

# The local geographies of the financial crisis: from the housing bubble to economic recession and beyond

*Ron Martin\**

\*Professor of Economic Geography, Department of Geography, University of Cambridge, Downing Road, Cambridge CB2 3EN, UK. email <rlm1@cam.ac.uk>

## Abstract

The recent financial crisis, with its origins in the collapse of the sub-prime mortgage boom and house price bubble in the USA, is shown to have been a striking example of 'glocalisation', with distinctly locally varying origins and global consequences and feedbacks. The shift from a 'locally originate and locally hold' model of mortgage provision to a securitised 'locally originate and globally distribute' model meant that when local subprime mortgage markets collapsed in the USA, the repercussions were felt globally. At the same time, the global credit crunch and the deep recession the global financial crisis precipitated have had locally varying impacts and consequences. Not only does a geographical perspective throw important light on the nature and dynamics of the recent financial meltdown, the latter in turn should give impetus for a more general research effort into the economic geography of bubbles and crashes.

**Keywords:** Geography, housing bubbles, mortgage crisis, glocalisation, recession, financial reform

**JEL classifications:** G15, G21, R11, R21, R31

**Date submitted:** 18 January 2010 **Date accepted:** 19 May 2010

## 1. Introduction

In many respects it is difficult to write in temperate tones about the crisis that swept through the global financial system during 2008 and 2009. With the benefit of hindsight it should have been obvious when the mortgage finance boom was in full motion from 2001 to 2006 that it was almost certain to be unsustainable. All the signs were there, and indeed some warning voices were heard. The Bank for International Settlements expressed repeated concerns that risks did not seem to be properly reflected and priced in financial markets. In the UK, the Bank of England also issued warnings about this danger in its biannual Financial Stability Reports. And various market observers and analysts expressed concern: warnings over the growing house price bubble in the USA, UK and elsewhere were voiced as early as 2003; and by the middle of the decade writers such as Robert Shiller (2005) and Ann Pettifor (2006) were predicting that the enormous build up of housing and consumer debt in many advanced economies—and especially the USA and UK—would inevitably end in a massive downward financial correction.

But in general such warnings were either disregarded or dismissed—by the banks themselves, by regulators, by governments, and, it has to be said, by the vast majority of

economists. The economic theories and models on which financial activity had become based—the dynamic stochastic general equilibrium (DSGE) macro-economic models that dominated the policy decisions of national monetary authorities (such the Federal Reserve in the USA, and the Treasury and the Bank of England in the UK), and the ‘efficient market hypothesis’ (EMH) that guided the financial pricing and investment behaviour of bankers and fund managers—not only failed to detect emerging instabilities, but actually suggested they could not occur. Economists missed the origins of the crisis, failed to appreciate its worst symptoms, and have subsequently disagreed about the cure. The financial crisis has thrown economics itself into crisis (see for example, Colander *et al.*, 2009; Heaney, 2009; Hodgson, 2009; Lawson, 2009; The Economist, 2009; Triana, 2009; Krugman, 2009; Skidelsky, 2009).<sup>1</sup> At the same time, governments and regulators have struggled—and continue to struggle—over how best and how far to reform the financial institutions and regulatory architecture that led us to the crisis. The G20 meeting in Pittsburgh in September 2009 moved governments nearer to collective action, but whether that action will prove effective remains to be seen. National opinions still differ as to how stringent that action should be and what form it should take, with France and Germany apparently preferring tighter controls on the banks than either the USA or UK. Meanwhile, as for the banks themselves, although they may have moved to decrease their leverage and increase their capital ratios, and have become markedly more risk conscious, as yet there have been few signs of any fundamental changes in the cultures, practices and structural characteristics which many argue contributed to the crisis.

Whilst numerous economic analyses of the crisis have appeared, almost all of these have focussed on the failures of the banking system (especially with regard to reckless lending activities and the invention of new instruments to fund that lending), the problem of financial globalisation, the lack of regulatory controls over the banks and the need for a different global financial architecture (as just some examples of what is already a large literature, see Barth *et al.*, 2008; Soros, 2009; Whalen, 2008; Wray, 2008; *Cambridge Journal of Economics*, 2009; Skidelsky, 2009; Dymski, 2010). By comparison, analysis of the geographies of the crisis is less developed. According to French *et al.* (2009), the origins of the financial crisis can ultimately be located in four geographic spaces: (i) in international financial centres, in particular the long-standing competition that has existed between London and New York; (ii) in the insularity of the everyday geographies of money that have emerged in such centres in the wake of the apparent

1 In the UK, even Her Majesty the Queen was moved during her visit to the London School of Economics in November 2008 to ask an assembled group of economists and financial experts why no-one had foreseen the crisis. The responses have been mixed. That arising out of a debate on the question held at the British Academy (Besley and Hennessey, 2009) argued that many did foresee the crisis, but the problem was one of a ‘failure of the collective wisdom to understand the risks to the international financial system as a whole’. A group of heterodox UK economists (Hodgson *et al.*, 2009) has subsequently criticised the British Academy response for failing to mention the role played by the obsession within financial economics (and economics more generally) with mathematical modelling and technique in preference to real world substance and understanding. Krugman (2009) has also railed against the unreality of the models that have underpinned the economics profession and its failure to predict the crisis—a potentially powerful voice, though arguably a critique that sits uncomfortably with his own predilection for formal models, typically based on highly simplified assumptions, as found in his theoretical work in the ‘new economic geography’. And Skidelsky (2009) likewise assigns a considerable part of the blame for the financial crisis on the dominance within economics of arcane mathematical models based on assumptions that bear little if any relation to the real world.

hegemony of financialisation; (iii) in the geographical recycling of the surpluses and deficits in the global economic system, especially the structural dependence between China and the USA and (iv) in the growing power of the financial media, itself based in the international financial centres, as a force in shaping the behaviour and culture of financial agents and institutions).

Although these authors certainly point to some of the critical spatialities of the crisis, they do not examine any of these spatialities in any detail. Other brief remarks on the geographies of the financial crisis can be found in Wójcik (2009), Aalbers (2009a, 2009b), Englemann and Fauconbridge (2009), Sidaway (2008) and Lee *et al.* (2009). And some of the dimensions and implications of financial globalisation as they relate to European mortgage and financial markets are discussed in Aalbers (2009c) and Smith and Swain (2010); while the case for an 'economy geography of financialisation' is made by Pike and Pollard (2010). The message that emerges from these studies is that a geographical perspective is needed to fully understand the origins of crisis, its unfolding and its aftermath. Thus far geographical accounts have tended to focus mainly on the uneven consequences of the crisis globally. In this paper I focus instead on the local geographies of the mortgage crisis and meltdown, focusing primarily on the USA, where the subprime crisis broke, but also with some comparative discussion of the UK case, which while different in certain respects, closely mirrored the US experience. I show how local geographies have been implicated in all aspects of the crisis: from the house price and mortgage loan bubbles that led up to the crisis; to the bursting of those bubbles; to the economic recession that then ensued; to the debates over the need to reform the financial system so as to prevent such a crisis recurring.<sup>2</sup> The geographies of these processes have been highly localised. Yet at the same time, I show how these local geographies have been inextricably linked to and constitutive of global processes. For what proved to be of critical significance was the way in which local sub-prime mortgage lending ended up as securities traded on global bond markets, which securities in their turn were subsequently undermined by the collapse of those same local mortgage finance circuits on which their market valuations depended. What became a global financial crisis had distinctly local origins. Likewise, the global recession that ensued has also had markedly locally uneven impacts. These geographies help in understanding the making and breaking of the crisis. The underlying argument of the paper is that the recent financial crisis provides a stark example of 'glocalisation', and that it needs to be both conceptualised and analysed in those terms. What the paper also suggests is that the geographical study of economic crises and crashes, both past and present, is an area calling for more research.

## 2. Making the case for a geographical perspective

Now to some, the claim that a geographical perspective can cast explanatory light on the crisis may not be an obvious one to make. For one thing, it implies that we have available well-defined conceptual and theoretical ideas on which to draw to assist us in this task. However, it is barely two decades since economists began to think seriously

2 While the papers by Aalbers (2009a, 2009b) point to importance of geography for understanding the mortgage crisis, and give overviews of the crisis, they provide no in-depth geographical analysis. My aim in this paper is to contribute to this latter task.

about finance and banking in geographical terms, and since geographers for their part began to focus explicitly on the landscapes of money and finance. And while the literature on the geography of money has developed significantly since then (see for example, Dow, 1990; Corbridge *et al.*, 1994; Porteous, 1995; Thrift and Leyshon, 1997; Cohen, 1998; Laulajainen, 1998; Martin, 1999; Klagge and Martin, 2005; Clark, 2006; Gärtner, 2009; *Cambridge Journal of Regions, Economy and Society*, 2009; *Journal of Economic Geography*, 2009), as yet there is still no single, coherent and generally accepted body of theory of what the French spatial economist Francois Perroux (1950), writing over 50 years ago, called ‘monetary-space’. Certainly our understanding of the geography of financial crises is very underdeveloped. We know from studies such as that by Kindleberger (1996) that financial bubbles and crises, once set in motion, tend to develop over time in a characteristic way. But such studies have little to say on why financial bubbles develop when and where they do, and even less about how they unfold over space as well as time.

For another thing, some might argue that the fact that the financial crisis and ‘credit crunch’ infected banking systems and financial markets across the globe suggests that geography does not actually matter overly much: after all, almost everyone, almost everywhere, has been affected. According to this view, while location, place and distance may have played a central role in the organisation and operation of financial systems in the past (for an interesting study, see Flandreau *et al.*, 2009), the process of globalisation—of accelerating global financial integration—that has occurred over the past three decades has to all intents and purposes rendered geography irrelevant. This argument was made particularly forcefully, of course, by Richard O’Brien (1990), nearly two decades ago. His contention, it will be recalled, was that the rise of advanced information communication technologies, the widespread deregulation of banking and financial systems, the growth of global banks, and the development of innovative financial instruments such as securitization, were radically transforming how financial markets worked. Money, he stressed, had become hyper-fungible and hyper-mobile, had ‘gone global’, and had escaped the confines and constraints of national, regional and local markets. As he put it:

As markets and rules become integrated, the relevance of geography and the need to base decisions on geography will alter and diminish. Money, being fungible, will continue to try to avoid and will largely succeed in escaping, the confines of the existing geography.... The closer we get to a global, integrated whole, the closer we get to the end of geography (O’Brien, 1990, 2–5).

However, although globalisation has continued apace since O’Brien wrote those words, even casual observation conflicts with any such claim that we have reached the ‘end of geography’ with regard to money and finance (Garretsen *et al.*, 2009). The evidence is surely all around us. Different countries continue to have different banking structures—compare for example the national branch banking system of the UK with the local and regional banking systems that still characterise countries such as Germany and Italy. And these different structures appear to influence the spatial allocation of finance, to small businesses for example (see Alessandrini and Zazzaro, 1999; Klagge and Martin, 2005; Gärtner, 2009). Different countries have different mortgage finance systems (see, for example, Aalbers, 2009b). Countries also continue to differ in their regulatory regimes and arrangements, even if their banking systems are also expected to adhere to

strictures set down under international agreements (such as the Basel Process). Further, financial markets may be globally integrated but they are organised in and controlled from particular places, most notably the major financial centres, where the majority of leading global banks and other financial institutions, and vast numbers of financial workers, continue to be located.<sup>3</sup> Indeed, globalisation has intensified the competition between these centres over shares of global banking, fund management, equity trading and other financial activity (see, for example, Martin, 1994; Cassis, 2005; Capelle-Blancard and Tadjeddine, 2009). Yet further still, there is evidence that a country's physical distance from these centres still plays a role in determining the stability of its financial system (Bieri, 2009). And several countries remain all but excluded from the global financial system, or have access to it on very unequal terms (Dymski, 2009a). In short, geography, in the conventional sense of location and territory, as a space of places, still matters in finance. The world of global finance is far from 'flat'.<sup>4</sup>

