


Figure 35 Simulated Construction Start Rate vs. Actual Home Construction Permit Authorized

The best run with significant speculation behavior was achieved when the Speculation Sensitivity was 0.1, and there was no improvement to data fit between simulated and actual data.

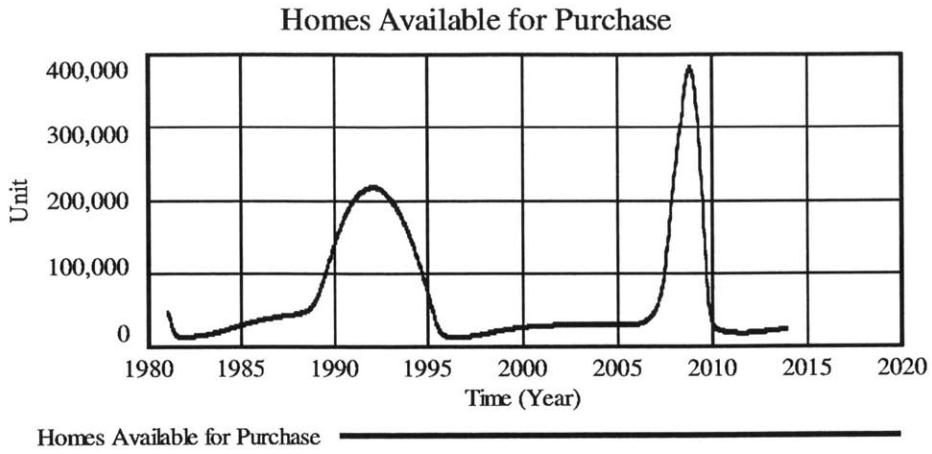


Figure 36 Homes Available for Purchase


Figure 37 Homes Unavailable for Purchase

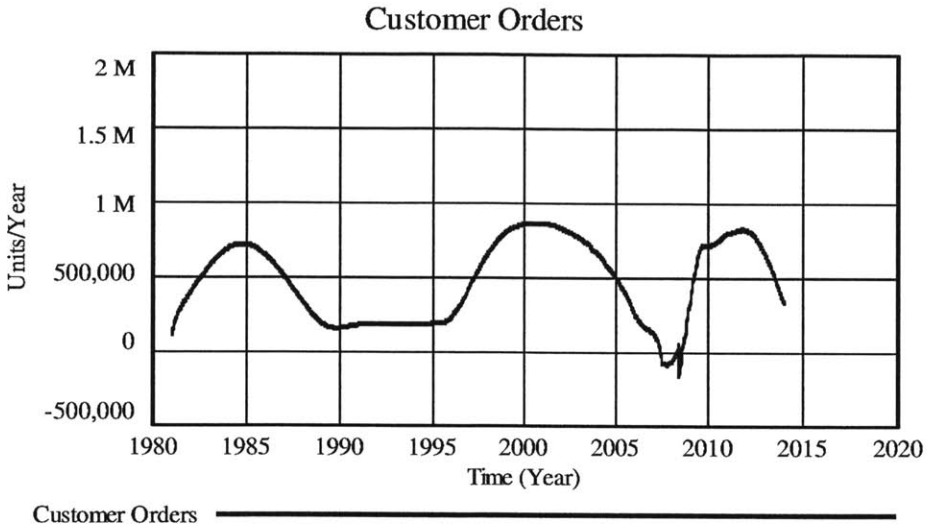


Figure 38 Customer Orders of Homes

Customer Orders would go negative here because the quantity of speculation sale exceeded primary home demand buy, resulting in a negative net order rate.

Compare to the zero speculation sensitivity scenario, the added degree of freedom provides no benefit to the accuracy of the model in terms of recreating the price and construction data in history. A generic real estate model based on the structures of Sterman's commodity model is enough to simulate the behavior of a real estate market. Therefore, it can be concluded that the commodity model can be modified to simulate the construction and consumption of real estate assets. Moreover, speculation behavior is not a significant factor in the business cycles of this sector. These findings build the foundation for making projections about California's housing market, and then they will also be applied to Shenzhen real estate model to see whether Shenzhen exhibit similar traits in market behavior.

### California Housing Market Projection

Based on the zero speculation sensitivity setup, following figures show the projection for California Housing Market in the coming decade.

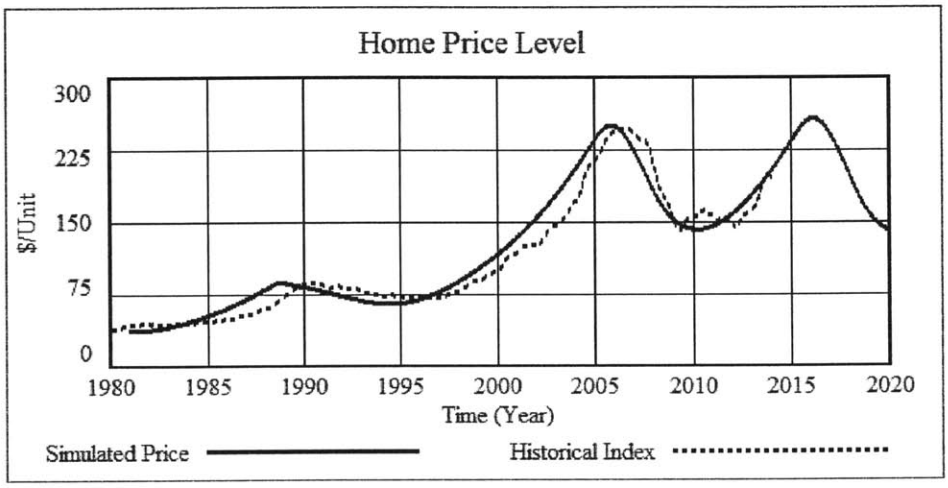


Figure 39 California Home Price Projection

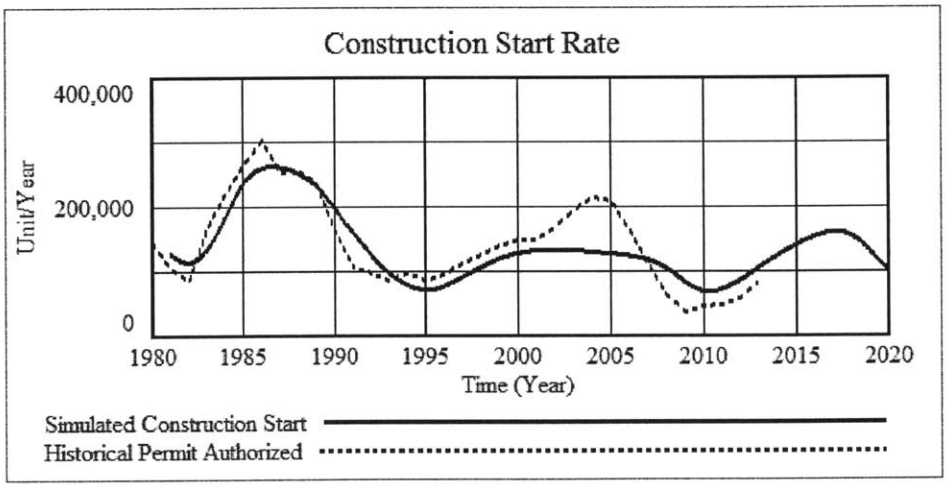


Figure 40 California Home Construction Projection

The model suggests repeated booms and busts in the future. It is in line with the observation had from historical data. After the housing crisis of 2008, construction slowed, and it didn't start to pick up again until 2012. The projection of price shows that it would peak again in 2016. However, construction cannot

react as quickly as price change, and it does not show any sign of slowing down until 2017. The oscillation continues as seen in the past.

The dynamic behind these persistent oscillations lies in the different feedback loops of construction, pricing and customer orders. To better understand the dynamics of a real estate market as a whole, we apply this model to analyze Shenzhen's real estate market in depth.

## ANALYZING SHENZHEN REAL ESTATE MARKET

The tests performed using California housing market data proves that this generic real estate model is a useful tool in simulation and understanding a real estate market. Moreover, it shows that speculation behavior has little effect on real estate market cycles. Now we set up this model for Shenzhen's market, where information is scarcer. The Shenzhen real estate model uses the same setup as California model, with speculation sensitivity set to zero. The only difference between the California model and the Shenzhen model is that in the case of Shenzhen, this model is simulating the real estate market as whole, not just housing. Shenzhen's housing price moves in near perfect synchronization with general real estate price, as shown in Figure 6 Shenzhen Average Property Price. Shenzhen Bureau of Statistics does not publish information regarding units of homes, and because of the close tie across different types of properties in Shenzhen, it is more beneficial to simulate the whole market.

### Shenzhen Model Setup

Going from simulating housing development into building area development, there are a few changes need to be made. First is to change units of homes into square meter (SqM) of building space. Primary home demand is determined by number of households, assuming each household demands one housing unit as a primary home. In the case of building space, the primary demand is determined by number of population multiplied by SqM per person. Area per person is linked to economy output, income and population density. This is a number that's hard to estimate. This paper uses findings by Yang Wei, described in his 2006 PhD thesis "Modeling the Evolution of the Chinese Building Stock in a Sustainable Perspective", and sets the desired per capita space at 68 SqM/Person (Yang, 2006).

Another difference between Shenzhen and California model is that Shenzhen takes the actual land value as a given, where as in California, it was simulated. Shenzhen's land supply is controlled by government,

and it is not predictable using efficient market theories. The actual land value as gathered from auction data swings wildly, so it will be much more accurate to use the historical value (SLREEC, 2014).

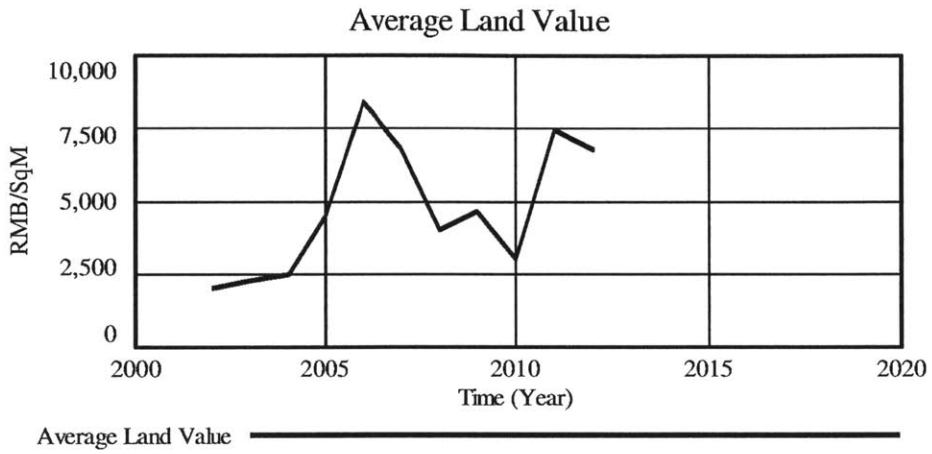


Figure 41 SZ Average Land Value

### Shenzhen Model Simulation Run

Shenzhen simulation run generates an output that closely resemble the ups and downs of both historical price and construction completion rate. It provides a window into understanding the market dynamics.

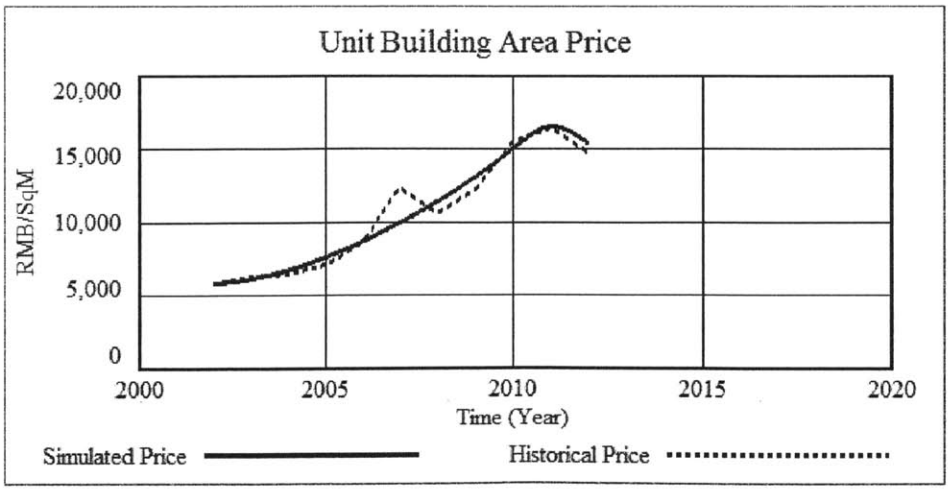


Figure 42 SZ Simulated vs. Actual Unit Building Area Price

From 2002 to 2012, there is a clear upward trend for average price per square meter of building space in Shenzhen. The simulation omitted the small bump in 2007 and 2008, an error likely caused by external factors. Overall, the simulation followed quite well with the pricing behavior.


Figure 43 SZ Percentage Error in Price Simulation

While price is increasing, the simulated construction completion was on a decline. This is the opposite of the findings from California model. Nevertheless, the real data shows an even sharper decline in construction during 2008 to 2012, compared to simulation run.

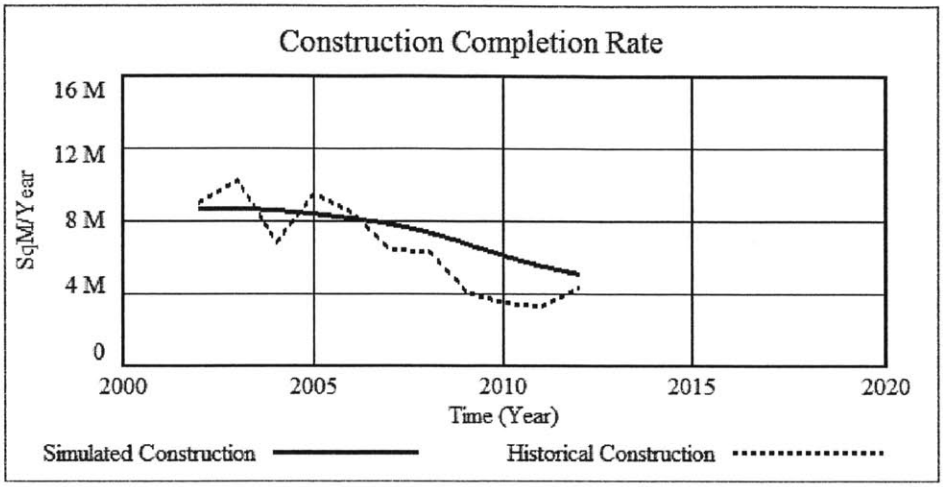


Figure 44 SZ Simulated vs. Actual Construction Completion Rate

The price increase is the result of low inventory coverage, which means that supply of building space was not able to keep up with demand. When price increases, supply should also ramp up, not slow down. Tracing the supply chain back to its origin shows that it was the long time delay in capacity change and high land cost during 2005 to 2007 that cause the drop in building area completion rate.

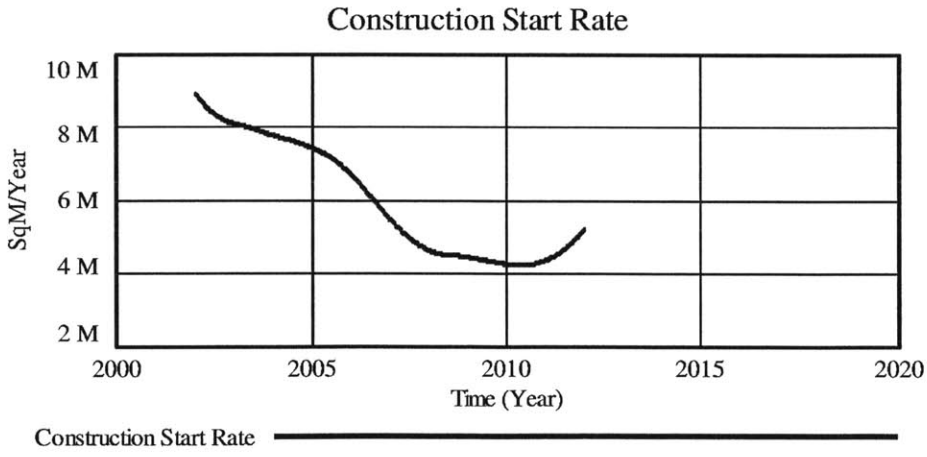


Figure 45 SZ Construction Start Rate

Construction Start Rate shows a gradual decline from the beginning of the simulation until 2007. It starts to recover around 2008. However, the 4 year construction delay time causes the Construction Completion

Rate to remain low as of 2012, as seen in Figure 44 SZ Simulated vs. Actual Construction Completion Rate.

