Back to the Roots: Can Contractual Savings for Housing Help Terminating the High-Leverage Housing Finance System?

A missing piece in the U.S. housing finance reform debate

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Summary

The United States is currently confronted with a **dual crisis of its financial system and its real economy**, as witnessed by record unemployment. The crisis reveals the dark side of the 'borrowing privilege' that the country has enjoyed and actually used for three decades extensively: internationally funded financial exuberance followed by collapse and Dutch Disease – an economy tilted towards overproduction of non-tradable goods such as real estate and financial services.

As a result of efficient socialization of the borrowing privilege, in particular ballooning household leverage, the **personal savings ratio had declined since 1980 and collapsed during the 2000s**, before being forced slightly upward again since 2007. It is far from the pre-1980 levels that had been able to fully fund U.S. investment activity commensurate with the entrepreneurial dynamism of the country. International investors are increasingly scared by the country's debt levels and the means of monetary and fiscal policy remain limited. Without a sustained return of the domestic saver funding both housing and corporate investment, the country is threatened by the prospect of long-lasting sluggish growth.

It seems at first sight far-fetched to make a **housing finance system co-responsible** for current events that was designed in its core already in the 1930s. Then, an ill-designed and –regulated state bank and thrift system had been put into the corset of public liquidity facilities, insurance and mortgage banking. Yet, what in the 1934 and 1937 was a clever fix to rescue housing finance and the economy from collapse by slowing down deleveraging, 80 years later turned out to produce some of the biggest loss-makers in U.S. financial history, FHA and Fannie Mae and her younger cousin Freddie Mac, as a result of excessive leverage.

The failure to remove the New Deal's housing policy instruments when the economy had recovered by the 1950s created a policy lag of gigantic proportions. Starting with the S&L deregulation of 1971 allowing 95% LTV lending, numerous holes were dug into the formal LTV limits of the system – mostly under the pretext of improving affordability - that laid the foundations for an **overleveraged**, publicly dominated housing finance system that assigned the private sector mostly to its risky pockets. This combination for a long time only too well served the short-term interests of households and the private financial industry. The former could finance housing investment with rarely any own savings capital on the basis of earlier capital gains or subsidized high-LTV lending. **In a country where homeownership regularly tops the domestic policy agenda** and the public housing subsidy budget is large, bizarrely today **saving for housing purposes rank only sixth in a set of eight motives for savings quoted by households**. The latter, whose profits are a direct function of both borrower leverage and house price levels, was only too happy to take over from public sector leverage precedent where being allowed to do so and drive down lending standards further. In the end, government-sponsored enterprises, private insurance, the securitization industry and banks fell over each other to help further drive up household leverage. **At the peak in 2006, 30% of U.S. new home purchase borrowers put no money down**, and from 40% upwards hat combined loan-to-value ratios above 97%. Credit systems that are set up without requiring capital from borrowers do collapse, even in the absence of a major house price downturn.

The good news is that the country has become acutely aware of the collapse of the highly leveraged model and at least some of its wider implications, and calls for borrower **'skin in the game'** are now ubiquitous. The bad news is that in the short-term, as in the 1930s, high levels of leverage are need-

ed to keep a recession from turning into a depression. Therefore the current reform debate threatens to produce a new short-term pump-priming fix copying, or rather perpetuating, the New Deals approaches. Under not entirely implausible assumptions, however, going forward a repeat could trigger near-insolvency of the U.S. government, or high inflation. This is therefore the time to propose **structural reform**, and **in particular measures to stimulate savings for housing**.

Contract savings for housing have been the early S&L modus operandi. The scheme is a **genuine Anglo-saxon invention** that when system paths split in the first half of the 20th century was copied and survived in the traditional covered bond systems of central Europe - France, Germany and Austria. What capital market and public intervention protagonists latest since the demise of the U.S. S&Ls have viewed as financial Jurassic Park made in Germany might now hold a key to bring down homeowner and thus household leverage, produce a badly needed source of long-term retail deposits, and create a self-stabilizing mechanism to create access to credit and produce sound junior liens via the strong credit signal of a longer pre-savings phase. Contract savings for housing, in German 'Bausparen', due to its de-facto mutual character, deposit insurance and the prospect to access real capital in the future has **attracted savings in reverse to capital market outflows during crisis**. The scheme **stimulates long-term consumer savings processes** and supports behavioral change towards higher savings efforts in particular in the younger generation. It has the potential to fundamentally change the funding structure of down-payment savings in the U.S. away from reliance on earlier capital gains to self-generated cash savings. It can therefore help breaking the reliance of the system on high leverage with all consequences.

The basic mechanics of the modern form of the system is a mutual savings and loan collective 'redux'. Contracts are designed and regulated such that both savings tenor and volumes are proportional to loan tenor and volumes to minimize capital needs outside the collective. This **produces small, long-term, pre-payable fixed-rate loans** which are **disbursed jointly with accumulated savings and interest**. These loans can be used as a second mortgage, enhancing the credit of the first mortgage and vastly reducing combined leverage of traditional seconds, or fund stand-alone smaller investment. A small state premium subsidy provides incentives for consumers to keep saving until a minimum tenor is reached. Credit pricing is not differentiated as the system relies on the long-term savings signal to produce high-quality credit. While savers can be denied credit by the contract savings institution, they still will have accumulated capital to freely use for alternative financing on contract allotment day.

In the named central European countries the system is mostly run by specialists and always strictly regulated. Retaining a **housing finance system dominated by specialists** vs. turning it over to large universal banks, the new breed of government-sponsored enterprises, is one of the most urgent questions with which the U.S. is confronted these days. No reform proposal of the specialist system has been made so far, but it seems conceivable that **specialized bond guarantors, mortgage credit institutions issuing covered bonds and contract savings for housing institutions could co-exist** and complement each other. Creating a decentralized system with several types of players could reduce contingent fiscal costs by providing private capital to take credit risk where currently a centralized public credit risk mechanism is in place.

Adjustments in the more narrowly defined **housing policy menu** (tax/subsidy policy) **to reduce leverage and promote savings**, in particular a reform of mortgage interest tax deduction, must complement such efforts. The current menu focused on promoting leverage has been costly and ineffec-

tive. Within the savings promotion menu, supporting contractual savings has the advantage of avoiding the incentive problems of unconditional down-payment support and the conflicting seniority claim for funds withdrawn from retirement accounts. Also, with some 5 years, the pre-savings process is rather short. A quid pro quo structure – state premium against consumer savings effort – is ultimately more politically acceptable than either large transfers or costly guarantees. Legal changes are needed to make second liens work again to maximize the proposal's effectiveness.

Structuring and regulating a less vulnerable system based on savings rather than leverage will meet **formidable opposition from vested interests**. The alternative to failing to confront the leverage lobby could be an even more costly repeat of the late failure of the New Deal experiment, this time within a generation.

Genesis, exuberance and collapse of the high-leverage housing finance model

Macroeconomic genesis

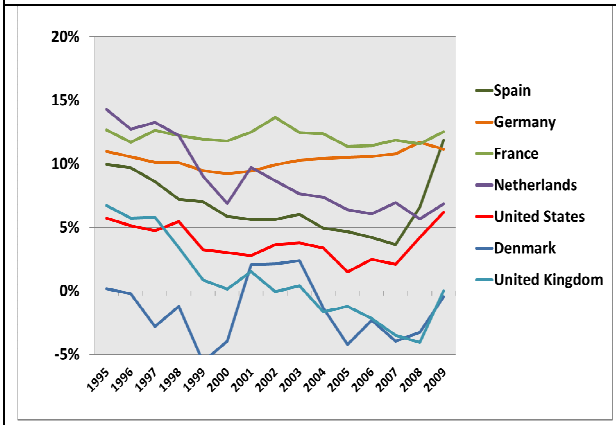
The basic driver of U.S. household leverage was and remains a **low national savings rate compensated for by low-cost capital provided by overseas investors via the current account**. The underperformance of U.S. savings generation already started in the 1980s, when Japan and the Gulf states financed a large proportion of the U.S. and emerging Asia's current account deficits. A brief spell of higher U.S. savings followed in the early 1990s during which German and European reunification absorbed large amounts of global capital flows and the Clinton administration fiscally consolidated. However, capital flows resumed their direction towards the U.S. in the 2000s: this time in addition to Japan and the Gulf, China and other emerging Asian markets became key creditors. In 1980, the macroeconomic savings ratio of the U.S. stood at 20% of GDP; by 2008 it had dropped to just over 12% of GDP, with investment dropping more mildly, but still noticeably, from 22% to 18% of GDP over the period. Even during the consolidation phase of the 1990s, the U.S. national savings ratio underperformed Europe by 5 and emerging Asia by a whole 15 percentage points.

Personal (household) savings, which differ from national savings by excluding corporate and government savings, are the single key variable to finance both homeownership and housing consumption. U.S. personal savings **have been underperforming** important European comparator markets, in particular **France and Germany, for half a generation**; the gross ratio bottomed in 2005 at just 6%, the net ratio, which deducts economic depreciation, became close to zero at house price peak 2005-7. As Figure 1 shows, however, the U.S. has not been alone with this problem: it is at the heart of the current Eurozone debt crisis, which mirrors the US-Asia/Gulf credit relations with the pair Eurozone periphery-Germany.

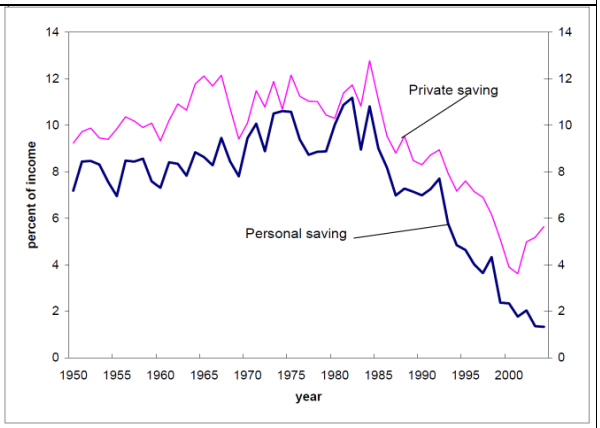
There has been also a close linkage between imports of foreign savings, as measured by the current account balance, and investment in housing as proxied by the housing loan-to-GDP ratio (see Figure 19 in the annex). Yet, as the crisis has taught, **the vision of a fast growing economy being able to permanently import foreign savings on a net basis is a chimera**. Even emerging Asia, a truly fast growing region catching up with the earlier industrialized world in the past 20 years, has switched from being a net capital importer to becoming a net capital exporter in the late 1990s. Not coincidentally that switch was also triggered by profound financial and real estate crisis. The issue of correcting the U.S. (and Eurozone) imbalances currently tops the international financial policy agenda. The first signs – increasing savings ratios and declining current account deficits – can be discerned from Figure 1. More adjustment lies ahead.

Figure 1 Socializing the borrowing privilege: personal (household) savings ratios, U.S. and comparators

US vs. European countries net personal savings % of disposable income, aggregate



US long-term development of private and personal savings ratios, 1950 - 2004



Source: IMF, CEPS, Bosworth and Bell (2005) based on Federal Reserve Board (NIPA data), Finpolconsult computations. Notes: Personal saving is measured as a percent of disposable income. Private saving is measured as a percent of national income.

Economists call the **situation of a country running permanent current account deficits 'Dutch Disease'**, reminding of the permanent capital flow that the colonization of Indonesia and other colonies meant for the Dutch economy in the 17th century. This stands in contrast to the 'normal' economic development as in emerging Asia, which turned her current account deficits to surpluses in the 1990s, or Germany, which went through the process 20 years before in the 1970s.

Whether or not Dutch Disease is truly a disease or can be economically managed has been hotly debated since the oil boom of the 1980s. For the U.S. the long phase of excess capital imports has implied an overvalued currency, and as a consequence a **shift of production and investment incentives** from internationally tradable to non-tradable goods. The core of the non-tradable good sector in any economy is **real estate and financial services**, the two central sectors at the heart of the current financial crisis. The mirror effect of historically declining investment in tradable goods industries, such as the car or machinery, promises a marked slow-down of the U.S. economy if and when the permanent funding source for the deficits dries up. An abrupt devaluation and potential continuation of the financial crisis would be unavoidable in this case.

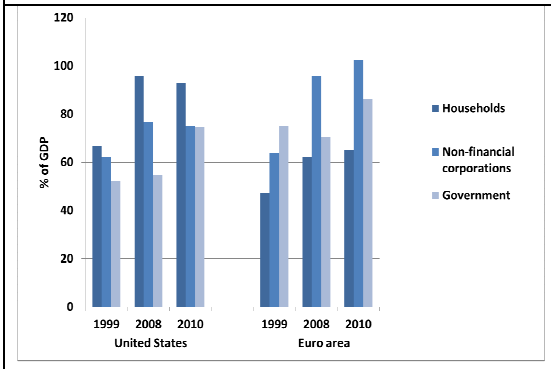
The U.S. Dutch Disease economy of the past 30 years has not only inflated both real estate and financial sectors directly via foreign financings, it has also set additional microeconomic processes in motion that have increased leverage. Cheaper capital than what national savings would have provided cumulated with biased incentives set for the real estate, financial services industries, regulators and households.

U.S. consumers were living **in a world of permanent house price appreciation** already since the 1940s. In such a world, **getting insurance to increase leverage is preferable to greater savings** because a lengthy pre-savings process would deprive the consumer from reaping the capital gains of

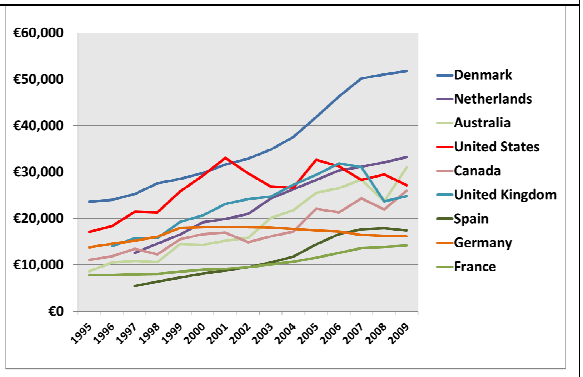
housing investment. In what George Soros has termed 'reflexivity'[2] such greater demand for credit can generate a self-reinforcing process leading to a long-term financial boom divorced from real trends, if sufficient myopic financiers are available. While there is scant evidence for the thesis of a financial super-boom in the U.S. as far as housing is concerned, as fundamentals broadly kept pace with house prices in the post-war period, such reflexivity mechanics could have played a role in the long house price boom of the 2000s. As the paradigm of permanent house price appreciation has led to a collapse of self-reinforcing expectations, lowering leverage and increasing savings should be back on the agenda.

Figure 2 U.S. vs European household debt levels

Household debt vs. corporate and government debt to GDP



Household debt per capita, Euros



Source: Federal Reserve, Eurostat, ECRI (CEPS), Finpolconsult computations.

The leverage economy had a second self-reinforcing character in **real estate and in particular financial industry profitability and growth dynamics** that it unleashed. Both industries stand to benefit systematically from loan volume and house price growth, until the system collapses, and in doing so bet on investor and regulator myopia and amnesia. The fact that the U.S. had no housing market crisis since the Great Depression may excuse the intermediary industry partly, but not investors and regulators in a world with ready access to numerous accounts of housing market cycles and bubbles around the world. Some major European and Asian economies (Sweden, United Kingdom, Japan, Hong Kong, mainland China, Thailand) as well as regional U.S. neighbours such Mexico and Colombia had gone through massive house price crises in the 1980s and 1990s.

Policy genesis

The **mirror effect** of myopia of both households and the finance industry is enhanced political lobbyism towards a **leverage-biased housing policy menu** in the form of favorable **public guarantee, tax and subsidy treatment**. Obviously, favors asked for by such a broad range of stakeholders cannot be easily denied by the political system. The actual delivery of a policy menu promoting leverage needed to be wrapped into more palatable policy language, such as improving 'affordability' or expanding 'homeownership'.

[2] See Soros (2008).

The fact of the matter is that the U.S. **homeownership ratio** has not materially increased from the early 1960s, when it reached 63%, to the mid-1990s, when it stood at 64%. While the interest rate compression trend of the 1990s and subprime in the 2000s gave the ratio a temporary boost to ca 69% in the mid-2000s, mostly by raising homeownership among young and lower-income households, those gains are already being reversed during the crisis to currently below 67%. The benign financial conditions led to a combination of increasing house prices and stagnating mass incomes, in particular during the 2000s. This **reduced housing affordability** substantially, as not only widely reported by the media but also acknowledged also by the industry.[3] In fact, after 2003/4, more and low-cost lending to lower-income households had to substitute for the increasing ineffectiveness of the classical policy menu; i.e. **transfers by the public sector were replaced by ever riskier lending**.[4]

As public policy hence mainly enhances artificially demand in a sector that already run above its sustainable trend as a result of the country's borrowing privilege and the financial sectors reflexive financing behavior, the conditions for further house price excess were laid.

- **Mortgage interest tax deduction (MID)**, for both first and second residences, on which the U.S. spends currently some 0.75% of GDP per annum[5], has since long been criticized by scholars as simply subsidizing higher leverage.