What globalisation has done is not to annihilate geography, but to render monetary-space both multi-scalar and much more complex (O'Brien and Keith, 2009). Monetary-space is a space of transactions—of transfers of ownership of assets, of entitlements to payments, and of obligations to pay—as well as a space of places. To be sure, monetary transactions, even in electronic form, occur between actors and institutions located in particular locations. But these transactions also map out complex spaces of functional and relational interactions and interdependencies between actors, institutions and places. A major consequence of globalisation has been to create new relational and functional monetary spaces that are simultaneously geographically compressed and geographically stretched. On the one hand, globalisation has 'delocalised' local financial circuits, connecting local financial transactions and assets into global financial market networks, thereby making local financial outcomes highly dependent on the behaviour and decisions of actors and institutions far removed not only in a locational sense, but also in functional and relational terms. But at the same time, this very process has 'localised' the global, in the sense that global financial transactions and markets, and the fortunes of the global institutions and actors that shape them, have become inextricably connected to and dependent on—in some instances critically dependent on—the conditions and processes at work in local financial circuits in particular places. Interruptions to money flows and valuations at the local level can spiral upwards through the space of transactions, and across the spaces of places, to disrupt financial markets at the global scale, which then trigger unintended impacts back down to other, distant localities. In essence, as geographers would put it, monetary-space has become 'glocalised': the local and the global have

- 3 As Grote (2009) puts it, the spatial 'virtualisation' of financial activities and markets – the weakening of the benefits from agglomeration of financial institutions and actors through the widespread use of information and communications technologies – has its limits, and the continuing importance of face-to-face contacts and complex, specialised knowledge on the part of financial actors means that financial centres retain a strong comparative advantage in finance.
- 4 The idea that that globalisation has rendered geography irrelevant is by no means confined to O'Brien. A more recent and more general statement that the 'world is flat' is that advanced by Friedman (2005). Like O'Brien, he argues that there now exists a global information communications platform that transcends distance, place and geography, a platform that connects users anywhere, irrespective of their location. Even if this were true, which it is not, this platform is controlled from, or dominated by, certain places rather than others. For critiques of Friedman's thesis, see Florida (2005), and the contributions to the special issue of *Cambridge Journal of Regions, Economy and Society* (2008).

become inextricably interwoven. The recent financial crisis provides a striking example of this ‘glocalisation’ process, of how local housing and mortgage bubbles became systemically linked into and destabilised global financial markets and institutions, with profound implications back down to the local level. What it also demonstrates is how a major accumulation crisis—in this instance the collapse of an historic housing asset price bubble—is both geographically constituted and geographically consequential.

### 3. The new globalised model of local mortgage lending

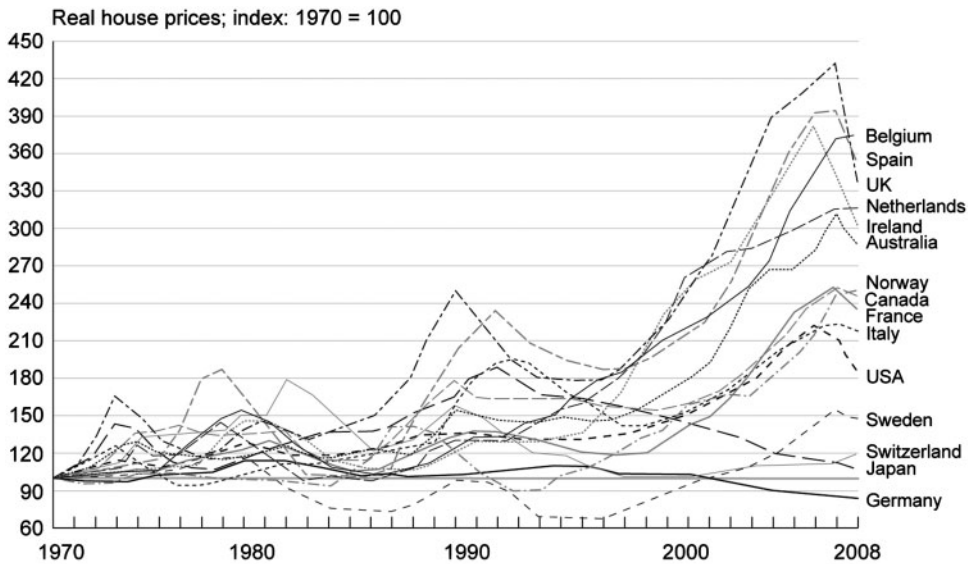
It is generally agreed that the proximate cause of the global financial crisis was the bursting of the US housing bubble around 2006–2007. Data on house prices across different countries through time are not straightforward to obtain, and different sources and estimates vary. Estimates constructed by McKinsey Global Institute (2009) reveal some striking features (Figure 1 and Table 1). Clearly, the recent house price boom was much more pronounced—and more synchronised—than earlier booms in the 1970s and late-1980s. Furthermore, the USA was not the only advanced country to experience a rapid escalation in house price from the mid-to-late 1990s onwards: several other countries also experienced dramatic house price inflation. In fact, the bubble in the USA was less pronounced than that in the UK, Ireland and Spain, for example. At the same time, in other countries, by contrast, the housing boom was much less evident: in the case of the Netherlands, Italy and Canada, the data suggest the rise in house prices was only around half that which occurred in the USA. In Japan and Germany, house prices actually fell. An initial issue, then, is what explains these broad geographical differences, and why it was the bursting of the US bubble that set off the financial crisis.

Various factors have been invoked to explain the housing bubble: such as falling real mortgage rates, demographic trends, income growth, the treatment of housing as an investment and speculative asset and so on (Goldman Sachs, 2007). But these factors clearly did not have the same effect in every country. And there were also country-specific forces at work. According to Sornette and Woodard (2009), the house price bubble in the USA and UK particularly was a manifestation of what they term a ‘perpetual money machine’ illusion, an unprecedented process of debt-financed wealth creation and consumption that bore little relation to real economic growth and fundamentals, but which was assumed to constitute a new ‘normal state of affairs’.<sup>5</sup> In the case of the USA, an undoubted factor was the stimulus to mortgage borrowing following the sharp reduction in interest rates by Alan Greenspan at the Federal Reserve in 2001, as part of his strategy to prevent the bursting of the US ‘new economy’ or ‘dot.com’ stock-market bubble turning into a full-blown recession: US house prices took off sharply after 2001. Another factor was that in the USA, home ownership has long been viewed as a key driver of economic growth, and a central social goal, and has been actively promoted as such by national governments.<sup>6</sup> In addition, and crucially, national differences in the scale of the housing bubble reflected variations and

5 Soros (2009) shows that the personal savings rate in the USA fell from around 6% in the early-1990s to less than 1% by 2006, while over the same period the real house price index doubled and household mortgage debt almost more than tripled, from \$3 trillion in 1994 to \$10 trillion by 2006. Similar patterns also hold for the UK.

6 As it was explicitly under both the Clinton and Bush administrations. The promotion of homeownership has also been a recurring prominent theme in UK politics: under the Thatcher governments, for example,





**Figure 1.** The house price bubble in historical and international context. *Source of data:* McKinsey Global Institute (2009).

differences in the way in which and extent to which global financial institutions became involved in the supply of mortgage finance, with institutions in the USA and the UK, especially, assuming an aggressive, expansionary approach to mortgage lending.

The recent house price bubble, then, differed in very significant ways from its historical predecessors. First, it drew in new mortgage lenders—major banks and other such institutions whose main activities had previously been global investment and capital market activities—eager to profit from the boom. Second, and critically, these institutions employed new models of raising funds for mortgage lending. Before the 1980s, in the USA and the UK, mortgage banks operated with long-standing product and geographical restrictions. Housing credit was supplied largely by locally-based specialist mortgage institutions (in the USA, the State Savings and Loans or ‘thrifts’; in the UK, mutual building societies, either locally-based or national societies with networks of local branches). These institutions issued long-term mortgages funded by the deposits of mainly local savers, and based on strict income checks on borrowers: to a significant degree, funds tended to be recycled locally, or at most inter-regionally. The model was essentially one of ‘locally originate and locally hold’ (Figure 2). Over the course of the 1980s and 1990s, several developments—including loan crises, deregulation, demutualization and financial innovation—brought about radical changes to the mortgage systems in both the USA and the UK, particularly an end to geographical and product restrictions, and, of key significance, the large-scale use of securitisation to fund mortgage lending.

Securitisation was the crucial aspect of the new model. Mortgage lending was substantially increased by securitizing the loans in the form of mortgage-backed

it was used explicitly as a device to extend the Conservative Party’s electoral support. In this respect, the USA and UK differ from many European countries.

**Table 1.** The house price bubble, 1997–2007, selected countries

Country	Percent change in average house prices
Ireland	251
UK	205
Spain	184
USA	175
Australia	139
France	137
Belgium	129
Sweden	126
Denmark	118
New Zealand	114
Netherlands	97
Italy	92
Canada	72
Switzerland	17
Germany	–10
Japan	–32

Source: The Economist (2007).

securities (MBSs) and bonds, collateralised debt obligations and other exotic financial instruments which were then released to investors on the global financial markets (Figure 2). It worked as follows. Mortgage brokers (charging a fee) introduced a house buyer to a bank. The bank granted the buyer a loan with which to purchase a house. The buyer then made monthly mortgage payments to the bank. But unlike in the traditional model, rather than holding the loan itself, the bank then parcelled the loan with other mortgages and loans into securities that were then sold to investors (e.g. pension funds, other banks, etc.) in the bond markets. As Dymski (2010) notes, the securitisation of standard or prime ('plain vanilla') mortgages began in the 1980s. From the late-1990s, however, the mortgage loans originated by banks and mortgage brokers were absorbed not by MBS funds but by so-called special investment vehicles (SIVs) or special purpose vehicles (SPVs) in which such investors could park their money.<sup>7</sup> These SIVs and SPVs were kept off balance sheet, and as a result did not appear in the annual accounts of the banks issuing the mortgages. They thus appeared to be notionally self-funding, in that they were not counted against a bank's capital requirements. Banks were thus able to expand their mortgage lending without putting strain on their capital. The SIVs and SPVs played a particular role in this process. A mortgage bank could set up a SPV—in effect a separate company—and then borrow from other banks cheaply and use this money to buy the securitized mortgage obligation that it had created by

7 The first SIVs were created for Citigroup in 1988 and 1989 (Mollenkamp *et al.*, 2007). The strategy behind these funds was to borrow money by issuing short-term securities at low interest and then lend that money by buying long-term securities at higher interest, making a profit for investors from the difference. SIVs and SPVs are generally regarded as forming part of the so-called 'shadow banking system'.



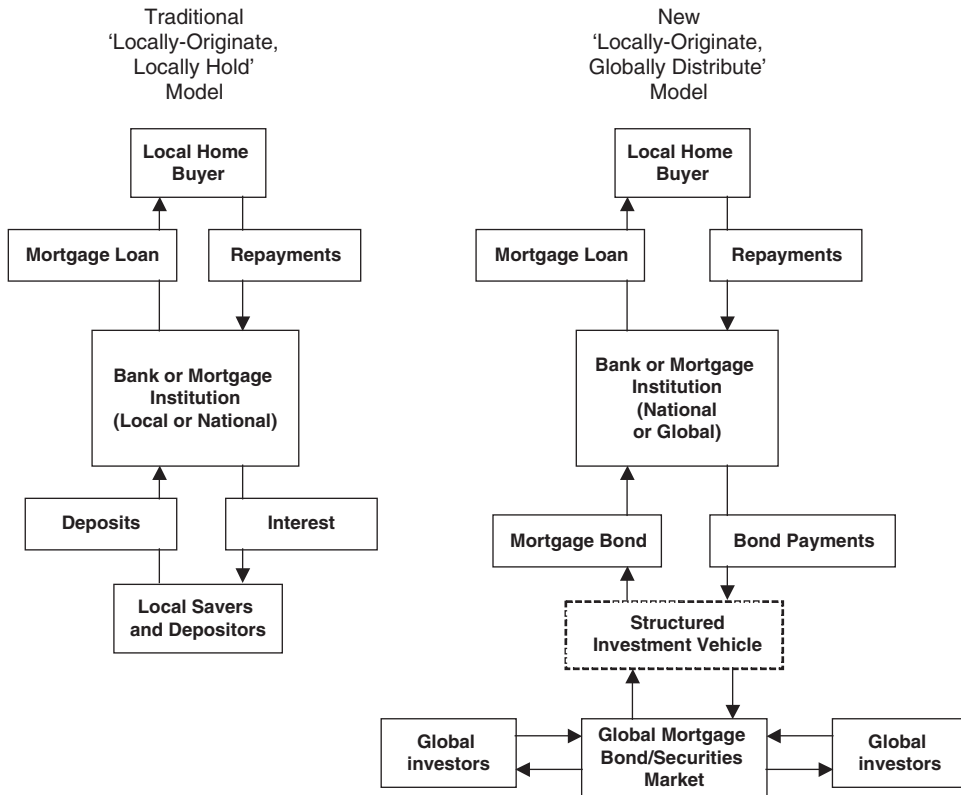


Figure 2. Globalising local mortgage lending.

parcelling numerous mortgage loans together. The bank then offered shares in this SPV to investors, who were keen to take up the offer because of the expected high future returns. In this way, much mortgage finance, including sub-prime loans, ended up as forms of structured debt.