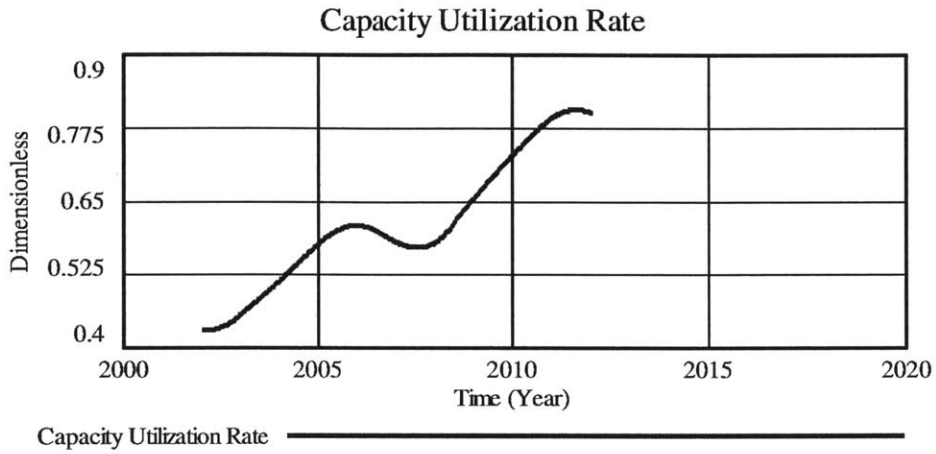


Figure 46 SZ Capacity Utilization

While Construction Start Rate was dropping from the beginning, Capacity Utilization was actually on the raise. This leaves the reason for Construction Start Rate to drop with lowering Construction Capacity.

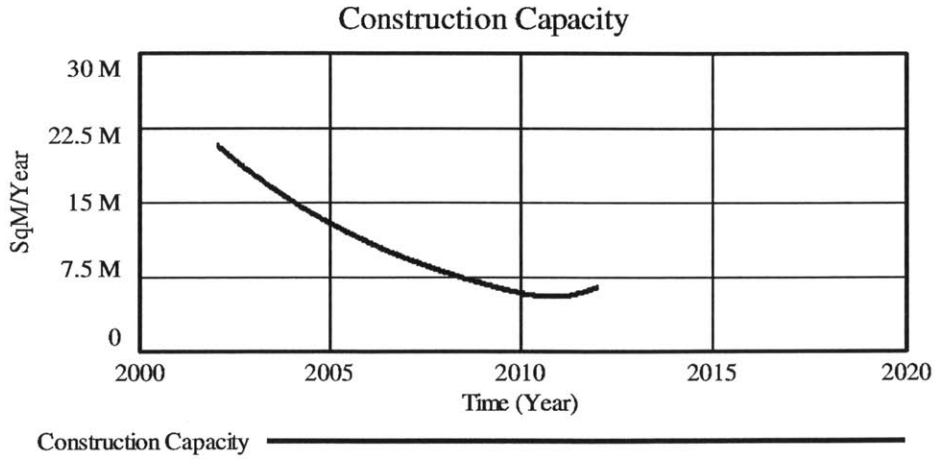


Figure 47 SZ Construction Capacity

Construction Capacity was indeed dropping from 2002 all the way to mid-2010. And the only possible reason for this behavior is a low Desired Capital.

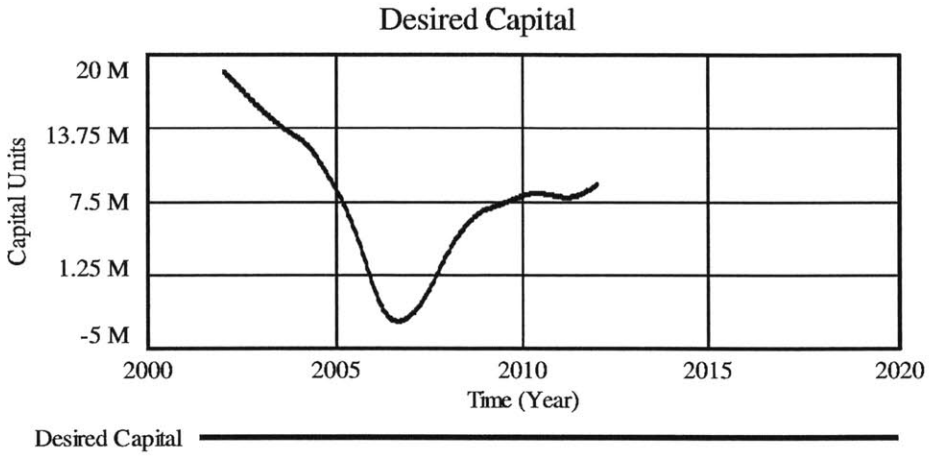


Figure 48 SZ Desired Capital

We see that the simulated Desired Capital dropped from 2002 to 2006. While it rose back up quickly after 2007, the long delay in capacity acquisition made the Construction Capital Stock low throughout the 10 year time frame.

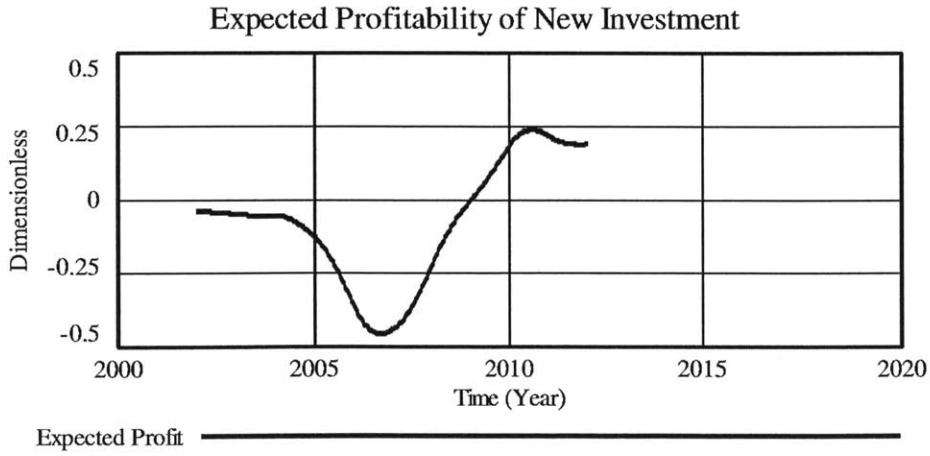


Figure 49 SZ Expected Profitability of New Investment

Ultimately, the dropping Desired Capital was because of lower profitability for developers, which is caused by high land price from auctions. Looking at Figure 41 SZ Average Land Value, we see that land value peaked in 2006, and came back down again quickly. However, the effect of the shock in land price sustained for many years afterwards.

Checking through the supply side tells us that the slow reaction of capacity acquisition could be a major source of price fluctuation. Shenzhen government's land supply policy tends to work on the needs of the very moment. When real estate investment was hot and demand high before 2008, the government reduced land supply and causing the cost of production to increase. When the economic outlook turned bad after the crisis, government increased land supply and caused land value to plumb. These irregular policies created confusion in market, and the effect was long lasting.

On the pricing and demand side of this simulation, we see a constant raise in population and demand. However, because of the decrease in supply, price gets too high and limits the purchase of building space. On one hand, low construction completion and high customer order created a high price, but on the other hand, the high price is not translating into higher production fast enough. Nevertheless, the high growth in price is not going to persist. As seen by 2012 data, the market is weakening. At that point, the price level at peak point reduced Customer Orders, and the market sees a sudden increase in Inventory Coverage, which caused the price trend to turn downwards.

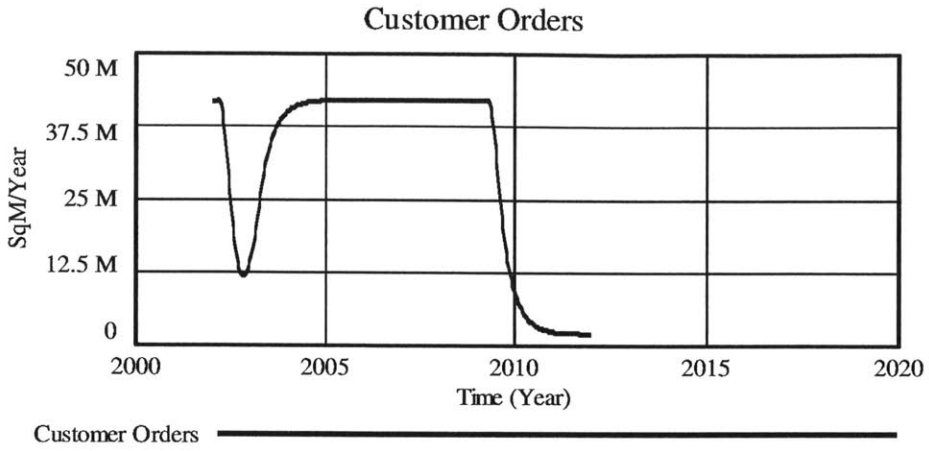


Figure 50 Shenzhen Simulated Customer Orders

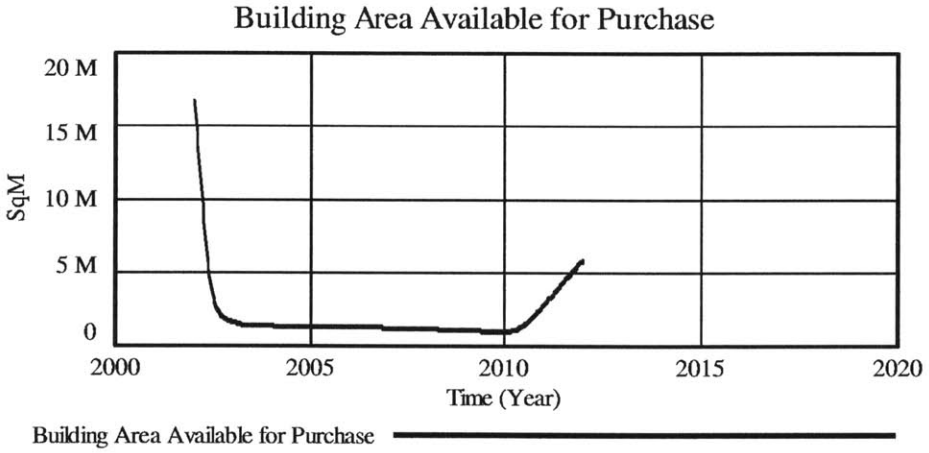


Figure 51 Shenzhen Simulated Building Area Available for Purchase

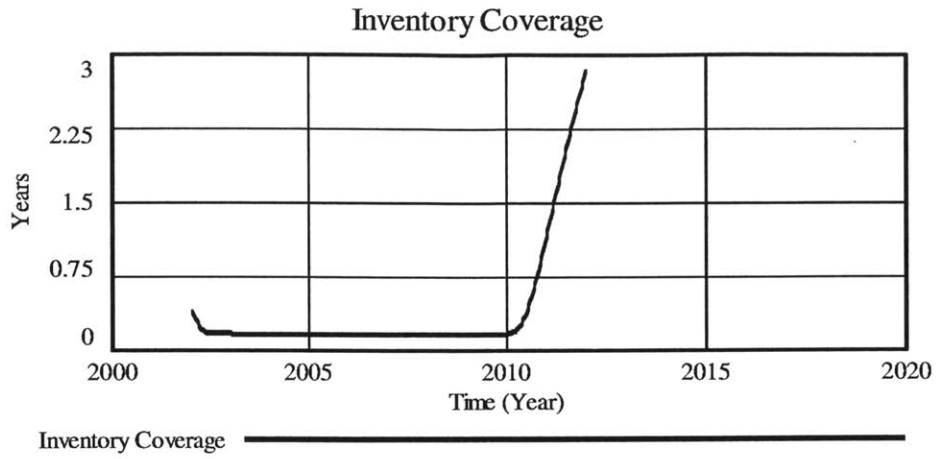


Figure 52 Shenzhen Simulated Inventory Coverage

The real estate market dynamics described above creates the simulated market behavior, which resembles the historical records. The following section extends the simulation to 2020, where we will look into the expectation for Shenzhen's real estate market.

### Shenzhen Real Estate Projection

From 2012 to 2020, Shenzhen's real estate price shows similar oscillation as projected for California. However, Construction Completion Rate starts a long rally. After the many years of development delay, the surge in land supply since 2008 starts to show its effect.

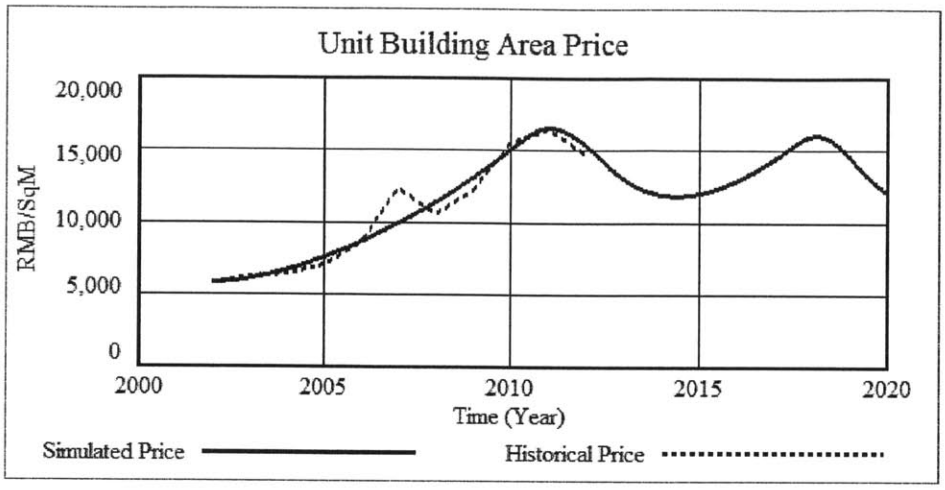


Figure 53 Shenzhen Unit Building Area Price Projection

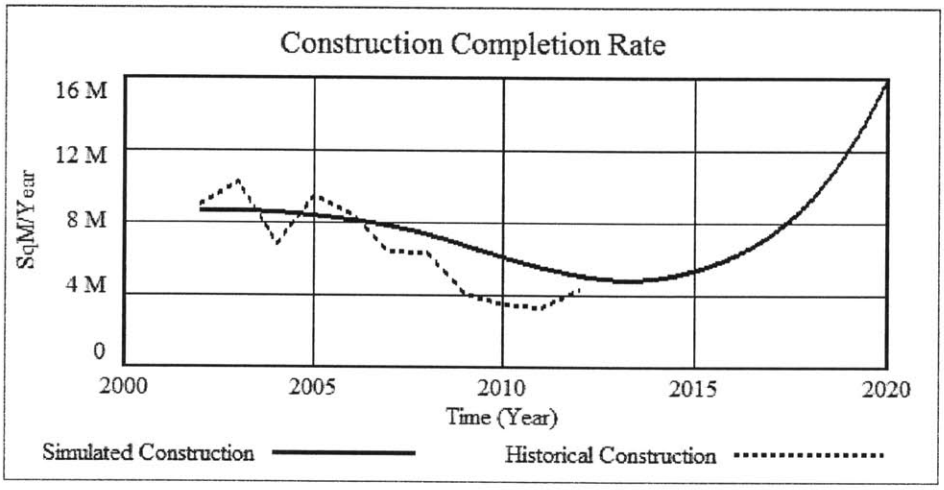


Figure 54 Shenzhen Construction Completion Rate Projection

Price is expected to continue the drop until 2015, and then the market will see a second cycle. Construction Completion Rate is expected to experience a high growth, after the high volume of newly developed land finishes development and hits the market.

