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Real Estate and the Asian Crisis

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This paper suggests that activities in the real estate markets in Southeast and East Asian economies were an important contributing force to the financial crises of 1997 in the Asian economies. The analysis relies upon unpublished data reported contemporaneously by financial institutions and market watchers to document the extent of the imbalances in the real property market that were evident to informed observers at the time of the financial collapse. The analysis argues that a series of reforms in the regulation of the property market and the treatment of real property loans by financial institutions are necessary to prevent the recurrence of the kind of speculative bubble that contributed to the financial crises in Asia. Given the recentness of the crisis, the nature of the data, and the absence of definitive statistical sources, the results are tentative, but they are certainly consistent with a financial collapse whose proximate cause was unchecked activity in the property market.

Key Words: Asian financial crisis; speculative bubbles; property markets.
Journal of Economic Literature Classification Numbers: E3, G2.

I. INTRODUCTION

The linkage between the real estate market and the general conditions of the economy has been studied extensively. However, most academic research is focused on the ways in which economic fundamentals affect property prices or the ways in which expectations about fundamentals affect property markets. (See Mankiw and Weil, 1989, for a celebrated example of this research.)[2] Research also compares the importance of economic fundamentals, relative to the importance of history, in affecting outcomes in the real estate market. (See Quigley, 1999, for recent evidence.)

Economic models arising from this line of research are capable of generating

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[2]For another conspicuous example, the recent textbook by DiPasquale and Wheaton (1996) devotes a full chapter to explicating the linkage between fundamentals and expectations about fundamentals to property markets.

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patterns of price change over time in property markets in response to variations in economic conditions and to exogenous shocks. (See, for example, DiPasquale and Wheaton, 1992, or Case and Shiller, 1988.) There has, however, been much less attention given to the opposite line of causation—the potential for exogenous changes in property markets to affect the subsequent economic performance of the economy.

This paper explores this latter line of causation with special reference to the collapse of the Southeast and East Asian economies in the late 1990s. We consider the potential effects of bubbles in the property market upon the broader economy and present some evidence suggesting that conditions in the real estate market played a major role in the rapid meltdown in Asian economies[3] beginning in 1997. Given the lags in official statistics, especially in the developing world, most of the evidence presented below comes from private sources or from financial observers. Thus, the evidence is hardly definitive; nevertheless, the argument may be a cause for real concern.

The concluding part of the paper presents some implications for policy—especially policy with respect to the real property market—which arise from this perspective.

II. BUBBLES AND PROPERTY MARKETS

Bubbles in financial markets and in real asset markets are not new—as investors in Britain's South Sea Company in the 1720s and as real estate developers in Texas in the 1980s could attest. Garber (1990) reviews a diverse set of historically significant speculations—runups and subsequent crashes in prices—suggesting a variety of ways in which investor behavior can lead to a bubble in asset prices which subsequently bursts.

The first and most straightforward of his examples is that of an entrepreneur who incorrectly (or falsely) claims that a venture will pay great future dividends. Subsequent investors base their decisions upon these perceptions of market fundamentals. This situation—asymmetric information in which one player has an incentive to dissemble—may yield a runup in asset prices if this player is successful.

The second example is that of an entrepreneur who uses some of the capital deposited by early investors to pay high dividends, confirming the prospective returns to subsequent investors in the (so-called Ponzi) scheme.

[3]The Asian economies are as diverse as the European economies, so any generalization is hazardous. Since this paper was originally presented in Tokyo in 1998, an important set of case studies has been published (Mera and Renaud, 2000). For the most part, those detailed accounts are consistent with the generalizations reported here. The significant exception is Korea. Kim argues cogently that Korea's real estate collapse "could not" have been a major cause of its economic crisis (Kim, 2000, p. 100).

Another possibility arises when the great future dividends actually materialize but only for a brief period. In this case, capital stock prices will eventually suffer an abrupt decline, causing later investors, perhaps especially vociferously, to regret their involvement.

Finally, each individual investor may understand clearly that the undertaking as a whole is doomed, but each may also speculate that a sequence of new buyers at higher prices is potentially available. This chain letter may yield a stream of high returns for awhile, but eventually it cannot be sustained.

Consider the most straightforward of these bubble paradigms: the entrepreneur who erroneously claims that an investment will yield high returns. The incentives and opportunities to adopt this delusion may have been unusually strong in real capital markets in Asia in the mid-1990s:

First, by extrapolating from two decades of robust export demand, firms had incentives to increase leverage and to borrow against the book value of assets for business expansion and for retail and office construction as well as for plant and equipment.

Second, existing real capital assets are notoriously hard to value. Markets are thin, and the problems of appraisal and valuation are great. Real estate markets were unusually thin in many Asian economies because they were largely closed to outsiders. Many countries (for example, Korea) had made it quite difficult for foreign entities to invest in real capital at all. Indeed, it was not until the middle of 1998 that Thai citizens married to foreigners could own real property. Freer trade and economic integration has exposed most Asian markets to world competition. Real estate was a conspicuous exception.

Third, it is alleged that patterns of asset ownership and reciprocal business transactions among elites (a.k.a. crony capitalists) made it easy to conceal unreasonably high property appraisals and thus to gain greater leverage by mortgaging properties at inflated assessed values. The proceeds of these transactions could be invested in new businesses as well as expansions in the current line of business.

Developers, anxious to fuel the general expansion of the economy, applied for construction loans, bridge loans, and takeout financing. If the lending institutions operated under an implicit guarantee—the way lending institutions in Texas were allowed to operate in the 1980s—then it follows inexorably that investment in real property was excessive and the potential for default on loans was increased. Under such circumstances, rational and prudent lending institutions have clear self-interests in sponsoring and undertaking excessively risky real capital investments.

Under these conditions, the diagnosis of a currency crisis could arise without any of the macroeconomic conditions or current-account balance-of-payments problems that normally lead to such crises (e.g., without persistent budget deficits financed by printing currency). The inevitable bad luck that follows ultimately from the moral hazard facing lending institutions could place enterprises and ultimately banks in the position of defaulting on the loans they obtained from

world capital markets. The financial consequences of these defaults would have to be made up by central governments or international agencies, but foreign capital would also subsequently be withdrawn. Existing firms with excessive loans on their plant and equipment would be squeezed, and the bubble could simply burst. Contagion could quickly lead the economy from one equilibrium to another disastrous equilibrium.

There seems to be no formal description of this alternative to a currency crisis model of the Asian financial crisis (although Paul Krugman (1998) has sketched out a couple of these issues on his Website, emphasizing the potential importance of the implicit guarantees afforded to early investors). A recent working paper by Edison *et al.* (1998) introduces a model emphasizing that the response of credit-constrained firms to exogenous shocks can greatly amplify the effect of these shocks upon the larger economy.

III. SOME EMPIRICAL EVIDENCE

Systematic empirical analysis about the importance of real estate in the timing and the severity of the Asia collapse is not generally available. After all, the crisis had barely begun in early 1997, and it was not until May 1997 that the Thai Baht came under massive speculative attack. Nevertheless, scattered information is available from financial institutions and market watchers. A summary of the available historical information on real estate markets in the region is presented in the Appendix. Based on the historical data and the contemporary information reported below, eight generalizations and conclusions seem warranted.

First, the ratio of new office supply to historical increases in supply was known to be large in many parts of Southeast Asia by 1996. Further, the likely effects of these supply increases upon vacancy rates in many markets was well known or was forecastable. Figure 1 indicates, for example, market conditions for office space as reported by Morgan Stanley Dean Witter in June 1996 in the Kuala Lumpur office market. At the time, the new supply forecast for 1997 was almost 4.5 million square feet, almost twice the increase expected in 1996, the year of the forecast. Estimates of new supply created during the 5-year period 1993–1998 were about five times as large as had been put in place during the previous 5-year period.