  There are two options to run a rational, i.e. symmetric, housing finance income taxation system: the investment and the consumption approach. Under the investment approach, mortgage interest is in fact tax-deductible, however, imputed saved expenditures by an owner vs. the alternative of paying rents are counted as additional income. Under the consumption approach, homeowners are treated as renters, whose implicit interest rate payment to the landlord embedded in the rent is not tax-deductible either. Running a hybrid between both approaches means a subsidy to homeowners.

  The U.S. has not been alone in subsidizing homeowners via MID, and steps to limit the fiscal cost have been taken under the alternative minimum tax system. However, the country has missed the chances offered by the secular interest rate compression trend of the past 30 years that induced numerous countries to eliminate or severely curtail MID. The list includes the United Kingdom, which scrapped MID in the 1990s and where LTV has declined by some 15 percentage points between 1990 and 2010 (see Figure 9 below). Other countries that failed to limit tax deductions have seen ballooning housing lending and declining personal savings rates, in particular the Netherlands and Denmark (see Figure 2).

- **Capital gains tax**: many observers describe the 1998 federal capital gains tax change on housing as a key trigger event for the crisis, as an anonymous observer put it: "allowing for a $500,000 exemption on long-term capital gains every two years set off a frenzy of speculation. That was the moment in time when housing ceased to be a durable good and when it became an investment good, in the hand of consumers." In fact, Figure 3, seems even to suggest that consumers simply stopped saving and the U.S. had turned into a nation of capital

[3] E.g. Duncan (2007).

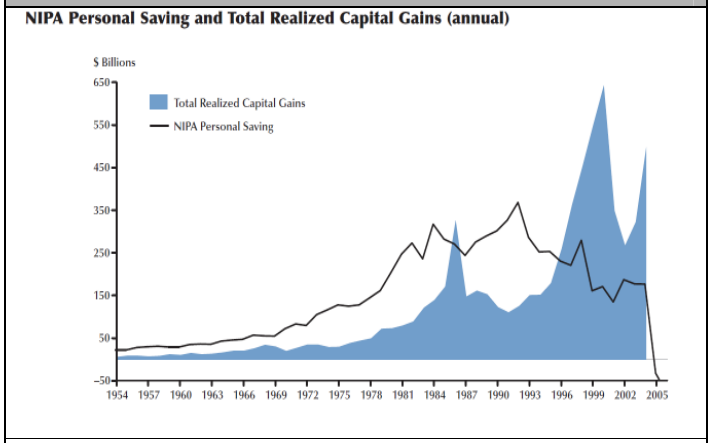
[4] See Rajan (2010) for a comprehensive critique of this approach.

[5] See Toder et. al. (2010).

gains speculators.

The combination of higher capital gains tax exemptions and mortgage interest deduction also rendered the **home equity loan** market feasible – your house as an ATM machine – that dramatically increased leverage among lower-income households and into the middle classes.

Figure 3 Personal savings and capital gains in the U.S., 1954 – 2005



Source: Guidolin & de Jeunesse (2007). Note: NIPA – National Income and Product Accounts.

A full and recent international benchmarking of the U.S. housing policy menu is not available; Figure 18 in the annex provides some indicators on the use of guarantees and the income tax treatment compiled by Lea (2010) for the Mortgage Bankers Association. The U.S. has clearly developed one of the most leverage-biased housing policy scenarios worldwide.

A **multitude of misregulations**, both provided by the public subsidy menu, by (absence of) regulation, or by lenders, **combined to further increase leverage**: an incomplete list includes the absence of national underwriting and responsible lending standards for mortgages, apart from non-binding industry codes, profit-sharing with brokers that misclassified borrowers into subprime and/or adjustable-rate loans, payments for both brokers and real estate agents in proportion to loan volumes or house prices, property tax revenues for local governments proportional to house prices and many more.

Finally, **monetary policy** pulled in the same direction as fiscal policy by exploiting the borrowing privilege to keep short-term interest rates far below what was necessary to mitigate asset price inflation. It can be reasonably asked whether the Federal Reserve ever had the option to 'lean' against the bubble; after all Eurozone periphery countries supplied with credit by the more conservatively mandated European Central Bank ran into similar situations. However, providing highly leveraged lenders with an extra source of profitability and stimulating the use of adjustable-rate mortgages via keeping a steep yield curve and low short-term interest rates for most times cannot have helped.

Housing finance system design genesis

Investor myopia was clearly supported by the **nature of the U.S. housing finance system as being largely insurance-driven**, outside the traditionally more conservative bank regulation system and not just in hindsight under grossly inadequate regulation.

Many of the incentive problems go back to the **original design of the formal housing finance system**, created under completely different macroeconomic circumstances in the 1930s.[6] The heart of the

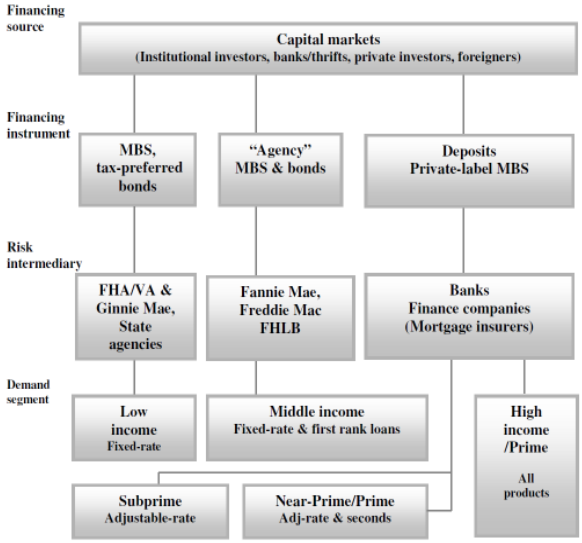
[6] See Colton (2002) for a historic overview.

U.S. system then as today is a **system of** public, semi-public (government-sponsored) and private **insurers** whose operations combine to **strengthen incentives towards highly leveraged housing finance**. The **promotion of household savings** to build equity capital – before (via cash savings) and after the actual purchase (via accelerated amortization) –, in contrast, is **not a feature** of the U.S. system. It could not have been a priority in the 1930s, since then it was the mobilization of debt capital from reluctant private investors that was of paramount importance. It should have been later, as private capital market conditions vastly improved.

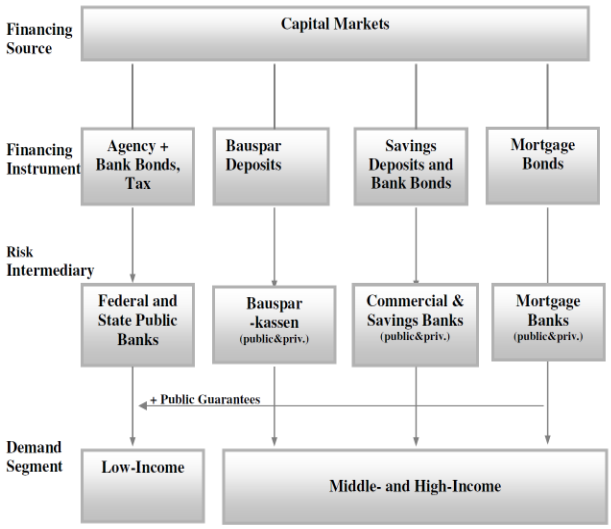
In fact, the U.S. housing finance system design is a **classic example of unintended long-term consequences of policies that were aptly designed to address short-term market failures.** When the U.S. system was created in its present form in 1934 (FHA) and 1937 (Fannie Mae), leverage provided by public insurance (FHA) and mortgage bank ownership (Fannie) was badly needed in order to stimulate private liquidity flows. Private flows into housing had simply collapsed in the economic crisis of the early 1930s. Undercapitalized, liquidity-starved and risk-averse banks and thrifts refused to roll over the bulk of U.S. housing loans. This added massive technical defaults to the high level of defaults already generated by rising unemployment and falling house prices.

Figure 4 US vs. Germany: stylized mortgage finance system charts

United States



Germany



Source: Finpolconsult. Notes: stylized representation as per mid-2000s.

The insurance provided by the FHA in 1934 ensured that the system was able to start to work again at all (and besides created a then revolutionary mortgage product, the 20-year fixed-rate mortgage). The **creation of the national mortgage bank Fannie Mae in 1937** then added a more effective national liquidity mechanism to the Federal Home Loan Bank system created in 1932 – both were needed to overcome the large regulatory barriers to interstate lending, i.e. **new policies were needed to correct a self-inflicted policy failure**. In the 1970 and 1980s Fannie Mae and her new cousin

Freddie turned into a parallel public mortgage insurance system dominating the middle-income housing finance market and creating in its core the housing finance system as shown in Figure 4.

While the causes for massive public insurance intervention waned as early as in the 1950s, the institutions that it had created did not. Rather, the private sector got its own chance to participate in the system by the enabling of private mortgage insurance in 1956. Both the coverage ratios and intensity of public vs. private sector involvement became differentiated by income strata by a combination of policy design and economic accident. A major rearrangement was made in 1968 as a result of fiscal pressures from the Vietnam war (enforcing the semi-privatization of Fannie Mae) and the urban crisis of the 1960s (enforcing the focusing of FHA on the low-income sector). Nevertheless the arrangements overall have remained stable since the system's creation in 1934. Even before the current housing finance system crisis hit, **half of the outstanding mortgage loans carried public loan or bond insurance**.[7] After the crisis the ratio has ballooned through pre-payments from the private portfolio and overwhelming new originations under public insurance.

The U.S. system design, however extreme and self-centered in implementation and historical trajectory, has found copiers **in other Anglo-saxon mortgage systems**. Canada and Australia have used mortgage loan insurance extensively, too, copying the FHA model. The differences are gradual – the Canadian system continues to be dominated by a single public insurer (CMHC) while Australia now runs a competitive private insurance market. Proponents of insurance-enhanced housing finance claim that it is possible to create a better-regulated than in the U.S. and point to both countries. Yet, as Figure 2 suggests the result in terms of household (and housing) leverage has been fairly similar. The United Kingdom until the mortgage crisis of the 1990s followed the same route, but as we will explore further below has changed course and turned to lender self-insurance.

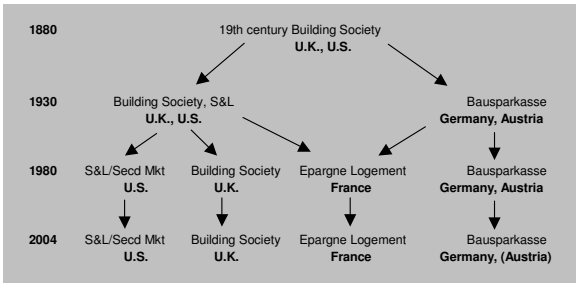
Continental European housing finance systems have historically taken a different route than the U.S. and other Anglo-saxon systems: while Anglo-saxon insurance institutions historically basically credit-enhanced deposit-based bank and thrift lending, housing finance in continental Europe **relied strongly on the issuance of standardized bank bonds**, primarily (mortgage) covered bonds. In the case of Denmark, covered bonds still today fund almost the entire mortgage portfolio. In the German, Italian, Spanish and French cases, the historic strong reliance on covered bonds became diminished with the deregulation of the 1980s that allowed deposit-funded commercial banks to enter housing finance. While the public sector role in ensuring the functioning of covered bonds was always strong, and in the French, Italian and Spanish markets even one of direct ownership of issuing banks, over time the covered bond system in Europe as a whole became largely privatized. A restricted privatization, that is, as a strict - and typically statutorily enshrined - control of loan underwriting standards is the precondition for investor acceptance of the bond products.

The **key feature of regulation in the covered bond-based housing finance model** clearly is to **restrict the loan-to-value ratio** of mortgage loans. This implies either higher down-payment cash needs for the borrower, or alternatively a system of high-LTV second mortgages. Germany has combined both in its system of **Bausparen** that over decades has fulfilled a **complementary role to covered bonds** (see basic system structure Figure 4 and more detailed discussion below). The concept had been **copied** in Germany **from the British building societies** and after various failed attempts was finally implemented successfully in some regions of Germany in the 1920s. While British societies, as

[7] See Dübel (2002) for point estimate per 2001.

their U.S. thrift counterparts, gradually relaxed the requirement of proportionality of savings and loan volumes and respective savings and loan tenors, the German societies retained a proportional system. Other sources of deposits than from savers willing to borrow were simply not available in the 1920s, and in a phase of high capital scarcity borrowers had few alternatives. A closed system implied smaller loan amounts for any reasonable savings phase. However, the closedness of the scheme in return allowed for de-coupling from capital markets and hence long-term fixed-rate lending. A Reichsbank regulation of 1938 formalized this by assigning the Bauspar scheme to a subordinated position providing supplementary capital for capital market (Pfandbrief)-financed first mortgages as second mortgage. The design remained dysfunctional during the war but became a powerful combination in the post war period. At the last peak of their popularity in the 1980s, the majority of the adult population in Germany held contractual savings contracts with Bausparkassen. Also, the British building society system flourished between the war and the 1980s. France in the 1970s copied the Bauspar model in the open version of Epargne Logement (see below). By that time, pre-savings for housing finance purposes in the U.S. had already fallen into oblivion.

Figure 5 History of contractual savings for housing system



Source: LHS - Dübel (2009).

Technically, limiting loan-to-value has been also a core feature of the U.S. housing finance system, as of European systems. Still, early deregulation explicitly permitted high-LTV lending. The market had technically been split between mortgage banking and insurance since 1971 when S&Ls were allowed to lend up to 95% LTV, if the loan carried mortgage insurance above the 80% portion. The split was taken over by Fannie Mae and Freddie Mac; as their European mortgage bank counterparts, U.S. thrifts, Fannie and Freddie were technically funding and guaranteeing only low-LTV first mortgages. However, in contrast to most European systems which operated truly with lower LTV or required seconds produced by savings mechanisms such as Bausparen or Epargne Logement, the U.S. system **accepted higher leverage against the fiction of the solvency of mortgage insurance**. Moreover, as will be discussed shortly, a multitude of policy and business incentives and the interaction with the private sector essentially atomized the probability of default mitigation function of LTV limits. De-facto, in the U.S., LTV limits were thus neither functional for probability of default purposes (limiting total borrower LTV or safeguarding generation of equity) nor for loss-given default purposes (as the solvency of the first loss position was not adequately monitored).

While the core differences between Anglo-saxon system on the one hand and the continental European system on the other hand can still be traced today, the description of differences made in Figure 4 is somewhat stylized from the perspective of 2010. The advent of **mortgage securitization** starting in 1982 with the involvement of investment banks in purchasing U.S. thrift mortgage portfolios and the **banking sector deregulation** later in the decade has blurred the distinctions. Loan-to-value limits in German mortgage banking, for example, became more flexible after a regulatory change in the 1980s allowed total LTV[8] to be higher than the extremely conservative Pfandbrief sen-

[8] Total LTV can be defined as the amount of housing finance divided by the value of the house. It is equal to combined LTV (CLTV) in the case of several financings, e.g. senior plus junior. First mortgage loans funded by covered bonds are

ior funding LTV-limit (60%). Bausparen has also come under pressure from cyclical high-LTV lending by mortgage and commercial banks. In Denmark, commercial banks since the 1980s have been willing to give personal loans to fill the gap left by the 80% LTV limit for covered bonds. More recently a covered bond model has been introduced in Denmark with similar features to the German, divorcing total LTV from senior funding LTV. Also, European covered bond legislation differs regarding permissible LTV ratios – from 60% in Germany statutory ratios can be found up to 80%. Despite EU legislation capping permissible LTV, so still does bank regulation regarding acceptance of what is considered as 'secured' by real estate. The French Epargne Logement system became partly degenerated from a work horse of housing finance to a subsidized source of funds for commercial banks over time. Anglo-saxon and continental European systems have also copied products from each other, including covered bonds and mortgage-backed securities. Outside the Netherlands, Ireland, the United Kingdom and Spain, securitization has played a minor role in Europe, though.

In some European markets, also, similar **policy and loan product menu distortions** as in the U.S. have strongly encouraged leverage: in the Netherlands, a combination of public mortgage insurance with tax deductions for both mortgage interest and repayment vehicles has led to a strong market penetration of interest-only mortgages and median underwriting LTVs near of 100%. Repayment vehicle loans have been a driver of leverage in Austria.[9] Leverage has also been extremely high in Denmark, where tax deductions and a shift of the mortgage finance system from fixed-rate to floating rate mortgages have helped to push both house prices and household borrowing. As in the U.S. in the endgame of the bubble unhealthy lending practices have increased the share of interest-only mortgages and adjustable-rate mortgages in a number of countries, including Spain and Ireland. Figure 18 derived from a recent study of Lea (2010), highlights the mixed picture regarding underwriting practices. The **implications for both household leverage and savings ratios** in these countries can be traced in Figure 1 and Figure 2.

Interestingly, some highly leveraged housing finance systems such as Netherlands and Denmark, but also Canada, Australia and the U.K., so far have failed to produce strong house price deflation and mortgage defaults comparable to the U.S., Spain or Ireland: the standard argument made in those countries by the industry is that the higher leverage has been focused by prudent lenders on borrower groups with sufficient affordability (Netherlands, Denmark and U.K.) and that more conservative products have been used (e.g. fixed-to-term mortgages in Canada and the Netherlands); a less benign interpretation would be that a combination of low interest rates engineered by central banks, government subsidies and favorable economic conditions pre-empt the generally elevated house price levels from adjusting. However, what seems fair to say that those **countries practicing generally low leverage policies,** and in particular Germany, Austria and France with their **explicit housing down-payment savings support policies**, have also performed better regarding both leverage and savings metrics. Since high leverage at the micro or macro level is at least a necessary condition for housing finance crisis, such constellations are less likely to produce major housing finance disruptions.

