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# The Global Financial Crisis and Housing

## A New Policy Paradigm



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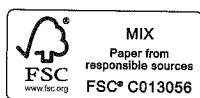
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## 8. Construction financing in Taiwan: current state and policy regime

**Chin-Oh Chang and Ming-Chi Chen**

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### 1. INTRODUCTION

Many literatures (for example, Jin and Zeng, 2004; Goodhart and Hofmann, 2008) have suggested that the financial environment and policy both have enormous influence on the real estate market. From the perspective of market demand, interest rates affect the purchasing power of home buyers. From the viewpoint of market supply, interest rates affect the investment and operation of construction businesses (Blackley, 1999; Berger-Thomson and Ellis, 2004). Governments typically use interest rates or credit control to regulate the boom or bust of the real estate market. However, many countries around the world are currently in environments of low interest rates under policies of quantitative easing, whereby borrowers have easy access to funds. This could lead to over investment and cause prices to rise sharply in the real estate market. One of the major causes of the U.S. subprime mortgage was the over investment in real estate, which caused housing prices to surge upward. When economic growth abated and the flow of funds began to reverse, housing prices declined and borrowers were unable to repay their mortgages, resulting in a crisis in the financial industry.

Literatures have argued that the inadequately applied monetary policy of the U.S. is responsible for this crisis. To stabilize the financial environment, governments must consider changes in the real estate market when formulating monetary policy. Taiwan has long been in an environment of an easing monetary policy. People tend to ignore market risk, credit risk, or macroeconomic risk. However, the Taiwanese real estate market has been expanding from 2004 (Chang, 2010), and the chance that the market may begin to shrink is increasing. The government needs to consider the possible consequences of a shift in economic cycle.

The usual channel for construction businesses to obtain financing in Taiwan is to directly apply to banks for construction finance. However, because the financial institutions are relatively conservative in the early

years, Taiwanese construction businesses usually end up having to raise funds on their own. Project financing operation and a special financing method called the pre-sale system, which still prevails in the Taipei area, successfully helped the development of the housing market in Taiwan. However, banks were still most critical to the access to construction funds. Because of great fluctuations observed in the real estate market, the construction businesses are in an environment of instability. During this period of economic downturn, many construction businesses may close down and have a negative influence on bank operations. Therefore, the government must examine development in the construction industry with greater scrutiny.

Since 2004, the real estate market in Taiwan has regained its energy and housing prices have again increased dramatically, especially in the Taipei area. This upward trend has continued through 2011. This upward trend was the longest in many years and has caused heavy burdens on ordinary home buyers.<sup>1</sup> Furthermore, this trend may continue into the near future. According to the national population census of 2010, the percentage of vacant houses (vacancy rate) had a high of 20 percent, a total of about 1,560,000 vacant homes. This indicated that a huge amount of capital is currently invested in vacant real estate. This idle capital might come from mortgage investment, the savings of rich households, or an inflow of international capital. When interest rates increase or other higher-return investment instruments exist, this capital would eventually flow outward. As a result, many vacant homes were released, causing housing prices to decline. After continuously increasing for 7 years, housing prices now had an increasing probability of falling. For the construction industry, operations risk had reached its threshold.

The construction industry is considered to be the engine of Taiwanese industry and has significantly contributed to housing development in Taiwan. However, the Taiwanese construction industry arose in a different environment than is found in other countries. The first unique characteristic of this environment is that the Taiwanese construction industry was developed under the auspices of a conservative financial system. Given these conditions, construction firms experienced great difficulty in obtaining funding from financial institutions by relying strictly on their own creditworthiness; thus, project financing operations involving preferred collateral and informal measures of acquiring capital, such as the pre-sale system, were essential for the development of the Taiwanese construction industry. Despite the restrictive financial circumstances, construction businesses in Taiwan have provided 95 percent of the housing supply in the market. Public housing provided by the government has had no major influence on the market supply. Thus, despite difficult circumstances, the

evolution and maturation of the Taiwanese construction industry are an intriguing topic with ramifications that have impacted virtually all Taiwanese residents.

In addition, the Taiwanese government lacked a specific housing policy until the Housing Act was finally enacted in 2011. Compared to other governments, the Taiwanese government has intervened relatively little in the housing market. The government put the greatest emphasis on economic development. As a result the public housing department was ignored and the housing development was led by the private sector. On several occasions, the government failed to take any measure to stabilize housing prices, until the prices were heightened to a level that caused public indignation. By then, the construction industry was also already over-invested. When observing the changes in each housing business cycle, we found it obvious that housing prices increased in the short term and then contracted slightly over the long term, indicating a short period of expansion and a long period of contraction. Whether the construction industry would face many years of difficult operations because of an oversupply becomes an issue to be addressed. With this in mind, this study analyzed the development of the Taiwanese construction industry and the influence of the financial environment and government policy on this industry.

This chapter seeks to analyze the current conditions and policy regime of construction financing in Taiwan. Following a review of the literature, we first describe the development of the construction industry. Next, we address the focus of this study, namely, the analysis and discussion of the influence of financing and government policy on the development of the Taiwanese construction industry. Finally, we draw our conclusions and implications.

## 2. LITERATURE REVIEW

Building permits and housing prices show a cyclical behavior in Taiwan, which implies that underbuilding and overbuilding occur continually in the housing market. McNulty (1995) used economic base theory to evaluate the causes of overbuilding and found that construction decisions depended on the strength of the local economy. Because basic activity is cyclical, a significant lag in the multiplier process can result in overbuilding, which is also caused by false signals of imminent growth in the local economy perceived by builders, developers, and lenders at the time a project was conceived. Tan (1987) considered the decision of builders as crucial to a supply-side explanation. In essence, individual rational-

ity creates group irrationality. Hence, overbuilding is the result of group irrationality. DeCoster and Strange (2011), however, focused on rational overbuilding, wherein developers make decisions under uncertainty. They showed that two types of herding, statistical and reputation-based, can lead developers to overbuild. Statistical herding arises because developers learn from each other's decisions. If initial developers obtain inaccurate signals that the market is strong, it can set off an information cascade wherein later developers choose to ignore the signals, which leads to overbuilding. Reputational herding arises when developers want to frustrate bank attempts to discern their true quality or because they are afraid the bank will draw incorrect inferences on their quality, leading them to ignore their signals and overbuild in particular markets. For Taiwan, Hsieh (2005) studied an unprecedented boom in Taiwanese residential unit production, and described it as a supply side phenomenon. Hsieh indicated that builders' construction investments vary with business profits and future expectations.

