CHAPTER 1

The Financial Crisis and Housing Markets Worldwide

Similarities, Differences, and Comparisons

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INTRODUCTION

The subprime crisis that began in the United States in 2007 sent the world into a financial crisis of unprecedented proportions. In the United States, this was manifested in a boom-bust cycle in residential real estate markets, the near shutdown of the country's financial sector in 2008, and a prolonged Great Recession of a magnitude not seen in the country in any cycle since the 1930s. The contagion in financial markets became clear very quickly, affecting countries around the world, including Singapore, New Zealand, Iceland, the United Kingdom, Germany, France, and Ireland, to name a few, as well as a some fast-growing emerging economies to a lesser extent. Both residential and commercial real estate markets as well as stock, bond and asset markets appeared vulnerable worldwide.

As the dust settles, it has become clear that some countries were more vulnerable than others. In particular, impacts on residential real estate ranged from unnoticeable in countries as far apart as Australia, Germany, and Israel to sharp downturns in Ireland, Spain, and the United Kingdom; the latter group at a level that at a cursory glance appears to closely mirror the U.S. experience. This book was conceived for the purpose of examining if and how the contagion spread to housing markets throughout the world, what were the paths and transmission mechanisms by which it spread (through financial markets, directly through global real estate markets), and what was the institutional and regulatory context in which

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policy measures were adopted in response to the spreading financial crisis. The timeline in most of the papers in this volume covers the period starting with the run-up prior to the crisis, the unfolding months of the crisis itself, and the post-crisis recovery period up to the present time (summer 2011). The widely varying experiences of both the housing and mortgage markets in the countries described here provide evidence of the complex interplay of the roles of economic conditions, the institutional setting, regulatory framework and policy responses in directing and responding to the flow of the catastrophe.

The financial crisis was global; housing markets are local; and the primary geographic unit of analysis in the chapters in this book is national, albeit with numerous examples of subregional and urban housing markets in those countries. The institutional structure of housing markets and the policy domain in most countries is national, as was the political and economic response to the crisis. It is the interaction of the global linkages of the crisis, the economic fundamentals at the local and national level, and the policy issues being played out on the national stage that is the recurring theme of this book.

The book is organized in five sections, and each primarily groups together nations along geographic lines, although there are also other shared characteristics among the national market settings in each section. Part I is devoted to the housing market experience of the United States, as the epicenter of the global financial crisis (hereafter referred to as GFC). Part II includes chapters on six different European countries that experienced widely varying effects from the financial crisis, ranging from Germany, which continued its long-term but gradual downward trend in home sales and prices; to Denmark and the Netherlands, which, although affected, were able to contain the impact and did not need banking bailouts; to Ireland, Spain, and the United Kingdom, each of which experienced different combinations of financial and housing market woes.

Part III includes three chapters on Eastern European transition economies. Two of the chapters examine various aspects of the housing market and mortgage finance system in Russia, while the third describes the transformation of the Serbian housing market since the political situation stabilized at the beginning of the twenty-first century.

Part IV is divided into two sections. The first consists of papers on the largest Asian economies. Two chapters look at two critical urban housing markets—Beijing and Shanghai—and the financial system in the People's Republic of China. Two other chapters analyze the housing market and financial system in India, one focusing on the transformation of the mortgage finance system and its implications for housing India's population with all of its diverse needs, and the other focusing in more detail on the evolution of its housing market and its experience during the GFC. This subsection of Part IV is rounded out by a paper describing the Japanese experience over a series of real estate cycles and economic challenges that began long before the GFC and continue through to the present day.

The remainder of Part IV includes chapters on other, smaller Asian markets. In terms of institutional setting, Hong Kong, Taiwan, Singapore, and Korea are even more diverse than the European markets described in Part II. However, these countries all came into the GFC after enduring the common and painful experience of the Asian Financial Crisis (hereafter referred to as AFC) more than a decade earlier. Each chapter describes not only the GFC from the country's

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perspective but also the manifestations of the current crisis in comparison to the AFC.

Part V is the only section of the book that is not based on a common geographic region. Instead, this section covers four countries from around the globe—Australia, Brazil, Canada, and Israel—whose housing markets showed various levels of immunity to the consequences and contagion effects of the GFC.

In this chapter, we take the liberty of briefly summarizing some of the key points of each paper by the contributors in this volume and draw on their research, as well as on some other key studies that have provided a comparative context for examining housing markets and housing finance across countries, in order to describe the commonalities and differences in the behavior of these markets in the context of the GFC. We conclude the chapter with our observations on some common knowledge gleaned and lessons learned regarding the factors that made housing markets and financial systems in different countries more or less vulnerable to the consequences of the GFC, with particular attention to economic structure and institutions, role of the public sector, global financial and economic linkages, housing market specifics, and regulatory stance as key elements.

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A COMPARATIVE LOOK AT HOUSING AND FINANCIAL SYSTEMS

Earlier research has compared housing finance systems across different parts of the globe and housing price trends before and during the GFC. Green and Wachter (2005), Ben-Shahar, Leung, and Ong (2009), Kim and Renaud (2009), Duca, Muellbauer, and Murphy (2010), and Lea (2010 and 2011) deal with a selective, comparative analysis of mortgage and housing markets worldwide. To our knowledge, our book stands out in two respects: (1) It is set against the backdrop of the financial crisis, which helps to bring out the differences and commonalities of markets and institutions across the world in a vivid fashion; and (2) it is very broadly representative, with examples from every major continent and most significant markets, particularly those with important distinguishing characteristics and structural attributes in their housing systems.