As explained before, this modeling process does not aim to make point predictions, but rather to develop understanding of real estate markets, especially in regard to Shenzhen's market. The simulation runs described shows that real estate markets in general are prone to repeated oscillations. Although Shenzhen

has experienced a very long raise in the past without any significant interruptions, it is not immune to the causes of real estate cycles. In fact, Shenzhen has a longer construction delay than California, and makes it more vulnerable to pulse inputs in costs of development.

As discussed earlier, Shenzhen government's policies regarding unutilized land fee was created with the intention to increase supply of building area to the market to constraint price rally. However, the actual result was a longer construction time. Similarly, land supply policies corresponding to macroeconomic conditions may have the intention to regulate investment in real estate sector, but in reality, it overlooked the long delays in effects of such policies and created more uncertainties in market.

Following table lists the parameter settings for all three runs of simulations. A comparison between the three runs shows that when the model uses a zero speculation sensitivity setting, the parameters between California and Shenzhen are very close. As explained in earlier sections, the construction time is estimated based on historical records, and it is different between California and Shenzhen.

| Variables | Unit | California Model without Speculation Component | California Model with Speculation Component | Shenzhen Model without Speculation Component |
|---|---|---|---|---|
| Minimum Order Processing Time | Year | 0.23 | 0.16 | 0.16 |
| Reference Inventory Coverage | Year | 0.75 | 0.44 | 0.50 |
| Coverage Perception Time | Year | 1.00 | 0.50 | 1.00 |
| Sensitivity of Price to Inventory Coverage | Dmnl | -0.01 | -0.06 | -0.01 |
| Time to Adjust Investors' Expected Price | Year | 0.08 | 0.44 | 0.08 |
| Time Horizon for Reference Expectation | Year | 0.03 | 0.03 | 0.03 |
| Time to Perceive Trend | Year | 0.03 | 0.03 | 0.03 |
| Reference Primary Home Demand Elasticity | Dmnl | 2.45 | 3.98 | 2.45 |
| Reference Price | $/Unit or RMB/Unit | 134 | 169 | 10,000 |
| Demand Adjustment Delay | Year | 0.64 | 0.47 | 0.35 |
| Occupied Home Adjustment Time | Year | 0.22 | 1.69 | 0.22 |
| Speculation Demand Sensitivity* | Dmnl | 0.00* | 0.10* | 0.00* |
| Time to Adjust Short-Run Price Expectations | Year | 0.05 | 1.06 | 0.05 |
| Utilization Adjustment Time | Year | 1.67 | 0.54 | 1.67 |
| Time to Adjust Long Run Price Expectations | Year | 3.86 | 2.90 | 3.86 |
| Time to Adjust Expected Costs | Year | 1.21 | 0.54 | 1.21 |
| Sensitivity of Investment to Expected Profit | Dmnl | 0.22 | 0.23 | 2.00 |
| Capacity Adjust Time | Year | 0.51 | 0.90 | 0.51 |
| Supply Line Adjust Time | Year | 2.00 | 2.00 | 2.00 |
| Capacity Acquisition Delay | Year | 5.00 | 5.00 | 5.00 |
| Average Life of Capacity | Year | 6.29 | 9.00 | 6.29 |
| Capital Productivity | Unit/Year/Capital Unit | 1.00 | 1.00 | 1.00 |
| Fixed Cost | $/Unit or RMB/Unit | 21 | 15 | 4,000 |
| Construction Time | Year | 1.00 | 1.00 | 4.00 |
| **Initial Values of Stocks** | **Unit** | **CA w/o Speculation** | **CA w/ Speculation** | **SZ w/o Speculation** |
| Homes Under Construction | Unit or SqM | 127,000 | 100,000 | 36,000,000 |
| Homes Available for Purchase | Unit or SqM | 16,000 | 47,000 | 17,000,000 |
| Homes Unavailable for Purchase | Unit or SqM | 9,200,000 | 9,000,000 | 760,000,000 |
| Investors' Expected Price | $/Unit or RMB/Unit | 36 | 31 | 5,800 |
| Reference Expectation | $/Unit or RMB/Unit | 36 | 31 | 5,800 |
| Perceived Trend in Price | 1/Year | 0.00 | 0.09 | 0.00 |
| Total Population | People | 24,000,000 | 24,000,000 | 7,000,000 |
| Speculation Demand Stock | Unit or SqM | 460,000 | 330,000 | 260,000,000 |
| Capital on Order | Capital Unit | 0.00 | 71,000 | 0.00 |
| Capital Stock | Capital Unit | 1,300,000 | 900,000 | 21,000,000 |

Table 2 Simulation Run Parameter Settings

# CONCLUSION

This thesis performs a real estate market dynamics analysis based on a widely accepted simulation process for commodity markets. The goal is to analyze Shenzhen's real estate market to see if the understanding from commodity market would apply here, and whether the market will see repeated overshoot and undershoot as seen in other real estate markets. This study starts with the expectation that real estate development and consumption is like commodity market, where the long delays and lifetime of capacities interact with fast price-setting process creates chronic oscillations in price and construction.

The model design process examines each component of a real estate market and compares that against the commodity model. The simulation result confirms that real estate and commodity share similar market structures and behaviors. There are long construction capacity development delays. Construction capacity and construction start rate is based on profitability in real estate development. Price-setting process is driven by the ratio between supply and demand. The system as whole has a quick pricing adjusting time and a slow development adjusting time. A market like this has a tendency "to experience chronic cyclical instability" (Sterman, 2000).

Three simulation runs are presented. The model calibration result shows that adding a speculation dynamic to the generic commodity model has no effect in improving data fit. Simulation output matches historical records the best when speculation sensitivity is minimal: speculation behavior has little to do with the oscillations of real estate markets. The real estate market is no different from other commodity markets in the dynamic behind their booms and busts.

The real estate model reproduces the two California housing market cycles within a 30-year time frame. Simulation projection shows that the market will likely to continue oscillate. The production undershoots after 2008, and it overshoots again after coming out of the low point in 2011. Price will see another boom

and bust as well in a 10 year cycle similar to the one from 2000-2010 (refer to Figure 39 California Home Price Projection and Figure 40 California Home Construction Projection). This observation echoes Sterman's description on commodity market's chronic cycles in price and production (Sterman, 2000).

For Shenzhen's real estate market, the Shenzhen simulation run reproduced the price rally from 2002 to 2012, and the slowing construction completion rate during the same period. A deep dive into model's simulated variables show that it is the increasing land value between 2000 and 2006 that limits developers' profit margin, and reduces construction output while price of building space is on the rise (refer to Figure 41 SZ Average Land Value). The long delays in construction capacity change magnified the oscillation. The increase in land supply since 2008 and subsequent decline in average per square meter land price will increase future production (refer to Figure 10 Supply of Undeveloped Land by Shenzhen Government). The projection of Shenzhen's real estate market shows a significant overshoot happening between 2012 all the way into 2020. The price is going to experience similar decade long cycles as seen in California model. This simulation result matches Sterman's prediction: "Real estate markets are similar [to commodity markets]: Prices and construction activity respond to the pulse of the short-term business cycle but are dominated by a 10-20-year cycle of much larger amplitude" (Sterman, 2000).

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# Appendix

### Shenzhen Land Auction Data

Shenzhen's land auction data was collected from Shenzhen Land & Real Estate Exchange Center (SLREEC, 2014). The original auction records are published on their website in Chinese. I imported these information into excel and translated them. Following is the full list of Shenzhen auction data from March 2001 to December 2012.