As a consequence, this new model had profound geographical implications. In effect it globalised local mortgage lending, by integrating it into global bond markets and global flows of investment funds.<sup>8</sup> The model now was one of 'locally originate but globally distribute'. At the same time, this same process 'localised' global banking and global bond markets, in that the value of globally-traded mortgage backed bonds and securities ultimately depended on local housing conditions, specifically the ability of local borrowers to keep up with their mortgage payments and a sustained buoyancy in local house prices (asset values). Provided these criteria were met, mortgage payment default rates could be predicted to be relatively low, financial risk minimised, and profitable investment returns assured (Dymski, 2010).

However, third, this expansion of mortgage lending proved extremely profitable for banks, which earned a fee for each mortgage they sold on. This encouraged them in turn

8 Although the US Federal mortgage institutions, Freddie Mac and Fannie Mae, had for some time issued mortgage bonds, these were for prime loans, and were Government backed, and hence low risk.

to urge mortgage brokers and agents to commission more and more mortgages to what were non-conforming, high risk or 'subprime' borrowers previously too poor or insufficiently credit-worthy to obtain housing finance, and previously excluded from 'prime' mortgage lending. Racial minorities figured prominently amongst these new 'subprime' borrowers (US Department of Housing and Urban Development, 2000; Bradford, 2002; Dymski, 2009b). To these were added loans to borrowers seeking so-called 'jumbo' mortgages, and mortgages for second home purchase. Typically these sub-prime and jumbo mortgages were offered at deceptively cheap initial interest rates, which, however, were later raised to unaffordable levels (the 'adjustable rate mortgage'). In 1994, US 'subprime' mortgages amounted to \$35 billion, 5% of total mortgage lending. By 2006, at the height of the house price bubble, they amounted to some \$600 billion, or more than 20% of total mortgage loans. Banks like Seattle-based Washington Mutual Long Beach Mortgage, and Countrywide Financial, became aggressive major players in the US 'subprime' market.<sup>9</sup> Before long some of most famous names in global investment banking, including Lehman Brothers, Bear Stearns, Merrill Lynch and Morgan Stanley—all adept at securitisation—became highly active in creating and trading mortgage backed derivatives.<sup>10</sup> Previously, mortgage securitisation had required risk homogenisation by bundling quasi-backed credit from borrowers with low default risk levels. Now loans with substantial default risk were being bundled into privately backed securities. As late as 2005, in the USA this route to expanding household mortgage and other debt seemed to have the full backing of the Fed's Alan Greenspan:

As we reflect on the evolution of consumer credit in the United States, we must conclude that innovation and structural change in the financial services industry have been critical to providing expanded access to credit for the vast majority of consumers, including those of limited means. Without these forces, it would have been impossible for lower income consumers to have the degree of access to credit markets that they now have (quoted on [www.money-zine.com](http://www.money-zine.com)).

The premise was that local house price appreciation would permit the sustainable financing and refinancing of 'subprime' mortgage borrowing (Dymski, 2010). In essence, then, local risk (of mortgage default) was not only concealed by the securitisation of the loans involved, but assumed to be negligible in any case because of ever-increasing local house values.

Although the UK mortgage boom may not have been 'sub-prime' in the American sense, there is no doubt that traditional lending standards there were also relaxed and interest charges cut to the bone. Special low start mortgages rate offers, 2-year fixed deals, minimal initial down-payment requirements, increased loan to income ratios, and mortgages that allowed borrowers to roll up credit card and other debt with home loans, abounded. A dramatic explosion in the 'buy-to-let' segment of the housing market—essentially using housing as a speculative asset or a personal income or

9 At the height of the US housing boom, Countrywide Financial International had become a \$500 billion home loan machine, with 62,000 employees, 900 offices across the nation, and assets of \$200 billion. As the mortgage market boomed, no company pursued growth in home loans more aggressively. In August 2007, however, it narrowly avoided bankruptcy by taking out a \$11 billion loan from a group of banks.

10 At Lehman Brothers, for instance, mortgage-related business contributed directly to record revenue and income.

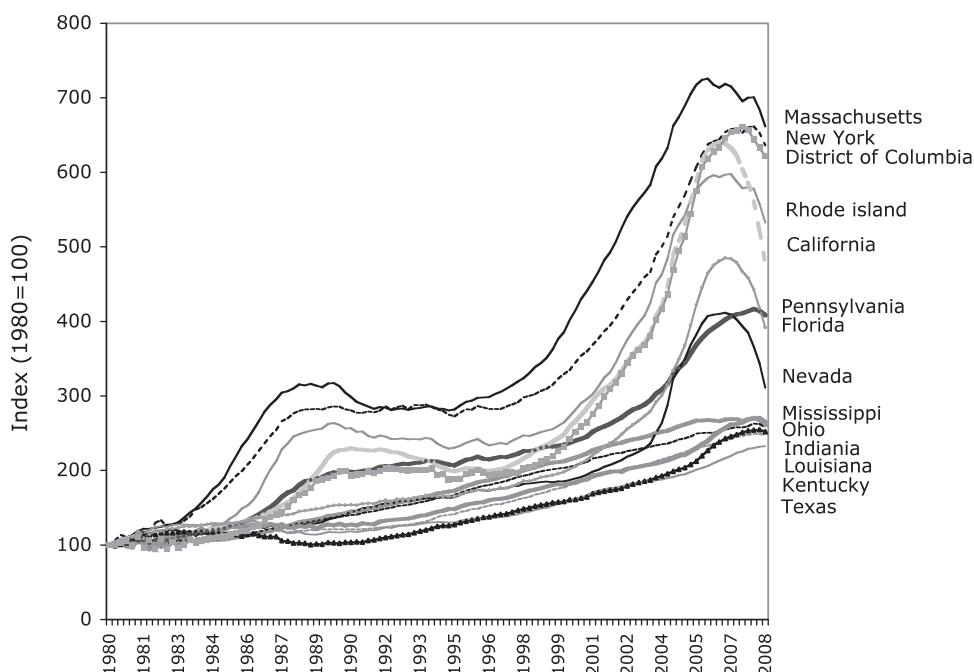
pension generating device—also contributed to the boom in mortgage lending. And some of the major UK mortgage banks, like their US counterparts, used securitization to raise funds for expanding their mortgage books. For example, Northern Rock, one of the UK's leading mortgage providers, not content to limit its lending to the funds provided by the savings of its retail customers, turned to the money markets and used the same complex financial techniques employed by US banks. Northern Rock's funding came from an SPV, Granite, based in Jersey. Mortgages to the value of £49 billion, taken out by households in local communities across the UK were siphoned off into Granite (Brummer, 2008). These loans were parcelled up and turned into traded securitized bonds, thereby providing the funds for a further round of lending. At the peak of its lending, some 75% of Northern Rock's mortgages were funded in this way. While the Northern Rock's mortgage loans were generally better secured and lower risk than those in the USA, the distinction between good quality mortgage securities and sub-prime toxic debt was not one the markets recognised when the sub-prime crisis broke in the autumn of 2007.<sup>11</sup> As in the USA, the glocalisation of mortgage lending in the UK was to have catastrophic effects.

#### 4. Local housing and mortgage bubbles

In both the USA and UK, rising house prices and the mortgage lending spree became mutually reinforcing financial bubbles. But in neither country were these bubbles simply 'national' phenomena. Housing markets are quintessentially local in their operation and impact, and housing a locally-fixed asset (Aalbers, 2009a). Although macro-level financial and other conditions shape the general context for housing demand and mortgage lending, local outcomes may differ considerably, depending on such factors as the pre-existing nature of the local housing stock, the buoyancy of the local economy and labour market, local incomes, the scope for new local house building, social and ethnic composition, and so on. House prices vary regionally, locally, from city to city, and from neighbourhood to neighbourhood within cities. The mortgage market is similarly highly geographically differentiated.

The housing mortgage bubble that eventually led to the crisis experienced in the USA was more one of local house price bubbles than of a national bubble: geography played a key role. At the state level, the bubble was primarily a feature of the north eastern states, specifically Massachusetts, New York, Rhode Island and District of Columbia—and certain southern and western states, namely California, Nevada and Florida, and it seems the bubble took off noticeably earlier in the former states than in the latter (Figure 3). There was a four-year lag, for example, between the take-off in house prices in New York and that in Nevada. Equally striking, however, is the fact that the house price bubble did not occur at all in a significant number of states, including the industrial mid-west (Ohio, Indiana) and in the south (Kentucky, Mississippi, Louisiana, Texas). In these areas house prices rose much more slowly over time and the rate of inflation showed little or no significant acceleration even during the peak period of the boom between 2003 and 2006.

11 The evolution of Northern Rock's over-expansion of mortgage lending, its use of securitisation to fund that expansion, and its eventual downfall in the crisis, is documented in detail by Chick (2008).

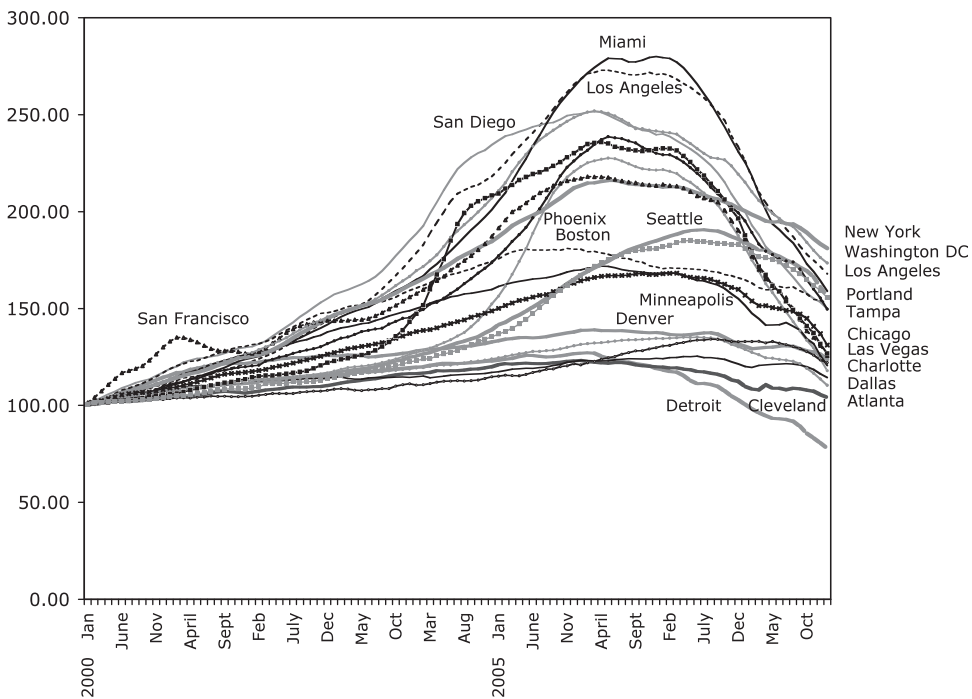


**Figure 3.** The house price bubble across selected US States (quarterly) 1980–2008. *Source of data:* Office of Federal Housing Enterprise Oversight ([http://www.ofheo.gov/hpi\\_download.aspx](http://www.ofheo.gov/hpi_download.aspx)).

These differences were even more pronounced at the individual city level, with cities such as Detroit, Cleveland, Charlotte, Dallas, Denver and Atlanta showing little evidence of the sort of bubble that erupted in cities like Miami, Phoenix, Los Angeles, San Diego, Las Vegas, San Francisco, Boston, New York and Washington DC (see Figure 4). Even Alan Greenspan (2005) acknowledged that the USA was not experiencing a nationwide housing bubble but a number of local bubbles, though as he put it ‘all the froth bubbles add up to an aggregate bubble’. In an obvious sense they did: but the fact is that despite relaxed lending standards and low interest rates everywhere across the USA, many states and cities experienced very little house price inflation during the bubble period.