The countries examined in this volume vary along several important dimensions, including size of the economy, role of government in economic and housing affairs, structure of financial institutions, the role of the private sector in housing production and finance, and the history of the housing market. Several of these dimensions are summarized in Exhibit 1.1. The group of countries includes two city states with a housing base on the order of a million units, small countries with approximately 2 to 8 million housing units, mid-sized countries with housing stock in the range of 12 to 30 million units, and larger countries, with stock ranging from close to 60 million to over 200 million. Owner occupancy ranges from only 42 percent in Germany to close to 100 percent in Serbia, with many countries averaging between 60 and 70 percent.

The institutional setting also varies widely, with some governments heavily involved in either the ownership, control, and distribution of land (as in China), the construction of housing (Singapore), or the privatization of previously public

Exhibit 1.1 Comparative Data on Housing Market and Housing Finance Systems

	Housing Stock 2009 (millions of units)	Percent Home-owners	Loan to Value Ratio	Variable or Fixed Rate (majority)	Government Role in Housing	Mortgage Deducti-bility	Fee-Free Prepay-ment?	Government Guarantee or Mortgage Insurance	Mortgage Securitization	Recourse or Nonrecourse
Australia	8.3	70%	70%	Variable	Low	No	Partial; full after mid 2011	For lenders	Moderate	Recourse
Brazil	58.6	81%	62%	Variable	Low	No*		Mortgage subsidies	Moderate, gov't presence	Recourse
Canada	12.4	65.9%	90%	Short-term fixed	Low	No		CMHC	Moderate, gov't presence	Recourse
China	[11.2B m^2]	~80% in urban areas	60%	Variable	Moderate/ High	No	Yes	Insurance required for HPF loans	None	Loans linked to compul-sorary savings
Denmark	2.7	54%	65%	Variable	Low	Yes	Yes	No	Covered Bonds	Recourse
Germany	39.4	43.2%	74%	Variable with fixed limits	Moderate (for rental)	No	No	Covered bonds	Bonds	Recourse
Hong Kong	2.5	52.5%	70%	Variable	Moderate/ High	Yes (10 years)	Yes after 3 years	Mortgage Insurance may increase LTV	Yes	Recourse
India	211.9		65%		Moderate	Yes	No	On the table	Partial	Recourse
Ireland	2.0	74.5%	90%+	Variable		Yes (5 years)				
Israel	2.2	65.8%	NA	Both	Moderate	No*	Partial	Small share with private mortgage insurance	None	Recourse

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Japan	58.0	61.1%	80%	Variable 44%, Hybrid 31%, Fixed 25%	Low/ Moderate	No	For some lenders; most no	JHF (GHLC until 4/2007) 35% of loans	REITS, JHF (GHLC until 4/2007)	Recourse
Korea	13.8	60.3%	50–70%	Variable	High	No	No	Yes	Yes	Recourse
Netherlands	7.1	57.2%	80%	Fixed	Moderate	Yes	Limited	Government loan guarantees	Small OTC	Recourse
Russia	59.0	64% to 82%	60–70%	Mostly fixed	High historic	Yes	Limited	Being established	New since 2000	Recourse
Serbia	2.7	98%	95%	Variable	High historic	No	No	Yes	Under-developed	Mostly recourse
Singapore	1.1	80%+	80% private, 90% public	Variable	High	No	Yes, after teaser period	Insurance mandatory for public housing purchase	None	Both; non-R requires co-borrower
Spain	25.6	85%	70-80%	Variable	Moderate	Only for low income as of 2011	No	No	64% Covered Bonds, 36% ARM	Recourse
Taiwan	7.8	87%	70%	Variable	Low	Yes for 1st home.	No	Not yet	<5%	Recourse
United Kingdom	27.1	67.4%	74%	Short-term fixed, then turn variable	Moderate	No*	Yes if rate not dis-counted	Insurance available for mortgagor	Grew 2000–2007. now negligible	Recourse
United States	130.2	67.2%	80–90%	Both, currently mainly fixed	Low, local limits	Yes*	Varies by state	Multiple agencies involved	Highly Developed	Non-Recourse

*Capital gains tax limited.
Sources: Country statistical data centers; European Mortgage Federation; Housing Finance Information Network; Van den Noord 2005.

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housing stock (Serbia and Russia), while others rely primarily on market mechanisms and the private sector to take the lead in housing construction and sales. In some countries the government role involves encouraging homeownership through everything from subsidized transfer of government property to individual households, to tax relief from interest payments, down-payment support, or capital gains relief. Other countries focus instead on "social housing," with an emphasis on using government subsidies for the rental sector. Similarly, in some countries the mortgage financing system for housing is largely government-operated or heavily regulated, whereas others provide extensive leeway to the private sector, and even opportunities for foreign lenders. The capital market for securitized mortgages is another dimension along which there is a great deal of variation. These institutional differences set the stage for the degree of vulnerability of individual housing and mortgage markets, the degree and direction of a country's policy response, and the extent of intervention in financial and real estate markets once the GFC began.