| Date | Starting Price (RMB) | Sold For (RMB) | Purpose of Land | Purpose detail | Land Area ($m^2$) | Construction Area ($m^2$) | District |
|---|---|---|---|---|---|---|---|
| 2012/Dec | 48,660,000 | 48,660,000 | Industrial | Industry, Education | 3,428 | 35,350 | Nanshan |
| 2012/Dec | 28,885,200 | - | Industrial | N/A | 42,478 | 84,100 | Pingshan |
| 2012/Dec | 80,000,000 | 136,000,000 | Residential | Residential, Commerce | 5,882 | 23,520 | Longhua |
| 2012/Dec | 20,710,000 | 20,710,000 | Industrial | N/A | 12,887 | 38,665 | Guangming |
| 2012/Dec | 18,330,000 | 31,330,000 | Industrial | N/A | 13,892 | 34,730 | Guangming |
| 2012/Dec | 18,210,000 | 22,210,000 | Industrial | N/A | 13,835 | 34,590 | Guangming |
| 2012/Dec | 11,400,000 | 11,400,000 | Industrial | N/A | 20,152 | 50,380 | Baoan |
| 2012/Dec | 947,000,000 | 947,000,000 | Residential | N/A | 14,788 | 110,000 | Nanshan |
| 2012/Dec | 18,890,000 | 18,890,000 | Industrial | N/A | 8,447 | 40,350 | Guangming |
| 2012/Dec | 9,100,000 | 9,100,000 | Industrial | N/A | 14,895 | 37,230 | Guangming |
| 2012/Nov | 130,000,000 | 130,000,000 | Industrial | N/A | 10,000 | 100,000 | Nanshan |
| 2012/Nov | 0 | - | Residential | N/A | 151,787 | 182,100 | Baoan |
| 2012/Nov | 984,000,000 | 1,224,000,000 | Residential | Residential, Commerce | 159,657 | 379,400 | Pingshan |
| 2012/Nov | 303,000,000 | 303,000,000 | Residential | N/A | 31,457 | 94,500 | Pingshan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2012/Sep | 6,620,000 | 6,620,000 | Infrastructure | N/A | 6,893 | 12,000 | Baoan |
| 2012/Sep | 70,000,000 | - | Residential | R2 | 20,525 | 57,500 | Pingshan |
| 2012/Sep | 56,000,000 | - | Residential | R2 | 15,564 | 43,578 | Pingshan |
| 2012/Aug | 134,900,000 | - | Residential | Residential, Commerce | 5,882 | 23,520 | Longhua |
| 2012/Aug | 2,653,000,000 | 2,653,000,000 | Residential | Residential, Commerce | 53,662 | 490,000 | Nanshan |
| 2012/Aug | 70,202,100 | 70,202,100 | Industrial | N/A | 29,609 | 103,600 | Yantian |
| 2012/Aug | 120,000,000 | 120,000,000 | Industrial | N/A | 5,047 | 50,470 | Nanshan |
| 2012/Aug | 9,000,000 | 9,000,000 | Industrial | N/A | 14,110 | 26,800 | Guangming |
| 2012/Jul | 520,000,000 | 520,000,000 | Residential | N/A | 14,461 | 78,086 | Baoan |
| 2012/Jul | 22,000,000 | 22,000,000 | Industrial | Warehouse | 70,000 | 84,000 | Longhua |
| 2012/Jul | 26,000,000 | 26,000,000 | Industrial | N/A | 44,762 | 111,900 | Pingshan |
| 2012/Jul | 18,706,200 | 18,706,200 | Industrial | N/A | 30,042 | 120,170 | Longgang |
| 2012/Jul | 10,780,800 | 10,780,800 | Industrial | N/A | 14,977 | 60,000 | Longgang |
| 2012/Jul | 19,253,900 | 19,253,900 | Industrial | N/A | 31,406 | 94,220 | Longgang |
| 2012/Jul | 21,349,000 | 21,349,000 | Industrial | N/A | 34,503 | 103,500 | Longgang |
| 2012/Jul | 11,348,700 | 11,348,700 | Industrial | N/A | 18,519 | 55,560 | Longgang |
| 2012/Jul | 3,970,400 | 3,970,400 | Industrial | N/A | 8,243 | 28,850 | Longgang |
| 2012/Jul | 12,987,400 | 12,987,400 | Industrial | N/A | 17,586 | 61,600 | Longgang |
| 2012/Jul | 45,343,100 | 45,343,100 | Industrial | N/A | 37,016 | 222,100 | Longgang |
| 2012/Jul | 2,878,700 | 2,878,700 | Industrial | Warehouse | 5,667 | 17,000 | Longgang |
| 2012/Jul | 3,638,500 | 3,638,500 | Industrial | Warehouse | 8,000 | 32,000 | Longgang |
| 2012/Jul | 2,403,300 | 2,403,300 | Industrial | Warehouse | 5,001 | 15,000 | Longgang |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2012/Jul | 7,584,600 | 7,584,600 | Industrial | N/A | 11,299 | 39,600 | Longgang |
| 2012/Jul | 8,964,900 | 8,964,900 | Industrial | N/A | 11,943 | 47,800 | Longgang |
| 2012/Jul | 5,982,200 | 5,982,200 | Industrial | N/A | 8,021 | 32,100 | Longgang |
| 2012/Jul | 5,000,000 | 5,000,000 | Industrial | N/A | 9,913 | 24,780 | Pingshan |
| 2012/Jun | 36,731,200 | 36,731,200 | Industrial | R3 | 9,350 | 90,000 | Nanshan |
| 2012/Jun | 12,135,000 | 12,135,000 | Industrial | N/A | 20,001 | 49,990 | Pingshan |
| 2012/Jun | 4,500,000 | 4,500,000 | Industrial | N/A | 9,005 | 22,510 | Pingshan |
| 2012/Jun | 116,000,000 | 116,000,000 | Office | Commercial, Office | 29,014 | 63,000 | Guangming |
| 2012/Jun | 9,894,200 | 9,894,200 | Industrial | N/A | 10,075 | 35,250 | Baoan |
| 2012/Jun | 20,959,900 | 20,959,900 | Industrial | N/A | 21,259 | 63,700 | Longhua |
| 2012/Jun | 13,419,700 | 13,419,700 | Infrastructure | Airport | 14,325 | 23,000 | Baoan |
| 2012/Jun | 26,564,000 | - | Industrial | N/A | 8,447 | 40,350 | Guangming |
| 2012/Jun | 6,596,200 | 6,596,200 | Industrial | N/A | 11,333 | 28,330 | Pingshan |
| 2012/Jun | 16,194,300 | 16,194,300 | Industrial | N/A | 28,267 | 70,700 | Pingshan |
| 2012/Jun | 538,000,000 | 538,000,000 | Office | N/A | 7,666 | 55,190 | Baoan |
| 2012/May | 541,000,000 | 541,000,000 | Office | N/A | 5,567 | 47,300 | Nanshan |
| 2012/May | 7,688,000 | 7,688,000 | Industrial | N/A | 9,631 | 24,090 | Pingshan |
| 2012/May | 7,402,900 | 7,402,900 | Industrial | N/A | 10,001 | 25,000 | Pingshan |
| 2012/May | 8,000,000 | 74,000,000 | Infrastructure | N/A | 4,000 | 3,200 | Futian |
| 2012/May | 9,000,000 | 72,000,000 | Infrastructure | N/A | 4,000 | 3,200 | Futian |
| 2012/Apr | 181,995,300 | 181,995,300 | Industrial | N/A | 299,999 | 255,000 | Longhua |
| 2012/Feb | 217,658,000 | 217,658,000 | Industrial | N/A | 83,714 | 334,852 | Longgang |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2012/Feb | 367,000,000 | 367,000,000 | Office | N/A | 2,893 | 39,600 | Nanshan |
| 2012/Feb | 33,000,000 | 33,000,000 | Infrastructure | Parking | 2,822 | - | Nanshan |
| 2012/Jan | 694,000,000 | 694,000,000 | Office | N/A | 11,633 | 71,030 | Baoan |
| 2012/Jan | 35,538,700 | - | Infrastructure | Parking | 2,822 | - | Nanshan |
| 2012/Jan | 421,000,000 | - | Office | N/A | 2,893 | 39,600 | Nanshan |
| 2012/Jan | 10,324,000 | 10,324,000 | Industrial | N/A | 11,180 | 39,110 | Guangming |
| 2012/Dec | 260,000,000 | - | Office | Commercial, Office | 29,014 | 63,000 | Guangming |
| 2012/Dec | 439,000,000 | - | Commercial | Hotel | 80,948 | 121,420 | Dapeng |
| 2011/Nov | 4,107,600 | 33,110,000 | Infrastructure | Education | 3,001 | 2,400 | Yantian |
| 2011/Nov | 55,450,200 | 55,450,200 | Industrial | N/A | 62,449 | 156,120 | Guangming |
| 2011/Nov | 200,000,000 | 200,000,000 | Residential | N/A | 28,449 | 71,125 | Guangming |
| 2011/Nov | 88,360,000 | 88,360,000 | Residential | N/A | 36,270 | 24,710 | Luohu |
| 2011/Sep | 2,104,000,000 | 2,104,000,000 | Residential | N/A | 73,858 | 277,101 | Nanshan |
| 2011/Sep | 10,098,500 | 10,098,500 | Industrial | N/A | 14,758 | 19,017 | Longgang |
| 2011/Aug | 20,200,000 | 20,200,000 | Infrastructure | Parking | 2,619 | - | Futian |
| 2011/Aug | 15,672,100 | 15,672,100 | Industrial | Industry, Education | 2,520 | 20,100 | Nanshan |
| 2011/Aug | 19,307,700 | 19,307,700 | Industrial | N/A | 6,687 | 24,750 | Nanshan |
| 2011/Aug | 490,000,000 | 490,000,000 | Office | Commercial, Office | 4,139 | 41,400 | Nanshan |
| 2011/Aug | 734,000,000 | 734,000,000 | Industrial | N/A | 123,028 | 451,878 | Nanshan |
| 2011/Aug | 146,000,000 | 146,000,000 | Industrial | N/A | 5,159 | 80,000 | Nanshan |
| 2011/Aug | 2,843,000,000 | 2,843,000,000 | Industrial | N/A | 203,081 | 1,218,400 | Nanshan |
| 2011/Aug | 75,000,000 | 75,000,000 | Industrial | N/A | 123,503 | 180,000 | Pingshan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2011/Aug | 1,977,150,000 | 1,977,150,000 | Residential | N/A | 89,401 | 206,167 | Baoan |
| 2011/Aug | 70,000,000 | 70,000,000 | Industrial | Warehouse | 23,035 | 57,600 | Yantian |
| 2011/Jul | 184,870,000 | 184,870,000 | Residential | N/A | 41,982 | 149,868 | Guangming |
| 2011/Jul | 67,840,000 | 67,840,000 | Residential | N/A | 35,182 | 105,546 | Longgang |
| 2011/Jul | 253,429,500 | 253,429,500 | Residential | N/A | 49,541 | 158,000 | Baoan |
| 2011/Jul | 88,990,000 | 88,990,000 | Residential | N/A | 33,185 | 116,100 | Baoan |
| 2011/Jul | 30,810,000 | 30,810,000 | Residential | N/A | 10,970 | 38,300 | Baoan |
| 2011/Jul | 65,280,900 | 65,280,900 | Industrial | Warehouse | 73,480 | 257,180 | Longgang |
| 2011/Jul | 7,990,500 | 7,990,500 | Industrial | N/A | 7,229 | 20,240 | Guangming |
| 2011/Jul | 14,795,800 | 14,795,800 | Industrial | N/A | 14,861 | 44,584 | Guangming |
| 2011/Jul | 9,926,400 | 9,926,400 | Industrial | N/A | 8,897 | 51,601 | Guangming |
| 2011/Jul | 8,736,100 | 23,800,000 | Industrial | N/A | 7,654 | 26,789 | Guangming |
| 2011/Jul | 10,176,300 | 10,176,300 | Industrial | N/A | 11,864 | 29,660 | Guangming |
| 2011/Jul | 14,660,900 | 24,700,000 | Industrial | N/A | 14,731 | 44,193 | Guangming |
| 2011/Jul | 18,793,600 | 18,793,600 | Industrial | N/A | 18,862 | 56,586 | Guangming |
| 2011/Jul | 13,250,100 | 86,250,000 | Industrial | Warehouse | 20,412 | 81,646.52 | Longgang |
| 2011/Jul | 141,923,500 | 141,923,500 | Industrial | N/A | 148,846 | 952,659 | Longgang |
| 2011/Jul | 22,204,400 | - | Industrial | N/A | 28,992 | 101,472 | Longgang |
| 2011/Jul | 23,390,700 | 23,390,700 | Industrial | N/A | 30,565 | 122,261 | Longgang |
| 2011/Jul | 18,817,100 | 18,817,100 | Industrial | N/A | 21,080 | 63,241 | Longgang |
| 2011/Jul | 10,154,000 | 10,154,000 | Industrial | N/A | 13,039 | 35,205 | Longgang |
| 2011/Jul | 14,721,300 | 14,721,300 | Industrial | N/A | 18,000 | 54,000 | Longgang |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2011/Jul | 31,200,200 | 31,200,200 | Industrial | N/A | 40,534 | 129,710 | Longgang |
| 2011/Jul | 18,557,200 | 18,557,200 | Industrial | N/A | 23,423 | 70,269 | Longgang |
| 2011/Jun | 6,439,000,000 | 6,439,000,000 | Commercial | Infrastructure, Residential, Commerce | 697,640 | 1,700,000 | Nanshan |
| 2011/Jun | 400,000,000 | - | Commercial | N/A | 3,362 | 26,800 | Nanshan |
| 2011/Jun | 52,313,900 | 52,313,900 | Industrial | N/A | 66,720 | 166,800 | Guangming |
| 2011/Jun | 76,103,500 | 76,103,500 | Industrial | N/A | 109,924 | 274,810 | Guangming |
| 2011/Jun | 25,251,500 | 25,251,500 | Industrial | N/A | 3,736 | 22,414 | Nanshan |
| 2011/May | 620,000,000 | 620,000,000 | Residential | N/A | 48,655 | 204,350 | Longgang |
| 2011/May | 60,000,000 | 60,000,000 | Residential | N/A | 13,502 | 35,100 | Baoan |
| 2011/May | 113,850,000 | - | Industrial | N/A | 109,924 | 274,810 | Guangming |
| 2011/May | 14,960,000 | 25,960,000 | Infrastructure | Parking | 3,354 | 160 | Nanshan |
| 2011/May | 0 | 46,090,400 | Industrial | N/A | 15,498 | 47,640 | Nanshan |
| 2011/Apr | 18,473,300 | 18,473,300 | Industrial | Warehouse | 30,002 | 75,000 | Pingshan |
| 2011/Apr | 444,000,000 | 444,000,000 | Office | Commercial, Office | 3,727 | 41,500 | Nanshan |
| 2011/Apr | 28,423,500 | 28,423,500 | Industrial | N/A | 38,955 | 97,490 | Pingshan |
| 2011/Apr | 8,402,800 | 8,402,800 | Industrial | N/A | 9,072 | 22,680 | Pingshan |
| 2011/Apr | 10,042,600 | 10,042,600 | Industrial | N/A | 11,000 | 27,500 | Pingshan |
| 2011/Apr | 0 | - | Commercial | N/A | 3,362 | 26,800 | Nanshan |
| 2011/Mar | 341,000,000 | 341,000,000 | Office | N/A | 5,253 | 43,100 | Nanshan |
| 2011/Feb | 0 | 125,697,400 | Industrial | N/A | 14,143 | 171,190 | Nanshan |
| 2011/Feb | 0 | 139,000,000 | Commercial | Hotel, Resort | 41,487 | 22,380 | Longgang |
| 2011/Feb | 0 | 21,380,000 | Office | Commercial, Office | 6,632 | 9,750 | Guangming |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2011/Feb | 0 | 231,000,000 | Office | N/A | 3,024 | 29,600 | Nanshan |
| 2011/Feb | 0 | 2,833,400 | Infrastructure | N/A | 2,007 | 3,010 | Yantian |
| 2011/Jan | 0 | 11,600,000 | Infrastructure | N/A | 2,050 | 1,025 | Baoan |
| 2011/Jan | 0 | 18,000,000 | Infrastructure | N/A | 3,074 | 800 | Baoan |
| 2011/Jan | 0 | 6,342,700 | Industrial | N/A | 11,745 | 43,450 | Longgang |
| 2011/Jan | 0 | 11,600,000 | Infrastructure | N/A | 2,516 | 755 | Longgang |
| 2011/Jan | 0 | 20,000,000 | Infrastructure | N/A | 3,557 | 995 | Longgang |
| 2011/Jan | 0 | 594,000,000 | Office | Commercial, Office | 4,101 | 58,000 | Nanshan |
| 2010/Dec | 0 | 680,000,000 | Residential | N/A | 112,093 | 370,100 | Baoan |
| 2010/Dec | 0 | 355,000,000 | Office | N/A | 42,065 | 126,000 | Baoan |
| 2010/Dec | 0 | 54,000,000 | Industrial | N/A | 70,608 | 144,000 | Baoan |
| 2010/Dec | 0 | - | Industrial | N/A | 14,143 | 171,190 | Nanshan |
| 2010/Dec | 8,943,600 | 8,943,600 | Industrial | N/A | 17,292 | 34,580 | Longgang |
| 2010/Dec | 0 | 945,000,000 | Residential | N/A | 46,777 | 149,700 | Longgang |
| 2010/Dec | 22,160,000 | 22,160,000 | Residential | N/A | 2,325 | 11,140 | Luohu |
| 2010/Dec | 159,691,500 | 159,691,500 | Industrial | N/A | 103,000 | 206,000 | Yantian |
| 2010/Dec | 2,963,000,000 | 2,963,000,000 | Office | N/A | 137,250 | 345,270 | Yantian |
| 2010/Nov | 716,800,000 | 716,800,000 | Office | Commercial, Office | 4,813 | 70,000 | Futian |
| 2010/Nov | 0 | 645,000,000 | Residential | N/A | 39,316 | 117,950 | Longgang |
| 2010/Nov | 19,960,000 | 19,960,000 | Infrastructure | N/A | 2,730 | 800 | Baoan |
| 2010/Oct | 26,520,000 | 26,520,000 | Infrastructure | Airport | 4,288 | 13,000 | Baoan |
| 2010/Oct | 337,243,900 | 337,243,900 | Office | Commercial, Office | 6,904 | 37,600 | Nanshan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2010/Oct | 21,180,000 | 21,180,000 | Infrastructure | N/A | 3,002 | 800 | Baoan |
| 2010/Oct | 392,853,200 | 392,853,200 | Office | Commercial, Office | 9,388 | 43,800 | Nanshan |
| 2010/Oct | 146,900,000 | 146,900,000 | Residential | N/A | 24,009 | 64,820 | Baoan |
| 2010/Oct | 174,400,000 | - | Commercial | N/A | 2,800 | 7,800 | Futian |
| 2010/Oct | 0 | 43,305,700 | Industrial | N/A | 49,038 | 73,557 | Dapeng |
| 2010/Oct | 769,000,000 | 769,000,000 | Residential | N/A | 129,651 | 306,300 | Nanshan |
| 2010/Oct | 0 | 742,000,000 | Residential | N/A | 53,113 | 122,160 | Pingshan |
| 2010/Oct | 54,331,200 | 54,331,200 | Commercial | Hotel | 5,537 | 18,950 | Baoan |
| 2010/Oct | 369,800,800 | 369,800,800 | Commercial | N/A | 11,390 | 19,750 | Baoan |
| 2010/Oct | 0 | 12,620,000 | Infrastructure | N/A | 2,508 | 803 | Pingshan |
| 2010/Oct | 0 | 10,880,000 | Infrastructure | N/A | 2,781 | 1,112 | Guangming |
| 2010/Oct | 0 | 10,610,000 | Infrastructure | N/A | 3,000 | 600 | Longgang |
| 2010/Sep | 1,156,000,000 | 1,156,000,000 | Industrial | N/A | 996,091 | 1,294,910 | Baoan |
| 2010/Sep | 2,737,300 | 2,737,300 | Industrial | N/A | 4,562 | 39,234 | Nanshan |
| 2010/Sep | 10,275,200 | 10,275,200 | Industrial | N/A | 8,208 | 20,520 | Yantian |
| 2010/Sep | 10,242,200 | 10,242,200 | Industrial | N/A | 8,057 | 20,140 | Yantian |
| 2010/Sep | 3,272,900 | 3,272,900 | Industrial | N/A | 5,147 | 12,860 | Baoan |
| 2010/Sep | 0 | 15,485,800 | Industrial | N/A | 24,170 | 60,425 | Longgang |
| 2010/Sep | 0 | 12,658,600 | Industrial | N/A | 19,811 | 49,530 | Longgang |
| 2010/Sep | 0 | 11,344,200 | Industrial | N/A | 17,804 | 44,510 | Longgang |
| 2010/Sep | 0 | 9,610,700 | Industrial | N/A | 15,000 | 37,500 | Longgang |
| 2010/Sep | 0 | 12,051,700 | Industrial | N/A | 19,008 | 47,520 | Longgang |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2010/Sep | 0 | 272,686,000 | Industrial | N/A | 483,368 | 1,068,040 | Pingshan |
| 2010/Sep | 31,120,000 | 31,120,000 | Infrastructure | Military | 6,998 | 3,252 | Baoan |
| 2010/Sep | 29,160,000 | 29,160,000 | Infrastructure | Military | 6,992 | 3,252 | Baoan |
| 2010/Sep | 12,300,000 | 12,300,000 | Infrastructure | N/A | 1,513 | 454 | Nanshan |
| 2010/Sep | 19,300,000 | 19,300,000 | Infrastructure | N/A | 3,068 | 800 | Baoan |
| 2010/Aug | 0 | 281,911,300 | Industrial | N/A | 500,406 | 1,000,815 | Longgang |
| 2010/Aug | 20,355,200 | 20,355,200 | Industrial | N/A | 4,017 | 22,175 | Nanshan |
| 2010/Aug | 34,738,400 | 34,738,400 | Industrial | N/A | 52,276 | 209,100 | Pingshan |
| 2010/Aug | 6,663,500 | 6,663,500 | Industrial | N/A | 5,274 | 13,185 | Yantian |
| 2010/Aug | 6,326,630 | 6,326,630 | Industrial | N/A | 9,020 | 31,570 | Guangming |
| 2010/Aug | 4,541,300 | 12,600,000 | Industrial | N/A | 6,479 | 22,670 | Guangming |
| 2010/Aug | 9,362,930 | 9,362,930 | Industrial | N/A | 13,223 | 46,280 | Guangming |
| 2010/Aug | 8,409,800 | 48,410,000 | Industrial | N/A | 13,184 | 32,960 | Guangming |
| 2010/Aug | 8,586,800 | 24,600,000 | Industrial | N/A | 13,308 | 33,270 | Guangming |
| 2010/Jul | 0 | 613,000,000 | Commercial | N/A | 11,507 | 128,880 | Futian |
| 2010/Jul | 3,357,000 | 3,357,000 | Infrastructure | N/A | 4,501 | 12,000 | Longgang |
| 2010/Jul | 14,222,400 | 48,222,400 | Industrial | N/A | 22,082 | 55,205 | Pingshan |
| 2010/Jul | 340,000,000 | 340,000,000 | Commercial | N/A | 21,175 | 84,600 | Baoan |
| 2010/Jul | 27,909,100 | 27,909,800 | Industrial | N/A | 4,827 | 38,619 | Nanshan |
| 2010/May | 31,049,500 | 31,049,500 | Industrial | N/A | 49,933 | 124,830 | Pingshan |
| 2010/May | 16,540,400 | 16,540,400 | Infrastructure | N/A | 3,000 | 1,000 | Luohu |
| 2010/May | 15,090,100 | 15,090,100 | Infrastructure | N/A | 3,000 | 1,000 | Luohu |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2010/May | 892,700 | 892,700 | Industrial | Warehouse | 1,420 | 2,698 | Longgang |
| 2010/May | 25,336,900 | 25,336,900 | Commercial | Hotel, Resort | 564,668 | 225,000 | Nanshan |
| 2010/Apr | 198,318,600 | 198,318,600 | Industrial | N/A | 18,651 | 266,200 | Nanshan |
| 2010/Mar | 40,219,300 | 40,219,300 | Industrial | N/A | 8,825 | 44,126 | Yantian |
| 2010/Mar | 19,238,500 | 19,238,500 | Industrial | N/A | 29,302 | 87,900 | Baoan |
| 2010/Mar | 28,105,100 | 28,105,100 | Industrial | N/A | 42,546 | 127,640 | Baoan |
| 2010/Mar | 665,000,000 | 665,000,000 | Residential | N/A | 200,484 | 441,065 | Longgang |
| 2010/Mar | 16,711,600 | 16,711,600 | Industrial | N/A | 29,338 | 58,670 | Baoan |
| 2010/Mar | 64,050,000 | 622,000,000 | Commercial | Hotel | 66,542 | 36,202 | Longgang |
| 2010/Feb | 229,574,900 | 229,574,900 | Industrial | N/A | 481,703 | 647,000 | Pingshan |
| 2010/Feb | 6,067,400 | 6,067,400 | Industrial | N/A | 12,008 | 24,000 | Dapeng |
| 2010/Feb | 716,000,000 | 716,000,000 | Commercial | N/A | 9,772 | 97,760 | Nanshan |
| 2010/Feb | 12,075,000 | 12,075,000 | Infrastructure | Parking | 2,160 | 1,150 | Nanshan |
| 2010/Jan | 36,474,000 | - | Industrial | Warehouse | 21,564 | 53,910 | Yantian |
| 2010/Jan | 0 | 30,000,000 | Industrial | N/A | 12,705 | 31,760 | Guangming |
| 2010/Jan | 27,625,600 | 27,625,600 | Industrial | Warehouse | 63,741 | 140,230 | Longgang |
| 2010/Jan | 4,990,400 | 17,500,000 | Industrial | N/A | 8,363.93 | 18,400 | Longgang |
| 2010/Jan | 2,530,200 | 2,530,200 | Industrial | N/A | 4,832 | 12,080 | Baoan |
| 2010/Jan | 23,379,300 | 23,379,300 | Industrial | N/A | 35,206 | 77,450 | Longgang |
| 2010/Jan | 24,980,300 | 24,980,300 | Industrial | N/A | 37,586 | 82,690 | Longgang |
| 2010/Jan | 5,699,200 | 5,699,200 | Industrial | N/A | 11,745 | 23,500 | Longgang |
| 2010/Jan | 5,143,600 | 16,143,600 | Industrial | N/A | 8,572 | 18,860 | Longgang |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2010/Jan | 12,986,200 | - | Industrial | N/A | 20,662 | 51,660 | Longgang |
| 2010/Jan | 54,025,900 | - | Industrial | Warehouse | 31,575 | 78,940 | Yantian |
| 2010/Jan | 9,935,300 | 9,935,300 | Industrial | N/A | 19,841 | 43,650 | Longgang |
| 2010/Jan | 78,715,200 | - | Industrial | Warehouse | 46,078 | 115,200 | Yantian |
| 2010/Jan | 24,524,600 | 24,524,600 | Industrial | N/A | 39,817 | 99,540 | Longgang |
| 2010/Jan | 12,677,400 | 12,677,400 | Industrial | N/A | 20,020 | 50,050 | Longgang |
| 2010/Jan | 15,300,000 | 15,300,000 | Infrastructure | N/A | 3,000 | 1,000 | Baoan |
| 2010/Jan | 19,300,500 | 19,300,500 | Industrial | N/A | 36,422 | 80,130 | Pingshan |
| 2010/Jan | 21,046,100 | 21,046,100 | Industrial | N/A | 40,270 | 80,540 | Pingshan |
| 2010/Jan | 20,482,900 | 20,482,900 | Industrial | N/A | 31,871 | 79,680 | Pingshan |
| 2010/Jan | 13,776,600 | 13,776,600 | Industrial | N/A | 22,254 | 55,640 | Pingshan |
| 2010/Jan | 9,679,600 | 9,679,600 | Industrial | N/A | 17,257 | 34,500 | Pingshan |
| 2009/Dec | 51,215,100 | 51,215,100 | Infrastructure | Airport | 103,679 | 56,338 | Baoan |
| 2009/Dec | 65,057,600 | 65,057,600 | Industrial | N/A | 132,221 | 198,330 | Baoan |
| 2009/Dec | 463,000,000 | - | Office | Commercial, Office | 4,727 | 47,300 | Nanshan |
| 2009/Dec | 15,250,600 | 15,250,600 | Industrial | Warehouse | 31,687 | 63,370 | Longgang |
| 2009/Dec | 371,642,300 | 371,642,300 | Industrial | N/A | 597,540 | 1,493,850 | Guangming |
| 2009/Dec | 895,630,000 | - | Residential | N/A | 200,484 | 441,065 | Longgang |
| 2009/Dec | 564,000,000 | - | Office | Commercial, Office | 3,412 | 65,000 | Nanshan |
| 2009/Dec | 476,000,000 | 476,000,000 | Office | Commercial, Office | 6,213 | 56,000 | Nanshan |
| 2009/Dec | 390,000,000 | - | Office | Commercial, Office | 4,139 | 41,400 | Nanshan |
| 2009/Nov | 27,428,200 | 27,428,200 | Industrial | N/A | 44,481 | 97,860 | Baoan |