Many studies have addressed the housing supply and the boom and bust cycle in the construction industry. Construction costs are fundamental costs of suppliers building the new housing. Somerville (1999) stated that higher construction costs reduced residential construction. Mayer and Somerville (1996) observed a lagged effect of construction costs in housing starts. They also described a supply function for new housing that is consistent with land development (Mayer and Somerville, 2000). Saiz (2010) indicated that land constrained by geography was a key factor in contemporaneous urban development. Interest rates are also a significant variable that affects construction investment. In earlier studies, Muth (1960), Follain (1979), Schwab (1983), and Topel and Rosen (1988) showed that nominal and real interest rates had a strong influence on construction investment. Recent literature by Agnello and Schuknecht (2011) further suggested that interest rates had different effects during different times, and they have significantly influenced the probability of booms and busts. The government usually uses interest rates or other financial instruments to regulate the housing market. Tse and Raftery (2001) examined the extent to which fluctuations in the money supply led to fluctuations in real construction in Hong Kong. They indicated a specific and strong causal relationship between construction activity and the broadly defined money supply. Their empirical results also suggested that construction activity flows and construction loans were cointegrated, but their lead-lag relationship could not be established.

### 3. DEVELOPMENT AND OPERATION OF THE CONSTRUCTION INDUSTRY

According to the definition provided by the Ministry of the Interior, the construction industry includes construction companies, building development companies, and building investment businesses which provide capital for the development of land that is designed, planned, developed, and sold for profit upon completion. The construction industry is considered the leading industry in Taiwan because it involves various related industries and receives extensive attention from the government, businesses, and general investors. Under this definition, the construction industry in Taiwan, as discussed in this study, refers to industries known as construction companies or construction businesses. Below is a brief description of the development and operation of the construction industry in Taiwan.

#### **3.1 The Historical Development of the Construction Industry**

According to Chang (1996) and Huang (2003), we can divide the development of the construction industry in Taiwan into several stages:

##### **3.1.1 The period of military dependent villages (from the recovery of Taiwan until 1961)**

After the recovery of Taiwan from Japan, housing demand increased dramatically due to economic development, the immigration of a large population which came to Taiwan with the nationalist government, and reconstruction works after the war. To help these immigrant soldiers and their dependents settle down, the government constructed numerous military dependent villages and began paying attention to housing construction, and hence attracted participation from the private sector. There were increasing numbers of businesses which joined in the construction activities and contributed to the development of the construction industry. This was called the period of military dependent villages.

##### **3.1.2 The apartment period (1962–71)**

As national income increased following economic development, demand for residential quality increased accordingly. To cater to greater demand for comfort, standards for apartment construction and residential facilities were also increasing. Various professional investors appeared who operated as corporations to plan land and construct all types of housing. This was also called the growth period of the construction industry in Taiwan.

### **3.1.3 The start of the high-rise housing period (1972–81)**

In this period, the prevailing pre-sale system changed the trading pattern of the entire newly constructed housing market. The global economic recession and the oil crisis resulted in global inflation. Expecting the prices to rise, people rushed into the housing market with the belief that this market was most able to retain investment value. As a result, the real estate prices surged dramatically upward. To stabilize the domestic situation, the government introduced the program for the stabilization of the present economy. Influenced by the government suppression and by economic factors, real estate in Taiwan entered into the first wave of a recession cycle. In 1974, the government lifted the ban on construction and opened up high-rise housing in downtown areas. Residential buildings of seven to ten stories and higher began to appear, and buildings gradually extended into suburban areas.

### **3.1.4 The height of the high-rise housing period (1982–91)**

After two upward trends in both housing and land prices, low-rise buildings were no longer economically feasible given the increased cost of land. Under such circumstances, high-rise residential buildings sprang up and became common in the market.

### **3.1.5 The period of diversified housing products (1992–2003)**

From the end of 1991, 15 new private banks opened in succession, with their lending operations focused on mortgage and construction financing. Moreover, construction related policies such as plot ratios were implemented beginning in 1992. As a result, construction businesses rushed to apply for licenses and promoted numerous housing projects, which led to later problems of oversupply. The sales rate of pre-sale housing gradually declined, bringing the construction industry into a period of stagnation. To overcome this difficult situation, businesses diversified the design of housing products and constructed not only residential buildings, but also recreational housing, housing for seniors, shopping malls, office buildings, hi-tech housing, luxury housing, cross maisonette housing, composite sandwich housing, and more.

### **3.1.6 The period of polarized housing products (2004–11)**

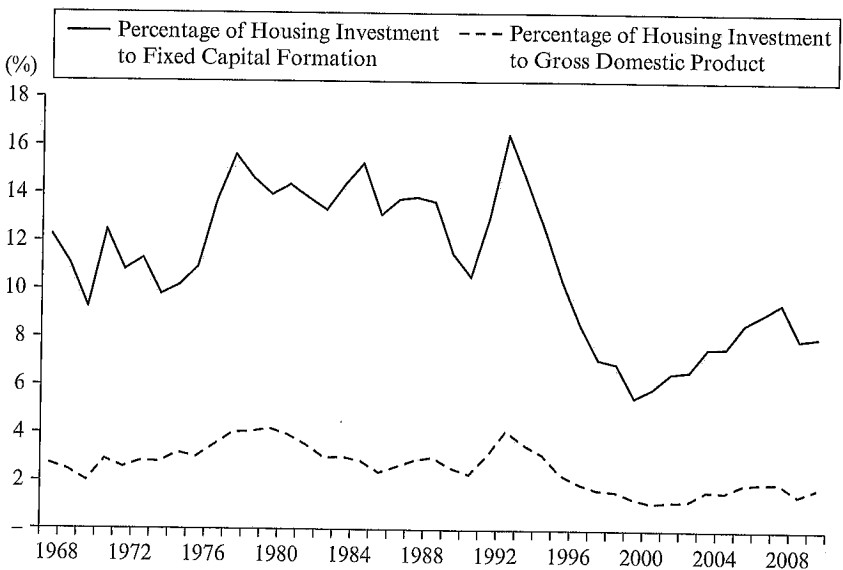
After more than a decade of recession in the real estate market, the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2003 bottomed out housing prices. With a background of low interest rates and an inflow of foreign and Chinese capital, the housing market regained its upward momentum in 2004. Because Taiwan was becoming an M-shaped society, construction companies preferred constructing studios and luxurious



mansions with large interior spaces for higher profits and sales rates. During this period, a large quantity of expensive and luxurious mansions emerged in Taiwan. Compared with housing prices in other cities, those in Taipei all increased to a level of luxury, and were more than five times the housing prices in the second largest city of Kaohsiung. Most peculiarly, the prices of residential real estate were higher than those of commercial real estate in Taipei areas.