THE FINANCIAL CRISIS AND GLOBAL HOUSING MARKETS

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It is not surprising, given the local and national attributes of housing markets, that the GFC had different degrees of impact around the world. Exhibits 1.2 and 1.3 provide a rough comparison of housing market reaction globally, by focusing on price gains during the run-up to the peak in a country's housing market, price declines in the period just following the GFC, and any subsequent price gains,

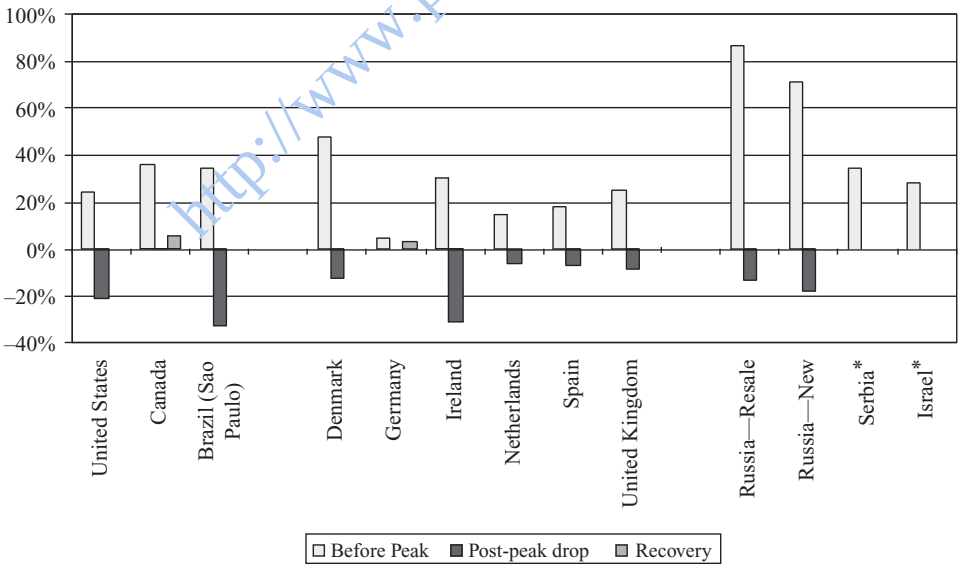

Exhibit 1.2 Annual Average Housing Price Changes, American and European Countries (three years up to peak, losses following peak, and recovery, if any).

*Housing market has not seen a price drop; three years to peak is the most recent three-year period.

Sources: European Mortgage Federation; World Economic Outlook; Australian Bureau of Statistics; chapter authors.

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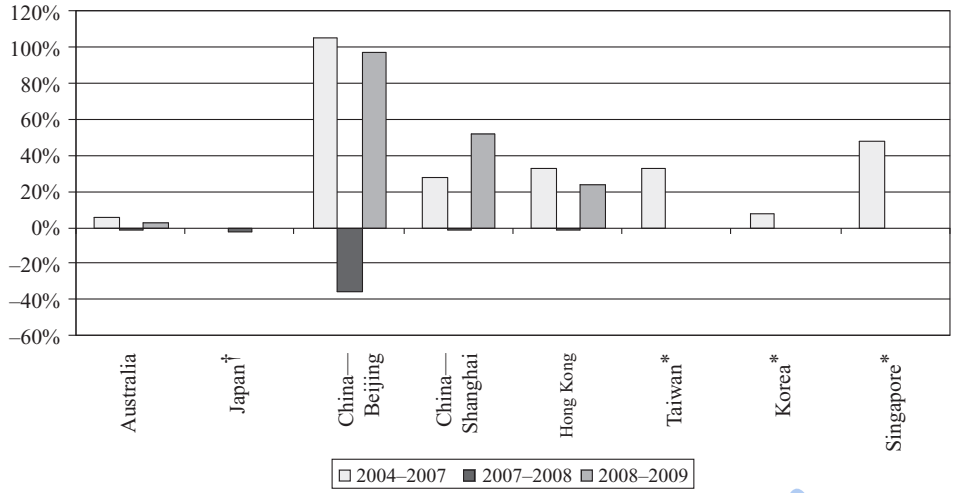

Exhibit 1.3 Annual Average Housing Price Changes, Asia-Pacific Countries (three years up to peak, losses following peak, and recovery, if any).

*Housing market has not seen a price drop; three years to peak is the most recent three-year period.

†Housing market saw price declines even during the boom. Drop is for the 2007–2009 period.

Sources: European Mortgage Federation; World Economic Outlook, Australian Bureau of Statistics; chapter authors.

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through 2009. The comparison is tentative because housing market statistics are not directly comparable across countries, with measures varying from indices drawn from repeat home sales, to time series of average or median prices. What is most relevant here is the direction of change, rather than small differences among trends. The United States did not have the highest rate of growth in housing prices in the period leading up to the crisis, nor the highest rate of decline in prices in 2008 and 2009, but the pattern of price build-up and decline is apparent. Most European markets also had price increases in the mid-2000s, followed by a price decline, but only in Ireland did the magnitude of the decline come close to that of the United States. Canada had a much milder drop, and was already seeing price recovery in 2009. Sao Paulo, in Brazil, had large gains and losses, although these were explained as much by a change in mix of homes sold as by the GFC, as described later. Two other markets on the periphery of the European sphere, Serbia and Israel, have not as yet shown any price downturn.