As illustrated in Fig. 2, projected increases in office supply were even larger in Bangkok. In 1995, new office supply reached an all time high of about 850,000 square feet, and the projection for 1997 was a net addition of almost 1.6 million square feet. The latter figure was more than four times the largest increase in supply in the Thai capital in any year before 1993. In June 1996, office vacancy rates in Bangkok were projected to exceed 25 percent for the year. In the central business district, new supply was also forecast to expand, with additions in 1998

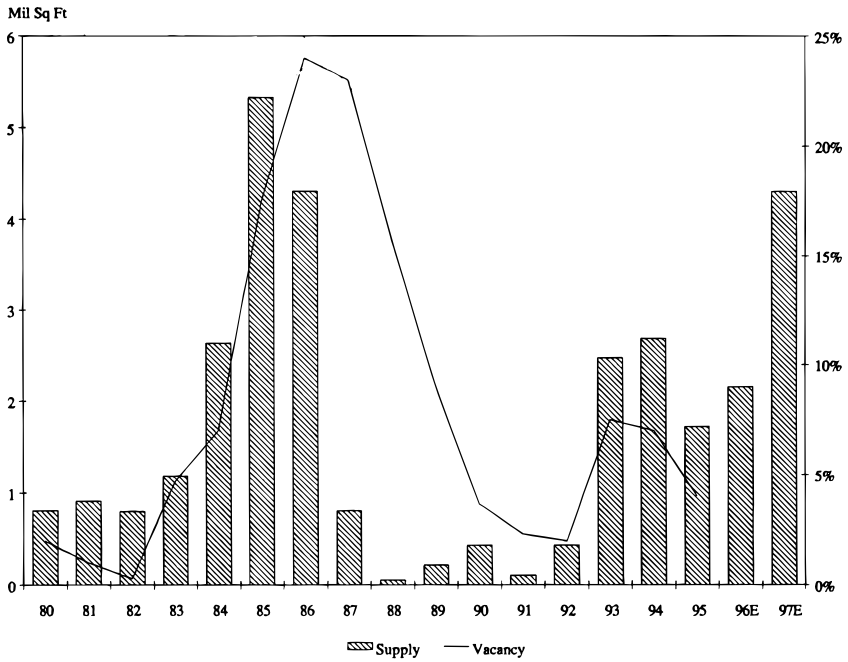

FIG. 1. Kuala Lumpur sector as projected in June 1996. *Source*: Morgan Stanley Investment Research, June 27, 1996, p. 51.

forecast to exceed those in 1997 by 40%, roughly four times the level in 1995—all this in a period of rising vacancy rates. (This is reported in Fig. 3.)

Figure 4 reports analogous forecasts for Jakarta. In 1996, office supply was projected to increase by the largest amount in history—some 450,000 square feet—about 50% more than in 1995. In 1995, the new supply was roughly three times the net addition of 1994. Again, office market vacancies recorded in 1996 were 14% and rising.

Similarly, Fig. 5 reports office supply in Makati in the Philippines. Very large increases were projected for 1998 and 1999.

Finally, as noted in Fig. 6, analogous increases in supply were observed and forecast for Singapore—a steady increase in net supply from a million square feet in 1993 to 2.5 million in 1994, to 3 million in 1995, to 5 million in 1996, to 6.5 million estimated for 1997. During this period, vacancy rates almost doubled. By 1997 the stock of newly built office supply was large, by absolute and relative standards, throughout Southeast Asia, and vacancy rates had already increased substantially.

Second, this apparent imbalance between new supply and vacancy rates was evident in the residential market as well. Figure 7 reports the steady increase in

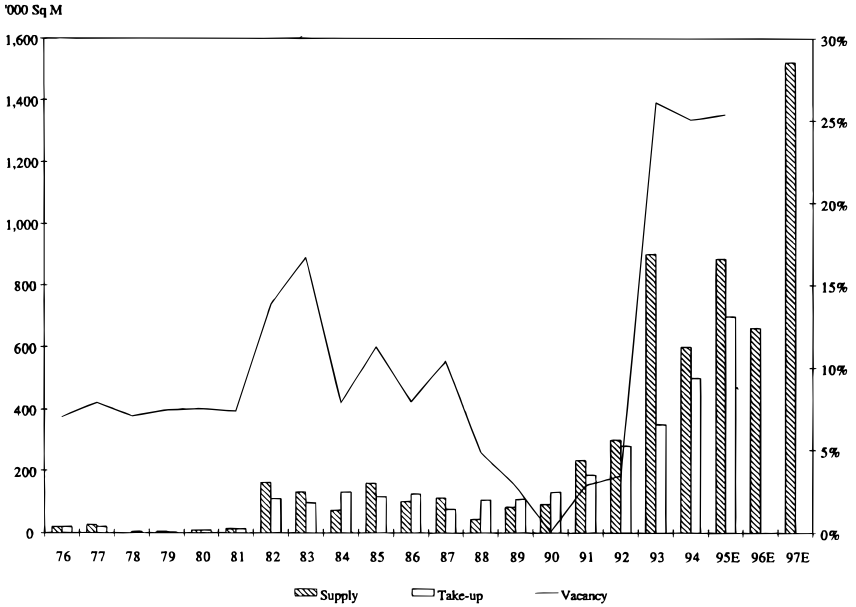

FIG. 2. Bangkok office sector as projected in March 1996. E = First Pacific Davies Estimates. *Source*: Morgan Stanley Investment Research, March 15, 1996, p. 54.

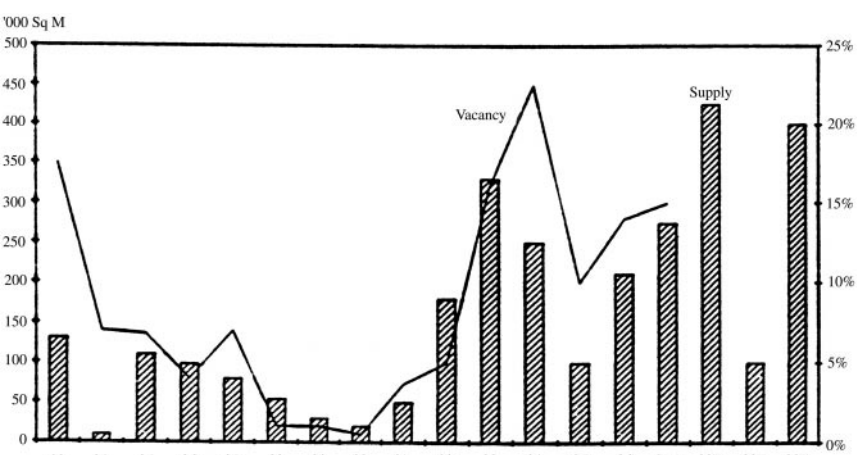

FIG. 3. Bangkok central business district office sector as projected in January 1997. E = Estimates. *Source*: Morgan Stanley Dean Witter Investment Research, January 15, 1997, p. 36.

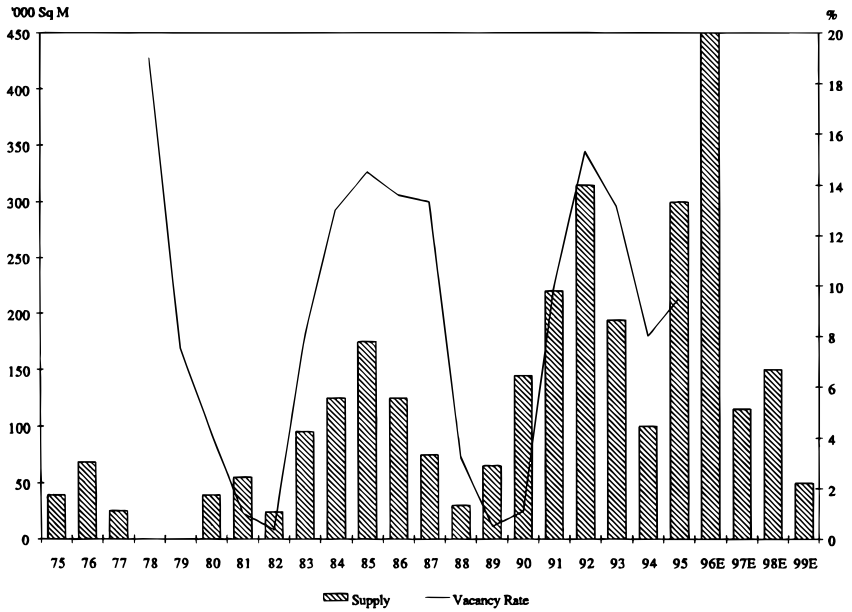

FIG. 4. Jakarta office sector as projected in June 1996. *Source*: Morgan Stanley Investment Research, June 27, 1996, p. 59.

condominium supply in the Klang Valley in Malaysia, together with the projected vacancy rate, as forecast in January 1997 by Morgan Stanley. The number of new units forecast in 1999 was more than twice as large as the increase in 1996, and vacancy rates were forecast to triple. Increases in new residential dwellings in urban areas in Southeast Asia were at record levels.