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|---|---|---|---|---|---|---|---|
| 2009/Nov | 18,164,900 | 18,168,800 | Industrial | N/A | 29,864 | 74,660 | Baoan |
| 2009/Nov | 43,466,100 | 43,466,100 | Industrial | N/A | 78,324 | 133,150 | Pingshan |
| 2009/Nov | 40,822,500 | 40,822,500 | Industrial | N/A | 5,582 | 50,235 | Nanshan |
| 2009/Nov | 5,893,200 | 14,393,200 | Industrial | Warehouse | 9,982 | 21,960 | Longgang |
| 2009/Nov | 21,263,100 | 21,263,100 | Industrial | N/A | 3,746 | 22,476 | Nanshan |
| 2009/Nov | 32,512,700 | 32,518,800 | Industrial | N/A | 4,153 | 39,456 | Nanshan |
| 2009/Nov | 13,137,200 | 13,137,200 | Industrial | Industry, Education | 4,308 | 19,816 | Nanshan |
| 2009/Oct | 515,000,000 | 515,000,000 | Office | Commercial, Office | 5,009 | 60,000 | Futian |
| 2009/Oct | 985,000,000 | 985,000,000 | Office | Commercial, Office | 8,090 | 129,000 | Futian |
| 2009/Oct | 481,000,000 | 481,000,000 | Office | Commercial, Office | 5,500 | 60,000 | Futian |
| 2009/Oct | 338,000,000 | 338,000,000 | Office | Commercial, Office | 4,634 | 40,000 | Futian |
| 2009/Sep | 0 | 2,440,000,000 | Residential | N/A | 157,310 | 283,150 | Baoan |
| 2009/Sep | 19,225,715 | 65,800,000 | Office | N/A | 8,986 | 21,565 | Longgang |
| 2009/Sep | 0 | 530,000,000 | Residential | N/A | 23,401 | 28,080 | Baoan |
| 2009/Sep | 50,963,200 | 50,963,200 | Infrastructure | Airport | 98,448 | 148,000 | Baoan |
| 2009/Sep | 35,799,300 | 35,799,300 | Infrastructure | Airport | 73,002 | 109,500 | Baoan |
| 2009/Sep | 28,704,300 | 28,704,300 | Industrial | Warehouse | 11,408 | 28,520 | Futian |
| 2009/Sep | 10,117,300 | 10,117,300 | Industrial | N/A | 6,987 | 17,500 | Yantian |
| 2009/Sep | 9,969,800 | 9,969,800 | Industrial | N/A | 6,813 | 17,050 | Yantian |
| 2009/Sep | 7,342,500 | - | Industrial | N/A | 5,274 | 13,200 | Yantian |
| 2009/Sep | 23,755,800 | 23,755,800 | Industrial | Warehouse | 39,999 | 53,999 | Longgang |
| 2009/Aug | 570,000,000 | 1,200,000,000 | Residential | N/A | 90,737 | 181,470 | Guangming |

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|---|---|---|---|---|---|---|---|
| 2009/Aug | 35,251,300 | 35,251,300 | Industrial | Warehouse | 80,007 | 200,015 | Longgang |
| 2009/Aug | 12,867,600 | 12,867,600 | Industrial | Warehouse | 29,601 | 65,120 | Longgang |
| 2009/Aug | 3,000,000 | 3,000,000 | Residential | Residential, Commerce | 38,546 | 92,510 | Baoan |
| 2009/Aug | 260,000,000 | 260,000,000 | Commercial | Hotel | 40,156 | 100,390 | Longhua |
| 2009/Aug | 34,080,000 | 34,080,000 | Industrial | N/A | 4,420 | 4,420 | Nanshan |
| 2009/Jul | 15,867,600 | - | Industrial | Warehouse | 31,687 | 65,990 | Longgang |
| 2009/Jul | 21,720,600 | 21,720,600 | Industrial | Warehouse | 44,223 | 92,870 | Longgang |
| 2009/Jul | 6,017,800 | 6,017,800 | Industrial | Warehouse | 14,001 | 28,000 | Longgang |
| 2009/Jul | 15,058,700 | 15,058,700 | Industrial | Warehouse | 34,495 | 68,990 | Longgang |
| 2009/Jul | 3,120,000 | 3,320,000 | Commercial | N/A | 1,000 | 2,400 | Longgang |
| 2009/Jul | 3,750,000 | 3,750,000 | Industrial | N/A | 7,783 | 8,560 | Baoan |
| 2009/Jul | 6,398,900 | 6,398,900 | Industrial | N/A | 11,796 | 29,028 | Baoan |
| 2009/Jul | 18,528,800 | - | Industrial | N/A | 29,302 | 87,900 | Baoan |
| 2009/Jul | 27,070,800 | - | Industrial | N/A | 42,546 | 127,640 | Baoan |
| 2009/Jul | 32,704,400 | 32,704,400 | Industrial | Warehouse | 77,029 | 120,930 | Baoan |
| 2009/Jul | 21,600,300 | 21,600,300 | Infrastructure | Airport | 45,001 | 56,175 | Baoan |
| 2009/Jul | 2,730,000 | - | Infrastructure | N/A | 3,489 | 7,000 | Longgang |
| 2009/Jun | 50,600,000 | 83,600,000 | Residential | N/A | 5,763 | 18,500 | Futian |
| 2009/Jun | 263,085,000 | 263,085,000 | Residential | N/A | 81,044 | 191,110 | Baoan |
| 2009/Jun | 190,000,000 | 190,000,000 | Office | Commercial, Office | 2,764 | 35,000 | Nanshan |
| 2009/Jun | 1,800,000,000 | 2,610,000,000 | Residential | Residential, Commerce | 90,836 | 406,000 | Baoan |
| 2009/May | 8,775,600 | 8,775,600 | Industrial | N/A | 16,154 | 40,130 | Baoan |

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|---|---|---|---|---|---|---|---|
| 2009/May | 6,398,900 | - | Industrial | N/A | 11,796 | 29,028 | Baoan |
| 2009/May | 8,639,200 | 9,139,200 | Industrial | N/A | 15,950 | 39,456 | Baoan |
| 2009/May | 9,960,700 | 9,960,700 | Industrial | N/A | 18,232 | 46,230 | Baoan |
| 2009/May | 10,738,700 | 10,738,700 | Industrial | N/A | 19,692 | 49,278 | Baoan |
| 2009/May | 16,980,700 | 16,980,700 | Industrial | N/A | 29,931 | 74,820 | Baoan |
| 2009/Apr | 530,000,000 | 800,000,000 | Residential | N/A | 77,726 | 309,349 | Longgang |
| 2009/Mar | 10,288,000 | 10,288,000 | Industrial | N/A | 16,148 | 40,370 | Guangming |
| 2009/Mar | 32,780,500 | 32,780,500 | Industrial | Warehouse | 90,275 | 57,730 | Yantian |
| 2009/Mar | 13,206,100 | 13,206,100 | Industrial | N/A | 20,599 | 51,499 | Guangming |
| 2009/Feb | 0 | 16,614,700 | Industrial | N/A | 5,001 | 25,000 | Nanshan |
| 2009/Feb | 24,441,450 | 24,441,450 | Industrial | N/A | 45,095 | 135,280 | Baoan |
| 2009/Jan | 47,640,000 | 47,640,000 | Industrial | N/A | 91,366 | 170,300 | Longgang |
| 2009/Jan | 36,007,400 | 36,007,400 | Industrial | R3 | 47,878 | 119,700 | Longgang |
| 2008/Dec | 6,913,700 | 6,913,700 | Industrial | N/A | 10,954 | 27,386 | Guangming |
| 2008/Dec | 10,683,600 | 10,683,600 | Industrial | N/A | 17,018 | 42,540 | Longgang |
| 2008/Dec | 15,711,400 | - | Industrial | N/A | 27,496 | 68,740 | Longgang |
| 2008/Nov | 800,000,000 | 800,000,000 | Residential | Residential, Commerce | 49,582 | 205,693 | Nanshan |
| 2008/Nov | 18,409,200 | - | Industrial | N/A | 39,585 | 59,380 | Longgang |
| 2008/Nov | 16,687,800 | - | Industrial | N/A | 29,384 | 73,460 | Longgang |
| 2008/Nov | 2,962,200 | - | Industrial | N/A | 5,211 | 13,030 | Longgang |
| 2008/Nov | 7,234,500 | - | Industrial | N/A | 12,138 | 30,340 | Longgang |
| 2008/Nov | 17,283,000 | 17,283,000 | Industrial | N/A | 27,293 | 68,230 | Pingshan |

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|---|---|---|---|---|---|---|---|
| 2008/Nov | 9,935,300 | - | Industrial | N/A | 19,841 | 43,650 | Longgang |
| 2008/Nov | 12,677,400 | - | Industrial | N/A | 20,020 | 50,050 | Longgang |
| 2008/Nov | 24,524,600 | - | Industrial | N/A | 39,817 | 99,540 | Longgang |
| 2008/Nov | 43,691,700 | - | Industrial | N/A | 75,703 | 189,250 | Longgang |
| 2008/Nov | 5,699,200 | - | Industrial | N/A | 11,745 | 23,500 | Longgang |
| 2008/Nov | 23,987,600 | 23,987,600 | Industrial | N/A | 41,085 | 102,710 | Longgang |
| 2008/Nov | 6,868,400 | - | Industrial | N/A | 11,793 | 29,480 | Longgang |
| 2008/Nov | 13,855,200 | - | Industrial | N/A | 22,082 | 55,210 | Longgang |
| 2008/Nov | 14,484,300 | 14,484,300 | Industrial | N/A | 28,480 | 51,300 | Longgang |
| 2008/Nov | 29,521,600 | 29,521,600 | Industrial | N/A | 57,296 | 103,150 | Longgang |
| 2008/Nov | 13,776,600 | - | Industrial | N/A | 22,254 | 55,640 | Longgang |
| 2008/Nov | 7,234,500 | - | Industrial | N/A | 12,138 | 30,340 | Longgang |
| 2008/Nov | 13,855,200 | - | Industrial | N/A | 22,082 | 55,210 | Longgang |
| 2008/Nov | 14,484,300 | 14,484,300 | Industrial | N/A | 28,480 | 51,300 | Longgang |
| 2008/Nov | 29,521,600 | 29,521,600 | Industrial | N/A | 57,296 | 103,150 | Longgang |
| 2008/Nov | 10,691,200 | 10,691,200 | Industrial | N/A | 17,178 | 37,790 | Longgang |
| 2008/Nov | 4,990,400 | - | Industrial | N/A | 8,364 | 18,400 | Longgang |
| 2008/Nov | 4,179,100 | 4,179,100 | Industrial | N/A | 6,724 | 14,790 | Longgang |
| 2008/Nov | 4,236,800 | 4,236,800 | Industrial | N/A | 7,134 | 15,695 | Longgang |
| 2008/Nov | 30,778,000 | - | Industrial | N/A | 5,047 | 43,408 | Nanshan |
| 2008/Nov | 21,243,000 | 21,243,000 | Industrial | N/A | 3,736 | 22,414 | Nanshan |
| 2008/Nov | 16,615,200 | 16,615,200 | Industrial | N/A | 4,417 | 19,875 | Nanshan |