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usually restricted by a senior funding LTV, i.e. the amount of covered bonds that can be issued against the value of the house. In the current German system, for example, covered bond lenders are able to disburse any amount of total LTV while the position LTV remains limited to 60%. In the Danish system, total LTV and senior position LTV are identical, 80%.

[9] In both countries, a combination of swiftly increasing (insurance and loan) broker penetration as well as financial conglomerates pursuing the 'bankassurance' concept can be held co-responsible for this outcome. In Austria, the impact on household leverage has been mitigated by the strong role of Bausparkassen.

Exuberance

There is a significant amount of debate in the U.S. about the **specific responsibility of individual channels** for the strong increase in household leverage in the 2000s of the (publicly dominated) insurance system vs. the impact of the widening of the menu of funding options through financial innovation and the role of banks and investment banks in them. After all, the U.S. housing finance system as designed had lived through 7 decades since its creation in 1934 without a major house price bubble. As the insurance system was mainly fixated in its role by historic regulatory fiat, and the traditional banking system had been taken largely out of the picture since the S&L crisis, destructive product innovation in theory could only be produced by the so-called 'shadow banking system' and their private sector masterminds.[10] While the discussion is unlikely to cease any time soon, available evidence suggests that **all channels had both independent and mutually reinforcing responsibility** for the increase in leverage and house prices **and** thus **worked in the same direction: extreme borrower leverage**.

Public insurance system

Pinto (2010) provides a detailed account of how a theoretically tightly regulated public insurance system has become in practice a driver of the high-leverage model and destructive innovation, by both bending the rules and by conflicting rules.

The low-income mortgage insurer **FHA** may be seen to have played both a passive and active role in supporting leverage. Regarding their passive role, in 2003 the Bush administration stopped FHA from continuing to increase their house price ceilings in line with the general house price inflation; moreover, FHA attempts to open their guarantee portfolio beyond fixed-rate to adjustable-rate loans were frustrated. The resulting decline in market share of FHA opened the door for private-label securitization and the massive growth of 'subprime' lending to low-income households (see Figure 8). Running a counterfactual thought experiment, one might infer that FHA would have acted more responsibly regarding product innovation if they would have been allowed to increase their loan limits, and in particular the U.S. might have largely avoided the ominous adjustable-rate lending boom of 2004/5 (see also below). However, evidence presented by Pinto (2010) and reproduced in Figure 6 suggests that FHA itself had actively increased the leverage of the portfolio it insured, and dramatically so since the early 1990s. Already by 2000 more than 1 in 2 loans insured by the agency carried LTV greater than 97%, a ratio considered globally in the mortgage industry as well as in the U.S. as highly likely to produce high default rates. Due to these practices, **by 2007 already FHA was on life support by the U.S. government**.

Fannie Mae and Freddie Mac, the central 'government-sponsored' and specially regulated enterprises in the middle-income market, partly 'took over' high-LTV lending from FHA and inflated the U.S. system in additional ways:

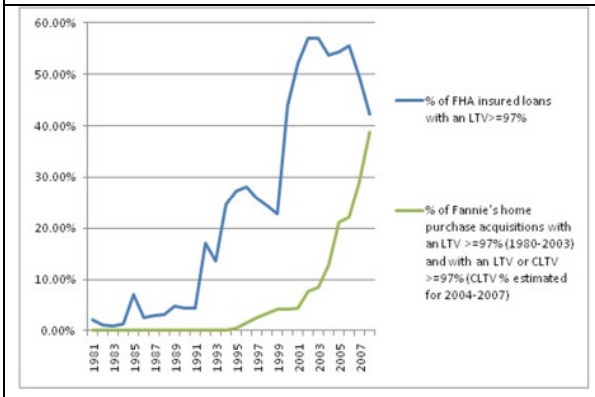
- Directly inflationary was the strategic decision of both GSE in the 1990s to turn back to **portfolio lending** and issue highly liquid so-called **'agency bonds'** with individual tabs of 5 billion USD. This move copied the earlier successful revival of the German covered bond (Pfandbrief) market via so-called 'jumbo' bonds of a more modest size of 1 billion EUR. Various

[10] See for example Wachter and Levitin (2010) defending the public insurance system vs. FCIC member Wallison (2010) attacking it.

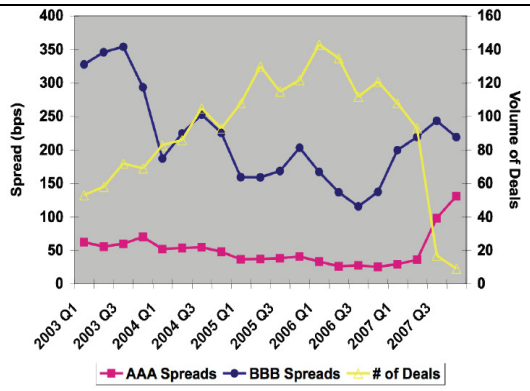
studies have attempted to calibrate **the government subsidy implied by the assumed agency status** of the GSE; the analogous discussion in Germany has been on the government-guaranteed bonds issued by Landesbanken. Little attention has been paid to the fact that such bonds were bullet cash flow structures, i.e. did not carry prepayment risk for investors, which made such debt far more palatable to international investors not willing to price and take U.S. prepayment risk. Before the GSE were put into conservatorship in 2008, agency bonds had in fact received full substitute status for U.S. treasuries and had started to attract a global investor base.

Figure 6 U.S. mortgage (loan and bond) insurers high-LTV lending and capital market pricing distortions

FHA and Fannie Mae's expanding role in high-LTV lending (combined LTV, CLTV)



Securitization boom drives down third-party insurance premia



Source: LHS: Pinto (2010), RHS: Levitin & Wachter (2010).

- Directly inflationary were also the more successful lobby attempts by the GSE, contrasting with FHA's failure to do so, to increase the **conforming mortgage house price limits** with general house price inflation. The GSE high-cost single-family limit roughly doubled between 1996 and 2006; this trailed house prices in high-cost regions but was in line with national house price inflation. The Bush administration stopped the growth of conforming limits only in 2006, when it was too late, using the Freddie Mac accounting scandal as a pretext. The failure to limit the GSEs operations to a core government mandate as private liquidity was obviously available in abundance not only enabled a constantly increasing supply of cheap government-sponsored liquidity to the U.S. mortgage market; it also defeated the very mandate of the institutions to protect housing affordability and gave a push in particular to Alt-A lending. In Alt-A lending, the majority of borrowers otherwise fulfilling GSE purchase criteria failed to produce records for their incomes, most of which were concentrated in high-cost markets.

The GSE tried to make whole on this increasingly obvious, and publicly criticized, failure by **riding down the credit curve and indirectly taking large shares of the FHA market**. Both enterprises did a lot of whole loan purchase of high-LTV loans already in the late 1990s, as Figure 6 shows. However,

they reduced the volume of direct purchases in mid-2000's in favor of three variants, the first two of which were innovations:

- Pinto (2010) suggests that the GSE **purchased** the newly available **subprime ABS** in significant numbers to fulfill their mandate quota. The purchases increased strongly after the private label securitization market took off in 2005 and replaced some of the high-LTV purchases. More importantly, the GSEs bent their rules set to both guarantee and put into portfolio some very risk layered loans, in particular in the case of Alt-A loans. On such loans GSE were able to charge higher guarantee fees and the high coupon loans held would be very unlikely to refinance when rates fell, making them an excellent investment for the portfolio.

  The conservator's report of 2009 suggests that 9% of the $226 billion deterioration in their balance sheet came from their portfolio of private mortgage-backed securities (mainly Alt-A and subprime). Estimates of losses on the subprime (not including offsetting income from them) are about $ 18 billion. The overwhelming majority of their losses, 73%, came from their basic mortgage purchase programs, and over half of that is from Alt-A and other "prime-but risky" mortgages. Most likely, according to their regulator, it was a business decision to get back market share lost to private label securitization of both subprime and Alt-A loans from 2003 to 2005, when the Fannie/Freddie share of mortgage originations went from almost 60% to less than 40%.

- Both the GSE and her regulator OFHEO (now FHFA) turned a blind eye on the **increasing gap between the LTVs of first mortgage loans** presented to them and the increasing **combined LTVs (CLTV)** caused by the lending activities of banks and securitization companies and collateralized by the same properties. Average first mortgage LTVs as recorded by OFHEO even declined during the 2000s as a result of increasing eagerness of the other lenders to fill the gap and the lower interest rates charged on adjustable-rate mortgages (ARM) that attracted consumers, including many prime risks. However, this did not mean that the GSE were more protected as the likelihood of default on only somewhat more conservative loans dramatically increased. In Figure 6 Pinto adds CLTV figures for the years 2004 to 2007 and arrives at a staggering estimate of 40% of total purchases in 2007 in excess of 97% CLTV.

- Finally, even as both preceding issues waned during the crisis, the GSE continue until today to accept the 'credit enhancement' provided by the private mortgage insurance counterparties on new business. It is **highly likely that** the U.S. **private mortgage insurance (PMI) system** per 2010 **is bankrupt**. Failure to recognize bankruptcy is in the interest of both the GSE and the U.S. government who need to keep high-LTV lending going without legally changing the 80% LTV GSE purchase limit. The mechanics are simple: the GSE do not call on claims, the insurance regulators do not close evidently undercapitalized PMI down. Comparable regulatory forbearance has been a feature already of the S&L crisis of the 1980s. Estimates of the amount of uncalled claims on PMI by the GSE are not available, but are likely to rival malfeasance claims on originators and servicers in securitizations. The notion of bankruptcy of the PMI system is supported by the fact that the GSE since December 2008 are charging both higher guarantee fees and loan purchase discounts on high-LTV loans.

An **80% capital split** concept between mortgage bank and high-LTV insurer, as practiced in the U.S. since the 1970s, conceptually **can only produce a permanent going concern of the insurer in the**

absence of larger house price cycles, i.e. when only truly outliers in the house price distribution are causing claims payments (e.g. an economically depressed region). A price cycle of the dimensions experienced in the U.S. after 2003 invariably creates significant loss for a first loss position across the LTV distribution that cannot be covered by any reasonable amount of ex-ante insurance premium. In fact, the **purpose of the PMI system is precisely to fully spend its technical reserves completely** in such a situation, and then possibly be reset on different terms going forward. Ironically, the U.S. mortgage insurance industry has been fully aware of the risk of sweeping insolvency in this event as early as 2005, when their trade group MITA protested against the inaction of the Federal Reserve to stem the house price increase and her increasing loss in market share to securitization and banks (see below). That loss in market share has been too insignificant to avoid insolvency, though.

The mortgage insurers, as well as bond insurers aiming at gaining a foothold in the mortgage market such as MBIA, also insured a high percentage of the subprime and Alt-A business. Insurers were flush with cash, as witnessed by their high stock repurchases until 2007; they themselves and their regulators deemed them to be overcapitalized as the general expectation of permanent house price inflation prevailed.

Private label securitization (PLS) and banks

The mostly private **shadow banking system** consisting of finance companies, investment banks, bond insurers, rating agencies and their investors had three dramatically leverage increasing impacts. These can be detailed into a direct financing and two multiplier effects:

1. It helped to enhance U.S. mortgage market liquidity by selling to investors globally, i.e. created a parallel global funding channel to the GSE **(direct funding effect)**.

2. It primarily financed ARMs, which meant reduced interest rate risk for investors vs. purchasing FRMs, reduced initial payments for borrowers, and in combination enabling a higher volume of lending and house prices (**yield curve multiplier effect)**.

3. It packaged highly leveraged loans into products such as mortgage-backed securities and collateralized debt obligations (CDO) **(credit multiplier effect)**

The direct **funding effect** was supported by a variety of monetary policy and regulatory factors that multiplied the investor base for such U.S. private corporate bonds, into which direct investment is limited for a large number of international investors, in particular institutions and central banks. Most prominent next to the GSE purchases was the system of vast ABCP conduits invested mostly in U.S. assets and run from offshore places such as Ireland that was sponsored primarily by European banks.[11] Banks acting as investors in the U.S. capital markets frequently enjoyed funding privileges (e.g. Landesbanken) and even more frequently had unprofitable core business or exacerbated return on equity goals.

Concerning the yield curve multiplier effect, Boyce (2010) analyzes internal data generated by the largest U.S. servicer Countrywide. Between September 2003 and September 2005, the share of adjustable-rate mortgages shot up from 12% to 28%. It remained on a high level until March 2007. While a cyclical upswing of the ARM share of such a scale is not unusual, it is usually triggered by a

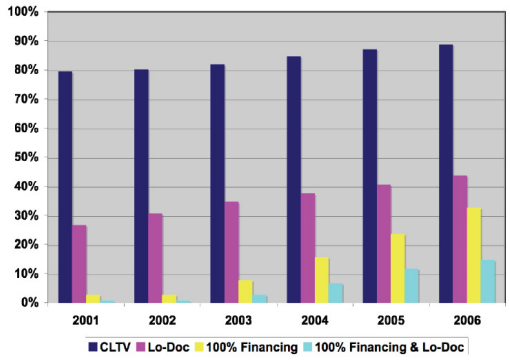
[11] See Arteta et al (2009)

substantial steepening of the yield curve which reduces the cost of ARM over the alternative of fixed-rate mortgage lending (FRM). This did not happen during that phase, rather the yield curve remained 'flat like Kansas' (Economist).

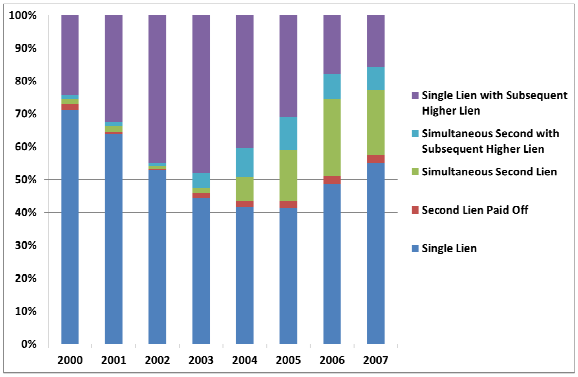
The most likely **driver of the increase in ARM share has therefore been not consumer demand, but a change in industry supply structures** away from FHA and public regulated lending to lending standards determined inside the securitization chain. Also, the use of ARM was recommended by the Chairman of the Federal Reserve, Alan Greenspan. At the same time, the flat yield curve helped accelerating prepayments and reducing the maturity of the U.S. FRM portfolio. The impact of both factors on mortgage market liquidity and house prices has been dramatic: according to Boyce, when considering a measure of mortgage market volume that takes into account the demand for fixed-rate lending and its effective maturity, between September 2003 and September 2005 the U.S. mortgage market lost a quarter of its volume. A reduction in demand for capital meeting an unchanged capital supply implies rising house prices.

Figure 7 U.S. increasing combined loan-to-value ratios and shares of higher lien financings

LTV and risk layering trends by various measures



Prevalence of second liens by vintage years in securitizations



Source: LHS: Levitin & Wachter (2010) based on FFIEC data, RHS: Amherst Securities, computations from the LoanPerformance Securities database. Notes: LHS - percentage indications refer to LTV in the case of CLTV and to market shares in the case of the other bars. RHS – missing data observations distributed proportionally. Percentages by borrower count.

A similarly destructive impact of private label securitization was exercised through the credit multiplier effect. As conventional first mortgage LTV declined, non-conventional non-FHA lending and second mortgages boomed. Figure 7 on the right side shows the vast increase in **second and** in particular **simultaneous second mortgages** among the borrower population for both GSE ('agency') and private label securitization as recorded by Amherst Securities. By 2004, the classic single-lien home financing borrowers had become a minority. By 2006, almost a third of borrowers had simultaneous seconds, usually bank loans. On the left side of Figure 7, we see the increase in average CLTV, and the increase in market shares of other risky loan types: low-documentation loans ('lo-doc'), 100% financings and combinations of the two. Within 5 years, combined LTV in the portfolio rose by a full 10 percentage points.

In addition to the general selection bias of private-label securitization in favor of riskier loans, secondary market desks at loan originating finance companies in a **finetuned system of arbitrage**

steered loans to the most profitable funding exit. This led to considerable misclassifications, e.g. of prime risks into subprime, and also to funding exits for increasingly risky loans that would have been declined by investors if offered directly:

- Via rating agency practices, the PLS system valued low LTVs better than high credit scores and thus in combination the **securitization of low credit scores** was made easy.

- **BBB-tranche buyers** in PLS became **highly adversely selected against** by investment banks and rating agencies in the mezzanine CDO market. Considering the quality of the underlying usually reported in the deal documentation these investors should have checked risk layering practices (stated income, single borrower, etc), but failed to do so.