Third, the ratio of asset prices to market rents for commercial and retail real estate, as well as residential properties, was at historic highs well before the Asian crash of 1997. Again, the evidence is not definitive, but financial analyses reported by Morgan Stanley in early 1997 show similar patterns across markets and property types.

Figures 8 and 9 report these trends for Hong Kong retail properties and office buildings, respectively.

In both markets, prices diverged from rents, moving up more rapidly in the early 1990s and again in 1996. They were forecast to increase even more in 1997. Office rents in Singapore, shown in Fig. 10, diverged even more from rents than was the case in Hong Kong. Finally, Fig. 11 reports condominium rents and selling prices in Jakarta. Rents for prime condominiums were quite flat from 1995 onward. Yet asset prices were forecast to increase by 40% between 1995 and 1997.

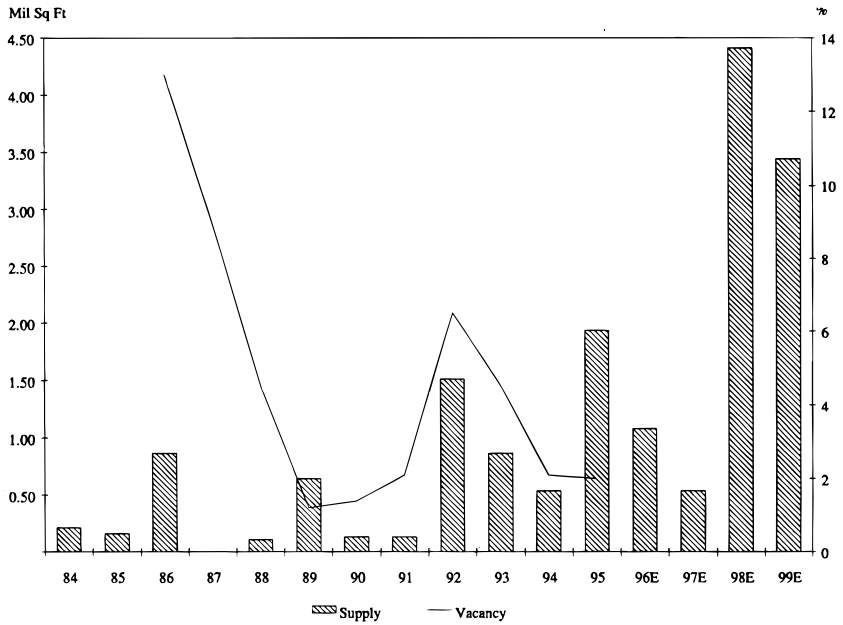

FIG. 5. Makati central business district office sector as projected in March 1996. *Source*: Morgan Stanley Investment Research, March 15, 1996, p. 56.

Standard economic theory linking rents to asset prices implies that, in the long run, capitalized rents can deviate from selling prices of comparable properties only by the expected capital gains of properties. (See Meese and Wallace, 1994, for a discussion.) The figures presented above strongly imply that further capital gains were anticipated in each of these markets. But this is hard to imagine, given the information that was publicly available in early 1997. With large increases in supply forecast and with rising vacancy rates also forecast, it is quite difficult to see how increased capital gains in existing properties could have been anticipated.

Fourth, there is pervasive evidence that bank credit growth rates in Southeast Asian countries had substantially exceeded GNP growth and that the ratio of nonperforming real estate loans to total loans was large—well before the Asian crisis hit in 1997. Barth *et al.* (1998) estimate, for example, that the growth in bank credit in the private sector, relative to GDP growth, was 48% in Hong Kong during 1990–1996, 62% in Indonesia, 40% in Malaysia, 115% in the Philippines, and 70% in Thailand. (By way of comparison, growth was 19% in Germany, 3% in Japan, 16% in the United Kingdom and −15% in the United States.) In 1995, nonperforming loans were 10.4% of all bank loans in Indonesia, 7.7% in Thailand, and almost 6% in Malaysia (Barth *et al.*, 1998, p. 32).

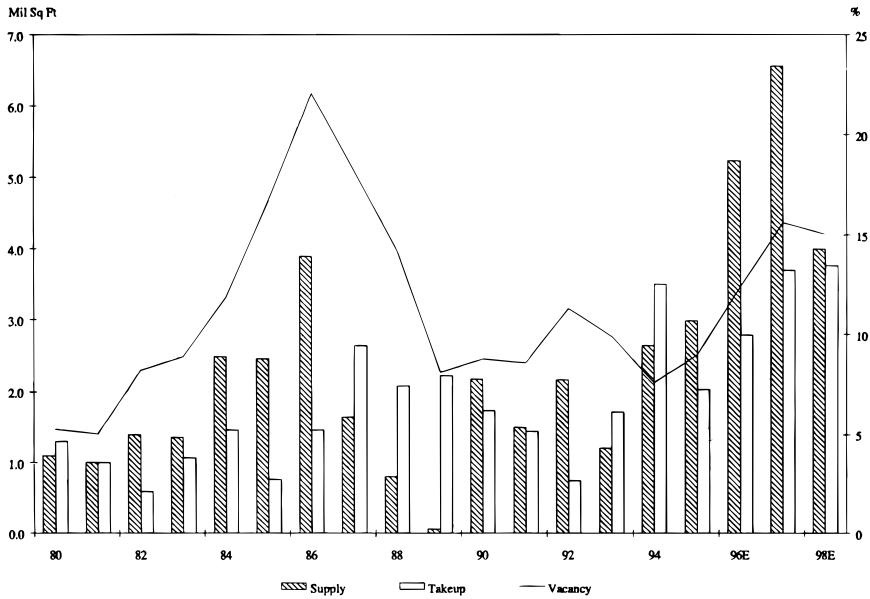

FIG. 6. Singapore office sector as projected in March 1996. E = Morgan Stanley Research Estimates. *Source*: Morgan Stanley Investment Research, March 15, 1996, p. 4.

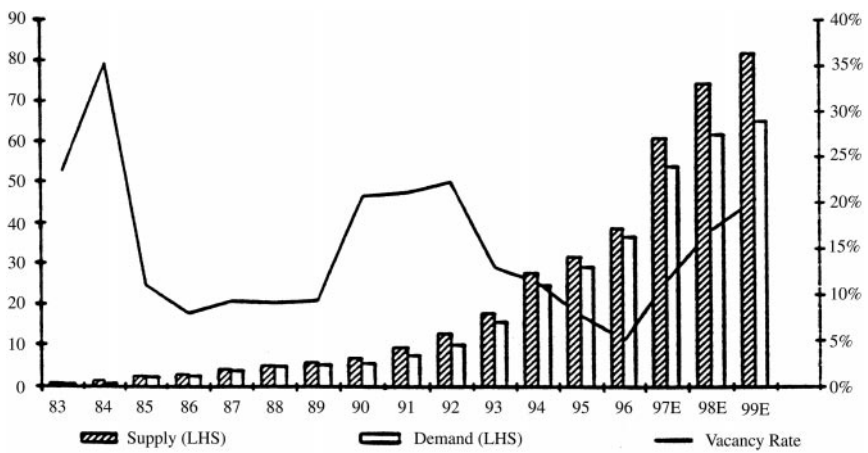

FIG. 7. Klang Valley condominium sector as projected in January 1997. E = Morgan Stanley Dean Witter Research Estimates. *Source*: Morgan Stanley Dean Witter Investment Research, January 15, 1997, p. 16.

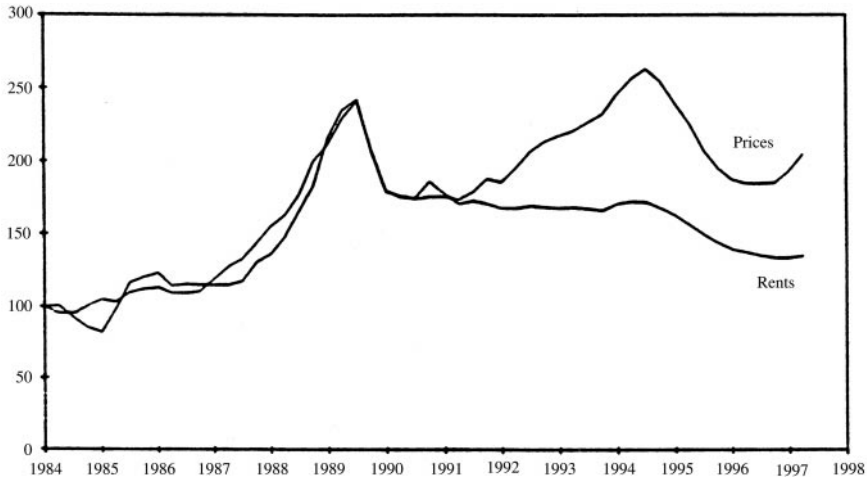

FIG. 8. Hong Kong retail market: rents and selling prices as reported in January 1997. *Source*: Morgan Stanley Dean Witter Investment Research, January 15, 1997, p. 18.

