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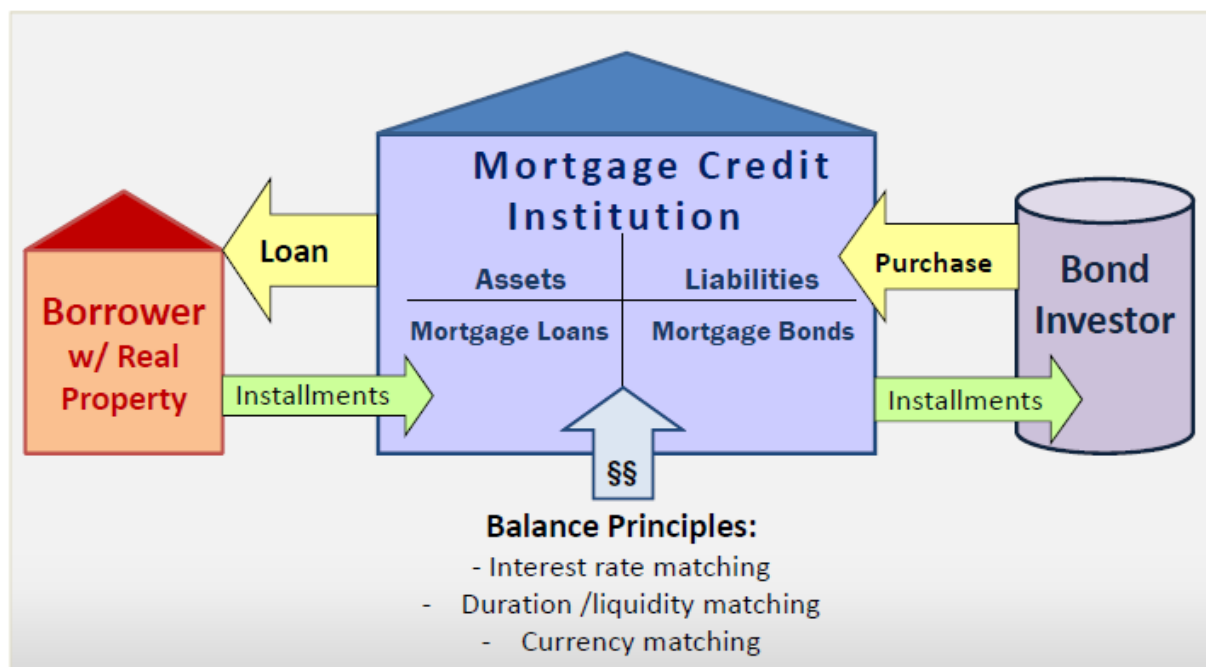
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PART A

DANISH MORTGAGE FINANCE: ALL CREDIT TO THE BALANCE PRINCIPLE



On Mortgage Finance and the Special Features of the Danish Mortgage Finance System

Submitted as Part A of PhD Dissertation

**‘Danish Mortgage Finance,
Property Rights Protection,
and Economic Development’**

**By Karin Haldrup
November 2010**

**Aalborg University in Cooperation with VP Securities A/S
Supervisor: Dr. Tech. Erik Stubkjær, Aalborg University**

Structure of Thesis

VOLUME I:

(printed version)

Part IO. Introduction and Overview

Summary and brief versions of each Part, including discussion of research methodology

→ Part A. All Credit to the Balance Principle

On Mortgage Credit and its prerequisites

Part B. Property Rights in an Information Void

Property rights, property registration and security of collateral

Part C. Collateral Security or Collateral Damage

On Economic Development, housing finance and property rights protection.
(Presentation and discussion of topical theories)

VOLUME II:

(printed version)

Part D. Case studies Introduction and Documents

- ◇ Nicaragua Report, documentation
- ◇ Ghana reports & documentation

Appendices

Documentation, Data, Proposed screening formats, and References

“Kreditforeningssystemet er i al sin Simpelhed saa fuldkomment i sin Teknik, at der næppe vil være Rum for større Fremskridt, men derimod nok for Forfald”, Callø (1932, p. 302)

(The Mortgage Credit Association system is in all its Simplicity so perfect a financing technique, that there will hardly be room for major improvements, but on the contrary for decay (informal translation))

“We need to protect the Danish mortgage credit model. For it is a rock-solid property financing system. The financial crisis has demonstrated that there is security of supply, even during the worst of storms. The Danish system ensures financial stability. It is so designed that credit institutions and borrowers are encouraged to behave responsibly. And that is a crucial factor.

Today’s financial markets are so complicated that it is impossible to achieve stability through increasingly detailed regulation and intensified supervision from the authorities, if the foundations of the property financing system are not appropriately designed.”

Peter Engberg Jensen, Chairman, Realkredittædet; Annual report 2008- 2009

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A I. INTRODUCTION TO MORTGAGE FINANCE SYSTEMS

1. Introduction to Mortgage Finance Systems

1.1 Introduction

On the nature of mortgage finance

The purpose of the present chapter is to provide an overview of different models of mortgage finance, including the Danish Mortgage Credit system, and highlight similarities and differences amongst them. This will form a background for a detailed analysis of the Danish Mortgage finance system in the subsequent chapters aimed at identifying preconditions for its functioning, and – as and if possible - derive criteria for screening of readiness for development of Danish mortgage financing in different contexts, in particular in new markets outside Europe.

Even before going into details with financing models, basic concepts provide clues on the nature of mortgage finance. The etymological origin of the key term, **Credit** (ref.), captures the essential challenge of financing: That long term credit is a matter of trust.

Credit is etymologically associated with trust, as the word originates “from Old Italian *credito* (from Latin *creditum* something entrusted to another, loan, from neuter of *creditus*, past participle of *credere* to believe, entrust”) just as debit stems from Latin (plural of *debitum* debt, from neuter of *debitus*, past participle of *debēre* to owe). Source: <http://www.merriam-webster.com/dictionary/credit>

The time dimension inherent to credit induces uncertainty into a loan agreement. Both borrowers and lenders have expectations to the future and to the prospects of repayment of the debt, but the basis of their assumptions may change over time. An associated challenge of long term credit is the inherent condition of asymmetric information between borrower and lender. Prior to entering into a loan agreement a rational lender must have reason to trust, that the debt will and can be repaid. Lack of trust, for one reason or other, is a deterrent to long term credit.

Housing finance is a broad term used here to cover different forms of credit for purchase or improvement of residential property irrespective of funding source or credit conditions. Thus housing finance includes a range of options from micro-credit - extended based on guarantees embedded in social incentive structures - to mortgage credit based on collateral security. Housing finance in its broadest sense may also refer to housing loans advanced by the state at shorter or longer terms, with or without a subsidy component. However, the term “financing” is at times abused as a synonym for grants provided through development aid, which is not a topic addressed here.

The topic of the present study is not housing finance in general but **mortgage*** credit, e.i. housing credit secured by a pledge in real property, with particular focus on the Danish mortgage finance system.

The following definition of mortgage pledge and mortgage credit, are applied:

1. Mortgage pledge: A grant of a *security interest* in real property to secure a loan, often for the purchase of the property. (**Mortgage - etymology a “dead pledge”*).
2. Mortgage credit: A loan secured by an interest in real property.

Accordingly, the mortgage credit is tied to the underlying property *right*: The property right burdened by a mortgage pledge is serving as **collateral** for the mortgage credit. It is not the physical property that serves as collateral, but *the legal right to that property*, which is burdened, and thus serves as collateral. Therefore, a mortgage pledge presupposes the existence of formal property rights.

Generally, collateral is defined as “Assets with monetary value, such as stock, bonds, or real estate, which are used to guarantee a loan” with reference to the following definitions:

Collateral: Assets with monetary value, such as stock, bonds, or real estate, which are used to guarantee a loan, are considered collateral.

Collateral: Assets pledged as security for a loan. In the event that a borrower defaults on the terms of a loan, the collateral may be sold, with the proceeds used to satisfy any remaining obligations. High-quality collateral reduces risk to the lender and results in a lower rate of interest on the loan.

(Source: <http://financial-dictionary.thefreedictionary.com/Collateral>)

In the following, the term collateral is predominantly used in respect to underlying real assets, but in the financial world the broader definition is predominant, since mortgage banking relies on different tiers of collateral security and capital coverage.

It follows from the definition of mortgage credit that a common feature among all mortgage finance systems is their reliance on the underlying guarantee in the form of a mortgage pledge in the underlying real assets serving as security for the loan, as collateral.

In addition all mortgage credit system relies on agreed arrangements for default contingencies. Foreclosure regulations and procedures are critical to the mortgage market, so deficiencies in that area may jeopardize mortgage market development.

Thus unfolding the etymology of key concepts opens doors to a historic perspective, which seems to offer insight into the nature of mortgage credit systems, and the role of history in this subject area. At the same time the definitions above reveal inherent characteristics of mortgage credit.

It can be seen that mortgage finance in general rests on presumptions given by definition:

1. *Mortgage credit relies on the existence of secure property rights as defined by law and formalized;*
2. *Mortgage credit is extended only on the condition of pledging an interest on the property concerned;*
3. *That the value of the pledged property is expected to cover the outstanding debt; and*
4. *That secure mortgage credit presupposes effective access to the collateral in case of default.*

Criteria for mortgage system implementation are thus closely associated with the very nature of mortgage credit, and mortgage pledges rests on the principle of a formal property rights regime granting security of collateral.

It can be concluded that the first iteration of propositions for prerequisites for introduction of the Danish mortgage finance system can be derived already from the definition.

Approach and Methodology

The topic of mortgage finance is here approached from three sides through:

- 1.) A review of the Danish mortgage finance system in comparison with other similar systems
Chapter 1,
- 2.) A review and an analysis of the background and history of the Danish mortgage finance system in context, and with a special focus on questions associated with security of collateral
Chapters 3-7,
- 3.) A review of current regulatory framework, supportive systems and the profile of the market,
Chapters 2 and 8-11.

These perspectives throw light on what is the general nature of the credit system, and help identify factors of importance for transplanting the mortgage system to other settings.

A stepwise approach has been adopted by gradually increasing level of detail in the review and analysis of the Danish mortgage finance system below starting with a general overview. Thereby, some information has been repeated in different sections in order to create a coherent presentation of each. In parallel propositions have been extracted from the review on what prerequisites and criteria are of importance for mortgage credit

development as needed for screening of the feasibility of mortgage finance development in new markets, to be developed in Part B.

The review of mortgage finance system(s) represented a challenge for the mere fact of the overwhelming complexity and intimidating economic scale of the topic of mortgage finance obviously connected to the global economy, as evidenced by the financial crisis. Irrespectively it was hardly possible to approach the task at hand without viewing the questions of property registration from the perspective of mortgage finance. A representation of the requirements of the mortgage industry was needed, and for that purpose mortgage finance systems were reviewed at a general level and the Danish system studied in detail. A deeper analysis of the Danish mortgage system resulted in propositions on a set of prerequisites for screening of the readiness for transplanting of the Danish finance model to other settings. In this way the findings of Part A serve as input for Part B on development of screening methods for readiness.

The study benefitted from rich and varied sources available from e.g., the mortgage industry, international agencies and the scientific world, but was able to use only a fraction of it. The resulting description and analysis in Part A represents an attempt to structure findings extracted from selected studies and other information sources, so as to present a condensed overview of selected mortgage finance models, and a deeper analysis of the Danish model of mortgage finance. In this way the review in Part A has harvesting information and ideas from a large amount of underlying sources, that this study is deeply indebted to.

Justification of an overview of different mortgage systems

Despite the focus on the Danish mortgage finance system, a comparison with other housing finance systems has been found useful for an analysis of the nature of the Danish system by throwing light on questions, such as, e.g.,:

- What are the differences among mortgage finance systems, and what is the competitive advantage of the Danish Mortgage Finance system?
- What are the general and special preconditions for introduction of mortgage finance systems?
- For what circumstances is the Danish Mortgage Finance system suited?

Appreciation of the special features of the Danish model is enhanced, when seen in comparison with other securitization systems. For these reasons, follows a brief review of different types of housing finance collated from selected comparative papers with an emphasis on European mortgage finance studies.

The present overview is based on studies of a comparative nature, but is *not* in itself a comparative study. The presentation is intended for putting the Danish system of mortgage credit into perspective, but is inadequate for assessing the merits of each mortgage system mentioned.

Experts in the field consider comparative mortgage finance studies relative to emerging economies to be a relatively new field. Renaud remarked in 2004 that there had been no comparative finance work of a relatively systematic nature on the organization, structure and performance of housing finance systems in emerging markets, or even for higher income emerging economies (Renaud, 2004, p. 2). He reflected on the questions of importance for the present study, by asking if - when shaping “...a mortgage finance development strategy for an emerging market, can a direct transfer of institutional arrangements found in advanced economies be readily suitable? Why is it that so many attempts to introduce mortgage securitization in emerging economies have met with so few successes?”

Although these questions have been raised (by many), there were found no comprehensive answers.

Justification of a historical review of the Danish mortgage finance system

Understanding Danish Mortgage Finance in context also requires a historical perspective, whereby its role in economic development can be mirrored. According to North (1990, p. 112), “Path dependence is the key to an analytical understanding of long-run economic change.” Therefore, a timeline of the development of the Danish system has been mapped out as an aid in clarifying what factors and events have been shaping the system itself, and how mechanisms of interaction with external conditions and events have created dynamics of change and economic development in the case of Danish mortgage finance.

Theoretical methodology considerations support the importance of studying events and mechanisms of change over time, so as to establish relations between factors in a complex socio-economic system (Næss, Jensen, 2002). By doing so, the review left no doubt that the mortgage system has played an instrumental role in economic development in Denmark as elaborated in the following chapters. It also became evident that security of collateral is an essential precondition for the functioning of the system.

The Danish system of mortgage finance can boast of a more than 200 year long history. This is important, because the evolution of the mortgage credit system has been intertwined with economic development through different stages of economic development in Denmark: From transition of an agrarian society in the first part of the 19.th century, through specialization and urbanization in the 20.th century to a complex, globalized economy of the 21st century.

There are consequently many reasons for delving into the history of the Danish mortgage credit system:

1. It is expected that the historic origin of the system and its development path may reveal relevant features of the finance system, which cannot be shown by a snapshot of the current system;
2. The Danish mortgage credit model has not been static: different features of the financing system have been accentuated at different stages of economic development, and modifications of the system have taken place over time;
3. Tracing the functioning of the system at different stages of development may serve as a case study of relevance, when considering the application of the mortgage credit model in other countries;
4. The historical development path is rather well documented, and difficulties encountered at different times, in particular at times of crisis, may provide valuable evidence of the relation between real credit and the underlying property rights.
5. Studying mortgage credit from the perspective of changing institutional arrangements is a key to understanding economic development, as further discussed in Part C.

Available documentation permits a study of the Danish mortgage finance system from its early days. Hereby, an analysis of the development path of the mortgage finance system may contribute to an understanding of the nature of real credit in context, and even shed some light on the grand issue of the role of property rights in economic development.

However, the goal here is more modestly to explore what were the conditions for the success of the Danish Mortgage Credit system over time, with the purpose of identifying propositions on preconditions for its transplantation to a different country setting with a special focus on property rights issues.

The time perspective has helped distill what are the recurring issues in mortgage finance, and to study the dynamics of the Danish mortgage market, how the Danish mortgage finance model has performed and been adapted in response to demand and to crisis. Within the limitations of the study, some observations could also be made on its possible contribution to economic development in Denmark.

As the study evolved, it appeared that much information on the Danish mortgage finance system would not be accessible to an international audience, since important historical sources are available in Danish, only. Wise observations made by early writers on mortgage credit were found to still be of striking relevance.

“In this manner new light has been thrown upon our studies and we learn that our fathers have been wiser than we have been inclined to think, and that it has not been reserved for our day to discover all that is good and true in the economic life of nations.” (Richard T. Ely, 1884, p. 48)

For these reasons the historical chapter has taken on a larger role than anticipated.

Following the historic chapters is an overview of the current regulatory and operational conditions of the Danish mortgage market in chapters A.11 - 12, with a discussion of special factors and general criteria of importance for its development in respect to security of collateral.

Limitations of Propositions

Mortgage systems form part of the larger economy at a level of complexity escaping the present study. Fragmented perspectives of mortgage finance seen through the views of different development theories are discussed in Part C. Irrespectively, macro-economic factors surface in any review of mortgage finance development. Hereby the study is caught in a dilemma of having to include macro-economic issues, but falling predictably short of covering the topic satisfactorily.

Nevertheless, it has been attempted to generalize on selected issues covered by multiple sources so as to set up a preliminary set of criteria on which a screening of the feasibility of mortgage credit development can be based for its introduction in other contexts, (ref. to the research questions in matrix, Appendix 1).

In this process, much depends on interpretation of the multitude of facts and events, of which only a fraction has been studied. For many reasons it is necessary to consider the resulting propositions on criteria as part of a continuing process of iteration, because

1. No complete model was found to represent the required framework conditions for the Danish mortgage finance in detail, but evidence of principles and factors of importance have been collated. Some prerequisites can be deduced from the nature of the system, and from historical experience, but shortcomings could be related both to
 - Missing relevant factors or to
 - Too many factors included;
2. The relative importance of each factor or sequence of fulfillment is open for discussion, as are the particular threshold values;
3. Special factors of importance in each country inhibits generalization;
 - Small caveats can easily be overlooked
 - Experience based criteria may be tied to a specific development history;
4. Causal relations are not uniquely defined, so questions arise concerning
 - What are preconditions or required only with introduction of credit system?
 - What is cause and effect could at times be reversed: some features may only be relevant, when demanded.
 - And what comes first: an introduction of the system or fulfillment of criteria.

The propositions lined out below are partly *intuitive*, since they are based on an overall perception of the picture emerging after having gone through a range of sources and data as described in the previous chapters.

When contextual factors such as land registration systems have functioned well in Denmark, it is rather difficult to draw conclusions on situations where property institutions are dysfunctional. If only observing the Danish case, there is a danger of overlooking issues having a non-problematic character in Denmark, but playing a critical role elsewhere, such as e.g., land supply and infrastructure for urban development.

It follows that an explorative study of this kind does not permit deduction of a model, and can be expected to have limitations in contents with findings open for discussion. Although modeling is beyond reach of the present study, a search for structure was seen as part of the exercise. In this regard the model of Næss and Jensen (2002) of interpreting urban systems through their structure, mechanisms and events was helpful.

Since each European mortgage market has its own special profile despite European Union integration (Chapter A.1.9), there are reasons to approach the challenge of introducing a new model of mortgage finance to other national markets with humility.

1.2 Main mortgage credit systems for housing finance

Main types of mortgage finance systems

Dimensions of mortgage credit systems can be described and analyzed from different, but interrelated perspectives, such as e.g., funding sources, mortgage products & retail markets, organizational model, management of risks and incentive structures, or regulatory environment and supervision.

Mortgage finance systems are here classified according to the nature of their funding mechanisms in accordance with the comparative studies quoted, because funding is determining for many other issues, e.g., management of risks and incentive structures. The mortgage finance systems mentioned below do not represent intermediate financing during the construction process, but only long term mortgage finance models.

The main distinction between different mortgage finance systems derives from their mechanisms of capitalization: Mortgage finance systems differ fundamentally in the way capital is raised for the credit provided. Most comparative studies classify mortgage credit systems according to their respective funding principles (capitalization).

A comparison of mortgage credit systems according to their funding mechanisms is not only a financial technicality, but has wider implications. Eventually, the funding mechanism is determining for the success of the system, because any housing finance system must prove competitive by attracting and allocating capital efficiently (Nadler, 2005, p. 5).

Many studies group housing finance systems in advanced economies into the following five main categories:

	Categories of mortgage credit systems	Example	Comments
A.	Deposit-based housing finance systems	Commercial Banks in general; Bausparkassen*, Germany;	*With contractual savings schemes
B.	Covered bond and market-based mortgage institutions ("mortgage banks")	Danish Mortgage Finance system (vertically integrated)	Mortgage bonds as pass-through securities
C.	Securitization of mortgages (through Mortgage Backed Securities)	Secondary intermediation, US (vertically disintegrated)	Government sponsored Enterprises (GSE)
D.	Housing loans provided by national housing agencies, state housing banks and housing funds	Building Societies, The UK	
E.	Other financial sources	A range of capital market actors from seller finance to third party finance	May serve as complementary to A.-D.

Table A.1. General categories of mortgage credit systems according to funding source, ref. to UNECE 2005

An individual borrower may raise the necessary funds for a particular housing investment through a combination of sources mentioned above, including self-finance.

Within the group of deposit-based housing finance a further distinction can be made between financing systems extending credit through universal banks and through specialized mortgage banks. Some housing finance systems generate capital for lending through contractual savings schemes.

Not specified above are other financial sources, which cover a plethora of capital sources from seller finance to various forms of third-party finance including family & friends, government and insurance companies, along with other capital market intermediaries. Market based housing finance systems are of interest in emerging economies, which to a large extent have to rely on capitalization through the market (Nadler, 2001).

Another distinction among mortgage finance systems can be made according to the organization and management of risks within each credit financing model of the following credit processes:

1. Origination: the initial granting and funding of the loan;
2. Ultimate holding and funding: the eventual holding (and thus funding) of the loan; and

3. **Servicing:** the arrangements to facilitate timely payment of principal and interest.
(UN-ECE, 2005, p. 12-)

If the three functions of origination, holding and funding, and servicing are under responsibility of the same financial institution, the financial system is said to be vertically integrated.

Renaud (1999) has illustrated the principles in housing finance with the functions of primary and secondary mortgage markets and the importance of investors. In a single figure he has captured the essence of mortgage finance depicting the roles of investors, government and the market. The distinction between market based housing finance and subsidized social housing is made clear.

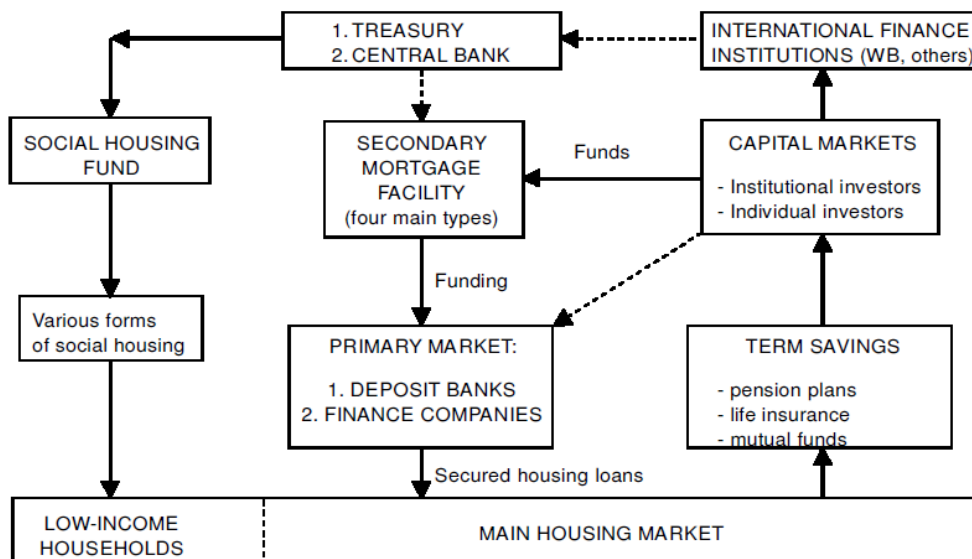


Fig. A.1 World trends in housing finance according to Renaud (1999, p. 766, fig. 3)

The distinction between the primary mortgage market and the secondary market is important: A bank loan secured by a pledge on a real property is a mortgage, but the Danish mortgage finance depends on raising funds through securitization, in this case through issue of mortgage bonds. Funds for the Danish mortgage credit are therefore raised through a wider source of capital than bank deposits.

Securitization is a central concept in housing finance, with pooling mortgage debt into various types of assets sold to investors, in the form of standardized financial assets, such as covered bonds (e.g., Danish mortgage bonds), or as mortgage backed securities (prevalent in the US).

“Securitization is the process of pooling various types of debt -- mortgages, car loans, or credit card debt, for example -- and packaging that debt as bonds, pass-through securities, or collateralized mortgage obligations (CMOs), which are sold to investors.

The principal and interest on the debt underlying the security is paid to the investors on a regular basis, though the method varies based on the type of security. Debts backed by mortgages are known as mortgage-backed securities, while those backed by other types of loans are known as asset-backed securities. (<http://financial-dictionary.thefreedictionary.com/securitization>)

Despite availability of various forms of financing instruments, most mortgages in Europe (70%) are still funded through bank deposits, and only about 17% of total outstanding mortgage debt is financed by covered bonds. Mortgage loans are the principle source of income for European retail banks (EU-Commission, 2007, Annex 1, P. 9)

Mortgage backed securities as prevalent in the US mortgage market are uncommon in European national mortgage markets, where these credit forms make up only about 1% of total outstanding mortgage debt (EU, Greenpaper, 2005, p. 5). The tendency in the European mortgage market is to move towards covered bonds rather than towards Mortgage Backed Securities, especially after the financial crisis started within the mortgage system in the US. More comments are added to the US system of Mortgage Backed Securities due

to the subprime crisis, partly because it is instructive of the effects of mortgage credit on the overall economy, and because the differences between the US and the Danish mortgage markets are illustrative of the strengths of the Danish mortgage finance system.

Mortgage finance in a national context

All comparative studies of mortgage financing systems include additional information on the wider national context such as demographics, housing stock and legal systems. This is so, because mortgage financing activities depend on overall macroeconomic conditions and the general legal-administrative environment. Relevant factors range from housing policies to market conditions. Moreover, the actual pattern of the mortgage credit market – and their economic importance - tends to be peculiar to each nation, despite efforts of European integration (Hardt, 2000, p.2-3).

Mortgage markets tend to be particular to each country for many other reasons than mortgage financing techniques. These differences are the result of historical differences in demography and political and regulatory frameworks, as well as in consumer preferences. The different tax regimes, laws and cultural characteristics of each country have produced a multiplicity of different mortgage products with different costs and prices according to Suárez, (2004, p. 48-49).

The capital markets and the real property markets are linked through complex factors of economic development in each particular country. At the specific level the financial sector and the real sector are connected through issues of security of collateral, which tend to include similar elements across countries.

Contributing to the distinct character of mortgage markets are factors (Wyman, 2003, p. 20-22) such as:

- Government intervention in housing markets (e.g. by means of fiscal incentives to home-ownership),
- Regulation of mortgage lending (e.g. regulatory ceilings to Loan to Value Ratios),
- Level of competition in mortgage markets,
- Housing rental market conditions (including the availability of social housing),
- Perceived risks associated with mortgage lending and traditional preferences,
- Institutional factors, especially legal systems, transaction costs and access to collateral in the event of default).

This has resulted in a fragmented mortgage credit market in Europe with a wide variety of products, types of credit contracts, lenders and institutions operating in the market (Suárez, 2004, p. 2).

So far the European Union influences national mortgage lending through different regulations, .e.g. on bank solvency and capital coverage, and through the European Union Code of Conduct 2009, which standardizes requirements to consumer information on mortgage lending.

1.3 Mortgage Finance in Europe

Overview of European mortgage markets

Mortgage finance constitutes a major share of the overall economy. In 2007 the total outstanding residential mortgage debt in the European Union made up 50% of its total GDP, a staggering 6,1 trillion Euro (EMF, www.hypo.org).

“The importance of the EU mortgage credit markets cannot be overestimated in the recent, current and future economic climate.” (Green paper, 2005, p. 4)

Because mortgage credit markets represent a significant part of Europe's economy, the integration of EU mortgage credit markets both at the wholesale and the retail level is considered central to development of the inner market. A more efficient functioning of the EU financial system, is also considered central to development of the EU economy as a whole, as stated in the EU-White paper, (2007, p. 2).

The mortgage markets and the housing markets are closely linked. In case of an increased demand for dwellings (due to e.g., population dynamics) house prices typically go up, which will provide house owners

with more equity, and increase absolute levels of maximum loan limits. House owners may then decide to trade their assets or to consume part of their equity by taking mortgage credit. Changes in mortgage credit availability, e.g. through variations in interest rates, is known to also affect the housing market.

“This relationship between the macro-economy and mortgage debt is highly significant, especially in flexible mortgage markets, as the slightest change in interest rates can have a significant effect on household budgets and spending capacity.” (EU Green paper, 2005, p. 4)

The overview in table A.2 shows that the size of the mortgage credit markets vary greatly among the countries, with Denmark having the second highest level of mortgage debt/GDP in the EU, and the highest absolute level of outstanding residential mortgage debt per capita in 2007 within EU, although Iceland held the European record.

	1998	2008	% growth in mortgage debt 1998-2008
Austria	n/a	25.3	n/a
Belgium	26.5	39.8	13.3
Bulgaria	n/a	11.6	n/a
Cyprus	n/a	50.2	n/a
Czech Republic	n/a	10.8	n/a
Denmark	75,0	95,3	20,3
Estonia	3.7	39.2	35.5
Finland	29.5	47.5	18.0
France	20.0	35.9	15.9
Germany	51.9	46.1	-5.8
Greece	6.3	32.0	25.7
Hungary	n/a	14.0	n/a
Ireland	26.5	80.0	53.1
Italy	7.8	19.8	12.0
Latvia	n/a	31.2	n/a
Lithuania	0.9	17.3	16.4
Luxembourg	23.3	43.5	20.2
Malta	n/a	38.8	n/a
Netherlands	60.8	99.1	38.3
Poland	1.5	15.6	14.3
Portugal	n/a	63.3	n/a
Romania	n/a	4.0	n/a
Slovakia	n/a	13.2	n/a
Slovenia	n/a	9.1	n/a
Spain	23.8	62.0	38.2
Sweden	44.5	60.6	16.1
UK	50.6	80.5	29.9
EU27	33.2	49.8	16.6

Table A.2. Residential Mortgage Debt to GDP ratio (%), 1998 – 2008,

Source: European Mortgage Federation, Eurostat

National differences are apparent even from these basic, summary data. Further to the differences in absolute and relative levels of mortgage credit, are differences in the market products within and among the countries, resulting in a great variety of housing finance options and credit profiles.

Mortgage markets are strongly influenced by various types of government intervention, whether in funding or lending. It is noted that Denmark has a high degree of regulation of mortgage banks, but little direct government intervention (Wyman, 2003, p. 20-21).

Mortgage markets are impacted by government housing policies, especially the nature of subsidies and taxes. In Denmark tax deductibility of interest (irrespective of loan type) has comprised a relatively high indirect housing subsidy by European standards valued at over 1% of GDP in 2005 (OECD, http://www.oecd.org/document/7/0,3343,en_2649_34593_36604679_1_1_1_37467,00.html), but this subsidy has been gradually reduced through tax reforms in accordance with OECD recommendations.

Mortgage markets' impact on the macro-economy has been abundantly demonstrated during the financial crisis started in 2007, a matter to be discussed in Part C.

Comparative studies of mortgage credit in Europe

A number of comparative studies have described the characteristics of different types of mortgage finance systems (OECD 2000 (Hardt), EU-2003 (Wyman), IESE 2003 (Suaréz, Vassallo), and UN ECE (2005).

The Danish mortgage finance system is usually included in such comparative studies as a distinct example of securitization by covered bonds based on the balance principle.

A presentation of mortgage finance principles are found in (UNECE 2005), which sets out the main options of choice available for development of housing finance in emerging economies. The document is also useful by setting up checklists for goals and criteria in the evaluation of housing finance systems.

Nadler (Nadler, 2005) has structured his analysis of housing finance systems according to roles of the three groups of parties participating in the process of financial intermediation: The Borrowers, the lenders and the government. Nadler describes the roles and interests of each group in the funding mechanism through sets of parameters. Each party in a credit arrangement have their own goals - in many respects contradictory to the others'. As an example, borrowers are calling for low cost, accessible loans and lenders are seeking attractive investments in respect to risks and returns. Nadler demonstrates a method of assessing and comparing benefits of different mortgage finance systems, and has set up a comprehensive evaluation system covering the perspectives of each stakeholder with detailed checklist for sub-goals and criteria (Nadler, 2005, p. 25).

Other comparative studies have emphasized the market issues and the outcome of the mortgage finance systems as profiled by use of statistical data.

Wyman (2003) compared how mortgage systems function in selected countries through profiling the mortgage *markets* across Europe using a number of indicators: Comparison of product ranges, of prices, of cost levels and comparison of profitability. Viewing mortgage credit as a market product brings to the forefront important dimensions of the mortgage credit systems, due to their central roles in the capital market and the economy at large.

Some features of the European mortgage finance market are not explicitly mentioned in the above comparative studies, but have come into focus in the wake of the latest financial crisis.

In times of crisis it has become clear how the introduction of new financial products, like Mortgage Backed securities as applied in the US, differ from classical mortgage products in respect to capital coverage, risks, and incentive structures. In classical mortgage credit systems alignment of interests in the loan allocation process and a vertically integrated finance system, seem to have shielded relatively well against shocks in a volatile capital market, as has been the case with the Danish mortgage finance system (Realkreditrådet, 2010).

In this light it might be useful to review the different mortgage credit systems in view of both their funding mechanisms and their related risk management and incentive structures.

A common feature of all mortgage finance systems is the credit risk involved, but financing systems differ in the ways they manage this risk. Credit risks include two elements according to Wyman (2003, p. 24):

- The risk that the borrower will not be able to or willing to pay the regular payments for servicing the debt;

- The collateral risk that the property value will not cover the outstanding loan (plus enforcement costs) in the event of default.