### 3.2 Housing Investment and the Construction Industry

Figure 8.1 presents Taiwan's housing investment and fixed capital formation from 1968 to 2010. The ratio of housing investment to GDP in Taiwan was not stable during these years, varying from 1.15 to 4.4 percent. However, this ratio underwent an obvious decrease after 1997, dropping below 2 percent. This ratio is generally lower in Taiwan than it is in other developed countries; although housing investment in Taiwan appears to be relatively low in magnitude, the construction sector is commonly regarded as a leading sector in the Taiwanese economy. Su, Lin and Wang (2003)

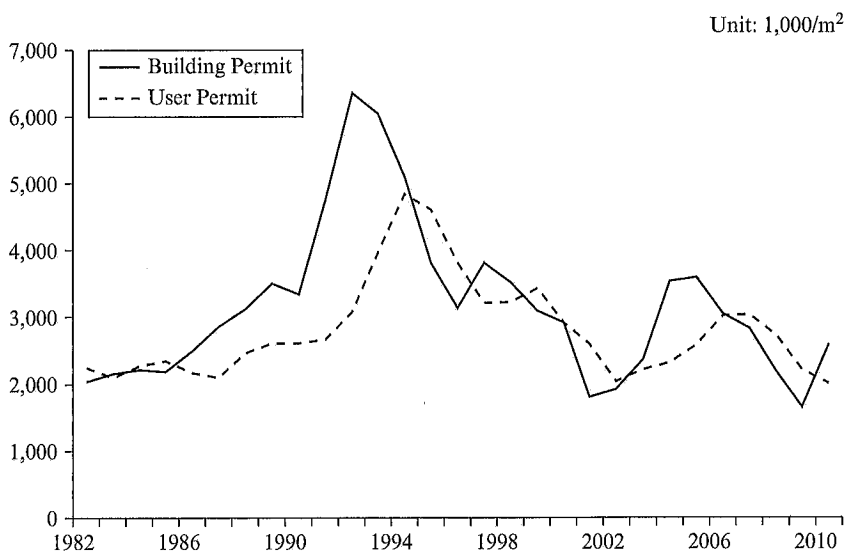


Source: Urban and Regional Development Statistics, Council for Economic Planning and Development Executive Yuan, R.O.C. (Taiwan).

Figure 8.1 *Percentage of housing investment to fixed capital formation and gross domestic product*

suggest that the construction industry in Taiwan has both “pull” and “push” effects on the national economy, which is why the Taiwanese government considers the construction industry to be extremely important. Those researchers utilize input-output analysis for the Taiwanese construction industry from 1964 to 1999 and indicate that, as the Taiwanese economy matures, Taiwan’s share of construction in GNP versus GNP per capita demonstrates a two-stage inverted U-shaped relationship.

In the Taiwanese housing market, most of the housing has been built by the construction industry, and public housing supplied by the government comprises less than 5 percent of total housing. Figure 8.2 illustrates the cumulative area of construction licenses issued annually over the course of the past thirty years, which demonstrates changes in the housing supply cycle in Taiwan. The production period between the start and completion of a new building is generally approximately two to three years. Overbuilding typically occurs in the Taiwanese housing market in response to strong short-term housing demand, which causes cyclical construction development and housing price fluctuations. Barras and Ferguson (1985) identified a short building cycle of three to four years in the UK for the



Sources: The Statistical Yearbook of Construction and Planning Agency, Ministry of Interior, Executive Yuan, R.O.C. (Taiwan).

Figure 8.2 Total floor areas of building permits and user permits in Taiwan

period following World War II. Chen, Kawaguchi and Patel (2004) examined four Asian countries and suggested three- to four-year housing price cycles caused by construction lag times. The differences between high and low levels of supply in Figure 8.2 appear to be quite large, which indicates the instability of the Taiwanese construction industry. However, the number of building permits issued generally remains between 1.5 million and 3.5 million each year, except for a distinct peak around 1992. This peak occurred because the Taiwanese government implemented floor area ratio control for the entirety of Taiwan in 1992; thus, construction companies rushed to apply for permits before this regulation went into effect. Hsieh (2005) suggests that the resulting construction boom caused subsequent housing price slumps and high vacancy rates.

Table 8.1 presents descriptive statistics for permits, housing prices and several related macroeconomic variables, such as the number of construction loans, interest rate (basic lending rate), inflation rate, stock price index and the building material and construction price index from 1973 to 2010.<sup>2</sup> We observe that the numbers of building and use permits issued grow at approximately 6 and 4 percent annually, respectively. The growth rate and standard deviations of building permits are higher than those of use permits. Construction loans demonstrate 20 percent annual increases, suggesting either that the construction industry has strong financing demand or that construction loans are favorable for banks. Real housing prices increase at approximately 6 percent annually, and the inflation rate is approximately 4 percent.

Table 8.2 presents the correlations of these variables in level and growth rate. The signs of correlation between these variables are mostly as expected. We observe a negative relationship between permits and housing prices but a positive correlation between construction loans and permits. Regarding temporal relationships, we observe from Figure 8.2 that the issuance of use permits appears to lag the issuance of construction permits by approximately one to two years. Peng, Chang and Lin (1998) indicate that the duration of the lag between these two metrics depends on market conditions and, specifically, that the lag between the issuance of building permits and the issuance of use permits is longer during market downturns. However, housing prices and permit issuance do not show any clear temporal relationship.