The Asian and Pacific markets had a very different profile from that of the United States and most of Europe. With the exception of Japan, which did not participate in the upswing at all, all Asia/Pacific markets that had a downturn during the GFC have had recovery upturns by now. In general, the urban or city state markets (Beijing, Shanghai, Hong Kong, and Singapore) showed much larger percentage upswings. Beijing and Shanghai had relatively large downturns as well, but these were smaller than the previous price gains and were quickly counterbalanced by price recovery in 2009. The greater volatility of these concentrated urban markets is consistent with the experience in the United States, where the largest gains and losses were concentrated in a few metropolitan areas, and much of the

rest of the country experienced much milder price changes. Australia had much smaller gains and dips, and as with many parts of Asia was also experiencing housing market recovery by 2009. The booming cities of India, such as Mumbai, Delhi, Bangalore, and others, saw significant price rises in the 1990s, continuing through in the twenty-first century, as well, as a result of economic growth, pent-up demand, and supply-side restraints, and, for most, the GFC proved to be a minor hiccup.

ONE WORLD, ONE CRISIS? DIFFERENCES AND SIMILARITIES BY REGION AND COUNTRY

Each of these chapters highlights the institutional and economic setting of the country and the interaction of these factors with the housing market and the global financial conditions.

United States

Bardhan, Edelstein, and Kroll highlight the factors that led the country into a situation where the financial sector and housing sector interacted to produce two bubbles that fed on each other. They describe the genesis and evolution of the crisis, including the role of federal policy in keeping rates low, the investor response leading to exotic and risky financial instruments, predatory lending, rampant speculation, the rise of household debt, leverage and other factors. They also present a cross-state analysis revealing the role of regulatory laxness in the growth of subprime mortgages and foreclosures. They point out that U.S. policy was reactive rather than proactive, and took many months to address the housing side of the problem. The crisis has led to a reworking of the mortgage finance system, with some stricter controls, but other troubling features, such as the "too big to fail" financial institutions, remain. The authors evaluate and analyze the policy initiatives proposed, and suggest some essential elements of a fair, effective, and viable plan to fix the residential finance system and the housing market.

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Western Europe

Denmark

Despite having a funding model that fully matches the cash flow for loans and the bonds used to finance the loans, the Danish housing market was a full-fledged participant in the frenzy of the price-rise preceding 2007–2008. Gyntelberg, Kjeldsen, Nielsen, and Persson point out that house prices dropped 20 percent during the crisis, and Danish policy makers were forced to introduce measures to stabilize the financial sector. Despite the turmoil, the mortgage system, including the mortgage bond market, continued to function throughout the crisis period. Furthermore, the authors argue, there were very few defaults, which was perhaps attributable to a combination of the recourse nature of Danish mortgages and the underlying social safety net that helped preserve household income even during financial stress.

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Germany

Lindenthal and Eichholtz point out that the German market is unique in Europe. Home ownership is low and German real home prices have been in a steady decline for 15 years. The housing market continues to show the aftereffects of the merger of East and West German economies, as the authors illustrate with the Berlin housing market, and there is no evidence of the economy being influenced by the most recent boom/bust cycle associated with the GFC. Prices neither surged any time during the 2001–2007 period, nor experienced an accelerated collapse any time during or after the GFC. In addition, Germany's housing policy is more heavily directed to rental housing than in many other parts of the world, with lower emphasis on encouraging home ownership. The secondary market is based on covered bonds tied directly to mortgages.

Ireland

Although at first glance Ireland's housing market boom appears to be a close sibling of the U.S. bubble, Simon Stevenson argues that, in fact, the origins are of a different nature. The boom in home prices spurred by the economic transformation of the Irish economy that began in the 1990s spanned more than a decade; average house prices in Dublin rose by 580 percent from 1994 to 2006. Only in the latter half of this boom, which ended in 2006, did a credit bubble, rather than economic and demographic factors, push prices into the speculative range. This credit bubble was built on a range of factors, including negative real interest rates, the increasing participation of banks (as opposed to more specialized building societies) in mortgage lending, and expanding mortgage products that required less stringent lending criteria. The unraveling of this bubble since 2006 was intertwined with the effects of the GFC, and the impacts were particularly severe for Ireland, destroying the stock value of three of the country's largest banks and ultimately leading the government into deep indebtedness.

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Netherlands

Home prices in the Netherlands have been on a trajectory of price growth since 1985, well before the most recent boom in the United States. Brounen and Eichholtz describe the history of these price increases as "stimulating demand; controlling supply." The government stimulates housing demand both by subsidizing rents for low and moderate income households, while at the same time offering tax deductibility for mortgage interest rates for households at all income levels. Banks are said to provide financing of home purchases through mortgages with very high loan-to-value ratios, which further stimulates demand. In contrast, the growth of supply, especially for owner-occupied units, has been tightly controlled and micromanaged, with the result that both rents and prices are at their all-time high, and the GFC has had little effect on rents and prices in the Dutch housing market. Much of the country's rental housing stock was built through the social rental sector in the period from 1945 through 1975. These units continue to comprise a large share of the housing stock, but growth of both social and market rate units have been greatly curtailed in recent years by local government controls.