Essential to controlling credit risks is access to effective foreclosure and enabling functions of the legal system to effectively hold debtors personally liable for debt.

As concerns the first type of credit risk, lenders typically assess the affordability of the engagement during the pre-loan phase by estimating the affordability represented by the ratios of Loan to Income (LTI) or Payment to Income, and degree of indebtedness, Debt to Asset ratio (DTA). A rule of thumb suggests maximum LTI's of around 3, but that is a matter of individual assessment at retail level. Collateral risk is usually represented by the indicator of Loan to Value of the pledged property (LTV), often regulated by law, and certainly a macro-level issue, ref. to e.g., EMF position paper of April 16, 2010, www.hypo.org.

Incentive structures are important for ensuring a sound mortgage credit system: A credit system organized, so that responsibility for loan allocation and risks for defaults are aligned, will have a sound inbuilt incentive structure for responsible lending practices, so that credit risks are mitigated.

Affordability of mortgage credit for the individual borrower is affected by external factors, such as income levels, the housing market, and legislation on maximum LTV's. All other things equal, low maximum LTV's would require that borrowers save for a longer time, in order to qualify for a loan. Or inversely, if high LTV's are common, it can be expected that it takes longer to pay back the loan. The typical age of first time borrowers have been shown to be related to maximum LTVs (Churi and Jappelli, 2000). Thus factors of retirement age, rental market conditions, and legislation will also affect affordability. The affordability ratios can be calculated at different levels from specific application, to market segments and locality to overall averages. At a statistical level affordability is usually calculated as the factor of average house prices to average household income (Wyman, 2003, p. 25).

Below follows a brief introduction of the different funding mechanisms of mortgage credit in Europe with some comments on their risk management and incentives, and on collateral security.

1.4 A brief on Deposit based mortgage finance

Savings deposits are the most common source of capital for housing finance in Europe (Hardt, 2000, p. 28). Different types of financial institutions (banks) apply the principle of pooling large amounts of customer deposits as capital for the mortgage credit they provided (UN-ECE, 2005, p. 16). The banks thereby serve as intermediaries by taking on the mismatches between the deposit sources and the housing loans (in time, loan amounts, etc.), a financial technique known for centuries. Loan applications may or may not depend on qualifications through savings schemes.

There are significant differences in national markets of the role of deposit based financing. It forms the most widespread funding source in nearly all EU member states and Norway, but not in Denmark.

“For Greece, savings deposits constitute the only technique used by banks to fund mortgage lending activity. Belgium (50%), Norway (38%) and Austria (35%) where savings deposits represent the largest source of mortgage refinancing. France (76%), Ireland (60%), Spain and the Netherlands. (Hardt, 2000, p. 28)

Bausparkassen

Some financial institutions apply contractual savings schemes, as do the German and Austrian ‘Bausparkassen’. They were founded as a result of the poor housing conditions after World War I, and played a special role after World War II, when Germans faced a severe housing shortage of more than six million dwellings (UNECE, 2005, p. 21), while there were no formal financial sector lenders (Hardt, 2000, p. 20).

The idea of mortgage credit through Bausparkassen is to accumulate savings as a basis for mutual credit in a type of closed system. Each loan is provided at predetermined conditions, generally with deposits being

serviced at a below-market interest rate, but once the deposits have accumulated to a certain level the housing loan is provided at credit conditions usually more favourable than market conditions.

Since the loans are financed only by means of mutual savings, the date of granting a loan to an individual member is not set in advance. Bausparkassen are specialized financial institutions founded as mutual self-help organizations that provide only housing finance of this kind, and the participants in savings schemes enjoy certain state benefits (subsidies or tax relief) (Hardt, 2000, p. 20).

Bausparkassen cover the largest share of the mortgage credit in Germany with a market share in 2000 of 36,8% (UN-ECE, 2005, p. 24), followed by the savings banks with a market share of 31.9 per cent. On the third rank, private mortgage banks provided 16.2 per cent of mortgage credit for housing in 2000, while public banks and life insurance companies covered the rest.

Other variants of the deposit based credit systems can be found in France, where the use of deposits for capitalization of mortgage credit is the dominant funding mechanism (76%).

Incentives and risk structures

Generally, mortgage credit systems based on savings mean that the borrowers have proven a prior ability to save, and when they have equity at stake in the property, there are inbuilt incentives for borrowers to honour their obligations. The mechanism thus serves as a screening of creditworthiness.

Moreover lenders are protected in case of default through the maximum LTV's and equity of borrowers. In other words, this is a conservative form of mortgage finance, which may mean that first time borrowers are older, because they need time to generate prior savings.

In Germany the maximum LTV ratio of normal bank credit is 60%, whereas Bausparkassen may provide credit up to a maximum of 80% LTV, so Bauspar-contracts may be used for supplementing bank credit. The supplementary nature is reflected in the modest average size of Bauspar-loans, about 20.000 Euro (Nadler, 2005, p. 8). Redemption time for credit from Bausparkassen is relatively short, 6-11 years (UNECE, 2005, p. 44).

Thus credit through Bausparkassen is often used for renovations, etc. It can also be mentioned that since first time buyers may have to save for some time before qualifying for necessary credit, it can be expected that they are older when entering the real property market. Savings in Bausparkassen enjoy a certain savings bonus from the state.

To illustrate the principle follows an example of a standard mortgage credit contract through a Bausparkasse, which covers four basic stages: the contract phase, the savings period, the loan allocation process and finally the loan period (UN-ECE-2005, p. 21-22).

(i) Conclusion of the contract itself, which fixes items such as the Bauspar contract amount (e.g. €100,000.00), the savings rate, repayment rate and interest rates for the savings and for the loan. The conditions of Bauspar contracts are fixed in the tariffs, that is, every tariff offers a specific combination of interest rates on savings and deposits and the amount of savings and loan instalments paid by the customer.

(ii) Savings period, in which the customer saves up to 40–50 per cent of the Bauspar contract amount (e.g. €40,000 - €50,000).

(iii) Allocation period: Since the Bauspar system is managed as a closed system, banks can only allocate those saved funds, in the form of loans to customers, which the banks have previously collected. Hence, customers are subject to a waiting period the length of which depends on the availability of funds. Specific rules determine the sequence of loan disbursements to the customer. Savings are paid into the allocation fund which serves to disburse the Bauspar loans. The allocation fund is also filled by the redemption payments of the Bauspar loans.

(iv) Loan period: The customer repays his loan on the basis of the agreed interest rate.

Source: UNECE (2005, p. 21-22)

Proceeds of the loan are to be used for housing purposes, only. Mortgage credit constitutes a conservative form of housing finance both through the savings mechanism and the predefined repayment conditions not tied to fluctuations in market rates. The conservative nature of the German mortgage market can be seen also

from the typical composition of financing of a purchase, where down payment constitutes 20% or more of the price, Bauspar loan about 30%, and a bank loan of up to 50% of the purchase price. The typical loan composition illustrates the roles of different funding sources in the mortgage market (UNECE, 2005, p. 24).

British and Irish building societies

Britain has a century long tradition for deposit based mortgage lending through so-called building societies (ref. <http://www.bsa.org.uk/>), which are mutual lenders and deposit takers constituting a large mortgage industry in Britain and Ireland. Building societies are member based organizations, organized as a network of local organizations, currently about 50 with totally 2000 branches. In contrast to Bausparkassen, they apply variable rates both on deposits and lending, and lending is not directly dependent on specified savings.

According to (UN-ECE 2005, p. 16) building societies are currently closer to savings banks. A number of mergers have occurred recently, and some building societies have actually been ‘demutilised’ – i.e. converted to savings banks, see <http://www.bsa.org.uk/consumer/factsheets/100010.htm>.

It is mentioned briefly that American Savings and Loan Associations traced their roots to the British Building societies founded as associations and based on mutual savings and lending principles. They have since the first part of the 19th century provided a considerable share of mortgage finance in the US, but came into serious difficulties due to their funding model. They were exposed to serious difficulties of mismatch between assets and liabilities in times of rising interest rates, because long term loans had an interest rate ceiling. The Savings & Loans associations in the US were deregulated and severely tarnished by scandals in large sections of the industry from the mid 1980’s, (Economic History Association, 2010, <http://eh.net/encyclopedia/article/mason.savings.loan.industry.us>). The fall of the S&L’ associations contributed to the rise of the Mortgage Backed Securities industries, see Chapter A. 1.7.

1.6 On Mortgage Securitization by Covered Bonds

History and definitions

Mortgage securitization by covered bonds was first introduced in Lower Silesia, Prussia in 1769, but modern securitization through statutory mortgage bonds traces its roots both to the German Mortgage Bank Act of 1900, and to the Danish Mortgage Credit Act of 1850, according to (Golin, 2006, p. 63).

The German ‘Phandbrief’ is considered the Grandpa of covered bonds, which constitute a fast growing asset class under dynamic change, and they are no longer local securities for local investors (Louis Hagen, ECBC, 2005, p. xiii). National names of these securities sufficed, when traded on domestic markets, but with the opening of markets, has arisen a need for common terminology and definitions, (Golin, 2006, p. 11). Therefore, Danish ‘realkredit obligationer’ are also denominated Danish covered bonds, or mortgage bonds below.

A central feature of mortgage bonds is that the mortgage security, covered bond, is giving the holder of the bond a claim against the issuing mortgage credit institutions, which originate, fund and service the loans. The investor is protected by the special security backing the mortgage loans, as well as tiers of capital coverage (security) of the specialized mortgage credit institution, acting as intermediary between borrower and the investor in mortgage bonds in accordance with the mortgage credit act.

A full definition of securities of the Covered Bond type is provided by Golin, (2006, p. 14):

A statutory covered bond might be defined as a debt security

- (1) issued under a specially-defined legal and regulatory framework;
- (2) secured by a designated ring-fenced pool of assets that is ordinarily dynamic in character;
- (3) with respect to which the investors in such security are, in the event of default, afforded a preferential priority by law; and
- (4) in addition, depending upon the jurisdiction, may benefit from other legal safeguards designed to protect the covered bondholders’ claims.”

It is noted that there are two kinds of covered bonds (Golin, 2006, p. 16)

- Bonds secured by mortgage assets, which are sometimes referred to as mortgage bonds; and
- Bonds secured by public sector obligations such as sovereign debt securities or other government borrowing;

The focus here is on mortgage bonds. More details on the Danish Mortgage Financing System are provided in Chapter A.2.

Funding principle

Each mortgage loan is funded through issue of mortgage bonds with mirrored conditions of duration and interest rates, and the bonds are sold on the capital market, so that the proceeds are passed on to the borrower at issue. The price achieved reflects market conditions and how investors evaluate the covered bond in respect to competitive investments. The price determines the effective interests for the borrower.

Funding through mortgage bonds is characterized by simple and transparent cash flows, both at issue of the loan and during the servicing of the loan. Borrowers' regular payments of interest and repayment are passed on to the holders of the mortgage bonds (investors) during the duration of the loan.

For borrowers the standardized, transparent funding principle serves as a protection against predatory lending.

For investors the risks of the financing process are largely reduced to credit risk held by the mortgage institution. Investors in mortgage bonds have a claim towards the mortgage credit institution, not the individual borrower. Therefore, this type of mortgage securities are also called on-balance securities. That credit risk is held by issuing mortgage credit institution (MCI) provides the securitization system with inherent incentives for responsible lending.

Mortgage bonds are low-risk assets. At first because the financial model with adherence to a strict funding principle of balance largely eliminates interest rate risks, currency risks, and mismatching cash flows.

The remaining risks are largely reduced to the credit risk: whether the borrower continues to pay installments and interest, and if the underlying assets cover the outstanding debt and procedural costs in case of default.

Furthermore, covered bonds build on security of collateral tied to the quality of underlying assets, which by law are defined by limited LTVs and the quality of valuations. There is also a degree of overcollateralization through various tiers of capital coverage in addition to the collateral value of the underlying property assets pledged as security for the mortgages.

Finally, in the remote case of default of the issuing mortgage credit institution, investors in mortgage bonds hold preferential priority to a designated asset pool (Golin, 2006, p. 34). Capital coverage requirements are currently high on the international agenda, as discussed in Chapter A.7.

The financing model is considered a cost-efficient method of funding a mortgage loan, and standardized mortgage bonds function as mass debt instruments, which contribute to an economy of scales of the model, (Hardt, 2000, p. 10). Mortgage bonds are standardized, high volume assets, in demand by institutional investors in the national capital market such as pension funds, who prefer financial assets that match the profile of their long-term liabilities, and carry low risks.

Order	Investor	%
1	Insurance companies and pension funds	35
2	Financial institutions	25
3	Public sector	13
4	Households	9
5	Foreign investors	8
6	Other sectors	8

Table A.3. Placement of mortgage bonds in circulation, the end of 1998 (all of Europe)

Source: (Múcková, 2000, p. 39, Table 22)

The data confirms that mortgage financing depend on the demand by institutional investors – especially insurance companies and pension funds – that constitute the main investors in mortgage bonds.

The trend towards financing through mortgage bonds is reflected in a growing mortgage bonds volume represented in the collated European Statistics of the European Mortgage Federation, (<http://www.hypo.org/Content/default.asp?PageID=524>).

In 2008 Denmark had still the largest absolute volume of outstanding mortgage bonds in Europe, followed by Spain and Germany. It is remarkable that during 2008, the Danish mortgage institutes continued issuance of new mortgage bonds at a significantly higher level than other European countries amounting to more than 20% of all new issuances.

The distribution between public bonds and mortgage bonds is also notable: Mortgage bonds valued about double the public bonds in 2008, - although the balance may be changing with the latest developments in public deficits around Europe.

2008	COVERED BONDS OUTSTANDING 2008 in EUR million					2008 New issuance
	Public Sector	Mortgage	Ships	Mixed Assets	TOTAL	Mortgage Bonds
Austria (e)	15.655	8.395	0	0	24.050	1.321
Canada	0	6.574	0	0	6.574	4.574
Czech Republic	0	8.098	0	0	8.098	939
Denmark	154	365.886	7.051	0	373.091	113.234
Finland	0	5.750	0	0	5.750	1.250
France	64.756	119.092	0	80.631	264.479	59.734
Germany	578.974	217.367	9.282	0	805.623	57.345
Greece	0	5.000	0	0	5.000	5.000
Hungary	0	7.105	0	0	7.105	3.331
Iceland (e)	0	300	0	0	300	321
Ireland	52.613	23.075	0	0	75.688	9.500
Italy	8.063	6.500	0	0	14.563	6.500
Latvia	0	95	0	0	95	11
Luxembourg	35.467	150	0	0	35.617	0
Netherlands	0	20.977	0	0	20.977	5.608
Norway	0	23.071	0	0	23.071	16.726
Poland	137	561	0	0	698	197
Portugal	150	15.270	0	0	15.420	7.420
Slovakia	0	3.614	0	0	3.614	734
Spain	17.030	315.055	0	0	332.085	54.187
Sweden	0	126.425	0	0	126.425	44.220
Switzerland	0	36.180	0	0	36.180	7.191
Ukraine	0	11	0	0	11	7
United Kingdom	0	187.470	0	0	187.470	104.222
United States	0	12.937	0	0	12.937	0
Total	772.999	1.514.958	16.333	80.631	2.384.921	503.572

Table A.4. Covered Bonds Outstanding in EU, 2008 and new issuances in 2008, Source: ECBC, http://ecbc.hypo.org/Objects/9/Files/Total_2003-2008.pdf

1.7 On Financing through Mortgage Backed Securities

Background of the system

American mortgages are distinctively different from mortgages in the rest of the world (Green and Wachter, 2005).

The most prevalent form of mortgage financing in the US at present is based on a technique of secondary intermediation, whereby a pool of mortgage loans are sold off to a third party in the form of mortgage backed securities. The securitization process is rather complicated and involves packaging loans in bundles, which are transferred and sold off, so that MBS are separated from the issuers' balance sheet, as off-balance securities.

A technical description of the system is beyond the capacity of the author, but relies on available descriptions e.g., in UN-ECE 2005, pp. 33-39. Due to the collapse of the Government Sponsored Enterprises in charge of large parts of the US mortgage securities industry in September 2008, some of the information could be outdated.

Securitization principles

The construct of secondary intermediation creates financial assets in a process, whereby intermediaries buy mortgage credit and bundle mortgage loans according to principles of homogeneity, which are transferred to a separate legal entity, called a Special Purpose Vehicle, and the resulting securities are sold to investors as so-called Mortgage Backed Securities (MBS). The holders of MBS get a claim to the cash flow from the pool of bundled mortgage credit. The originator thereby frees up own funds, which can back further lending.

The origination of loans take place through many different types of banks and financial entities, but the issue of MBS has predominantly taken place through large secondary mortgage intermediaries, which pool the mortgage loans.

When Mortgage Backed Securities are issued through the US Government Sponsored Enterprises (GSEs) the resulting assets are covered by an implicit or explicit Government guarantee. Different entities may originate, service and guarantee the loans, whereby the process of securitization becomes vertically dis-integrated, and less transparent.

The borrowers' monthly principal and interest payments would be passed to a third party - the investor, but at the same time the securitization process also transfers all risks from originator to the investor. The risks assumed by the investor includes credit risks, market risks, prepayment risks, etc. so investors will expect higher interests for MBS than for mortgage bonds with lower risks.

Mortgage Backed Securities are backed by specific pools of collateral assets, namely the property pledged for the specific mortgages, but the process separates the lender from the holder of the loan, so that the loan originator carries little risk, (Lea, Hassler, 2008).

Mortgage Funding (Securitization) Process

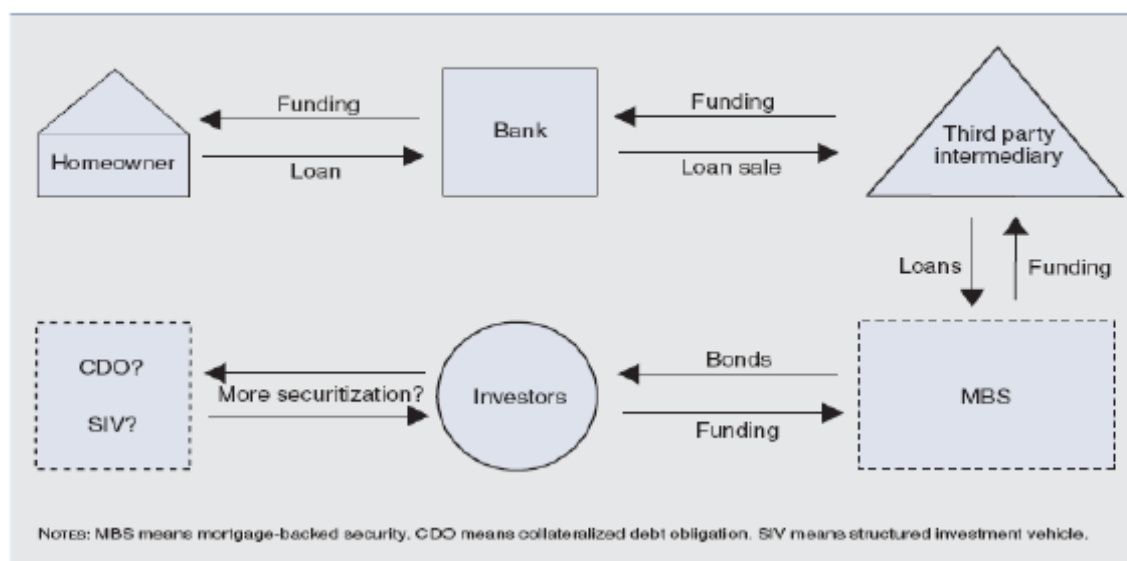


Fig. A.2. Principles of Mortgage Backed Securities in the US

Source: Citibank 2008, in Lea and Hassler, 2008

Despite selling the loans, the originating institution usually continued to service the loans, which involves collecting principal and interest payments and performing other tasks (Suarez, 2003, p. 43-44), and they might also buy back the MBS. In this way they could indeed buy back their own loans – now furnished with a public guarantee. The odd construction allows banks and other lenders to lift off their lending risks – at no cost, and may thus hold no deterrents to irresponsible lending.

The advantages of the securitization process were originally perceived as a widening of the potential market for funding beyond the limitations of bank deposits, and the Mortgage Backed Securities were tradable. But the system was over time exposed to moral hazards, e.g., because of the incentives driving lenders and brokers, namely volume and fees.

The mortgage intermediation process makes Mortgage Backed Securities complicated assets, which require expert rating bureaus for assessing the risk profiles of each “bundle”. The role of rating agencies has been questioned in relation to the subprime crisis.

Adding to the complexity of the MBSs in the capital market were so-called innovative financial tools connected to the MBSs, credit default swaps, Collateralized Mortgage Obligations, Asset Based Securities (ABS), or even ‘Residential Mortgage-Backed Security Collateralized Debt Obligations’, etc. (which are entirely beyond comprehension of this author).

The complexity and in-transparency of these financial assets stands in stark contrast to the simplicity and transparency of the Danish mortgage bonds.

On the role of Security of Collateral in the US system

Mortgage Backed Securities (MBS) are quite different from mortgage bonds (covered bonds), which are backed by the originator (the mortgage Institute /bank), so that covered bondholders have claims against the issuer with the underlying assets, and are also protected by law in respect to e.g. preferential status, and overcollateralization.

Mortgage Backed Securities are solely secured by the income flow from the designated pool of assets bundled at the time of issue of the mortgage credit. In case of default, and if the proceeds from the pool of property assets are inadequate to cover the claims of a given class of investors, such investors will as a rule

carry the loss, irrespective of the issuer's solvency (Golin, 2006, p. 18). However, when the issuer sells the debt to Government Sponsored Enterprises (GSEs), it is implicitly expected that the resulting securities be covered by the state guarantee of the GSE.

The mentioned collateral pools are composed of bundled assets usually with a homogeneous profile, so that – in theory - statistics can be used for estimating default rates etc. for the particular property segment, if conducted properly.

Therefore security of collateral in the form of the underlying real assets is not only important, but it is critical in the system of MBS, as against the tiers of capital coverage of statutory covered bonds. At the same time the security of collateral is difficult to monitor, because the process of loan packaging and trading is conducted through a chain of market participants, including rating bureaus. Without high standard property assessments and restrictions on relative loan sizes (Loan To Value) collateral security can be questionable even from the outset.

A potential investor in mortgage bonds needs (only) to consider the issuer's credit worthiness, whereas an investor in mortgage-backed securities will have to judge whether the particular underlying assets are capable of generating a cash flow to meet the payment obligations of the securities, and what other types of investor protection is built into the securities. This is why rating agencies have played a special role in ratings of the Mortgage Backed Securities (Ref. Suarez, 2004, p. 44)), and they obviously have not stood up to the responsibility associated, since their ratings seriously underestimated risks, as revealed during the collapse of subprime loans and other complex securities.

Government Sponsored Enterprises

Mortgage Backed Securities in the United States were introduced in the 1930's with the best of intentions as one of the recovery measures after the Great Depression.

Prior to the 1930's mortgage credit was constrained to short term credit with variable rates and typically only available up to 50% LTV's, and in the form of 'bullet' loans to be paid at termination, or renegotiated. With drastically falling prices and widespread unemployment during the Great Depression in the 1930's many borrowers could not refinance their mortgage credit, leading to a negative spiral of defaults and falling house prices. When lenders refused to refinance the loans, a huge wave of foreclosures followed, which peaked in the mid-1930's with default rates as high as 10% on home loans (Green and Wachter, 2005, pp. 94-95).

To counter the crisis, the US Federal government established three agencies to substitute and guarantee mortgages, which could not be funded otherwise:

- The Home Owner's Loan Corporation (HOLC),
- The Federal Housing Administration (FHA) and
- The Federal National Mortgage Association (FNMA, also nicknamed Fannie Mae).

The role of the Home Owner's Loan Corporation was to step in to refinance houses and help families stay in their homes, while the Federal Housing Administration, FHA provided insurance for mortgage lenders. Fannie Mae was created in 1938 to provide a secondary market by for FHA-insured loans to facilitate low income families access to credit by offering long term residential loans on fixed terms enhanced with a state guarantee. Fannie Mae continued and developed its operations until its collapse on September 7, 2008.

The intervention in the mortgage market was one of the most important components of the New Deal, which also had the long term effect of re-engineering the mortgage market and creating the vehicle for the growth of the home-owning, suburban America, according to Fergusson (2009, p. 249-250).

Expansion of lending activities for housing continued in the late 1960's in the US, at a time when the federal budget was also under pressure, so Fannie Mae was removed from the government balance sheet to form a government sponsored enterprise. In 1970 the US-government established another secondary intermediary backed by government guarantees, nicknamed Freddie Mac, also a Government Sponsored Enterprise (UN-ECE 2005, p. 33).

The US market for MBS also expanded following the crisis in the Savings and Loans associations in the 1980's and 1990's, when the GSE's securitized a large amount of their loans, <http://www.housing-finance-network.org/index.php?id=324>.

As a result of these developments, the US market of mortgage intermediation has been dominated by three Government Sponsored Enterprises, (GSEs):

- Government National Mortgage Association (GNMA), called Ginnie Mae, targeted towards lower/moderate income buyers, which are insured by the Federal Housing Federation (FHA).
- Federal National Mortgage Association (FNMA), called Fannie Mae, which catered nearly exclusively for the residential property market.
- Federal Home Loan Mortgage Corporation (FHLMC), called Freddie Mac,

It is understood that Fannie Mae and Freddie Mac were not allowed to originate mortgages. They depended to 100 percent on primary lenders like mortgage companies and brokers, commercial banks, etc. (Nadler, 2005, p. 10).

Fannie Mae and Freddie Mac covered in total about 40% of residential mortgages the secondary market in the US by end 2000. Average loan sizes were above 100.000 USD and periods of redemption typically 25-30 years (Nadler, 2005, p. 8).

That the entities are Government Sponsored Enterprises has been a matter of debate, because securities were only implicitly guaranteed by the state, while the capital coverage of the GSEs was extremely low compared to other financial institutes, (UNECE, 2005, p. 38). The concerns were not unfounded as later developments showed.

A few Comments on the Subprime Crisis

The funding structure of the Mortgage Backed Securities is vertically disintegrated, which results in rather intransparent securities, and an unhealthy incentive structure, where the originator of the loans passes on the credit risk (The subprime crisis is also discussed in Part C).

The growth of the US market of MBS shall also be seen as a result of a housing policy - supported by the whole political spectrum – aimed at increasing homeownership.

In order to extend homeownership, especially for the minority population segments, special legislation was passed to expand lending to market segments not qualifying for a loan under usual market conditions (subprime lending). One such act was the Community Reinvestment Act of 1977 (CRA), which provided incentives for commercial banks to extend credit to applicants in lower-income areas, previously red-lined areas, typically dominated by minorities. It was reinforced by the Clinton administration in 1995, by encouraging 'flexible lending standards' for subprime lending. The role of the CRA in expanding the subprime market is much debated, but incentive structures of banks demanded that they proved a share of their credit portfolio be allocated to borrowers in redlined areas in order to qualify for e.g., mergers and expansions. According to Lea and Hassler (2008) the CRA related mortgages was not a factor in the subprime, because depository institutions were little involved in subprime.

What have been identified as contributing factors are declining documentation standards, including a range of other questionable practices that drove the sub-prime sector, such as e.g., questionable property assessments, lack of underwriting of borrowers' ability to repay the loans combined with no restrictions on LTV's. The term 'NINJA loans' refers to 'No Income, No Job, No Assets' and is indicative of the troubles in the credit market.

Analysts have found that many such loans were provided for refinancing and for equity withdrawal rather than for acquisition of homes. Overall indications are thus that government policies pushed the financial sector to lowering underwriting standards for mortgage lending, which contributed to the crisis.

Within the GSE's problems were piling up, as well. In 2003, regulators discovered serious accounting problems in Fannie Mae in the order of several billion dollars and oversight found a culture of corruption, arrogance, and pervasive accounting violations in the company according to (Yallapragada, 2007). A bill presented on rectifying the conditions in the GSE's was presented by the administration in 2004, but rejected by the congress possibly supposedly due to heavy lobbying from the side of GSE management and dubious contributions to politicians from the GSE's.

Subprime lending combined with low interest rates and access to Adjustable Rate Mortgages drove up the volume of Mortgage Backed Securities held by the GSE's, and at the same time the Mortgage Backed Securities had become part of the investment portfolios of investors around the world with little insight into the real risks behind, but attracted by high yields and rating-labels put on by rating bureaus.

Foreclosures spread during 2006 and 2007, when investors fled from junk mortgage assets and the value of MBS's dropped. From the start when the subprime crisis started rolling, it was difficult to separate the toxic assets from good securities, so the US MBS market plunged as a whole. By September 7, 2008 the two GSE's collapsed and were taken under US government custody. As a result the US tax payers have suffered gigantic losses, as have investors around the world (Lea and Hassler, 2008).

That a local mortgage crisis spread through the entire financial system and affected the real economy is evidence of the role of mortgage finance in economic development, see discussion in Part C. A discussion of the subprime crisis is seen as relevant here, because many potential borrowers in emerging economies could be considered belonging to subprime market segments, (Jaffee, 2008).

1.8 Comparison of Mortgage Bonds and Mortgage-Backed Securities

Different Securitization Models

When comparing the covered bond securitization mechanism and the MBS mechanism, it is evident that the model of securitization through mortgage bonds is simpler and more robust. Hardt (2000) and Suarez (2004) have made this comparison in a systematic manner, which helps pinpointing the critical differences between the principles of the two types of systems, see tables A.5 and A.6.

Comparison of Mortgage Bonds and Mortgage-Backed Securities		
	Mortgage Bonds	Mortgage Backed Securities
<i>Mortgage loan production</i>	Bundled process	Unbundled process
<i>Type of securitization (balance sheet treatment)</i>	Assets remain on the balance sheet of the originating institution (on-balance sheet securitization)	Generally, assets are removed from the balance sheet of the originating institution (off-balance sheet securitization)
<i>Source of principal and interest payment</i>	Issuer cash flow	Collateral cash flow
<i>Risk exposure:</i> - Credit risk - Prepayment risk - Market risk	Issuer Issuer /Investor Investor	Investor Investor Investor
<i>Credit quality</i>	In addition to the asset quality, depends mainly on the strength of the originating institutions and the legal framework	In addition to the asset quality, depends mainly on the strength of the structure created
<i>Over-collateralisation</i>	Defined by law	Usually required for a high credit rating
<i>Tiered capital structure</i>	Subordination is inherent in the system (e.g. requirement to respect certain LTV ratios)	A structure distinguishing between senior and subordinated securities needs to be created
<i>Guarantee</i>	A guarantee (if given) will be provided by the originating mortgage credit institution	Guaranty can be provided through a third party such as insurance company or a bank ("credit enhancement")
<i>Collateral pool structure</i>	1. Individual components of the asset pool are substitutable 2. Mainly heterogeneous assets (different type of properties financed by each series of covered bonds) 3. Eligible assets defined by law (e.g. max LTV ratios and property valuation methods /standards)	1. Individual components of the asset pool are (in general) not substitutable 2. Mainly homogenous assets (same type of properties/locations pooled) 3. Eligible assets are not necessarily defined by law

Table A.5 – Comparison of Mortgage Bonds and Mortgage-Backed Securities

Source: Hardt, 2000, p. 18-19, Table 5; European Mortgage Federation, OECD

Due to the special risk structure of the MBS asset type it had become widespread practice that lenders require that borrowers buy a private mortgage insurance, when they take out a mortgage loan, if they did not have sufficient equity or self-financing (Suárez, 2003, P. 26).

The significant differences stem from the distinct securitization processes with respectively simple-complex and alignment vs. dis-alignment of interests. Moreover the monumental weakness of the lack of capital coverage of the GSE's in the US undermined the two GSE-giants of Freddie Mac and Fannie Mae, and contributed to their collapse in 2008.

However, a contributing factor to the erosion of the mortgage credit system was also a general erosion of underwriting standards and lack of requirements of down payment (Wilcox, 2008). When this occurs at a grand scale, the market was exposed to considerable credit risk, and the insurance systems became vulnerable, as well.

Securitization through MBS constitutes a small share of mortgage finance in Europe taking a market share of less than 1% of outstanding mortgage debt in EU financed through MBS (Wyman, 2003). Lending according to this financing model has primarily been taken place in the UK, Ireland and Spain. MBS's are unknown in the capital market of Greece, Austria and the Scandinavian countries. More information on the application of different mortgage credit funding methods in Europe, is provided by (Hardt, 2000, p. 37).