- Most loans enjoyed **multiple funding outcomes** - FHA to GNMA, Fannie/Freddie, own portfolio, bulk sale to another portfolio, bulk sale to Wall Street, Alt-A, Subprime and Jumbo - without borrowers, investors or regulators being in the picture. Each loan would move in and out of various exits while it marched through various documentation stages (application, file filling, loan closing, loan workout) until it finally ended up on the highest ex-ante profit for the secondary markets desk.

- Many **high-quality conventional mortgage loans ended up in PLS** to blend up the scores or blend down the LTVs or average loan size. Rating agencies assumed misleading distributions, e.g. disregarding international evidence on house prices, and most investors did not analyze them in detail.

The combined impact of these new lender tactics was a **dramatic decline in risk spreads charged by investors in the higher-risk tranches of securitizations**. Figure 6 shows that BBB spreads compressed from over 300bp in 2003 to 100-150 bp in 2007. Even if ratings were in line with higher risk, which often they were not, pricing was definitely not. International banks investing in the high-risk tranches of securitizations directly or via CDO leveraged up higher-rated tranches by multiples of 5-10 and thus created further liquidity.

Next to a moderate share of private-label ABS, many whole loans and in particular second mortgages ended up on **bank balance sheets**. The average American household started using their home as an ATM machine by 2003/4 by taking up 'home equity loans' (see Figure 7). Credit cards that tapped into the house's "equity" were widespread. Banks strongly engaged in both products. Current **estimates** of bank holdings in both seconds and revolving credit (credit cards) **exceed USD 1 trillion** out of a total mortgage market of USD 10.6 trillion[12]. Despite the existence of regulatory guidance[13] and active lobbying by the mortgage insurance industry[14] against the risks of high-LTV lending and in particular hidden and simultaneous seconds, there was little actual regulatory discouragement by U.S. bank regulators.

[12] See Amherst Securities (2010).

[13] Federal regulatory guidance on nontraditional mortgage product risks issued in September 2006 discouraged the use of simultaneous second liens, the presence of which led to understatement of the total or combined LTV ratio of all liens on the property.

[14] See for example Calhoun (2005).

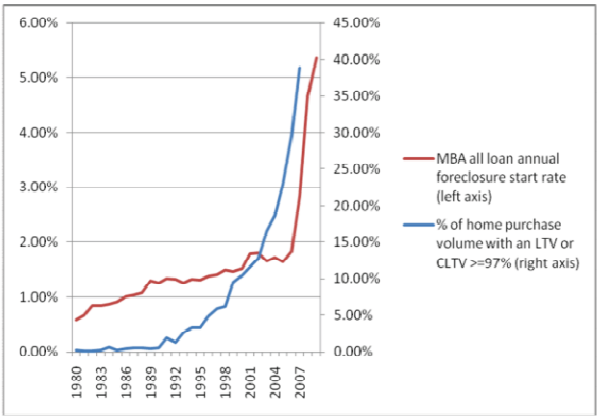
Collapse

It is not unfair to say as a result of the synopsis that – whatever the motive - the decline in underwriting standards was driven by all channels: private label securitization, banks and public sector insurers. The resulting total increase in highly leveraged home financings was dramatic: Pinto (2010) estimates that a full 30% of borrowers in 2006 did not make any down-payment, and that from 40% of the portfolio upward financings carried a combined LTV greater or equal to 97%. There had been ample U.S. econometric literature since the 1980s describing the **default risk of high-LTV lending, even in the absence of major house price movements**.[15]

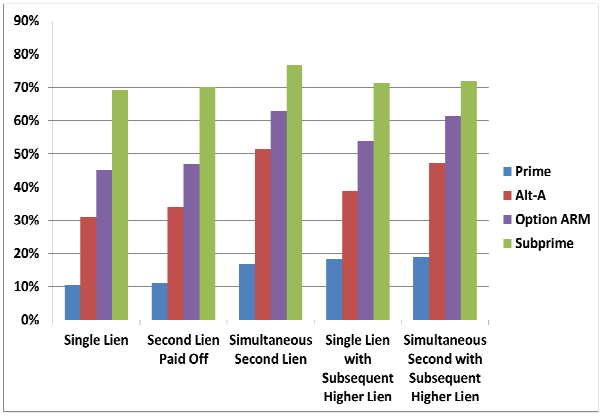
After the house price collapse leverage has further dramatically increased on a mark-to-market basis (current or mark-to-market LTV). Amherst Securities estimates per July 2010 analyzing outstanding loans that some 27.6% of loans by count and 31.9% of performing loans by volume are underwater, i.e. with mark-to-market LTV greater than 100%. Non-performing and re-performing (previously restructured) loans make up for 9.4% and 5.8%, respectively. In agency securitization both ratios are 7.2% and 4.8%, in private label securitization both ratios are 30.7% and 15.3%.

Figure 8 High-LTV home purchase lending by source and mortgage default, 1980 - 2007

High-LTV lending and mortgage foreclosure starts, 1980 - 2009



Ratio of non-performing plus restructured loans to total loans by borrower category and lien status, July 2010



Source: LHS - Pinto (2010), RHS – Goodman (2010)/Amherst Securities. Notes: RHS – refers to securitizations.

Defaults have consequently been dramatic and historical, surmounted only by default rates in the early 1930s. Details have been widely reported, Figure 8 only gives a synopsis. Clearly, high-CLTV as predicted from numerous historic analyses has been a key driver of default; risk layering with scores and idiosyncratic product characteristics (e.g. payment shock) has added other dimensions to defaults. Both confirm 'normal' default patterns. The key difference in this crisis for the U.S. is that in a large house price cycle the vintage becomes a significant predictor of default overlaying all other determinants. The 2006 and 2007 loan vintages have been the worst performing in U.S. history across all categories.

[15] An early comprehensive literature review is Quercia and Stegman (1992).

Amherst Securities per September 2010 estimated that **11.27 million homes**, or ca 20% of U.S. homeowners, **are in jeopardy**. This includes 5 million homes with non-performing loans, 2.25 million homes with re-performing (i.e. already restructured) loans, 1.4 million homes with a mark-to-market loan-to-value ratio in excess of 120%, 1 million homes with a mark-to-market loan-to-value ratio of 100-120% and 1.6 million loans which are not underwater, but carry high unemployment risk and other default drivers. The U.S. is thus likely to exceed e.g. the U.K.s ratio of 5% of homes foreclosed in the 10 years following the burst of the house price bubble of 1990.

Can the high-leverage model be gradually reformed?

As a result of the system collapse, **all three main channels of U.S. mortgage lending** and in particular higher LTV lending are either **dysfunctional or on government lifeline**. Private label securitization since 2008 has ceased to produce new issuances apart from tax-driven re-securitizations. Banks are struggling to avoid loss recognition and cut back on their high-LTV second mortgage portfolio; they are moreover faced with higher capital requirements going forward that will further reduce their appetite to invest in seconds. The traditional insurance system – FHA, GSE and PMIs – lives completely on government support and bears the lions' share of new lending.

The general short-term macroeconomic and financial sector strategy has been to **'kick the can' by keeping interest rates low and thus insolvent institutions – private, GSE and public - artificially alive**. Federal mortgage restructuring efforts intending major additional portfolio write-offs (HAMP program), or at least mass prepayments (HARP program) that could help marginally over-indebted borrowers to avoid default, are unsuccessful for fear that these could jeopardize the solvency of banks or further increase the cost of public insurance.[16] The hesitation to address the fundamental solvency problems of the sector and confront the true fiscal cost promises a more protracted sector crisis than necessary.

The U.S. clearly stands at cross-roads in terms of strategic alternatives for housing finance reforms:

- The only short-term option perceived feasible in order to keep new lending from declining sharply is to **keep the level of government intervention in the insurance system high**. Nationalization is complemented by monetary policy support through securities purchases. This repeats the positive lessons of the New Deal era of swift fiscal action when necessary and at the same time avoids the monetary policy mistakes of the time. However, it also promises to repeat the – potentially more grave - mistake of keeping a short-term fix, nationalizing mortgage credit risk, for the long-term once again.[17] The U.S. discussion is waking up to the reality that the country has been an outlier with that approach in international comparison, for good reasons: the largely nationalized system setup has certainly contributed to the house price bubble, and that centralizing mortgage credit risk even absent large price cycles is a highly ineffective business model.

[16] See Goodman (2010) on HAMP and DeRitis and Zandi (2010) on HARP.

[17] This is not the place for full scenario development of what could happen to fiscal or monetary balances if the credit risk nationalization model persisted. However, the example of the Brazilian housing finance system in the 1980s should post a warning sign: then fiscal cost of 'rescuing' an ill-designed housing finance system ballooned while international investors refused to fund the Brazilian deficit. This resulted in the last hyperinflation in the Western hemisphere. See Dübel and Alberdi (2000) for detail.

- **'Privatizing' U.S. housing finance** would mean a **combination of institutional decentralization and far stricter regulation than in the past**, as well as more serious implementation of the latter. Whether institutional decentralization takes place within the concept of insurance – e.g. by splitting up of or creating greater competition for the GSE, or by pursuing the Australian route of decentral mortgage loan insurers - or via a decentral mortgage bank system along Danish, German or French lines seems to be a question of secondary relevance. What is of paramount relevance is that both types of systems require a tight regulatory framework, in particular a serious limitation of LTV, and that **social 'affordable housing' policy goals are reached by fiscal, and not financial sector, means**.

  Also, as part of a privatization strategy the **competitive status** of future special insurers or mortgage banks or bond issuers **with universal banks needs to be clarified**. Currently the danger is that the largest U.S. universal banks with their too-big-to-fail (TBTF) status will absorb much of the mortgage lending market and grow even bigger. This would take the system right back to a semi-nationalization (GSE) status, even if such banks would use long-term funding instruments such as covered bonds that better match the tenors of mortgage assets. At the heart of this debate is the question of a more radical re-regulation of the financial sector along the lines of Paul Volcker, which includes the question whether the mortgage sector should be primarily run by specialists.

In order to assess the outcome of **universal banks taking over mortgage finance after a crisis**, and because both countries share similar institutional roots and regulatory traditions, a look at the **British precedent** should be insightful for the U.S. In the mid-1980s, the U.K. mortgage market was liberalized with the regulatory 'big bang'. This inter alia permitted building societies and banks to engage in far higher LTV lending than before, which promptly materialized as Figure 9 shows. In fact, the British government had actively encouraged high-LTV lending in order to push her 'right-to-buy' program of privatization of public rental units by their tenants. Very much in parallel to developments in the U.S. in the 1990s and 2000s, mortgage insurers that were lightly or not regulated 'guaranteed' much of the higher risk.

At the peak of the U.K. house price bubble in 1989, median underwriting LTV stood at 85% with many lenders going out beyond 100%, e.g. some 25% of new building society lending.[18] With the subsequent collapse of house prices and rising defaults, in particular of high-LTV loans to right-to-buy tenants, the British mortgage insurance industry was completely wiped out. The building societies which had difficulty to recapitalize faced a secular decline in market share. **Universal banks essentially took over the system, and going forward started to self-insure high-LTV risk**.

Initially the avenue chosen was to create captive insurers on the Channel Islands replacing the bankrupt third-party mortgage insurance system. Later the banks took high-LTV risk directly on their own books via differentiating credit pricing. The U.K.s oligopoly banking structure made such pricing credible. Clearly, some learning effect of the industry can be discerned from Figure 9: after a short-term increase in LTVs in the immediate aftermath of the crisis, LTV dropped back to almost pre-liberalization levels during the late 1990s. Even in the 2000s, characterized by strong house price inflation, LTV remained comparatively conservative. A short-lived wave of securitization and 'non-conforming' lending helped to produce a temporary jump in LTVs in the mid-2000s. While some

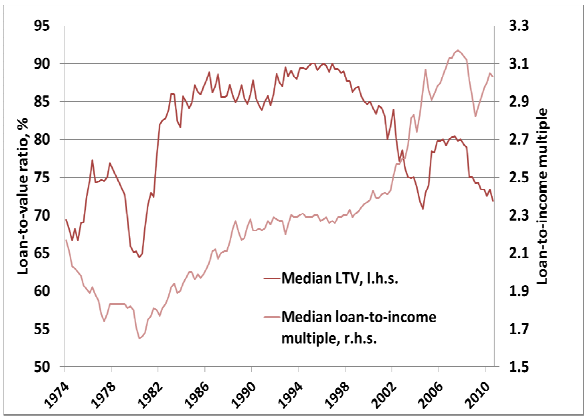
[18] See Dübel/Pfeiffer (1994)

regulations were tightened in the U.K. in the 1990s, there is no regulated LTV cap that has contributed to this result.

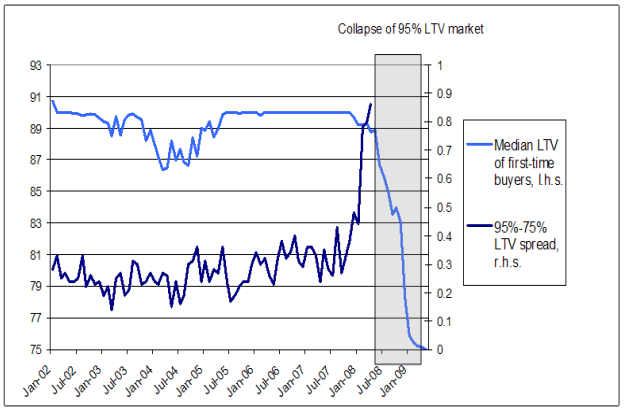
However, the right-hand side of Figure 9 also shows a key **drawback of lender self-insurance, crisis resilience**: during the current mortgage market crisis, certainly milder for the U.K. than her predecessor as a result also of lower borrower leverage, the high-LTV market simply collapsed. During the credit crunch, first-time buyers were almost overnight asked to come up with 15 percentage points of higher equity levels. New mortgage originations had almost collapsed by 2009. As in the U.S., higher bank risk appetite is unlikely to materialize again anytime soon in the U.K. Nor is investor appetite in high-LTV and interest-only mortgages that were typical for U.K. securitizations. The lesson for the U.S. is that the model of lender self-insurance cannot be relied on to work in crisis, and that especially for low-income and young borrowers solutions are needed.

Figure 9 Universal bank system alternative: underwriting conditions in the British market following the demise of third-party insurance and greater lender self-insurance

Median underwriting LTV and LTI in the U.K. 1974 - 2010



Collapse of the U.K. high-LTV market (lender self-insurance) during the financial crisis 2008/9



Source: Bank of England, Council of Mortgage Lenders, Finpolconsult computations. Notes: LHS: median LTV and LTI for all loans for house purchase. RHS: median LTV of first-time buyers and 95%-75% LTV interest rate spreads for 5-year initial fixed-rate periods 1995-2009. LTV – loan-to-value ratio, LTI – loan-to-income ratio.

In addition to cyclically adverse investor reaction, **regulatory loan underwriting standards** are in the process of being formulated that will keep mortgage LTVs low going forward. This can be done either directly for whole loans and securitizations, as is the intention in the U.S. of the 2010 Dodd-Frank reform bill, or for covered bonds, the historic route of European legislation. For the U.S. that debate will be starting in earnest in 2011, when the question shall be answered what a 'qualified mortgage' (Dodd-Frank) should look like. However**, proposals to simply limit total LTV to 80% by regulatory fiat are at least in the short-term not credible**, given the capital scarcity and over-indebtedness of many households.

With the U.K. and many other mortgage markets, the U.S. thus currently faces the **urgent question, how to fill the increasing equity gap**, in particular for lower-income and young, first-time borrowers. It is likely that – in contrast to most European countries - the U.S. will keep some of the public insur-

ance system, of which FHA is the core. Nevertheless, the question of producing higher borrower equity than the 3% standard that FHA had gotten used to in the past two decades tops also the U.S. agenda. In the following we discuss a possible solution to this problem that could hold a key for sound future development of the U.S. housing finance system: contractual savings for housing.

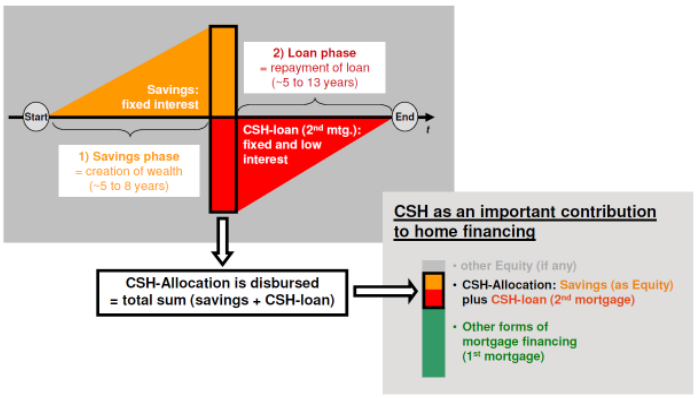
After the end of high-leverage: (contractual) savings for housing

Basic mechanics of contractual savings for housing[19]

Contractual savings for housing (in German: Bausparen, in French: Epargne Logement) present the basic, and historically widely precedented, alternative to the leveraged housing finance system as described. Their roots can be traced back to the Anglo-saxon building society model that prevailed until the insurance model was established in 1934 in the United States (Figure 10). Modern versions, however, avoid the high liquidity risks of the historical precedents that motivated the 1934 reforms.