Spain

The housing market in Spain was a poster child for the manic boom and bust characterized by the period preceding the GFC and the crisis itself. Like the other

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European examples described above, price increases began well before the 2000 to 2007 period (in this case in the mid-1990s), stimulated at first by an expanding economy that benefited from EU membership. Antoni Sureda-Gomila argues that expansion post 2000 was based not only on the expectation of growing demand, both domestic and pan-European, but also on the activities of lenders. Mortgagors who traditionally focused on local customers took part in this expansion, providing financing for much riskier (but potentially higher paying) loans for apartments and second homes. From 2000 to 2009, 5 million new housing units were added to an existing stock of 20 million, while the population grew by only 6.25 million to about 46 million. As the boom began to slow, new units were added at about twice the rate of absorption. The most problematic loans have not been those for individual mortgage holders but for real estate development and construction. As in the United States, real-estate development was a significant part of the economic boom, and as prices began to turn, the effects were felt in national employment figures, as well as in real estate, asset markets and the financial sector. The government has stepped in with loan modification measures, deferred payments for the unemployed, and a temporary fiscal stimulus. Longer-term measures include abolishing tax deductibility of mortgages and some restructuring of the banking system. As part of a single European currency, Spain, like Ireland, has had limited monetary response options.

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United Kingdom

The United Kingdom has had a volatile housing market for four decades. Whitehead and Scanlon show that financial deregulation gradually led to widening access to mortgages, while supply constraints limited how quickly supply could adjust to demand, leaving demand growth to be met by price increases. After a stagnant period in the 1990s, price growth took off from 2000 through 2007. While at first this growth appeared to be based on fundamentals, by the middle of the first decade of the twenty-first century, investors expecting continued value gains and a small but increasing share of subprime borrowers were also contributing to the growth. Growth in borrowing came less from expanding owner-occupant home purchases and more from investors and refinancing. During this period, the authors argue, U.K. lenders became increasingly dependent on the securitized mortgage market for funding home mortgages. It was the freezing of access to short-term credit, rather than direct links to any risky U.S. investments, that sent the U.K. financial system into disarray. Nevertheless, the larger economic outcome for the United Kingdom, to date, has been less extreme than for either the United States or Ireland. Unemployment rates have been lower than predicted, as have mortgage defaults. Homeowners with troubled loans have been given the possibility of giving the unit back to the bank while renting back.

Overall, the European markets in this book that were most integrated with global markets, either through capital flows, as in the case of Ireland and the United Kingdom, or in terms of housing demand, as in the case of Spain, were particularly vulnerable to the crisis. While in most cases one could argue that the roots of the problem were planted well before the U.S. housing bubble grew, these economies were sensitive to the effects of the bubble because of their integration with the larger European and global economies. Germany is an interesting counterexample, one that is also heavily integrated into both goods and financial markets worldwide,

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but where a combination of institutional, political, and historic factors did not foster a boom and kept the "double bubble" effect in check.

Eastern Europe

At the time when many of the European markets were starting off on a 15- or 20-year housing price growth cycle, many of the economies of Eastern Europe were just beginning their transition from planned to free-market economies. Countries where property ownership for decades had been in the hands of the state were looking to transfer this ownership into the hands of the housing occupants. These countries also began with no private development sector—the great majority of modern housing stock as of 1990 was built by the public sector. Overall, the experiences described in these chapters are set in the context of an economic and institutional system in the throes of deep structural change.

Russia's Housing and Mortgage Market

Unlike most European countries, Russia still has significant pent-up demand, arising out of the turbulent 1980s and 1990s. Kosareva and Tumanov highlight the fact that a mix of household savings and funds, and loans from a variety of other sources, including government support, rather than just bank loans have historically been the primary source of funding home purchases. Mortgages are more likely to be used in the purchase of new homes rather than in re-sales. In 2008, mortgage loans accounted for only 2.8 percent of GDP, which, nevertheless, was 28 times the level of 2004. There was no secondary market for loans until 2000, and through 2008 less than one fifth of all mortgages were securitized. The share of foreign currency loans declined, from over one third of all securitized loans in 2008 to less than one sixth in 2009. Public policy in this period adjusted how loans could be used (allowing mortgage-type loans to be made to the purchaser at the time construction began) and the type of funding available to lenders, with an expanded role for government-housing finance agencies and quasi-public banks. Kosareva and Tumanov argue that although prices have risen substantially in Russia in the last decade, the underlying factors do not indicate a bubble.

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Russia's Financial Markets and Regional Manifestations

The second chapter on Russia (by Sprenger and Urošević) explores the differential impacts of local and global capital in the period preceding and during the crisis, as well as some of the factors leading to regional variation in the housing market and GFC consequences. Russia's natural-resources-based economy led to sustained economic growth for much of the past decade, but also made it vulnerable to a global crisis. It was the downturn in exports, the drop in commodities prices, and the global financial consequences of the U.S. meltdown that slowed Russia's economy and housing market, rather than a housing and financial bubble within Russia. Although the majority of mortgages came from large, state-controlled banks, the smaller share of euro-denominated loans proved to have much more volatile payment rates (because of varying exchange rates), leaving borrowers more vulnerable to default. Home prices, which dipped in 2009, had already begun recovering by 2010 in the re-sale market (which is less dependent on loans), while defaults have been much higher in the foreign currency denominated loans.

Serbia

Like Russia, Serbia went through a period of transition from state to private home ownership. Because of civil war, the transition only began in 2000, but has been more complete than in Russia. Šoškić, Urošević, Živković, and Božović point out that even under the previous socialist system, there was private, or rather individual, property, and many families obtained ownership rights to housing through their companies; homes that transferred from public ownership often transferred at nominal rates. The country now has a home ownership rate of 98 percent, the highest of all of the countries in this book. However, for many existing homes, the registration of home ownership has been informal, making ownership title transfer difficult. Thus, much of the home sale activity, especially as financed by mortgages, has been in the relatively small new home market. The country's financial institutions were totally dismantled during the period of political strife; and mortgage lending, while growing, still applies to a relatively small share of the market. The country does not have a secondary mortgage market, but the Serbian government has actively promoted and subsidized mortgage lending, and is helping develop a mortgage insurance system. The authors observe that while prices did not dip with the GFC, this may in part be due to postponed sales, and a price adjustment could take place in the future. Further risks, including legal, liquidity, and currency risks, will also affect the continuing development of the Serbian housing market.