In fact US cities fell into three main groups in term of the development of local house price bubbles (Hubbard and Mayer, 2009); first, cities that were characteristically supply-constrained and which traditionally have had ‘cyclical markets’—such as New York, Boston, Washington, Los Angeles and San Francisco; second, cities that because of slow economic growth and less constraints on new housing construction, had ‘steady markets’, and did not experience the bubble—such as Atlanta, Charlotte, Chicago, Denver and Detroit; and third, cities that were ‘recent boomers’, those which previously had stable markets but which experienced major waves of speculative house building and extraordinary increases in house prices—such as Las Vegas, Miami, Phoenix and Tampa.

Several studies have shown how ‘subprime’ mortgage originators and brokers targeted low income, poorly educated and often ethnic minority households, most of which live in inner city neighbourhoods, (see, for example, Wachter *et al.*, 2006;



**Figure 4.** The house price bubble across 20 major US cities (monthly), 2000–2009 (the cities are those included in the Case-Shiller House Price Index). *Source of data:* <http://ww2.standardandpoors.com>.

Dymski, 2009a; Gerardi and Willen, 2009) or were encouraged to purchase in new developments on the suburban fringes of cities.<sup>12</sup> This targeting of sub-prime lending did not always lead to significant increases in homeownership among inner city ethnic minority households, but instead generated turnover of properties owned by such groups (Gerardi and Willen, 2009). Furthermore, contrary to what has often been argued, high levels of local sub-prime lending were not always a key source of upward pressure on local house prices. This was especially the case in the ‘steady market’ cities in Illinois, Ohio and Indiana, which actually saw little house price inflation during the bubble, and thence offered restricted scope for subprime borrowers to use the equity in their properties to refinance their loans. In the inner areas of Cleveland, for example, ‘subprime’ lending reached well over half of all mortgage activity, but house prices in this city hardly rose at all (see Figure 4). ‘Subprime’ lending actually reached its highest levels in areas such as Florida, Nevada and California, where it was linked not only to existing segments of the urban housing stock, but was also associated with vast new speculative housing construction projects, and where it did help fuel dramatic local house price bubbles (see Table 2).<sup>13</sup> Thus while the escalation in ‘subprime’ lending in

12 The US nation-wide study by Henriques and Bergman (2000) found that African Americans were more than twice as likely as white households to receive subprime loans, and Latinos at least 40% more likely. Sub-prime lending grew 900% in inner city areas between 1993 and 1999 (Dymski, 2010).

13 It was some of these new housing developments that especially attracted the speculative interest of global banks such as Lehmans.

**Table 2.** Geographical variations in non-prime mortgage conditions in the USA, as at May 2008: percentage of mortgage lending classified as 'subprime'

Top states		Bottom states	
Florida	27.0	North Carolina	10.8
California	24.3	Arkansas	10.6
Nevada	23.2	Kansas	10.5
Connecticut	22.4	Wyoming	10.0
Rhode Island	20.9	New Mexico	10.1
Michigan	20.6	Alaska	8.2
Maryland	20.6	Vermont	7.9
Illinois	19.5	Montana	7.0
Ohio	19.0	West Virginia	6.3
Indiana	18.8	South Dakota	5.8
Texas	18.5	North Dakota	4.3

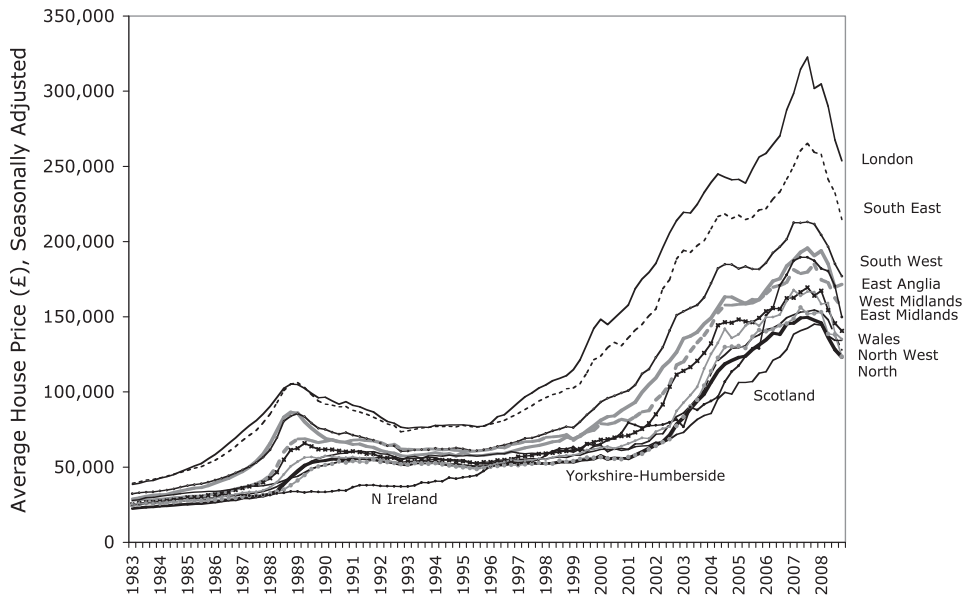
Source: Federal Reserve Bank of New York (<http://www.newyorkfed.org/mortgagemaps/>).

the old industrial cities and states of the north had little impact on house prices there, it played a significant role in the rapid house price inflation in states like California, Nevada and Florida.

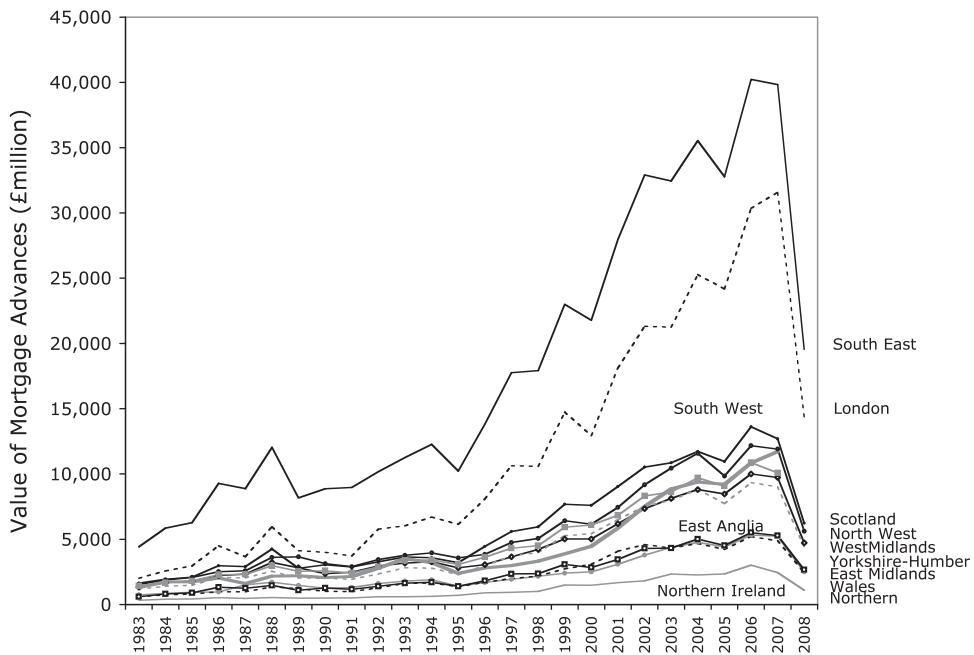
In the UK, house price movements have long been highly influenced by inflationary pressures emanating from the country's leading growth area of London and the surrounding South East region: this area has a similar supply-constrained, cyclical housing market akin to that of New York and its environs. Every recent UK 'national' house price boom has begun in the London-South East area well before moving out across the country as a whole, though usually unevenly so. The latest house price bubble was no different. It started in London and the South East in 1996, then moved outwards and northwards over the next five years, not really taking off in much of the northern and peripheral regions of the country (Yorkshire Humberside, North West, North, Scotland and Wales) until 2000 (see Figure 5). Equally, the scale of the boom differed: whereas in 1996, average house prices in London were 60% higher than those in the Northern region, by the peak of the boom in 2007, they were more than double. And, in line with these regional differences in the scale of house price inflation, London and the South East saw the largest increases in mortgage lending (Figure 6).

A not inconsiderable proportion of the mortgage bubble in London and the South East had to do less with 'sub-prime' lending and more with treating housing as a capital asset capable of yielding high rental income—hence the unprecedented expansion of the 'buy-to-let' market mentioned above—or as a means of funding future household consumption via equity extraction. Regional figures are not available, but national estimates of net home (mortgage) equity extraction (that is excluding equity used for home reinvestment) by the Bank of England suggest this increased dramatically as the housing market boomed: between 1990 and 1998, UK households extracted a total of £22 billion of net equity from their properties, whereas between 1999 and 2007 they extracted some £320 billion (<http://www.bankofengland.co.uk/statistics/hew/2009/mar/index.htm>). The USA witnessed a similar dramatic rise: between 1990 and 1998, an average of \$50 billion gross equity was extracted each year. This then increased





**Figure 5.** The house price bubble across the UK regions. *Source of data:* <http://www.hbosplc.com/economy/historicaldata>.



**Figure 6.** The mortgage bubble across UK regions. *Source of data:* Council of Mortgage Lenders.

sharply, and by 2005 the amount extracted had reached \$400 billion.<sup>14</sup> Estimates for the USA suggest that as much as half of gross equity extracted is used to fund additional household consumer spending (Greenspan and Kennedy, 2008). While there are no data on the geographies of equity extraction within either the USA or UK, it seems not unreasonable to assume that it was probably highest in those regions and cities where house price inflation was most rapid, and that it helped fuel consumer spending, and hence economic growth, precisely in these same areas. There is a need for more detailed research into the link between local house prices, local equity extraction and local household consumption.

What is clear, then, is that the house price bubble and mortgage lending bubble, and their economic impacts, were highly spatially differentiated and uneven processes. In the case of the USA particularly, this meant that while in certain areas risky mortgage lending became inextricably bound up with global banks and the global bond market, this was far from a geographically uniform process. And even in the UK, the house price and mortgage boom, though eventually nation-wide, was a process led in large part by the high-income driven markets of London and the surrounding South East region.<sup>15</sup>

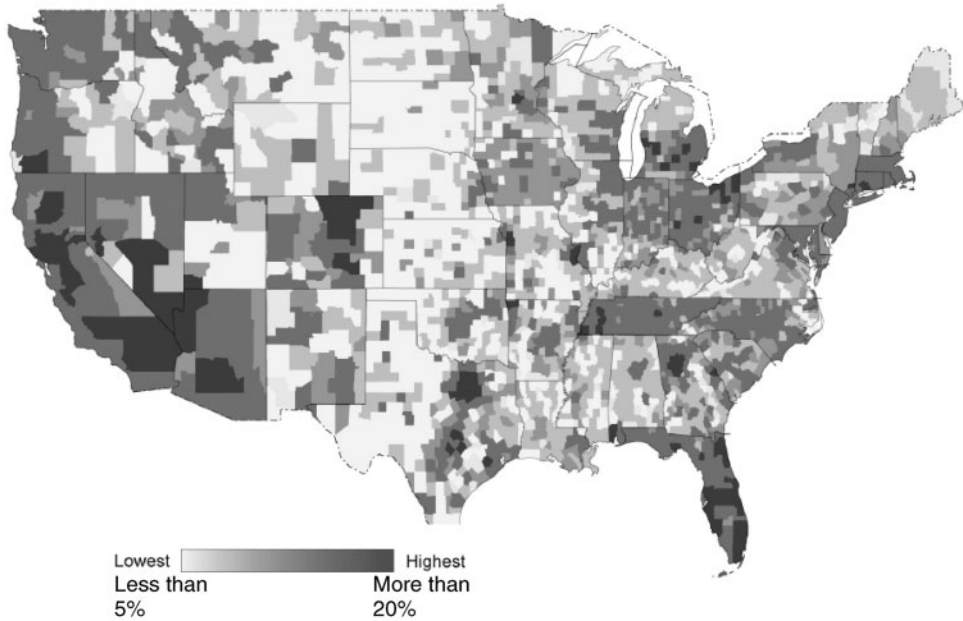
## 5. The local geographies of the sub-prime crisis

The US house price bubble burst in mid-2006, though the precise timing varied across states and cities (see Figures 3 and 4). By September 2008, US housing prices had declined by over 20%. This major and unexpected fall meant that many households found they had zero or negative equity in their homes. By November 2008, it was estimated that almost 12 million borrowers—around 12% of all homeowners—were experiencing negative equity. While this proportion may not appear large, these homes accounted for nearly half of foreclosures (Ivry, 2008). Increasing local foreclosures depressed local house prices by increasing the inventory of houses offered for sale. The number of new home sold fell by 26% between 2006 and 2007; by January 2008, the number of unsold new homes sold was almost 10 times the number of sales at the end of 2007. This overhang of unsold homes lowered house prices. As prices declined, more homeowners faced the risk of default or foreclosure.