As mentioned previously, the financial environment during the development of the construction industry in Taiwan was highly conservative. However, shortages in the housing supply were rarely observed, indicating that the construction industry met housing demand. Table 8.3 presents the results of seven population censuses. The census data indicate that, since 1966, no shortage in housing supply has been reported in Taiwan, except

Table 8.1 Descriptive statistics for the selected variables

	Building Permit	User Permit	Housing Prices	Construction Loan	Consumer Price Index	Building Material and Construction Price Index	Stock Price Index
Level							
Mean	4,399,066	4,092,388	204,500	570,486	76	232	4,140
Std.	1,808,103	1,501,388	107,751	329,222	23	160	3,137
Max.	8,515,392	6,933,154	434,011	1,273,635	105	723	9,624
Min.	1,133,705	1,590,541	62,128	54,876	23	55	193
Growth Rate							
Mean %	6.06	4.46	6.17	20.53	4.42	17.59	16.33
Std. %	43.48	32.23	15.16	41.52	8.39	52.25	44.09
Max. %	153.90	156.10	57.12	131.55	47.47	137.25	125.18
Min. %	-55.60	-27.57	-9.80	-17.85	-0.87	-62.69	-61.03

Sources: Housing prices were obtained from Cathay Real Estate Company. Household number, household income, building material and construction price index and consumer price index were obtained from the Directorate General of Budget, Accounting and Statistics. Building and user permits were obtained from the Construction and Planning Agency. House-purchase loan, and construction loans and stock price index were obtained from the Financial Statistics Monthly.

Table 8.2 Correlation matrices for the selected variables

	Building Permit	User Permit	Housing Prices	Construction Loan	Consumer Price Index	Building Material and Construction Price Index	Stock Price Index	Interest Rate
Building Permit	1	0.571	-0.282	0.003	-0.393	0.081	-0.315	0.342
User Permit	0.454	1	-0.301	0.490	-0.275	-0.148	-0.354	0.227
Housing Prices	0.085	0.098	1	0.675	0.872	0.510	0.898	-0.713
Construction Loan	0.268	0.010	-0.058	1	0.858	-0.236	0.422	-0.718
Consumer Price Index	-0.123	0.084	-0.053	0.412	1	0.139	0.820	-0.847
Building Material and Construction Price Index	0.279	0.176	0.405	0.044	-0.146	1	0.667	-0.056
Stock Price Index	0.207	0.029	0.499	0.148	-0.336	0.776	1	-0.688
Interest Rate	-0.179	0.165	0.224	0.056	0.792	-0.093	-0.222	1

Note: Correlations for level are at upper right and correlations for growth rate are at lower left.

Table 8.3 Census statistics related to housing

	1966	1970	1975	1980	1990	2000	2010
Population	13,348,096	14,693,013	16,206,183	17,968,797	20,286,174	22,226,879	23,056,788
Household Number	2,272,161	2,625,682	3,071,101	3,733,522	4,943,029	6,481,584	7,959,088
Average Persons per Household	5.7	5.5	5.3	4.8	4.0	3.4	3.0
Home Ownership (%)	66.2	66.1	70.1	79.1	78.5	82.5	83.8
Housing Unit	2,292,191	2,623,265	3,06,8420	3,665,122	5,073,909	6,977,770	8,054,184
Household Number/ Housing Unit	1.01	1.00	1.00	0.98	1.03	1.08	1.01
Vacant House	21,928			479,839	674,317	1,228,798	1,561,275
Vacancy Rate (%)	1.0			13.1	13.3	17.65	19.4

Sources: Population and Household Census, Directorate-General of Budget, Accounting and Statistics, Executive Yuan, R.O.C. (Taiwan).

in 1980 (when there was a 2 percent shortage). In all other census years, the number of residential units was higher than the number of residents, indicating that the housing supply was sufficient. However, this sufficiency of supply does not imply that each household could own a home, although home ownership rates increased from 66.2 percent to 83.8 percent between 1966 and 2010. Housing vacancies were relatively frequent, particularly during the latter part of the time period examined. In particular, Table 8.3 indicates that the vacancy rate reached 13.1 percent in the 1980s and increased to 19.4 percent by 2010. This high vacancy rate reflects not only overbuilding by the construction industry but also that certain affluent households owned multiple residences at the same time. The high vacancy rate data revealed that many real estate resources in Taiwan were left unused and wasted. The oversupply of residential buildings and the underinvestment in infrastructure explain Taiwan's relatively low ratio of housing investment to GDP compared with other countries, along with significant numbers of vacant houses; in fact, the World Competitiveness Yearbook (IMD, Switzerland) indicates that Taiwan's infrastructure is consistently rated as falling far behind that of other advanced industrial countries.

### **3.3 Methods of Project Construction**

Several methods of project construction exist in Taiwan's construction industry. The first type is to purchase and develop the land on one's own, meaning that the constructor purchases land, completes construction and sells it independently. The second type is joint construction, meaning that the constructor provides funding, and the landlord provides the land to construct the residence jointly. After the construction is completed, the residence and the land or profits are distributed according to the ratio agreed upon. The third type is joint investment construction, meaning that more than two constructors exist. These constructors jointly construct the residence and pay the building costs and fees. As with joint construction, the residence and the land are distributed according to the agreed upon ratio after construction is complete. The last type is commissioned construction, in which a constructor is commissioned to construct the residence by a client who owns the land. The house is delivered to the client after the construction is completed.

### **3.4 Types of Construction Companies and Processes of Construction**

Construction companies in Taiwan can be divided into two broad categories based on firm size. In the first category, larger construction companies are typically established corporations listed in the stock market or sup-

ported by syndicates. The first construction company was listed in 1964. Not many construction companies were listed<sup>3</sup> in the Taiwanese stock market until 1995, however, when the Taiwanese government imposed increased restrictions on public offerings for construction companies. As of 2011, there were 43 companies listed in the "Building Material and Construction" industry of a total of 790 companies listed in the Taiwanese Stock Market Exchange. Among these 43 companies, 34 are construction companies. Table 8.4 shows the financial data for these construction companies over the past 26 years. These companies have generally recovered from the recent recession.

These large construction companies have integrated operations for tasks ranging from land acquisition and development planning to supervision of construction and sales. They also have their own technical departments, addressing civil engineering, plumbing, electrical engineering, decoration, and related operations. Moreover, these large construction companies typically have affiliated companies that can perform related work and share profits, and these affiliates can cooperate with each other regarding financial and operational tasks to minimize their tax burdens and increase profits.