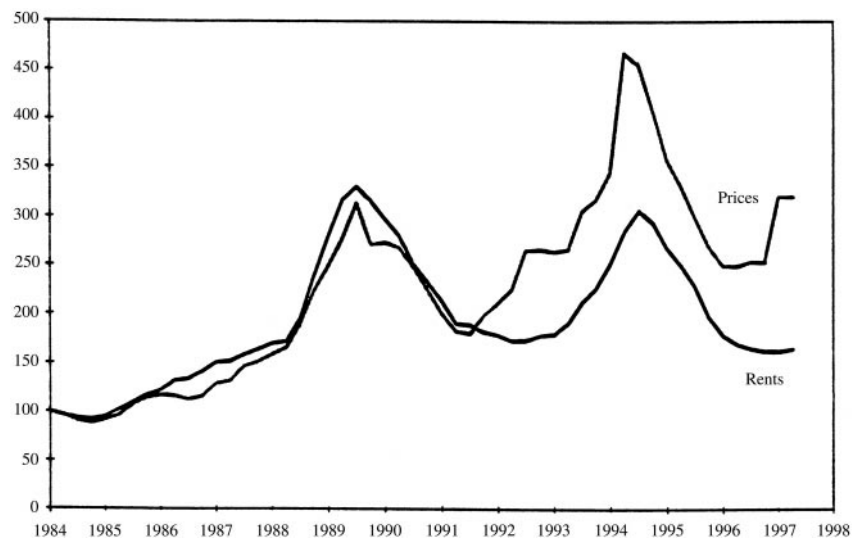

FIG. 9. Hong Kong office market: rents and selling prices as reported in January 1997. *Source*: Morgan Stanley Dean Witter Investment Research, January 15, 1997, p. 13.

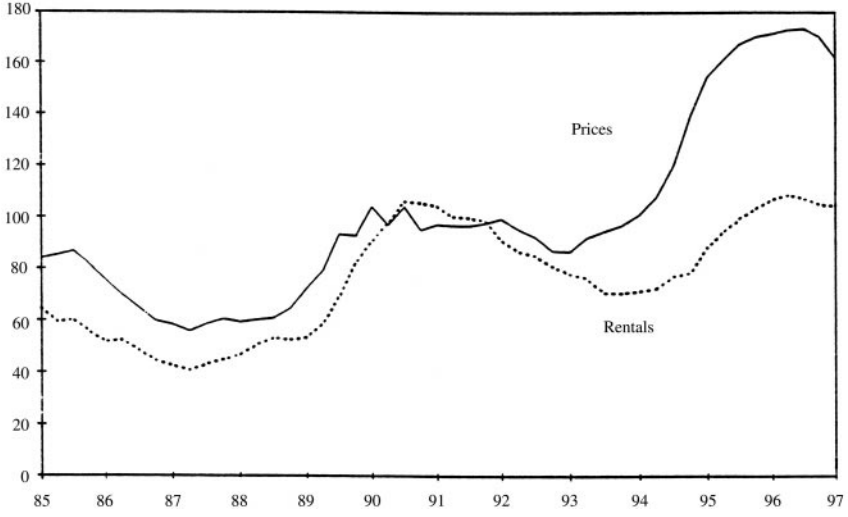

FIG. 10. Singapore office market: rents and selling prices as reported in January 1997. *Source*: Morgan Stanley Dean Witter Investment Research, January 15, 1997, p. 21.

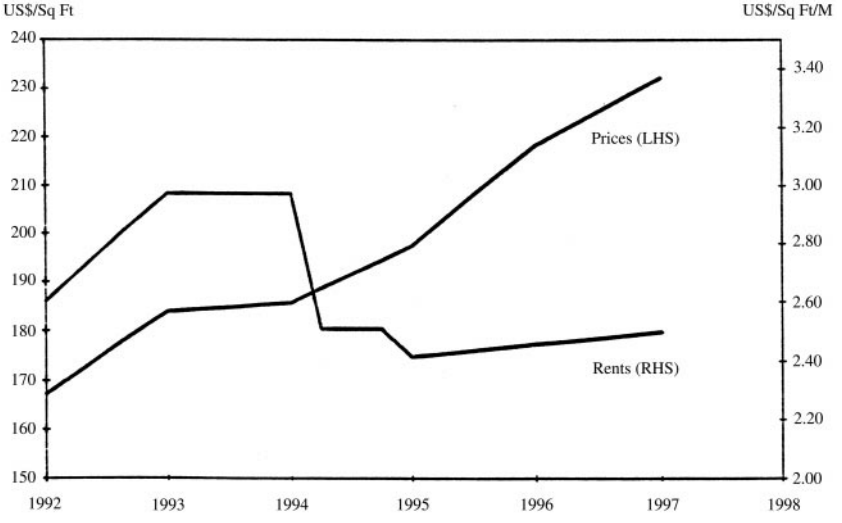

FIG. 11. Jakarta condominium market: rents and selling prices as reported in January 1997. *Source*: Morgan Stanley Dean Witter Investment Research, January 15, 1997, p. 62.

TABLE I
Potential Exposure of National Economy to the Real Estate Sector, 1996

Country	Real estate as percentage of bank loans	Private bank credit (US$B)	Bank intermediation ratio	Moody's rating[a]	1996 GNP (US$B)	Average exposure to real estate as percent of GNP
Hong Kong	40–55	300	1.68	C	154	76
Taiwan	35–45	400	1.46	D	274	58
Malaysia	30–40	120	1.66	D^+	94	58
Thailand	30–40	160	1.25	E^+	176	44
Singapore	30–40	130	0.85	C^+	94	30
Korea	15–25	440	0.86	D	480	17
Philippines	15–25	40	0.84	D^+	87	17
China	35–40	930	1.03	D	812	9
Indonesia	25–30	54	0.27	—	197	7

Sources. Renaud (1999, p.5) and J.P. Morgan (April 24, 1998, p.5).
[a] Moody's Bank Financial Strength Rating.

Fifth, by the mid-1990s the size of the real estate sector was large relative to the size of these emerging economies. For example, it was estimated that in 1997 the value of real estate in the Bangkok metropolitan region was almost half as large as the GNP of the entire economy of Thailand (Renaud *et al.*, 1998).

Beyond the size of the sector was the importance of real estate lending in total credit supplied in the Asian economies. Table I summarizes real estate lending in nine Asian countries. As the table indicates, real estate comprises a large fraction of lending portfolios, between 15 and 55% of private bank loans. Bank credit is large relative to GNP in most of these countries, and the average exposure of national economies to the real estate sector is large. Real estate debt, as a percent of GNP, was over 30% in Singapore and 44% in Thailand. It is estimated to be 58% in Malaysia and Thailand, and real estate debt is more than three quarters the size of GNP in Hong Kong. With leverage this large, small changes in the safety of real estate lending can have large effects upon the macro economy.

Sixth, the representation of real estate among the nonperforming assets of Southeast Asian banks was already large by the mid-1990s. Goldman Sachs' analysis of nonperforming loans (NPLs) in Asian bank portfolios, published in September 1998, estimates that NPLs will increase during 1997–99 to ll% of loans in Singapore, to 15% in Hong Kong, to 20% in Malaysia, to 29% in the Philippines, to 34% in Korea, and to 50% in Thailand.