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The Large Asian Markets

Three of the largest housing markets in the world are located in Asia: China, India, and Japan. All three economies are integrated with the world financial markets to varying degrees. Indeed, heavy Chinese investments in U.S. treasuries and agency bonds have been singled out as one factor in the complex mix of forces contributing to the boom, through the lowering of interest rates. In the case of India and China, rapid economic growth and demographic factors formed the fundamentals of housing demand. However, financial integration and the importance of trade in these economies still left them vulnerable to fallout from the financial crisis.

China—Beijing

As Ping, Zhen, and Xu point out, the Chinese housing market presents an unusual mix of public sector and private sector participation. With full, statutory public ownership of land and public regulation of investment activity, the authorities have an unusual array of resources and tools to control the pace and direction of the market. Beijing home prices grew rapidly in the period just preceding the GFC, dropped sharply for a brief period in the last quarter of 2008, but by late 2009 had fully recovered and were continuing to rise rapidly, leading to global concerns of a fresh bubble. The authors point to several factors to explain the resiliency of the Beijing housing market. The nature of the real estate finance market, with relatively little securitization, as well as strict due diligence of borrowers, limited the number of problem loans. International funds continued to flow into China during the GFC, while problems in the economy actually led investors to look to real estate as a safer direction for investment than into export-oriented businesses. The Chinese government was aggressive in its fiscal response to the GFC, moving

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to stabilize the economy through social, administrative, and economic measures. Authors argue that speculation and local government actions may be bringing Beijing prices to levels beyond what would be supported by the fundamentals.

China—Shanghai

Jie Chen's chapter on Shanghai uses recent data to examine the relationship between the expansion of the mortgage market in China and the boom in home prices. The Shanghai housing market has experienced several large swings in the past three decades, the most recent of which occurred in the wake of the GFC. Access to mortgage credit has been one factor in these cycles. Most recently, mortgage availability has been used as a tool to stimulate the housing market during periods of slowdown and to rein in price increases during periods of too-rapid price gains, but with limited success. Fiscal stimulus and loose monetary policy also contributed to surging property prices since 2009, providing further evidence that China could still face a possible housing bubble.

Indian Housing Finance

The development of the Indian housing market must be viewed in the broader context of the country's urbanization and robust urban economic growth, which is creating strong demand for urban housing. India was not directly exposed to the subprime mortgage crisis. Verma argues that the India banking system, in some ways modeled on the U.S. and British systems, has been well capitalized and well regulated, and did not face some of the issues of the more liberalized models on which they were based. Even so, some effects of the GFC filtered through to the Indian economy. The real-estate market experienced slowdowns in both supply and demand, in response to the global economic downturn. Fiscal stimulus and liquidity infusions from the Indian government and the Reserve Bank of India have helped to support the real-estate sector. In the longer term, India faces issues of affordable housing policy as well as the need to expand access to credit.

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Indian Housing Market and the Indian Economy

Housing prices in India continued rising, after a short lull during the worst part of the GFC. High-income growth concentrated in urban areas contributed to the strength of the market. Chandrasekhar highlights the role of India's demographic profile in giving long-term stimulus to housing demand, along with an expanding middle class. Government interest rate and tax policy have also supported housing demand, and the author argues for strong controls and regulatory oversight over the banking and housing sector. Chandrasekhar also expresses concern that more recent price increases could reflect speculative demand, at the same time that loosened lending standards were beginning to allow loans to a wider range of borrowers. The Reserve Bank of India, however, is reported to have taken a series of prudential measures and has tightened lending policies to head off this risk.

Japan

The collapse of Japan's real-estate and asset bubble in the early 1990s has had long-term consequences for the country's economy, leading to prolonged stagnation. The financial sector, badly damaged by overextended lending, had to be restructured through government bailouts and mergers. As Seko, Sumita, and Naoi point out,

restructuring has affected not just the private banks. The Government Housing Loan Corporation, which historically accounted for up to one third of housing loans in Japan, was affected by government privatization policies after 2000, and began to lose share and revenue. Currently private banks hold a much larger share of mortgages than the restructured public provider. Japan's vulnerability in the GFC was not triggered by a real-estate bubble or bad loans, but by vulnerability to global markets and a significant decline in exports. The consequent GDP contraction was worse than the one following Japan's earlier bubble. Despite current economic issues in Japan and the country's experience with real-estate bubbles in the past, the authors see some lessons for long-term housing policy in some features of American mortgages. For example, non-recourse loans could improve home turnover and mobility, and securitization of mortgages could expand the lending pool.

Overall, the experience of these large Asian markets demonstrates several points. Any major financial upheaval will be felt by the economy in some way, in spite of the relative robustness and size of the large domestic sector and partial immunity to global events. Even if the banking and financial sectors are heavily regulated and controlled, the goods market linkages might be the transmission channel. The countries are large enough that trends in the housing markets are likely to be driven first by local factors, although to the degree that broader global conditions affect financial health and employment, these factors can then affect the housing market.