Differences between mortgage markets in Europe and the US

The European mortgage market is often compared with the mortgage market in the United States. Hardt (2000) has summarized the distinct and profound differences between mortgage credit markets in Europe and in the US, as follows:

EUROPE The EU mortgage market	UNITED STATES The US mortgage market
<ol style="list-style-type: none"> 1. There is a great diversity of mortgage lenders in Europe as housing finance systems have evolved within national boundaries. 2. Mortgage loans remain on the balance sheets of banks and are capital intensive (50% or 100% weighting). 3. European « mortgage banks » are portfolio lenders, tightly regulated, funding their mortgage assets to a large extent through the issue of mortgage bonds (on balance sheet instruments). 4. In Europe, an institution must be successful in funding the loan for the lifetime of the loan (if it wishes to continue to hold it). 	<ol style="list-style-type: none"> 1. The US mortgage market is dominated by mortgage banks. 2. The rise of mortgage banks was triggered by the <i>Savings & Loans</i> crisis where the lack of capital induced institutions to remove loans from the balance sheet through securitisation. 3. Mortgage banks sell their loans into secondary market, primarily to US government sponsored enterprises who benefit from lower capital-to-assets ratios than banks (approximately 1/3 of the EU capital requirements). 4. The mortgage bank does not need to be successful in funding in order to create the conditions necessary to be successful in lending.
<p>Consequences</p> <p>⇒ European mortgage lenders need to hold own funds of between 4% and 8% for mortgages on balance sheet. These holdings can be substantial as residential mortgage loans outstanding totalled EUR 2.7 trillion in 1998.</p> <p>⇒ credit risks (including prepayment risk) remain on banks' balance sheet</p> <p>⇒ risks are controlled through banking supervision</p>	<p>Consequences</p> <p>⇒ US mortgage banks require limited own funds to do their business as mortgages are sold to government sponsored enterprises</p> <p>⇒ risks are sold to third parties (investors)</p> <p>⇒ risks are outside supervisory scrutiny</p>
No Public guarantees of lenders in Europe	Public guarantees: The important role of the US government agencies
<ul style="list-style-type: none"> • There is no national or European government agency to help lenders fund their loans. Mortgage loans have to be funded on the basis of the financial strength of banks or the intrinsic quality of the securities. • EU law (Article 87 and 88 of the EC treaty) outlaws state aid in the form of guarantees as there may be an element of competitive distortion. • There are privately owned centralised issuing institutions but their existence is threatened because of differing ratings of originating institutions. Private centralised issuing institutions have difficulties to create liquidity. 	<ul style="list-style-type: none"> • The US central government sponsored enterprises (Ginnie Mae, Fannie Mae and Freddie Mac) play a central role. They buy mortgage loans from mortgage banks and sell them into the secondary mortgage market. • These enterprises enjoy implicit government guarantees which reduces funding costs by about 50 Bp. • The sheer size of the enterprises allows economies of scale. 50% of all outstanding residential mortgages at the end of 1997 were securitized. This amounted to about \$2 trillion out of a total market of \$4.1 trillion.
<p>Consequences</p> <p>⇒ EU mortgage lenders enjoy no funding advantage through government backing</p> <p>⇒ mortgage bonds trade 20 to 30 Bp over government bonds</p> <p>⇒ EU mortgage backed securities currently trade with an average margin of 75Bp to 150 Bp over government bonds.</p>	<p>Consequences</p> <p>⇒ There is an element of state aid in American mortgage funding</p> <p>⇒ This advantage reduces funding costs by about 50 Bp (NOTE: This was pre -2007)</p> <p>Now the cost of the state guarantee has materialized both direct costs in the trillions and additional collateral damage to the capital markets</p>

Table A.6. Differences between the European and the US mortgage market according to Hardt (2000, p. 38)

The differences are substantial and have been accentuated through the financial crisis, when the performance of each mortgage finance system and each mortgage credit institution can be tracked through hard data on such factors as number of defaults, losses and availability of credit.

It can be added that the Danish Bonds and the Mortgage credit system have withstood the crisis and continued to issue mortgage bonds and award mortgage credit at a time, when the flow of credit in many other mortgage credit systems were frozen (Realkredittaaet, 2009). The good performance of the Danish Bonds on the international capital market has been proven through the crisis.

It is in the time of crisis that the qualities of mortgage credit systems are tested. The Danish Mortgage Finance system has proven robust through crisis over a long time span, as pointed out by Realkredittaaet, (2010).

1.9 Comparison of Outcome of Housing Finance Systems in Europe

Main Cost Issues incl. Transaction Costs

A comparative study of eight European mortgage markets in the EU was made by the European Mortgage Federation in 2003 by Mercer Oliver Wyman. The study includes data on key issues such as products, costs and profitability, and on market conditions, like e.g., transaction costs in the European mortgage market. The study was driven by statistical data representing a broad selection of parameters from Denmark, France, Germany, Italy, the Netherlands, Portugal, Spain and the UK.

Wyman (2003, p. 44) suggests that the 8 countries studied fell into two broad categories with relatively higher (Italy, France and Portugal) and relatively lower costs (Denmark, Germany, Netherlands, Spain and UK), and notes that the lower costs can be explained both by volume, and by more efficient mortgage processes such as mortgage pledging and repossession (effective foreclosure).

Differences in cost levels were found to occur for many reasons, including:

- Product differences and underlying supply conditions,
- Efficiency of lenders,
- Lender scale – based on economics of scale,
- Process efficiency partly driven by regulatory differences,
- Market composition resulting in structural differences.

(Wyman, 2003, p. 4)

Wyman elaborates the issue of how collateral efficiency impact on mortgage costs (p. 62). He has demonstrated that there is a strong correlation between the speed of repossession (effective foreclosure) and the estimated operating costs of mortgage lending. A similar correlation applies for registration times. Wyman reaches the following conclusion of high relevance for the present study:

“This suggests that national collateral law is one important input into lender economics and therefore in part into prices as the speed of registration and foreclosure translate into higher costs for lenders, which in turn may translate into prices for consumers, subject to market constraints such as subsidized competition as seen above. Inefficiencies in collateral include in-transparent or costly registries and expensive registration processes.” (Wyman, 2003, p. 62)

In this manner, comparative European studies based on detailed data lead to the conclusion, that collateral efficiency (collateral law and procedures) are of utmost importance for the cost of mortgage credit, a point well taken considering the overall research questions.

Furthermore, Wyman’s report carries statistical evidence of the economical benefits of efficient legal processes. It is noted that even a 0,1% lower *annual* operation cost level translates into huge absolute sums saved, because of the amount of outstanding mortgage debt concerned – e.g., in Denmark in the order of 2200 billion DKK.

The Danish securitization model based on the balance principle is having inherent advantages in respect to transparency, as emphasized by Realkredittoradet, (2009), but that does not resolve all of the mentioned issues.

The Danish mortgage system performs well in comparative studies. In the EMF study conducted by Wyman (2003) there were found significant comparative advantages in the performance of Danish mortgage financing in the following areas:

1. Mortgage price (ibid., p. 34):
 - a. Adjusted mortgage rate price: Denmark second cheapest after Germany
 - b. Transaction costs of mortgage loans: Denmark is by far cheapest if comparing loan costs excluding taxes, otherwise in the order of the Netherlands and France.
2. Danish mortgage lending is also the cheapest among the 8 countries as concerns estimated annual operating costs in percentage of outstanding lending (estimated 0.35%), e.i. half the cost of the most costly operations found in Italy (ibid., p. 44);
3. Lowest Average mortgage registration and repossession times were found in Denmark (ibid., p. 46).

The good performance of the Danish mortgage system in the comparative study is generally explained by its standardized loan origination and loan servicing processes driven by the use of the mortgage bond market and the economy of scale stemming from concentration in the mortgage lending market (ibid., p. 45).

What is not directly apparent from the comparative analysis is that a root cause of its good performance is the securitization model based on the balance principle combined with standardization and volume, as discussed below.

Development of the EU-Inner Market for Mortgage Finance

In the EU it is important to note that at present, real estate agents, property rights, property taxes and housing subsidies are all regulated at national level. Differences in legal frameworks of property rights have evolved through long traditions, which are not easily standardized. Nevertheless, it will be necessary to overcome differences of the land registration systems, if mortgage markets are to be integrated, as discussed below (More comments to the EU policies, see below)

Wyman, (2003, p. 6) described difficulties of obtaining good quality information on foreign markets including underwriting of applicants as one of the most important barriers to further integration (of the EU financial markets). A similar topic is stressed by Suárez, who point to transparency as an essential requirement for mortgage market efficiency (Suárez, 2004, P. 31):

“For the market to operate efficiently, good access to reliable, publicly available information is required. Transparent valuation methods or house price indices (for sellers and buyers) would be good means of achieving this. It will also be necessary to solve some of the problems with land registration, which tends to be very complicated and slow, as in the case of Italy, and the high variable cost of notaries, as in France and Germany. A good solution would be to standardize information or support on-line access.” (Suárez, 2004)

In practice the single market for mortgage credit has not yet developed (Hardt, 2000, p. 21). The EU commission initiated in 2003 an analysis of the integration of the mortgage credit market in the EU in recognition of its importance for the economy at large and for borrowers and lenders in particular.

As part of the analysis of the EU inner market in the mortgage finance sector a number of background reports and studies were prepared, and consultations were made both with representatives of the mortgage industry and with consumers. Of particular relevance here is the

- Study on the Financial Integration of European Mortgage Markets, Mercer Oliver Wyman, EMF, 2003
- Study on the Valuation of Property for Lending Purposes, EMF, 2007
- Study on efficiency of Mortgage Collateral in the European Union prepared by the EMF, (2007)

Milestones in the work of the EU Commission were publication of a series of studies and policy papers, e.g.,

- Green Paper on Mortgage Credit in the EU, 19 July 2005 (Analysis report)
- White Paper on the Integration of EU Mortgage Credit Markets, December 17, 2007 (Recommendations)

The European Union has focused on development of the inner market for financial services and worked on analysis of the barriers for cross-border supply and funding of mortgage credit, and how consumer mobility can be eased or facilitated.

The aim was to assess the obstacles to the creation of a single market for mortgage credit in the EU and to propose possible solutions. The envisioned benefits of an inner market were according to Wyman (2003, p. 8) cost reductions with a potential effect on economic growth.

“In February 2002, the European Financial Services Round Table published a report studying the benefits of a more integrated EU market for financial services. The report concluded that there were significant benefits to be gained from a greater degree of integration of EU retail financial services markets, namely:

- ⊕ Increased product choice
- ⊕ Lower prices
- ⊕ Lower interest rates for borrowers
- ⊕ International diversification of risk
- ⊕ Higher economic growth

The studies on the costs and benefits of integrating the markets for residential mortgages in Europe illustrated how more efficient mortgage credit markets could eventually contribute to economic growth in the EU, e.g. through efficient allocation of capital, lower costs, etc. Indirect benefits would include factors like facilitation of higher labour mobility.

Mortgage credit is also in focus from the consumers' perspective, since the purchase of a dwelling with associated mortgage credit is typically the largest single economic decision in a lifetime. Consumer protection is needed, because “*Mortgage credit markets are amongst the most complex markets in which consumers engage.*” (EU Green paper, 2005, p. 4).

The EU commission had other motives for scrutiny of the mortgage credit market: The challenges of an increasing ageing population in Europe. It is envisaged, that more efficient mortgage credit markets could also potentially enable EU consumers to *maximize their ability to tap into their housing assets* by taking long term credit for equity release, once needed for pension purposes, according to the Green paper.

Activities on development of the recommendations of the white paper have presumably been distracted by the events in the international financial markets during 2008-9.

Policy areas of EU mortgage market integration

The above documents address a range of policy areas concerned with the funding mechanisms, credit conditions and the promotion of responsible lending and borrowing. It can be mentioned that the option of early repayment of credit is regarded as one of the most important issues for integrating EU mortgage markets, but the European mortgage industry does not have a common position in this regard. The Danish mortgage credit system provides exemplary conditions for early repayment.

Of particular relevance for the present study are the recommendations concerned with collateral security: the topics of valuation, land registers and foreclosure procedures:

- Efficiency of land registration procedures
- Protection against hidden charges (no hidden charges)
- Well defined ranking /priority of charges
- Transparency and access to property information
- Accurate and transparent property valuations
- Efficiency of forced sales legislation and procedures.

It is documented in the studies that inefficiencies in these areas ...”raise the cost of doing business for mortgage lenders, increase the uncertainty for investors about the quality of the underlying security and elevate refinancing costs, reducing the efficiency of existing providers and deterring new market entrants”, (EU-Whitepaper, 2007, p. 8).

In other words, security of collateral affects mortgage credit costs, credit affordability and thus access to credit according to the EU-Whitepaper. It is suggested that the above list of issues, may also serve as a checklist for screening feasibility of mortgage finance development in emerging markets.

The idea of introducing standard Euro-mortgages hinges on guaranteeing security of the underlying collateral. As long as there are different levels of certainty (uncertainty) in the underlying legal systems and property registration systems, then banks will be hesitant to issue Euro-mortgages according to Pleuger, and van Loenen (in their response to the EU Green Paper on Mortgage Credit in the EU, (2005, p. 1).

In specific, a lack of acceptable foreclosure efficiency constitutes a critical barrier for the development of mortgage credit across Europe.

How important collateral security is for development of the European mortgage market is clearly expressed by the European Mortgage Federation:

“The efficiency of mortgage collateral is at the core of mortgage lenders’ activities. In this context, efficiency is measured in terms of simplicity, transparency, rapidity and costs. These conditions must be adhered to throughout the whole procedure, starting with the constitution of the mortgage collateral and following with its registration and execution.

The efficiency of mortgage collateral has become even more important with the implementation of the Capital Requirements Directive. Indeed, the mortgage guarantee is a significant risk-reducing factor, which justifies a privileged weighting of mortgage loans as opposed to non-secured loans. However, this risk-reducing effect provided by the mortgage surety largely depends both on the efficiency of the national procedures and on the cross-border enforceability of the surety.”

(Ref.: EMF-2007, Study on the Efficiency of mortgage collateral in the European Union)

At the same time, the Commission does not see reason to depart from the well-established principle that the law applicable to the collateral is the law of the country in which the property is situated, (EU- Green paper, 2005, p. 10). It would also be unrealistic to take a different position, because “Harmonisation of Land Register law, and law of contracts and obligations and rights in land is difficult, if not impossible” according to Pleuger and van Loenen (comments to EU Green paper, 2005, p. 1).

Instead the Commission supports cooperative efforts across Europe in development of technology platforms and metadata, which would facilitate access to national registration systems, through the EU-LIS project, and other activities like the monitoring of performance in foreclosure procedures, (scoreboards). Hereby the centrality for development of the mortgage market of the issues of property rights registration and information is underlined, *-even in European countries where ownership is well defined and systems well established.*

It can be concluded that the basics of defined and registered property rights are in place all over Europe, but that the current challenge of the property rights sector is to match the financial sectors’ advanced performance criteria. This is not just a question of satisfying the financial sector operators, but about making credit cheaper and thus more accessible to the benefit of the general public wishing to enter the property market, whereby it becomes a matter of concern for economic growth.

A-II: THE DANISH MORTGAGE FINANCE SYSTEM

2. Introduction to the Danish Mortgage Finance System

2.1 Approach and Overview

Overview of the presentation of the Danish Mortgage Finance System

The central topic of the Danish Mortgage Finance system is covered below at different levels of detail.

At first the basic principles are introduced (Chapter 2) followed by selected summary statistics before delving into the details. The descriptive sections serve to feature characteristics of the financing so as to describe its core ideas and basic building blocks.

A presentation of the Danish Mortgage Finance system will always include its unique 200-year long history (Realkreditraadet, 2010, <http://www.realkreditraadet.dk/Default.aspx?ID=1311>).

The overview of the history of the system is presented here with the purpose of mapping out its development path in context with other developments in society, so as to prepare for an analysis of the features of the system itself, as well as conditions and events that shaped its development.

A summary time line is representing selected historic events together with main events in the history of the Danish mortgage finance system in Chapter. The focus is on the dynamics of Danish mortgage financing and its evolution over time in response to conditionalities in markets and institutions.

The time dimension plays different and important roles in the analysis. Economic development is a phenomenon defined in time. The importance of mapping out time lines of development also stems from time being an inherent dimension of real credit. Mortgage credit is characterized as a long term commitment typically spanning across decades, during which external conditions are bound to change.

Mapping out events and mechanisms of change of mortgage credit in Denmark over time shall also be seen as part of the methodology of exploring the relations between mortgage lending and its context (Næss, Jensen, 2002), as described in Part IO, Chapter 3.1. Causes and effects can be studied through mechanisms and events occurring in the complexity of mortgage finance in interaction with its environment and conditions over time.

The history is described and commented by century followed by statistics to underpin the description and analysis:

- Growth of the Mortgage Credit Associations of the 19.th century (Chapter 4)
- Mortgage finance and urban development in the 20th century (Chapter 5)
- Developments in Danish mortgage finance in the 21th century (Chapter 6)
- Selected Statistics on development of the Danish Mortgage market (Chapter 7)

Chapter 8: A Discussion of the Characteristics of the Danish Mortgage Finance System

Chapter 9: A Discussion of Special Features of the Danish Mortgage Finance System

On this basis, more detailed chapters go into depth with analysis of selected topics, in support of development of criteria for introduction of Danish Mortgage Finance to other countries:

Chapter 10: The legal framework of the Danish mortgage credit and specialized mortgage banks

Chapter 11: On Security of Collateral – Valuation

Finally propositions on prerequisites for transplanting Danish Mortgage Finance elsewhere are outlined in

Chapter 12: From development path to development indicators

The wealth of material available on Danish mortgage finance has made exploration of the topic truly fascinating and challenging. The present description relies on collated information from a range of sources, so the presentation is indebted to solid and detailed works of writers over a long time span. Not all sources are quoted all the time, since that would make the text heavy, and much information can be found in many different sources not all quoted. The general principle applied has been to include few quotations and references in the general presentations, while the level of detail in references is higher in the detailed description and analysis. None the less, the presentation is incomplete by any standards partly due to the complexity of the topics, partly due to fundamental limitations of the study.

A Brief Overview of the Historical Roots of the Danish Mortgage Banks

One of the reasons, why studying the Danish Mortgage Finance system is opening wide perspectives, is its unique, century long history.

The Danish mortgage finance model originated from Germany, and was first applied in Denmark in 1797 for extending housing credit to property owners hit by a devastating fire in Copenhagen in 1795.

The first Danish mortgage finance facility, 'Kreditkassen af Husejere i København', was established as an association of lenders, while later associations were formed as associations of borrowers. 'Kreditkassen' remained the only one for decades until the first mortgage credit act was passed in 1850 opening for establishment of MCAs across the country. By 1860 five regional mortgage credit associations had been founded and in operation to a degree that they had already impacted on the character of the credit market. The MCA matured and developed to be fully consolidated by the end of the 19th century.

The mortgage financing system was introduced at a time, when society went through a transition from a largely subsistence based agrarian economy in the beginning of 19th century towards specialization, urbanization and a money economy in the latter part of the century.

The Danish mortgage credit system was rooted in democratic principles embedded in the mortgage credit associations, that provided mortgage loans based on property value, and joint and several liability among borrowers, who were also the members/owners of the mortgage credit associations (as described in further detail in chapter A.9.2).

The cooperative form of mortgage credit associations was in tune with the popular cooperative movement playing such a strong role in 19th century Denmark. Like the cooperative movement mortgage credit associations operated on market conditions under full personal responsibility, so they were not charity based, but applied a social organizational model based on solidarity principles among members and democratic control.

The original structure of mortgage credit associations was not profit-oriented as such, but the surplus generated was added to the reserves for protecting the parties against loss. Accumulated serial funds were in principle owned by the borrowers in each bond/loan-series, and bonuses could be paid out, if the reserves permitted so.

Mortgage financing through mortgage credit associations grew steadily by the end of the 19th century to reach its highest level by around 1910 with an outstanding mortgage credit constituting about 75% of GDP. The specialized Danish mortgage banks have been modernized and adapted to new market conditions, and have continued to play a central role in the national mortgage market. The depth of the mortgage credit market currently equals or exceeds GDP.

The system has provided a high level of liquidity to the Danish economy by raising funds in the capital market at low risk and at no cost to the Danish tax payers.

2.2 The Core of the Danish Mortgage Finance System: the Balance Principle

The Balance Principle

The founding idea of the Danish Mortgage Credit Associations /Institutes (MCI) is to provide long term financing of real property and to serve as an intermediate between the borrower and lender. Danish MCIs were originally (and until recently) formed as associations of borrowers (in one exception as associations of lenders), and borrowers carried joint and several responsibility for outstanding debt against the mortgage association in addition to the collateral of their individual mortgages, a layer of security now replaced by other types of capital coverage.

The Danish mortgage finance system is a market based model built on the so-called balance principle, see Fig. A.3.

Loans are financed through concurrent issue of bonds under identical conditions of duration, currency, interest rates and amortization. Specialized mortgage credit institutes, since 1989 also called mortgage banks, act as market intermediaries, which both issue and service the loans and bonds. In this way cash flows are kept simple, and the Danish mortgage-credit bonds are described as “pass-through” securities (UN-ECE, 2005). The core feature of the financing system is its simple and robust funding (securitization) model.

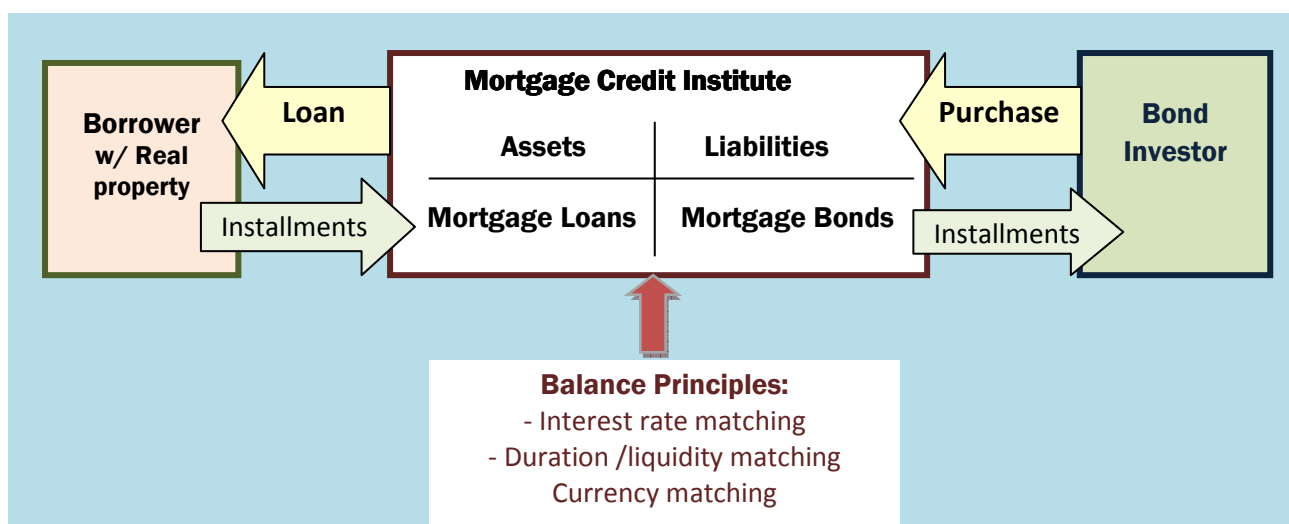


Figure A.3. The Balance Principle of Securitization (Source IMF, 2006, p. 5)

Loan capital is raised through issue of standardized and anonymized covered bonds with a nominal value, currency and interest rate identical to the loan, and these bonds are (in principle) sold by the borrower on the financial market. The proceeds of the loan determine the effective interest rate, which have always been determined by the market. Loans were and are long term and non-callable from the side of the lender, but callable by the borrower. In other words, the borrower can pay back the loan at any time by buying back the corresponding bonds at market value, or the outstanding debt at par-value, without being exposed to paying penalty interest (but a standard administration fee is levied). Thanks to the early redemption option, the Danish mortgage finance system has counter-cyclical qualities, and turn-over in the mortgage bond market is high.

The Danish mortgage finance system is vertically integrated, so that the three functions in mortgage financing are all held by the Mortgage Credit Institution (UN-ECE, 2005, p. 12):

- *Origination*: the initial granting and funding of the loan;
- *Ultimate holding and funding*: the eventual holding (and thus funding) of the loan; and
- *Servicing*: the arrangements to facilitate timely payment of principal and interest.

Hereby the mortgage finance system is designed with an inbuilt healthy incentive structure, since the credit risk remains on the balance of the mortgage credit institution. The simple and transparent funding

mechanism reduces risks and overhead costs, and standardized loans protect borrowers against predatory lending.

Although loans are provided through capital invested in the corresponding amount of covered bonds, the investors will have a claim against the Mortgage Institute, not the individual borrower, while the Mortgage Credit Institution in turn have secured collateral in the pledged properties, and investors are covered by additional tiers of security in base capital and reserve-funds of the Mortgage Credit Institute (MCI). As long as MCI were constituted as associations, lenders were also secured by members' solidarity coverage, a feature which has lately been replaced by standard capital coverage.

In accordance with the balance principle, bonds are issued on a daily basis (tap issue) in standard series to finance each type of mortgage credit with similar conditions of amortization pursuant to the Mortgage Credit Act (§22). Mortgage bonds issued in the same series are secured by associated "collateral pools" of the pledged properties.

Mortgage securities, also called covered bonds, are traded on the stock exchange, which ensures full transparency, and for many reasons (classical) Danish covered bonds are considered secure and liquid financial assets at the level of sovereign debt securities. Due to the principles embedded in the system and the regulatory framework Danish mortgage bonds are standardized mass investment instruments, so that investors do not need to conduct a scrutiny of the issuers' economic status, or of the collateral of the bonds (Bjerre-Nielsen in Realkreditrådet, 1997).

"§19 Mortgage-credit bonds shall be negotiable mass debt instruments or securities and shall be admitted for public quotation on a stock exchange." (Mortgage Credit Act of 2003)

Originally investors in bonds could cash in their regular yields corresponding to each payment from borrowers by submitting coupons (attached to their security documents) to the Mortgage credit association. Early redemption of outstanding debt resulted in withdrawal from the market of a corresponding amount of bonds by repaying investors their outstanding capital at nominal value, if the borrower did not buy up bonds at market price to clear the debt.

Withdrawal of bonds took traditionally place according to a lottery principle by use of the serial numbers of each "winning" bond. Now withdrawal occurs as a proportional repayment of each holder of bonds in the series, and takes place through fully electronic processes (BRF, http://www.brf.dk/C1256F5C005ADF31/alldocs/DOCJWIK-5LFCKZ#bogstav_U).

The ability to attract capital is a critical part of the mortgage credit system. Therefore, a principle concern behind the Danish mortgage credit regulations is the protection of the investor in mortgage-credit bonds (Realkreditrådet 1999, p.7).

The low risk is also ensured by the fenced off collateral pool and investors' preferential status in case of bankruptcy of the Mortgage Credit Institution.

Each series of mortgage credit loans and covered bonds have a fenced off reserve fund of a minimum size determined by law. Investors in bonds have a claim against the mortgage credit institution, which carry the credit risk, i.e., they hold the mortgage credit and bonds on their balance sheets. Mortgage credit institutes cover their operations and build own capital by levying an administrative fee on all loans, to be paid by the borrower with each installment, generally in the order of 0,5 % of the outstanding principle of the loan. The charge covers administration costs and contributes to generating buffers against losses, which have generally been small throughout a 200 year long historic record. Therefore the charge has helped build reserve capital. The rather low administrative fees can also be accredited to standardization and a considerable economy of scale achieved through loan volume, and a competitive but consolidated business structure. Due to recent developments in the capital market, some mortgage credit institutions seem to be raising and differentiating administration fees, if financial oversight and competition legislation permits.

The legal provisions of the Mortgage Credit Act safeguard serial reserve funds of each loan/bond series from the other funds of mortgage-credit institution (§26), and also protect the interest of the bond investors through the base capital and other capital coverage in the (unlikely) case of bankruptcy of the mortgage credit institution.

The securities profile of standard Danish mortgage bonds fits well for long term investors such as e.g., pension funds. Indeed, the mortgage credit system depends on institutional investors and “market makers” to ensure continuous trading. In Denmark major banks have entered into a voluntary agreement on a market maker scheme (Danske Bank, 2007).

Volume and affordability

Danish covered bonds are issued on a daily basis in very large sizes (so-called tap-issue), and the market is facilitated by a market-making scheme among the largest banks to ensure a liquidity for the bonds. In addition large auctions are held, when Adjustable Rate Mortgages are being refinanced, typically in December (Golin, 2006, pp. 102-3).

Volume is determining for MCI operational costs and profitability and thereby for credit affordability, and a good retail network for sales of mortgage credit is therefore a factor to be counted in, when developing mortgage credit elsewhere.

Volume is also a quality from an investment perspective, because larger series of mortgage bonds are generally more liquid and thus more attractive for investors, in accordance with the original concept of Danish mortgage bonds as “Standardized Mass debt instruments” (Mortgage Credit Act, 2003, §19).

If Danish covered bonds perform well in the capital market, borrowers will achieve a higher provenue when selling the underlying bonds of their credit, which will translate into a lower effective interest rate. However, volume is not desirable, if competition among mortgage credit institutions results in lowering standards. Early writers on mortgage credit discussed this issue and the topic is still discussed from time to time.

Market competition is a balance act in the business of mortgage credit, so a market based model depends on ethics and business standards on the short term. On the long term market mechanisms will always punish irresponsible lending, but at high costs for the involved parties, and eventually for the economy as a whole, if the scale is grand. However, Danish mortgage credit institutions have a long track record of high business standards with resulting high ratings in the capital market.

Overview of risks pertaining to securitization based on the balance principle

Lower risks translates into lower interest rates and means lower costs of credit, thus - all other factors equal - higher affordability. Availability of cheaper mortgage credit affects affordability of housing, and as such is a matter of macroeconomic importance.

For these reasons the risk profile of the Danish Mortgage finance system is highly relevant to not only investors, but practically all citizens. In this regard, the balance principle of securitization is characterized by its in-built elimination of many risk factors compared to other forms of real credit.

Through the balance principle of securitization are mitigated a number of risks pertaining to other mortgage finance models:

- The currency exchange rate risk is eliminated because the currency denomination of the credit and its securities is identical, so that cash flows occur in one, pre-selected currency. Danish mortgage finance institutions issue credit/securities either in DKK or in Euro;
- Interest rate risks for the Mortgage Credit institution are taken over by and into account by investors, when the bonds are traded on the market.
- Interest rate risks for borrowers in a volatile market are mitigated by the borrowers’ access to early redemption of the loan through buying the associated bonds at market price, or by access to prepayment at par;
- Investors assess the risks of prepayment and the risk is reflected in market bids (market rates)

- Liquidity risks of the Mortgage credit institutions are minimized with the balance principle and the practice that the mortgage banks follow. Since there is a complete match between the loans and the bonds issued, the payments of installments by the borrowers match the payments to the holders of the bonds (pass-through securities), whereby the cash flow is kept simple and liquidity risks reduced (Realkreditrådet 2009);
- Additional layers of security for investors are provided by the MCI through strict capital coverage requirements and financial supervision as regulated by special legislation.
- Mortgage Credit is regulated through the mortgage credit act with stringent provisions on maximum LTVs and appraisal rules;
- Finally, mortgage credit institutes are mono-line businesses not permitted to engage in (other) banking or investment activities.

As a result of the capitalization process according to the balance principle and the Danish mortgage credit legislation, the main risk remaining held by the mortgage credit institute is the credit risk. For the investor it is the (remote) risk of default by the mortgage credit institution itself. As concerns the latter, no Danish mortgage credit institutes have fallen into bankruptcy during its over 200 years' history.

“The Danish mortgage credit model has a unique balance principle and market based repayment system. The Danish mortgage credit market is therefore characterized by transparency, competition and stability. In reality, the Danish mortgage credit system is without liquidity and refinancing risk.” Realkreditrådet, 2009

Indeed, the low risk profile of the funding instruments of mortgage credit has benefitted the borrowers at large by providing long term financing to the housing sector (and other sectors) in Denmark at close to capital market interest rates.

Since the system by itself is clear and stringent, the key risk factor remaining with the mortgage institution is the credit risk: if the borrower will (be able to) honour the debt, and in case of default, if the collateral is accessible, and if the collateral value is adequate to cover outstanding mortgage debt. These topics are here discussed under the general term of “collateral security” regarding the underlying real assets, chapter 9-10.

It can be added that collateral pools are not segregated by type of property or geographic area: The collateral pool of each bond series is dynamic, diversified and substitutable (In contrast to collateral pools of the US Mortgage Backed Securities).

Credit risk is hinged on both Loan-To-Value rates (LTV) and on valuation, since collateral security depends on a prudent assessment of the underlying property, and on lending limits, so that outstanding debt will be covered in case of default. Thus mortgage finance depends on the quality and security of collateral.

The balance principle creates transparency for borrower and investors alike. The financing system becomes easier understandable to borrowers and investors through the issue of credit with standard conditions and standard securities. A transparent property market and supportive infrastructure adds to the low risk environment to the benefit of all (Realkreditrådet, 2009).

It can be concluded that the construction of the Danish mortgage credit system peels off layers of financial risks from the mortgage credit institution, while also protecting the interest of the market participants. As a result the naked relation between mortgage finance and the real property collateral stands out as the key issue in Danish Mortgage Credit, and illustrate the mechanism described by Sheng et al. (2006, p. 4)

“...finance is a derivative of the real sector” (Sheng, 1999)

In consequence the focus of an analysis of credit risk, is on how the mortgage Credit Institutes depend on various aspects of collateral security as a protection against credit risks: Legal protection of property rights and mortgage pledges, assessment of monetary value of collateral, procedural access to the collateral, property information, etc. (ref. to research question AB.2).

Therefore the role of the security of collateral in mortgage credit is not only the special focus of the present study, but of central importance for the Danish mortgage finance system, since it forms the foundation of the mortgage system at large.

Characteristics of the Danish Mortgage Finance System in Brief

The Danish Mortgage Credit system provides financing of long term credit, but not of intermediate construction and developers' credit, which is typically achieved through the banking system. Similarly, borrowers will need to raise capital through banks, if they do not have own funds to cover the amounts above the maximum Loan to Value limits of the mortgage credit institutions (80% for dwellings). All long term housing credit within the LTV limits are in practice provided through the specialized mortgage credit institutions, due to market preferences, because it is a cheaper and more convenient form of credit in Denmark.