Quantitative estimates of the extent of real estate loans in the NPL portfolio are available only for Hong Kong, but they are illustrative.[4] For 1997, real estate

[4]The only other quantitative estimate of the importance of real estate in NPL portfolios in Asia I have located is for 19 banks in Japan (Ohara, 1998). This source documents the positive correlation between the fraction of NPLs in a bank and that bank's exposure to real estate and construction loans.

loans were expected to comprise 37% of nonperforming assets. (If the retail and office sectors are included, the combined total exceeds 60%.) For 1998, the comparable figure is forecast to be 42% (52% if retail and offices are included), while for 1999, the forecast is 42% (50% including retail). (See Goldman Sachs, 1998: Appendix 1B, 2B, 3B.)

Seventh, apparently the depositors in those financial institutions which behaved recklessly were, *ex post*, protected from loss in Thailand, Korea, and Malaysia. There is little definitive evidence about this at all, but the protection is implied in much of the discussion about moral hazard. Certainly the strong political connections of those directing financial institutions led many creditors to believe they had protection from excessive risk.

Eighth, the bubble in Asia property markets burst well before the rest of the dominoes fell—and before the apparent currency crisis developed. For example, the Samprasong Land Company in Thailand missed payments on scheduled foreign debt on February 5, 1997. This was 3 months before the first speculative attack on the Baht and 5 months before the eventual devaluation of the Thai currency (Asia Chronology, November 15, 1998). During the intervening period, the Thai government ploughed some $8B to prop up distressed financial intermediaries. The devaluation of the Baht in August 1997 marks the beginning of the fiscal crisis in Asia.

IV. POLICIES AND CONCLUSIONS

Of course, overexpansion in the property market did not by itself cause the crisis which so devastated the Asian economies. Nevertheless, the eight generalizations described above suggest that the operation of the real estate market contributed in an important way to the collapse of the Asian economies and to their continuing problems during the past 2 years. The failures of the banking sector in oversight and underwriting and violations of arms-length trading conventions all contributed to a circumstance such that an exogenous shock could have disastrous consequences.

It appears that part of the debacle can be attributed to the combination of outmoded banking practices and an immature market for real property. For example, in Thailand, Malaysia, and Indonesia, banking tradition dictated that all commercial loans required collateral; in an agrarian ecomomy real property—farmland—was the best and often the only collateral. The appraisal of the economic productivity of farmland is straightforward, and a loan can be advanced as some fraction of the appraisal. The agrarian tradition means that is difficult or impossible to use inventories, accounts receivable, or other modern forms of working capital as collateral. It also means that methods of appraisal of collateral are underdeveloped or nonexistent. When real property is the only form of collateral, there is an added incentive for a firm to build in an appreciating market

in order to borrow funds to expand. (This is an uncanny analogy to the Ponzi scheme described above.)

The immaturity of the market means that much construction activity is undertaken, not by professional developers, but by firms intending to use the product themselves. These immature markets were characterized by weak foreclosure and property rights laws, which reduce the transparency of lending relationships and increasing risk. They were also characterized by measures to reduce competition, for example by laws prohibiting foreign individuals, foreign firms, and even joint ventures from owning land. For example, in China only a small subset of property is designated as "for sale on the overseas market." In Vietnam, resident foreign nationals may own property only under quite restrictive rules, while fee simple ownership in Indonesia is reserved for Indonesian citizens (Heikkila, *et al.*, 1998). Figure 12 presents a schematic produced by Ernst and Young suggesting the immaturity of various Asian property markets in 1998.

Finally, this reduced competition concentrated lending activity as well as land ownership, which reinforced the phenomenon of connected lending.

Modernization of the banking system to evaluate loans on real property using appraisal methods, to recognize other forms of collateral, and to increase competition are important. But it is also important to modernize rules governing title, to increase competition, and also to make bank lending transparent.

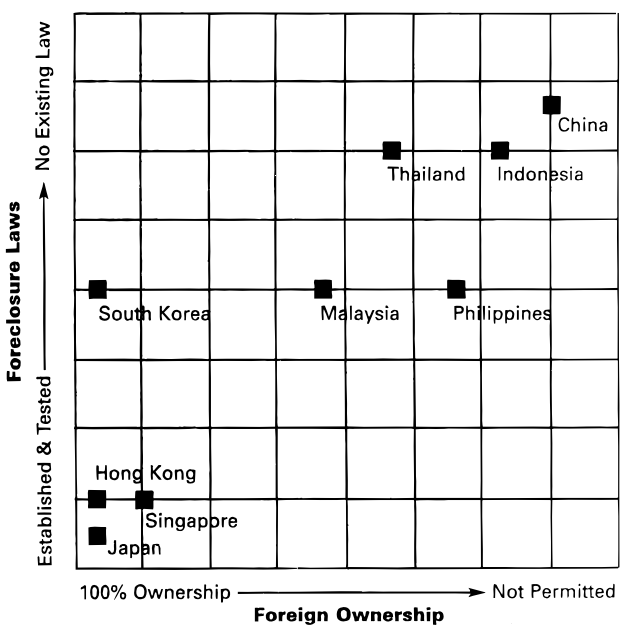

FIG. 12. Structural barriers to foreign ownership and foreclosure (as of September 1998). *Source*: Ernst and Young LLP, 1998, p. 8.

The most immediate issue is what to do with the glut of existing bad debt and nonperforming property loans throughout the region. First, the definition of nonperforming must not be relaxed merely to make lending institutions appear to be more solvent. Until mid-1997, in contrast, Thai banks could classify a secured loan as "performing" even if no interest had been paid for a year. Indeed, this regulation was not changed until well after the $17.2 billion IMF bailout of the Thai economy had been booked. After the onset of the crisis, Malaysia chose to soften the definition of nonperforming loans, presumably to improve the balance sheets of local lending institutions (Goldman Sachs, November 12, 1998, p. 13). The problem with these cosmetic changes is that they make it more difficult to understand the true level of capital with which an institution is currently operating.

Second, the nonperforming loans should be segregated from the rest of the banking system as a preferred alternative to lowering the capital adequacy standard imposed on the sector. One way to proceed could be modeled on the Resolution Trust Corporation which dealt with the assets of failed savings and loan institutions in the United States in the 1980s. A more selective program would be the exchange of nonperforming loans by lending institutions for government bonds, similar to the Chilean model of the 1980s. Either approach would get the worst assets off the books of financial institutions and would encourage bankers to concentrate on their comparative advantage in finding portable opportunities for new lending.

Over the longer run, improved functioning of the property market will require increased competition in the primary market and in financial intermediaries. There is little reason to prevent foreign nationals from owning real property; there is even less reason to stifle foreign competition in banking and lending.

Increased capital standards, and the enforcement of those standards, can assist in the consolidation of the banking sector as well as in the enforcement of its soundness. The adoption and enforcement of accounting and disclosure standards and the closer supervision of underwriting standards are all difficult to implement costlessly, particularly in a sector that has been cartelized. But there are high returns to basic reforms. For example, in the current regulatory environment in Korea banks need not disclose suspect loans (let alone make provisions against their nonperformance).

Finally, the discipline of competition could be furthered by the development of a secondary market for mortgage paper. The need to make transactions transparent and conformable, to facilitate securitization and sale to investors, has exerted a strong pressure to make underwriting standards more uniform in the United States and in other developed countries. We should expect some of these benefits to accrue from the securitization of property in Asia as well.

APPENDIX

Tables A.I through A.V summarize information about the property markets in selected East Asia markets between 1985 and 1997. The markets represented include Hong Kong, Bangkok, Singapore, Seoul, and Manila. Part A of each table summarizes the residential sector, indicating trends in new housing construction, sales prices for standardized units and rents for newly constructed dwellings. Part B of each table summarizes trends in the markets for retail space and shopping centers, office space, and industrial property. Despite attempts to ensure comparability, categories and definitions vary somewhat among markets.