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|---|---|---|---|---|---|---|---|
| 2008/Nov | 5,143,600 | - | Industrial | N/A | 8,572 | 18,860 | Longgang |
| 2008/Nov | 29,265,400 | 29,265,400 | Industrial | N/A | 4,745 | 40,812 | Nanshan |
| 2008/Nov | 21,263,100 | - | Industrial | N/A | 3,746 | 22,476 | Nanshan |
| 2008/Nov | 10,105,700 | 10,105,700 | Industrial | N/A | 5,125 | 17,930 | Nanshan |
| 2008/Nov | 2,505,400 | 2,505,400 | Industrial | N/A | 4,573 | 5,480 | Baoan |
| 2008/Nov | 27,652,800 | 27,652,800 | Industrial | N/A | 6,099 | 45,740 | Nanshan |
| 2008/Nov | 62,128,700 | 62,128,700 | Industrial | N/A | 104,305 | 260,764 | Baoan |
| 2008/Nov | 18,017,000 | 18,017,000 | Industrial | N/A | 30,261 | 75,654 | Baoan |
| 2008/Nov | 12,441,800 | - | Industrial | N/A | 21,438 | 53,590 | Longgang |
| 2008/Oct | 4,202,800 | 4,202,800 | Industrial | N/A | 6,752 | 16,881 | Guangming |
| 2008/Oct | 79,087,600 | 79,087,600 | Infrastructure | Airport | 150,009 | 329,476 | Baoan |
| 2008/Oct | 7,710,200 | 7,710,200 | Industrial | N/A | 12,392 | 30,980 | Guangming |
| 2008/Oct | 63,549,400 | 63,549,400 | Infrastructure | Airport | 148,731 | 198,592 | Baoan |
| 2008/Oct | 12,441,500 | 12,441,500 | Industrial | N/A | 20,059 | 36,100 | Longhua |
| 2008/Oct | 15,694,800 | - | Industrial | N/A | 26,675 | 66,688 | Longgang |
| 2008/Oct | 16,582,300 | - | Industrial | N/A | 28,276 | 70,690 | Longgang |
| 2008/Oct | 6,553,700 | 6,553,700 | Industrial | N/A | 11,594 | 28,985 | Longgang |
| 2008/Oct | 6,209,200 | 6,209,200 | Industrial | N/A | 11,009 | 22,018 | Longgang |
| 2008/Oct | 18,628,200 | 18,628,200 | Industrial | N/A | 29,335 | 73,340 | Longgang |
| 2008/Oct | 3,319,100 | 3,319,100 | Industrial | N/A | 6,102 | 8,540 | Baoan |
| 2008/Oct | 21,196,400 | 21,196,400 | Industrial | N/A | 3,736 | 22,410 | Nanshan |
| 2008/Oct | 348,000,000 | 348,000,000 | Office | Commercial, Office | 4,400 | 50,000 | Futian |

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|---|---|---|---|---|---|---|---|
| 2008/Oct | 412,000,000 | - | Office | Commercial, Office | 5,009 | 60,000 | Futian |
| 2008/Oct | 11,520,700 | 11,520,700 | Industrial | N/A | 17,719 | 44,298 | Baoan |
| 2008/Oct | 51,047,000 | 51,047,000 | Industrial | N/A | 80,074 | 200,184 | Guangming |
| 2008/Oct | 10,027,600 | 10,027,600 | Industrial | N/A | 16,301 | 40,753 | Guangming |
| 2008/Oct | 7,509,400 | 15,010,000 | Industrial | N/A | 12,210 | 30,523 | Guangming |
| 2008/Oct | 8,074,600 | 8,074,600 | Industrial | N/A | 13,391 | 33,477 | Guangming |
| 2008/Oct | 12,977,000 | 12,977,000 | Industrial | N/A | 20,825 | 52,064 | Baoan |
| 2008/Oct | 12,532,900 | - | Industrial | N/A | 20,460 | 51,150 | Guangming |
| 2008/Oct | 800,000,000 | 800,000,000 | Office | Commercial, Office | 12,713 | 200,000 | Nanshan |
| 2008/Oct | 6,043,800 | 6,043,800 | Industrial | N/A | 10,147 | 25,369 | Guangming |
| 2008/Oct | 8,417,100 | 8,417,100 | Industrial | N/A | 13,669 | 34,174 | Baoan |
| 2008/Sep | 56,000,000 | 56,000,000 | Commercial | N/A | 4,530 | 12,120 | Futian |
| 2008/Sep | 115,809,200 | 115,809,200 | Industrial | N/A | 200,060 | 360,109 | Longgang |
| 2008/Sep | 12,800,000 | 12,800,000 | Industrial | N/A | 25,258 | 50,516 | Longgang |
| 2008/Sep | 19,000,000 | 19,000,000 | Industrial | N/A | 33,397 | 66,794 | Longgang |
| 2008/Jul | 850,000,000 | 850,000,000 | Office | Commercial, Office | 10,135 | 131,700 | Futian |
| 2008/Jul | 0 | - | Industrial | N/A | 200,060 | 440,132 | Longgang |
| 2008/Jul | 0 | 13,220,000 | Industrial | N/A | 24,305 | 48,609 | Longgang |
| 2008/Jul | 0 | 34,600,000 | Industrial | N/A | 53,554 | 133,884 | Longgang |
| 2008/Jul | 0 | 30,980,000 | Industrial | N/A | 49,852 | 124,631 | Guangming |
| 2008/Jun | 783,000 | 783,000 | Industrial | Warehouse | 10,353 | - | Nanshan |
| 2008/Jun | 417,000 | 417,000 | Industrial | Warehouse | 6,000 | - | Nanshan |

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|---|---|---|---|---|---|---|---|
| 2008/Jun | 1,740,000,000 | 1,740,000,000 | Residential | Residential, Commerce | 489,660 | 1,410,000 | Nanshan |
| 2008/Jun | 1,180,000,000 | - | Residential | Residential, Commerce | 49,582 | 205,693 | Nanshan |
| 2008/Jun | 16,700,000 | 16,700,000 | Industrial | N/A | 20,393 | 36,707 | Baoan |
| 2008/May | 544,000,000 | 544,000,000 | Office | Commercial, Office | 5,631 | 80,000 | Futian |
| 2008/May | 750,000,000 | 750,000,000 | Office | Commercial, Office | 8,206 | 106,670 | Futian |
| 2008/May | 661,200,000 | 661,200,000 | Residential | N/A | 138,317 | 426,630 | Baoan |
| 2008/May | 2,000,000 | 2,000,000 | Residential | R2 | 135,850 | 244,530 | Longgang |
| 2008/May | 1,000,000 | 1,000,000 | Residential | R2 | 64,151 | 115,473 | Longgang |
| 2008/Apr | 12,000,000 | 13,000,000 | Infrastructure | Parking | 3,918 | 3,918 | Futian |
| 2008/Apr | 930,000,000 | - | Office | Commercial, Office | 10,135 | 131,700 | Futian |
| 2008/Apr | 670,000,000 | 670,000,000 | Office | Commercial, Office | 6,428 | 96,420 | Futian |
| 2008/Apr | 2,610,000 | 3,410,000 | Industrial | Warehouse | 4,354 | - | Longgang |
| 2008/Apr | 590,000,000 | 590,000,000 | Office | Commercial, Office | 8,056 | 100,300 | Futian |
| 2008/Apr | 560,000,000 | 560,000,000 | Office | Commercial, Office | 5,455 | 80,000 | Futian |
| 2008/Apr | 420,000,000 | 420,000,000 | Office | Commercial, Office | 4,848 | 60,000 | Futian |
| 2008/Apr | 310,000,000 | 310,000,000 | Office | Commercial, Office | 5,908 | 45,000 | Futian |
| 2008/Apr | 240,000,000 | 240,000,000 | Office | Commercial, Office | 4,111 | 35,000 | Futian |
| 2008/Apr | 1,390,000 | 1,390,000 | Infrastructure | Parking | 20,000 | - | Futian |
| 2008/Apr | 1,430,000 | - | Infrastructure | Parking | 20,000 | - | Futian |
| 2008/Apr | 750,000 | 750,000 | Infrastructure | Parking | 10,243 | - | Nanshan |
| 2008/Apr | 550,000,000 | - | Residential | N/A | 200,484 | 441,065 | Longgang |
| 2008/Apr | 100,000,000 | - | Residential | N/A | 41,224 | 93,578 | Longgang |