This process was not a nationally uniform one, however, but was concentrated precisely in those areas that had led the sub-prime mortgage boom. ‘Subprime’ mortgages had a much higher repayment default rate than prime mortgages, driven in large part by the fact that many such loans were subject to adjustable interest rates that were increased substantially after the initial ‘teaser-rate’ period came to an end: foreclosure and repossession rates were consequentially high. A distinct geography of foreclosures thus emerged (see Figure 7). This then led to falls in mortgage payments to the global banks that had funded these mortgages through securitization, and thence a fall in bond payments and a rapid decline in the value of mortgage backed securities in global markets.

14 The Bank of England’s figures for the UK net out equity extracted for the purpose of housing (re)investment. The USA figures refer to gross equity extracted.

15 A not insignificant driver of high incomes in the London and South East regions was the extraordinary rise in salaries, wages and bonuses in the financial services economy of these areas, precisely the geographical loci of the financial boom in the UK.



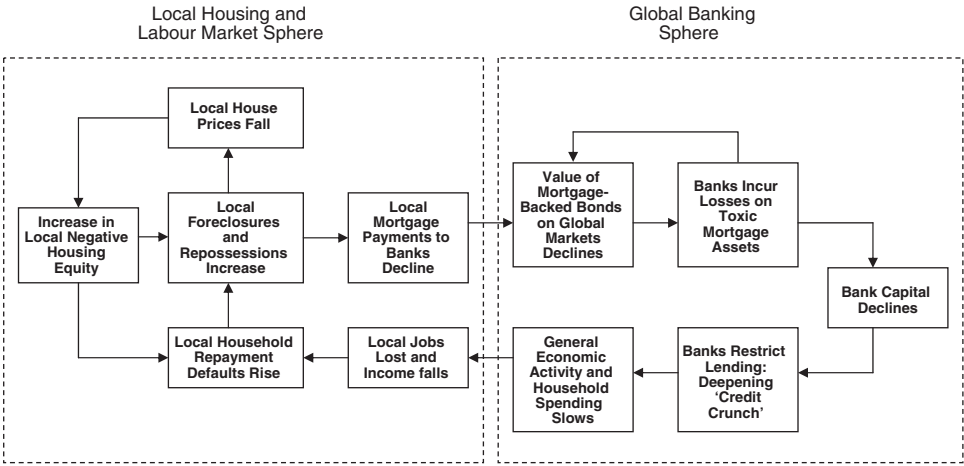
**Figure 7.** The local incidence of home foreclosures across the USA, 2007. *Adapted from:* <http://www.foreclosurepulse.com>.

Over the course of 2007, mortgage bonds lost between 60 and 80% of their value, across all asset classes, even those considered safe by the ratings agencies. It was this collapse that triggered the banking crisis, as the major global banks that had funded the ‘subprime’ boom encountered major losses. This in turn led to the global credit crunch, which in turn triggered the global economic downturn that then impacted at the local level, causing local job losses and increasing local repayment default rates and thence foreclosures (Figure 8). This feedback effect has meant that the higher the proportion of local mortgage lending that was ‘subprime’, the higher has been the local ‘subprime’ foreclosure rate (Figure 9).

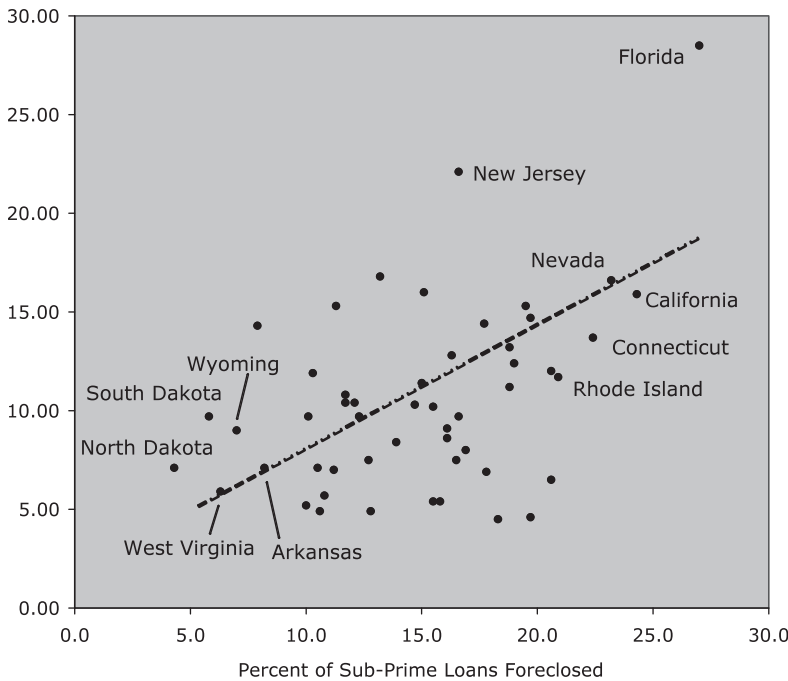
## 6. The local impact of the crisis-induced recession

Just as the housing-mortgage bubble and crash had a distinctly local geographical dimension, so too have the recessionary consequences of the credit crunch that followed. Since the recession has been driven in large part by the credit crisis and the collapse of the banks, the expectation was that its impact would likewise be most strongly felt in the finance sector and in the major financial centres around the world. Images of banking workers suddenly evicted from their offices, emerging jobless on the streets of New York, London and other financial centres fuelled this impression.

The International Labour Office (2009) has argued that the financial crisis will have resulted in a permanent shrinkage of the numbers employed in the financial services sector. While it estimated that worldwide employment in financial services shrunk by 325,000 between August 2007 and February 2009, and that more job losses would follow, it predicted that major financial centres would bear the brunt of this



**Figure 8.** The feedback between the local and global in the sub-prime crisis. *Source of data:* [http://en.wikipedia.org/wiki/File:Subprime\\_crisis\\_-\\_Foreclosures\\_%26\\_Bank\\_Instability.png](http://en.wikipedia.org/wiki/File:Subprime_crisis_-_Foreclosures_%26_Bank_Instability.png).



**Figure 9.** 'Subprime' loans and foreclosures by US state, 2008. *Source of data:* Federal Reserve Bank of New York (<http://www.newyorkfed.org/mortgagemaps/>).

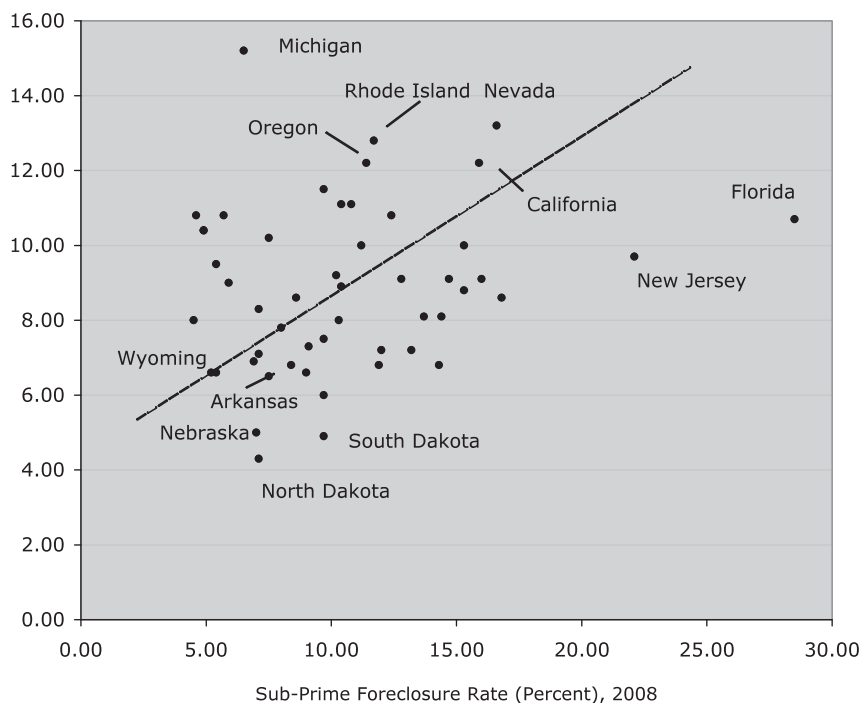
contraction: global banks have dramatically shrunk their workforces across almost all of the world financial centres, even in countries, such as Australia, relatively unaffected by the crisis. New York was expected to lose up to 100,000 financial services jobs; and London up to 70,000. Other cities around the USA, UK and other countries with

significant clusters of financial services, have also been hit. And the local impacts of the loss of lucrative financial jobs and bonuses have had knock-on effects in other sectors; the International Labour Organization estimates a contraction multiplier of between one and two further other jobs for each financial redundancy.

The impact of the banking crisis has thus had inevitable impacts on the local economies of the major financial centres. But the effects have also been felt elsewhere, often with much more serious local consequences. The USA lost over 2.1 million manufacturing jobs and more than 1.8 million construction jobs between December 2007 and November 2009, numbers that far exceeded the 560,000 jobs lost in financial and related activities (US Bureau of Labour Statistics: [bls.gov/pub/suppl/empsit.com/paes.txt](http://bls.gov/pub/suppl/empsit.com/paes.txt)). States and cities that saw the most intense rates of 'subprime' foreclosures have also been those to experience the highest unemployment rates (California, Nevada, Florida, Connecticut and New Jersey). Conversely those states that saw little 'subprime' activity and have had low foreclosure rates (North Dakota, South Dakota, West Virginia, Wyoming, Arkansas) have experienced much smaller increases in unemployment (Figures 10 and 11). The case of El Centro in southern California highlights how the 'subprime' crisis has impacted on the local economy. El Centro had one of the highest rates of 'subprime' lending, some 40% of the locality's borrowers purchased homes with this form of finance, often in the new housing developments that sprung up there in the boom. When the housing bubble burst, house prices fell, and foreclosures rose dramatically, housing construction ceased, with intense knock-on effects on



**Figure 10.** The geography of recession across the USA (Unemployment rates, May, 2009).  
*Source of data:* Bureau of Labor Statistics (<http://www.bls.gov/data/>).



**Figure 11.** Unemployment and 'subprime' foreclosures by US State, 2008 and 2009. *Source of data:* Federal Reserve Bank of New York (<http://www.newyorkfed.org/mortgagemaps/>); Bureau of Labor Statistics (<http://www.bls.gov/data/>).

employment in that sector of the local economy and on other local activities, and it now has one of the highest unemployment rates (23%) in the USA.

In some areas the impact of the credit-crunch induced recession has been severe even though there was no local house price bubble or 'subprime' mortgage bonanza. Manufacturing areas, particularly those specialising in consumer durables, have been very hard hit by the contraction in credit and the global economic recession. The state of Michigan is a typical case in point. Sub-prime loans barely exceeded 5% of total lending in this state, and house price inflation during the bubble was well below the national average. But already a weak economy before the crisis, with an ailing car industry, as a result of the recession Michigan now has the highest unemployment rate of any US state.

The same pattern has emerged in the UK. Whilst financial services lost 130,000 jobs between December 2007 and December 2009, manufacturing employment fell by more than 1 million. The recession hit the manufacturing regions of the country hardest, and especially the West Midlands. Whether measured in terms of jobs lost, unemployment or the fall in output, the London economy has suffered less than expected, and less than any other region (Table 3). Again, clearly, geography has been highly relevant. And it will continue to play a formative role in both the USA and UK in the years ahead. The depressive impact on the worst hit localities in both the USA and UK has been such that it raises real questions about the economic resilience of such areas and communities. Indeed, the recession has itself sparked off a growing interest in the



**Table 3.** The regional impact of recession in the UK

	Output 2008(1)–2009(2) Percent change	Employment 2008(1)–2009(2) Percent change
London	–4.8	–1.9
South East	–4.9	–2.9
Eastern	–4.8	1.3
South West	–5.0	–2.5
West Midlands	–8.2	–3.4
East Midlands	–7.6	–4.4
Yorks-Humber	–7.3	–3.5
North West	–6.7	–2.3
North East	–8.6	–3.6
Wales	–6.9	–1.8
Scotland	–4.7	–2.4
Ireland	–5.3	NA

Source of data: Experian, London.

issue of regional economic resilience within the economic–geographic literature (see *Cambridge Journal of Regions, Economy and Society*, 2010). Other things being equal, localities severely affected by the recession may be expected to take longer to recover than other localities that are less impacted, and in some cases it may well be that in the worst-hit areas the recession will have negative hysteretic consequences, so that employment may never return to pre-crisis levels. In addition to the financial-crisis induced shock to local manufacturing, those areas dependent on public sector employment could also see severe reductions in jobs and incomes as both US and UK governments seek to control and reduce public expenditure in order to reverse the dramatic increase in debt that has followed the state bail-out of the banks. Job cuts in the public sector are likely to be substantial, and these will almost certainly impact some cities and localities much more than others. The ramifications of the financial crisis have proved anything but spatially uniform, and have certainly not been confined to the financial centres where the global banks—the main culprits—are located. Furthermore, the effects may prove to be long-lasting.