In the second category, small and medium-sized construction companies account for the majority of the Taiwanese construction industry. There are no accurate data regarding the number of construction companies in Taiwan. However, according to the Census of Industry, Commerce and Service, there were 4,291 real estate developers in 2001, and this number increased to 7,622 in 2006. The total number of employees working for real estate developers was 31,818 in 2001 and 32,072 in 2006. However, this number equates to only 7.4 and 4.2 employees per real estate development company in 2001 and 2006, respectively, suggesting that Taiwan's construction companies are generally very small. Because of the cyclical behavior in the Taiwanese real estate market, the numbers of small and medium-sized construction companies fluctuate in accordance with market conditions. In addition, a distinctive characteristic of Taiwan's construction industry is that it includes many one-project companies. It has been estimated that more than 60 percent of construction companies in Taiwan close after developing only one project.

The typical process of construction investment in Taiwan includes market analysis, raising funds, land acquisition, project planning, construction and sales. The market analysis is usually conducted by a sales agent or consultancy company, and investment feasibility is analyzed by the construction company based on its own financial conditions and access to the land. The funds to be invested in the construction come partly from the equity fund of the construction company, and partly from loans made by financial



Table 8.4 Financial data of listed construction companies

Year	Number of Companies	Sale Revenue	Net Profit Before Tax	Total Asset (A)	Total Net Worth (B)	B/A(%)	Capital
1986	13	13,425,208	1,319,900	21,180,906	78,260	39.15	5,527,956
1987	18	16,914,205	2,528,952	28,354,543	102,543	30.23	6,489,988
1988	24	17,548,450	3,118,160	44,911,358	141,410	33.03	8,921,848
1989	25	23,328,110	3,544,970	70,199,157	283,579	37.25	15,340,658
1990	27	31,841,910	6,305,370	99,403,096	392,409	43.67	20,293,538
1991	29	42,549,298	6,774,184	123,440,471	507,482	48.42	28,316,688
1992	33	48,852,130	7,184,746	143,495,802	594,606	39.51	36,275,605
1993	33	54,504,298	7,364,592	166,522,063	689,887	35.80	44,285,044
1994	33	63,095,170	11,176,581	194,258,446	828,742	39.01	53,082,346
1995	33	65,773,809	4,396,387	206,385,120	967,655	44.02	68,582,999
1996	33	67,604,364	6,932,305	230,515,576	1,079,388	46.85	78,121,010
1997	34	82,814,197	13,426,907	301,648,842	1,533,498	52.71	97,093,418
1998	34	86,757,087	-1,887,484	376,227,544	1,618,176	46.24	118,197,134
1999	34	86,701,603	-2,000,457	360,945,467	1,572,590	45.39	121,456,477
2000	34	85,124,350	-2,446,691	356,886,438	1,508,188	43.81	126,765,524

2001	34	71,063,424	-7,681,877	323,033,616	1,379,624	45.28	122,520,888
2002	34	63,903,119	-18,774,823	275,457,825	1,167,769	46.39	117,544,058
2003	34	58,495,366	-1,511,715	256,118,929	1,166,912	44.75	113,639,851
2004	34	70,548,977	3,404,281	285,719,656	1,220,779	41.87	107,955,111
2005	34	76,387,554	6,209,820	297,343,433	1,257,237	41.63	108,843,389
2006	34	114,055,744	22,843,121	340,004,432	1,536,068	44.56	110,180,739
2007	34	117,244,297	25,716,767	376,679,298	1,697,820	45.99	117,453,229
2008	34	103,427,001	15,723,171	406,167,854	1,693,557	44.01	124,313,957
2009	34	123,680,750	30,267,633	440,144,990	2,005,758	50.67	130,964,172
2010	34	139,469,491	40,870,425	486,141,539	2,274,162	52.14	130,574,806
2011	34	136,359,226	43,296,762	591,132,623	2,614,138	46.59	133,807,332

Source: Taiwan Stock Exchange.

institutions. Land can be acquired through numerous methods, including purchasing it from or reaching a mutual agreement with the landlord, or by acquiring it through the government or through judicial foreclosure. In a real estate project, the party investing in construction typically is responsible for project initiation, decision-making, and project implementation. The planning is mostly outsourced to other related businesses. For example, the sales plan is drafted by the sales agent, and the construction plan is drawn up by the architect or the engineering consultancy company. The construction process includes design, contracting, construction, and construction management. Design is mainly implemented by the architect, whereas contracting is done by the construction investors themselves. The construction is done by various levels of construction companies, professional engineering companies, and contractors. The later sales process includes marketing, sales, contract signing, and transfer of ownership. The marketing and sale of real estate is mostly delegated to professional sales agencies.

## 4. FINANCING OF THE CONSTRUCTION INDUSTRY

### 4.1 Historical Development

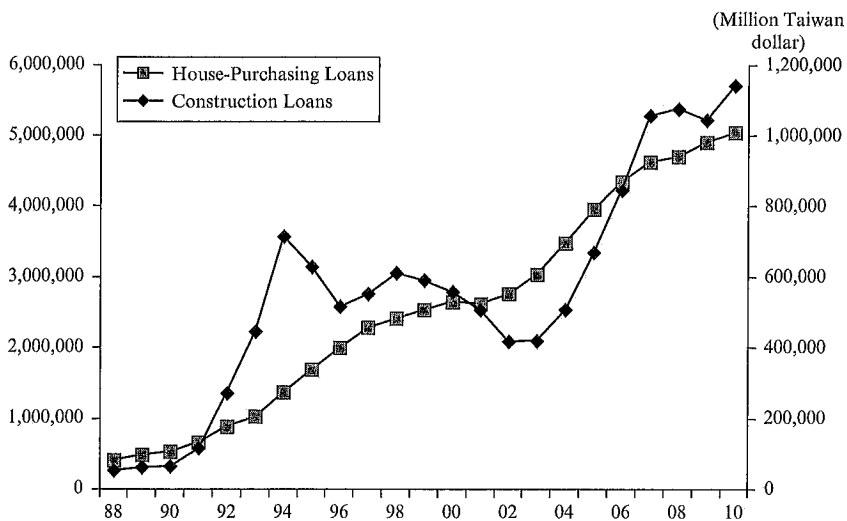
Construction financing was quite conservative prior to 1974 (the initial stage), and followed the procedure for ordinary corporate loans. From 1974 to 1976, the global energy crisis drove up real estate prices and hence commodity prices. The government implemented the program for the stabilization of the present economy and suspended pledge and secured loans to housing construction projects. This measure limited the sources of financing, so the construction industry was not able to obtain enough financing from lending institutions. As a result, the construction industry tended to raise its development capital by means of pre-sales. Therefore, the pre-sale system prevailed and became a characteristic of the real estate market in Taiwan. Housing prices later stabilized. To stimulate the real estate market and to rectify trading orders in the market, the government issued the "Essential Points for Improving the Investment Environment" in 1977 and restored construction finance.