TABLE A.Ia
Residential Real Estate—Hong Kong

	1985	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Housing units	592,165	752,846	—	805,073	830,567	864,643	885,677	911,240	933,201
New construction (units)	29,875	29,400	3,400	26,222	27,763	34,173	22,621	19,875	21,961
Small to Medium	27,915	27,420	31,700	25,142	26,694	32,175	20,663	18,164	20,535
Large	1,960	1,980	1,700	1,080	979	1,998	1,958	1,711	1,426
Sales prices of standardized units									
(Current US$/square foot)									
Luxury	311	310	426	520	642	777	760	828	1,096
Overall Market	99	220	362	465	501	673	647	692	852
Prime Residential Land	—	—	—	3,094	3,900	4,460	4,030	4,125	4,650
(Current HK$/square meter)									
Luxury	9,402	3,335	3,300	5,595	6,908	64,651	63,236	68,894	91,193
Overall Market	8,237	2,370	2,800	5,005	5,395	55,997	53,834	57,578	70,891
Prime Residential Land	—	—	—	33,300	41,940	371,098	335,319	343,390	386,823
Rents for new units									
(Current US$/square foot/month)									
Luxury	0.90	—	—	3.36	3.90	3.50	3.20	3.00	3.30
Overall Market	0.80	—	—	2.58	2.85	2.75	3.00	2.60	3.10
(Current HK$/square meter/month)									
Luxury	75	—	—	36	42	291	266	250	275
Overall Market	67	—	—	28	31	229	250	216	258

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim.* Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.Ib
Nonresidential Real Estate—Hong Kong

	1985	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
				Retail market					
New construction (square feet)	2,700,000	2,600,000	2,200,000	1,776,000	2,942,000	2,600,000	2,224,000	1,299,000	2,549,000
Vacancy rate (%)	9.0	5.2	4.6	4.4	6.1	6.8	7.8	9.1	8.5
Standardized leases									
(Current US$/square foot)									
Prime space	67.00	55.85	64.56	71.10	83.75	91.90	102.84	106.60	111.90
Overall	18.60	15.35	18.08	19.90	22.35	24.50	26.34	27.70	28.85
(Current HK$/square meter)									
Prime space	5,575	4,647	500	765	900	7,647	8,557	8,872	9,316
Overall	1,548	1,277	140	215	240	2,039	2,192	2,305	2,400
				Office market					
Inventory (square feet)	47,128,800	54,737,100	—	65,650,712	69,300,000	73,853,957	77,378,090	79,500,000	86,200,000
New Construction									
(square feet)	3,317,500	2,156,000	4,490,000	6,077,354	3,658,400	5,403,528	3,815,838	2,894,400	5,212,000
Absorption (square feet)	4,145,000	1,453,000	2,570,000	5,102,136	5,780,000	2,432,664	3,642,538	1,146,000	4,783,000
Vacancy rate (%)	11.1	6.1	9.2	9.7	6.7	9.8	9.4	11.2	11.0
Standardized leases									
(Current US$/square foot)									
Prime spaces	—	7.10	5.68	6.06	7.25	11.35	10.85	8.55	8.80
Overall	—	5.15	4.39	4.77	5.80	7.00	6.55	6.20	6.40
(Current HK$/square meter)									
Prime spaces	—	591	44	65	78	944	903	713	731
Overall	—	429	34	51	63	582	545	518	535
Typical price for land									
(Current US$/square foot)	—	—	312	535	805	2,137	1,491	10,620	13,040
(Current HK$/square meter)	—	—	2,411	5,760	8,665	177,773	124,093	883,794	1,085,338

				Industrial property					
Industrial employment	847,615	715,597	—	531,876	483,628	423,015	366,748	325,068	312,619
Inventory (square feet)	141,900,000	179,500,000	—	224,256,099	190,000,000	189,520,672	190,300,000	191,730,000	193,600,000
Absorption (square feet)	4,187,000	4,144,000	5,837,000	4,488,588	2,433,000	(785,772)	(222,000)	(5,672,000)	8,260,000
Vacancy rate (%)	5.5	5.3	6.2	6.4	6.0	6.3	7.9	11.9	7.7
Standardized leases									
(Current US$/square foot/month)	0.50	1.10	1.29	1.42	1.40	1.50	1.30	1.20	1.15
(Current HK$/square meter/month)	42.00	92.00	10.00	11.00	15.05	125.00	108.00	100.00	94.00
Typical price for land									
(Current US$/square foot)	—	360.00	—	662.00	1,307.00	1,683.00	1,165.00	905.00	775.00
(Current HK$/square meter)	—	30,037.00	—	7,123.00	14,063.00	140,035.00	96,851.00	75,384.00	64,476.00

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.IIa
Residential Real Estate—Bangkok

	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Households	1,838,000	1,965,000	2,224,000	2,400,000	2,586,675	2,792,000	2,947,000	3,189,000
Housing units	1,556,000	1,647,000	1,755,000	1,928,000	2,099,000	2,271,000	2,438,000	2,710,000
New Construction (units)	102,335	129,688	108,001	134,086	171,254	172,419	166,285	171,908
Single family detached	38,693	36,409	34,070	46,882	48,883	48,909	44,377	43,848
Single family semi-detached	805	2,610	2,408	485	261	1,089	791	1,341
Town houses	42,510	51,698	34,779	44,273	54,169	61,944	60,373	53,822
Condominium/apartments	20,327	38,971	36,774	42,446	67,941	60,477	60,744	72,897
Sales prices of standardized units								
(Current US$)								
Single family detached	98,160	195,500	212,700	234,100	231,000	133,910	140,845	126,720
Town houses	17,335	43,300	47,155	51,850	51,000	28,170	39,000	34,670
Condominium/apartments	67,175	125,300	115,900	123,700	131,400	91,010	86,675	80,175
Single family lots	145,200	274,000	296,000	323,100	343,000	201,500	182,000	151,700
(Current Thai baht)								
Single family detached	4,530,000	—	—	5,870,000	5,890,000	6,180,000	6,500,000	5,850,000
Town houses	800,000	—	—	1,300,000	1,300,000	1,300,000	1,800,000	1,600,000
Condominium/apartments	3,100,000	—	—	3,100,000	3,350,000	4,200,000	4,000,000	3,700,000
Single family lots	6,700,000	—	—	8,100,000	8,600,000	9,300,000	8,400,000	7,000,000
Rents for new units								
(Current US$)								
1 Bedroom	370	715	705	720	745	410	500	435
2 Bedroom	760	1,475	1,410	1,595	1,765	975	975	870
(Current Thai baht)								
1 Bedroom	17,000	—	—	18,000	19,000	19,000	23,000	20,000
2 Bedroom	35,000	—	—	40,000	45,000	45,000	45,000	40,000

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.IIb
Nonresidential Real Estate—Bangkok

	1990	1993	1994	1995	1996	1997 (projected)
Per capita disposable income						
(Current US$)	570	1,400	1,540	955	1,070	—
(Current Thai baht)	26,290	35,080	38,630	44,160	49,480	—
			Shopping center market			
New construction (square feet)	860,800	2,783,100	6,795,740	7,409,600	2,661,300	4,488,400
Rehabilitation (square feet)	—	—	0	369,100	1,023,000	389,000
Number of centers	62	81	95	131	149	169
Vacancy rate (%)	—	—	11.9	6.6	11.7	16.2
Standardized leases						
(Current US$/square foot)						
First floor	—	97.90	111.20	60.40	60.40	48.35
Second floor	—	57.85	75.65	41.10	41.10	33.20
Third floor	—	53.40	57.85	31.40	31.40	25.20
Land price	30.20	46.35	51.00	30.20	28.30	23.90
(Current Thai baht/square meter)						
First floor	—	26,400	30,000	30,000	30,000	24,000
Second floor	—	15,600	20,400	20,400	20,400	16,500
Third floor	—	14,400	15,600	15,600	15,600	12,500
Land price (per rai)	24,000,000	20,000,000	22,000,000	24,000,000	22,500,000	19,000,000
			Office market			
Inventory (square feet)	14,246,240	35,002,300	43,556,500	53,370,000	59,083,200	63,731,500
New construction (square feet)	1,840,000	9,953,000	9,601,500	9,662,500	5,713,600	4,648,300
Absorption (square feet)	1,076,000	5,390,000	6,404,600	10,491,000	5,907,240	828,500
Vacancy rate (%)	0.1	25.1	27.7	21.0	18.6	23.3
Downtown	—	18.6	21.5	14.3	16.6	20.4
Suburbs	—	32.6	33.6	26.5	20.3	25.6