Contractual savings schemes for housing link the savings effort of an individual made to a collective fund to the entitlement of receiving a loan from this fund in the future. CSH therefore renders funding from other than collective sources of funds, in particular the capital market, less relevant or irrelevant. Since CSH does not require a developed capital market, it is one of the oldest and simplest collective funding mechanics in housing finance.

Figure 10 Basic mechanics of a fixed-rate CSH contract (Bausparen)



Source: Bausparkasse Schwäbisch Hall.

In its most simple form, the saver agrees with the manager of the collective fund, usually a financial institution, to receive a loan in the future after the successful completion of the savings phase. This defines **three distinct phases of a CSH contract life**: a savings phase, a (today negligible) waiting phase between the dates of formal loan eligibility and actual loan allotment, and a loan phase (see Figure 10). A typical CSH contract is long-term, as mortgage loans; it will be closed over a period of between 10 and 20 years. The savings phase typically takes between a fourth and a third of the contract maturity, for example 5 years followed by a loan amortizing over 10 or 15 years. The system thus creates welcome term deposits that support mortgage funding, and sufficiently long-term loans to safeguard affordability of debt service.

'Open' CSH schemes use capital market funds for loan allocation, should a shortfall in new savings arise. In this way, a waiting phase can be excluded. However, because capital market funds are mixed with collective funds, they cannot guarantee a fixed loan interest rate in advance. Open schemes therefore generally carry **variable deposit and lending rates**. Their main value lies in providing a sav-

[19] For a more detailed discussion of both history and mechanics of CSH, the reader is referred to Dübel (2009).

ings product and a simplified access to a loan. An example for an open scheme is the French Epargne Logement.

'Closed' CSH schemes, in contrast, rely almost entirely on the resources provided by the saver collective. Next to loan amortizations, new liquidity is derived exclusively from the deposits made by new saver generations. This roll-over structure between saver generations enables closed CSH to **guarantee fixed interest rates for loans**. Some interest rate risk is introduced through the possibility of a waiting phase, which the lender cannot waive without risking liquidity gaps that might arise due to shortfalls in new savings. This risk can be addressed through a special focus of the intermediary on liquidity management and regulations. Essentially, the closed CSH contract thus adds an interest rate option product to the savings and credit option product of the open form. An example for a closed CSH system is the German or Austrian Bausparen.

Table 1 Sources of funds in German retail housing finance (homeowners)

	Percentage of respondents using source	Average volume in 1,000 Euros
Equity		
Value of land owned:	3	49
Land / house sales proceeds:		
Own	11	124
Donated / inherited	3	206
Cash savings:		
Own, general	71	44
Own, Bauspar (early withdrawal)	**8**	**18**
Own, Bauspar (allotted contract)	**34**	**22**
Donated / inherited	23	47
Other asset sales (securities etc..):	12	36
Other sources:		
Public grants (social housing)	1	22
Sweat money	15	27
Loan		
Banks and institutions:		
Banks/savings banks	60	102
Mortgage banks	4	112
Life insurers	2	110
Bauspar	**21**	**41**
Friends & family:	5	43
Other lenders:		
Public (social housing)	2	52
Public (other)	13	64
Employer	1	23
Other	2	35

Source: Infratest survey 'Bildung von Wohneigentum 2004-2007'.
Notes: n = 1,327

Table 1 with German survey figures presents an example regarding the **role that the CSH system can play in home purchase financing**. Because of the proportionality principle between savings and loan volumes and time periods, closed CSH tend to produce smaller loans than open CSH and general deposit or bond-funded mortgages. However, these loans cumulate with the simultaneously disbursed accumulated savings and interest. The survey data demonstrate the financing function of both CSH savings and loans: savings are used in more than a third of financings, and loans (simultaneously with savings) in a fifth. The average loan volume disbursed by Bausparkassen is €40,000 compared to an average bank or savings bank credit volume of € 100,000.[20] To this figure, disbursed accumulated savings amounts in the range of €20,000 need to be added. For the average apartment cost in the range of €200.000 the CSH sum thus sufficed to fund some 30% of the total, for a single family home some 20%. Multiple contracts within a family are common.

A less vulnerable and fixed-rate second lien market

The three central failures of the U.S. third-party- and self-insurance systems in producing high-LTV first mortgage loans or seconds can be identified as:

- an **excessive level of CLTV**, with typical closed-end seconds CLTVs in U.S. coastal markets reaching 100%. CSH systems address this shortcoming by a regulatory limitation of LTV. The optimal regulatory mechanics is such that the LTV limit is set for the loan portion of the disbursed CSH

[20] The proportionality principle applies also on the individual contract level and implies that the individual loan volume does not materially exceed the accumulated savings and interest. The discrepancy in figures is explained by 'interim financings' disbursed by the Bausparkassen on market terms, see discussion below.

sum only, which allows the accumulated savings and interest portion of the contract to exceed the LTV and complement cash sources of equity (see Figure 10). This is conformant with the notion to focus own sources of equity capital in the credit waterfall clearly into a junior position. The German statutory LTV limit for the debt portion of a CSH chosen in the enabling law of Bausparkassen is 80%. The level should be seen in combination with the limitation of the funding LTV of the Pfandbrief system to 60%, a late first-time buyer age in Germany and as a consequence high cash equity levels. A higher limit – e.g. 85% or 90% - could be conceivable for the U.S. where the current GSE first mortgage lending limit of 80% is likely to survive in some form in regulations, first-time buyer age is lower, cash savings are lower and hence the LTV limits for seconds should be more elevated.

- **volatile and** – see Figure 6 above - **often not risk-adequate LTV pricing**. Home Mortgage Disclosure Act (HDMA) data presented in Figure 11 show that the exuberance of the 2000s has ended in credit crunch pricing levels. The market itself has almost completely collapsed. Second lien pricing for lower-income households and minorities have become prohibitively expensive. These are the groups that at the same time have the least options to generate the necessary cash savings to bridge the gap to first mortgage finance. The result must be a large number of unrealized home purchase transactions. Even for higher-income households second lien costs have become extremely high.

Figure 11 U.S. first and second lien spreads above treasury of home purchase and home improvement loans, 2009 HMDA reporting, basis points

By count	Income relative to MSA/MD median					Race		
	<50%	50-79%	80-99%	100-119%	120% and >	White	Hispanic/ Latino	Black/African-American
Home purchase								
First lien	263	258	262	252	253	256	257	274
Second lien	1587	519	638	440	428	433	598	770
Home improvement								
First lien	345	342	341	318	305	317	416	408
Second lien	587	553	522	506	493	540	656	528

Source: HMDA reporting. Notes: conventional loans, mean spread in basis points above prime offer rate by count of loans sampled. MSA/MD – Metropolitan Statistical Area.

- Closed CSH systems address the pricing question from several sides: CSH providers de-facto guarantee the future interest rate already today, an interest rate option. The implied time lags create **stability of second mortgage pricing over the credit cycle**. Additionally, and more importantly, CSH actively mitigates the risk of a second mortgage financing turning sour by **pre-screening future borrowers** through an extended pre-savings phase. While in theory other instruments for pre-screening, such as evidence of rent payments, could be used, to reach a similar result, these are impractical in an owners' society such as the U.S. and they also provide the weaker creditworthiness signal compared to direct savings.

  Because of the potentially higher LTV, a wider range borrower credit scores and other credit risk factors, most notably the absence of a major recent credit crisis, it is hard to infer from German pricing data on where U.S. pricing levels for a CSH second mortgage product could lie. Generally, **second mortgage pricing of CSH is capped** via the **competition with high-LTV mortgage pricing by banks, mortgage insurers and the securitization market**. In the German case, banks are the main competitors. Bank marginal prices for the 75-80% LTV mortgage bracket tend to be in the range of 90bp rising to 100bp for the bracket between 80 and 90% and some 110-120bp for 90-

95% LTV[21]. As in the U.S., bank risk pricing in Germany can vary strongly across borrower scores and types of creditors and be highly cyclical, up to the disappearance of the high-LTV offer. Taking APRs over both saving and loan phase, German CSH loans under their 80% LTV limit and a client base far beyond prime on average tend to be somewhat more expensive in a marginal calculation than the corresponding marginal bank prime rate. This is likely also to be the case for the U.S. A particularly important question for the U.S. would be the competitive situation with mortgage insurers, whose pricing gradients with regard to LTV have been historically far steeper. Mortgage insurers pricing scales typically start with close to zero figures at 80% LTV and then accelerate fast.

- As opposed to the practices seen in the U.S. market for seconds, which were overwhelmingly ARMs, the closed CSH system finally offers fixed-rate loans. This offers greater interest rate protection for the entire combined financing. Typically, headline (i.e. non-APR) interest rate levels in the closed system lie somewhat below market, both for the savings and loan phase. In fact, German Bausparkassen have tried to offer the same low interest rates (e.g. 2% savings rate and 4% loan rate) over decades for certain workhorse contracts in order to attract new savers more successfully. Because loan coupons are typically below market, i.e. the loan is issued below par, the saver collective has an interest in fast prepayments while prepayment speeds are low. Thus, the **fixed-rate loans** typically are also legally **pre-payable**. In the German case, this is an exception in a system otherwise using fixed-rate loans with prepayment penalties, simplifying financial management.

Arguably, the existence of a stable and moderately leveraged second mortgage market can **render first mortgages financially more sound,** everything else being equal (in particular the CLTV), **and improve their ability to be securitized** or refinanced by covered bonds. While the provision of the Dodd-Frank bill to define a 'qualified' residential mortgage so far has not been filled with life, regulators should have a low-LTV first mortgage in mind when doing so. A CSH contract could fulfill an important buffer function between capital and such a safe first mortgage. In particular, a CSH system could be combined well with a covered bond system under 75% or 80% maximum LTV.

However, given the problems in coordinating first and second lien servicers and investors – both related to securitization and bank holdings - that have continuously emerged since 2007 in the U.S., there is an obvious need for **legal reform of the second lien system** before CSH could properly work. A number of proposals have been made, including legal alternatives for foreclosure with debtor in possession, a requirement that a first lien-holder should approve a second lien on their collateral, and that servicers should be banned from simultaneously servicing first and second liens. These suggestions are geared towards cleaning out the defaulted, historic second liens that pre-empt a reduction of the over-indebtedness situation of many borrowers.

Obviously, a legal compromise is sought for that would ensure that future second/junior lien investors, while taking higher risk, would remain sufficiently protected in both pre-foreclosure and foreclosure situations as well as during extra-judicial processes. In particular, **absence of borrower recourse** under the current legal practice of election of remedies, a major contributing factor to the current elevated default rates in the U.S., could be **problematic** for a second mortgage system. European consumer insolvency legislation is converging to a 5-7 year period of servicing residual debt

[21] Source: Hypoport, authors' calculation for the cohort of 2005.

(U.K., Ireland). German experience also suggests that first-second lien creditor co-ordination and mutual information is essential to mitigate legal risk and detect strategic borrower defaults early.

An additional home improvement lending source

Next to second mortgage home purchase financing a major market for CSH loans is home improvement. In the German case, with a declining role of new construction vs. home improvements in the past decades CSH loans are broadly equally used for both purposes. In countries where the system was newly introduced, home improvement even tended to be the dominant use[22] followed by empty lot purchases for progressive housing construction. One of the key reasons here were the legal difficulties deterring banks from accepting CSH lending in junior or pari-passu position in a home purchase financing.

Home improvement lending in the U.S. **has been reduced to a trickle by the fallout of the financial crisis**, as HMDA data show: first lien conventional loans have declined from 410,000 in 2005 to 166,000 in 2009, and the junior lien market collapsed from 468,000 in 2005 to 82,000 in 2009. While the 2005 figures represented excess, the 2009 figures signal a dysfunctional market and extreme scarcity. Clearly, the role of home improvement lending for the U.S. will have to rise as a result of an ageing housing stock and needs to rehabilitate much of the stock energetically. Also, improved homes are both far better collateral for refinancing and can be easier sold, raising both financial and labor mobility. Home improvement loans have become expensive after the crisis, as Figure 11 shows, and public lending programs will be rationed by fiscal constraints. It is paramount to establish a credit mechanism that supports mid-sized loan volumes to enhance the home improvement investment rate.

Substituting subprime lending for equity-based access-to-credit

Supported by the success of the pre-savings process in sufficiently mitigating credit risk, Bausparkassen, the CSH providers in Germany, do **not apply risk-based pricing** and offer uniform spread contracts to the entire borrower population. The main lever to control excessive credit risk-taking is the option to deny the allotment of credit after the savings phase, i.e. formal underwriting takes place as with every mortgage lender. Underwriting of Bausparkassen is often streamlined with first mortgage lenders to allow for a comprehensive assessment of leverage. A credit denial means that the prospective borrower will get reimbursed his accumulated savings plus interest. Actual **credit denial rates** after a successful savings phase in Germany **are extremely low.**

The **access-to-credit impact of a successful savings phase** goes beyond the CSH product itself. Both proprietary bank and external scoring systems will use a CSH contract's existence to increase borrower scores, resulting in better first lien pricing. In the Czech Republic, which introduced Bausparen in 1992, it has been estimated by Czech lender Erste Bank that same LTV first lien mortgages to Bauspar savers are priced some 50 bp more aggressively due to the skin in the game effect of self-generated cash savings.

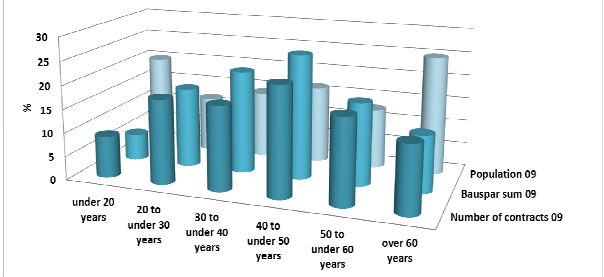
Because of such characteristics, it is not surprising that the CSH system has been **self-targeting to younger and lower-income households**. The product in Germany and other countries also comes with moderate public savings premiums (see below) that are capped by saver income and contract volume and tend to attract both groups over-proportionally. Figure 12 on the left-hand side shows

[22] See Dübel (2003) for an analysis of the experiences with introducing CSH in the Czech Republic and Slovakia.

the age distribution of savers in private Bausparkassen in Germany by number of contracts and compares it to the age distribution of savers by Bauspar sum (sum of savings and loan) and the age distribution of the population. A first observation is that a considerable share of contracts is held by young and very young households – youths, well before the typical first-time buyer age (German median: 38 years). The high penetration among young households incentivizes and trains a general savings ethos and helps to explain Germany's high and fairly stable household savings ratios. Young households use the contracts to build credit and/or as a government-sponsored savings vehicle. Also, even retired households hold CSH contracts in a significant amount as savings contracts or to fund smaller home improvement investment (see below).

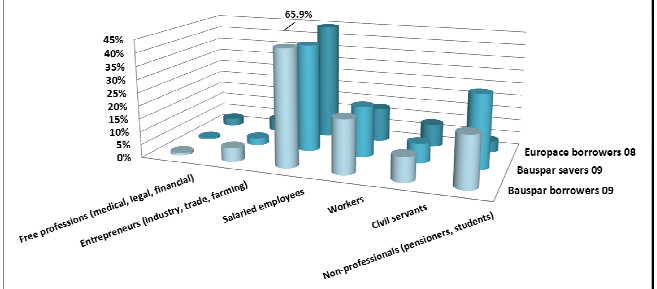
Figure 12 Germany: social characteristics of CSH (Bauspar) savers and borrowers vs. benchmarks

Age structure (savers only)



	under 20 years	20 to under 30 years	30 to under 40 years	40 to under 50 years	50 to under 60 years	over 60 years
Number of contracts 09	8.8	17.9	17.8	23.1	18.1	14.2
Bauspar sum 09	5.6	17	21.7	26.2	17.4	12.1
Population 09	20.0	11.8	14.2	16.4	12.7	24.9

Professional structure



	Free professions (medical, legal, financial)	Entrepreneurs (industry, trade, farming)	Salaried employees	Workers	Civil servants	Non-professionals (pensioners, students)
Bauspar borrowers 09	1.0%	5.2%	44.2%	20.6%	9.4%	19.6%
Bauspar savers 09	0.7%	2.7%	41.4%	19.5%	7.5%	28.2%
Europace borrowers 08	3.0%	4.6%	65.9%	13.3%	8.8%	4.3%

Source: VdpB, Hypoport AG. Notes: private Bausparkassen only. RHS Chart – professions ranked by average Bauspar sum (proxy for income). Europace is a loan platform run by Hypoport that intermediates some 10% of German fixed-rate mortgage loans.

On the right-hand side, Figure 12 shows as a proxy for income the **professional distribution** of the numbers of both borrowers and savers comparing it to the professional distribution in the general mortgage market. This characterizes the credit enhancement effect of the system: clearly, blue collar workers and civil servants (mostly lowly paid, such as policemen or teachers) are overrepresented, in the case of workers both as savers and borrowers. Salaried employees and higher income professions tend to be underrepresented.