When international oil prices rose again and the second oil crisis occurred, market prosperity reached another peak between 1979 and 1980. Thus, the government announced a restriction on the construction of vacant lands and traced the sources of capital that were invested in purchasing more than three residences, resulting in the bankruptcy of many construction companies. In 1981, the "Measures to Mitigate Current

Difficulties in Industry and Commerce" were issued, giving the Land Bank of Taiwan the authority to make special construction loans. In 1985, the restraints on construction financing in lending institutions were gradually eased. During the housing bull market between 1986 and 1989, financial institutions increased credit to the construction industry under the pressures of a prosperous real estate market and large amounts of savings. Construction finances expanded dramatically, resulting in soaring housing prices. Therefore, the government implemented selective credit control measures in 1990 to limit the maximum quota and terms of construction financing, and also to suspend unsecured loans for the purchase of land and loans for vacant land without an objective for use. After the 1990 real estate boom subsided, the central bank announced its termination of selective credit control and widely eased up construction lending. The volume of construction loans increased greatly in response. Under the pressure of floor area ratio control since 1992 and reforms on land taxes, construction companies launched numerous projects. In addition, the establishment of many private banks also helped to increase construction financing (Wong and Chang, 1993). Nevertheless, the real estate market had plunged into a long term bear market since 1990. Therefore, the government proposed a succession of nine times of mortgage interest rate subsidy policies after 1999. Though these policies subsidized mortgages for home buyers in the purchase of primary residences, subsidizing mortgage interest seems to be less important, because Taiwan had been in an environment of low interest rates for a long time. The purpose of the government was to avoid the closing down of construction companies in the long term, which could cause a depression and affect the financial order. Figure 8.3 shows the statistics of construction loans and house-purchase loans over the years. We discovered an upward trend and cyclical behavior in the balance of construction loans, but house-purchase loans increase steadily.

#### **4.2 Financing Methods of the Construction Industry**

Essentially, the financing measures of the construction industry can be divided into three categories: corporate financing, project financing and real estate securitization, as shown in Figure 8.4. As stated in the previous section, prior to 1970, corporate loans were the main sources of capital for construction companies. In addition, construction companies can enter the securities markets if they possess more than 300 million Taiwan dollar (TWD) in capital, or they can enter the over-the-counter market with at least 50 million TWD in capital. Real estate securitization is another financing method that opens up new sources of capital through public market listings; however, the current Real Estate Securitization Act still



Note: RHS: construction loans; LHS: house purchasing loans.

Source: Financial Statistics Monthly, Central Bank of the Republic of China (Taiwan).

Figure 8.3 Construction loans and house-purchasing loans in Taiwan

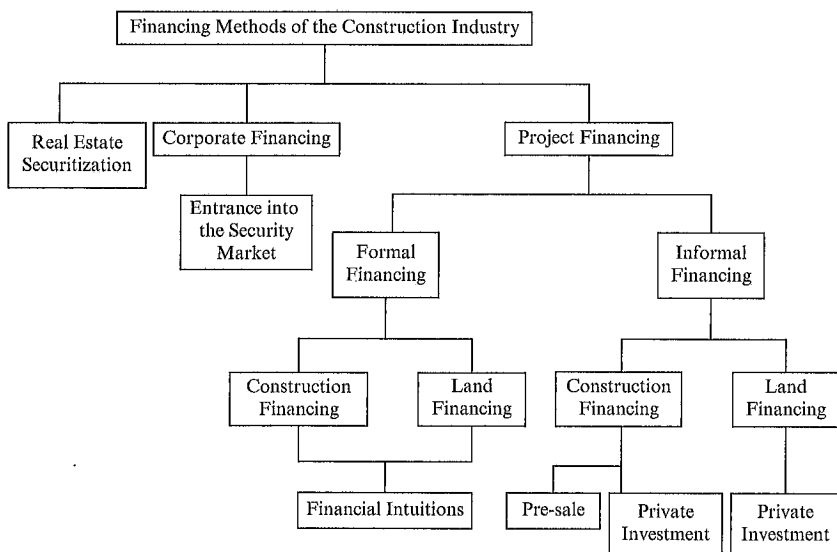


Figure 8.4 Financing methods of the construction industry

incorporates limitations for developers' fundraising activities. Because of the strong demand for capital to satisfy high housing demands and the preferences of financial institutions, project financing became a more dominant funding source after 1970. Project financing, which includes construction and land financing, remains the main method of financing for construction companies. One project financing option is "formal financing," which refers to loans from financial institutions. The other project financing option is "informal financing," which refers to funds raised by the construction industry via private investment and income from pre-sales.

Financial institutions make formal loans to the construction industry that comprises a portion of those institutions' credit business. These are mainly circulating loans to the development projects of the construction industry and represent a type of project financing. These formal loans can be categorized as either land or construction financing.

Land financing refers to loans for the purchase of land. Because this is a type of secured loan, the loan-to-value ratio is higher than that of a construction loan. Depending on market condition, up to 90 percent of value of the collateral can be borrowed in land financing. Banks are more willing to approve land financing because of its secure nature. As a result, some construction businesses reserve land for future development while the interest rates are still affordable. When housing prices are too high, the central bank usually asks banks to set restrictions on loans to the construction industry (construction must begin within a certain period after the loan is granted, or the bank would increase the interest rates or even recall the loan) to avoid speculative behavior in the construction industry.