TABLE A.IIb—*Continued*

	1990	1993	1994	1995	1996	1997 (projected)
Standardized leases						
(Current US$/square foot)						
Downtown	15.70	24.90	24.00	12.70	12.70	12.10
Suburban high-rise	9.05	15.90	15.30	9.65	9.65	9.05
(Current Thai baht/square meter)						
Downtown	7,800	6,715	6,600	6,300	6,300	6,000
Suburban high-rise	4,500	4,282	4,200	4,800	4,800	4,500
Highest land price						
Current US$/square foot)						
Downtown	297.0	520.0	510.0	277.0	212.0	191.0
Suburban high-rise	75.1	100.0	120.0	75.6	65.5	55.5
(Current Thai baht/square meter)						
Downtown	589,000	560,000	550,000	550,000	420,000	380,000
Suburban high-rise	149,000	109,000	130,000	150,000	130,000	110,000
			Industrial property			
Industrial employment	115,000	277,240	328,230	335,670	—	—
Inventory (square feet)	277,642,400	270,808,000	281,826,000	289,246,000	289,246,000	289,246,000
Absorption (square feet)	22,656,300	—	14,295,000	6,955,300	9,503,200	8,298,000
Vacancy rate (%)	—	24.0	22.0	2.4	3.3	2.9
Standardized leases						
(Current US$/square foot)						
General manufacturing	3.60	5.60	7.00	3.85	3.85	3.60
Warehouse	2.40	5.25	5.50	3.15	3.15	2.65
Land price industrial park	5.05	454,200.00	474,350.00	6.55	7.55	7.80
(Current Thai baht/square meter)						
General manufacturing	1,800	1,500	1,920	1,920	1,920	1,800
Warehouse	1,200	1,420	1,500	1,560	1,560	1,320
Land price industrial park (/rai)	3,999,000	4,500,000	4,700,000	5,200,000	6,000,000	6,200,000

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.IIIa
Residential Real Estate—Singapore

	1985	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Households	587,985	661,730	683,085	696,810	700,930	732,500	746,625	761,075	774,025
Housing units	56,180	73,821	61,948	81,454	86,423	78,012	129,106	149,114	162,536
New construction (units)	6,996	3,709	3,791	4,382	4,969	6,713	6,203	7,519	13,422
Sales prices of standardized units (Current US$)									
Single family detached	—	125	141	169	205	418	355	375	405
Town houses	—	195	230	243	380	447	380	400	445
Condominium/apartments	166	365	352	389	415	532	535	615	615
Single family lots		210	150	338	515	709	605	635	425
(Current S$)									
Single family detached	—	205	220	—	—	590	590	620	670
Town houses	—	320	360	—	—	630	630	660	740
Condominium/apartments	260	600	550	—	—	750	885	1,017	1,020
Single family lots	—	350	235	—	—	1,000	1,000	1,050	700
Rents for new units (Current US$)									
1 Bedroom	—	1,810	2,558	2,706	4,070	4,397	3,985	4,225	4,225
2 Bedroom	—	3,020	3,517	3,383	4,965	5,319	4,710	5,135	4,830
(Current S$)									
1 Bedroom	—	3,000	4,000	—	—	6,200	6,600	7,000	7,000
2 Bedroom	—	5,000	5,500	—	—	7,500	7,800	8,500	8,000

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.IIIb
Nonresidential Real Estate—Singapore

	1985	1900	1991	1992	1993	1994	1995	1996	1997 (projected)
Private consumption expenditure									
(Current US$)	10,559.6	18,576.1	30,361.4	22,900.0	26,240.0	32,828.4	29,937.8	32,569.3	35,858.8
(Current S$)	17,552.9	30,762.0	—	—	—	46,288.1	49,577.0	53,934.7	59,382.1
					Shopping center market				
New construction									
(square feet)	101,817	721,188	1,140,973	765,480	1,867,250	75,348	419,796	505,908	780,500
Number of centers	—	2	—	12	12	10	8	10	8
Vacancy rate (%)	18.2	9.4	8.4	7.2	10.3	10	10	11	11
Standardized leases									
(Current US$/square foot)									
Downtown	12.10	36.25	28.78	27.10	27.60	23.00	19.30	19.95	18.10
Suburbs	6.05	15.10	14.71	13.55	13.80	14.00	12.70	12.70	13.90
Capital value prime									
shop space	1,510	5,135	371	440	345	3,900	3,260	3,260	3,080
(Current S$/square meter)									
Downtown	20	60	45	—	—	32	32	33	30
Suburbs	10	25	23	—	—	20	21	21	23
Capital value prime									
shop space	2,500	8,500	580	—	—	5,500	5,400	5,400	5,100
					Office market				
Inventory (square feet)	29,654,820	37,781,640	39,277,471	41,441,020	47,188,940	49,288,356	52,280,748	54,971,748	58,508,379
New construction									
(square feet)	2,131,272	2,174,328	1,140,973	2,168,500	5,747,920	2,098,980	2,992,392	2,691,000	3,536,631
Absorption (square feet)	740,504	1,711,476	904,168	828,820	5,791,000	3,003,156	2,012,868	2,734,056	2,660,675
Vacancy rate (%)	17.1	8.8	8.8	11.3	9.9	7.6	9.0	8.5	9.5

Standardized leases									
(Current US$/square foot/year)									
Downtown	32.60	83.35	80.52	61.20	58.10	40.55	69.55	71.75	69.55
Overall	21.00	46.45	38.40	32.40	33.00	68.10	46.90	47.55	46.30
Business park	—	—	27.60	28.80	29.40	—	—	—	—
(Current S$/square foot)									
Downtown	54.00	138.00	126.00	—	—	57.16	115.20	118.80	115.20
Overall	34.80	76.92	60.00	—	—	96.00	77.64	78.72	76.68
Business park	—	—	43.20	—	—	—	—	—	—
Capital value prime office buildings									
(Current US$/square foot)	455	965	959	1,015	970	1,241	1,195	1,375	1,365
(Current S$/square foot)	750	1,600	1,500	—	—	1,750	1,978	2,281	2,261
				Industrial property					
Industrial employment	314,200	447,400	429,600	434,100	429,500	422,500	412,700	406,300	399,827
Inventory (square feet)	144,625,104	170,232,660	179,025,185	190,585,610	205,128,000	215,828,964	232,965,252	253,729,008	281,797,860
Absorption (square feet)	4,472,442	10,559,484	7,663,897	10,570,150	14,337,510	11,000,808	17,286,823	16,307,460	22,325,057
Vacancy rate (%)	18.1	4.1	3.0	4.4	4.3	3.2	2.9	4.4	6.0
Standardized leases									
(Current US$/square foot)									
Hi-tech R&D	—	27.85	—	27.60	27.50	28.30	26.80	26.80	26.10
General manufacturing	5.30	20.30	19.92	19.80	19.00	21.30	20.30	20.30	18.10
Warehouse	7.70	20.20	19.20	20.40	20.80	23.85	21.40	20.30	18.85
Land price industrial park	—	21.55	198.00	—	48.30	33.55	37.95	42.60	40.30
(Current S$/square foot)									
Hi-tech R&D	—	46.11	—	—	—	39.88	44.40	44.40	43.20
General manufacturing	8.76	33.60	31.20	—	—	30.00	33.60	33.60	30.00
Warehouse	12.72	33.60	30.00	—	—	33.60	35.40	33.60	31.20
Land price industrial park	—	35.69	310.00	—	—	47.31	62.86	70.51	66.75

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.IVa
Residential Real Estate—Seoul

	1989	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Households	2,816,500	2,184,845	3,309,764	3,383,169	3,430,528	3,456,000	2,965,794	2,973,063	3,138,403
Housing units	1,506,167	1,430,981	1,599,289	1,692,907	1,824,047	1,925,351	1,688,111	1,792,911	1,878,157
New construction (units)	131,063	92,449	92,213	122,041	112,635	—	49,563	104,800	85,246
Sales prices of standardized units									
(Current US$)									
Condominium/apartments	—	95.25	204.00	210.00	173.00	178.00	97.20	101.50	105.85
Single family lots	—	86.10	163.00	166.00	152.00	150.00	124.30	124.55	125.70
(Current won/pyung)									
Condominium/apartments	—	5,792,000	5,880,860	160,880	156,214	160,436	5,910,000	6,169,000	6,434,000
Single family lots	—	5,234,000	4,689,063	128,064	136,793	135,104	7,558,000	7,571,000	7,643,000
Rents for new units									
(Current US$/square foot/month)	—	0.60	0.85	0.99	0.91	0.91	0.80	0.90	1.00
(Current won/pyung/month)	—	37,060	24,387	760	819	819	49,060	53,060	61,380

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.IVb
Nonresidential Real Estate—Seoul