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Smaller Asian Markets

The AFC was felt in the real-estate markets of three of the four countries highlighted in this section, and became the gauge against which the effects of the GFC are measured. In general, controls put in place after the AFC kept these markets from expanding at the rate observed during the housing boom in the United States and parts of Europe. The fourth, Taiwan, also experienced several real-estate cycles in earlier decades, and developed policy measures to dampen booms. To the extent that the economies are linked globally to the United States and European countries through financial flows and global trade, they could not but experience some of the impacts of the GFC, yet these appear to have been less severe and less long-lasting than those experienced in the Western Hemisphere.

Hong Kong

Leung and Tang describe the evolution of the Hong Kong housing market during the GFC in the context of the events during the AFC. During the AFC, the Hong Kong housing price index dropped by more than 50 percent in a year. Hong Kong's experience in the AFC was complicated by the "handover" of Hong Kong from the United Kingdom to the People's Republic of China. Even following the AFC, government control of land sales combined with a small number of land developers kept prices high and gave the government leverage over building activity. Efforts to set up a mortgage guarantee and mortgage-backed securities system were not very successful. In the GFC, real-estate prices dropped less and recovered more quickly than in the AFC, while GDP dropped a similar amount but also recovered more quickly. In addition to institutional changes since the AFC, the close linkages

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with mainland China's economy helped to bolster Hong Kong through the most recent crisis.

Korea

Kyung-Hwan Kim emphasizes that in both the AFC and the GFC, the housing market became the victim of the economic crisis rather than the cause. In the AFC, prices were already declining, but turned down more sharply as other economic problems unfolded. The GFC occurred at a time of growing home prices, but the effect on prices was less severe. The aggregate output shock was also less in the GFC. Following the AFC, attention focused on policies to help the real-estate sector recovery, and Korea went from experiencing a housing shortfall at the time of the AFC to having a housing surplus by 2007. The government's initial reaction in the GFC was to try to support the housing market through changes in transfer and capital gains taxes, and easing mortgage credit availability. As prices began to recover, mortgage tightening and higher loan to value ratios were introduced. Having suffered less severe impact, the GFC failed to serve as important a platform for policy reform in Korea as had the AFC.

Singapore

The Singapore housing sector is very directly managed and controlled by the public sector. As Lum Sau Kim describes, strong economic expansion and liberalization of the public housing market before the AFC led to strong demand growth for housing. Demand dropped following the AFC, and the state curtailed public housing production and also reduced the supply of state-owned land for private housing. Over the next decade, Singapore's economic strength, growing global stature, and maturing financial sector led consumption and asset demand for housing to expand rapidly, with high appreciation both before and after the GFC, with a swift yet temporary downturn during the crisis. Since September 2009, the state has instituted several rounds of market cooling measures and has boosted the supply of both land and public housing to control the pace of price appreciation.

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Taiwan

In the past four decades, Taiwan's housing market went through four boom periods, from 1972 to 1974, from 1978 to 1980, from 1987 to 1989, and from 2004 to the present. The government attempted to dampen the first three booms by controlling credit availability, land supply, and development activity. In the most recent boom, the government did not try to dampen the rate of housing price increases because of broader concerns regarding the global economic slowdown. As Chang and Chen argue, Taiwanese house prices continued to grow throughout the GFC, raising housing affordability concerns for low and moderate-income households, particularly in Taipei.

Other Markets

Australia, Brazil, Canada, and Israel represent four distinct markets that interacted with places closely impacted by the GFC but which in various ways seemed insulated from the worst impacts. The specific institutional settings, as well as the

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nature of their economic linkages, help to explain the success of these markets to date.

Australia

The Australian economy has a significant natural resource base and is closely integrated with the major Asia-Pacific economies. These factors have formed the context within which to view the impact of the GFC. Housing price trends have varied across the different regions in the country, with the highest levels of appreciation occurring in the resource-based regions that have seen substantial economic growth due to exports to China. As Tirtiroglu points out, the Australian banking and mortgage system is unusual in that it leaves most of the risk in the hands of borrowers and depositors rather than with the banks. Until September 2008, the country had no deposit insurance. Moreover, the great majority of mortgages have been adjustable rate, with very short adjustment terms. One of the first government acts in response to the GFC was to stabilize the banking system by offering 100 percent deposit insurance. Australia entered the GFC with a budget surplus, which was quickly directed into stimulating the economy, keeping unemployment below 6 percent, and maintaining the gains that had been achieved in home prices. A concern going forward is whether the home price gains are sustainable and whether the banking portfolio remains too heavily invested in these loans.

Brazil

Wide income and wealth disparity in Brazil have led to a housing deficit of close to eight million units in a country of almost 60 million households, mostly for very low-income families. Haddad and Meyer point to the history of the Brazilian Housing Financing System, which was created in 1964. It provided a base for mortgage lending for two decades, but various crises of both an economic and political nature made it unsustainable, resulting in a long period of mortgage loan stagnation, from 1983 to 2005. Later structural changes in the economy, with inflation stabilization, lowered interest rates, growth in family incomes, effective redistribution policies, and implementation of a new regulatory system, led to increased mortgage and housing activity by 2006. The advent of the GFC reduced new starts and home sales overall, but most of the decline came at the higher end and for larger units, while the mix of smaller units continued to grow.