Whether and up to which limits a CSH system in the U.S. could at least partially **replace subprime** in its income dimension, **or equivalently support FHA lending,** via its credit enhancement function would need to be tested. Clearly, the attraction of a pre-savings system would rise with a lower FICO score and in the dimensions of minorities and lower and more volatile incomes. More important than providing access to credit as such to these groups would be the establishment of a stable savings culture: even if a loan is ultimately denied or the credit enhancement is insufficient to lower the first mortgage rate, the borrower household holds valuable and universally deployable own capital in the form of cash savings. Those cash savings can be flexibly withdrawn; however, if it is done before a minimum number of years, in the typical CSH system the public premium payment is cancelled. The U.S. could handle such aspects with greater flexibility, given a less densely woven welfare net.

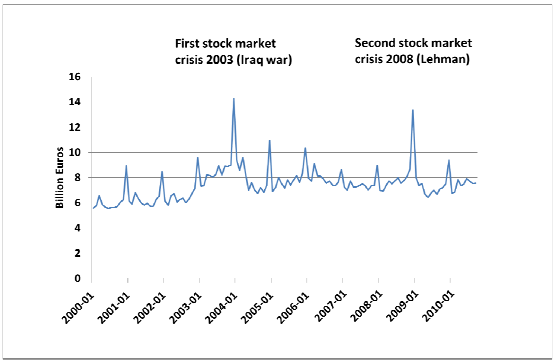
Alternative long-term bank liquidity source accessible during capital market crisis

Deposits such as CSH with a typical maturity of 5 years are a mid-term **funding product** for the banking system positioned between long-term bank (covered) bonds and short-term deposits. Technically CSH deposits are daily or monthly callable by the depositor; however, a variety of measures turn them into de-facto long-term deposits. First, there is the promise of a low-cost loan with its credit and interest rate options. Secondly, CSH providers – as other contractual savings providers such as life insurers - tend to charge upfront fees for contracts that render early termination of a CSH contract financially unattractive. Third, public savings premiums that enhance the deposit yield are generally disbursed only after full completion of the savings period. Empirically, statutory minimum savings periods for premium disbursements range between 2 and 7 years. This range of measures has made the obvious alternative to impose technically legal minimum maturity clauses or penalties superfluous.

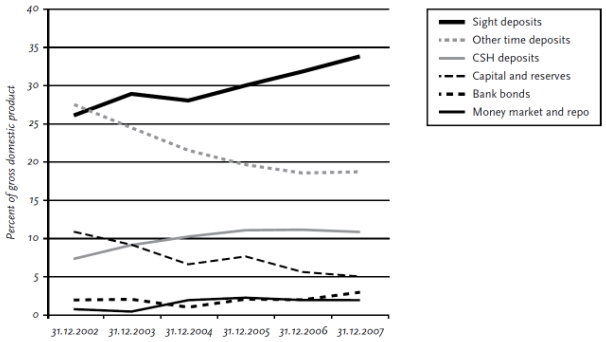
An important feature of CSH deposits flows in Germany has been their **inverse behavior** to savings in other capital market instruments, in particular stocks, **in reaction to financial crisis events**. Figure 13 shows that liquidity inflows into the system have peaked both during the Iraq war crisis in early 2003, which coincided with a decade stock market low, and after the collapse of Lehman Brothers in late 2008. During capital market crisis spells, the system takes advantage not only of its integration into the deposit insurance system, as other deposits, but also from the prospect of a future low-cost loan giving access to real estate. Clearly, however, a mortgage market credit crisis could impair the attractivity in such a case, in particular if too high LTV limits are chosen for a CSH system.

Figure 13 Funding function of CSH deposits in the going concern and during crisis

New Bauspar monthly contract volumes in Germany and financial crises events in the 2000s



Role of CSH deposits in the financing structure of monetary financial institutions 10-15 years after CSH introduction, Czech republic



Source: LHS - Bundesbank, Finpolconsult computations, RHS - Dübel (2004).

A second feature is that CSH deposits once introduced tend to take a **stable and strong position in the bank funding system that shows little volatility over time**. The right-hand chart in Figure 13 shows this effect for the Czech Republic for the years of 2002 – 2007, 10-15 years after the introduction of the system in 1992. Clearly there is some substitution of bank bonds and other time deposits, usually of shorter tenors. The low volatility is noteworthy, however. Moreover, the funding menu for housing lending is diversified and a failure of one funding instrument to roll over has less dramatic consequences. See also discussion on regulation issues below.

After the financial crisis it should be clear that both effects – liquidity hedging in capital market crisis and more long-term deposits are highly desirable from the perspective of stability of the U.S. financial system. Both effects take pressure from public liquidity facilities and lenders of last resort, such as the FHLB and the Fed, away to support new mortgage lending during crisis. If sufficiently conservatively regulated, CSH is likely to stay open for lending when other funding mechanisms fail.

CSH programs could finally **support acute current housing finance needs** in particular by U.S. banks during the build-up phase of the system, which generates free savings resources that typical regulations designate to be temporarily invested into other housing-related uses, such as mortgage bonds. During the build-up phase of the system in the Czech republic, such an indirect financing function played a substantial role in keeping mortgage covered bond rates to among the lowest levels in Europe.

Improving the financing structure of down-payments

There **has been inconclusive debate whether** dedicated term deposit programs such as CSH have an independent effect on **increasing personal savings** or whether the substitution / diversification effects with other funding instruments discussed in the previous section prevail. A glance at Figure 1 would suggest that the two European countries that use the system most intensively, France and Germany, display both high and stable household savings ratios. Austria, another intensive user of CSH, could be added to that group. However, there are alternative explanations, such as the absence of a high-LTV mortgage market in these countries that renders larger cash savings necessary[23]. Also, absent major product innovations mortgage loans in Germany and France tend to amortize fast, which adds to the household savings ratio. Finally, there is a multitude of non-housing related factors influencing the household savings ratio.

Table 2 Relevance of savings for housing equity generation purposes, survey results

Sources of equity finance in British (England) and German mortgage banking

Sources of equity	England	Germany
Data source	Communities local gov	& Infratest (private)
Period	2007/08	2004/07
Survey population	Owners	Buyers
Survey size	ca 20,000	1327
Proceeds from sale of previous home	52	>11
Savings	39	>71
Gift or loan from family or friend	6	23
Inherited money	4	
Loan to cover deposit/bridging loan/Bausparen	2	34
Money paid by local authority/housing association	1	1
Windfall	1	n.a.
Money paid by private landlord	0	n.a.
Sweat money	n.a.	15
Other	3	n.a.
No other source	11	n.a.

Motives for savings given by consumers in the United States and Germany

Motives for saving	United States		Germany	
Data source	Federal Reserve SCF		Infratest	
Period	2007		2010	
	Percent	Rank	Percent	Rank
Education	8.4	4	5	5
For the family	5.5	5	n.a.	n.a.
Buying own home	**4.2**	**6**	**46**	**3**
Purchases	10	3	58	2
Retirement	33.9	1	60	1
Liquidity	32	2	4	6
Investments	1.6	7	28	5
No particular reason	1.1	8	n.a.	n.a.
Does not save	3.3	n.a.	n.a.	n.a.
Homeownership rate 2009	**67.3%**		**55.6%**	

Source: LHS - CML, Infratest, Finpolconsult rearrangements. RHS – Federal Reserve Board Survey of Consumer Finances, Infratest, Finpolconsult rearrantements. Notes: LHS - percentage of respondent using funding source. Comparable U.S. data not available.

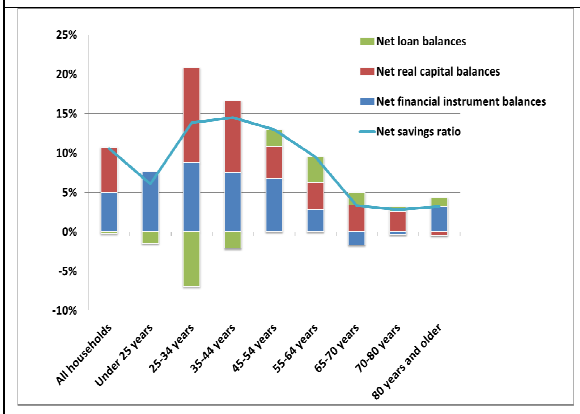
[23] E.g. Börsch-Supan (2003).

Income and expenditure survey data in a number of countries suggests that homeowner households will have a higher savings ratio. However, in economies with high homeownership rates, often enforced by scarcity of alternative tenure such as rental housing, this effect seems to wane. More important seems to be that absent systematic dedicated savings processes an **insurance-based high-LTV funding system relies on permanent capital gains expectations** in the housing market that fail to materialize with the cyclical downswing or collapse of property prices. This tends to **render the household savings ratio highly cyclical**, as shown in Figure 1. It demonstrates the mirror effect to the Pigou effect of rising (housing) wealth increasing household consumption, which is a simultaneously depressed household savings ratio.

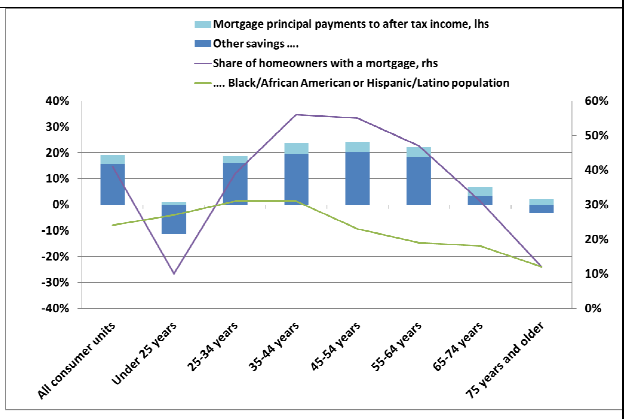
Another way of interpreting the same matter is that **without access to term deposit programs** that build cash down-payment capacity systematically, **households on the micro level tend to rely on housing capital gains** as the main source of equity and fail to start saving. Table 2 on the left-hand side compares available survey data on British and German financing structures for housing equity from the mid/end of the 2000s: in the British case, proceeds from the sale of a previous home has paramount importance while the same role in the German case is taken by both cash and Bauspar (CSH) savings. Comparable U.S. household level survey data does not appear to be available; however the negative correlation between the personal savings rate and realized capital gains as shown in Figure 3 above seems hardly coincidental.

Figure 14 U.S. vs. German household savings by age, composition, Surveys

Germany – composition of net household savings, net and gross savings ratios by age (Einkommens- und Verbrauchsstichprobe, 2008)



US gross income – expenditure surplus % of after-tax income by quintile (BLS consumer expenditure survey, 2009)



Source: LHS- Statistisches Bundesamt, Finpolconsult computations. RHS – Bureau of Labor Statistics, Finpolconsult computations. Notes: no net household savings decomposition by age available for United States.

Anecdotal evidence regarding the purpose of savings supports this view. According to the Survey of Consumer Finances of 2007, **buying a house in the U.S. ranks only sixth in a list of eight motives for household savings** (Table 2 on the right-hand side). A recent German survey ranks savings for housing third behind savings for retirement and for purchases. A full 46% of respondents save for housing

purposes, compared to 4.2% in the U.S, although Germany has a significantly lower homeownership rate than the U.S.[24]

A crucial aspect of stabilizing the household savings ratio, finally, is the way in which **savings for housing purposes are embedded into the lifecycle savings and dis-savings program.** Figure 14 uses survey data on the age structure of savings for the U.S. and Germany, which are unfortunately not directly comparable. It seems safe to say, though, that while young German households under 25 already feature a positive aggregate net savings ratio their U.S. counterparts are likely to feature a very low or negative one. According to the 2007 Survey of Consumer Finances, 52.9% of U.S. households under 35 years save at all, with the amounts being unknown. The analogous German data points per 2005 are 54.3% for 18-29 year olds and 67% for 30-39 year olds.[25] The bulk of savings of young households in Germany is in financial instruments consisting mainly of savings deposits and CSH. CSH as long-term savings product helps stimulating savings at an early age. Features of the housing policy menu (see below) and the recent integration of housing savings into the early retirement savings system from the tax perspective support this savings behavior.

Regulation, institutional design and fiscal support for contract savings

Regulation

It is worthwhile to point to a few regulatory differences to the classic (open) savings and loan systems that characterize today's contract savings for housing regulations.

A CSH scheme carries principal-agent problems **more comparable to insurance than banking** since a managing institution derives its profit from investing the resources of a fund designated to pay future claims of the saver collective. Similarly, agency problems exist inside the collective, as CSH has built-in incentives to create a snowball system that may leave the last saver generation without access to loans in favor of earlier generations. This can be a particular problem under high inflation and has sometimes led to failure to design a sound system and even bans to offer future loan promises.[26]

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[24] When comparing homeownership rates, it is paramount to distinguish financial from real economic factors and go into the housing finance system history. Both in the U.S. and Germany, cities were built in the 19th century in the form of rental tenement housing. In the course of the 20th century, paths split: German cities remained highly densified, while the U.S. developed a far lower density building stock more conducive to ownership. Contributing to the demise of the rental sector in the U.S. was the massive investment in the 1930s into motorways and 'Levittowns', i.e. suburban single-family housing, supported after 1934 by the government through FHA. The FHA also explicitly excluded urban rental housing from their guarantee programs, which led directly into urban decay and the urban crisis of the 1960s. Germany, in contrast, never embarked on large politically prioritized single-family housing programs. In fact, Bausparen in the 1920s and 1930s was a political self-aid mechanism to generate capital for single-family housing at all. The war effort and large postwar reconstruction of tenement housing forbade large single-family housing programs. The 1970s saw in the whole of Europe a large social rental construction boom that was far more muted in the U.S. Through decades of focus of public policies in Germany on rental, and the fact that the median voter was a renter (as opposed to the U.S. where it was a homeowner), the housing policy menu over time became highly biased in favor of rental landlords. In fact, the typical German higher-middle income earner becomes a rental landlord before becoming a homeowner. The landownership ratio exceeds the homeownership ratio by 10 percentage points. During the 2000s, Germany moved towards a tenure-neutral housing policy menu and abolished many rental housing subsidies. Arguably, U.S. housing policy fell into the opposite extreme of excessive subsidies for homeowners compared to rental tenants, see also discussion on fiscal cost below.

[25] Böersch-Supan et. al. (2006).

[26] The German banking act (Kreditwesengesetz), for example, goes as far as *outlawing all deposit-taking which is linked to a loan promise*; the exception being tightly regulated CSH deposits under the special bank system of Bauspar-

At the core of closed fund CSH regulations should be the definition of balance sheet and cash flows of the designated fund. The managing institution should be required to be a regulated financial institution which is specially licensed for managing CSH schemes, ideally it should be specialized institution (see below).

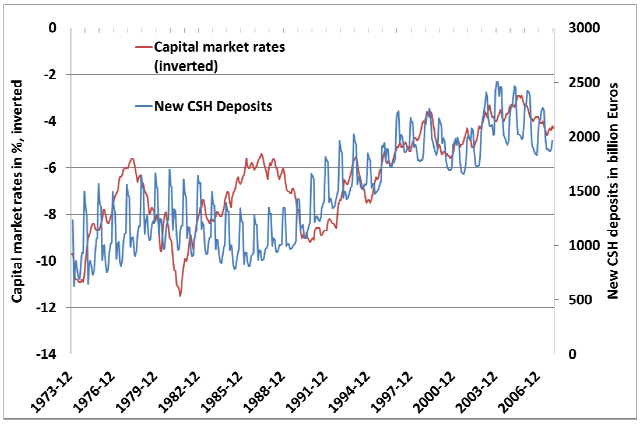
Since CSH schemes are of the greatest value in the closed form when interest rates are fixed, and their funding instrument is callable, **asset-liability management** requires greater detail regulation and support than in the case of a traditional building society or mortgage bank. Deposits are first transformed by incentives – future payout (loan) promise, savings premium, fee structures – into long-term, comparable to a life insurance product. Closed systems are still indirectly sensitive to capital market rates as Figure 15 shows for the German historical case. A **solution to reduce liquidity risk is a technical reserve fund** (in the German case 3% of deposits). Liquidity volatility can be further reduced through **variation of contract designs**, e.g. fast or slow savings contracts or occasionally higher deposit rate contracts targeted to good brothers, i.e. without carrying a loan promise, only.

Figure 15 Open vs. closed system – regulation differences and interest rate sensitivity of liquidity in the closed system

Competing contract savings for housing approaches - French open vs. German closed systems summary

	Open CSH Epargne Logement	Closed CSH Bausparen
Rate determination	Variable deposit and loan rates	Fixed deposit and loan rates
Deposit interest rate	Competitive after-tax yield	Below market after-tax yield
Loan interest rate	Deposit rate plus fixed servicing fee	Deposit rate plus fixed spread, rate usually below market
Loan volume	Loan interest paid cannot exceed 2.5 times deposit interest received	Loan-to-savings multiple of 1 - 1.5 times accumulated savings
Waiting phase	None	Lender cannot waive waiting phase, minimized through special reserve

Interest sensitivity of savings inflows in the closed (fixed-rate) system, new monthly savings inflows and capital market rates 1973-2007



Source: LHS: Dübel (2009). RHS: Bundesbank, Finpolconsult.

The key steering and regulation variable for any type of contract is the **individual 'saver-fund effort ratio'**, which in its simplest specification is the ratio of savings made to a point of assessment relative to the loan claim. A contract is ready for loan allocation, if a certain threshold value of the effort ratio has been reached. Threshold values depend on the type of contract.