Construction financing refers to loans for the construction of residences, which are short term loans which last from one to three years, or no longer than five years. The loan-to-value ratio and the amount of the loan depend on the marketing of projects, the credit of the investor, collateral, etc. Generally, the total limit for construction financing (including secured and non-secured loans) is 60 percent of the estimated construction value. In addition, unlike other loans which are paid in a single payment upon approval, construction financing is paid in installments according to the progress of the construction. This is because financial institutions hope to reduce the financing risk and ensure that the borrower utilizes the loan for construction.

Informal financing refers to funds privately raised by the constructor or capital income from a pre-sale system used as the financing capital of the project. The reason for the prevalence of the pre-sale market in Taiwan is because of an insufficient supply of construction funding from financial institutions. To continue construction to complete the project, the construction industry had to rely on the pre-sale system to acquire capital.

In the pre-sale system, the constructor could collect funds by pre-selling houses to serve as operating capital. This was a type of portfolio selling strategy of constructors (Chang and Ward, 1993) because they could distribute one third of the houses in each of the three stages, including pre-sale, construction, and completion. Home buyers could buy their houses by means of installments and mortgages. This could increase their purchasing ability. The pre-sale system allows constructors to be aware of selling conditions, and for home buyers to accrue a sense of participation during the construction process.

The process of the pre-sale system is shown in Figure 8.5.

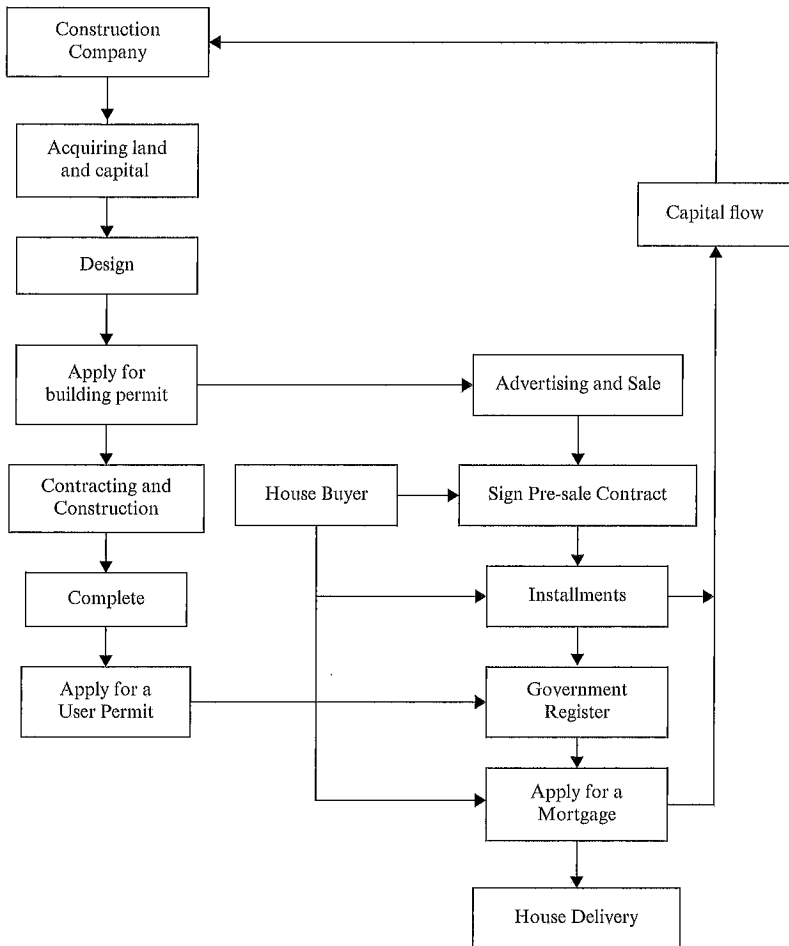


Figure 8.5 *The process of the pre-sale system*

### **4.3 Major Default Risks in the Construction Industry**

According to Taiwanese banking law, the upper limit of the ratio of construction and land loans to total loans is 30 percent for financial institutions, a requirement that limits the credit risk of financial institutions. Over the four-year period beginning in 2007, this ratio has been approximately 21 percent, which is below the upper bound established by banking regulations. The ratio of home purchase, construction and land loans to total loans of financial institutions was 34 percent in 2010. This ratio has increased significantly from its 20 percent value in 2004, presumably because of the rapid increase in housing prices that has occurred during the intervening time. However, low delinquency ratios of only 0.47 percent for home purchase loans and 0.33 percent for construction and land loans were observed in 2010.

The construction industry in Taiwan is highly dependent on financing from financial institutions. The land and construction financings are also the major credit operations of banks. Banks should consider the problems and risks related to providing construction financing. Difficulties encountered by the construction industry have direct influences on the safety of credited assets of the bank, and whether the capital can be recovered successfully. The major risks related to construction financing made by banks in Taiwan include:

- The financial ability of the constructor is unsustainable due to unfavorable sales rates.
- Falling real estate prices which result in problems of insufficient collateral.
- The operations of the constructor expanded too rapidly and triggered a credit crisis.
- The capital flows to affiliated businesses or other purposes, affecting the implementation of construction projects.
- Risks related to disputes occur upon delivery of the houses.

## **5. REGULATIONS AND POLICIES REGARDING THE CONSTRUCTION INDUSTRY**

The legislative environment of the construction industry is based on the regulations of the Building Act and the relevant regulations in the Civil Code and Land Act. These regulations are modified periodically to adjust to changes in the economic environment and policy implementation. Because of various changes in the market and demands from



industrial developers, numerous related regulations have been recently added or modified to promote the healthier development of the construction industry. For example, the Consumer Protection Law, enacted in 1994, brought positive influences and improvement to housing transactions; the 1995 Condominium Management Ordinance became the basic source of laws regarding community management; and the 1999 Real Estate Broking Management Act and the 2000 Real Estate Appraiser Act both improved the management and safety of real estate transactions. In addition, the Urban Renewal Act, enacted in 1998, became the source of regulations related to urban renewal, including those for the establishment of urban renewal trust companies and the securitization of real estate. The Real Estate Brokering Management Act was enacted in 1999 as the basis for the management of real estate brokerages and sales agents. Furthermore, the 2003 Construction Industry Act established a complete system for the manufacturing aspect of the construction industry.

The regulations related to land use and construction were gradually established as the real estate market developed. Volatility in the macroeconomic environment and the real estate market has led the government to implement various policies to stabilize the market and to adjust the development of the construction industry. Specific policy measures regarding the industry can be summarized as follows.