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|---|---|---|---|---|---|---|---|
| 2008/Apr | 40,000,000 | 46,000,000 | Residential | N/A | 13,341 | 40,022 | Longgang |
| 2008/Apr | 0 | 64,079,000 | Industrial | N/A | 129,299 | 155,200 | Longgang |
| 2008/Apr | 4,959,400 | 4,959,400 | Industrial | N/A | 10,000 | 12,000 | Longgang |
| 2008/Apr | 136,000,000 | - | Residential | N/A | 21,099 | 37,970 | Baoan |
| 2008/Apr | 350,000,000 | - | Residential | N/A | 25,995 | 71,700 | Baoan |
| 2008/Apr | 1,060,000,000 | - | Residential | N/A | 81,044 | 218,000 | Baoan |
| 2008/Apr | 500,000,000 | - | Residential | N/A | 73,513 | 176,432 | Longgang |
| 2008/Apr | 690,000,000 | 690,000,000 | Residential | N/A | 101,358 | 243,259 | Longgang |
| 2008/Apr | 115,000,000 | - | Infrastructure | N/A | 10,000 | 35,000 | Nanshan |
| 2008/Mar | 0 | 81,475,700 | Industrial | N/A | 169,741 | 220,663 | Baoan |
| 2008/Mar | 495,000,000 | 495,000,000 | Office | Commercial, Office | 10,458 | 150,000 | Nanshan |
| 2008/Mar | 600,000,000 | 650,000,000 | Office | Commercial, Office | 10,926 | 63,967 | Nanshan |
| 2008/Feb | 34,511,500 | 34,511,500 | Industrial | N/A | 49,982 | 109,960 | Longgang |
| 2008/Jan | 57,617,700 | 57,617,700 | Industrial | N/A | 150,046 | 90,027 | Longgang |
| 2008/Jan | 0 | - | Residential | N/A | 39,312 | 75,625 | Longgang |
| 2008/Jan | 0 | 238,860,000 | Residential | N/A | 29,481 | 53,065 | Baoan |
| 2007/Dec | 31,022,100 | 31,022,100 | Industrial | N/A | 80,787 | - | Longgang |
| 2007/Dec | 0 | - | Residential | N/A | 50,851 | 122,042 | Longgang |
| 2007/Dec | 0 | - | Residential | N/A | 50,507 | 121,216 | Longgang |
| 2007/Dec | 48,392,300 | - | Industrial | N/A | 100,258 | 70,300 | Baoan |
| 2007/Nov | 1,656,800,000 | 1,656,800,000 | Office | Office, Commerce, Hotel | 18,932 | 378,600 | Futian |
| 2007/Nov | 340,000,000 | 510,000,000 | Residential | N/A | 41,506 | 74,710 | Baoan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2007/Nov | 350,000,000 | 510,000,000 | Residential | N/A | 43,678 | 78,620 | Baoan |
| 2007/Oct | 14,500,000 | 14,500,000 | Industrial | N/A | 29,211 | 58,534 | Longgang |
| 2007/Oct | 40,000,000 | 40,000,000 | Industrial | N/A | 57,000 | 136,799 | Longgang |
| 2007/Oct | 7,500,000 | 7,500,000 | Industrial | N/A | 8,747 | 20,990 | Longgang |
| 2007/Oct | 15,000,000 | 15,000,000 | Residential | Residential, Commerce | 5,042 | 10,790 | Baoan |
| 2007/Oct | 77,899,800 | 77,899,800 | Commercial | Hotel | 20,657 | 60,000 | Longgang |
| 2007/Oct | 500,000,000 | 700,000,000 | Residential | N/A | 37,036 | 118,515 | Longgang |
| 2007/Oct | 501,538 | - | Industrial | Warehouse | 2,443 | 9,038 | Yantian |
| 2007/Sep | 44,700,000 | - | Industrial | N/A | 93,111 | 88,853 | Baoan |
| 2007/Sep | 39,000,000 | 39,000,000 | Industrial | N/A | 62,683 | 125,366 | Baoan |
| 2007/Sep | 93,116,700 | 93,116,700 | Commercial | Hotel | 21,175 | 84,600 | Baoan |
| 2007/Sep | 82,503,300 | 82,503,300 | Residential | N/A | 46,041 | 88,640 | Guangming |
| 2007/Sep | 0 | - | Industrial | N/A | 52,676 | - | Longgang |
| 2007/Sep | 400,000,000 | 692,000,000 | Commercial | Residential, Commerce | 72,641 | 218,086 | Longgang |
| 2007/Sep | 93,000,000 | 93,000,000 | Residential | N/A | 31,197 | 77,994 | Longgang |
| 2007/Jul | 100,000,000 | 222,000,000 | Residential | N/A | 33,649 | 94,218 | Longgang |
| 2007/Jul | 160,000,000 | 256,000,000 | Residential | N/A | 44,934 | 143,788 | Longgang |
| 2007/Jul | 9,000,000 | - | Residential | N/A | 20,859 | 62,577 | Nanshan |
| 2007/Jul | 220,000,000 | - | Commercial | Hotel | 21,175 | 84,600 | Baoan |
| 2007/Jun | 60,000,000 | 166,000,000 | Residential | N/A | 5,000 | 16,000 | Futian |
| 2007/Apr | 16,000,000 | 36,500,000 | Industrial | N/A | 32,496 | 97,480 | Guangming |
| 2007/Apr | 21,500,000 | 38,500,000 | Industrial | N/A | 43,907 | 131,700 | Guangming |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2007/Apr | 22,000,000 | 40,500,000 | Industrial | N/A | 45,095 | 135,280 | Guangming |
| 2007/Apr | 9,000,000 | 9,000,000 | Industrial | N/A | 14,528 | 31,900 | Baoan |
| 2007/Apr | 9,000,000 | 9,000,000 | Industrial | N/A | 15,052 | 33,100 | Baoan |
| 2007/Apr | 24,000,000 | 32,000,000 | Infrastructure | Parking | 15,084 | - | Futian |
| 2007/Apr | 24,000,000 | 32,000,000 | Infrastructure | Parking | 5,088 | - | Futian |
| 2007/Apr | 21,500,000 | 36,500,000 | Industrial | N/A | 34,428 | 86,070 | Longgang |
| 2007/Apr | 9,000,000 | 28,500,000 | Industrial | R3 | 11,618 | 23,237 | Longgang |
| 2007/Apr | 15,000,000 | - | Industrial | N/A | 32,642 | 65,283 | Longgang |
| 2007/Apr | 10,000,000 | - | Industrial | N/A | 21,453 | 42,906 | Longgang |
| 2007/Mar | 0 | 402,080,000 | Residential | Residential, Commerce | 22,407 | 67,222 | Longhua |
| 2007/Mar | 0 | 458,880,000 | Residential | N/A | 30,698 | 85,953 | Longhua |
| 2006/Dec | 15,000,000 | - | Industrial | N/A | 29,211 | 58,534 | Longgang |
| 2006/Dec | 12,000,000 | 43,500,000 | Industrial | N/A | 27,629 | 69,072 | Longgang |
| 2006/Dec | 10,000,000 | 14,500,000 | Industrial | R3 | 14,479 | 24,252 | Longgang |
| 2006/Dec | 0 | - | Residential | Residential, Commerce | 72,641 | 218,086 | Longgang |
| 2006/Dec | 0 | - | Residential | N/A | 30,622 | 91,866 | Longgang |
| 2006/Dec | 0 | 152,888,899 | Residential | N/A | 28,282 | 84,846 | Longgang |
| 2006/Dec | 1,420,000 | - | Residential | Residential, Commerce | 25,750 | 51,634 | Nanshan |
| 2006/Dec | 75,000,000 | - | Commercial | N/A | 7,257 | - | Nanshan |
| 2006/Dec | 725,000 | - | Residential | Residential, Commerce | 38,919 | 77,825 | Nanshan |
| 2006/Oct | 0 | 480,080,000 | Residential | Residential, Commerce | 92,821 | 222,770 | Baoan |
| 2006/Oct | 0 | 749,880,000 | Residential | Residential, Commerce | 147,595 | 222,221 | Baoan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2006/Oct | 0 | 38,000,000 | Residential | N/A | 2,809 | 9,400 | Longgang |
| 2006/Sep | 0 | 1,234,567,890 | Residential | N/A | 118,799 | 380,160 | Longgang |
| 2006/Sep | 0 | 167,321,600 | Residential | N/A | 26,218 | 78,654 | Longgang |
| 2006/Sep | 0 | 767,234,600 | Residential | N/A | 101,566 | 304,700 | Longgang |
| 2006/Sep | 0 | 380,000,089 | Residential | N/A | 27,807 | 83,420 | Baoan |
| 2006/Sep | 0 | 431,888,888 | Residential | N/A | 67,080 | 134,150 | Baoan |
| 2006/Sep | 0 | 203,690,000 | Residential | N/A | 43,582 | 104,597 | Baoan |
| 2006/Jul | 0 | 1,880,000,000 | Commercial | N/A | 99,390 | 328,000 | Baoan |
| 2006/Jul | 0 | 327,000,000 | Commercial | N/A | 18,770 | 50,680 | Baoan |
| 2006/Jul | 0 | 375,000,000 | Office | Commercial, Office | 17,203 | 56,770 | Baoan |
| 2006/Jul | 7,000,000 | 16,600,000 | Industrial | N/A | 15,000 | 22,500 | Longgang |
| 2006/Jul | 20,000,000 | - | Residential | Residential, Commerce | 25,750 | 51,634 | Nanshan |
| 2006/Jun | 18,200,000 | 18,200,000 | Infrastructure | N/A | 2,531 | 1,000 | Baoan |
| 2006/Jun | 16,000,000 | 16,000,000 | Infrastructure | N/A | 1,941 | 1,000 | Baoan |
| 2006/May | 30,000,000 | - | Residential | Residential, Commerce | 38,919 | 77,825 | Nanshan |
| 2006/May | 450,000,000 | 645,000,000 | Office | Commercial, Office | 7,901 | 79,000 | Futian |
| 2006/May | 4,000,000 | 11,600,000 | Infrastructure | Education | 3,667 | 2,934 | Nanshan |
| 2006/Apr | 204,330,000 | 214,000,000 | Residential | Residential, Commerce | 7,835 | 65,200 | Futian |
| 2006/Apr | 0 | 202,000,000 | Residential | Residential, Commerce | 48,966 | 74,600 | Baoan |
| 2006/Apr | 0 | 100,000,000 | Office | N/A | 6,028 | 20,800 | Baoan |
| 2006/Apr | 0 | 140,000,000 | Office | N/A | 6,649 | 24,600 | Baoan |
| 2006/Apr | 0 | 144,000,000 | Office | N/A | 5,440 | 23,230 | Baoan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2006/Mar | 220,000,000 | 304,000,000 | Office | Hotel, Commerce, Office | 52,429 | 149,242 | Longgang |
| 2006/Mar | 55,000,000 | 188,000,000 | Residential | N/A | 38,830 | 85,426 | Longgang |
| 2006/Mar | 55,000,000 | 188,000,000 | Commercial | Hotel | 19,847 | 35,724 | Longgang |
| 2006/Mar | 500,000 | - | Residential | N/A | 912 | 4,000 | Futian |
| 2006/Mar | 300,000,000 | 300,000,000 | Commercial | Hotel | 25,728 | 162,300 | Nanshan |
| 2006/Mar | 2,800,000 | 11,000,000 | Industrial | N/A | 16,837 | 25,260 | Baoan |
| 2006/Feb | 0 | 770,000,000 | Residential | N/A | 145,467 | 203,653 | Longgang |
| 2006/Feb | 22,500,000 | - | Residential | R2 | 6,150 | 24,000 | Nanshan |
| 2006/Jan | 500,000 | - | Office | N/A | 1,574 | 12,110 | Luohu |
| 2006/Jan | 3,000,000 | 4,200,000 | Infrastructure | Parking | 13,140 | 18,495 | Nanshan |
| 2005/Dec | 500,000 | - | Residential | N/A | 2,111 | 31,340 | Nanshan |
| 2005/Dec | 130,000,000 | 320,000,000 | Commercial | Hotel | 40,156 | 100,390 | Baoan |
| 2005/Dec | 250,000,000 | - | Commercial | N/A | 47,887 | 90,690 | Baoan |
| 2005/Dec | 26,000,000 | 26,000,000 | Infrastructure | N/A | 2,450 | 1,000 | Nanshan |
| 2005/Dec | 22,000,000 | 22,000,000 | Infrastructure | N/A | 2,070 | 900 | Nanshan |
| 2005/Dec | 5,500,000 | 19,400,000 | Industrial | N/A | 25,579 | 46,042 | Longgang |
| 2005/Dec | 2,800,000 | 10,700,000 | Industrial | R3 | 9,164 | 16,495 | Longgang |
| 2005/Dec | 0 | 506,000,000 | Residential | N/A | 66,708 | 168,799 | Longgang |
| 2005/Nov | 5,400,000 | - | Industrial | R3 | 3,468 | 14,973 | Futian |
| 2005/Oct | 10,000,000 | 11,500,000 | Residential | Residential, Commerce | 8,122 | 12,180 | Dapeng |
| 2005/Sep | 4,000,000 | 4,000,000 | Industrial | N/A | 9,491 | 13,288 | Baoan |
| 2005/Sep | 8,000,000 | 35,500,000 | Commercial | Hotel | 30,599 | 49,150 | Longgang |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2005/Sep | 0 | - | Commercial | Hotel | 19,847 | 35,724 | Longgang |
| 2005/Sep | 0 | - | Residential | Residential, Commerce | 38,830 | 85,426 | Longgang |
| 2005/Sep | 0 | - | Residential | Residential, Commerce | 30,042 | 45,063 | Longgang |
| 2005/Sep | 2,200,000 | 2,200,000 | Industrial | N/A | 3,946 | 5,524 | Longgang |
| 2005/Sep | 1,150,000 | 2,500,000 | Industrial | N/A | 2,369 | 4,578 | Baoan |
| 2005/Aug | 37,500,000 | - | Residential | Residential, Commerce | 44,199 | 110,498 | Nanshan |
| 2005/Aug | 0 | 390,000,000 | Residential | Residential, Commerce | 70,038 | 168,090 | Baoan |
| 2005/Aug | 0 | 775,000,000 | Residential | Residential, Commerce | 194,646 | 292,835 | Baoan |
| 2005/Aug | 0 | 494,000,000 | Residential | Residential, Commerce | 98,153 | 255,000 | Baoan |
| 2005/Aug | 80,000,000 | 80,000,000 | Residential | N/A | 9,767 | 34,200 | Futian |
| 2005/Jul | 0 | 11,500,000 | Industrial | N/A | 4,100 | 3,690 | Nanshan |
| 2005/Jul | 2,200,000 | - | Industrial | N/A | 3,946 | 5,524 | Longgang |
| 2005/Jul | 43,800,000 | - | Residential | R1 | 44,247 | 17,790 | Longgang |
| 2005/Jul | 13,900,000,000 | 4,000,000 | Industrial | N/A | 3,476 | 7,300 | Baoan |
| 2005/Jun | 0 | 60,000,000 | Residential | Residential, Commerce | 37,707 | 75,420 | Longgang |
| 2005/Jun | 2,800,000 | 4,020,000 | Industrial | N/A | - | - | Baoan |
| 2005/Jun | 5,000,000 | - | Industrial | N/A | 9,491 | 13,288 | Baoan |
| 2005/Jun | 0 | 485,000,000 | Residential | Residential, Commerce | 77,528 | 232,580 | Longgang |
| 2005/May | 5,000,000 | - | Commercial | Residential, Commerce | 4,001 | 8,560 | Nanshan |
| 2005/May | 35,000,000 | - | Residential | N/A | 36,105 | 101,360 | Longgang |
| 2005/May | 92,121,000 | - | Industrial | Warehouse | 102,356 | 102,356 | Longgang |
| 2005/May | 9,980,000 | 9,980,000 | Industrial | N/A | 20,393 | 20,390 | Baoan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2005/Apr | 4,100,000 | 14,500,000 | Industrial | N/A | 4,100 | 3,690 | Nanshan |
| 2005/Apr | 18,100,000 | - | Industrial | R3 | 3,468 | 14,973 | Futian |
| 2005/Mar | 2,850,000 | - | Office | Commercial, Office | 12,686 | 120,500 | Nanshan |
| 2005/Mar | 88,000,000 | 140,880,000 | Residential | N/A | 30,000 | - | Longgang |
| 2005/Mar | 6,000,000 | 6,800,000 | Commercial | N/A | 6,601 | 7,921 | Longgang |
| 2005/Feb | 50,000,000 | - | Residential | N/A | 36,105 | 101,360 | Longgang |
| 2005/Feb | 16,800,000 | 16,800,000 | Commercial | N/A | 13,925 | 24,250 | Futian |
| 2005/Jan | 538,000 | - | Residential | N/A | 4,605 | 20,000 | Nanshan |
| 2005/Jan | 8,000,000 | - | Commercial | Hotel | 27,608 | 50,000 | Longgang |
| 2005/Jan | 8,000,000 | - | Commercial | Hotel | 32,763 | 49,150 | Longgang |
| 2004/Dec | 12,300,000 | 50,600,000 | Commercial | Hotel | 40,004 | 52,000 | Baoan |
| 2004/Dec | 0 | 250,000,000 | Residential | Residential, Commerce | 76,445 | 137,600 | Baoan |
| 2004/Dec | 0 | - | Residential | N/A | 195,223 | 292,835 | Baoan |
| 2004/Dec | 0 | 170,000,000 | Residential | Residential, Commerce | 47,919 | 105,420 | Baoan |
| 2004/Dec | 9,000,000 | 9,000,000 | Infrastructure | N/A | 2,332 | 1,000 | Baoan |
| 2004/Dec | 9,400,000 | 9,400,000 | Infrastructure | N/A | 1,998 | 1,000 | Baoan |
| 2004/Dec | 6,800,000 | 6,800,000 | Infrastructure | N/A | 2,499 | 1,200 | Baoan |
| 2004/Dec | 5,400,000 | 5,400,000 | Infrastructure | N/A | 2,492 | 1,000 | Baoan |
| 2004/Dec | 0 | 495,000,000 | Residential | Residential, Commerce | 223,696 | 304,228 | Longgang |
| 2004/Dec | 21,487,000 | 40,890,000 | Residential | N/A | 2,379 | 13,800 | Luohu |
| 2004/Nov | 0 | 202,000,000 | Residential | Residential, Commerce | 51,324 | 118,180 | Baoan |
| 2004/Nov | 0 | 1,685,000,000 | Residential | N/A | 386,862 | 196,500 | Baoan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2004/Nov | 115,000,000 | 115,000,000 | Residential | Residential, Commerce | 48,146 | 88,108 | Longgang |
| 2004/Nov | 11,500,000 | - | Industrial | N/A | 32,574 | 48,860 | Baoan |
| 2004/Nov | 123,980,000 | 123,980,000 | Residential | N/A | 68,700 | 82,440 | Longhua |
| 2004/Oct | 55,000,000 | 55,000,000 | Commercial | Hotel | 50,032 | 130,000 | Baoan |
| 2004/Oct | 17,500,000 | 17,500,000 | Commercial | Hotel | 50,027 | 60,000 | Baoan |
| 2004/Oct | 180,000,000 | 234,000,000 | Residential | N/A | 71,210 | 92,500 | Longgang |
| 2004/Oct | 0 | 13,000,000 | Residential | Residential, Commerce | 6,313 | 20,200 | Baoan |
| 2004/Sep | 0 | - | Office | N/A | 19,198 | 67,000 | Yantian |
| 2004/Sep | 5,280,000 | - | Industrial | N/A | 13,049 | 19,573 | Baoan |
| 2004/Sep | 9,000,000 | 9,000,000 | Residential | Residential, Commerce | 3,024 | 11,188 | Nanshan |
| 2004/Sep | 130,000,000 | 130,000,000 | Residential | Residential, Commerce | 375,852 | 165,540 | Baoan |
| 2004/Sep | 1,260,000 | 1,260,000 | Residential | Residential, Commerce | 1,368 | 2,460 | Longgang |
| 2004/Aug | 60,591,000 | 60,591,000 | Residential | R1 | 66,178 | 27,420 | Longgang |
| 2004/Aug | 6,000,000 | 6,000,000 | Residential | N/A | 2,928 | 5,200 | Luohu |
| 2004/Aug | 5,880,000 | - | Industrial | N/A | 13,049 | 19,573 | Baoan |
| 2004/Aug | 150,000,000 | 240,000,000 | Residential | Residential, Commerce | 63,478 | 139,770 | Longgang |
| 2004/Jul | 2,073,400 | 2,073,400 | Residential | N/A | 2,604 | 9,200 | Nanshan |
| 2004/Jul | 11,000,000 | 11,000,000 | Infrastructure | N/A | 2,993 | 1,000 | Longgang |
| 2004/Jul | 60,000,000 | 60,000,000 | Commercial | Hotel, Office | 61,730 | 80,200 | Yantian |
| 2004/Jul | 10,500,000 | 10,500,000 | Residential | Residential, Commerce | 3,024 | 11,188 | Nanshan |
| 2004/Jul | 14,500,000 | 14,500,000 | Industrial | Warehouse | 5,212 | 4,000 | Nanshan |
| 2004/Jul | 2,070,000 | 3,170,000 | Industrial | N/A | 7,677 | 11,517 | Baoan |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2004/Jul | 3,000,000 | 8,000,000 | Industrial | N/A | 5,478 | 5,477 | Baoan |
| 2004/Jul | 0 | - | Commercial | N/A | 241,819 | 616,638 | Longgang |
| 2004/Jul | 40,000,000 | 40,000,000 | Residential | R1 | 66,178 | 27,420 | Longgang |
| 2004/Jul | 38,150,000 | 38,150,000 | Industrial | N/A | 119,139 | 172,100 | Longgang |
| 2004/May | 155,000,000 | - | Residential | N/A | 65,956 | - | Yantian |
| 2004/May | 40,000,000 | 40,000,000 | Residential | N/A | 10,802 | 23,764 | Nanshan |
| 2004/May | 0 | 95,000,000 | Residential | Residential, Commerce | 14,631 | 41,023 | Baoan |
| 2004/May | 0 | 345,000,000 | Residential | Residential, Commerce | 111,154 | 266,800 | Baoan |
| 2004/May | 20,000,000 | - | Commercial | N/A | 10,000 | 20,000 | Longgang |
| 2004/May | 1,400,000 | - | Residential | Residential, Commerce | 1,368 | 2,460 | Longgang |
| 2004/Apr | 6,532,600 | 6,532,600 | Residential | N/A | 2,701 | 4,800 | Luohu |
| 2004/Apr | 765,000,000 | 950,000,000 | Residential | N/A | 93,544 | 131,000 | Futian |
| 2004/Apr | 11,800,000 | 11,800,000 | Industrial | N/A | 38,354 | 54,132 | Baoan |
| 2004/Apr | 30,160,000 | 33,160,000 | Residential | N/A | 4,674 | 17,315 | N/A |
| 2004/Apr | 28,600,000 | 80,000,000 | Commercial | Hotel | 33,204 | 83,000 | Baoan |
| 2004/Apr | 18,160,000 | 21,160,000 | Residential | Residential, Commerce | 1,665 | 7,000 | Luohu |
| 2004/Mar | 7,330,000 | 25,630,000 | Commercial | Hotel | 50,093 | 35,000 | N/A |
| 2004/Mar | 400,000 | 3,800,000 | Industrial | N/A | 2,227 | 1,222 | Longhua |
| 2004/Feb | 8,456,000 | 8,456,000 | Residential | N/A | 3,501 | 6,100 | Luohu |
| 2004/Feb | 5,500,000 | 6,000,000 | Industrial | N/A | 4,790 | 3,090 | Baoan |
| 2004/Feb | 30,000,000 | 35,000,000 | Residential | Residential, Commerce | 9,522 | 19,044 | Longgang |
| 2004/Feb | 45,000,000 | 51,800,000 | Residential | Residential, Commerce | 32,376 | 30,249 | Baoan |