Aggregate **liquidity management** depends crucially on whether products are individually viable and how credible the scheme is as a generator of loans. The latter implies ensuring a sufficient ratio of

kassen. This system is supervised by a specialized department of the supervisory authority. The French legislation does not require a special bank for operating CSH schemes. Regulation takes place under a special unit of the treasury which also oversees other contract savings, such as insurance and pension schemes.

loan allocations within the collective ('bad brothers'). As a result, contractual loan-to-savings multipliers cannot exceed certain prudential values, typically 1.2 or 1.5. This restriction is fundamental; nevertheless it has often been violated in inflationary environments when no additional measures have been taken to preserve the real value of savings. The consequence could be a severe rationing of willing loan takers through the imposition of waiting phases or, in the cases where this is legally impossible, to the conversion into an open system with interest rate risk (producing ARM instead of FRM).

The reverse problem, excess liquidity, may arise easily, too. It is typical for a scheme whose deposit base grows too fast, for example because of high subsidies or interest rate controls elsewhere in the financial system. This implies fund investment conditions to be handled flexibly, i.e. allow a certain volume of investment in securities funding other mortgage lenders or market rate housing loans.

Historically, the system has been under insurance supervision in Germany and is currently under banking supervision. It continues to be under insurance and pension supervision in France. In the U.S. regulation context supervision by the **Office of the Thrift Supervision** would appear straightforward. Eligibility for **federal deposit insurance** would be essential and matching European practices.

Institutional design

Wholly **mutual institutions** are potentially a solution to mitigate the agency problems between managers and savers collective discussed above. Mutual institutions have survived in the U.S. in the thrift industry de-facto as loan originators and mortgage securities investors. Their market share has declined in the past 30 years; however, as in the similar case of the U.K. there should be a debate about whether to revive the mutual model in order to provide better quality of financial service to consumers. Contract savings institutions could be a good candidate. As in the insurance and in the thrift industry, both mutual and private contract savings for housing institutions have successfully co-existed, e.g. in Austria and Germany.

Table 3 Amount of debt of all families, distributed by type of lending institution, 1998 – 2007 surveys

Percent

Type of institution	1998	2001	2004	2007
Commercial bank	32.8	34.1	35.1	37.3
Thrift institution[1]	9.7	6.1	7.3	4.2
Credit union	4.3	5.5	3.6	4.2
Finance or loan company	4.1	4.3	4.1	3.4
Brokerage	3.8	3.1	2.5	1.6
Mortgage or real estate lender	35.6	38.0	39.4	41.6
Individual lender	3.3	2.0	1.7	1.4
Other nonfinancial	1.3	1.4	2.0	2.0
Government	.6	1.1	.7	.4
Credit card issuer	3.9	3.7	3.0	3.6
Pension	.4	.3	.3	.2
Other	.3	.5	.2	.2
Total	**100**	**100**	**100**	**100**

NOTE: See note to table 1.
1. Savings and loan association or savings bank.

Source: Federal Reserve Board (2009), Survey of Consumer Finances. Notes: for note detail see original document.

More controversial could be the question whether contract savings should be offered only by **specialized institutions,** and how such a special institution system would fit into the **overall system reform context**.

The US, in stark contrast to Europe, is still running a **highly specialized mortgage finance system**. The secondary market was and is currently almost completely dominated by specialists – Fannie/Freddie, Ginnie, the FHLB and, before their demise, private label conduits and securitization companies. However, as Table 3 shows, also the primary market is strongly dominated by specialized lenders.

The death bells for specialized mortgage finance have been ringing storm in the U.S. for some time. This perspective has been supported by the gradual increase of the market share of commercial banks in mortgage loan origination since the 1980s. However, as Table 3 shows, this increase until the crisis went to the expense of thrifts and credit unions, other universal banks, while specialized mortgage lenders continued to expand. **With the crisis**, however, **many specialized lenders and servicers disappeared or ended up in the vaults of commercial banks**: the most prominent case being the takeover of Countrywide Financial by Bank of America in 2007. There is substantial debate about whether double standards applied in rescuing financial institutions by the Fed and TARP have contributed to this result. Currently, the U.S. is on track to copy the European universal bank model of mortgage finance.

When redesigning a housing finance system completely, as is the task of the current U.S. government, such factual questions should be of secondary relevance. There are **strong regulatory and business model arguments speaking in favor of specialization in mortgage finance**. To the extent that portfolio lending is undertaken, an argument in analogy to the **'Volcker Rule'** could be made that universal banks should be kept from speculating in interest rate risk by funding very long-term loans short-term. The discussed new Basel bank regulation rules will be insufficient to reach this goal. This would suggest specialized institutions for both first and second mortgages, i.e. specialized mortgage banks (covered or agency bond issuers) and specialized contract savings institutions. Also, specialists should have greater interest in delivering sound financial products to their designated consumer constituency, produce higher qualified staff in origination, servicing and funding, and control credit risk more at arm's length. In the case of contract savings institutions this is particularly safeguarded through a relationship established by a long-term savings process.

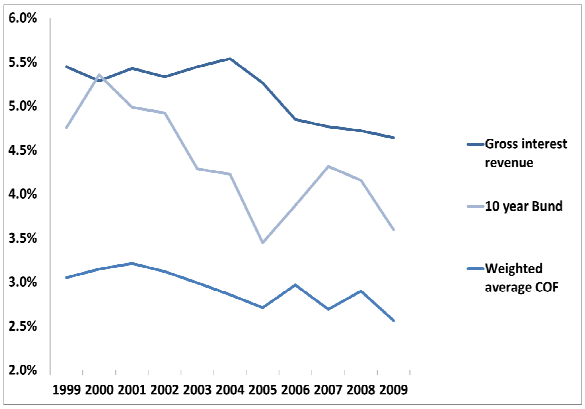
The key survival questions of specialized institutions are long-term **profitability and crisis resilience**. The overall goal of regulatory reforms is to reduce profitability levels of financial institutions against gains in crisis resilience by lowering the volatility of profits. Specialized contract savings for housing institutions can broadly match this requested profile, as the German case demonstrates (see Figure 16). Their income consists of a fairly stable net interest rate margin unimpaired by sudden cost of funds increases in the capital market and similarly stable fee income. Typically an upfront fee of 1% of the contract sum is charged that goes almost entirely to third-party distribution, comparable to points charged by third-party originators in the U.S. Risk provisions have been low and of limited cyclicity; if LTVs in the U.S. case would have to be higher, the interest rate margin of the system would have to be adjusted upwards and additional capital requirements be made.

The obvious **question** is **whether investors would accept lower return on equity** figures of 10% and below **in exchange for lower capital risk**. The returns of the German system in the range of 5% are certainly too low to attract U.S. investors. The German results are influenced by the fact that most specialists today are owned by bank holding companies or universal banks that see the product as an entry product to cross-selling.[27] Even if a U.S. system of specialists would end up similarly as subsidiaries, or silos, of holding companies, a clean isolated pricing or the product would be preferable.

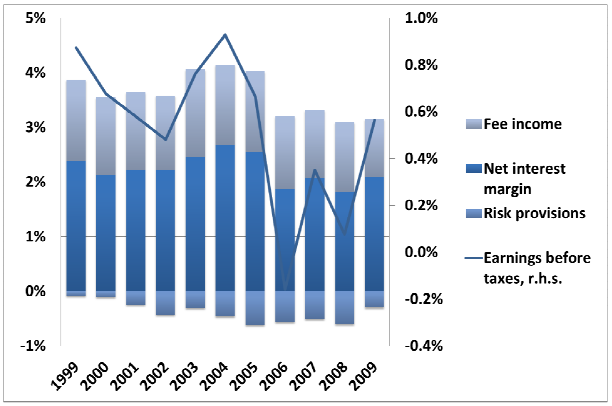
[27] Also, for the macroeconomic reasons discussed, German housing finance activity has been slow in recent years.

Figure 16 Profitability indicators of German private Bausparkassen

Gross interest revenue, cost-of-funds and 10 year Bund rate



Profitability of the retail loan portfolio



Source: Verband der privaten Bausparkassen. Notes: private Bausparkassen only. Notes: LHS: retail loans. RHS Chart: assumes 70% of non-interest cost attributable to loan portfolio.

One option to achieve this, given where junior lien home purchase and home improvement loan price levels are in the U.S. (see Figure 21) is to run a somewhat higher net interest margin than the German 2% level, e.g. 2.5%. Servicing could be run by specialized servicers, in which the U.S. due to the large scale of her servicers businesses has a 20-30bp cost advantage over Europe. Third-party distribution might be more cost-effective in the U.S. leaving some point profit for the institution. US corporate tax structures might also support a higher return on equity. Finally, the U.S. market has approx. 10 times the size of the German market, which allows for considerable scale effects for specialists.

Possibly, in order to further enhance scales, both first and second mortgage could be also be offered by the same system of specialized lenders; an example is the Austrian system of Bausparkassen which offer both standard mortgage loans (funded by bonds or retail deposits) and contract savings. Such a dual product structure is also compatible with proposals of some in the U.S. to adopt the system of specialized mortgage credit institution dominating the Danish mortgage market.

Technically it would be possible to develop a **licensing scheme for universal banks** permitting them to offer CSH products. This would be, however, **as if to allow banks to offer insurance** products. A first regulatory condition would be the creation of a trust fund that clearly separates balance sheets and cash flows, to avoid any comingling. In that regard, rules would have to be in place to avoid funding of the remainder of the universal bank by liquidity excess of the CSH institution, a conflict of interest. Secondly, dedicated risk management would be essential, given the particular ALM issues and frequently high-LTV nature of lending of the business. Legal and other departments could be shared. It would seem that for an economy of the scale of the United States such compromising at the expense of higher risk would be inadequate.

Fiscal support

A contract savings for housing system as shown should provide a **feasible product sui generis** to the U.S. market. The credit option is highly valuable for low-income and young households. Going forward, as the GSE may exit the system in their current form and the U.S. housing finance system may offer shorter-term fixed-rate products along the lines of Canada or Germany, CSH could be one of the few real fixed-rate products, i.e. fixed to maturity, remaining. This has been the case in Germany.

However, a **small state premium matching the consumer's savings effort may render the system more stable** and palatable from a risk management perspective, both for lenders and saver-borrowers, and certainly regulators. In particular, if technically callable deposits must be accepted to allow in particular lower-income borrowers to manage their personal finances flexibly, a premium subsidy may create a threshold reducing the value of the call option and turning deposits effectively into long-term funding instruments.

In addition, a premium system **can easily be designed as an integral part of the broader pension security system** along the lines of 401(k) and other dedicated pension investment accounts. This step has been taken by Germany in 2008 when Bausparen became integrated into the tax-preferred voluntary pension savings system ('WohnRiester').

As of early 2011, it is still too early to do a full forensic fiscal cost analysis of the failed housing policy strategy centering around the traditional insurance system. However, it seems clear that the cost of the GSE rescue alone will likely to go into several hundred billion USD. Also, the full recapitalization cost of the FHA, which has dramatically increased market share and risk exposure only since 2007, are still unclear. Leaving outside stimulus programs, total direct fiscal costs of crisis of the legacy system could be in the range of 10% of GDP. Considering that S&L crisis culminated only 20 years ago with a total cost of ca. 5% of GDP, and that a repetition of events under the same high-leverage setup within the next 20 years is highly likely, the U.S. can certainly be expected to spend **contingent fiscal cost of 0.5% of GDP on expected public guarantee losses and rescue operations on a permanent basis**.

Budgeted fiscal cost include most prominently **mortgage interest tax deduction**, property tax exemptions and other support for first-time buyers as well as tax support for state and other housing finance agencies. The cost of the federal programs are in relation to GDP likely higher than most European housing policy budgets today. Total housing subsidy program cost in European countries, including tax subsidies, today officially range between 0% (Italy) and 1.63% (France) of GDP, with a median below 1%.[28] In contrast, the U.S. mortgage interest deduction program alone in 2009 cost 0.75% of GDP; all-in cost of U.S. housing policy including crisis-related cost are safely running above 2% of GDP. In terms of structural bias towards leverage, the U.S. in transatlantic comparison today is alone with the Netherlands. A **combination of reduction of leverage** underwritten by the insurance system, including the introduction of CSH, **and modification of the mortgage interest deduction** program could establish a **new housing policy program with substantially lower contingent fiscal cost** at the same budgeted fiscal cost levels.

[28] See Ministry of Infrastructure of the Italian Republic and Federcasa (2006). Because of fears regarding the potential cost of housing policy programs there is no formal responsibility of the European Union in the sector.

While the overwhelming thrust of the U.S. housing policy program has been on insurance solutions, some **pilot CSH programs** for first-time buyers already exist in the context of affordable housing programs. As an example, the Federal Home Loan Bank of New York runs a 'First Home Club' for first-time buyers with income under 80% of the area median income. The program requires a minimum savings period of 10 months and provides the buyer with matching funds of a multiplier of up to 4:1 to accumulated savings. Taking this multiplier to a national CSH system would imply either an open form of CSH (i.e. variable rate loans), or deep subsidies: commercially viable fixed-rate (closed) CSH will operate with lower ratios of 1.2:1 – 1.5:1, depending on contract type.

Toder et al (2010) analyze the options for reforming the **mortgage interest deduction** program in isolation. They find that an elimination of MID would increase calendar year tax liability by $108 billion in 2012, relative to current law, and by about $1.26 trillion over 10 years (see Figure 17). The effects would vary greatly across income groups as Figure 17 shows. Less than 1 percent of tax units (i.e. households) in the bottom quintile and slightly over a fifth in the middle-income quintile would pay higher taxes, compared with almost 70 percent in the top quintile. Within the top quintile, the group with the greatest tax increases would be the one between the 90th and 95th percentiles of the income distribution. Eliminating the deduction would affect a slightly smaller share of tax units at very top of the distribution because many there have paid off their mortgages.

Figure 17 U.S. income incidence of mortgage interest deduction vs refundable tax credit

Impact of replacing mortgage interest deduction by same-fiscal-cost refundable tax credit (analogous to a savings premium)

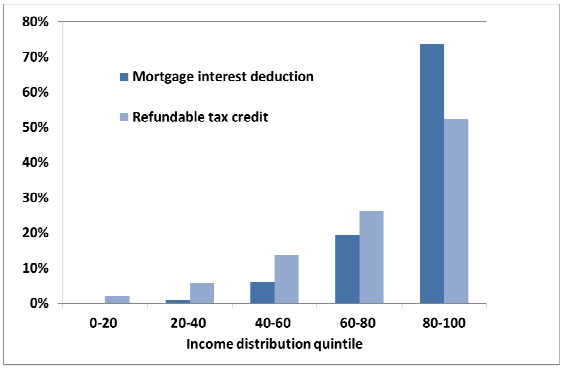
Refundable credit of 17.1% of interest paid

	Income Percentiles								
	All Units	0-20	20-40	40-60	60-80	80-90	90-95	95-99	Top 1
Percent with tax cut	31.1	19.4	33.6	46.4	44.3	18.9	6.5	2.8	2.9
Percent with tax increase	12.1	0	0	3.5	15.5	50.7	68.5	68	57.8
Percentage change in after-tax incor	0.00%	0.59%	0.62%	0.56%	0.25%	-0.30%	-0.59%	-0.75%	-0.18%
Average federal tax change	0	-65	-161	-246	-182	324	894	1,957	2,404
Average after-tax income	60,371	11,067	25,893	43,678	71,839	108,418	151,680	259,935	1,302,188

Fully refundable credit up to $1,490

	Income Percentiles								
	All Units	0-20	20-40	40-60	60-80	80-90	90-95	95-99	Top 1
Percent with tax cut	32.1	21.6	34.3	45.6	40.8	23.9	16.6	9.6	8.5
Percent with tax increase	12	0	0.3	4.6	19	45.7	58.4	61.3	52.1
Percentage change in after-tax incor	0.00%	1.49%	1.35%	1.02%	0.23%	-0.65%	-1.02%	-1.23%	-0.35%
Average federal tax change	0	-165	-349	-444	-166	702	1,545	3,200	4,512
Average after-tax income	60,371	11,067	25,893	43,678	71,839	108,418	151,680	259,935	1,302,188

Change in subsidy incidence from interest deduction to refundable tax credit (analogous to a savings premium)



Source: Toder et. al. (2010), Urban Institute/Brookings, Finpolconsult computations.

In a **counterfactual** exercise, the authors assess various options, including **a non-refundable credit system** whose distribution effects would be **analogous to those of the** equally refundable **contract savings for housing premium**.[29] A refundable credit system in the U.S. equal to 17.1 percent of mortgage interest paid would cost the same as the current interest tax deduction. Taxpayers in the bot-

[29] Contract savings for housing premiums in existing systems carry the following simple features: they are paid once per savings cohort (i.e. monthly, quarterly, annually), but disbursed only after the minimum program savings period is reached. Early repayments are thereby discouraged, but remain technically possible. The longer the required minimum savings period for disbursement, the lower the subsidy is relative to the deposit rate paid by the CSH institution. Figure 20 gives an overview over the design features of premiums in Germany and transition countries.

tom three income quintiles would benefit from being able to claim more of the subsidy if it is refundable, with the gain from switching to a refundable credit being largest in the bottom quintile. Higher income taxpayers would be worse off because they can already fully use a non-refundable credit, so are better off with the higher credit rate the non-refundable subsidy provides. A fully refundable credit up to a maximum of $1,490 would, among all these incentives, provide the largest gains to taxpayers in the bottom quintile of the income distribution and impose the largest losses on those in the top quintile of the distribution. Taxpayers in the fourth quintile would on average still experience a gain in after-tax income, but the gain would be slightly less than under the refundable percentage credit.