The short term credit and the long term credit arrangements are connected through issue of bank guarantees paid by the borrower. A full credit arrangement for construction of a new house or for acquisition of a house will typically be constructed as combined credit arrangements with bank guarantees, top-up bank loans and long term mortgage credit, involving both a bank and a mortgage credit institution.

The qualities of the Danish mortgage credit system can be accredited to a number of factors, primarily the balance principle (securitization model) characterized by its in-built alignment of interests and incentives.

In summary, the current Danish mortgage credit system is based on the following characteristics:

- Mortgage loans are capitalized (securitized) by simultaneous issue of mortgage bonds with mirrored conditions of the loan re. interest rates and amortization based on the balance principle (match funding);
- Mortgage credit bonds are anonymized, standardized securities issued in large series, and traded on the stock exchange;
- Effective interest rates are market determined and transparent;
- Mortgage loans are issued against collateral security in the borrower's real property;
- Mortgage loans are granted as long term loans on terms strictly regulated by the Mortgage Credit Act including maximum LTVs defined by property class;
- Loans are non-callable by the lender;
- Borrowers have access to early redemption (without penalty) by buying the underlying mortgage-credit bonds at market price, or repay at par value;
- Specialized non-stately mortgage banks act as market intermediaries and both issue, hold and service loans and bonds;
- The mortgage credit risk stays on the balance sheet of the issuing mortgage institution and is not passed on to the investors in bonds;
- Mortgage Credit Institutes act under a strict regulatory regime and supervision, and are not allowed to enter into other banking activities;
- Bond Investors have complete knowledge of the security of the bonds based on collateral in real property, within the regulated limits, and based on additional tiers of capital coverage of the mortgage bank;
- Investors in mortgage bonds have a preferential status to the collateral pool in case of bankruptcy, and are also protected by additional capital coverage;
- In the 200-year history of mortgage credit in Denmark no investors in Danish mortgage bonds have suffered losses due to the default of a mortgage bank;
- The model of securitization and organization is low cost due to its simplicity, standardization and trust in the issuing institutions.

The mortgage credit system provided by specialized mortgage credit institutes is the dominant form of housing finance in Denmark. The Danish mortgage finance system is not only dependent on the larger economy; it is also a major factor of the economy as has been illustrated during the latest financial crisis.

The Role of the Danish Mortgage finance System in the Debate on the Financial Crisis

The qualities of the system are highlighted in a number of comparative studies (chapter 1) and by international financial institutions, such as e.g., the International Monetary Fund. As can be seen, the securitization model of the balance principle takes the center stage.

“As a result of a strict interpretation of the balance principle established by the Mortgage Credit Act, the Danish mortgage system is a pass-through system allowing mortgage borrowers to benefit from close to capital market financing conditions. The balance principle imposes strict matching rules between the assets (e.g., mortgage loans) and the liabilities (e.g., mortgage bonds) of mortgage credit institutions. Each new loan is in principle funded by the issuance of new mortgage bonds of equal size and identical cash flow and maturity characteristics. The proceeds from the sale of the bonds are passed to the borrower and similarly, interest and principal payments are passed directly to investors holding mortgage bonds (Figure 1).” Ref: IMF, 2006, p. 5

In Alan Boyce’ testimony for the US House Financial Services Committee, on December 15, 2009, he emphasized the stability provided to the Danish economy through changing times by covered bonds issued according to the balance principle, and suggested that a finance system founded on the balance principle could contribute to remedying the imbalances in the US mortgage market:

“I would like to conclude my testimony by briefly discussing a particular approach to covered bonds that creates significant benefits to homeowners, bondholders and covered bond issuers, and promotes financial stability as well.”

“Despite historic turmoil in financial markets, Danish mortgage bonds have performed remarkably well. No government guarantees for mortgage bonds have been necessary in Denmark. Danish mortgage banks were able to continue lending activities throughout the entire crisis because new bonds were saleable. Consequently, Danish homeowners and companies seeking financing for properties did not experience any limitations attributable to the financial market turmoil. The Danish mortgage system has survived all economic downturns thanks to this strong foundation. Over the years, this foundation has contributed to stabilising the Danish economy.”

“The 200 year success of the European covered bond market is due to its consistently conservative approach. The U.S. covered bond market should copy this and be started with high quality assets and strict standards. Short duration/floating rate assets do not in my opinion belong in covered bonds, at least to start.” (Boyce, 2009) <http://www.finreg21.com/content/covered-bonds-prospects-a-us-market-going-forward>

The qualities emphasized by Boyce (Boyce, 2009) were how covered bonds based on special legislation, and on the balance principle, create an attractive finance system both for investors and borrowers with stabilizing effects on the economy:

- The securitization principle is simple and robust, and it largely eliminates risks other than credit risk;
- There is match-funding and simple cash flows;
- Healthy Incentive structures align the interests of borrowers and investors;
- The securitization model is market based with full transparency and low cost, with standardization, easier to assess for investors (less need for rating agencies);
- Trust in mortgage credit institution is based on the underlying securitization principles, collateral security, legislation and not the least a long unblemished historical track record;
- Special legislation on covered bonds defines strict Loan-To-Value ratios, conservative property assessments, etc.
- The reliance on the market means that the mortgage financing system must perform to be able to attract investors, generate volume;
- A focus on protecting investors’ interest is also beneficial for borrowers, since low risk, high security and quality of collateral assures lower costs of capital /cheaper credit.

The need for specialized legislation is emphasized by investors, since strict regulation of LTV’s, collateral types, assessments, etc. strengthen the confidence in covered bonds, in contrast to more complex and in-transparent financial products.

Danish bonds are low risk assets and therefore very liquid in an asset class comparable to sovereign covered bonds (‘statsobligationer’).

The well proven and robust securitization model of the balance principle is currently being challenged by new international capital coverage regulations, and the new (draft) international regulatory requirements (Basel III) do not fully recognize the low risk quality of the Danish covered bonds. The mortgage finance system is dependent on holding mortgage bonds in reserve e.g., to facility early redemption, and Danish mortgage bonds are also widely serving as liquid assets on the balance sheets of Danish financial institutes.

Therefore, the new international capital market requirements may potentially have grave consequences, not only for the mortgage financing system in Denmark, but to the whole capital market (Engberg Jensen, 2010), and thus be costly to Danish citizens – for no good reason. The issue is still being negotiated (September, 2010).

This is a topsy-turvy world of punishing a well-functioning financial system for the shortcomings of others.

2.4 Summary data on the Danish Mortgage Market

Profile of Danish Mortgage Finance Market

The Danish mortgage credit system is characterized by its high share of all real credit and by a high volume in both absolute terms and relative to GDP. Market penetration of mortgage credit institutions is consequently high in Denmark: About 90% of the Danish real credit is financed through the mortgage securitization system, while only 10% of mortgage lending is provided through the banks as bank loans.

Not alone does mortgage credit through the specialized Mortgage Credit institutes constitute the dominant source of real credit in Denmark, it is also in absolute terms at a high level. If all types of mortgage debt are included, total mortgage credit exceeds GDP. Residential mortgage debt relative to GDP is one of the highest in Europe, 95.3% (2008) only exceeded by Iceland and the Netherlands in 2008, <http://www.hypo.org/Content/default.asp?PageID=414>.

In other words, the mortgage finance system provides a huge amount of liquidity to the Danish economy.

NOTE: Data on the Danish mortgage credit market can be obtained from a number of national sources: Statistics Denmark, <http://www.statbank.dk/statbank5a/default.asp?w=1280>, the mortgage industry, e.g., www.realkreditraadet.dk, The Danish Nationalbanken, <http://nationalbanken.statistikbank.dk/statbank5a/default.asp?w=1280> Realkreditrådet, <http://www.realkreditraadet.dk/Statistikker.aspx>; and VP Securities A/S, www.vp.dk

Mortgage Finance Institutions (MCI) in Denmark

As a market based financial system, mortgage credit and bonds are also products to be sold in the market. Changes of legislation in 1989, (conversion to shareholding company structure), opening the market towards EU actors, and changes occurred in 2002 in the legislation allowing the Banking sector to establish MCIs as independent business entities within their consortiums.

As with other market services, volume is a precondition for rational and efficient business operations, for reducing overhead costs, and thus for costs of credit. Volume has been growing steadily over the latest decade as a reflection of higher property prices over the same period.

Outstanding Mortgage Debt Billion DKK	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Subsidised housing	147	150	153	157	160	161	165	167	166	166	165	162	163
Private rental housing	54	60	65	71	78	88	102	119	142	168	192	213	222
Privately owned dwellings	519	571	614	647	703	766	833	881	1.005	1.120	1.219	1.281	1.335
Agricultural holdings	117	123	130	134	136	150	163	173	187	201	227	250	269
Industry and Crafts	36	35	38	38	39	40	43	43	41	43	47	50	50
Commercial properties	70	73	76	77	83	90	96	105	122	134	157	199	221
Other	16	17	18	18	21	22	23	23	25	26	28	30	31
In Total	959	1.028	1.094	1.143	1.219	1.317	1.424	1.512	1.687	1.858	2.036	2.186	2.291

Table A.7. Total Outstanding Mortgage Debt (=Circulating Mortgage Bonds) to Mortgage Credit Banks by Property Category, Denmark 1997-2009. Source: Realkreditrådet og Realkreditforeningen, Annual statistics 2009, table 36, <http://www.realkreditforeningen.dk/content/dk5/statistik/arsstatistik>

Market penetration of the Mortgage credit institutes shall also be seen as a product of their distribution network. The modern business structure has developed into forming a symbiosis between MCI, banks and real estate agents. In consequence there are now fewer and larger actors on the market.

Ownership structure of the Mortgage Industry in Denmark:

Mortgage Credit Institutions owned by customers and funds, members of the Realkreditrådet, are:

BRFkredit a/s, www.brf.dk
 FIH Realkredit A/S, www.fih.dk
 DLR Kredit A/S, www.dlr.dk
 Nykredit Realkredit A/S, <http://www.nykredit.dk/> and
 Totalkredit A/S, <http://www.totalkredit.dk/TKdk/page?js=t>

The following three mortgage credit institutes are owned by financial consortiums as shareholder companies, and represented by Realkreditforeningen, www.realkreditforeningen.dk:

Realkredit Danmark A/S, www.rd.dk
 Nordea Kredit Realkreditaktieselskab, www.nordeakredit.dk and
 LR Realkredit A/S, www.lr-realkredit.dk

Market concentration is high. By 2003, the five largest mortgage credit institutes represented 95% of outstanding mortgage debt in DKK, and Nykredit A/S is the largest of all with a market share of above 40% (IMF, 2006, p. 4), and 75% of the mortgage credit is provided through the two largest mortgage credit institutions, but the competition supervision board is monitoring the mortgage credit area. More statistics is available from the above links.

Composition of mortgage portfolio

Historically, mortgage credit was to a large part funding development in the agricultural sector in concordance with the agrarian character of the economy. Other businesses sectors have also had access to financing through real credit, but transformation of society is also reflected in relative changes in the structure of mortgage lending activities. With urbanization the share of the residential credit market has grown significantly to become dominant among the Mortgage Credit market segments, a trend reinforced during recent years, with house price inflation and remortgaging opportunities (Realkredit Danmark, 2007).

Over the latest decade the lending for residential loans of mortgage credit institutes has been made up between 70-80 % of all outstanding mortgage debt, while the remaining of the credit was issued for commercial properties.

In 2008 outstanding mortgage debt issued by mortgage credit institutes for residential purposes made up 88,5 % of GDP, while mortgage debt for owner-occupied dwellings constituted 75,9 % of GDP, and constituted 58,6% of total outstanding mortgage debt.

Mortgage-credit outstanding debt, Year 2008	Mortgage credit All sectors	Credit - Owner occupied dwellings	Credit – all dwellings, excl. subsidies housing
All maturities	2.165 billion dkk	1.277 billion dkk	1.494 billion dkk
% of GDP 2008* (1688 billion dkk)	129,5%	75,9%	88,5%

Sources: Realkreditrådet og Realkreditforeningen, 2009, Statistics Denmark, www.dst.dk

GDP 2008*: Gross domestic product, 2008, Current prices 1688 billion dkk, www.dst.dk

(Source: tables 1 and 37, 'Realkreditrådets Årsstatistik' 2008, combined with GDP statistics of the www.dst.dk)

The large market segment of residential mortgage debt demonstrates that dwellings serve *as collateral*, but does not necessarily show what the proceeds of the loans have been applied for, whether for housing investments, business investments, or for consumption (withdrawal of equity). As an example specialized mortgage products are offered for e.g., pensioners with considerable housing equity, who wish to withdraw equity. What proceeds of loans are applied for has been investigated through customer surveys conducted by the industry, see <http://www.realkreditraadet.dk/Aktueli/Analyser.aspx>.

Defaults and Foreclosure

A strong indicator of the conditions in the mortgage credit market is the development in late payments, foreclosure and forced sales. These indicators are followed continuously through the National Statistical Service, and by the Mortgage Industry represented by the “Realkreditrådet”, and by “Realkreditforeningen”. The transparency in the default process is part of a (well) functioning system, which acts swiftly in case of late payments. The average time from default to a forced sale is effectuated is typically 6 months, ref. to Chapter A.10.3.

Overdue payments – delinquencies - to mortgage credit institutes serve as an indicator of difficulties in the market, but are not equal to foreclosures, Fig. A.4:

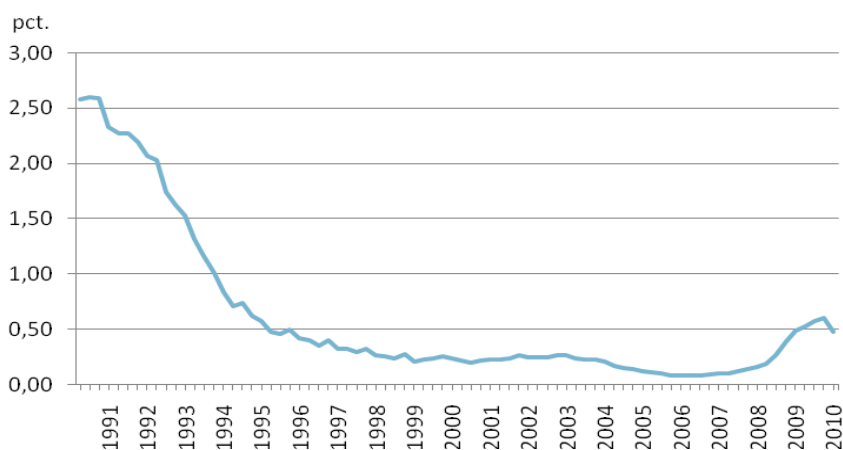


Figure A.4. Total number of delinquencies (payments more than 3,5 months overdue) 1991-2010, Source: Realkreditraadet and Realkreditforeningen, Graph from www.realkreditraadet.dk

Total number of Foreclosures is in fig. A.5 illustrated with total number of bankruptcies by year since 1993. The statistics illustrate that the crisis in the Danish housing market in the 1990's was deeper than the more recent one.

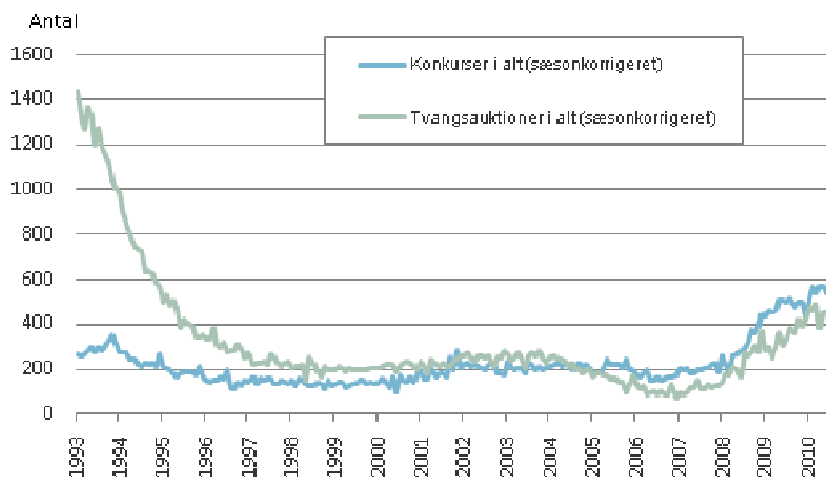


Figure A. 5. Total number of bankruptcies and of forced sales 1993-2010Source: Statistics Denmark including data of July 2010. Graph from www.realkredittadet.dk**The Danish Mortgage Credit and Bonds market in European perspective**

Comparative European studies on mortgage financing are facilitated by information collated by the European Mortgage Federation, EMF, including both general statistics and country studies, www.hypo.org. An understanding of the national markets is aided by EMF- country profiles representing key characteristics of each national mortgage and housing market in a condense form with links to source data.

The EMF Country fact sheets have served as a model for proposals in Part B on screening for readiness of mortgage credit in new markets, ref. to Chapter B.9.4. The EMF Country fact sheet Denmark is available at: <http://www.hypo.org/Content/default.asp?PageID=420>.

The mortgage industry is put in perspective by key data on the housing market and macroeconomic indicators, as illustrated by selected data.

Residential Mortgage loans 2008	EU 27	Denmark	Sources
Population 000's	495,916	5,460	EMF
Total dwelling stock 000's	n.a.	2,684	EMF
GDP mio. Euro	12.504.352,7	232,499	Eurostat
GDP growth	2.9%	1.8%	EMF
Unemployment rate	7.1%	3.7%	EMF
Inflation	2.4%	2.3%	EMF
% owner occupied housing	70.4%	54.0%	EMF
Residential Mortgage loans per capita, € 000s	11.25	38.71	EMF
Total value of residential loans, € million	6,146,672	211,381	EMF
Mortgage (residential) loans as % of GDP	50,1	92,8	EMF
Outstanding non-residential loans, € million	n.a.	61,527	EMF
Annual % house price growth	7.8%	2.0%	EMF
Typical mortgage rate (Euro area)	5.1%	5.9%	EMF
Outstanding Covered Bonds as % outstanding residential lending	16.0%	100.0%	EMF

Table A.8. Danish residential mortgage market data compared with EU 27 averages in 2008Sources: European Mortgage Federation, 2007; "HYPOSTAT 2007 A REVIEW OF EUROPE'S MORTGAGE AND HOUSING MARKETS" European Statistics: <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>

Seen in a European perspective the ratio of household indebtedness has increased significantly between 1998 and 2008 in all countries, as shown by Eurostat data, table A.9. Denmark is among the countries with highest outstanding mortgage debt in relation to GDP, and also having had a high growth rate in the period, despite the low level of owner occupancy.

Residential Mortgage Debt to GDP ratio (%), 1998 – 2008	1998 % of GDP	2008 % of GDP	% growth in mortgage debt 1998-2008
Austria	n/a	25.3	n/a
Belgium	26.5	39.8	13.3
Bulgaria	n/a	11.6	n/a
Cyprus	n/a	50.2	n/a
Czech Republic	n/a	10.8	n/a
Denmark	75,0	95,3	20,3
Estonia	3.7	39.2	35.5
Finland	29.5	47.5	18.0
France	20.0	35.9	15.9
Germany	51.9	46.1	-5.8
Greece	6.3	32.0	25.7
Hungary	n/a	14.0	n/a

Ireland	26.5	80.0	53.1
Italy	7.8	19.8	12.0
Latvia	n/a	31.2	n/a
Lithuania	0.9	17.3	16.4
Luxembourg	23.3	43.5	20.2
Malta	n/a	38.8	n/a
The Netherlands	60.8	99.1	38.3
Poland	1.5	15.6	14.3
Portugal	n/a	63.3	n/a
Romania	n/a	4.0	n/a
Slovakia	n/a	13.2	n/a
Slovenia	n/a	9.1	n/a
Spain	23.8	62.0	38.2
Sweden	44.5	60.6	16.1
UK	50.6	80.5	29.9
EU27	33.2	49.8	16.6

Table A.9 Residential Mortgage Debt to GDP ratio (%), 1998 – 2008 (EMF, Hypostat)

Source: European Mortgage Federation, Eurostat

What is not evident from table A.9 above is what were the property market developments and added housing quality achieved in the same period. To put the above into perspective there is needed indicators on housing quality or living space standards (no. of persons /room, or /sqm), but compared to many other countries the average no. of inhabitants per dwelling unit in Denmark was low (about 2 in 2008).

Despite the EU open market mortgage lending is still mainly a national activity. Danish mortgage lending across boundaries in Europe yet in its infancy, see Nykredit: <http://www.nykredit.com/internationallending>.

Until recently the covered bond markets were typically domestic markets, but also this has changed recently, in part facilitated by the introduction of the Euro in 2000.

Covered Bonds are gaining importance in other markets as well, because of their robust character, especially after the turbulence in the financial markets following the subprime crisis. The quality of the financial assets build on the quality of the asset pool securing the bonds, that is collateral, base capital and other forms of overcollateralization of the securities as defined by law.

More European countries work on introducing covered bonds, e.g., Finland in 2005, just as the traditional markets of German Pfandbriefe has been revived since 1995 through issue of large volumes of bonds, so-called jumbo-series, with pertaining mechanisms to ensure high liquidity of these financial assets (Golin, 2006).

On the European capital market, the Danish Mortgage securities, Danish mortgage bonds, constitute a substantial proportion of the European covered bonds market: second only to the German covered bonds, http://www.realkrediraadet.dk/Branchen/Det_danske_realkreditsystem/Markedet_for_obligationer_til_finansiering_af_realkreditlån.aspx

Outstanding Mortgage Debt 2008		
	BillionDKK	Share in %
Denmark	2.726	25
Spain	2.347	21
Germany	1.619	15
United Kingdom	1.397	13
Sweden	942	8
France	887	8
<i>Subtotal</i>	<i>9.918</i>	<i>89</i>
EUROPE, IN TOTAL	<u>11.118</u>	

Table A.10. *Outstanding mortgage debt in the six largest European mortgage bond markets 2008, by billion DKK and market share%. Source: Realkreditraadet, 2010 (Annual Report 2009, p. 25, table 1)*

Mortgage bonds dominate the capital market in Denmark, but are also leading in the Europe, see Table 1.10. Even if covered bonds (as a funding instrument for mortgages) are gaining importance in Europe, Denmark is still the largest market as concerns mortgage bonds, constituting 25% of all mortgage bonds in Europe, followed by Spain and Germany, www.hypo.org.

On Financial and Property Market Infrastructure in Denmark

The efficiency of the Danish mortgage market can also be accredited to the functioning of the legal and technical infrastructure supportive of the property market and mortgage pledging.

The financial system depends on the underlying financial infrastructure and the functioning of both the capital market and the real property market. In the financial sector an advanced technical infrastructure has long been in place to register mortgage assets, ownership to financial assets and to manage transactions in the capital market:

Financial assets are registered through the VP Securities system, which issue electronic bonds and secure transactions of financial assets (ownership, clearing of payments). Trading takes place on the stock exchange, but registration of assets and ownership takes place in the technical systems of VP-Securities service (www.vp.com).

Real assets are recorded and legal rights to the assets are recorded through the systems of cadastre and legal registry. Trading in the property market takes place through many channels, with wide access to information placed on the Internet.

Both systems are in worst case covered by extensive guarantees.

Bonds have in Denmark been traded through a digital trading system, since 1983 – the first in the world to do so. Later in 1988 followed digital trading of all stocks in a fully digital registration and transaction system of VP Securities A/S, founded in 1980 as a state agency, but in 2000 converted to a private shareholding company owned by the main actors in the Danish market (VP Securities, Annual report 2000). <http://www.finanstilsynet.dk/da/Regler-og-praksis/Lovsamling.aspx>.

Real property has been formally registered in public registration systems before introduction of mortgage credit associations in a system based on codified traditions (Jyske lov, 1241) and upgraded with public administration over the centuries.

Mortgage pledges were registered at local courts in Denmark since the 18th century. The sophistication of mortgage pledging had by the 1830's reached a level, which permitted remortgaging while keeping priority rank of registration. Prior to the first democratic constitution was passed in 1849 a fully functioning cadastre and land registry was in place in the whole country (1844).

Until 2009, legal registration has taken place on the basis of physical documents, but by September, 2009, the whole system was converted to digital and instant registration. Applications for registration process were previously processed during in average 5 days, although it occasionally took longer- up to three weeks - especially during peak periods of remortgaging. With the conversion to digital registration transactions are instantly entered into the registry through user access to on-line services.

A III. DEVELOPMENT PATH OF THE DANISH MORTGAGE CREDIT SYSTEM

3. EARLY HISTORY of Mortgage Finance in Denmark

3.1 The origin of the mortgage credit system

Copenhagen House Owners' Real Credit Association of 1797

The Danish Mortgage Finance system traces its historical roots to 1795, when a fire in Copenhagen burned down more than 900 buildings – a quarter of the city - and insurance savings only met half of the capital required for reconstruction (Realkreditrådet, 1997). Further capital was raised through creating a real credit association in 1797, in the form of a Real Credit facility based on the balance principle with issue of covered bonds and solidarity coverage amongst *lenders* to cushion their risks. Credit could be achieved equivalent to up to 75% of the fire-insurance value (Westlund, 1967). The Copenhagen Credit association (“Kreditkassen for Husejere i København”) was inspired by the mortgage credit association of Hamburg founded in 1782. The securitization model stemmed from Schlesia in Preussia, where a credit association among large estate-holders was established already in 1770 (Hein, 1888, p. 412).

According to Westlund (1967, p. 42), the “Copenhagen House owners’ Real Credit Association” was the first modern mortgage association, because its purpose was that of raising capital to its members, whereas previous associations were established to help real estate owners getting rid of more expensive mortgages.

The “Copenhagen House owners’ Real Credit Association” was limited in purpose and area until it achieved permission in 1802 to expand membership to house owners outside the narrow city limits. It remained the only mortgage credit institution of its kind in Denmark for about 50 years, due to unfavourable historical circumstances and economic crisis in the beginning of the 19.th century. The state bankruptcy in 1813 brought the Copenhagen Credit association in difficulties, as it affected the relative value of liabilities and assets, but the state was a guarantor of the bonds (Westlund, 1967).

The Copenhagen House owners’ Real Credit Association stayed afloat albeit with difficulty, and managed to consolidate its activities during the period up to 1850 at a time when financial institutions were in their infancy, and it continued its independent operations until 1975, when it was merged with BRF-Kredit. The first Danish mortgage credit association can thus demonstrate an unbroken historic record since 1797 (Realkreditrådet, replicated in Møller, Nielsen, 1997).

The first Danish mortgage association was providing real credit based on a functioning cadastre of well defined properties and legal registration system. Already in 1690 a pioneering cadastre was completed over the properties in Copenhagen city within the city walls according to survey measurements by the scientist, Ole Rømer, a cadastre which has been complete and functioning ever since. Property rights including mortgage pledges were secured through a century old legal registry system, “tinglæsning”, which since 1738 was kept in the form of legal registry protocols (Olsen, 2008, p. 17).

The experience with fires in Copenhagen resulted in mandatory fire insurance coverage at an early time in Denmark, which - as a side effect - has created valuable statistics on insurance value of building stock in Denmark over long time series (Møller, Nielsen 1997).

Emergence of Mortgage Credit Associations

Attempts to introduce more mortgage credit associations in Denmark – beyond the existing one in Copenhagen city – had failed during the early years of the 19th century, when Denmark went through troublesome times of involvement in international conflict and the Danish State went bankrupt in 1813, followed by monetary reform and state regulations. As a consequence there was little capital available, and the prices of properties were at such a low level, that they were considered of insufficient value to serve as collateral. Development of institutionalized credit was also kept back by a fear for venturing into major

credit commitments in the generations, who experienced the traumas of inflation and deflation in the early 19.th century in Denmark (Hansen, 1976, p. 118).

Irrespectively, the idea of establishing more credit association in Denmark grew among persons of the learned elite, while authorities were hesitant or even fearful of such novelties (Hein, 1888). Mortgage credit associations started to develop early in other European countries as well, e.g. in Holland and Sweden, but it was in particular German mortgage credit organization that inspired later developments of mortgage credit associations in Denmark (Westlund, 1967).

The demand in Denmark for mortgage credit had increased with the economic recovery in the first part of the 19.th century. The demand for credit came originally from the agricultural sector (Glud, 1951, pp. 21-22). A need for rural credit arose in the wake of the agricultural reforms, to help farmers to be released from feudal tenure and achieve self-ownership. Land consolidation had also created a demand for investments in constructions etc.

Prices of agricultural products more than doubled from 1830 to 1845, so that investments became economically feasible (Hansen, 1976). A rather active market of private credit existed already, but credit conditions at that time depended on the goodwill of the lender. Self-ownership without improved access to long term credit was not considered attractive. The risk of the lender calling the debt, could lead to a forced sale, which therefore held back the conversion to individual tenure, according to Glud (1951, p. 25). Lenders were also known to be selective about collateral at disadvantage to certain categories of agricultural holdings and to locations at a distance from economic centers.

The Danish economy was still to a large degree subsistence based and the money economy was small. There was little financial infrastructure. The National Bank was founded in 1818 initially as a private shareholding company, and the first commercial bank (Fyns Disconto-kasse) was founded in 1846. Much trading went over Hamburg, Copenhagen was in economic decline, and Denmark did not get a unified currency until the money reform in 1873 (Hansen, 1976).

In this atmosphere the idea of *savings* associations spread out prior to credit associations, since saving schemes were promoted as a buffer against poverty. The first savings association was established in 1810 on initiative of an outstanding member of the rural elite (Count Holstein, Holsteinborg), and others followed. However, the funds of savings associations were initially deposited in the National Bank - not reinvested, so the macroeconomic effect was a decline in money supply (Hansen, 1976, p. 119).

The economic growth of the 1830ies – 40es illustrated the lack of capital-movement from areas with surplus capital to areas in demand of credit, and how the communication limited exchange. A capital market could not easily arise without financial intermediaries. Dissatisfaction arose both among farmers and the growing town-occupations with the situation of capital movements towards the capital city rather than towards areas in need of capital for investments. The call for an active credit policy across the whole country was voiced through the peoples' assemblies constituted in 1834 by the monarch as popular councils prior to the democratic constitution of 1849. It was e.g. demanded by the people's councils that the National Bank establish local branches, and they asked the National Bank to provide real credit within 33% of property values, a demand, which was dismissed.

In 1837 the national economist, A. F. Bergsøe, was awarded a three year stipendium from "Finanskollegiet" (the State overseer of money and banking at the time) to explore the state of art of mortgage credit associations and to draft a proposal on mortgage credit associations. Bergsøe focused on rural mortgage credit associations and went on a study tour to Germany, where he did get acquainted with the German associations, although mostly through archives. Unfortunately he missed out on studying valuable experience with well-functioning credit associations - even the Copenhagen credit association - in Lund (Sweden), Hamburg and others mentioned by Westlund (1967, p. 42).

Bergsøe's proposal on foundation of mortgage credit associations (1839) was not to the full satisfaction of his beneficiaries, nor did it materialize in immediate action, but it was successful in stimulating the debate. Hein describes it as part of an 11-year struggle against resistance in the state administration against mortgage

credit associations. One of the issues much debated in his proposal was a proposed maximum Loan To Value of 75%, which was considered too high among his peers. A. F. Bergsøe participated in the preparatory work of the first mortgage credit act and the first associations through the 1840's, and contributed also as a member of the national assembly. He became the first director of 'Statistics Denmark' founded in 1850.

In other aspects the ground was prepared for securitization of mortgage credit. The financial instrument of 'bonds' were in circulation in the early parts of the 19.th century, since European states had issued state bonds that were traded across Europe. The flexible movement of capital through the financial assets of covered bonds, was thus well proven; an experience that constituted an essential factor in economic development later in the century, according to Hansen (1976, Vol. I, p. 117).

It was not until 1849, when the first Danish constitution was instituted, that the legal foundation of freedom rights, including the freedom of association, opened for expansion of the idea of mortgage credit associations (Stubkjær, 2008, p. 254). At this time, owners of capital were keen to invest through institutionalized credit instruments rather than extending individual and personal credit, which was a widespread practice before the advent of commercial banking. An economic trigger of renewed support for mortgage credit associations was a record harvest in 1847.

The first Mortgage Credit Act of 1850 was passed through the New Parliament through a fast process indicative of its widespread support. During the proceedings it was underlined, that the most important and possibly the only critical foundation of mortgage credit associations were reliable valuations of the underlying collateral and maintenance of the properties (Hein, 1888, p. 417).

Therefore, a flash back is made below to other developments of importance for mortgage credit development in Denmark in the area of property rights protection and collateral security.

3.2 Land Reform and Property Rights in Denmark prior to the constitution, 1849

Land Reform and real credit

A countrywide land reform, the enclosure movement, was initiated in the 18.th century and was completed in the early 19.th century (Stubkjær, 2008, pp. 244-247)

The enclosure movement was a structural reform, which laid the ground for a gradual transfer of ownership to individual farmers in the 19.th century, when farmers were relieved from their feudal duties, a process initiated earlier. However, transformation to self-ownership was still in-complete and a hotly debated issue connected to the discussions on development of real credit.

During the land reform, when the banking system was still nascent, private capital held by e.g., large estates, had supplied direct credit not only to the upper agricultural business community, but also for regular farmers, many of whom were helped to become owners of their homestead or farm through credit extended from large estate owners with capital funds (Hansen, Vol. I, pp. 146-7).

Further movement towards specialization and industrialization occurred in the second part of the 19th century primarily through the cooperative movements. Thereby a fundamental transition to freehold farming and growth of crafts, production and trade took place with varying intensity during periods of the century.