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|---|---|---|---|---|---|---|---|
| 2004/Jan | 13,600,000 | 38,000,000 | Residential | N/A | 3,735 | 13,070 | N/A |
| 2003/Dec | 0 | 580,000,000 | Residential | N/A | 213,187 | 106,600 | Baoan |
| 2003/Dec | 838,000,000 | - | Commercial | Residential, Commerce | 400,659 | 658,389 | Longgang |
| 2003/Dec | 44,500,000 | 71,500,000 | Residential | Residential, Commerce | 7,609 | 26,632 | Futian |
| 2003/Dec | 0 | 250,000,000 | Residential | Residential, Commerce | 171,722 | 262,000 | Longgang |
| 2003/Dec | 3,500,000 | 9,600,000 | Industrial | N/A | 12,942 | 20,700 | Baoan |
| 2003/Nov | 80,100,000 | 80,100,000 | Infrastructure | Education | 53,962 | 76,200 | Nanshan |
| 2003/Nov | 6,300,000 | 14,300,000 | Industrial | N/A | 16,819 | 24,918 | Baoan |
| 2003/Nov | 65,000,000 | 65,000,000 | Residential | Residential, Commerce | 37,640 | 96,000 | Baoan |
| 2003/Nov | 12,000,000 | 12,000,000 | Residential | N/A | 2,856 | 4,500 | Nanshan |
| 2003/Oct | 25,000,000 | 31,000,000 | Commercial | Hotel | 60,000 | 60,000 | Yantian |
| 2003/Oct | 0 | 174,500,000 | Residential | Residential, Commerce | 150,443 | 234,164 | Longgang |
| 2003/Oct | 0 | 310,000,000 | Residential | Residential, Commerce | 72,990 | 182,500 | Baoan |
| 2003/Oct | 126,100,000 | 126,100,000 | Office | Commercial, Office | 14,624 | 63,200 | Nanshan |
| 2003/Oct | 321,600,000 | 321,600,000 | Office | Commercial, Office | 39,784 | 173,300 | Nanshan |
| 2003/Oct | 20,000,000 | 26,200,000 | Residential | R2 | 3,471 | 13,850 | Luohu |
| 2003/Oct | 12,000,000 | 12,000,000 | Residential | N/A | 12,029 | 23,460 | Luohu |
| 2003/Oct | 1,500,000 | 11,000,000 | Residential | R2 | 6,152 | 41,937 | Yantian |
| 2003/Oct | 66,000,000 | - | Residential | N/A | 13,256 | 46,220 | Nanshan |
| 2003/Sep | 46,000,000 | 56,000,000 | Residential | Residential, Commerce | 4,195 | 25,200 | N/A |
| 2003/Sep | 3,350,000 | 3,350,000 | Industrial | Warehouse | 9,614 | 16,350 | Longgang |
| 2003/Sep | 2,100,000 | 2,100,000 | Industrial | N/A | 2,090 | 2,269 | Longgang |

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|---|---|---|---|---|---|---|---|
| 2003/Sep | 39,600,000 | 39,600,000 | Residential | Residential, Commerce | 19,458 | 43,000 | Longgang |
| 2003/Sep | 21,225,000 | 21,225,000 | Residential | Residential, Commerce | 21,171 | 172,585 | Luohu |
| 2003/Sep | 0 | 184,000,000 | Residential | Residential, Commerce | 79,397 | 118,800 | Baoan |
| 2003/Aug | 16,000,000 | 23,500,000 | Residential | Residential, Commerce | 9,020 | 26,197 | Longgang |
| 2003/Aug | 120,896,176 | - | Residential | N/A | 5,298 | 57,586 | Futian |
| 2003/Aug | 2,480,000 | 2,880,000 | Industrial | N/A | 12,414 | 14,897 | Baoan |
| 2003/Aug | 90,000,000 | 90,000,000 | Residential | Residential, Commerce | 63,094 | 132,600 | Baoan |
| 2003/Jul | 0 | 160,000,000 | Residential | Residential, Commerce | 95,344 | 93,145 | Baoan |
| 2003/Jul | 14,800,000 | 14,800,000 | Residential | Residential, Commerce | 3,679 | 23,837 | Baoan |
| 2003/Jul | 0 | 970,000,000 | Residential | Residential, Commerce | 397,884 | 437,670 | Longgang |
| 2003/Jun | 1,500,000 | 10,600,000 | Industrial | N/A | 5,808 | - | Nanshan |
| 2003/May | 38,750,000 | 38,750,000 | Residential | Residential, Commerce | 5,748 | 28,270 | Baoan |
| 2003/May | 0 | 119,000,000 | Residential | Residential, Commerce | 95,570 | 133,800 | Baoan |
| 2003/May | 42,700,000 | 42,700,000 | Residential | Residential, Commerce | 3,565 | 47,600 | Longgang |
| 2003/May | 5,600,000 | - | Industrial | N/A | 19,999 | 19,999 | Longgang |
| 2003/May | 38,000,000 | 3,800,000 | Residential | Residential, Commerce | 25,823 | 51,921 | Baoan |
| 2003/May | 120,000,000 | 120,000,000 | Residential | Residential, Commerce | 46,683 | 163,400 | Baoan |
| 2003/Apr | 199,900,000 | 202,900,000 | Residential | Residential, Office | 15,313 | 143,860 | Baoan |
| 2003/Apr | 8,000,000 | 8,000,000 | Industrial | N/A | 4,508 | 10,000 | Nanshan |
| 2003/Apr | 0 | 286,000,000 | Residential | Residential, Commerce | 51,826 | 171,000 | Baoan |
| 2003/Mar | 21,000,000 | 21,000,000 | Residential | Residential, Commerce | 7,522 | 21,062 | Baoan |
| 2003/Feb | 23,750,000 | 23,750,000 | Industrial | N/A | 99,204 | - | Longgang |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2003/Feb | 0 | 180,000,000 | Commercial | Hotel | 9,814 | 80,000 | N/A |
| 2003/Feb | 8,500,000 | 8,500,000 | Residential | Residential, Commerce | 6,478 | 14,515 | Baoan |
| 2003/Feb | 7,300,000 | 20,100,000 | Industrial | N/A | 8,063 | 9,680 | Baoan |
| 2003/Jan | 10,250,000 | 10,250,000 | Residential | N/A | 3,035 | 5,200 | Longgang |
| 2003/Jan | 900,000 | 900,000 | Residential | N/A | 5,157 | 8,100 | Nanshan |
| 2003/Jan | 89,695,400 | 89,695,400 | Residential | N/A | 111,958 | 142,305 | Longgang |
| 2002/Dec | 8,550,000 | 8,550,000 | Residential | Residential, Commerce | 12,215 | 15,513 | Longgang |
| 2002/Dec | 15,000,000 | 15,000,000 | Residential | N/A | 25,000 | 37,750 | Longgang |
| 2002/Nov | 0 | 188,000,000 | Residential | Residential, Commerce | 92,579 | 166,650 | Baoan |
| 2002/Oct | 44,658,400 | 44,658,400 | Residential | N/A | 27,988 | 55,806 | Longgang |
| 2002/Oct | 154,100,000 | 237,850,000 | Commercial | N/A | 36,909 | 67,000 | Nanshan |
| 2002/Oct | 1,000,000 | 2,500,000 | Industrial | N/A | 8,718 | 6,050 | Baoan |
| 2002/Sep | 71,502,000 | 90,502,000 | Residential | Residential, Commerce | 79,447 | 148,500 | Longgang |
| 2002/Sep | 2,000,000 | 4,600,000 | Industrial | N/A | 4,511 | 8,120 | N/A |
| 2002/Sep | 5,600,000 | - | Industrial | N/A | 19,999 | 22,000 | N/A |
| 2002/Sep | 0 | 106,000,000 | Commercial | Hotel | 36,062 | 55,200 | N/A |
| 2002/Sep | - | 60,000,000 | Commercial | Hotel | 7,112 | 21,300 | N/A |
| 2002/Sep | 3,500,000 | 3,500,000 | Industrial | N/A | 6,474 | 11,610 | N/A |
| 2002/Aug | 83,999,264 | - | Residential | N/A | 5,298 | 57,586 | N/A |
| 2002/Aug | 10,000,000 | 21,200,000 | Commercial | N/A | 5,465 | 4,000 | N/A |
| 2002/Jul | 46,350,000 | - | Commercial | Residential, Commerce | 9,593 | 63,000 | N/A |
| 2002/Jul | - | 415,000,000 | Commercial | Residential, Commerce | 183,825 | 478,000 | N/A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2002/Jul | - | 285,000,000 | Commercial | Residential, Commerce | 83,329 | 257,660 | N/A |
| 2002/Jul | 10,250,000 | - | Commercial | Residential, Commerce | 3,035 | 5,200 | N/A |
| 2002/Jul | - | 93,000,000 | Commercial | N/A | 8,516 | 13,600 | N/A |
| 2002/Jul | - | 105,000,000 | Residential | N/A | 14,993 | 40,500 | N/A |
| 2002/Jul | - | 15,100,000 | Residential | N/A | 15,966 | 31,900 | N/A |
| 2002/Jul | - | 45,000,000 | Commercial | N/A | 4,500 | 9,899 | N/A |
| 2002/May | 28,000,000 | 33,600,000 | Commercial | Residential, Commerce | 27,431 | 52,118 | N/A |
| 2002/May | 10,590,000 | 10,590,000 | Industrial | N/A | 36,500 | 43,800 | N/A |
| 2002/May | 2,800,000 | 2,800,000 | Commercial | Residential, Commerce | 4,001 | 8,560 | N/A |
| 2002/May | 12,200,000 | 12,200,000 | Commercial | Residential, Commerce | 5,878 | 11,804 | N/A |
| 2002/May | 57,540,000 | 57,540,000 | Residential | N/A | 4,704 | 23,680 | N/A |
| 2002/May | - | 36,500,000 | Commercial | Residential, Commerce | 34,888 | 62,798 | N/A |
| 2002/May | 4,800,000 | 13,800,000 | Industrial | N/A | 5,214 | 4,000 | N/A |
| 2002/May | 2,100,000 | 7,000,000 | Industrial | N/A | 9,078 | 13,620 | N/A |
| 2002/Apr | 11,000,000 | 11,000,000 | Commercial | N/A | 7,500 | 15,000 | N/A |
| 2002/Apr | 100,704,000 | 100,704,000 | Office | Commercial, Office | 16,846 | 59,200 | N/A |
| 2002/Apr | 2,680,000 | 5,180,000 | Industrial | N/A | 18,269 | 21,713 | N/A |
| 2002/Apr | 7,072,000 | 7,072,000 | Industrial | N/A | 25,076 | 37,650 | N/A |
| 2002/Apr | 30,000,000 | 35,000,000 | Commercial | Residential, Commerce | 3,046 | 20,000 | N/A |
| 2002/Mar | - | 129,000,000 | Residential | N/A | 82,217 | 90,380 | N/A |
| 2002/Mar | 5,000,000 | 10,000,000 | Commercial | Residential, Commerce | 4,952 | 16,031 | N/A |
| 2002/Mar | 7,200,000 | 7,200,000 | Commercial | N/A | 4,000 | 14,520 | N/A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2002/Feb | 3,500,000 | 3,500,000 | Industrial | N/A | 33,614 | 48,584 | N/A |
| 2002/Feb | 6,000,000 | 6,000,000 | Industrial | N/A | 9,717 | 5,800 | N/A |
| 2002/Feb | 20,000,000 | 20,000,000 | Commercial | Residential, Commerce | 50,920 | 81,472 | N/A |
| 2002/Jan | 50,000,000 | 50,000,000 | Commercial | Residential, Commerce | 68,627 | 88,250 | N/A |
| 2002/Jan | 61,500,000 | 61,500,000 | Commercial | Residential, Commerce | 44,141 | 70,625 | N/A |
| 2002/Jan | 17,500,000 | 17,500,000 | Commercial | Residential, Commerce | 10,000 | 20,000 | N/A |
| 2001/Dec | 12,000,000 | 12,000,000 | Residential | N/A | 6,215 | 11,808 | N/A |
| 2001/Dec | 5,000,000 | 5,000,000 | Commercial | Residential, Commerce | 2,812 | 10,270 | N/A |
| 2001/Dec | 121,810,000 | 121,810,000 | Commercial | Residential, Commerce | 81,041 | 192,710 | N/A |
| 2001/Dec | 14,500,000 | 14,500,000 | Commercial | Residential, Commerce | 13,058 | 20,954 | N/A |
| 2001/Dec | - | 780,000,000 | Residential | N/A | 75,102 | 255,300 | N/A |
| 2001/Dec | - | 700,000,000 | Residential | N/A | 80,733 | 250,600 | N/A |
| 2001/Dec | - | 755,000,000 | Residential | N/A | 81,920 | 266,500 | N/A |
| 2001/Nov | 2,000,000 | 2,000,000 | Commercial | Residential, Commerce | 10,046 | 10,046 | N/A |
| 2001/Nov | - | - | Commercial | Residential, Commerce | 4,852 | 16,031 | N/A |
| 2001/Nov | - | - | Commercial | N/A | 13,461 | 11,000 | N/A |
| 2001/Nov | - | - | Commercial | Residential, Commerce | 4,952 | 16,031 | N/A |
| 2001/Oct | 38,000,000 | 49,000,000 | Industrial | N/A | 29,191 | 13,850 | N/A |
| 2001/Oct | - | 346,980,000 | Residential | N/A | 416,766 | 541,796 | N/A |
| 2001/Oct | 4,350,000 | 4,650,000 | Industrial | Warehouse | 13,955 | 20,095 | N/A |
| 2001/Oct | 19,000,000 | 19,000,000 | Commercial | Residential, Commerce | 14,685 | 27,902 | N/A |
| 2001/Oct | 5,400,000 | 5,400,000 | Residential | N/A | 8,686 | 17,640 | N/A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2001/Oct | 2,800,000 | 2,800,000 | Industrial | N/A | 6,670 | 6,670 | N/A |
| 2001/Oct | 1,200,000 | 1,200,000 | Industrial | N/A | 5,000 | 7,500 | N/A |
| 2001/Oct | - | - | Commercial | N/A | 8,516 | 13,600 | N/A |
| 2001/Oct | - | 45,300,000 | Commercial | Residential, Commerce | 9,553 | 17,200 | N/A |
| 2001/Oct | 50,000,000 | 50,000,000 | Commercial | Residential, Commerce | 24,194 | 48,387 | N/A |
| 2001/Sep | 20,800,000 | 20,800,000 | Commercial | Residential, Commerce | 15,786 | 23,680 | N/A |
| 2001/Sep | - | - | Commercial | N/A | 11,758 | 57,000 | N/A |
| 2001/Sep | - | - | Commercial | N/A | 44,203 | 150,500 | N/A |
| 2001/Aug | 31,000,000 | 31,000,000 | Commercial | Residential, Commerce | 33,946 | 51,530 | N/A |
| 2001/Aug | 2,060,000 | 2,561,000 | Industrial | N/A | 10,478 | 15,717 | N/A |
| 2001/Aug | 1,450,000 | - | Industrial | N/A | 5,000 | 7,000 | N/A |
| 2001/Jul | - | 405,999,020 | Commercial | Residential, Commerce | 268,484 | 214,800 | N/A |
| 2001/Jul | 2,800,000 | 2,800,000 | Industrial | N/A | 6,667 | 9,334 | N/A |
| 2001/May | - | - | Commercial | Residential, Commerce | 9,553 | 17,200 | N/A |
| 2001/May | - | - | Commercial | Residential, Commerce | 50,920 | 81,472 | N/A |
| 2001/Mar | - | 28,168,667 | Residential | N/A | 9,063 | 18,100 | N/A |

Table 3 Shenzhen Land Auction Record