Contract savings for housing premiums combine the advantages of both options tested by Toder et al.: a proportional subsidy to the savings effort with a targeted/self-targeted system of income limits and maximum premium amounts payable. They would thus likely have a distributional impact between the two options displayed in Figure 17.

Ultimate program cost would be lower, however: to put the 17.1 percent figure into context, contract savings premium ratios in various jurisdictions currently vary between 9% and 15% of new deposits made (see Figure 20). Also, only the relatively short savings phase and only a relatively small share of the total financing needed for housing would be the basis for the subsidy. Supporting equity generation basically replaces subsidies to access to credit, and would in particular reduce fiscal burden placed on the FHA. Mortgage interest support could continue to co-exist, e.g. along the lines proposed; however given the incentives to enhance leverage this could also lead to cannibalization and a more radical reform seems advisable. European experience on a range of indicators – from homeownership to cost of credit - shows that **major fiscal support for first lien/low-LTV mortgage financing is dispensable**, if credit risk is contained (see above).

It is beyond the scope of this paper to fully calibrate the alternative cost of CSH equity support. If newly introduced CSH systems are taken as a benchmark, fiscal costs could be in the range of 0.1-0.3% of GDP. Higher figures have been reached, where the subsidy was badly designed.[30] Such comparatively small numbers could be self-financing regarding the likely impact on reducing house price volatility and leverage, let alone if they are compared with the probably 10-fold higher historical per-annum cost of the U.S. insurance system.

Alternatives to a CSH product and premium system in terms of **supporting equity generation** are numerous; most suffer from serious disadvantages.

- Singapore, Switzerland, Canada and other countries have experimented with **voluntary pension account withdrawals**. For the U.S. this could mean to create options to use 401(k) accounts for housing finance purposes. The main problem in all programs has been to define the proper rank of the withdrawn funds within the debt waterfall of a housing financing: what is needed is equity that supports senior and potentially even junior creditors in the foreclosure process; the interest of the pension system obviously is reverse, senior creditor status of the withdrawn funds. Switzerland and Singapore have opted even for super-seniority status and thus have given the withdrawn funds a very limited credit support quality. The alternative of higher subordinated or equity fund status would be for the pension

[30] E.g. as high as 0.5% of GDP in the Czech Republic, see Dübel (2003) for a detailed evaluation of the design failures.

regulator to limit withdrawal. Finally, retirement accounts such as 401 (k) take longer time than CSH to build up in sufficiently large amounts, typically beyond U.S. first time buyer age. The option seems therefore primarily useful in order to complement a CSH system with smaller amounts.

- **Unconditional down-payment subsidies**, e.g. first time buyer support programs, speed up the home acquisition process substantially and thus avoid the disadvantage of a long savings process. However, the fiscal cost are substantial as the U.S. government found out under the phased out first-time home buyer tax credit program of 2008-2010, and there is only very limited quid pro quo for the subsidies: neither is borrower credit supported, given that the subsidy is unconditional and thus delinked from a savings effort made by him, nor is the risk-taking of a financial intermediary enhanced. CSH premiums could offer the quid-pro-quo that unconditional equity subsidies miss.

The **U.S. housing policy menu awaits as much comprehensive redesign** as the **housing finance system.** Integrating a CSH premium system seems to be a reasonable alternative to both the continuation of the status quo leverage system and alternative equity support schemes from an – admittedly sketchy - cost-benefit standpoint.

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Data Appendix

Figure 18 Micro determinants of mortgage leverage in international comparison

Public loan and bond insurance

Table 1
Government Mortgage Market Support

Country	Government Mortgage Insurer	Government Security Guarantees	Government Sponsored Enterprises
Denmark	No	No	No
Germany	No	No	No
Ireland	No	No	No
Netherlands	NHG	No	No
Spain	No	No	No
U.K.	No	No	No
Australia	No	No	No
Canada	CMHC	CMHC	No
Japan	No	JHF	Possible
Korea	No	No	Korean Housing Finance Corp.
Switzerland	No	No	No
U.S.	FHA	GNMA	Fannie Mae, Freddie Mac, FHLBs

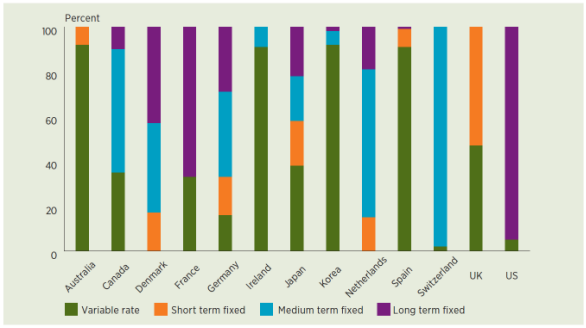
Amortization, share of interest-only mortgages

Table 4
Interest-Only Mortgages

Country	2005-2006	2009-2010
Australia	15%	27%
Denmark	32%	50%
Ireland	13%	10%
Korea	48%	43%
The Netherlands	88%	79%
U.K.	24%	43%

Interest rate adjustment

Figure 5
Mortgage Product Interest Variability



Source: RBA, CHMC, KHFC, EMF,GPG, MBA and S&P.

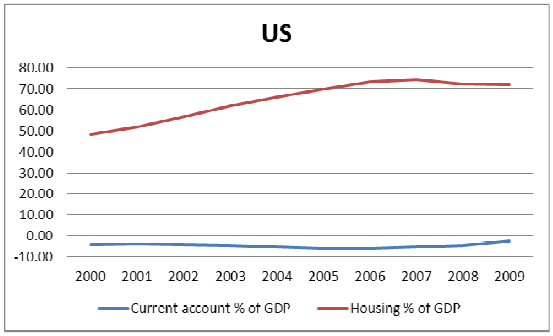
Tax treatment

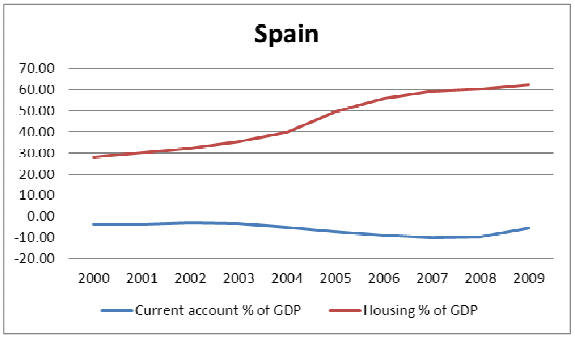
Figure 12: Tax Treatment of Owner-Occupied Housing

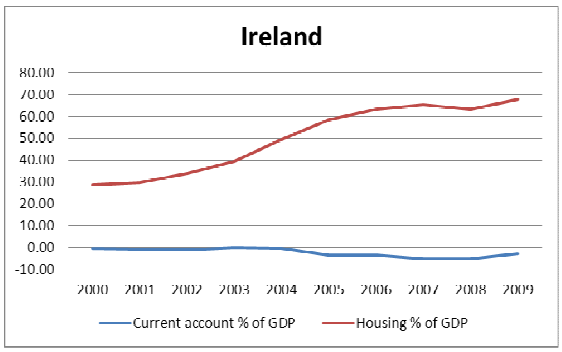
Tax Treatment of Owner-Occupation			
	Mortgage Interest	Capital Gains	Other
Denmark	Deductible at 33% max tax rate	exempt if primary residence of less than 1400 sq. m.	
Germany	non-deductible	exempt if held more than 10 yrs.	
Ireland	deduct for 7 yrs. At 25% max tax rate falling to 20%	exempt	
Netherlands	fully deductible	exempt	imputed income taxed
Spain	capped at € 9015 @ 15% rate	exempt if reinvested or sale after age 65	
UK	non-deductible	exempt	
Australia	non-deductible	taxable with indexed cost base	first time homebuyer tax credit
Canada	non-deductible	exempt	
Japan	non-deductible	tax at 30% if ≤5 yrs., 15% if >5 yrs	deduction of 1% of principal per year for 10 yrs.
US	dedutible limit $1 million	exemption of $250/$500k if principal residence 2 out of last 5 yrs.	temporary tax credit 2009-2010

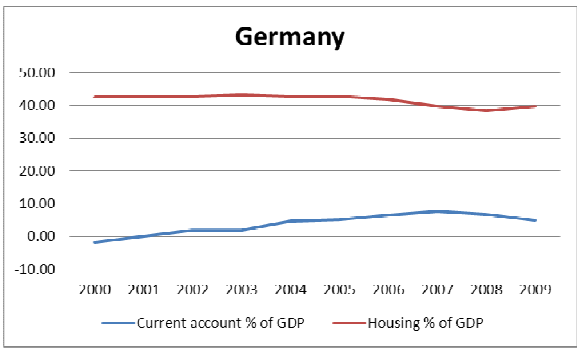
Source: Lea (2010). Notes: lower RHS – Data refer to new lending in 2009. For detailed notes see Lea (2010).

Figure 19 Housing loans and the current account to GDP, 2000 - 2009









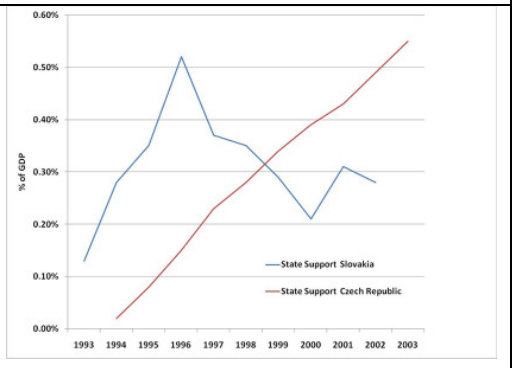
Source: IMF, CEPS, Finpolconsult computations.

Figure 20 Contract savings premium design Germany and transition countries, fiscal cost in transition countries

CSH premium design principles compared

	Germany	Czech Republic		Slovakia	
Status	2006 bis	1992-2003	2004 bis	1992-1997	2004
Subsidy rules	special law	enabling law		annual budget law	
Min savings period, housing use	7 years	2 years	2 years	no constraints	1.5 years
Min savings period, savings only	7 years	5 years	6 years	no constraints	6 years
Premium ratio	8.8%	25%	15%	40%	15%
Basis for premium	New savings	New savings		New savings	
Maximum premium basis level	E 1,024 (couples)	E 600	E 800	E 357	E 571
	E 512 (singles)	CZK 18,000	CZK 20,000	SKK 15,000	SKK 20,000
Maximum premium level	E 90 (couples)	E 150	E 120	E 143	E 86
	E 45 (singles)	CZK 4,500	CZK 3,000	SKK 6,000	SKK 3,000
Income limits p.a.	E 51,200 (couples)	None		None	
	E 25,600 (singles)				
1 Euro = approx.		30 CZK	25 CZK	42 SKK	35 SKK

Fiscal cost after introduction – Czech Republic and Slovakia compared



Source: Dübel (2008). Notes: LHS: premium is paid once per savings vintage and accumulated until the end of the minimum savings period. A higher minimum savings period and a lower premium (matching) ratio implies a lower level of subsidization. RHS: fiscal cost in the Czech republic rose as a result of a premium design failure leading to higher Bauspar deposit rates than market deposit rates. In Slovakia, premiums led to broadly a matching with market deposit rates.

Figure 21 HDMA home loan statistics, 2004 - 2009

5. Home loans for one- to four-family properties, by occupancy status of home, type of loan, and lien status, 2004–09

Number

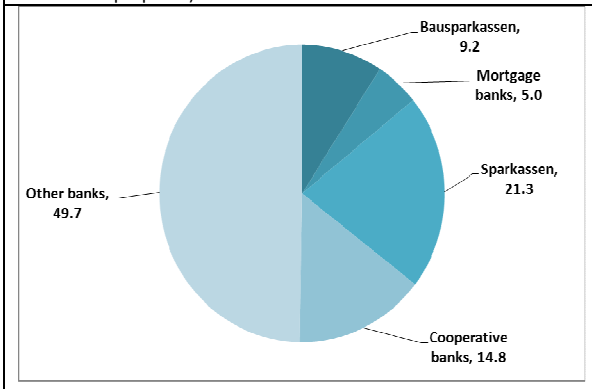
Year	Owner occupied						Non-owner occupied					
	Conventional			Nonconventional[1]			Conventional			Nonconventional[1]		
	First lien	Junior lien	Unsecured	First lien	Junior lien	Unsecured	First lien	Junior lien	Unsecured	First lien	Junior lien	Unsecured
	A. Home purchase											
2004	4,209,787	736,636	n.a.	573,606	1,235	n.a.	853,490	52,524	n.a.	2,703	7	n.a.
2005	4,520,378	1,221,999	n.a.	437,552	867	n.a.	1,049,555	149,954	n.a.	1,685	22	n.a.
2006	4,013,196	1,268,289	n.a.	416,143	601	n.a.	878,325	162,343	n.a.	1,407	18	n.a.
2007	3,031,606	551,343	n.a.	422,450	1,056	n.a.	605,714	50,202	n.a.	888	8	n.a.
2008	1,636,194	91,498	n.a.	971,528	1,077	n.a.	410,377	5,553	n.a.	3,461	4	n.a.
2009	1,128,950	42,083	n.a.	1,318,940	1,472	n.a.	287,760	2,036	n.a.	3,706	9	n.a.
	B. Refinance											
2004	6,185,418	464,170	n.a.	304,298	293	n.a.	608,956	12,711	n.a.	8,069	13	n.a.
2005	5,607,642	728,362	n.a.	158,198	276	n.a.	578,491	25,423	n.a.	3,236	21	n.a.
2006	4,347,348	1,035,602	n.a.	121,761	373	n.a.	546,430	38,712	n.a.	989	27	n.a.
2007	3,462,944	660,563	n.a.	196,544	353	n.a.	473,336	23,241	n.a.	879	15	n.a.
2008	2,374,781	219,012	n.a.	521,863	380	n.a.	328,844	9,070	n.a.	3,814	10	n.a.
2009	4,290,072	114,143	n.a.	998,089	496	n.a.	341,852	6,747	n.a.	7,460	16	n.a.
	C. Home improvement											
2004	357,618	395,582	151,292	2,697	2,243	617	40,028	8,153	8,160	30	54	10
2005	409,947	468,375	148,018	2,197	1,873	413	42,544	10,756	8,998	17	49	4
2006	360,321	553,152	154,257	3,957	1,735	423	43,913	13,739	8,190	18	20	6
2007	301,078	435,187	150,858	7,510	1,579	320	41,670	11,508	8,143	35	18	6
2008	179,506	181,402	155,704	10,477	1,610	260	26,482	5,473	7,215	135	13	10
2009	165,620	84,332	98,457	8,147	2,416	649	19,598	3,174	5,411	101	29	36

1. See note to table 3.
n.a. Not available.

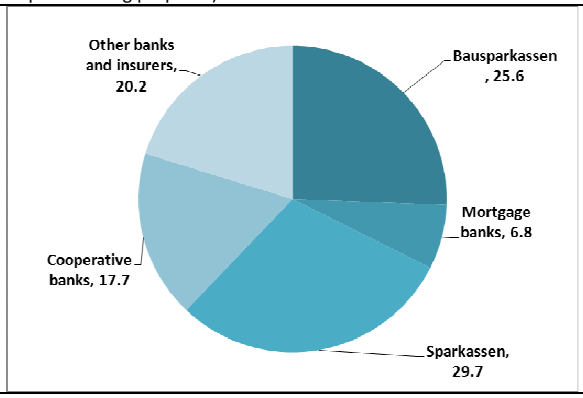
Source: HDMA, Federal Reserve System.

Figure 22 Market shares of the contract savings system in private household housing lending in Germany, 2009

Outstandings (excluding disbursed savings and including loans for investment purposes)



New lending (including disbursed savings and only loans for owner-occupied housing purposes)



Source: LHS chart: Bundesbank. RHS chart:Verband der privaten Bausparkassen. Finpolconsult computations. Notes: LHS chart: outstanding loan share reduced by faster amortization of Bauspar loans; does not include life insurers. RHS chart: Bundesbank does not publish new lending to private households by bank group data.

List of Abbreviations

ALM	Asset-liability Management
ARM	Adjustable-rate Mortgage
CDO	Collateralized Debt Obligation
CLTV	Combined Loan-to-Value Ratio
Fannie Mae	Federal National Mortgage Association
FHA	Federal Housing Administration
FHFA	Federal Housing Finance Agency
FHLB	Federal Home Loan Banks
Freddie Mac	Federal Home Loan Mortgage Corporation
FRM	Fixed-rate Mortgage
Ginnie Mae	Government National Mortgage Association
GSE	Government-sponsored enterprise
HUD	Housing and Urban Development Department
LHS	Left hand side
LTV	Loan-to-value Ratio
MBS	Mortgage-backed securities
PMI	Private Mortgage Insurance
OFHEO	Office of Housing Enterprise Oversight
RHS	Right hand side
SCF	Survey of Consumer Finances
S&L	Savings & Loan Institutions
VA	Veterans Administration