## 7. Geography and financial reform

Not surprisingly the financial crisis has generated widespread calls for the reform and re-regulation of financial institutions and markets so as to prevent a similar meltdown from recurring in the future (Taylor, 2009). Whatever the final mix of regulatory controls, and these are still being debated a year and a half after the crisis first broke, reform of the financial system will inevitably have geographical implications. Two key aspects of the policy challenge illustrate how geography intervenes.

Inevitably, the banks themselves have begun to fight back at the prospect of countries re-regulating their financial systems. According to Josef Ackermann, the Chairman of the Institute of International Finance, the global bankers' association, global banks aim to match savings and investments globally, and the global financial system could

fragment if regulators in different jurisdictions persist in their attempts to reassert control over banks at the national level.<sup>16</sup> The risk, he contends, is that the system could fragment into national pools of capital. In his view, entire national economies would pay a high price for such ‘backyard regulatory overkill’. He warns that ‘there is a trade-off between maximising the stability of the banks and optimising the growth of the real economy’ (quoted in *Financial Times*, 2009). But the contrary argument can be mounted, that national economies have indeed paid a heavy price precisely because lax regulatory arrangements allowed banks to pursue destabilising levels and forms of lending and leverage.

Nevertheless, this concern over what Ackermann fears could be ‘backyard regulatory overkill’ is quite widely held. The argument is that because of globalisation, even small differences in regulatory freedom, tax regime and other controls or restrictions (e.g. on banker’s bonuses) influence the location of financial institutions and their key personnel, and thus where profits are made and spent and valuable tax take generated. Thus restrictions on bank activities, curbs on the bonus culture that rewarded speculation and unwarranted risk taking, higher taxes on the profits of banks, higher capital ratios, the enforced separation of investment and retail activities, and other such measures, cannot be imposed in any one country in isolation for it would have disastrous consequences for that country’s banks, its financial centre(s), and its economy more generally. Financial centres, so the argument goes, must compete on a level regulatory playing field, otherwise banks would have opportunities for ‘regulatory arbitrage’.

According to Anatole Kaletsky (2009), for example, curbs and controls on major financial centres would have three highly deleterious effects: they would severely reduce the contribution that the financial sector makes to the national economy (and by implication to all of a country’s regions); they would lead to an exodus of financial firms and workers to financial centres in other countries; and they would lead to a

16 The UK, USA and France all announced one-off ‘super taxes’ or levies to punish or penalise their banks, to deter the return of the high-bonus payments that encouraged the irresponsible expansion of mortgage lending and securitization which led to the crisis, and to recoup the public monies used to bail out the banks. However, the Obama super-tax and the UK government’s one-off bonus tax hardly cover the full sums of monies used to bail out and underwrite the failed US and UK banks. And one suspects the banks will find ways of absorbing these taxes and levies or passing them on to customers and clients. If one then adds in the scale of state spending on counter-recession economic support and stimulation measures (such as aid to Ford and General Motors in the USA, the £200 billion of ‘quantitative easing’ in the UK, and the extra unemployment benefits and social welfare payments these states have incurred because of the recession that the banking crisis brought about), the proposed short-term claw-backs on the banks seem wholly inadequate. At the time of revising this paper, the IMF has just proposed two new taxes on the world’s banks: a financial stability charge (FSC), which would build up a fund that governments could use instead of public funds to finance future bailouts; and a financial activities tax (FAT), that would be based on the banks’ profits and their bonuses, aimed at curbing excessive risk taking and redressing the VAT exemption enjoyed by banks on their products. Predictably the banks have reacted very negatively, and have warned they would respond by retrenching. At the same time, the US Securities Exchange Commission (SEC) has filed a civil fraud charges against Goldman Sachs in relation to its involvement in subprime mortgage securitization. Specifically the charge is that Goldman Sachs marketed subprime mortgage investments via one of its clients, Paulson and Co, one of the world’s largest hedge funds, without disclosing that Paulson had bet that the value of the mortgage securities would fall. The SEC alleges that investors in the mortgage securities, packaged into a vehicle called Abacus, lost more than 1\$ billion in the US housing collapse

decline in living standards and lifestyle aspirations for many because of the curtailing of credit to households and businesses.<sup>17</sup>

There is of course much about such arguments that is valid.<sup>18</sup> The presence of a major global financial centre is without doubt a highly positive force for national economic good, a source of considerable earnings, wealth creation and public taxation. But what writers like Kaletsky fail to take adequately into account in their opposition to post-crisis controls on financial centres like London and New York is the other side of the balance sheet. For while there are undoubted benefits of having such a centre, there are also costs, as the crisis has demonstrated only too clearly. Some twenty-five years ago James Tobin (1984) warned that there can be distinct disadvantages to a national economy of hosting a world financial centre. Such centres can be sources of inflationary pressures—in wages and housing for example—that then diffuse out across other regions. At the same, the financial centre and its hinterland may actually be parasitic, diverting valuable capital and human resources from the other regions in the country. For example, Sheila Dow (1999) has argued that the concentration of a nation's financial system in one major centre—especially if that centre also acts a major global financial hub—can restrict the flow of funds from the centre to the remaining regions of the country thereby producing uneven regional development, which in its turn reinforces the flight of funds to the centre (where there is greater liquidity and higher returns).

What would be useful in the current debate over reforming banks and banking is a comprehensive assessment of just what the benefits and costs are of having a major global financial centre. Do such centres match savings and investment globally in the most efficient and effective manner? How are the benefits and costs of such centres distributed regionally within their respective national spatial jurisdictions? Are domestic banking systems that do not have a major global financial centre and which are more regionally and locally based, less prone to imported global financial shocks? Do such regionally based systems result in a more geographically equitable distribution of funds? And just how locationally sensitive and mobile are banks and bankers to differences in regulatory regime between financial centres? Although some hedge funds have relocated from London to Switzerland in anticipation of the imposition of greater controls on British banks and financial activities, it is by no means inevitable that such controls would result in a mass exodus of banks.<sup>19</sup> It was the competitive de-regulation between the world's financial centres in the 1980s and 1990s that removed the very legislation that was designed to stop them failing in the first place. The crucial lesson of the present crisis is surely that policymakers need to regard financial regulations not as an

17 Kaletsky's argument was in large part a response to the Chairman of the UK Financial Services Authority, who launched a direct attack on the City of London as having become too big, that its banks and institutions have become too speculative in their risk taking, and that many of their activities are 'socially useless' (Turner, 2009; see also Financial Services Authority, 2009). A not dissimilar argument against undertaking any action that might damage the comparative advantage of London as a global financial centre has been made by the city's Mayor (Johnston, 2009).

18 The political and economic defence of financial centres by their respective national governments is a widely established fact, and if anything has become more explicit over the past three decades (see Cassis, 2005).

19 Indeed, as some hedge-fund managers have been reported as acknowledging, moving to (say) Switzerland is not really a sensible strategy, 'since London is where the financial action is' and will remain.

economic burden on the market, but as an investment in reducing future government bailout obligations and financial shocks that reverberate throughout the economy.

Another key policy issue, of course, and one that has an explicit local dimension, concerns the future shape of the mortgage market and the financing of house purchase. Various suggestions have been made about how mortgage finance should be reformed (see, for example, Bair, 2008; Bernanke, 2009; Shiller, 2008a, 2008b, 2009; Smith, 2010). Most have focused on reforming and redesigning mortgage lending so as to take much greater account of affordability and the creditworthiness of borrowers, to reduce the risk of defaults, minimise the need for foreclosure, and ensure a securely funded mortgage credit system.<sup>20</sup> But there will be explicitly geographical dimensions to almost any such reforms. The global securitization model of funding mortgage provision for households in low-income neighbourhoods and areas, and for first-time buyers, has clearly failed. Without clear operating standards and regulations preventing lax underwriting and credit review, mortgage securitization effectively disconnects local mortgage credit from the real local property securing it, from local house price and affordability conditions. So a new model is needed if homeownership in such areas is a desired social policy objective, and indeed if greater stability and management of risk are to be more central features of the housing market more generally.

In the USA various initiatives and suggestions have been proposed. The approach taken by the Home Owners Stability Plan, announced in Phoenix in February 2009, for example, is to offer a reduction in monthly mortgage payments, for homeowners considered in danger of foreclosure, by applying lower mortgage interest rates, a mix of re-financing and loan restructuring. This has been done via the injection of funds into the state sponsored enterprises, Fannie Mae and Freddie Mac, which then offer lower interest loans to eligible households. In the UK the new Mortgage Rescue Scheme is intended to play a similar role, though by offering vulnerable households a means of managing mortgage arrears (and any negative equity) by entering a shared-equity ownership arrangement with a social landlord. Such schemes can certainly assist vulnerable and low-income homeowners, but they leave the bulk of the housing mortgage system intact.

Housing finance experts such as Shiller (2009) have come forward with other possible ways of reshaping the mortgage market. One of his ideas is the ‘continuous workout’ mortgage, in which the balance owed is continuously adjusted so as to maintain some home equity and respond to economic conditions—both national and local—that affect the livelihood and income of the local borrower. If local home prices fall, the mortgage balance would be lowered so as to preserve some home equity; if local home prices rise, the mortgage balance would be raised. For each home, the house price index used could be a local neighbourhood index, chosen according to some spatial proximity criterion, combined with some local economic indices (say on employment and income) relevant to the household concerned. Shiller goes on to stress that the mortgage adjustments would ideally not be based on the value of the household’s actual home or the household’s actual economic circumstances, lest this creates a moral hazard problem.

20 Bair (2008) list five critical principles for reforming the US system of mortgage finance: consumer protection (including affordability), simplicity (reducing the complexity of mortgages), reduced leverage, creating the right incentives amongst those involved in originating, funding and servicing mortgages, and enforcing a more realistic assessment of liquidity.

Another idea Shiller proposes is that in contrast to the conventional mortgage contract—of taking a highly leveraged position in a risky real estate investment in a single dwelling—an alternative model might be through the creation of markets in housing derivatives, that is bundles of housing assets (Shiller, 2008a, 2008b). The argument behind this approach is that rather than decoupling house purchase from the (global) financial system, it should be further integrated into that system by separating the cost of owning and using a home from the investment vehicle (asset price) attached to it, and developing a market in which derivatives of the latter could be traded. The argument is that this would reduce the exposure of households to investment risk in housing markets and cushion against market downturns in the borrower's own local neighbourhood or city. Smith (2010) has suggested that the development of a market in housing (house price index) derivatives could bring other advantages, including promoting financial inclusion, reducing pressure arising where home-buyers are out-competed by property investors, enhancing the geographical mobility of households, offering a savings gateway into owner-occupation, and erasing the tenure divide between owner-occupation and rented. Whether these claimed advantages would be secured or not, an affective housing derivatives market appears to be difficult to develop. Previous attempts to construct markets in housing derivatives (in London and Chicago, for example) have failed, which suggests that neither financial institutions nor households seem ready to embrace what would be a radical shift in both the financing and ownership of housing. And it remains unclear why housing derivatives would be any less prone to speculative bubbles than other forms of derivatives and bonds.