Another shift occurred in construction techniques. The historical building tradition of building half-timbered houses ("bindingsværk", a timbered clay construction technique) had made it possible to relocate buildings /constructions during the enclosure movement, because bindingsværk-houses could be taken down and reconstructed elsewhere.

It is noteworthy that the housing construction industry was traditionally based on craftsmanship and local construction materials. Domestic (even local) supplies of building materials grew in response to demand: locally produced bricks became the most prevalent building material. The shift to building houses as brick constructions on foundations demanded another level of investments, thus increased the demand for credit.

It can be seen from the time line of major events that the early structural reforms of the enclosure movement took place *without* institutionalized credit, but the structural changes also resulted in greater social and physical mobility in society and thereby had created a growing need for credit (Hein, 1888).

Property rights and Legal Registration

The growth of mortgage associations shall be seen in the context of developments preceding the first mortgage credit act of 1850, because it is important to note that legal conditions for lending were in place at that time.

Although the law on mortgage associations of 1850 was among the first laws to be passed by the new parliament following the 1849-Constitution, it was actually building on previous reforms of the cadastre and title registration systems, not to mention century old laws protecting property rights.

A general timeline for development of cadastres, title registration and mortgage systems in Denmark shows an interesting path of development with an early high level of tenure security of real property and transparency assured through public announcements of rights including burdens on each property.

The legal registration system is deeply engrained in the Danish institutional framework, and is built on century old principles and practices of publicity first codified in Jyske Lov, 1241. Since time immemorial early types of verbal announcements of transfers and burdening of property took place at the regional customary councils, called “ting”.

Publicity was initially conducted as mandatory verbal announcements of land transactions in front of groups of respected men (Jyske Lov, 1241). Later protocols were introduced to document announcements at these meetings, a system which was eventually converted into the present day land registration system still owing its name to the original council announcement, “Tinglæsning” (reading at the ting), and “Skøde” (deed to document transfer of property rights, with reference to the physical act of passing earth from seller to buyer’s lap). As from 1738 property transactions were recorded in public protocols of deeds and mortgage pledges (Olsen, 2008). The existence of legal provisions on mortgage pledges since early days of property law is in itself evidence of an active, regulated credit market in Denmark for centuries.

Collateral Law was also well developed at an early time, as evidenced by the Legal Handbook by Anders Sandøe Ørsted, Volume 6, 1836, with its 130 page long elaboration of rather sophisticated provisions on mortgage pledges built mainly on the first unified Danish Law Book, (Christian 5.s Danske Lov, 1683). Provisions on mortgage pledges were elaborated by Ørsted on matters of e.g., defining mortgage pledges in order of priority. Of high significance were legal provisions, which allowed for sophisticated credit operations of refinancing by defining in what cases lower priority claims were entitled to move up, when the higher priority pledge was annulled or changed. In brief, these provisions opened for keeping the priority position of a mortgage pledge when refinancing, a feature of paramount importance also in the modern Danish mortgage market.

The history of property law carries evidence of early use of real property as collateral, so that organized mortgage credit on a wider scale could be based on an existing primary mortgage market, and completed, document based cadastre (1844) and a title registration system with protection of burdens against third party interests. Even the first Copenhagen mortgage association of 1797 could be based on a complete cadastre covering that area since 1690 through pioneering efforts of the scientist, Ole Rømer.

Technically, maps and documents from the land reform constituted the basis for the national cadastre under establishment from 1802, whereby also information on land value became part of the cadastre. Assessment had been made of soil quality or agricultural value, a principle applied until the tax reform of 1903, when the market principle was introduced in property valuation and taxation.

Since 1844 all landed property in Denmark has been registered in the cadastre, except for some town areas with town privileges completed later in 1862-1882 (ref. Daugbjerg, Hansen, 2000 and 2007). Due to its

special history special conditions are found in Southern Jutland, which was lost in the war with Germany in 1864, and reunited with Denmark in 1920.

The legal registration system predates the cadastre, but the legal registry has since 1848 (Stubkjær, *Mystery of capital*, p. 253) been tightly connected with the cadastre through the unique cadastral parcel number (Petersen, 1939), a registration principle which has facilitated the establishment of common ID-Keys in the public registers constituting the Spatial Data Infrastructure (SDI).

Later reforms of the title registration system have ensured that security of collateral has not been an obstacle for mortgage credit development, since property rights were both well-defined and protected by the combined system of cadastre and title registration, in combination with foreclosure laws and procedures.

4. History of the Danish Mortgage Finance System in Brief

4.1 Time line of the Danish mortgage credit system: Outline of Development path

Prior to discussing the development path in detail, is provided an overview in the form of a timeline represented by selected events, which have shaped or framed development of mortgage finance in Denmark, e.g., new legislation, urban development, financial infrastructure and political events.

The timeline illustrates how the first mortgage credit institutes were born in parallel with significant economic development to a large degree taking place through the cooperative movements in the second half of the 19.th century. Mortgage associations may or may not be considered part of the cooperative movement, but were born out of the same free spirit. The organizational form of credit associations overcame obstacles in the capital market caused by the lack of financial infrastructure, and widened access to long term credit for a large segment of the population. Membership of credit associations with joint and several liability also contributed to nurturing responsible lending practices and a sound credit culture.

While the aspect of membership democracy in mortgage credit associations has faded over the years, other aspects of the original set up of the mortgage institutions have remained features of the Danish Mortgage system, in particular the balance principle and the issue of bonds in large, closed series for fixed periods and non-callable by the lender. So have the principles of securing the collateral through strict and cautious valuation principles and limited loan to value ratios been a common trait over time. In periods of the history of the Danish mortgage credit system, the problem has even been over-cautious credit policies of the credit associations, which called for development of alternative financing options.

The mortgage credit system is market based, traditionally with a limited role of the state and it functioned for decades without much state control. At the early stage of developments, the mortgage credit system was granted slight privileges by the state - but not direct subsidies - in the form of stamp duty exemption in transaction of bonds, and by permitting protected funds ('Overformynderiet', etc.) to invest in mortgage bonds.

Mortgage Credit associations have been dominant in the Danish market for real credit since the late 19.th century. A precondition for the growth in volume has from the start been the attractiveness of the mortgage bonds for institutional investors, and the development of insurances and pension funds with matching long term investment profiles.

As a result, the securitization model has provided a significant part of the capital needed for construction investments in Denmark since the 1850's through the standardized and anonymized debt instrument of covered bonds traded through a well functioning capital market.

The model of mortgage finance has proven robust and attractive throughout development different stages. Even after the system was disadvantaged through government regulation of mortgage credit during the 1960-80's, it (re-) gained a high degree of market dominance, above 90%, in the 1990's.

Institutional changes have taken place over a long time span with leaps forward tied to new legislation. However, new legislation was often introduced as a reaction to (national) market trends and borrowers' demand.

After World War II a general deductability of interest (irrespective of type of credit) from income tax declarations, has given indirect subsidies to borrowers and contributed to the growth of mortgage finance in Denmark (Vestergaard, 2007). Currently, the tax effect of deductible interest in personal tax declarations is being reduced.

Only recently have the core principles of the Danish Mortgage Credit system been modified, in part for reasons of complying with EU-directives on the open market and on capital coverage requirements.

YEAR	SELCTED EVENTS
1241	Jydske lov
1683	Danske lov
1688	First rural cadastre, but it was not maintained
1690	Copenhagen city cadastre completed based on survey measurements (Ole Rømer) and maintained continuously since then
1738	Provisions for written protocols on deeds and mortgages at the "Tings"
1781 -	Enclosure movement and transformation to freehold farming
1787	Economic rights of tenants in relation to land lords ("stavnsbåndets ophævelse" for karle på landet)
1795	Devastating fire in Copenhagen
1797	<i>Copenhagen Houseowners' Real Credit Association</i>
1802	Introduction of annual tax of all real property in the Kingdom
1807	England attacks Denmark, Bombardement of Copenhagen, loss of the fleet, Denmark becomes an ally of France in its war against England. Accelerating inflation
1808	Introduction of organised trading at the Copenhagen Stock Exchange
1810	First Savings Bank (Sparekasse, Holsteinborg Gods)
1813	State Bankruptcy (Statsbankerot), monetary reform, and levy of extraordinary 6% property charge on all property in Denmark as collateral security for the issue of new money
1814	Norway independent from Denmark
1814	First school law introducing mandatory, common basic education
1818	"Nationalbanken" (= Central Bank) in Copenhagen founded as a private shareholding company
1819	State Loan Fund for agricultural holdings in difficulties (Hansen, 1976, p. 107-108)
1820-25	Agricultural crisis years with high number of forced sales of agricultural holdings (Hansen, 1976, p. 108)
1834	First national census of population
1835	"Legal Handbook" by Anders Sandøe Ørsted with details on collateral law (Ørsted, 1935)
1839	"Justified Proposal for Establishment of a Credit Association of Danish property Owners" by A. F. Bergsøe
1844	Danish cadastre completed for rural areas and minor towns based on enclosure documents & maps; included land use and a classification of land based on assessment of agricultural production potential
1845	Provisions for Land registration based on the cadastre with inscription of properties using their cadastral plot number and with references to previous council protocols of on deeds and mortgages
1846	The first retail bank, "Fyns Disconto-kasse", founded in Odense
1849	First Danish Democratic Constitution, June 5, 1849, granting freedom rights incl. freedom of association
1850	<i>First law on Mortgage Associations of 20.06.1950</i> The credit associations could offer mortgages up to a Loan-To-Value ratio of 60%.
1851	Founding of the Mortgage Associations: "Kreditforening for landejendomsbesiddere i Jylland" (Farm properties) "Kreditforening for grundejere i Sjællands Stift" (Both farms and town properties)
1852	"Kreditforening af Købstadsgrundejere i Nørrejylland" (Urban properties)
1852	Copenhagen expanded outside its city walls, and building activities accelerated
1854	Expansion of the "Kreditforening for grundejere i Sjællands Stift" to "Kreditforening for grundejere i de danske Ø-stifter", so that the credit associations together covered most of the Kingdom
1857	The commercial bank, "Privatbanken", was founded with C. F. Tietgen as its first director
1857	Liberalisation through a new Commercial regulation law (Næringsloven), which dissolved the monopolies of the craftsman guilds, town priviliges, etc. Resolution of the Oeresund Customs with international compensation paid to Denmark
1861	<i>Revision of Law on Mortgage Associations related to reserve fonds and closed series of mortgage bonds, etc.</i>
1863	New cadastre of urban properties (Købstæder) 1863-75;
1864	Danish defeat in war with Preussen. Loss of Southern part of Jutland
1866	First coop-shop (Brugsen i Thisted)
1871	The commercial bank, "Danske Landmandsbank", founded
1873	The commercial bank, "Københavns Handelsbank" founded
1873	Monetary reform in Denmark: Introduction of the Danish crown as single currency
1874	Main railway- lines completed

1879	Foundation of a common organization for Danish Industries and Crafts as an umbrella organization for numerous local associations (håndværkerforeninger, industriforeninger)
1880	Law on Mortgage Credit associations for small holders backed by state guarantees and state subsidies; First mortgage credit associations for small holders established
1882	First cooperative dairy plant in Hjedding, Varde area
1887	Common committee of Credit associations established (Source, Realkreditrådet 25 år, 1997)
1895	First "Hypotek" association offering 2. Priority mortgage credit, to cover a layer of secondary mortgage credit up to 75% of the property value.
1897	Industrial Credit-association founded (Hansen, 1976, p. 309)
1898	Credit association of local municipalities (Hansen, 1976, p. 306)
1899	The State-small holder Act on parceling out of agricultural holdings with provisions for state-credit for establishment, (Hansen, 1976, p. 280)
1901	Political system transition to 'parliamentarism', i.e., election and constitution of governments by the majority in parliament, instead of appointment by the head of state (the monarch)
1902	Common representation of all mortgage associations in a joint committee
1903	Economic reforms including a taxation reform with introduction of income tax and of property taxation based on market value to be assessed through regular, public property valuations (Hansen, 1976, p. 310)
1908	Bank crisis and overheating of construction industry in Copenhagen
1914	Denmark neutral in World War I
1919	Bank Law, Hansen, 1976, p. 313
1920	South Jutland territory reunited to the kingdom of Denmark from Germany as a result of the Vienna peace agreement and a public referendum was held in the border regions to determine the international boundary
1926	<i>New Law on Legal registration (Tinglysning) in force April 1, 1927</i> , with strong protection of secondary interests in property, in particular the security of mortgage pledges
1936	Reform of legislation on Mortgage Associations, including regulation of Hypothec Associations up to Loan to Value ratio of 75%. Supervision of Mortgage institutes through Ministry of Interior
1938	First Town Planning law
1940-45	WW2 Denmark occupied by Germany, but did not suffer major physical damages
1947	Establishment of Ministry of Housing. Supervision of Mortgage Associations transferred to MoH (Ref. Bet. 94, 1987)
1949	Urban regulation law related to general zoning of major urban development areas
1959	Establishment of special funds for lending of mortgage credit to housing purposes of 3. Priority (up to the 75% limit) without solidarity coverage, but backed by guarantees provided by banks and the state (Byggeriets reallånefond, Landsbankernes Reallånefond, Provinsbankernes Reallånefond)
1960	Establishment of 3 special funds for lending of mortgage credit to agricultural properties against 2. Priority collateral security without solidaric responsibility. "Dansk Landbrugs Realkreditfond"
1965	First credit rationing negotiated between the mortgage industry and the state (the National Bank) effective by July 1, 1965
1966	First law on condominiums, June 8, 1966
1969	Realkreditkommissionen af 1966, Betænkning nr. 552, December 1969
1970	Municipal reform resulting in larger administrative units at both local and regional level
1970	New Planning Law with strict zoning of urban, recreational and rural areas. The mortgaging practice increased the effects of the law in respect to hindering of urban sprawl (Stubkjær, Mystery, p 255)
1970	<i>Mortgage Credit Legal Reform</i> : More restrictive loan limits, shorter amortization periods and limitations in credit purposes. Conversion to consolidated mortgage credit (merging of previous 1., 2. and 3. Priority into two layers of priorities), and fusions of mortgage credit and hypotek institutions into MCIs with

	nationwide operations (consolidation of about 25 mortgage credit institutes into 7).
1972	Establishment of “Realkreditrådet”, as a branch representation with public representatives in the board, also having supervisory functions
1973	Denmark joined the European Economic Community following a referendum held in October, 1972
1976	Revised law on Condominiums, Febr. 25, 1976
1980	A revision of the mortgage credit act with consolidation of mortgage credit. Principles of valuation and loan allocation were to be based on cash values (www.brf.dk)
1980	“Værdipapircentralen” (now VP Securities A/S) founded by law as a state agency for development of digital trading of mortgage bonds
1983	Maximum lending limits for owner-occupied dwellings were in 1982 increased from 75 to 80 pct. Expanded access to financing of summer houses; overall adjustments of lending limits and max duration , Realkredit Law nr. 97, 1983 (subsequent numerous changes of lending limits)
1983	Conversion of all mortgage bonds from paper documents to digital registration came in force (first in the world), www.vp.dk
1986	Technical reform of the Copenhagen stock exchange – conversion to digital trading started
1986	Economic plan of financial constraint (“Potato-diet”), including mandatory restrictions on issue of mortgage credit for housing so as to ensure a higher saving during initial years of amortization, according to a model of mixed serial and annuity loans (mix-loans)
1987	Taxation of Mortgage Credit Institutes introduced (previously exempted from tax)
1988	Fully digital registration of transactions of stocks and trading on the Danish stock exchange
1989	<i>The Real credit legal reform of 1989</i> opened up for conversion of credit associations to shareholder companies, and introduced EU-directions into national legislation. New credit institutes were to be established as shareholder companies with defined minimum levels of base capital.
1998	<i>Revision of Law of Mortgage Credit including simplification of lending principles.</i>
2002	Law on Financial Institutions: A reform of the financial sector with consolidation of previous special sector legislation.
2003	<i>Lov om realkreditobligationer og realkreditlån mv. 2003, The mortgage Credit Act (MCA 2003)</i> Restructuring of legal framework on mortgage credit institutes to be regulated partly through new Law on Financial Institutions in force January 1, 2004. The law mortgage credit act also opened for granting of up to 10 years with “interest only” mortgages.
2006	<i>Law on Digital legal registry</i> , LBK 2006-03-06 nr. 158 om tinglysning med indarbejdede ændringer ved lov nr. 539 af 8. Juni 2006 (Digital Tinglysning)
2007	<i>‘Loven om Særligt Dækkede Obligationer etc.’ in force July 1, 2007. New Mortgage Credit Act (MCA 2007) with new types of (overcollateralized) mortgages leading to a modification of the strict balance principle</i>
2008	The international financial crisis affected the housing market in Denmark – stopped the price bobble, but the Danish mortgage credit institutes withstood the crisis, as did the Danish bonds (Jensen, 2010)
2009	Implementation of fully digital legal registry including all documents and on-line real time transactions (Tinglysning), September 8, 2009

The classical form of mortgage credit based on the balance principle was maintained until July 1, 2007. The analysis below is focused on the classical mortgage finance system prior to the latest amendments, which are only mentioned briefly.

4.2 Summary Statistics and Time series on Development of Mortgage Finance in Denmark

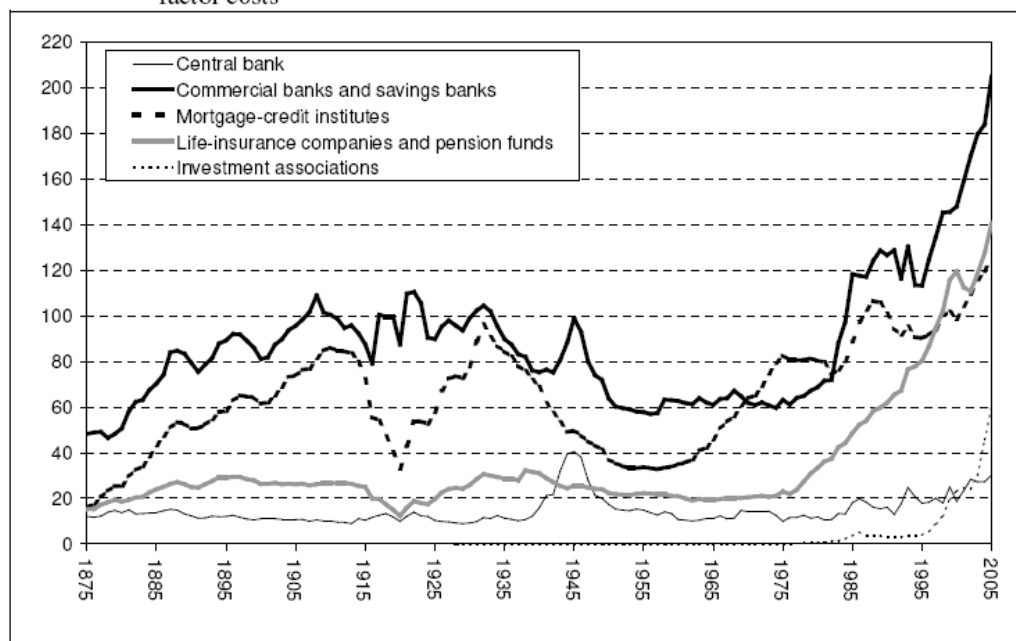
The development path illustrated by statistics

A profile of the Danish mortgage credit system would be incomplete without some statistics to illustrate the quantifiable dimensions of the development path and the mortgage credit market. Statistics does exist in long time series in Denmark, since Statistics Denmark was founded in 1850.

Data representing the suggested indicators presented below might be found for the case of Denmark for establishing long time series with integrated data on GDP, population, urbanization, employment by sectors, property value development, wages, affordability of housing, etc. This is a major venture, since limitations abound in respect to in long time series: Different currencies, statistical methods, incomparable data (Møller & Nielsen, 1997).

The many different sources consulted include fragmented data, which could potentially be merged and presented. However, this was not seen as part of the present study. Instead integrated data from a study conducted by the National Bank of Denmark has been used (Abildgren, 2006, p. 15), see fig 1 and 2 below. The study documents how deep the mortgage credit market was even before World War I, when mortgage credit to GDP even reached about 75% (Abildgren, 2006, fig. 2)

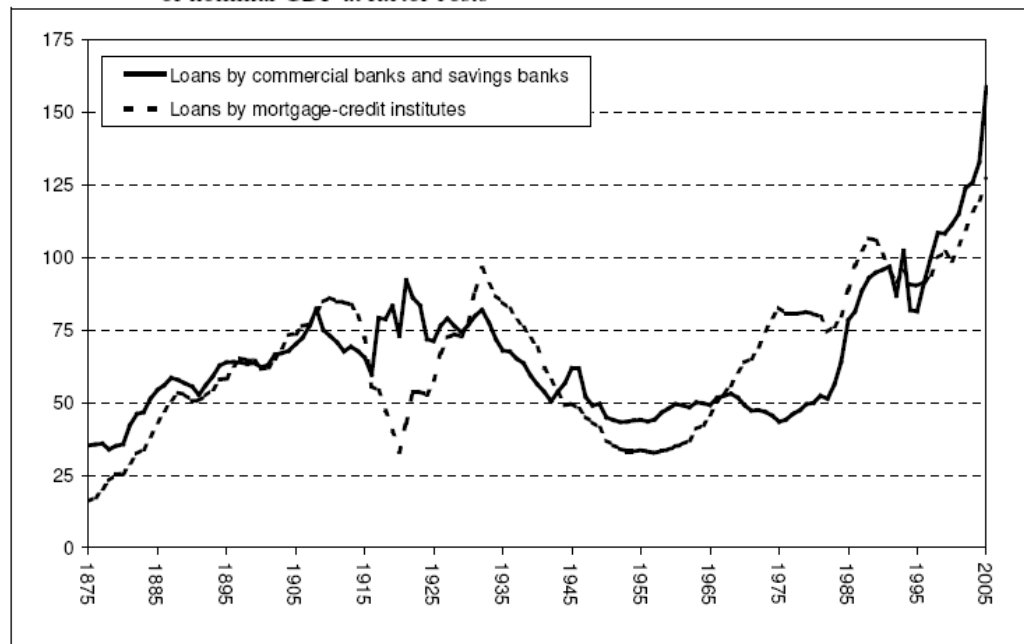
Figure 1: Total financial assets by financial sector 1875-2005, per cent of nominal GDP at factor costs



Sources: See appendix B.

Figure A.6. Total financial assets by financial sector 1875-2005, percent of nominal GDP at factor cost, after Abildgren, 2006, fig. 1.

Figure 2: Outstanding amounts of loans granted by credit institutions 1875-2005, per cent of nominal GDP at factor costs



Sources: See appendix B.

Figure A.7. Outstanding amounts of loans granted by credit institutions 1875-2005, percent of nominal GDP at factor cost, after Abildgren, 2006, fig. 2.

Denmark has long had a complete and secure recording of a range of real property data, e.g., in connection with fire insurance data dating back prior to the first mortgage credit act, 1850. All property rights in Denmark are fully registered in the legal property register, the cadastre, the valuation register, and connected to other types of national databases like the central personal register, and the business register. Therefore, a full extraction on ownership statistics and property types including historical series, and gendered, demographic statistics seems technically feasible. However, such statistics is not currently easily accessible.

Since establishment of the “Realkredittaaet” in 1972, the secretariat has produced statistics of the mortgage industry, so some data sets are available from 1970- (Realkredittaaet)

Disaggregated statistical data would be needed for exploring possible effects of housing finance in respect to e.g., access to housing and price developments in the property market. Lunde (2005) has applied special data extracts derived from annual tax declarations of the tax authorities and the national bank statistics, in order to analyze mortgage credit with a focus on age segments and their capital structure. He recognizes the need for disaggregated data both as concerns data segments and location.

No integrated property market data is available beyond some general statistics provided through Statistics Denmark. Nor is disaggregated statistics readily available to serve an analysis of the property market. The Danish Cadastre and the Land registry are not currently producing disaggregated statistics or time series data. This is a suboptimal situation, where each major user is bound to developing their own statistical systems (mortgage credit institutions, valuation systems, insurance, etc.).

For these reasons much work remains to be done in order to perform a quantitative analysis of the development of mortgage credit in Denmark, but such studies are feasible thanks to rich data available.

Mortgage bonds in the capital market

The capital market is not the focus of the present paper, but the mortgage finance system depends for obvious reasons on offering securities that are attractive to investors. Since the early days of the mortgage credit associations institutional investors have played a central role in capitalizing the finance system. The

growth of mortgage credit in Denmark can be accredited to a parallel growth of demand by institutional investors (insurance, pensions, social funds, etc.)

During the negotiations on the Basel III regulations, the awareness has grown of the large share of Danish mortgage bonds in the investment portfolios and balance sheets in e.g., Danish financial institutes, and pension funds, and high level communication is ongoing to represent the special position of the Danish Mortgage Finance system in the economy (Engberg Jensen, Meeting with EU commissioner, September 16, 2010, http://www.realkreditraadet.dk/News_-_Links/News.aspx?M=News&PID=4377&NewsID=470).

Simple statistics shows that covered bonds in Denmark are predominantly mortgage bonds, and that they dwarf the volume of sovereign bonds.

Financial Assets in Denmark 2009	Billion DKK	%
Shares	1.016	20,9
Mortgage Bonds (Realkreditobligationer)	3.332	68,4
Sovereign Bonds (Statsobligationer)	522	10,7
In Total	4.870	100

Table A.11: Total registered financial assets at VP Securities A/S, Sept. 2009 (www.dst.dk)

Not alone dominant in Denmark, but the Danish covered bonds market makes up 25% of the European mortgage bonds' market in absolute figures, despite the small size of the country (Jensen, Realkreditraadet's Annual report 2009).

The volume of mortgage securities is having a positive impact on the costs of credit both due to mere economy of scale and to the higher liquidity of large series of securities.

The mere volume of mortgage credit and mortgage credit bonds suggests a role in the economy of the Mortgage Credit institutes beyond providing mortgage credit at the level of individual borrowers and investors.

This phenomenon is global: At the European level the mortgage industry itself, through the European Mortgage Federation, EMF, describes the mortgage industry as a major *driver* of the European economy (EMF, 2005).

The importance of the mortgage credit system in the economic system goes beyond the real property sector: The mortgage credit institutes in Denmark have gained a central position in the Danish economy, as confirmed by statements of top leaders at the occasion of the anniversaries celebrated in 1997 (Jelved, Kærsgaard, Hoffmeyer in Realkreditrådet, 1997).

Since mortgage securities constitute the dominant part of the Danish capital market, it can be seen that the real sector in Denmark is therefore indirectly delivering a gigantic volume of liquidity to the Danish economy through the mortgage finance system. This liquidity is resting firmly on the underlying collateral security.

5. The mortgage association movements of the 19.th century

5.1 Pioneering of the mortgage finance system

Denmark recovered from economic crisis in the first quarter of the century with war and state bankruptcy (1813), and entered an economic growth period in the 1840's.

The mortgage credit associations were created in response to a growing demand for mortgage credit among a broad section of society, but the introduction was championed by the aristocracy, notably large estate owners (Westlund, 1967, p. 42).

The Danish mortgage credit associations grew out of widespread demand, not only from borrowers, but also from lenders at a time, when there was hardly any financial infrastructure or institutionalized credit. Borrowers experienced constraints in accessing credit due to the dependency on personal goodwill of the lenders and prevailing loan conditions. Holders of capital on the other hand also had an interest in institutionalized credit, so as to hold more liquid financial assets and to obtain better protection against risks. Private capital could be invested with lower risks and in more flexible assets through the principle of securitization and issue of mortgage bonds traded on the market, rather than in personal credit and direct investments.

Already in the 1830's did the idea of credit associations attracted attention from members of the People's councils, "Stønderforsamlingerne", around the country, and in 1937 ass. Professor, A. F. Bergsøe was awarded funds for a study on mortgage credit associations, as already described. The resulting proposal presented by Bergsøe in 1839 was widely discussed, but neither immediately accepted nor acted upon, although especially local representatives from Jutland were pushing for better access to mortgage credit. Hein describes the process initiated in 1839 as "a struggle" for introduction of mortgage credit associations in Denmark, which could be taken as indicative of the wide need for credit which had been accumulating with the economic recovery after 1820'ies (Hein, 1888, pp. 413-14).

Finally in 1845 at a large meeting held in Jutland, action was taken and a committee elected to work for establishment of a credit association. Before the end of the meeting 28 (mostly large, rural) property owners signed a letter of interest, and by end of the year the commitments had tripled, so that they represented a total loan volume of 3 mill. RDL (6 mill. Kr.). On that basis the group submitted an application to the King for permission to establishment of mortgage association under admission of a few favours from the state, in particular exception from stamp duty of the mortgage bonds (Hein, 1888), but their petition was not yet crowned with success.

The idea of mortgage associations was up against conservatism in the state administration, and it was not until passing of the new constitution on June 5, 1849, that the proposals could be moved forward. The 1849-constitution granted freedom rights, included freedom of association, a critical issue for development of the mortgage system (Stubkjær, 2008, p. 254).

Leading personalities had concurrently pushed for expansion of the mortgage system in order to meet a growing need for organized credit, and had prepared a proposal on private initiative of a new mortgage credit act presented in Parliament on March 23, 1850.

The proposal achieved wide support in the new parliament, but still encountered resistance from the State ministries. Remarkably, the director of the National Bank, State councillor David, was the presenter of the proposal, and argued that the state should remove hindrances for establishment of mortgage associations to the benefit and vitalization of society. David remarked that,

"The practical difficulty in this case is to define guaranties, which are not too burdensome, while still so solid, that these Institutions really deserve the trust, they may have, for serving the visions and objectives, on which they have been founded." (Said by David cited by Hein, 1888, p. 417 (informal translation)).

David's statement holds continued actuality (ref. to latest discussions on Basel II-III). Hein added that the most important and essential, even the only decisive guarantee, must obviously be found in reliable assessments of the collateral value and appropriate control with the required maintenance of these assets.

The law on mortgage credit associations was actually passed by the new parliamentary assembly on June 20, 1850, as one of the first laws on initiative of a large group of respected and influential citizens, mainly large estate owners.

The way the draft law passed through parliament is also indicative of the strong interest and support backing it: The act was signed by the King on June 20, 1850 after having gone through 6 presentations in parliament and commission work in only 2 months. The first Act on Mortgage Credit Associations was actually one of the first new laws after the constitutional reform, and with that legislation in place more real credit institutes could be established.

The Mortgage Credit Act of 1850 permitted creation of mortgage credit institutes as associations of borrowers, a structure akin to the cooperative movement, which shaped early modernization in Denmark.

The group behind the draft law took the next step only a week later, on June 28, 1850, when they invited to a founding meeting of the first Mortgage Credit Association for rural property owners in Jutland. While the initiative was moved quickly forward, slow negotiations with the state administration delayed the constitution of the first mortgage credit association until September 20, 1851, approval in October 1851 by Parliament, and signature by the King on November 21, 1851. Other initiatives followed immediately after, and by the end of 1852 three mortgage associations had been founded with the intention of servicing the whole country.

The First Mortgage Credit Associations in Denmark 1851-1871	Founding date	First Year Loans			Outstanding loans Year 1859-1860	
		Amount, Rdl.	No. Of loans	Avg. LTV	Amount, Rdl.	No. Of loans
Kreditforening for Landejendomsbesiddere i Jylland (rural property)	Dec. 1, 1851	556.250	62	51%	5.395.100	799
Kreditforening af Grundejere i Sjællands Stift* (both rural and urban property)	Dec. 6, 1851	792.700	262	59,6%*	11.751.850	3461
Kreditforeningen af Købstadgrundejere i Nørrejylland** (urban property)	Nov. 19, 1852	1.031.350	404	49,70%	5.450.050	1855
		<u>2.380.300</u>	<u>728</u>		<u>22.597.000</u>	<u>6115</u>
Hypothekslaaneforeningen af Landejendomsbesiddere i Nørrejylland (rural)	Febr. 23, 1858					
Kreditforeningen af Grundejere i Fyns Stift (both rural and urban)	March 20, 1860					
Den vest- og sønderjydske Kreditforening (rural and urban)	Dec. 15, 1860					
Kreditkassen af Landejendomme i Østifterne (rural)	June 12, 1866					
Ny Jydske Kjøbstads-Creditforening (urban)	1871					

Table A.12. The first mortgage credit associations in Denmark 1851-1871

Source: A. Hein, 1899, Note: 1 Rdl. (Rigsdaler) = about 2 Danish Kroner.

*Expanded, by 1854 renamed "Østifternes Kreditforening"; **Came into difficulties from 1858 after the crisis in 1857. Defaults and prepayment so that they came under administration. By legal act of February 19, 1861, establishment of new credit associations was subject to tight regulations and could only be constituted by law.

The first credit associations started well in 1851 and increased their balance steadily until an international crisis struck the market in 1857, when growth came to a stand still for some time. The Danish mortgage credit associations expanded early to supply much needed credit in the agricultural sector, the society being predominantly agrarian at the time, and the first loans were relatively large. But the credit associations emerged too late to play a decisive role in the land reform according to Glud (1951).

The concept of the mortgage associations was championed by leading and respected citizens, and spread fast across the country despite the limited means of communication available at the time, and without any prior distribution networks or banks. Like the cooperative enterprises, the mortgage associations were developed through a strong element of self-organisation and through local mobilization of prospective borrowers, who took responsibility and engaged themselves with effort and assets. New mortgage credit associations could only be constituted with state approval (after 1861 only by law), if they had a prior commitment of at least half a million 'Rigsdaler', a considerable sum at the time. The mortgage credit associations were fully private enterprises, but enjoyed a few privileges, especially exception from stamp duty of mortgage bonds.