	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Per capita disposable income								
(Current US$)	13,900	17,373	—	21,739	25,027	1,115	1,240	1,370
(Current Won)	11,247,600	13,905,349	—	17,847,979	20,547,389	1,905,500	2,116,000	2,432,500
				Shopping center market				
New construction (square feet)	103,190	1,387,262	—	—	—	96,075	455,460	936,000
Rehabilitation (square feet)	—	—	—	—	—	—	355,830	—
Number of centers	19	43	45	48	52	28	30	33
Vacancy rate (%)	—	—	—	—	—	—	3	2
Standardized leases								
(Current US$/square foot/month)								
Women's ready-to-wear	—	—	—	—	—	—	0.75	—
Men's wear	—	—	—	—	—	—	0.90	—
Family shoes	—	—	—	—	—	—	1.35	—
Supermarket	—	—	—	—	—	—	0.65	—
Laundry/dry cleaners	—	—	—	—	—	—	0.90	—
Land price (/square foot)								
City	—	—	—	—	—	—	180.00	—
Suburb	—	—	—	—	—	—	24.65	—
(Current won/pyung/month)								
Women's ready-to-wear	—	—	—	—	—	—	47,000	—
Men's wear	—	—	—	—	—	—	55,000	—
Family shoes	—	—	—	—	—	—	81,000	—
Supermarket	—	—	—	—	—	—	41,000	—
Laundry/dry cleaners	—	—	—	—	—	—	56,000	—
Land price (/pyung)								
City	—	—	—	—	—	—	11,000,000	—
Suburb	—	—	—	—	—	—	1,500,000	—

TABLE A.IVb—*Continued*

	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
				Office market				
Inventory (square feet)	98,732,560	156,100,000	115,945,000	159,720,000	163,250,000	—	176,450,000	—
New construction (square feet)	5,131,300	7,342,520	9,870,400	5,029,990	3,600,000	—	—	—
Vacancy rate (%)								
CBD	0.2	—	—	—	—	0.2	0.2	—
Kangnam	3.0	—	—	—	—	2.0	1.6	—
Yoido	4.0	—	—	—	—	3.0	1.2	—
Prime space	2.0	3.0	5.0	5.0	4.0	—	7.0	—
Secondary space	5.0	5.0	7.0	10.0	10.0	—	10.0	—
Standardized leases								
(Current US$/square foot/month)								
CBD	0.7	—	—	2.1	2.2	1.0	1.1	1.1
Kangnam	0.4	—	—	1.2	1.3	0.6	0.7	0.7
Yoido	—	—	—	1.1	1.0	0.5	0.6	0.6
(Current won/square meter/month)								
CBD	12,675	—	—	1,713	1,769	18,666	19,512	20,313
Kangnam	6,835	—	—	1,008	1,065	11,160	11,700	12,951
Yoido	—	—	—	880	840	9,270	10,053	10,764
Typical land price								
(Current US$/square foot)								
CBD	950	—	—	—	—	970	980	—
Kangnam	475	—	—	—	—	435	440	—
Yoido	345	—	—	—	—	355	360	—
Prime commercial area	—	—	—	1,370	1,340			
(Current won/square meter)								
CBD	17,413,893	—	—	—	—	17,817,515	17,985,000	—
Kangnam	8,719,310	—	—	—	—	7,977,016	8,052,000	—
Yoido	6,299,940	—	—	—	—	6,541,510	6,603,000	—
Prime commerical area	—	—	—	1,124,000	1,100,000			—

				Industrial property				
Industrial employment	1,320,000	1,385,000	1,303,000	1,540,000	1,717,000	1,157,000	1,100,000	1,023,000
New construction (square feet)	852,180	—	—			2,209,610	4,358,755	5,230,510
Land price (US$/square foot)	—	—	—	5,535,152	5,645,591	—	6	6
Land price (Won/pyung)	—	—	—	4,544,360,000	4,635,030,000	—	367,333	379,000

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.Va
Residential Real Estate—Manila

	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Households	11,474,218	—	—	12,200,000	12,830,000	13,025,850	13,302,555	13,585,139
New construction (units)	67,442	—	—	—	—	225,547	245,525	270,000
Sales prices of standardized units								
(Current US$)								
Single family detached	149,100	—	—	1,136,335	304,000	248,600	298,300	323,100
Town houses	114,300	—	—	177,090	228,000	164,100	174,000	186,400
Condominium/apartments	74,600	—	—	327,680	183,000	137,000	149,100	161,600
(Current Pesos)								
Single family detached	6,000,000	—	—	29,476,563	8,000,000	10,000,000	12,000,000	13,000,000
Town houses	4,600,000	—	—	4,593,750	6,000,000	6,600,000	7,000,000	7,500,000
Condominium/apartments	3,000,000	—	—	8,500,000	4,800,000	5,500,000	6,000,000	6,500,000
Rents for new units								
(Current US$)								
1 Bedroom	450	—	—	960	1,030	745	820	995
2 Bedroom	745	—	—	1,475	1,710	1,415	1,615	1,740
(Current pesos)								
1 Bedroom	18,000	—	—	24,882	27,000	30,000	33,000	40,000
2 Bedroom	30,000	—	—	38,281	45,000	57,000	65,000	70,000

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

TABLE A.Vb
Nonresidential Real Estate—Manila

	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Per capita disposable income								
(Current US$)	21,813	—	—	—	—	38,180	45,110	51,876
(Current Pesos)	877,531	—	—	—	—	1,536,001	1,814,758	2,086,972
				Shopping center market				
New construction (square feet)	2,850,000	—	—	1,076,000	914,940	597,300	2,098,000	4,817,420
Rehabilitation (square feet)	—	—	—	—	—	—	0	0
Number of centers	13	—	—	—	—	20	22	27
Vacancy rate (%)	5.0	—	—	—	5.0	5.0	5	5.0
Standardized leases								
(Current US$/square foot)	10.00	—	—	14.00	—	17.90	19.65	21.60
(Current Pesos/square meter)	4,320	—	—	3,900	—	7,736	8,509	9,360
				Office market				
Inventory (square feet)	15,280,000	—	—	28,747,500	22,604,400	24,102,400	25,824,000	27,550,000
New construction (square feet)	462,700	—	—	1,519,300	1,125,900	2,680,000	1,635,000	1,754,000
Absorption (square feet)	21,500	—	—	830,700	678,100	2,640,000	1,173,000	1,377,300
Vacancy rate (%)					8.0			
Downtown	1.20	—	—	5.20		2.20	3.00	2.00
Suburbs	10.00	—	—	16.00		4.00	4.00	8.00
Standardized leases								
(Current US$/square foot)								
Downtown	15.25	—	—	15.05	23.35	18.00	19.65	19.85
Suburban high-rise	9.70	—	—	12.90	14.85	11.10	12.50	14.30
(Current pesos/square meter)								
Downtown	6,600	—	—	4,200	6,600	7,800	8,500	8,600
Suburban high-rise	4,200	—	—	3,600	4,200	4,800	5,400	6,200

TABLE A.Vb—*Continued*

	1990	1991	1992	1993	1994	1995	1996	1997 (projected)
Typical land price								
(Current US$/square foot)								
Downtown	175.00	—	—	275.00	—	715.00	950.00	980.00
Suburban high-rise	57.75	—	—	62.25	—	325.00	380.00	450.00
(Current pesos/square meter)								
Downtown		—	—	77,000	—	310,000	410,000	425,000
Suburban high-rise		—	—	17,489	—	140,000	165,000	195,000
				Industrial property				
Industrial employment	3,387,000	—	—	—	—	4,007,000	4,299,000	4,741,000
Inventory (ac)	815	—	—	—	—	9,730	10,170	11,240
Absorption (ac)	—	—	—	—	—	—	395	1,525
Vacancy rate (%)	—	—	—	—	—	10.0	10.0	5.0
Standardized leases								
(Current US$/square foot)								
General manufacturing	—	—	—	3.45	5.00	4.15	4.95	5.10
Warehouse	—	—	—	3.25	5.00	4.15	4.95	5.10
Land price industrial park	—	—	—	9.50	—	5.80	7.50	9.25
(Current pesos/square meter)								
General manufacturing	—	—	—	960	1,416	1,800	2,150	2,200
Warehouse	—	—	—	900	1,416	1,800	2,150	2,200
Land price industrial park	—	—	—	2,650	—	2,500	3,250	4,000

Source. Urban Land Institute, *ULI Market Profiles 1998: Pacific Rim*. Washington, D.C.: Urban Land Institute, various years 1994–1998.

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