The provision of mortgage finance, especially for low income households and first-time buyers, requires reforms both at the level of the local borrower and local housing market, and at the level of the banks and markets that supply the funds. Most of the discussions about reforming mortgage finance in the USA stop short of exploring whether and how local mortgage lending might be 'de-globalised', and 'relocalised', disconnected from global securitization processes and bond markets. Indeed, the housing derivatives idea, mentioned above, seems rather to accept a key role for securitization. In the UK, the mutual building societies, which are prevented from engaging in investment banking activities and from using securitization to fund local mortgage lending, have proved much more resilient to the financial crisis compared to the demutualised building societies that had become banks.<sup>21</sup> And the mutual building societies, including the several locally based societies that still continue to operate, base their local lending entirely on deposits, in the case of certain local societies imposing territorial restrictions and lending only to households within a limited distance of their office location. The argument against returning to a more locally based 'originate and hold' mortgage finance model, however, is that whilst it may be more stable, it can restrict the local supply of mortgage loans relative to local demand, thereby excluding

21 In contrast to Northern Rock, which, as we noted above, at the peak of the UK housing boom funded some 75% of its mortgage lending via mortgage backed securities, Lloyd-TSB funded around the same percentage of its lending via savers' retail deposits. Northern Rock had to be bailed out by the British state in late-2008, whereas Lloyds-TSB was much less affected by the financial meltdown. In the USA, akin to Northern Rock many of the deregulated State Savings and Loan Associations also over-extended their lending activities, in their case with subprime mortgages, and likewise became self-inflicted victims of the crisis. For example, Indymac, the largest Savings and Loan Association in the Los Angeles area and seventh largest mortgage originator in the USA, was put into receivership by the Office of Thrift Supervision in July 2008. It was the fourth largest bank failure in US history.

first-time buyers, low-income households and other such groups from house purchase. So the focus of debate seems to be on finding ways of maintaining the flows of mortgage finance to households and ensuring the stability of such flows.

In the UK, for example, the Crosby Report (2008) advocated a new approach to mortgage financing based on the auctioning of Government guarantees attached to new mortgage backed securities. But perhaps one of the most interesting models from which there might well be lessons is the German system of mortgage lending. The German housing market was largely unaffected by the housing price bubble. There are several reasons for this, including the fact that unlike the USA and UK, home ownership in Germany has not been an overbearing political or economic goal. But part of the explanation has to do with the nature of the German mortgage finance system. Mortgage lending there has had much less to do with the use of exotic financial instruments such as mortgage-backed securities and collateralized debt obligations of the sort used by US and UK banks. In Germany, the main instruments for securitizing mortgage loans are the Mortgage Pfandbriefe, which are quite different from MBSs and CDOs. The Pfandbriefe are covered bank bonds, held on-balance-sheet, so that the issuing Pfandbriefe Banks are the guarantors, which is not the case for MBSs and CDOs. These bonds make up about 25% of the total German bond market, and bondholders usually receive a fixed coupon over the term of the Pfandbriefe, independent of the rates of the mortgage loans included in the cover pool the mortgages provide. The cover pool of Mortgage Pfandbriefe is carefully selected and legally regulated, unlike MBSs and CDOs, and typically the cover pools are 5–10% higher than the volume of outstanding Mortgage Pfandbriefe. This over-collateralisation serves as an additional cushion to the strict loan-to-value limit (60%) for loans that make up the mortgage pool. As Rudolf and Saunders (2009) show in a detailed comparative analysis, these features have given Mortgage Pfandbriefe a much lower credit risk than that associated with the MBS and CDOs issued by US and UK mortgage institutions. Rudolf and Saunders argue that the likelihood of a ‘subprime’ type crisis would have been much lower had the system of mortgage lending in countries like the USA and UK been organised like the German Pfandbriefe system. Such a system would imply, however, a much more conservative supply of mortgage funds to households, particularly with respect to lower income and first-time buyers. And so the debate is likely to continue. And in any case, much of the debate is centred on reforming the major financial institutions, rather than financial *systems*, including the systems concerned with mortgage finance provision.

## 8. Conclusion: elements of a research agenda

At least three key issues or implications for further research emerge from this discussion. First, it is demonstrably the case that despite globalisation, geography continues to matter in finance. As even a brief empirical examination of events in the US attests, geography has been intrinsic to the making and breaking of the recent financial crisis, and to its subsequent economic impacts. The crisis is itself thus a valid subject for geographical enquiry, since it provides a major opportunity to examine how the local and the global spheres have become inextricably intertwined in the world of financial investment, speculation and disinvestment. We need to know much more about the geographies of asset creation and destruction (Lee *et al.*, 2009). The creation



and circulation of financial assets, and the mechanisms by which credit and liquidity are expanded and constrained, in the global monetary system are often tied to quite specific local geographies, just as those local geographies are in turn subject to the shifting sentiments and structures of global financial institutions and markets. In the financial sphere no less than in the productive sphere of the economy, globalisation involves an essential dialectic between two opposing forces—of decentralisation and dispersion on the one hand, and centralisation and concentration on the other (Klagge and Martin, 2005), or between what Alessandrini *et al.* (2009) refer to as the ‘operational distance’ between banks and their clientele and the ‘functional distance’ between the institutions originating loans and the institutions that invest in those loans as assets. As the housing-mortgage bubble of 1997–2007 amply illustrates, it is the dynamic interplay between these opposing forces that shapes the evolving geographies of local and global finance. The recent crisis has highlighted this process in stark terms.

Yet, second, in this context, we know relatively little about the spatial logics of financial bubbles and crashes. Such phenomena have both macro and micro geographical dimensions. One of the distinctive features of the past three decades, an era of accelerating globalisation, has been the increased frequency of financial crises, at all geographical scales. Financial markets have become increasingly volatile and crisis-prone. In a de-regulated world, increased financial instability translates into increased geographical instability. According to Sornett and Woodard, for example, there have been no less than five financial bubbles (and associated crashes) since the mid-1990s: the ‘new economy’ or ‘dot.com’ bubble of 1995–2000; the housing bubble, 1996–2007; the mortgage bubble, 2002–2007; the stock-market bubble of 2003–2007; and the commodities and oil bubble, 2004–2008 (Sornett and Woodard, 2009). Each of these has had specific geographical origins and impacts, yet they have received little or no economic-geographical study. Whilst the over-accumulation crisis tendencies of capitalism attracted the attention of geographers in the 1980s, that concern has since all but evaporated. In the light of the recent financial crisis, and the deep economic recession it precipitated, geographers need to re-ignite that interest, both in terms of the theoretical exegesis and empirical investigation. Financial crises invariably bring in their wake major rounds of restructuring of the economic landscape more generally, and thus have a double significance as a subject for geographical enquiry.<sup>22</sup>

Perhaps the more so because within financial economics, housing economics and cognate fields, there is a new pressure to devise analytical frameworks that provide better insight into the origins and determinants of price and speculative bubbles, especially within housing but also more generally, with a view to explaining why some countries seem far less prone to such bubbles than others. And there is interest in whether such work could provide ‘early-warning’ diagnostics so that appropriate policy actions could be undertaken to prevent any future incipient price booms turning into full-blown bubbles (see, for example, Agnello and Schuknecht, 2009). The analysis presented here suggests that geographers could make a significant contribution to such studies. The recent house price bubbles in the USA and UK did not emerge

22 By some estimates there have been more than 40 financial crises since the Tulip Crisis of 1637 (Lombard Odier Darier Hentsch, 2009). These have varied by sector of origin, by location of origin, by duration, and by the extent to which they spread geographically. Kindleberger (1996) has suggested that all such crises have tended to follow a common pattern of speculative behaviour by investors. His history of financial manias, panics and crashes calls out for a corresponding geography analysis.

simultaneously across regions or cities within these countries, but had distinct geographies. Nor did all areas experience the same degree of house price inflation. Such spatialities not only have implications for the search for causes of house price bubbles, but also may have a bearing on the form of policy interventions intended to stem them.

Indeed, thirdly, geography assumes key relevance in the ongoing debate over how best and how far to restructure and re-regulate financial institutions and financial markets for a post-crisis world. Historically, financial systems have undergone periodic phases of reorganisation, restructuring and regulatory change (see Martin, 1999), and each of these has had important consequences for the geographies of money: from the locational logics of financial institutions, to the networks of financial flows and interdependencies, to the spaces of credit, debt and liquidity, to the geographies of investment, disinvestment and economic development. The current, ongoing search for a new, post-crisis regulatory order will likewise have complex geographical repercussions. One issue concerns devising controls to deter banks from engaging in excessive and high-risk credit creation. Whether it will be possible to agree a level regulatory playing field across different national financial systems and different global financial centres remains an open issue.<sup>23</sup> What is clear is that the financial crisis that began in late-2007 casts serious doubt on the ability of national laws and national authorities to manage the stability of the global financial system and to protect investors and households. But at the same time, it is impossible to imagine unique rules and single international authorities managing capital ratios, deposit insurance, reserve requirements and lending of last resort, as well as other tools for ensuring financial stability (Di Gorgio and Di Noia, 2009). And, further, how to devise a locally-based mortgage financing system that is securely based, not prone to reckless lending, and free of moral hazard without curbing the supply of local mortgage finance and hence restricting local home ownership is a critical issue—and obviously a highly geographical one. The geographies of financial re-regulation and reform remain contested issues.

There is clearly much here for economic geographers to engage with, both theoretically and empirically. It is not just that the geographies of the recent financial crisis and the deep recession it precipitated would repay closer examination and analysis: that would certainly help to deepen our understanding of recent events. It is also that these dramatic events themselves raise issues concerning the theoretical and empirical scope of economic geography itself.

## Acknowledgements

This is a revised version of the Distinguished Speaker Lecture that I delivered at the International Conference on *The Changing Geography of Money, Banking and Finance in a Post-Crisis World* sponsored by the Money and Finance Research Group (MoFiR), Dipartimento di Economia, Università Politecnica delle Marche, Ancona, and *Rivista Italiana degli Economisti*, in Ancona, Italy, October 7–9. I wish to thank the organisers of that conference, and especially Professor Piero Alessandrini of MoFiR, for inviting me to give the lecture. I also wish to thank Sergio

23 The UK Prime Minister Gordon Brown proposed a 'Tobin-type tax' (on international monetary transactions) at the G20 meeting on the global financial crisis held in 2009, but this was rejected by the USA. The IMF has recently reported on the idea of a 'bank resolution' fund. (See footnote 16 above.)

Rossi, Professor of Macroeconomics and Monetary Economics, University of Friborg, Switzerland for his very useful comments on the initial draft of the paper. Two referees and Professor Neil Wrigley, as Editor, provided valuable guidance for revising the paper for the journal.

## References

- Aalbers, M. (2009a) Geographies of financial crisis. *Area*, 41: 34–42.
- Aalbers, M. (2009b) The sociology and geography of mortgage markets: reflections on the crisis. *International Journal of Urban and Regional Research*, 33: 281–290.
- Aalbers, M. (2009c) The globalisation and Europeanisation of mortgage markets. *International Journal of Urban and Regional Research*, 33: 389–410.
- Agnello, L., Schuknecht, L. (2009) Booms and busts in housing markets: determinants and implications, *Working Paper 1071 (July)*. Germany: European Central Bank, Frankfurt am Main.
- Alessandrini, P., Zazzaro, A. (1999) A possibilist approach to local financial systems and regional development: the Italian experience. In R.L. Martin (ed.) *Money and the Space Economy*, pp. 71–92. Chichester: Wiley.
- Alessandrini, P., Fratianni, M., Zazzaro, A. (eds) (2009) *The Changing Geography of Banking and Finance*. Heidelberg: Springer.
- Bair, S. (2008) Reforming mortgage finance: five basic principles are critical. *Business Economics*, October: 13–16.
- Barth, J., Li, T., Phumiwasana, T., Yago, G. (2008) *A Short History of the Subprime Mortgage Market Meltdown*. Los Angeles: Milken Institute.
- Besley, T., Hennessey, P. (2009) *On the Credit Crunch: Letter to Her Majesty the Queen on Behalf of the British Academy*. London: British Academy, 22 July.
- Bernanke, B. S. (2009) The future of mortgage finance in the United States. *The B.E. Journal of Economic Analysis and Policy*, 9: Article 2.
- Bieri, D. (2009) Financial stability, the basel process and the new geography of regulation. *Cambridge Journal of Regions, Economy and Society*, 2: 303–331.
- Bradford, C. (2002) *Risk or Race? Racial Disparities and the Subprime Refinance Market*. Washington, DC: Centre for Community Change.
- Brummer, A. (2008) *The Crunch: How Greed and Incompetence Sparked the Credit Crisis*. London: Random House Business Books.
- Cambridge Journal of Economics* (2009) Special issue on the global financial crisis. *Cambridge Journal of Economics*, 33: 531–869.
- Cambridge Journal of Regions, Economy and Society* (2008) The world is not flat: putting globalization in its place, Special Issue of *Cambridge Journal of Regions, Economy and Society*, 1: 343–501.
- Cambridge Journal of Regions, Economy and Society* (2009) Spatial circuits of global finance, special issue of *Cambridge Journal of Regions, Economy and Society*, 2: 141–331.
- Cambridge Journal of Regions, Economy and Society* (2010) The resilient region, Special Issue of *Cambridge Journal of Regions, Economy and Society*, 3: 1–167.
- Capelle-Blancard, G., Tadjeddine, Y. (2009) The location of financial activities: the impact of new technologies and the financial crisis, Paper presented at the International Conference on *The Changing Geography of Money, Banking and Finance in a Post-Crisis World*, Dipartimento di Economia, Università Politecnica delle Marche, Ancona, Italy, 7–9 October.
- Cassis, Y. (2005) *Capital of Capital: The Rise and Fall of International Financial Centres, 1780–2009*. Cambridge: Cambridge University Press.
- Chick, V. (2008) Could the crisis at northern rock have been predicted: an evolutionary approach. *Contributions to Political Economy*, 27: 115–124.
- Clark, G.L. (2006) Setting the agenda: the geography of global finance. In S. Bagchi-Sen, H. Lawton-Smith (eds) *Economic Geography: Past, Present and Future*, pp. 83–93. London: Routledge.
- Cohen, B.J. (1998) *Geography of Money*. New York: Cornell University Press.