The founding ideas and philosophy were reflected in the organizational structure: The mortgage credit associations were from the beginning founded as local associations operating within regions of the country, but geographically overlapping. Some of the associations were targeted at providing credit to particular segments of society, e.g., large farms or urban property (Hein, 1888). Others offered mortgage credit to a range of market segments.

What is remarkable is that already at the start urban credit constituted a significant share of total outstanding debt. This was partly due to the high prices of agricultural products during those years, which allowed farmers to invest from their surplus without lending to some degree. Export of cattle could provide capital for improvements ("*Paa denne Maade antog en Del af Jordvaerdien kontant form.*", Glud 1951, p. 46).

At the same time urban activities grew with increasing specialization, crafts, construction activities and trade. Thus some mortgage associations were also founded for provision of finance to the growing urban sector.

Table A.12 above illustrates that while the first mortgage association had a rural purpose, the push for financing of urban constructions was also strong, and in volume may have exceeded the rural credit at an early point in the history of mortgage associations. Some explanatory factors can be found in the shift in building construction techniques, growing specialization, growth of towns along new railway connections and nodes, etc. From the 1830's to the 1850's the Danish society was converted to an economic growth society, (Hansen, 1976, Vol. I, p. 161).

The share of urban credit is remarkable, but indirectly, urban credit was also easing rural development. Financing urban development was also conducive for rural development, since it opened opportunities for rural surplus population to take up different trades, getting established in crafts and other urban trades, and it served as a financing option for generational transfers.

5.2 The Role of Mortgage Credit Associations in development of the Capital Market

The history of the Danish Mortgage credit system shows how mortgage credit associations (MCAs) grew out of local demand for credit and through mobilization of private capital, or even on initiative of the holders of capital. This shall be seen in the light of mutual interests among borrowers and lenders, since holders of capital were already active in lending and de-facto acted as local banks providing personal loans.

As an example, many large estate holders were interested in attracting local labour after resolution of the feif-system, and they were extending loans to local peasants as mortgages. In comparison, institutionalized credit offered a lot of benefits for lenders, e.g. reduction of risk and higher liquidity of their assets when held in the form of mortgage bonds. For borrowers the access to impersonal credit was also preferable so as to e.g. avoiding needs for guarantors, or the risk of early termination of the loan agreement. In addition, membership of a mortgage credit association offered influence and dignity.

In the beginning the challenge of MCAs was to be attractive for investors and establish confidence in the new securities, mortgage bonds. Bond selling rates were initially low, because investors considered the assets risky. Small-scale savings were typically deposited in the savings banks, which were initially hesitant to invest in mortgage bonds.

The initial expansion of mortgage credit associations despite poor selling rates of bonds on the capital market, could partly be explained by substitution of other debt, an evidence that borrowers were willing to pay a high premium for impersonal credit and the security of loans not being callable by the lender.

It has also been suggested, that credit through mortgage credit associations were initially only taken, when other options were unavailable, or in case of e.g. generational transfers, in-family transactions and other cases, when the selling rate of bonds were less important, because they were not sold on the market, or holders could wait to realize their bonds (Glud, 1951, p. 61).

Low selling rates of bonds resulted in high effective interest rates at a time when the maximum interest was set at 4%. Therefore, the first borrowers in credit associations paid a high effective interest, for which reason credit through savings banks was initially more attractive. However, such credit was only available for some and as long as capital (deposits) sufficed. When an economic crisis hit in 1857, capital shortage forced savings banks to call in outstanding loans, and their costs of credit increased. In this case borrowers were forced to turn to mortgage credit associations that provided credit, non-callable by the lender. No other institutionalized credit options were available (Glud, 1951).

On the other hand Mortgage Bonds can also be seen as overcoming the difficulties of the maximal interest rate: By the market determined rate of bonds, the effective interest rates exceeded the ceiling (Glud 1951, p. 49). Hereby, the mortgage bonds were instrumental in overcoming the political resistance against recognizing the interest rate as a product of the capital market.

Glud suggests that the most important role of the first mortgage credit associations were to stabilize the real credit market alone by the fact that they offered credit to anyone solely based on collateral value, and issued non-callable loans at standard conditions. In contrast other lenders could call in their outstanding credit at short notice, and they were free to be choicy and demand guarantors. Thus other lenders were probably disciplined by the existence of the alterative of mortgage credit associations. Therefore, their importance exceeded their nominal market share according to Glud (1951, p. 47).

It can be concluded that the institution of mortgage credit associations grew out of a high degree of self-organisation in society, facilitated by visionary leading members of society, who served as champions vis-à-vis the state. Moreover, there were complementary interests among borrowers and investors. Good citizens took responsibility for development, and they built a market credit facility based on solidarity principles combined with a sober business approach.

Interestingly, the idea of mortgage credit financing through mortgage bonds did not catch on so strongly in Germany as happened later in Denmark. The social idea might have been similar to the one carrying the credit unions in Germany, as described by Ely:

“Such is the aim of the credit-unions, founded and managed by a warm-hearted humanitarian for the purpose of elevating the moral and material welfare of entire classes of society. They are not charitable institutions. On the contrary, one main object is to render labourers and tradesmen independent; to give them such a consciousness of their own dignity as men as shall make them scorn charity. Their watch-word is “self-help; ..” (Ely, 1881, p. 207)

Founding principles of mortgage credit associations

The credit associations were developed on private initiative, and the support from the state was limited to admitting mortgage credit associations the right to issuance of mortgage bonds ‘in the name of the holder’, exemption from stamp duty when trading bonds, and giving public funds permission to invest in mortgage bonds issued by mortgage credit associations (Hein, 1899, p. 461).

The Mortgage Credit Act of June 20, 1850 did give real credit associations a slightly privileged status compared to bank loans, while it also defined the basic conditions for these privileges:

- Joint and several responsibility among mortgagees towards the MCA to serve as added security for investors in mortgage bonds;
- Loan-to-value at a maximum rate of 60%;

- Regular amortization of loans;
- A complete fulfillment of the balance principle.

Already in the legal basis established in 1850 were included important legal amendments to ensure a more swift legal procedure in case of borrowers defaulting, so as to permit creditors getting effective access to the collateral (Hein, 1888, p. 437).

Mortgage loans were issued with very long periods of amortization: 45-60 years. It can be seen that adherence to a principle of a strict balance between credit and bonds was underlined as a condition for state approval of a mortgage credit association.

Further regulations from the state were rather perceived as hindrances than a helping hand, as the bureaucracy worked at a slow pace. Pursuant to the mortgage credit act of 1850, mortgage credit associations could only be approved by the state upon documentation of a minimum amount of pre-commitments in the form of requested loans /membership (Hein, 1888) amounting to half a million Rdl., a considerable sum at the time.

According to Mortgage Credit Act of 1850, the Danish mortgage credit system was founded on principles of joint and several liability among borrowers, who as members were also owners of the mortgage credit associations. These associations could grant long term mortgage credit up to a maximum of 60 per cent of the value of a property, and loans were granted based on value of the pledged property, without underwriting of the personal conditions of the applicant. The borrower was personally responsible for the loan amount, but the joint liability could only be claimed against the property pledged as collateral for the credit within loan limits.

The organizational form of associations entailed inbuilt democratic rights and responsibilities. The board was elected by the members, and the board members were initially also acting as assessors. In a revision of the mortgage credit act in 1861, organizational changes were introduced, mainly concerning definition of series of mortgage bonds into series with associated fenced off reserve funds. The issue of members' influence on election of assessors and assessments was also addressed with the purpose of avoiding undue interference, which could expose the credit associations' reserve funds to risk.

However, the effect of these changes may not have penetrated the whole system, as the question of independence of assessors from members of the credit associations continued to be a sensitive subject for decades. Also the management issue was a challenge, since the appointment of managers elected by the members (borrowers) in a general assembly did not guarantee their strict independence from potential pressures from members in matters of loan allocation. Adjustments to the management structures occurred over time to cope with various difficulties, and associations developed into financial institutions under professional management with a separation of policies and administration, although this may not in all cases have hindered malpractices (Hein, 1888).

The revised law on mortgage associations of 1861 established the principle of closed series of bonds, each having their independent accounts, whereby at the same time uncertainty of ownership of accumulated reserves in the mortgage associations was addressed. The law revision of 1861 also opened up for credit associations expanding geographically, but new credit associations could after 1861 only be established with parliament approval by law through a cumbersome process. Mortgage credit associations were obliged to submit their quarterly accounts, statute changes, etc., which were subject to approval and possible sanction by the ministry of interior (Hein, 1888, p. 438).

In this way, the basic principles of the Danish mortgage credit system were in place by 1861.

The founding principle of mortgage credit institutes as associations of borrowers was maintained well into the latter part of 20.th century, until a major structural reform of the system in the 1980's opened for mortgage credit institutions to be established as (or converted to) shareholder companies.

It can be seen that a high degree of social organization and private initiative, “social capital”, played a pivotal role in the early development of the mortgage credit system.

Mortgage credit associations and early market development

The balance of Mortgage Associations grew significantly from 1852 from 16.3 mio. Kr to 98,2 mill Dkk in 1872, while the GNP doubled during the same period (Møller and Nielsen, 1997, p. 83).

Tables A.12-13 illustrate that the mortgage associations grew steadily to provide a significant part of the institutionalized credit, and that the total institutionalized credit market expanded with exceptional growth rates during the 1850’s, perhaps stimulated by competition in a diversified market.

Value of Outstanding Loans	National Bank Mio. DKK	Banks Mio. DKK	Savings Associations	Mortgage Credit Associations	Copenhagen Houseowners’ Credit Association	Total Mio. DKK
1830	7	-	0	-	7	14
1835	8	-	0	-	9	17
1840	23	-	1	-	11	35
1845	43	-	5	-	12	60
1850	46	1	10	-	13	70
1854	50	1	24	12	15	102
1859	48	9	46	46	16	165

Source: Dansk pengehistorie, bind I. Diverse tabeller, (også i Hansen, 1976, Vol. I, p. 154)

Table A.13. Value of outstanding loans in millions of Danish Crowns (Hansen, 1976)

It can be seen that few years after introduction of the mortgage credit associations, their outstanding loans constituted - together with the existing credit association- the largest source of real credit, which by any standards is a remarkable quick market penetration.

It seems that the credit associations emerged too late to have had a role in the agricultural structural reform (enclosure movement), but played a role in financing self-ownership of individual family holdings. But the rural share of mortgage credit should not be overestimated. Hansen (1976, Vol. I, p. 159) estimated that less than half of the individual holdings emerging in that period obtained credit through mortgage associations, and that less than half of the outstanding mortgage credit provided through mortgage credit associations in 1860 was provided for agricultural holdings..

This shall be seen in the context of self-financing and personal credit still being the most common capital source of investments until the 1870’s. Although significant innovations were created in the Danish credit market over that period, Hansen (1976) estimates that at the end of the 1850’s only 25-30% of investments were based on institutionalized credit. On the other hand it is also impressive how a novel and demanding type of credit institution could expand so widely in just a decade considering the communication means and infrastructure of the time.

It is a common assessment that mortgage associations offered credit to a large group of borrowers, who might have been left with less attractive options for critical investments, if that line of credit had not been developed (Glud 1951). In particular the access to credit based on the principle of collateral value only was a valuable option compared to personal credit, if available at all.

5.3 The credit market and investors in mortgage bonds

Savings versus credit associations

The expansion of real credit by savings banks in the same period is explained by the Savings banks starting to lend money instead of depositing funds in the national bank, and that credit through savings banks was cheaper compared to mortgage credit associations. The limit to growth of savings banks was their limitations

in attracting deposits. Initially, the relation between MCA's and savings banks was competitive, but it developed into a symbiosis, when savings banks started to invest in mortgage bonds, and different market roles emerged. In the latter part of the 19.th century savings banks took on a special role of financing investments of the cooperative enterprises characteristic of the time (Hansen, 1976, p.1 56).

The growth of the volume of outstanding debt of mortgage credit associations shows that the Danish mortgage bonds offered a competitive long term investment for private investors as well as for institutional investors. It is noted that in the same period emerged the growth of insurance companies and pension funds, which then (and now) constitute perhaps the most important type of investors of mortgage bonds for reasons that their investment requirements match the bond profile, since they are secure, long term investments available in large volumes. ("Statsanstalten for livsforsikring", 1842, and others, http://oldwww.sa.dk/brug_arkivet/rasaml/efter1848/industri/B1247.htm)

By 1880 the mortgage credit associations had established their role in the Danish capital market as provider of practically all real credit within the (LTV) limits determined by law (Glud, 1951, p. 77).

Demographics, Housing and the Capital Market

Even if Denmark was still mostly an agrarian society with 55% of the population engaged in agriculture by 1860, the first decade of mortgage credit associations was dominated by credit provided to borrowers for construction (Hansen, p. 159). The credit financed construction activities in rural as well as in urban areas, but the urban share of the mortgage credit portfolio at this early stage is remarkable. Population growth increased the demand for housing, and society underwent social and democratic changes, which resulted in rural to urban migration, and some immigration overseas. During 1850-1914 in total about 300.000 Danes immigrated (16% of the population growth), but this was only half the immigration level seen in Norway and Sweden, where poverty hit harder. The highest level of immigration to overseas destinations from Denmark occurred in the mid 1880's (Hansen, 1976, p. 240-241). The total population in Denmark in Year 1901 was 2,45 million (www.dst.dk).

Concurrent with the demographic dynamics arose a need for financing solid constructions and infrastructure and craftsmanship. The number of workshops in the construction sector ballooned between 1840 and 1901. The number of bricklayers rose from 10.000 in 1840 to 53.000 in 1901. In a similar way small local enterprises emerged producing local building materials, e.g. bricks. The growth in number of tile-producers and the volumes produced are illustrative indicators of the boom in construction activities: No. of tile works grew from 1.200 in 1840 to 12.000 in 1901, (Håndværkets kulturhistorie, 1984, Volume 4, p. 17).

This is mentioned here, because current housing finance experts recommend - and emphasise the importance of - developing a local supply of construction materials in emerging economies, because of its double effect on improving affordability by both creating employment and decreasing building material costs.

The Danish credit market was rather deep even prior to introduction of the mortgage credit associations. Total mortgage credit provided for agricultural holdings through different types of financing was estimated to constitute about 33% of the holding value by year 1849 (Hansen, p. 213). The demand for agrarian credit grew towards the 1880's when farmers experienced a golden period of buying cheap grain from abroad and expanding their animal production, for which they needed credit for construction of new barns (Westlund, 1967, p. 44). There seems to have been a parallel growth of outstanding debt and growth in value of assets as represented by the insurance coverage (value) according to (Glud, 1951, p. 104).

The total debt burden in the agricultural sector grew in the latter part of the century to constitute as much as 55% around 1885-99, when, unfortunately, the sector was hit by an agricultural crisis.

At this time, the growth in outstanding debt became worrying, because property prices fell drastically. In some cases properties taken over by the mortgage credit associations could only be sold at 36% of their assessed values. The crisis hit the larger properties harder than smaller holdings, so the crisis created incentives for further subdivision of large rural holdings. During the worst crisis years in the 1880's forced sales reached as high as 10%, but certain geographic areas and certain mortgage credit associations were harder hit than others, partly due to their lending practices (Hein, 1888).

A growth in outstanding mortgage debt may not provide the full picture, because during crisis periods borrowers seem to have used mortgage credit to substitute more expensive (short term) credit, which in turn had a positive effect on savings banks' deposits.

A significant part of the agricultural sector was dependent for its continued existence on access to capital in order to maintain and expand a production, which on one side was profitable, but on the other side did not generating sufficient short term profits for long term investments. Farmers increasingly depended on real credit supplied through the mortgage credit associations, because these were the only institutions proven capable of supporting the sector under the given circumstances (Glud, p. 105). However, the lending limits were a constraint.

This resulted in preparation of draft legislation on so-called Hypotek Banks for provision of real credit secured as secondary priority pledges. The politicians promoted the proposal with reference to its potential of attracting foreign capital at lower interest, with an expected effect of raising property values. Reorganization of the mortgage credit sector was thus aimed at attracting capital and achieving lower effective interest rates, a matter of cardinal importance for the agricultural economy (Glud 1951, p. 106).

When the national economy eventually recovered in the 1890'ies a lending limit of 60% of the value of pledged property was experienced as a constraint under accelerated growth, and higher lending limits were called for. Therefore higher maximum credit limits were introduced in 1895 along with establishment of the first Hypothek Association founded in 1895 as a mortgage credit institution providing mortgage credit with security in second priority mortgage pledges of up to 75% of asset values.

The problem of low selling rates for mortgage bonds during the 1880s changed into challenges associated with high selling rates of bonds in the 1890s resulting in low effective interest rates, which enabled higher indebtedness, and systematic conversion of debt in the years 1894-95. This was also a period when experiments were made with new mortgage products.

From 1890 to 1900 the outstanding of mortgage debt of Mortgage Credit Associations grew from about 420 mill to about 700 mill Dkk. In parallel the commercial banks also expanded: The number of retail banks doubled (Glud, 1951, p. 108).

MORTGAGE CREDIT GROWTH Mill. DKK, Denmark 1895-99	1895	1896	1897	1898	1899
<i>Growth in real credit, Mill. Kr. Total</i>	72	67	76	115	98
Of this 1. Priority debt	67	64	49	76	65
Growth in Mortgage Credit Association outstanding debt	52	46	28	27	24
Growth in Savings Banks outstanding real credit	8	7	9	13	9
<i>Source: Troels Glud, 1951, p. 107</i>					

Table A.14. Mortgage Credit development 1895-1899

By Law of April 24, 1896, mortgage credit associations were allowed to provide 'Interest Only' mortgage credit within 1/3 of assessed property values, and at the same time the maximum duration of mortgage credit was fixed at 60 years (Glud 1951, p. 110-111). But IO-mortgages were no success, because the associated bonds were not seen as attractive by investors at the time, and only a volume of 4 mill kr was issued. Another new form of mixed credit (partly amortized and partly IO) was launched, but associated bonds sold at low prices. However, these mixed securities gained a certain success by issue of loans and bonds of in total 150 mill kr.

Although the results of these experimental mortgage products were not highly successful, Glud remarks that

"...at that time there had already been built such a common trust in existing assets and property rights, that there were no major worries of issuing eternal real credit" (Glud, 1951, p. 112, informal translation).

It was only later that Mortgage Credit Associations wished to close outstanding commitments of this kind following their experience with asset value volatility, and attempts to 'expropriate land value' through taxation and introduce other limitations in property rights.

Another sign of maturity in the capital market were the efforts to increase market value of mortgage bonds or to convert loans to benefit from low bond prices. Refinancing through conversion was one way of taking advantage of the low selling rates, and this could alleviate the debt burden, in so far as property values could permit taking new mortgage credit. Such operations depended on functioning legislation and practices. The legal registry and land laws permitted sophisticated operations of registration of burdens (mortgage pledges) in priority and re-financing while keeping the priority rank, and had been in place prior to introduction of mortgage credit associations (Ørsted, 1835).

A relative large conversion took place in 1895 on the initiative of mortgage credit associations in a cooperative effort aimed at both reducing interest rates and extending amortization period to ease the debt burden in especially the agricultural sector. Borrowers also benefitted from the conversion by reducing their nominal outstanding debt, of high importance in a property market with falling prices. The cost of conversion including extraordinary installments paid to investors was financed partly through the serial reserve funds owned by the members of each respective series (Glud 1951, p. 117). This is a case illustrating how a mortgage credit association served all its members to achieve more favourable loan conditions.

Export of bonds constituted about 8% of the MCA's circulating bonds in 1891 and reached 14% by 1912, predominantly those backed by state guarantees (Glud 1951, p. 124). Export of mortgage bonds was stopped from the mid 1930's to the 1960's for special reasons.

It was discussed how foreign capital could be attracted to the Danish bond market, e.g., through a unified standard security. However, the idea of introducing a common bond to substitute the great variety of mortgage bonds was debated lively, but dismissed around year 1900.

Thus the Danish mortgage credit market displayed both maturity and reached an advanced level of functionality prior to year 1900. It can also be concluded that trust in the underlying property rights as well as in financial assets was built over time, and rested on a firm legal fundament.

5.4 Small Holders' Access to Credit and Expansion of the Mortgage Market

Profile of borrowers

The Danish mortgage credit associations were from the start directed at providing long term credit at the best possible market conditions with security in real property owned by the borrower. The organizational form, the association, was a social construction in line with the popular, free spirit of the time, from which also grew the cooperative movement so decisive for economic development in Denmark in the 19.th century.

However, their activities cannot be seen as having targeted the poorest segment of society at this point. According to the statutes of the early mortgage credit associations, the value of the property for pledging was to be above a certain minimum value (min. 500 Rdl (1000 kr.) or even 1000 Rdl. (2000 kr.) (Hein 1888, p. 449), but the statistics available suggests that the loans issued during the first decade were relatively large, and therefore supposedly provided for properties of significantly higher values.

The pioneering members of the mortgage associations took out rather large loans, in year 1851 in average about 9000 Rdl (18.000 kr), which means that their properties had been assessed at a value 15000 Rdl or 30.000 kr. It is easy to imagine that it has taken enterprising individuals to put up their property and thus their livelihoods as security in a large and long term commitment at this early stage through a novel channel of financing. On the other hand, there were reported cases of wealthy applicants for loans who were turned down by the mortgage association board, because they were not considered to be in need of credit (Møller and Nielsen, 1997, p. 87).

It was not until much later that the small holders (“husmandsbrug”) got access to real credit through (special) mortgage associations, because their properties were not initially considered of sufficient value to serve as collateral. In 1880 the first credit associations for small holders was established based on a new law, which opened for small holders’ mortgage credit supported by state guarantees and helped by initial state subsidies to cover extra administration costs associated with issue of small loans (Hein, 1888, p. 451-4). Parallel legislation also opened for other forms of long term tenure of small holdings on a rental basis.

The law opening access for small holders to mortgage credit was clearly founded on equitable principles. Under the debate in parliament on the draft law, it was argued that the small holders must have access to credit on equal terms with other citizens, and *that the right to take a mortgage loan was seen as a citizen right*. The Act of April 14, 1893 on establishment of a new mortgage credit association for rural land holders also included provisions for including small holdings without land, but due to the expected higher risk loan limits were set at max 50% of assessed value, and a max duration of 50 years (Glud 1951, p. 109).

Lov af 14. April 1893 om oprettelsen af en ny kreditforening af grundejere på landet i Jylland, der skulle omfatte saadanne bygninger uden jordtilligende.

”Under drøftelserne om Lovforslaget blev det gjort gældende, at de paagældende, der ejede saadanne ejendomme, maatte stilles lige med andre byers borgere, saaledes at retten til at gældsætte sig til kreditforeningern nu opfattedes som egentlig borgerret.” (Glud, 1951, p. 109 with reference to Folketingsforhandlinglinger 1892-93, sp. 1651)

It can be seen that from the start mortgage credit was pioneered by a large group of relatively wealthy, enterprising individuals, who joined the mortgage credit associations or invested in their bonds. When the system had been tested over a quarter century and had been well established in the market, the mortgage credit system spread out to the rest of society and became the most common source of real credit in Denmark. This occurred while the conditions for taking mortgage credit were strictly market based: Everyone knew the grave consequences of not honouring mortgage debt, as had been demonstrated during times of crisis: The foreclosure procedures worked effectively and without mercy. There were no public social security systems cushioning the consequences, either.

Thus, it can be seen that it was avoided from the start to mix the provision of subsidized credit with the market based system of mortgage associations, - a fortunate development step of the Danish mortgage credit system, as recommended by present day housing finance experts (Renaud, Hassler, etc.).

Other Mortgage Credit Associations

The large expansion of the Mortgage credit system was completed in 1898 by founding of the Industrial Mortgage credit association, which despite difficulties was evidence of the high level of confidence in the institution of mortgage credit built over its 50 year history. The securitization model was replicated in building other credit facilities for funding other investments, e.g. in the form of a Municipal Credit Association.

Discussions on the Industrial mortgage association are illustrative of the basic principles of mortgage credit. Questions on assessment of the level of security of collateral values in this type of commercial properties held back their establishment for decades, and when a draft law was eventually presented in parliament (1889) it took another 8 years before it was passed (1897) with a range of inbuilt provisions to limit risks. The burdensome conditions associated with getting access to real credit of this kind resulted from additional conditions of backing the issue of industrial mortgage credit with bank guarantees. In parallel the banking sector grew in sophistication and services, so eventually banks became the more important financial partners of the industrial sector (Glud 1951, p. 113-4).

6. Mortgage finance and urban development in Denmark in the 20.th century

6.1 Growth, Crisis and Transformation of the Mortgage Credit Associations

Growth and Crisis

The Danish economy enjoyed a golden period around 1900 to 1907, and with that grew activities in the housing sector. Copenhagen in particular experienced a huge building boom. But the speculative growth in Copenhagen led to a building bubble that burst in 1908 (Glud 1951 p. 140).

Without going into detail, it is of interest to note that the bust caused a review (conducted by an investigation commission) of the financial sector's role, in particular the mortgage credit associations' role in the bubble. The commission saw mortgage as a natural and normal consequence of the principle on which society rests: free transactions of property and the capitalistic principle. Variations in the debt will therefore follow changes in prices and trade, and the commission did not see the indebtedness as deviating from what had been the average level during the previous 100 years (sic!). They found reassurance in the constant ratio between growth in debt and property values (Glud 1951, p. 154-155).

More specifically it was found that the mortgage credit associations did not play a significant role in the crisis, and that their lending amounted to about and in average 50% of market values. The building fever seemed to have been triggered by a considerable housing shortage around 1900, and a high demand for housing drove up rents to the effect that expected profits of construction reached about 20% (Tobin's $Q \sim 1.2$). Speculation was stimulated also by the National Bank decreasing interest rates in 1902 to 2% instead of raising it, which might have helped stem an overheated market, according to Glud (pp. 144-145). Overall market conditions thus paved the way for high profits until over-speculation resulted in a bust. The review of the bust found that it was primarily made possible by Copenhagen banks, which had been very active in financing speculative investments.

Glud (p. 145) concluded that the MCA impact on the construction sector during these years was not of a direct nature like the bank sector involvement, but indirectly the liquidity of their securities attracted foreign capital, which together with the foreign financing of public debt contributed to high indebtedness.

The depth of the financial market peaked in 1910 at the level of 76,2 % outstanding mortgage debt/GDP (Glud 1951, p. 366-7). Mortgage credit declined during the WWI and later events and only seemed to turn around again in the 1930'es. After WWI levels the 1910 level was not reached again until in the decade from the mid-1970s to the mid-1980s, according to Abildgren (2006), who has analyzed time series of the Danish national accounts from 1875-2005. Abildgren concludes that the mortgage credit institution played a significant role in the Danish economy already in the beginning of the 20th century. Observations made of the MCA's activities and impact, could therefore still be of interest.

The economic depression in the 1930's triggered a fundamental review of the total mortgage finance system, and parliamentary commissions analyzed both the mortgage credit and bonds market during 1933-1936. On that basis the mortgage credit act was revised. Governmental support to suffering borrowers prevented the mortgage finance system from suffering devastating losses, but borrowers were still exposed to the unmerciful effects of the economic crisis.

Transformation

During the early days of the mortgage credit associations, they largely operated each in their geographic and property segment, but as the mortgage system gained momentum, so did market competition amongst them. The Danish Mortgage finance system continued to be based on mortgage associations until financial sector reforms took place in the latter part of the 20th century.

Prior to 1970 there were about 27 different mortgage credit associations in Denmark, but the structure of the market has undergone significant changes since then. A consolidation of MCA's occurred in the 1970's when Denmark joined the European Community, and restructuring continued after 1989, when new legislation opened for a conversion of mortgage credit associations to shareholder companies.

When mortgage credit institutions were transformed into shareholder companies, the profit factor of the shareholders is to be taken into account. However, Mortgage Credit Institutions are specialized mortgage banks operating in a competitive market, and borrowers are not tied to one MCI, since the prepayment option permits borrowers to shop around, if they qualify for normal mortgage credit.

Mortgage credit institutes secure credit by pledging a security interest in the borrower's real property under strict rules of maximum loan to value ratios (LTV) regulated through the Mortgage credit act, and under conservative principles of assessing the property value. A determining factor for expansion of mortgage credit associations was that they offered credit non-callable by the lender.

The original principle of underwriting was that of assessing "bricks" only. Borrowers were not originally to fulfill a condition of being bankable, - banks hardly existed in the early days of the Danish mortgage credit system in the mid-eighteenth century. Applications for loans were considered on the basis of value of collateral only, but since the societies were small and mortgage association representatives knew people in their areas, it cannot be excluded that some other factors could have played a role in allocation of loans.

The prime importance of collateral value and security (and not on personal credit worthiness) was one of the beauties of the classical version of the system. Hereby the Danish mortgage finance system opened for wider access to mortgage credit irrespective of status and age, permitting able citizens to work their way to improving their standard of living and improving their housing standards.

Practices have changed though, and over the latest decades underwriting of applicants' ability to repay debt is part of the ethical codes in responsible lending. New (draft) legislation following the financial crisis during the years of 2007-2009 may further modify the original securitization and underwriting principles.

6.2 Overview of Urban development and mortgage finance in DK in the 20.th century

Accelerated urban growth and mortgage credit

A gradual shift in mortgage credit took place with the increasing demand for housing finance for urbanization. Essential for the quality of urban development in Denmark was early legislation on town planning, which contributed to housing quality through e.g., hindering of urban sprawl, and providing orderly urbanization processes with proper infrastructure. The first major town planning law was enacted in 1938, but urban development was stalled during WWII.

Construction activities and the mortgage balance growth accelerated after 1945, when urbanization and diversification of the economic activities transformed society. The statistics on the outstanding mortgage debt illustrate the shift away from an agrarian dominance in the mortgage credit volume by the 1960's.

Outstanding mortgage debt by type of pledged properties	1909		1942		1967	
	Mio. Dkk	% of total	Mio. Dkk	% of total	Mio. Dkk	% of total
Agricultural properties	627	43,0	2155	36,1	8054	17,6
Other properties	831	57,0	3817	63,9	37615	82,4
In total	<u>1.458</u>	100,0	<u>5.972</u>	100,0	<u>45.669</u>	100,0

Source: Betænkning nr. 552, Realkreditkommissionen af 1966, dec. 1969, p. 89, Tabel 7

Table A.15. Outstanding mortgage debt mio, DKK in Mortgage Credit Associations, Hypotek Associations plus Special Real Credit Funds, 1909, 1942, 1967.

Other forms of mortgage credit were established after WWII, pursuant to the Housing Act of 1958 (Nielsen, Møller, pp. 123-4) opening for establishment of state-financed funds for housing credit (Byggeriets reallånefond, m.fl.), not organized as membership associations, described in (Betænkning 552, 1970).

Access to mortgage credit was one of the factors in the accelerated urbanization rate of the 1960's. Through the institution of mortgage credit association blue collar workers with stable incomes could acquire their own detached house (Stubkjær 2008, pp. 248, 255). In parallel the value of housing assets grew.

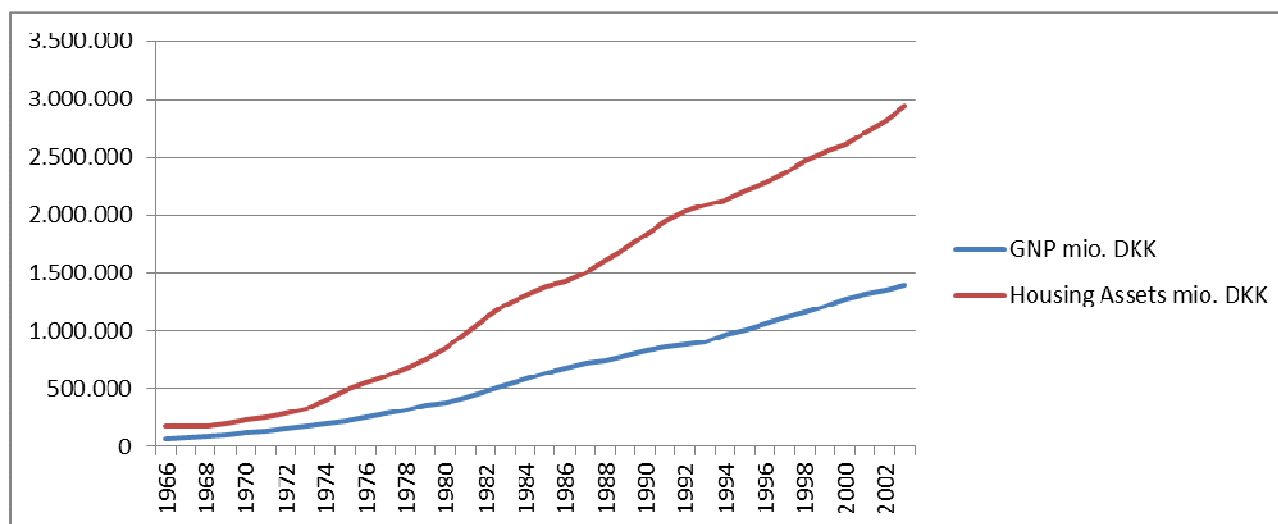


Figure A.8. Denmark: GNP, Housing Assets 1966-2003, Source: Statistics Denmark, www.dst.dk

The Danish mortgage market grew steadily with the general economic development, although the mortgage credit balance had always been high relative to GDP in Denmark, a matter lamented by early Danish writers on mortgage credit (Hein, 1888; Callø, 1932; Westlund 1967, p. 41).