### **5.1 Policy Measures Restricting Over-investment by the Construction Industry**

The government has taken direct measures to restrict overinvestment by the industry during times of high inflation or booms in the real estate market. These measures include the following:

- Imposing a time limit for construction on vacant lands
- Executing selective credit control, such as suspending unsecured loans for the purchase of lands, limiting the amount of construction financing to certain multiples of the publicly appraised value of the land, limiting loan term periods, and restricting loans for construction working capital to below a certain percentage of the building cost;
- Controlling the prices of construction materials;
- Restricting the construction of tall buildings;
- Increasing interest rates on loans;
- Reducing the loan-to-value ratio; and
- Constructing public housing.

Indirect measures were also adopted to restrict demand for real estate investment, such as tracing the source of funds for the purchase of homes, limiting the loan-to-value ratio, and levying a luxury tax (Selected Goods and Services Tax Act). However, the Taiwanese government has typically failed to take any policy measures until major changes in market prosperity or serious public indignation have occurred. Essentially, the Taiwanese government has intervened less in the market than have governments in neighboring countries, such as Hong Kong, Singapore, Korea, and China.

## **5.2 Policy Measures to Prevent Construction Businesses from Closing**

To restrict the increase in housing prices, the government has usually taken certain measures that have caused difficulties for the construction industry. After governmental intervention in both the second and third waves of soaring housing prices mentioned in section 3, thousands of construction businesses closed. Therefore, after implementing these measures, the government typically removed controls on credit and took other measures, such as the passage of the "Tax and Financial Measures Related to the Healthy Development of the Construction Industry". The government may also take certain indirect actions to stimulate the demand for housing to help the construction industry. These measures include releasing control over farmland, suspending the construction of public housing, subsidizing mortgage loans, allowing foreign and even Chinese investment in Taiwanese real estate, cutting the land value increment tax, and extending the applicable range of preferential rates for this tax.

## **6. CONCLUDING REMARKS AND IMPLICATIONS**

Over the past four decades, the housing market in Taiwan has demonstrated a long-term upward trend and cyclical fluctuation. Large quantities of resources and capital were attracted into the construction industry, and this industry became the engine of economic development in Taiwan. However, the construction industry was developed under a conservative financial system. Project financing and informal measures, such as the pre-sale system, were utilized to acquire sufficient funds to complete development. When housing prices soared, the government rarely took action to control housing prices because most political parties and elected representatives had support from construction companies. After housing prices soared excessively, the government then was forced to employ certain measures to suppress prices. These measures typically affected

construction companies that were overinvested and caused them to go bankrupt. However, the government duly provided assistance to avoid impacting the job market or increasing the number of non-performing loans issued by financial institutions. Currently, housing prices have been on the rise for seven consecutive years. The chance that housing prices will enter into a period of contraction is increasing. If this contraction occurs, it will be another challenge to the operation of construction businesses and to the government.

Taiwan's construction development process is generally similar to that of other countries, but there are certain different and unique characteristics. Taiwan's experience can suggest implications for other countries, and Taiwan can also learn from other countries' experiences.

### **6.1 Taiwan's Pre-sale Experience Can Provide Reference for Other Countries**

The most special characteristic for Taiwanese construction financing is the pre-sale system. Other Asian countries such as Korea, and the U.S., also use forms of pre-sales. Taiwan's system, which started almost half a century ago, helps to solve the problem of lack of capital for the construction industry and accelerate Taiwanese housing development without a housing shortage problem. Although the pre-sale system caused some problems in the early years, Taiwan has developed an escort scheme and other regulations for pre-selling to avoid these problems.

### **6.2 Experiences of Other Countries: Practices to Adopt or Avoid**

Taiwan can learn from the experiences of other countries and thereby improve the development of its construction industry. For example, in Taiwan, collateral is important when construction companies borrow money from banks. However, a U.S. developer can seek a mini-perm loan or refinance the construction loan with a long maturity of 10 years and a lower interest rate, whereas Taiwanese construction companies are not likely to refinance their loans through banks. In addition, the LTV ratios for Taiwanese construction companies are typically lower than the LTV ratios for U.S. construction firms. Taiwan can learn from the U.S. practice of developing "commitment schemes to the lender" to increase the LTV ratio. Moreover, some U.S. banks establish high lending standards that Taiwanese banks would do well to adopt. In particular, Taiwanese financial institutions should improve their review process for construction financing, establish a credit evaluation system that addresses the construction industry, and refuse to approve loans based

on the relationship between the bank and the construction company. Korea's credit rating methods for construction companies or third-party guarantors are also good principles for Taiwan to emulate. However, given the experience of the U.S. financial crisis, Taiwan should avoid subprime mortgages or the development of overabundant derivatives. An overly liberalized financial system could produce a crisis; even in the U.S., the excesses of the finance system eventually upset the real estate market and the overall economy.

### **6.3 Tradeoffs Between Project Financing and Corporate Financing**

Project financing generally involves higher credit risk than corporate financing because project financing involves higher leverage ratios. In Taiwan, although project financing involves higher risk, it is the main financing method for Taiwanese housing development and has contributed significantly to that development without producing a housing shortage problem for the past forty years. By contrast, Korea suffers from housing shortage issues. Korea had relied on corporate financing but began to practice project financing after the year 2000. Project financing has therefore contributed to the rapid expansion of housing in Korea over the past ten years. However, project financing overheats the Korean real estate market and also exposes financial institutions to higher risk, as observed during the financial crisis in 2008. Project financing appears to be more effective for construction development, despite its inherently higher credit risk. Corporate financing may be a safer method when the real estate market is sluggish, but when the market is prosperous and risk is lower, project financing can be used to speed development. Thus, the choice between corporate and project financing entails a tradeoff between greater risk and faster development, and careful consideration should be used to determine the better option for a given economic situation.

## **NOTES**

1. According to the Housing Demand Survey (Institute for Physical Planning and Information, 2011), the Taipei housing price to household income ratio is 16.2 in the second quarter, 2011.
2. Certain variables are displayed over shorter time spans due to data limitations. In particular, the construction loan data begin in 1988, and the building materials and construction price index data begin in 1980.
3. Only six building material and construction companies were listed in the Taiwan stock market before 1995.

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