Canada

Like Australia, the Canadian housing market experience has varied widely across the country, with some of the highest price gains occurring in natural resource exporting regions. Carter highlights the fact that despite price gains in some regions and metropolitan centers, Canadians escaped the most extreme consequences of the housing bubble and subsequent meltdown experienced by housing consumers in the United States. There has been no freefall in prices and no significant escalation in mortgage defaults and bank foreclosures. The author argues that Canada has had a more conservatively managed and regulated financial system, and mandatory mortgage insurance and the small levels of subprime lending helped to prevent many of the problems experienced in the United States. Nevertheless risks remain, primarily from economic spillovers from the GFC in the form of impacts on the economy and unemployment.

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Israel

Ben Shahar and Warszawski conclude that the GFC had only a minor and short-term effect on the Israeli economy and its housing market. In the period preceding the GFC, housing prices were stable and flat. The country had entered a period of growth, following recovery from a prolonged recession brought on by a combination of the bursting of the dot-com bubble and the political environment. Housing market response in this period of economic growth was affected by the institutional structure underlying the market. The Israeli government owns 93 percent of the land, which it leases to private developers; there is relatively little public housing, and only limited support on the demand side for home ownership. At the time of the crisis the number of households was growing more rapidly than new supply coming into the market. Despite the importance of trade to the country and the slowdown of trade flows, the impact of the GFC was short-lived; the flow of mortgages slowed briefly, interest rates ultimately dropped, and housing prices rose sharply—by 21 percent in 2009. The authors' analysis of factors underlying housing prices and housing affordability lead them to the conclusion that this increase went beyond fundamentals, indicating that although Israel seemed immune to the worst effects of the GFC, its housing market may not be immune to the price bubble phenomenon.

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LESSONS FROM THE GLOBAL EXPERIENCE

Given the wide range of national housing markets analyzed in this book, are there any far-reaching lessons that can be drawn from their experiences in the course of the global financial crisis and in its aftermath? Different institutional structures, regulatory settings, economic conditions, global linkages, demographics, and political factors all combine to determine both the level of vulnerability of local housing markets to domestic and international shocks and the nature, direction, and robustness of the policy response. The following are some tentative conclusions that can be drawn:

- Regulatory structure and the will to enforce regulations made a difference. Countries experiencing the most serious negative outcomes tended to have more deregulated financial systems and often had lax regulatory oversight. However, it was possible to have a severe effect even without participating in the types of lending experiments that infused the U.S. subprime market.
- Global linkages played a role. Extensive foreign financial institutional participation in a country's mortgage market, significant foreign capital flows, and even heavy trade linkages, albeit to a lesser degree, made both the financial system more vulnerable when the global credit system froze up, as well as adversely impacted employment and other "real" economic variables because of a trade downturn.
- Quick, decisive public sector response was able to divert the worst of the impact in some settings. Australia's quick acceptance of deposit insurance, for example, diverted a potential banking disaster.
- Small interventions may keep a market from going off the cliff. Countries with strong control over the land market that used this to influence the

supply side were able to moderate booms and busts, although the temptation for frequent and arbitrary meddling remains.

- There was no "right" answer in responding to the impacts of the GFC. The chapters that follow provide many different examples of policy responses, from interventions in the national banking systems to providing programs aimed at individual homeowners, such as the rent-back alternative offered to defaulting homeowners in the United Kingdom.
- No country is immune from these bubbles, whatever the nature of the economic-institutional structure in place, but some managed this episode better than others. Many of the countries that managed well in this period were operating with safeguards that were established following previous bubbles.
- The combination of full recourse, prepayment penalties, and absence of mortgage rate deductibility may help reduce the chances of a bubble by imposing a risk burden on households, but at the cost of reducing ownership and mobility; in any case, more research is needed before a global conclusion is drawn.

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The evidence from these diverse countries emphasizes the fact that, despite globalization, housing markets are ultimately local. They are influenced not only by market forces such as interest rates, mortgage availability, employment, and demographics, but also by the regulatory and institutional framework in which housing supply (e.g., zoning and land use controls) and housing demand (financial subsidies, social policies, etc.) interact. At the same time, as national economies and financial systems become more globally integrated, no country is fully immune from major economic disruptions originating in a distant part of the world. Housing markets will be impacted through the medium of international financial flows; through the effect transmitted by goods or services traded; or through a combination of global social psychology, expectations, and "animal spirits" that seem to link investors everywhere. The case for coordinated global financial policy in times of crisis seems strong, even if the process of achieving it may be cumbersome. Furthermore, the repercussions of the global financial crisis have not necessarily ended in many economies described in this book, as some countries cope with national debt crises that arose out of efforts to stem the local impacts of the GFC, others struggle with sputtering economies and feeble employment growth, and yet others appear at risk of being on the brink of their own delayed housing downturn. A common and comprehensive lesson arising out of the experiences of this wide range of markets and institutional arrangements seems to point to a greater role for state structures and government institutions in the future, not merely due to the structural likelihood of a recurrence of financial crises, but also because of the dramatic increase in financial complexity and its regulatory requirements, the increasing range of conflicting interests, and issues of equity and fairness.

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and financing building in the green economy; the globalization of high tech and services sectors, including globalization of the real estate industry; the transforming housing market and California's future; affordable housing policy in California; the effects of the credit crisis on local public sector revenues; state and national responses to the housing and credit crisis; and patterns of firm births, deaths, and relocations at times of economic upheaval.

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