Changing ministers of economy, on the other hand, saw a potential in using regulations of access to mortgage credit as a financial policy instrument. The underlying idea was that an overheated economy could potentially be cooled down by e.g., restricting the volume of mortgage bonds (i.e. loans) issued by mortgage associations, or by tightening the conditions for mortgage credit such as duration of loans, LTV ratios, or the type of amortization.

From the 1960's to 1990 different Danish governments imposed restrictions on mortgage credit, that greatly impacted on the economy of citizens as well as on the wider economy, but not the way intended (Realkreditraadet, 1997).

During this period there were introduced differentiated lending restrictions according to purpose of the loan, whether new construction or other, in addition to numerous changes of lending limits. During the 1960's new mortgage credit was mostly provided to finance new constructions (Bet. Nr. 552, p. 89, 127).

With the purpose of cooling down or stimulating construction activities, the government redefined loan allocation restrictions a number of times, and interfered in the mortgage market by credit rationing during the 1970s and 1980's. When access to real credit through the mortgage credit associations were restricted, alternative options – and more expensive and less liquid options– filled in the demand for housing credit. During the most restrictive periods in the 1970's the market share of the real credit provided by the Mortgage Credit Institutions reached as low as about 60% of new mortgages issued in 1979, while the remaining financing in the property market was covered mainly by sellers' mortgage deeds and loans achieved through e.g., pension funds and insurance companies (Realkreditraadet's annual reports 1973-). In parallel the interest rates of long term credit peaked in double digit figures.

Despite the purpose of limiting real credit, the result was that borrowers instead were seeking other more expensive alternatives, like credit through pension funds. Bank loans have generally played a secondary role in long term real credit in Denmark. Even under these circumstances banks did not gain a larger permanent market share. After restrictions on mortgage credit lending were lifted in 1989, specialized mortgage credit institutes (re-)gained a market share of around 90%, which serves as evidence of the competitiveness and advantages of that financing system in Denmark.

The former ministers of economy acknowledge that political interference in the real credit market had been an unsuited intervention for achieving the intended purpose (Jelved, in Realkredittraadet 1997).

Over time Danish mortgage institutions have provided mortgage lending at a reasonable cost, which has stimulated demand for mortgage lending from buyers and owners of real property in Denmark. The interest rates have had a downward trend during most of the latest decade, see Fig. A.9.



Fig. A.9. Mortgage Interest Rates 1997-2008, Source: Realkredittraadet, 2009

6.3 Legal framework development

On Legal registration of property rights and mortgage pledges

The mortgage finance system per se did not undergo major changes during the first decades of the 20.th century, but essential developments took place in adjoining institutions.

A tax reform in 1903 introduced a system of public property valuation based on the principle of market value, so that all properties were taxed shifting the burden from being carried by the agricultural sector only.

The legal registry system was reformed by introduction of new legislation in 1926, which strengthened the protection of mortgage pledges in the legal registry, "Tinglysningen". The legal reform was based on doctoral research by Vinding Kruse (1923), who delivered a legal analysis of (European) property rights systems of great clarity.

It can be noted that Kruse was observant of the economic importance of the mortgage credit system, and its dependence on public registration and trust (Kruse, 1923, p. 196). Kruse was therefore attentive to the central role of the legal regulation of mortgage pledges, and he treated the topic at depth.

Overall his proposals were intended at creating the highest level of security of different types of rights in real property, for direct or indirect benefit for mortgage credit development. In particular he underlines the importance of the following aspects of the new Registration Act (Kruse, 1923, p. 301-2):

1. General provision on mandatory registration of rights to real property for protection against third party claims;
2. Mortgage pledges cannot be challenged or disturbed by hidden charges;

3. Not only the property, but all technicalities, which modern development will consider part of the property, and the property insurance amount, will be considered part of the mortgage pledge;
4. Provisions on the entry of rights, secured in order of priority were clarified, including meticulous treatment and elaboration of provisions to secure mortgage pledges during different types of transactions, e.g., real property mutations.

Kruse understood the economic importance of the Act: He stated that while the basic principles of the Danish public registration system were critical for protecting all rights in real property, then did their implementation in current days' economic life in particular *serve as a lever for development of mortgage credit and for economic growth.* (1923, p. 196)

”Vi har i det foregaaende set de Retningslinjer, der er *fælles* for Realkreditte og de andre Interesser i fast Ejendom, efterhaanden trængte igennem til alle Interessers Betyggelse: deres Meddelelse til og *Konstatering for offentlige Myndigheder*, derigennem deres Aabenhed for hinanden *indbyrdes* og en *upartisk Fastlæggelse* af deres *indbyrdes Prioritet*. Havde disse Grundsætninger end, som vi saa, afgørende Betydning for alle Rettigheder i fast Ejendom overhovedet, saa blev deres Gennemførelse dog i Nutidens økonomiske Liv ganske særlig den store Løftestand for Realkreditte's Udvikling. I Fortsættelse af disse fælles Linjer laa ogsaa Kravet om ubetinget Tillid til de tinglyste Dokumenter; Naar dette Krav gennemføres hos os, vil det, som paavist, yderligere styrke vor Realkredit saavel som vor Realomsætning.”

It is suggested here, that Kruse's comparison of the legal registration system with a lever for mortgage credit development may still be a concise description of the role of property registration systems. His emphasis on the requirement of unconditional trust to the registered documents is another pivotal issue.

The resulting Law on Public Registration (Act no. 111, March 31, 1926) was supplemented with (suggested) standard document formats, including formulas of mortgage pledges, but the system has until the conversion to fully digital registration by September 2009 been characterized by a low level of formality rules in respect to documents.

The current title registration law is largely identical to the public registration act of 1926, which was so well drafted by V. Kruse that only minor amendments have been required later for its adjustment to adjoining legislation and technical modernization (Olsen, 2008, p.18). The Danish legislation on legal registration of real property rights includes clear principles of property transactions, close integration with the cadastre, and powerful clauses on protection of mortgage collateral.

“Implementation of the basic principles of the public land registration system (Tinglysning) serves as a lever for development of mortgage credit.” (Vinding Kruse, 1923, p. 196).

Kruse's well-founded statement may serve as guidance in development of mortgage credit in emerging economies, ref. to the discussion on formalization of property regimes in Part B.

The crisis in the 1930's and a new Mortgage Credit Act, 1936

It is during times of crisis that Mortgage Credit systems and institutions are tested.

Ever since the first mortgage associations were established there had been periods when borrowers suffered significant losses, and a few associations came into severe difficulties. An early learning experience for the mortgage credit associations had been a crisis in 1857, which revealed malpractices in one of the mortgage associations. As a result some adjustments of the legal framework were introduced as early as 1861.

The agricultural crisis of the 1930ies was caused by a fall in prices on agricultural products (Glud, p. 217-18), and did not originate as a debt crisis, but became so when many farmers could not serve their credit obligations. Mortgage associations generally went through troublesome periods during the economic crisis years of the late 1920's and 30's, but the hardest hit were those associations, which had issued loans under less stringent criteria. Salløv mentions problematic loans issued by particular mortgage associations in

certain geographic areas apparently based on property values assessed well above the market price (Salløv, 1937, pp. 75-76).

Irrespectively, none of the associations dared to fully apply the solidarity principle, a core idea of the mortgage associations (Westlund, 1967, p. 49).

When a large number of borrowers in the beginning of the 1930's were unable to service their loans, extraordinary measures were called for to avoid a collapse of the credit market. Borrowers did default and went through foreclosure with all the painful consequences for those concerned, and the hardest hit were farmers. As expressed by Kristensen (1932, p. 325): It is necessary to take action at a point, where the indebted farmers may go from a state of mind of "we cannot pay" to a much more dangerous position of "we will not".

In order to overcome the crisis without abolishing the production, government intervention was aimed at easing the debt-payments primarily through re-financing and extension of loans as made possible by special legislation and voluntary agreements with investors.

Thus extraordinary but temporary measures were taken. In order to help farmers who came into temporary difficulties the government stepped in to avoid families loosing not only a property but the fundament for their existence: housing, and their source of living. One of these was an arrangement to defer payments for a period of two years, e.i. extending the amortization period (Salløv, 1937). In some cases agreements were achieved with investors in bonds on depreciation of their assets.

What is underlined in all descriptions of the Danish mortgage credit system is that none of the mortgage credit institutes went bankrupt. The direct losses incurred by the Mortgage Credit Associations were at worst less than 1 percent; in the 1890's around 0.66‰, and in the 1930's around 1‰.

Losses in ‰ of nominal debt of original mortgage (hovedstolsbeløbet)	1930/31	1931/32	1932/33	1933/34	1934/35
<i>Mortgage Credit Association (provincial)</i>	‰	‰	‰	‰	‰
Jydsk Husmandskreditforening	0,20	0,57	1,27	1,92	1,47
Jydsk Landkreditforening			0,13	0,13	0,09
Sønderjyllands Kreditforening	0,23	0,57	0,69	0,56	0,99
Den vest- og sønderjydske Kreditforening	0,02	0,35	4,10	1,49	1,27
Jydsk Grundejerkreditforening	0,42	0,25	0,22	0,58	0,75

Table A.16. Losses incurred on nominal debt of original mortgage 1930-1935 by selected Mortgage Credit Associations

Source: Michael Møller og Niels Chr. Nielsen, 1997, "Dansk realkredit gennem 200 år", p. 114, Tabel 6

The economic consequences for society of the crisis in mortgage credit (or visa-versa), low selling rates of bonds, low property prices, losses incurred by citizens and enterprises, etc. are not reflected in such statistics, but must be sought in macro-economic indicators.

One of the outcomes of the crisis in the 1930's was a thorough scrutiny and a wide debate of the mortgage system. What were the reasons for this sorrowful situation, and how could it be prevented in the future? A parliamentary commission analyzed the mortgage credit system and the topic was debated in professional circles as well as at the political level (Callø 1932, p. 295).

As a result of the review a number of weaknesses were analyzed. Weaknesses or risks of the mortgage credit system as it functioned at the time, were found to be e.g.,

1. Very long mortgage loans of 60 years duration (4½%) were standard, so that the outstanding loan amounts were reduced by only about 4% after 10 years and about 11% after 20 years. As a consequence such loans were at risk, during periods with significant drops in property market values.

One credit association was mentioned by Callø as a good example for the reason, that they had issued shorter loans /bonds of “only” 45 years (Callø, 1932, p. 295);

2. Valuations and organization of assessment processes;
3. The need for independence between loan allocation and property valuation processes;
4. Management structures and relations between owners (borrowers), administration and management to be revised;
5. The need for more efficient state supervision of the mortgage credit associations.

It can be seen that property valuation is a critical activity, because this issue is a root problem behind all of the above points.

Based on recommendations prepared by parliamentary commissions’ in 1933-36 the legal framework of mortgage associations was revised in 1936 e.g., to clarify principles of valuation, the extent of joint and several responsibility, to revise regulation of serial reserve funds, to establish better state supervision of the mortgage associations, and for the first time regulate second priority mortgage loans as provided by the Hypothek institutes to a maximum of 75% Loan-to-Value.

Recommendations on abbreviation of the amortization period were considered, since it had become clear that a disadvantage of the long term credit was the slow reduction of outstanding debt during the initial decade(s) of the loan period. However, loan terms of up to 60 years (as concerns first priority credit) continued to be possible (although 45 years was more widely used) until the next overhaul of the mortgage credit act took place in 1970.

Thus observations from the economic crisis in the 1930’s throw light on the Danish mortgage system’s strengths and weaknesses in a discussion of the roles of mortgage credit during cycles of economic development, whether in respect to the robustness of the mortgage credit system in times of downward cyclical developments or its potential impact on positive economic development cycles. However, the focus here is collateral security and other matters of property rights of importance for mortgage credit.

Other forms of mortgage credit were established after WWII, pursuant to the Housing Act of 1958 opening for establishment of state-financed funds for housing credit (Byggeriets reallånefond, m.fl.), not organized as membership associations, but that is not covered here (Nielsen og Møller, pp. 123-4). As illustrated by key figures in Table A.17, the composition of mortgage credit became dominated by urban credit over the period from 1909 to 1967.

Outstanding debt in Mortgage Credit associations, Hypotek Associations plus Special Real Credit Funds						
Type of pledged properties	1909		1942		1967	
	Mill. Dkk	% of total	Mill. Dkk	% of total	Mill. Dkk	% of total
Agricultural properties	627	43,0	2155	36,1	8054	17,6
Other properties	831	57,0	3817	63,9	37615	82,4
In total	<u>1.458</u>	100,0	<u>5.972</u>	100,0	<u>45.669</u>	100,0

Source: Betænkning nr. 552, Realkreditkommissionen af 1966, dec. 1969, p. 89, Tabel 7

Table A.17. *Development in Danish Mortgage Lending 1909-1967*

The Mortgage Credit Reform of 1970

The mortgage credit system itself functioned without modernization for decades after the legal reform in 1936 despite of inherent inefficiencies caused by its highly segmented market structure. Different mortgage associations provided credit for 1st, 2nd and 3rd priority, which resulted e.g. in repeating similar loan application procedures in each association, for covering the total credit required by one borrower. Similarly, each pledge had to be registered in the legal registry, adding to the transaction costs.

It was not until the late 1960’s that external events brought about new dynamics to the mortgage sector. One trigger of reform was the preparations for the possible entry of Denmark into the European Community,

which later became a reality on January 1, 1973, following a national referendum in 1972. Another trigger was the municipal structural reform of 1970, when the local governments were restructured both for creating larger geographical units and in modernizing their roles and responsibilities.

The mortgage credit reform of 1970 was prepared thoroughly through the work of two commissions,

- The “Realkreditkommission of 1966” assigned for analyzing the regulations and institutional set-up in preparation of a legal reform. It also studied if the access to credit for different sectors were adequate, and the pros and cons of open access to mortgage credit;
- The so called “Kurt Hansen” commission, assigned to review options for tightening regulations on access to mortgage credit and consequences thereof from a general macro-economic perspective.

In the following only the work of the first commission is referenced.

The key questions under scrutiny were issues of continuing relevance for mortgage credit:

1. Market structure of the mortgage credit associations /institutes: Should MCAs be consolidated? Should they cooperate on issuance of common covered bonds? Etc.
2. Organisation and management of the mortgage credit associations to safeguard ethics and neutrality in valuation and loan allocation;
3. Simplification of the loan allocation process in the form of consolidated mortgage credit allocation for each property, “enhedsprioritering”;
4. Definition of maximum LTV ratios for different categories of properties and for different purposes;
5. The question if mortgage credit shall be regulated according to uses of the loan provenue, and if so, how it could be administered;
6. Valuation principles, procedures and organization;
7. Maximum loan duration, amortization principles and nominal interest rates of bonds;
8. Principles of withdrawing bonds from the market at early prepayment;
9. Reserve funds and basic capital requirements;
10. Promotion of the Danish bonds on the international capital market.

Based on the recommendations of the commissions a new mortgage credit act was passed in June, 1970.

A simplification of the loan allocation process was introduced through so-called “unified mortgage credit”, although a distinction between 1. Priority mortgage credit institutes and second priority hypothek associations was maintained. The permitted maximum loan duration was abbreviated, and all properties /purposes could take up loans within rather low maximum LTVs (40% all properties, 50% agricultural holdings), which were elements of a tighter credit policy. However, further mortgage credit could be given for defined purposes beyond these limits.

One of the main consequences of the law was a major restructuring of the whole mortgage business structure as a direct consequence of the new provisions on “unified” mortgage credit (“enhedsprioritering”), but mergers were also an element in the mortgage industry’s strategy of preparing for entry into the European Community. Thereby mergers took place among the existing (about 27) mortgage credit institutes, which were consolidated into seven (Realkreditrådet, 1997).

Three of the new mortgage associations were general purpose mortgage credit institutes, which provided mortgage credit through a countrywide network, so that competition among the mortgage credit associations were still intact.

Also in 1972 was established the Mortgage Credit Council, “Realkreditraadet”, initially as a combined function of a representative branch organization and a forum of supervision and policy implementation.

In a later law revision of 1980 state supervisory functions of mortgage credit institutes were transferred to the Ministry of Housing, after having been a component of the mixed responsibility of the Realkreditraadet since its establishment in 1972.

Another important step towards establishing a modern financial infrastructure was the legal foundation of the “Værdipapir-centralen” in 1980 for establishment of electronic trading in the capital market (now VP Securities A/S, www.vp.dk).

The Mortgage Credit Reform of 1989

An EU directive on financial institutions of 1977 had been set on hold by the Danish government for 12 years, and was only implemented at the end of the transition period through a revised mortgage credit act of 1989, which opened for joining the European internal market as concerns the business area of mortgage credit.

The real credit legal reform of 1989 implemented deregulation of the mortgage credit institutes in accordance with an EU directive, to open for new mortgage credit institutes to be established as shareholder companies. After this date new mortgage credit institutes could only be established as shareholder companies (Realkreditrådet, 2005), and old mortgage credit institutes were allowed to convert into limited companies, as well. Hereby the solidarity principle with joint and several liability was gradually being replaced by collateral security in the form of equivalent base capital and solvency requirements of the specialized mortgage banks. The legal reform led to renewed competition with new lenders entering the market and consolidation within the sector (Danske bank, 2007).

“Key elements of the regulation are:

- Specialist mortgage banks must operate subject to the balance principle limiting the market risk exposure of the issuer to a minimum
- Bonds issued and collateral must be assigned to specific capital centres within the specialist mortgage bank
- Each capital centre is regulated subject to a balance principle – either the general or the specific principle – at the decision of the issuer
- Mortgage loans and securities serving as collateral must meet restrictive eligibility criteria including loan-to-value (LTV) limits and valuation of property requirements
- Investors have a privileged position in case of bankruptcy rendering mortgage bonds bankruptcy remote
- The mandatory over-collateralisation of the cover pool is subject to the selection of either the general or the specific principle balance principle
- Mortgage banks are closely supervised by the Danish FSA
- Mortgages collateral will observe LTV limits at single loan levels at all times”

Source: Danske Bank, 2007, p. 10.

The law had an effect on the market: As a consequence of the deregulation new lenders entered the market and fierce competition followed, resulting in consolidation within the sector.

It can be added, that pursuant to the 1989-Act state supervision was transferred from the ministry of housing to the ministry of economy, the authority responsible for supervision of other financial institutes.

It can be speculated that a transition might have come sooner or later anyway: Considering the magnitude of the mortgage credit organizations, and the nature of their operations, the format of membership associations could be seen as less suited for organization of modern financial institutes operating in an advanced capital market.

While the mortgage credit system had undergone a continuous development process in parallel with the rest of society during the 20.th century, the original financing principles were still intact:

- 1.) All lending is secured on real property and financed through the issuing of bonds according to the balance principle;
- 2.) The mortgage credit institutes have no influence on the yield on the loans granted, which is entirely determined by the capital market.

In 1997, at the celebration of the 200 year’s anniversary of the system of Mortgage credit in Denmark, the mortgage industry could look back at a success story, despite crisis periods which, however, the system had withstood (Realkreditrådet, 1997).

One of the lessons learned, though, were that tightening access to mortgage finance (credit rationing) was not an effective tool in economic policy. The director of the national bank at the time, Hoffmeyer, described interventions in mortgage credit access as an ineffective tool for constraining those who had benefitted from inflation in using their equity (Hoffmeyer, 1997, pp.27-29). Others have described the mortgage system as a huge vehicle, which is difficult to stop (Krag, 1932). The bond market is so powerful because of magnitude, and because it forms the basis for all markets, ultimately determining the value of other asset classes, including homes, according to Ferguson (2009, p. 69).

It may not be surprising that the top of the Danish financial and political world praises the system of mortgage credit, but it has also performed well in international comparative studies, ref. to Chapter A.1.

International comparisons (UN-ECE, 2005) showed that the profile of the Danish mortgage credit system is distinct both through the dominant position of the Danish mortgage system in housing finance, and in respect to the high level of mortgage lending combined with a robust nature of the mortgage securitization system based on the balance principle.

The special story of State Supervision of the Mortgage Industry

The Danish mortgage system is characterized by in-built controls and incentives for responsible lending since mortgages are on the balance of the mortgage credit institutes.

In fact the Danish Mortgage Credit system functioned for over 130 years of its existence without much state supervision. This was presumably possible, because the securitization model is based on an alignment of interests with inbuilt sound incentives. The original organizational model of associations and democratic control within the associations could be another factor permitting its functioning, despite a rather passive state supervision of the mortgage credit associations.

Since the early days of mortgage associations, they were obliged to submit their accounts regularly to the State, but there is not much evidence of active State oversight during the first century of the Danish mortgage history, despite the fact that mortgage lending reached high levels at an early time - around 70% of GDP by 1910. Callø (1932) described the stately financial supervision of mortgage credit associations as passive. The ministry received the accounts from the associations, but did not scrutinize them. He explained the public role in mortgage credit financing as a result of historic events rather than by rational design (ibid., p. 312).

However, during times of crisis the weaknesses of the system were revealed. The economic crisis in the 1930's drew to the attention to weaknesses and shortcomings in management, which could possibly have been prevented by supervision.

The legal revision of the mortgage credit act in 1936 introduced the first systematic public supervision by appointed state auditors, a system which functioned until the legal and structural reform of the Mortgage Credit System in the 1970's.

In 1972 the Real Credit Council (RKR) was established to serve different functions: As an interest organization of the mortgage credit associations, and as an overseer of business standards. Therefore the council included state representatives. The mixed function of the RKR was finally resolved, when in 1980 the supervisory functions were transferred from the RKR to the Ministry of Housing, so that the roles and responsibilities were clarified. Therefore, it can be said that this was the first time of a clear Financial Supervisory Authority of the mortgage credit institutions in Denmark.

Since 2003 the Mortgage credit institutes are regulated partly through a dedicated Mortgage Credit Act, and partly through the Financial Institutions Act.

Overall discipline in the sector is now secured by the oversight of the mortgage credit institutes by the Danish Financial Supervisory Agency (FSA), 'Finanstilsynet', in charge of supervising the risk profile of mortgage banks. Mortgage Credit Institutes' report quarterly to the FSA on their credit risk exposures, market risk exposures and solvency (Danske Bank, 2007), and central to these topics are property valuations. The

FSA may intervene, if they consider the value of a pledged property to have been assessed too high. In addition to overseeing reports from MCIs, the FSA also performs inspections on its own initiative and monitor if correct procedures are followed.

7. Developments in mortgage finance system in Denmark in the Beginning of the 21.st Century

7.1 Legal reforms

New Mortgage Credit Act in 2003

The Danish Mortgage system has been much in focus in Denmark due to the significant changes introduced to its legal basis as well as market developments since 2000.

The property market and the housing industry experienced a high growth period stimulated by low unemployment, low interest rates and high economic growth rates generally (www.hypo.org).

In 2000 the basic soundness of the Danish Mortgage Credit Institutes (MCI) could be confirmed by e.g. measures of the solidity of the Mortgage Institutions assessed to be well above the legal limit of a minimum 8% capital coverage (ratio of weighted assets to outstanding credit), at about 12% (UN-ECE, 2005) - prior to the housing market bobble and international financial crisis later in the decade.

A comprehensive legal reform of the financial sector took place in 2003 with consolidation of the regulations of mortgage credit institutes with regulations of other financial institutions in one law as concerns general requirements, while other provisions of the previous mortgage credit were covered by a new (separate) mortgage credit act (Legislation at: <http://www.finanstilsynet.dk/da/Regler-og-praksis/Lovsamling.aspx>). Hereby special Danish mortgage banks were also covered by tight provisions protecting investors in (the remote) case of bankruptcy of the MCI.

Hereby the new Mortgage Credit Act continued the tradition of dedicated legislation on mortgage credit in Denmark, which was applauded by the mortgage industry. The new mortgage act opened for establishment of bank owned mortgage credit institutes. The reform remedied the lack of provisions for bankruptcy regulations, which had been missing since 1989 after resolution of the mortgage credit association structure.

The 2003 Mortgage Credit Act also introduced some changes in possible mortgage credit conditions, the effect of which have been widely discussed, primarily the new option of “Interest Only Mortgages” to a maximum of 10 years, see below. The opening of the option for IOMs was politically motivated, but was actually recommended by some economists (Møller, Nielsen, 1997).

The supportive public infrastructure of the mortgage credit system in Denmark has been converted to a fully digital system. During 2006-2009 an advanced digital system has been implemented (launched on September 8, 2009), which allows mortgage pledges to be registered on-line instantaneously, thus eliminating transaction time and reducing transaction costs. Other features of the new legal system include access by market intermediaries in the registry process based on powers of attorney, www.tinglysning.dk.

The new Law on Digital registration of rights (‘Tinglysning’), represents a true revolution in respect to transactions in real property in particular the registration of mortgage pledges, in so far as the digital system will reduce transaction time to zero (instant registration by use of digital signatures), and further facilitate the process of registration through authorized intermediates, typically mortgage credit institutes and banks.

Principles of registration remain largely unchanged, but the new technical system will serve the financial sector much better than the previous organization of the registry by relieving the market of costs associated with delays and later transaction. A shortening of legal registration processes means abbreviation of periods requiring intermediate bank guarantees or intermediate financing, with cost savings for the parties estimated in the order of about 300-400 million dkk per year.

The Balance Principle at stake in new legislation on Mortgage Credit in 2007

Another significant legal reform took place in 2007 with introduction of the so-called SDO regulations, an implementation of the EU capital coverage directive. The 2007 requirements are perhaps not so visible for customers in the Danish Mortgage credit system, but they touch on the very core of the system: The balance principle is at stake.

The modifications of the Danish Mortgage Credit Act came into force on July 1, 2007. The purpose of the amendment was twofold (Realkredit Danmark, 2007, p. 9)

1. To render the Danish covered bond system compliant with the covered bond criteria in the EU Capital Requirement Directive (CRD)
2. To give Danish universal banks access to 'Covered Bond' funding of eligible assets.

Thereby the tradition of specialized Danish mortgage credit institutes was challenged by new entities founded by the main banks.

As a result two separate regimes have been introduced in the Danish Mortgage Credit System: One set of regulations governing the mortgage credit and bonds issued according to the previous principles, and one set of regulations governing a new type of credit and securities, denominated SDO, SDRO. The latter conforms with the EU-directive on capital requirement.

The main issue of the SDO reform was to regulate Danish mortgage credit institutes under the same capital requirements standards as other financial institutes following international directive, as set out in the so called Basel II convention, and as specified in the EU-capital requirements directive, but in addition it opened for commercial banks to issue SDO's.

"To meet its purpose the amendment introduced different issuing standards:

1. Covered bonds (*særligt dækkede obligationer, SDO*)
2. Mortgage covered bonds (*særligt dækkede realkreditobligationer, SDRO*)
3. Mortgage bonds (*realkreditobligationer, RO*)

Covered bonds and mortgage covered bonds are both CRD compliant and thus carry low risk weights. The single difference between the two issuing standards is that mortgage covered bonds may be issued by specialist mortgage banks only, whereas covered bonds may be issued by both universal banks and specialist mortgage banks." (Realkredit Danmark, 2007, p. 9)

The EU capital directive has forced an adaptation of capital requirements to Danish mortgage credit institutes (2007), and had possible negative implications for maintaining the balance principle of mortgage financing and thus for the whole system - a topic subject to debate in the mortgage industry. The mortgage banks have adapted quickly by issuing new SDO-loans and SDRO-bonds pursuant to the new legislation, so that classical mortgage bonds now constitute a shrinking share of the market. The reason is that capital coverage requirements for investors in SDO's and SDRO's are less burdening than for classical Danish mortgage bonds following the new Mortgage Credit Act of 2007 (Realkreditrådets Annual Report 2009, p. 13).

However, this topic is not analysed in detail in this study, which is focused on the classical model of mortgage securitization based on the balance principle.

7.2 Discussion of Latest Developments of Regulatory Framework and the Market

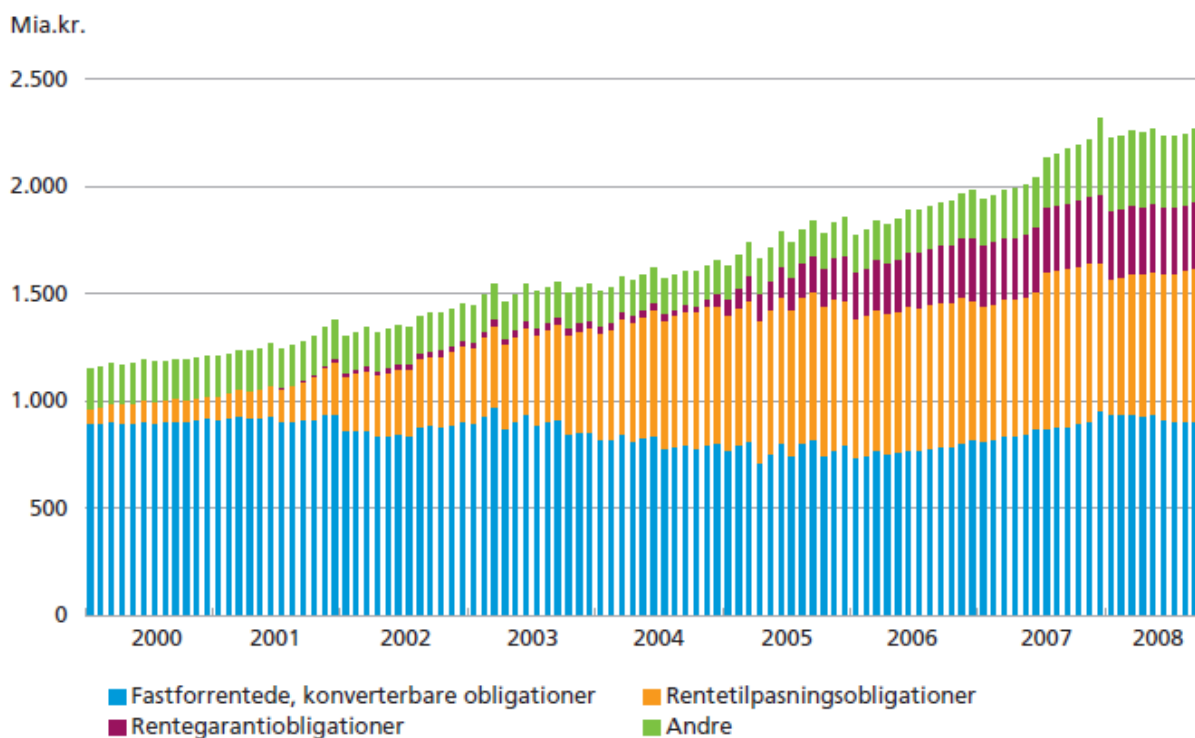
"Kreditforeningssystemet er i al sin Simplicity saa fuldkomment i sin Teknik, at der næppe vil være Rum for større Fremskridt, men derimod nok for Forfald", Callø (1932, p. 302)

(The Mortgage Credit Association system is in all its Simplicity so perfect a financing technique, that there will hardly be room for major improvements, but on the contrary for decay (informal translation))

Diversification of mortgage products and smaller series of mortgage bonds

The latest inventions in the financial market of special products have in parallel created a more complex market both for borrowers and for investors in bonds. This has occurred with introduction of various forms of Adjustable Rate Mortgages, Interest Only Mortgages, Interest Reset Mortgages, and combined credit products.

Diversification and sophistication in the mortgage credit market has occurred during the latest decades, and new mortgage products have increased complexity in the market. This is not the focus of the present study, but there are noteworthy fundamental changes in mortgage products (bonds) offered by the Mortgage Credit Institutes, fig. A.10.



Anm.: Der er foretaget korrektion for højere udestående i december hvert år.

Fig. A.10. Development in the Composition of the Bond Market (Blue: Fixed interest; Orange: Adjustable Rate Mortgages; Red: Mortgages with interest rate ceiling; Green: Other types). (Source: Johansen, Nielsen, 2008, fig. 1)

During the early development of the Danish Mortgage Credit system the loans were standard loans, typically 4% amortizable over the loan period.

The revision of the mortgage credit act of 2003 introduced the option of interest only mortgages (IOM) for a maximum of 10 years. The option has become widely used. By 2008 outstanding “Interest Only Mortgages” amounted to in total 630 billion dkk, about 50% of all outstanding mortgage loans for housing. When the loan principal is not reduced over a longer period (here ten years), the Loan to Value ratio (LVT) remains vulnerable to fluctuations in property market values. As a consequence, borrowers of IOM have higher risks of seeing themselves into a situation of having negative equity at least for a time, while the property market is down. Therefore the introduction of interest only mortgages (IOM) is of relevance for discussions of security of collateral.

In contrast, classical mortgage credit amortized over the maturity of the loan features reductions of the loan principal over time, which means that credit risks are reduced over time, since the outstanding debt decreases in relation to collateral value (in a stable market). In a negative market the decreasing principal resulting from amortised loans may be off-set by decreasing values, but help to reduce risks of negative equity on

the side of borrowers. However, with loans of long amortization periods the outstanding debt is not much reduced during the initial years, neither, as already observed by early writers on the topic.