- Colander, D., Föllmer, H., Haas, A., Goldberg, M., Juselius, K., Kirman, A., Lux, T., Sloth, B. (2009) The financial crisis and the systemic failure of academic economics. *Discussion Paper 09-03*. Department of Economics, University of Copenhagen.
- Corbridge, S., Martin, R.L., Thrift, N. (eds) (1994) *Money, Power and Space*. Oxford: Blackwell.
- Crosby, J. (2008) *Mortgage Finance: Final Report and Recommendations*. London: H.M. Treasury.
- Di Gorgio, G., Di Noia, C. (2009) Designing a regulatory framework for integrated financial markets. In P. Alessandrini, M. Fratianni, A. Zazzaro (eds) *The Changing Geography of Banking and Finance*, pp. 215–232. Heidelberg: Springer.
- Dow, S. (1990) *Financial Markets and Regional Economic Development*. Aldershot: Avebury.
- Dow, S. (1999) The stages of banking development and the spatial evolution of financial systems. In R.L. Martin (ed.) *Money and the Space Economy*, pp. 31–48. Chichester: John Wiley.
- Dymski, G. (2009a) The global financial customer and the spatiality of exclusion after the ‘End of Geography’. *Cambridge Journal of Regions, Economy and Society*, 2: 267–286.
- Dymski, G. (2009b) Racial exclusion and political economy of the subprime crisis. *Historical Materialism*, 17: 149–179.
- Dymski, G. (2010) Why the subprime crisis is different: a Minskyian approach. *Cambridge Journal of Economics*, 34: 239–255.
- Engleman, E., Faulconbridge, J. (2009) Financial geographies – the credit crisis as an opportunity to catch economic geography’s next boat? *Journal of Economic Geography*, 9: 587–596.
- Financial Services Authority (2009) *The Turner Review: A Regulatory Response to the Global Banking Crisis*. London: Financial Services Authority.
- Flandreau, M., Galimard, C., Jobst, C., Nogué-Marcos, P. (2009) Monetary Geography Before the Industrial Revolution. *Cambridge Journal of Regions, Economy and Society*, 2: 149–172.
- Florida, R. (2005) The world is spiky: globalisation has changed the economic playing field but hasn’t levelled it. *Atlantic Monthly*, 147: 48–53.
- French, S., Leyshon, A., Thrift, N. (2009) A very geographical crisis: the making and breaking of the 2007–2008 financial crisis. *Cambridge Journal of Regions, Economy, and Society*, 2: 287–302.
- Friedman, T. (2005) *The World is Flat: A Brief History of the Twenty-First Century*, 1st edn. New York: Farrar, Straus and Giroux.
- Garretsen, H., Kitson, M., Martin, R.L. (2009) Spatial circuits of global finance. *Cambridge Journal of Regions, Economy and Society*, 2: 143–148.
- Gärtner, S. (2009) *Balanced Structural Policy: German Savings Banks from a Regional Economic Perspective, Perspectives*, vol. 58. Brussels: World Savings Banks Institute.
- Gerardi, K., Willen, P. (2009) Subprime mortgages, foreclosures and urban neighbourhoods. *The BE Journal of Economic Analysis and Policy*, 9: (Symposium) Article 12. Available at: <http://www.bepress.com/bejeap/vol9/iss3/art12>.
- Goldman Sachs, (2007) *Global Economics Weekly*. No. 7/32, September.
- Greenspan, A. (2005) Local bubbles build in housing sector. *USA Today*, 20 May.
- Greenspan, A., Kennedy, J. (2008) Sources and uses of equity extracted from homes. *Oxford Review of Economic Policy*, 24: 120–144.
- Grote, M.H. (2009) Financial centres between centralisation and virtualisation. In P. Alessandrini, M. Fratianni, A. Zazzaro (eds) *The Changing Geography of Banking and Finance*, pp. 277–294. Heidelberg: Springer.
- Heaney, V. (2009) Time to ditch all economic models. *Financial Times*, 23 August, 28.
- Henriques, D.B., Bergman, L. (2000) Profiting from fine print with Wall Street’s help. *Wall Street Journal*, March 15.
- Hodgson, G. (2009) The great crash of 2008 and the reform of economics. *Cambridge Journal of Economics*, 33: 1205–1221.
- Hodgson, G. et al. (2009) *On the Credit Crunch: Letter to Her Majesty the Queen*. The Business School, University of Hertfordshire.
- Hubbard, R.G., Mayer, C.J. (2009) The mortgage meltdown and house prices. *The B.E. Journal of Economic Analysis and Policy*, 9: Article 8. Available at: <http://www.bepress.com/bejeap/vol9/iss3/art8>.
- International Labour Office, (2009) *Impact of the Financial Crisis on Finance Sector Workers*. Geneva: ILO.

- Ivry, B. (2008) US foreclosures double as house prices decline. *Bloomberg News*, July 28. Available at: <http://www.bloomberg.com/apps/news>.
- Journal of Economic Geography, (2009) Geographies of finance. *Journal of Economic Geography*, 9: 587–747.
- Johnston, B. (2009) No such thing as free crunch. *The Economist: The World in 2009*, vol. 42. London: The Economist.
- Kaletsy, A. (2009) Five Golden Rules for Regulating the Banks. *The Times*, July 9, Available at <[http://www.timesonline.co.uk/tol/comment/columnists/anatole\\_kaletsy/article6669955.ece](http://www.timesonline.co.uk/tol/comment/columnists/anatole_kaletsy/article6669955.ece)>.
- Kindleberger, C. (1996) *Manias, Panics and Crashes: A History of Financial Crises*. New York: John Wiley.
- Klagge, B., Martin, R. L. (2005) Decentralised versus centralised financial systems: is there a case for local capital markets? *Journal of Economic Geography*, 5: 387–421.
- Krugman, P. (2009) How did economists get it so wrong? *New York Times*, September 6, p. MM36.
- Laulajainen, R. (1998) *Financial Geography*. Göteborg: Göteborg University Press.
- Lawson, T. (2009) The current economic crisis: its nature and the course of academic economics. *Cambridge Journal of Economics*, 33: 759–778.
- Lee, R., Clark, G.L., Pollard, J., Leyshon, A. (2009) The remit of financial geography – before and after the crisis. *Journal of Economic Geography*, 9: 723–747.
- Lombard Odier Darier Hentsch, (2009) *Riding Out the Storm: How to Navigate the Financial Crisis*. London: Lombard Odier Darier Hentsch.
- Martin, R.L. (1994) Stateless monies, global financial systems and national economic autonomy: the end of geography? In S. Corbridge, R.L. Martin, N. Thrift (eds) *Money, Power and Space*, pp 253–278. Oxford: Blackwell.
- Martin, R.L. (ed.) (1999) *Money and the Space Economy*. Chichester: John Wiley.
- McKinsey Global Institute (2009) A global view of the housing bubble. *Chart Focus Newsletter*. October.
- Mollenkamp, C., Solomon, D., Sidel, R., Bauerlein, V. (2007) How London created a snarl in global markets. *Wall Street Journal*. October 18, A1.
- O'Brien, R. (1990) *Global Financial Integration: The End of Geography*. London: Pinter.
- O'Brien, R., Keith, A. (2009) The geography of finance: after the storm. *Cambridge Journal of Regions, Economy and Society*, 2: 245–265.
- Perroux, F. (1950) Economic space: theory and applications. *Quarterly Journal of Economics*, 64: 89–105.
- Pettifor, A. (2006) *The Coming First World Debt Crisis*. London: Palgrave.
- Pike, A., Pollard, J. (2010) Economic geographies of financialization. *Economic Geography*, 86: 29–51.
- Porteous, D. J. (1995) *The Geography of Finance*. Aldershot: Avebury.
- Rudolf, M., Saunders, A. (2009) *Refinancing Real Estate Loans: Lessons to be Learned from the Subprime Crisis*. Berlin: Verbandes Deutscher Pfandbriefbanken Band 38.
- Shiller, R.J. (2005) *Irrational Exuberance*, 2nd edn. New Jersey: Princeton University Press.
- Shiller, R.J. (2008a) Derivatives markets for home prices. *Cowles Foundation Discussion Paper*, 1648. Yale: Cowles Foundation for Research in Economics.
- Shiller, R. (2008b) *The Sub-Prime Solution: How Today's Global Financial Crisis Happened and What to do About It*. Princeton: Princeton University Press.
- Shiller, R. (2009) Policies to deal with the implosion in the mortgage market. *The B.E. Journal of Economic Analysis and Policy*, 9: Article 4. Available at: <http://www.bepress.com/bejeap/vol9/iss3/art4>.
- Sidaway, J. (2008) Subprime crisis: American crisis or human crisis? *Environment and Planning, D: Society and Space*, 26: 195–198.
- Skidelsky, R. (2009) *Keynes: The Return of the Master*. London: Allen Lane.
- Smith, A., Swain, A. (2010) The global economic crisis, Eastern Europe and the Former Soviet Union: models of development and contradictions of internalionalism. *Eurasian Geography and Economics*, 51: 1–34.
- Smith, S. (2009) Managing risks: the strange case of housing. In G.L. Clark, A. Dixon, A.H.B. Monk (eds) *Managing Risks: From Global to Local*, pp. 233–257. Oxford: Oxford University Press.



- Smith, S.J. (2010) Housing futures: a role for derivatives, Chapter 25. In S.J. Smith, B.A. Searle (eds) *The Blackwell Companion to the Economics of Housing*. Oxford: Wiley-Blackwell.
- Sornette, D., Woodard, R. (2009) Financial bubbles, real estate bubbles, derivative bubbles, and the financial and economic crisis. *Mimeo*. EHT Zurich: Department of Management Technology.
- Soros, G. (2009) *The New Paradigm for Financial Markets: The Credit Crisis of 2008 and What it Means*. London: Public Affairs Publishing.
- Taylor, M. (2009) Reflections on the crunch. *Prospect*. August, pp. 34–36.
- The Economist* (2007) Checking the engine, London: *The Economist*, June.
- The Economist* (2009) The state of economics, London: *The Economist*, July, pp. 34–41.
- Thrift, N., Leyshon, A. (1997) *Money/Space*. London: Routledge.
- Triana, P. (2009) *Lecturing Birds on Flying: Can Mathematical Theories Destroy the Financial Markets?* New York: John Wiley.
- Turner, A. (2009) How to tame global finance. *Prospect*, Issue 162, 27 August, pp. 33–41.
- US Department of Housing and Development, (2000) *Unequal Burden: Income and Racial Disparities in SubPrime Lending in America*. Washington, DC: Department of Housing and Urban Development.
- Wachter, S., Russo, K., Hershakff, J. (2006) *Subprime Lending: Neighbourhood Patterns over Time in US Cities*. Institute for Law and Economics, Research Paper 06–19, University of Pennsylvania.
- Whalen, C. (2008) Understanding the credit crunch as a minsky moment. *Challenge*, 51: 91–109.
- Wójcik, D. (2009) Geography stupid! A note on the credit crunch. *Environment and Planning, A*, 41: 258–260.
- Wray, L.R. (2008) Financial market meltdown: what can we learn from minsky? *Public Policy Brief 94A*. Levy Economics Institute of Bard College.