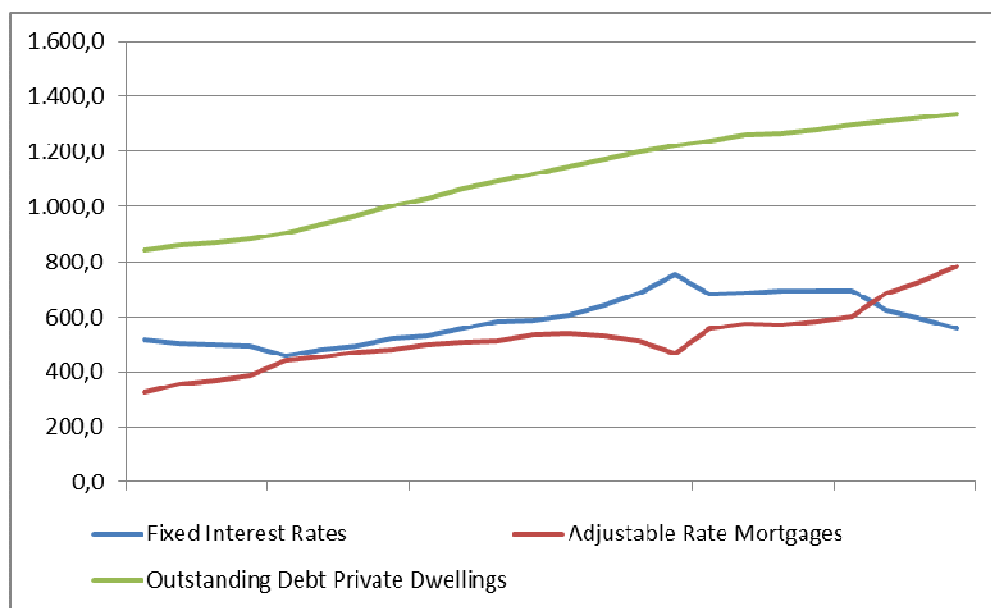


Fig. A.II. Growth in Adjustable rates Mortgages from Q1 2004 to Q4 2009; Outstanding mortgage debt for private dwellings, Billion DKK, Source: Realkreditraadet and Realkreditforeningen, 2010.

Specialized mortgage products means a diversification of mortgage-credit bonds issued by mortgage credit institutes, in 2007 over two thousand series of Danish mortgage-credit bonds and covered bonds were on the market (Realkredit Danmark, 2007, p. 46). A larger number and smaller mortgage bonds series also change the investors' market, as smaller series are considered less liquid, as discussed by (Johansen, Nielsen, 2008).

Boyce (2009) considers the small specialized mortgage products a negative trend and calls for a return to the large series of standard mortgage bonds, which are more liquid and can potentially offer the borrowers better credit conditions on the long term, according to Boyce.

With a diversification of mortgage products may also follow more risk, as discussed by Scanlon, et al. 2008. Moreover sophisticated products can be difficult to understand for borrows and their performance in the financial market is less predictable. Other trends in diversification of mortgage products may lead to borrowers taking on higher risks (Lunde and Scanlon, 2007). Despite the growth in IOM's and ARMs it is remarkable, that the Danish mortgage market has escaped a crisis, and that foreclosures – although at a higher level than during booms - have been fewer than experienced during the troubles in the housing market during the end of the 1980's and beginning of the 1990's.

The sophisticated mortgage products financed by small series of mortgage bonds may eventually also have negative effects at macroeconomic level (Scanlon, et. al, 2008). Especially young borrows are exposed to risk entering the property market, when market prices peak and they venture into mortgage credit arrangements of a more complex nature. A relatively new construction in the housing market has been the so-called parental acquisition, designed to help parents to buy small apartments, for letting to their grownup children with speculative benefits, which may also have had an impact on the general price levels (Knøsgaard, 2010).

The statistics of the Danish mortgage market stands in contrast to the US mortgage market statistics, as discussed in Part C, which is evidence of the sound nature of the mortgage finance model and its safeguards compared to the US mortgage market profile (ref. to chapter A.1.8-1.9).

It is noted though that, refinancing at such grand scales is only possible because Danish covered bonds are in demand by investors (Jensen, Realkredittaaet, 2010). Therefore the very existence of smooth recurring refinancing of ARM's confirms the trust to Danish mortgage bonds in the capital market. Still the nature of the outstanding debt is more risky than amortized fixed rate mortgages, especially in a low market.

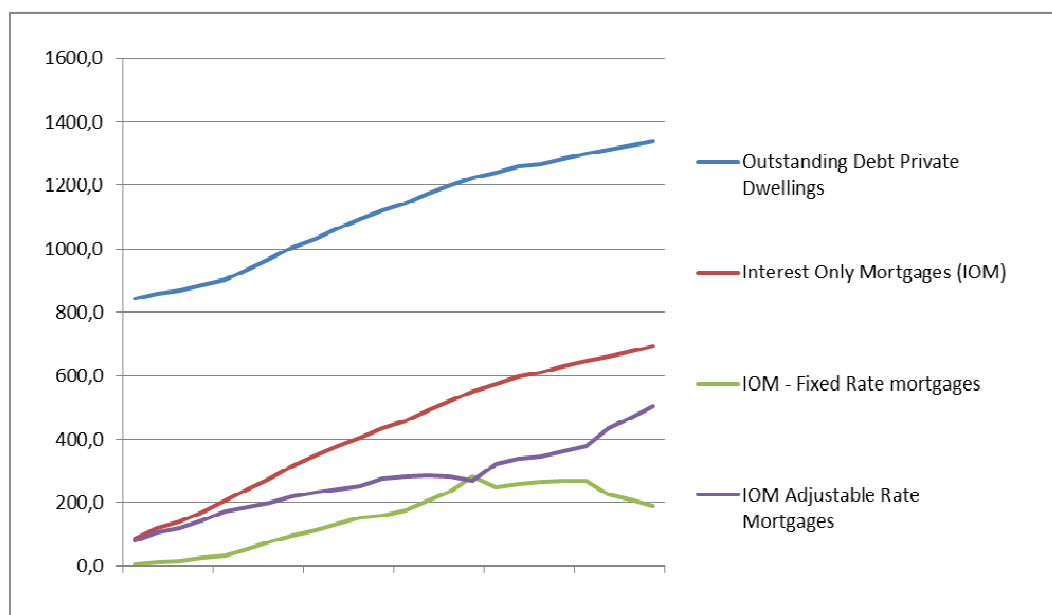


Fig. A12.. Growth in IO-Mortgages of Outstanding Mortgage Debt Private dwellings, Billion DKK, Loan types Q1 2004 to Q9 2009 (Realkredittaaet, Realkreditforeningen, Annual statistics, table 37)

International Impact on Danish Mortgage Finance

Currently the globalized nature of capital markets and international standards seem to have taken precedent over features of the classical Danish mortgage credit system. The issuance of SDO-loans has gained a large share of the market, with corresponding growing series of SDRO. It is yet to be seen what this means for the Danish mortgage-credit market, with a century long record of providing real credit to the benefit of Danish property owners and the society at large.

One of the saving elements of the 2007 legislation was the maintenance of the access to prepayment at par, which ensured a level of protection of borrowers, despite the modifications to the balance principle, which reduced transparency (and use of the buy-back option).

The 2007 Mortgage Credit Act has created a new focus on property valuation, in part due to the introduction of new principles of continuous supervision of the adherence to the LTV (Loan to value) ratio in pursuant to the 2007 legislation, in part due to simultaneous international events on the financial markets and the housing market bubble. In the new legislation there are basically two levels of LTV requirements: 1.) At individual property level at issue, and 2.) overall LTVs of all outstanding mortgage credit over total market values at a given time (statistical level). Dwelling properties have to be reassessed every third year, and commercial properties every year.

Provisions on SDO's and SDRO's carry implications for mortgage credit institutes issuing loans and bonds following the SDO and SDRO regulations: Property values have to be re-assessed regularly, and the corresponding capital requirements have to be fulfilled at any time, as a minimum of 8% of risk-weighted assets.

In practice this means that MCI must add security to their capital base, so as to cover the difference between market value and outstanding debt, if the market value of collateral assets falls to the extent that the overall (total) LTV of their outstanding mortgages increases above the maximum limit. Thus the conditions (costs) of mortgage lending on the side of the MCI cannot be forecasted as was the case with classical mortgage lending according to the balance principle.

Property market values were dramatically affected by the global financial crisis starting in 2007 and deepening in 2008-9. With depreciated market values, the effect of the new SDO legislation hit hard, since the mortgage banks were under an obligation to provide additional security for the exceeded LTVs, even if the effect of lower property values did not threaten the solidity of the mortgage banks. In this way such “mandatory overcollateralization” increases mortgage banks costs, when market prices fall.

“The Covered Bonds Legislation – which was passed in 2007 to implement the rules in an EU Directive – has introduced a new and very important risk into the Danish mortgage credit system. The Danish issuers of covered bonds – the mortgage banks and financial institutions – may, if worst comes to worst, be forced to procure supplementary capital running into a three-digit billion figure, if property prices fall by another 15-20 pct. This would have serious consequences for the stability of the system.

We need to have this EU rule abolished. But until then, we need to introduce a number of safety valves in the Danish legislation, and it would be natural to do so in connection with the coming evaluation of the Covered Bond Act in 2009.” Peter Engberg Jensen, Chairman, Realkredittadet, 2009

If international standards impose unnecessary capital coverage requirements on the Danish system of mortgage finance, the added costs can only be transferred to the borrowers, effectively all property owners in Denmark, and those who would like to acquire property, ref. to discussions on possible added capital coverage requirements even beyond the Mortgage Credit Act of 2007, (Berlingske Tidende, Business, September 23, 2009, pp. 06-7).

The danger of a too high level of over-collateralization has been documented in the Portuguese mortgage market, according to Golin (2006, p. 25), where the extraordinarily minimum over-collateralisation requirement of 25 per cent made covered bond issuance more costly to issuers than alternative sources of funding.

Representatives of the Danish Mortgage Credit system consequently fight for recognition of the in-built security of the mortgage finance model, so as to avoid too costly levels of over-collateralization. One of these central issues is the recognition of the risk weighing of credit for dwellings at 50% of outstanding debt in respect to capital coverage (Realkredittadet, 2010, Comments on EU-Commission Working Paper on Responsible Mortgage Lending & Borrowing, <http://www.realkredittadet.dk/Aktuelt/Horingssvar.aspx?M=News&PID=1755&NewsID=477>).

Regulatory threats to the securitization model based on the balance principle

Another feature of concern in the 2007- Mortgage Credit Act was the introduction of modifications to the strict balance principle of the Danish Mortgage credit system, as hotly debated in the mortgage banking sector, but this is an advanced financial topic beyond the scope of the present study.

The DRK is an institution familiar to every owner of property in Denmark and has been taken for granted. At the same time, the very principles which have formed the basis for the quality of the system might be set under pressure through introduction of the mortgage legislation in 2007. This has opened a debate on protection of the balance principle in the Danish Mortgage Credit system.

Not all financial institutions agreed on the development leading to a possible dismantling of the classical Danish mortgage system. As a result the mortgage finance industry’s branch representation split over differences in perception of the development: ‘Realkreditrådet’ and ‘Realkreditforeningen’, representing the interest of on one side the traditional mortgage finance institutes and on the other the commercial banks, and the mortgage credit institutes, they own. Differences of opinion concerned the balance principle with Realkredittadet advocating a strict balance principle (<http://borsen.dk/finans/nyhed/132205/>).

The new legislation is not just a technical challenge or a minor adaptation to respond to globalization, but is a serious concern for the Danish mortgage credit system, as described by Realkredittadet, 2009, with reference to the balance principle of securitization as ‘rock-solid’:

“We need to protect the Danish mortgage credit model. For it is a rock-solid property financing system. The financial crisis has demonstrated that there is security of supply, even during the worst of storms. The Danish system ensures financial stability. It is so designed that credit institutions and borrowers are encouraged to behave responsibly. And that is a crucial factor.

Today’s financial markets are so complicated that it is impossible to achieve stability through increasingly detailed regulation and intensified supervision from the authorities, if the foundations of the property financing system are not appropriately designed.”

Peter Engberg Jensen, Chairman, Realkredittoraadet; Annual report 2008- 2009

The above strong defense for guarding the balance principle in securitization of mortgage debt in Denmark is as strong a reason for introducing the Danish mortgage finance model elsewhere.

A IV. DETAILS OF THE DANISH MORTGAGE FINANCE SYSTEM

8. Legal framework on mortgage credit and mortgage credit institutes in Denmark

8.1 Introduction to detailed analysis

The whole and its parts

There are good reason to look at further details of the regulatory framework and how the system operates at a more detailed level, because in a complex system – even apparently small elements may block the total system. As described in Chapters A.2.2 the securitization model of the Danish mortgage finance system is based on relatively simple principles, but the context is complex, so an analysis of what are the basic preconditions for its functioning is challenging.

With a multitude of elements it is also difficult to discern from the various preconditions what components are critical. As Ely stated in 1884, economic life is a most delicate organism, which easily gets out of order, as is seen in constantly recurring crises. This is particular true with mortgage credit, because a single issue like dealing with priority of mortgage pledges, can – if missing – be detrimental to the credit system.

“As civilization advances, exchanges multiply and dependence increases. The economic life of a civilized people is to-day a most delicate organism, which easily gets out of order, as is seen in constantly recurring crises. Certain parts of this organism then cease to operate satisfactorily, and it becomes apparent how essential to the life of the whole is the performance of the functions of all the parts.

The people of each state constitute an economic organism. These separate organisms are connected with each other, and that more closely with the progress of civilization, in particular with improvement in the means of communication. Thus does economic dependence increase not only in intensity, but in extent.”
Richard T. Ely, 1884, p. 51

For these reasons, it is here seen as important to make a more detailed analysis of what constitutes collateral security as defined through the specificity of Danish legal framework, that regulate mortgage credit. A review is made of the topic of security of collateral as found in a Danish context grouped according to the following themes:

1. Legal framework of mortgage credit and Mortgage Credit Institutions in Denmark
2. Collateral security: Legal protection of mortgage and access to the collateral
3. Principles and procedures for loan underwriting and valuation
4. On transparency and information for mortgage credit

A detailed analysis is aimed at supporting the development of criteria and of indicators, chapter B.10.

In general, mortgage finance legislation has immense impact on the property and credit market, not to mention the larger economy, as was seen with outcome of legal changes introduced e.g. in 2003, when the

capital (and real) market reacted strongly on the new legislation and regulatory changes. The new options for taking out IOM mortgages were widely exploited.

Main legislation

The main legislation governing the Danish mortgage system is the Act on Mortgage credit and mortgage bonds, etc., in its most recent version as published in Danish only (<https://www.retsinformation.dk/Forms/R0710.aspx?id=133332>), but the focus of this study is on the classical mortgage finance model.

The present act includes modifications to an earlier act available in an unofficial translation to English, ref. to Act no. 454 of 10 June 2003, "Mortgage-Credit Loans and Mortgage-Credit Bonds etc. Act" (in-official translation, hereafter referred to as the Mortgage Credit Act 2003) used in the following as illustration of the main principles;
http://www.finanstilsynet.dk/OldFinanstilsynet/Website-engelsk/Offline/Mortgage-Credit-Loans.aspx?sc_lang=en.

Pursuant to Danish legislation, Mortgage Credit institutes are authorized, specialist banks, which on one side have exclusive rights to issue mortgage credit bonds in Denmark, and on the other are prohibited from granting loans in other ways than defined in the mortgage credit act, i.e. as mortgage loans secured by a pledge in real property. The capitalization of mortgage credit is entirely based on issuing of mortgage bonds. This mono-line type of MCI adds to the transparency of the institution (Realkredit Danmark, 2007).

“§ 18.-(1) Mortgage-credit institutions authorised to conduct mortgage-credit business in Denmark shall hold exclusive rights to issue mortgage-credit bonds in Denmark.” (Mortgage Credit Act, 2003)

Mortgage banking in Denmark is regulated by a restrictive and detailed set of regulations under e.g., the general Financial Business Act, the specific Mortgage- Credit Loans and Mortgage-Credit Bonds etc. Act and a number of Ministerial Orders, as listed at the homepage of the Financial Supervisory Authority (FSA), "Finanstilsynet", see http://www.finanstilsynet.dk/Regler-og-praksis/Lovsamling.aspx?sc_lang=e. Since 1989 EU regulations have been incorporated therein to allow European actors access to the market in Denmark.

The operations of the mortgage credit institutes are focused on protecting the interest of mortgage bond investors. Mortgage credit is only granted against registered mortgage pledges in real property (MCA-2003, §2) to the owner of that property (MCA-2003 §11) on conditions determined by the law.

Legislation on financial institutions, capital market and financial institutions supervisory bodies is crucial for regulation of the functioning of the mortgage securities, but is not the topic of the present study. What will be mentioned below are the supervisory tasks of the FSA with respect to property assessment and mortgage loan allocation by the Mortgage Credit institutes.

It is the duty of the Mortgage Institute to ensure that loans are granted based on conservative assessments of the market value of borrower's property (MCA-2003, §10) and within the loan-to-value limits defined by the law on Mortgage Credit (MCA-2003, §5), which also regulates financing of mortgage loans through issue of bonds in series each with their respective fenced off reserves.

The *classical* Danish mortgage system is characterized by a strict balance principle that simplifies cash flows and reduces risks of the Mortgage Institutes to largely credit risks only. Hereby, the low risk and simple cash flow of the system has ensured investors in Danish mortgage bonds a safe investment, and provides borrowers affordable financing (Ref. to www.Realkreditrådet.dk). Another aspect of the principle is that the mortgage credit stays on the balance sheet of the mortgage credit institution, hereby creating sound incentives for responsible lending.

The financing model of the Danish system of mortgage credit reduces risks to credit risk, but investors have a claim towards the MCI, not the individual borrower. The legal framework defines a strong set of provisions to cover credit risk through responsible lending regulations and security of collateral.

The overall regulatory system in Denmark secures that MCI will efficiently get access to the collateral, in the worst case. Components of the collateral security are:

- Legal protection of mortgage pledges through the land registry
- Legal regulation of standards of assessing collateral value
- Detailed regulation of maximum loan limits (LTV's)
- Foreclosure procedures and practices of ensuring effective access to the collateral in case of default
- Financial Supervision.

Selected elements of these regulations are mentioned below.

The strict balance principle was maintained as a principle until the latest legal amendments of the Mortgage Credit Act came into force by July 1, 2007, when modifications were introduced (see LBK 898 of 04/09/2008). Some modification concern highly advanced issues of mortgage banking, but other new provisions on specially covered mortgage debt and bonds, so-called SDO's and SDRO's, are relevant to this study, since they concern collateral security to be discussed below. The MCA-2008 adds further requirements to capital coverage similar to credit provided by other financial institutions, without considering the special qualities inherent to the Danish model of securitization based on the balance principle. If the new requirements can be regarded as excessive overcollateralization, this comes at a cost for Danish borrowers, as extra reserve funds carry a price tag.

8.2 Legal Provisions on Mortgage Lending in Brief

Legal provisions on property valuation and lending limits

It is obvious that property valuation is a central activity in determining collateral value and security. Property values are assessed by the Mortgage Institution in preparation of a loan offer to be defined within the legally defined lending limits. Property valuation is subject to detailed regulations under the supervision of the FSA, according to

- *Bekendtgørelse 1148 af 05/12/2005 om realkreditinstitutteres værdiansættelse og låneudmåling, (Valuation and lending regulations regarding "classical mortgage credit")*
- *Bekendtgørelse nr. 687 af 20. juni 2007 om værdiansættelse af pant og lån i fast ejendom som stilles til sikkerhed for udstedelse af særligt dækkede realkreditobligationer og særligt dækkede obligationer¹⁾ (Valuation and lending regulations regarding mortgage credit and bonds issued according to SDO /SDRO principles).*

Mortgage institutions are obliged to conduct a specific and conservative valuation of the properties to be pledged according to principles laid down in the Mortgage Credit Act. The assessors are obliged to inspect the property inside and outside. Moreover assessment for mortgage lending has to be conducted by MCI-staff and assessment may only be left to non-employees in case of properties below a set value (currently 4 million dkk, about 900.000 Euro) following detailed instruction, and when subject to quality control conducted by the MCI, (FSA Bekendtgørelse 1148, §3). Since the minimum value set exceeds average house prices, non-employed assessors may to a large extent perform assessments on behalf of the MCI.

The mentioned regulations prescribe that assessors' fees must not be related to the value of the properties, quite an important clause to prevent unhealthy incentives within the system.

Property values must be conservatively assessed, and the law prescribes caution to eliminate peculiarities in the market causing a particular high sales price, just as future risks of changes in market conditions and market structure have to be taken into consideration pursuant to the Mortgage Credit Act §10:

- ”§ 10.-(1) The mortgage-credit institution shall set an estimated value on the real property to be used for the loan authorisation.*
- (2) Said value shall fall within the amount that an experienced buyer with knowledge about price conditions and market conditions for the relevant type of real property would be deemed to be willing to pay for said property (market value). Conditions which occasion a particularly high price shall not be taken into consideration during valuation.*

(3) The mortgage-credit institution shall in its valuation take into account any risk of changes in market conditions or structural conditions.” (LBK 454, June 10, 2003)

Valuations follow the cash principle. Generally, valuation is performed as market valuation with the exception of specified property types outside the normal property market, e.g. properties for social and cultural purposes.

Maximum Loan to Value Ratios

Lending limits are regulated by the Mortgage Credit Act according to the category of property. The maximum LTVs have been changed frequently, as documented by Knøsgaard (2009). The MCA 2008 prescribes lending by mortgage credit institutes limited to loan amounts up to a maximum Loan to Value ratio (LTV) of 80% of the property value for specified types of property e.g., residential property; while the maximum LTV ratio of 60% for e.g., office buildings and summer houses, see table A.18.

Use of property	Maximum LTV	Remarks re. Assessment method
1) Owner-occupied all-year residences, 2) Private co-operative housing, 3) Private housing for letting, 4) Non-profit rental housing, 5) Youth housing, 6) Housing for the elderly etc., and 7) Properties for social, cultural, and educational purposes	80%	3.) Imputed rent assessment method mandatory 7.) Assessment based on replacement value may be used
Agricultural holdings and forestry property, orchards, etc.	70%	Both market value and profitability are to be considered
1) Recreational dwellings, 2) Office properties and retailing properties, 3) Industrial properties and craftsman's properties, 4) Collective energy-supply plants	60%	Re. 2): Imputed rent valuation method mandatory 3) and 4) Replacement value optional
Other properties, e.g. unbuilt-on plots	40%	
A few exceptions are permitted, e.g., § 6: “Loans exceeding the lending limit may be granted, if they are guaranteed by a public authority for that part of the loan, which exceeds the lending limit”		

TABLE A.18. Maximum Loan To Value ratios by type of property pursuant to the Mortgage Credit Act, §5

Mortgage pledges need to respect prior charges in the legal registry, so that their value also needs to be included, when calculating the LTVs. If the property is burdened by prior pledges or duties, such commitments have to be capitalized and deducted, so that the total pledges respect the defined limits.

The remaining financing required for real estate investments are normally provided through commercial banks. Banks are also widely needed for intermediate financing and guarantees required during the construction process and/or until registration of ownership and mortgage pledges are completed in the legal registry system (Tinglysning). Since such top-up bank financing follows in priority of collateral security after the mortgage credit, the banks are also more exposed to risks and losses in case of default, but usually have intimate details of applicants' credit history.

It is noted that the Danish Mortgage Credit system is not designed to provide intermediate financing (“byggelån”) at the construction phase (Boligministeriet, 1987, pp. 73). It is however, possible to engage in a mortgage credit prior to construction, if adequate guarantees can be provided through a bank based on the plans, permits, etc., partly in the form of bank guarantees on completion of the project, partly guarantees on servicing the loan during the construction process.

Regulation of maximum LTV's relies on the assumption that Mortgage credit is safer within lower values of LTV. However, collateral security may relate to whether the borrower has equity, rather than more expensive

financing of the value above the mortgage credit ceiling. If housing is financed with a more expensive “top-up” loan, total financing costs are raised. In such cases the risk of un-willing default of borrowers could be higher with lower LTV’s (Ladekarl, 1997). A more precise indicator of risks would in these cases be borrowers’ Income to Debt Ratio, a measure also recommended by economists as a key indicator of mortgage finance along with the indicator of LTV (EMF annual conference, 2008).

The Mortgage Credit Act does not prescribe underwriting of the borrower’s ability to repay the mortgage, except in the case of certain business properties. In those cases when assessment of property values are based on replacement value, is prescribed an assessment of the borrower’s creditworthiness pursuant to regulations of the Financial Supervisory Authority, Finanstilsynet, (Bekendtgørelse 1148, §16).

However, MCI as independent private business entities are *not obliged* to provide mortgage credit within the mentioned maximum limits, and a check of the borrower’s creditworthiness has long been part of internal procedures of the mortgage credit institutes. As a standard, MCIs check if the applicant is registered in the register of bad debtors (www.rki.dk).

Since transactions typically depend on participation of a commercial bank for partial/intermediate financing and guarantees, it also follows that the banks investigate the applicants’ ability to repay the loan according to normal bank principles, and the bank may abstain from offering credit, if they consider the applicant unable to honour the commitment in question. Moreover, following the latest developments in the mortgage sector with networks of cooperating entities, financing of a property transaction is often treated as one case with different financial components by cooperating financial entities engaged in a network or members of the same financial consortium. Borrowers in Denmark are technically able to prove their income history, since personal incomes are declared and registered, irrespective of whether they are in private business or wage earners.

Finally, borrowers cannot walk away from mortgage debt in Denmark. Pursuant to the Mortgage Credit Act, borrowers are liable for the loan personally and with the pledged property:

*§ 23.-(1) Mortgagors shall be liable for the loan personally and with the mortgaged property towards the series or the mortgage-credit institution in general.
(2) Mortgagors shall not be liable for any other liabilities which the mortgage-credit institution may have incurred.*

Individual citizens can be traced through the Central Persons’ Register, and a complete infrastructure of public registers leaves no escape from mortgage creditors in Denmark, but debtors may still be unable to pay.

Legal provisions on Mortgage Loan conditions

One of the beauties of mortgage credit for housing is that it offers long term financing for an investment, which typically represent the single largest personal economic commitment in a lifetime.

Historically mortgage credit was issued at very long terms up to 60 years (Hein, 1888). With the accelerating pace of society maximum loan duration has also been shortened since 1970, but maximum loan duration and LTV’s have been subject to frequent regulatory changes (Knøsgaard, 2009).

During the history of the Danish mortgage credit system the prevalent loan duration has varied. Currently the *maximum* duration of a mortgage credit is 30 years for owner-occupied housing and weekend dwellings as defined by the Mortgage Credit Act 2003 (§4):

*§ 4.-(1) Loans granted to year-round owner-occupied housing and weekend dwellings shall not be granted notwithstanding the security provided, so that the loan is amortised slower than for a 30-year loan repaid in installments of a fixed percentage share of the principal over the term of the loan (annuity loan), see however subsection (2) hereof.
(2) The requirement in subsection (1) hereof, may, within the term of the loan, be derogated from for a period of up to 10 years, observing section 3(1), 2nd clause above.*

A 30 years' time span shall be seen in relation to the typical length of an active working life.

Re. Amortization:

Annuity loans have historically been the standard form of mortgage credit until the late 1980's, when new mortgage products were introduced (mix loans) as part of a tighter financial policy. Other mortgage credit products have been introduced: index-linked loans, adjustable rate mortgages (ARM), etc. A description of the variety of mortgage products is not the topic here, but an overview over loan types can be found at: <http://www.finansraadet.dk/danish/menu/publikationer/laantilerhvervslivet/realcredit/laanetyper/>

A shift in the Danish mortgage credit history occurred in 2003 with the introduction of Interest Only Mortgage loans (IOM), ref. to §4 section 2 of the Mortgage Credit Act (above). It opened for access to mortgage credit without down payments on the outstanding principal for periods of up to 10 years. Since mortgage credit can be prepaid by the borrower, the IOM option can in theory be applied endlessly, if the conditions of lending are still fulfilled, and if a mortgage credit institution accepts the case.

With the introduction of IOM and ARM, these forms of loans have come to represent a major market share among new mortgage loans. Concurrently housing prices have increased dramatically, and it is a matter of concern if the wider access to mortgage credit has contributed to the price bobble (Lunde 2005, 2008, 2009). IOM-loans are also a concern for lenders, because without a continued reduction of the principle, the borrower is more susceptible to the risk of a negative equity situation, if – or when - market prices decline.

The latest Mortgage Credit Act illustrates the transition from mortgage associations with joint and several liability to mortgage credit issued based on reserve funds and own funds of the mortgage credit institution: MCA §§ 23-26. Some loan series issued by former associations have specified several and joint liability. Their serial reserves are duly fenced off, and members are entitled to receive disbursement of a share thereof upon completion of their loans, §25, a feature being phased out from legislation as the old series expire.

8.3 Collateral Security: Legal Protection of Mortgage Pledges and Access to the Collateral

Property rights and property rights registration incl. mortgage pledges

The emphasis in the Danish mortgage credit system is on protecting lenders' investment through high security of collateral, but the system is also developed so as to prevent the worst case scenario of default, or to keep the level of forced sales at a minimum.

The Danish regulatory system with its supportive administrative infrastructure ensures:

- Safe and reliable definition, registration and transfer of property rights;
- Access to valid information on property rights including property identification, location, ownership, burdens, priorities of charges, etc. without hidden charges
- Access to other binding real property data on e.g., planning
- Protection of collateral rights in order of priorities and protection of collateral e.g. against depreciation of the collateral value of the property through property mutations
- Protection of property rights against arbitrary takings
- Access to the collateral in case of default within acceptable time and costs through a fair process.

A basic principle of the Danish Mortgage Credit Act is its provisions on mandatory registration of properties and mortgage pledges in the public, legal register of properties, ref. to the Mortgage Credit Act 2003 §2 and §11 as a condition for issue of a mortgage loan. The public registration system offers protection of rights against third parties and is backed by government guarantees in the (rare) event of registration errors, ref. to the Public Registry Act, Tinglysningsloven, abbreviated TL.

“§ 2.-(1) Mortgage-credit loans shall be granted against registered mortgages in real property according to the rules in this part of this Act.” Mortgage Credit Act 2003

Mortgage pledges are well protected through the registration law through its provisions on defined priorities of secondary rights (e.g., TL §1, §§14-15) and protection against depreciation of the collateral during transactions with real property. As an example the law prescribes in detail how mortgage pledges are respected in case of subdivisions (TL §22), and registered mortgage creditors even have to give their permission to certain adjustments of property arrangements involving a minor land area (TL §23).

If there were to be found hidden charges on a property, such charges would undermine the collateral security of registered mortgage pledges. In addition to the legal protection of collateral through registration, properties also have to be adequately insured, when they serve as collateral for mortgage loans.

All landed property in Denmark has been registered in the cadastre since 1844, except for some town areas where cadastral mapping was completed in 1882 (Daugbjerg, Hansen; 2007). The legal registration system predates the cadastre, but the legal registry system is tightly connected with the cadastre through the unique cadastral parcel number.

The current legal registration law (Tinglysningsloven, TL nr. 539 af 8. Juni 2006) is a revision of the public registration act of 1926, which was so well prepared that only minor amendments have been required later for its adjustment to adjoining legislation and technical modernization (Olsen, 2008, p.18). The Danish legislation on legal registration of real property rights includes powerful clauses on protection of property rights and on mortgage pledges as a foundation of the market (Stubkjær, 2004, p. 217).

Both the cadastre and the legal registration system are now fully converted to digital formats and cover all forms of real property rights irrespective of ownership. An ongoing organizational reform will rationalize registration services further and offer online registration of property transactions in a simplified process integrated with updating of other public registers (Olsen, 2008). In parallel all data on property rights is available on-line. Thus the publicity principle of property rights protection is now enacted through public access to property data of the national property databases. Informal property transactions are unknown in Denmark.

On this background the Danish systems of registration of property, has given the mortgage credit system a flawless basis of property rights protection combined with public access to information on properties and transactions, notwithstanding the initial implementation difficulties of the fully digital system in 2008-9.

It is suggested here that the provisions in the Mortgage Credit Act on mandatory registration of mortgage pledges on their part have also strengthened the importance of the legal registry ever since 1850. Currently mortgage transactions constitute a major proportion of the property registration activity in the public registry, and consequently also contribute with a substantial part of public revenues generated from registration fees, ref. to Table A.19 below.

Effective registration systems with low transaction costs constitute a profitable service both for generating public revenues, and for strengthening the mortgage market, not to mention the indirect benefits discussed in Part C.

Legal provisions on default and foreclosure

Provisions and procedures for foreclosure have been in place since the first mortgage credit act was passed in June 1850. When the first Danish constitution was issued in 1849, a decision was made to create a Civil Procedure Code (Retsplejeloven), including rules as to enforcement, execution/seizure and forced sale (through the courts), (Spang-Hanssen, 2009).

As illustrated in the painting by Erik Henning (1892), foreclosure was also effective – irrespective of season.



Fig. A.12. Painting by Erik Henningsen, 1892, "Sat ud", 1892, Statens Museum for Kunst (gengivet uden tilladelse, shown without permission)

Legal access to the underlying collateral continues to be effective in case of default. This is both a matter of legislation, and of standardized procedures defined to achieve a fair process and the best possible price at a forced sale (Trangeled, 1996).

The standard procedure of foreclosure dictates early contacts to be taken by the Mortgage Credit institutes with the debtor, and establishing swift communication from the Mortgage Credit Institution to the judicial system to initiate the default procedures as described by Spang-Hanssen, (2009). The number of borrowers in arrears is indicative of the status in the market, ref. to statistics at Realkreditraadet, <http://www.realkreditraadet.dk/Statistikker/Restancer.aspx>

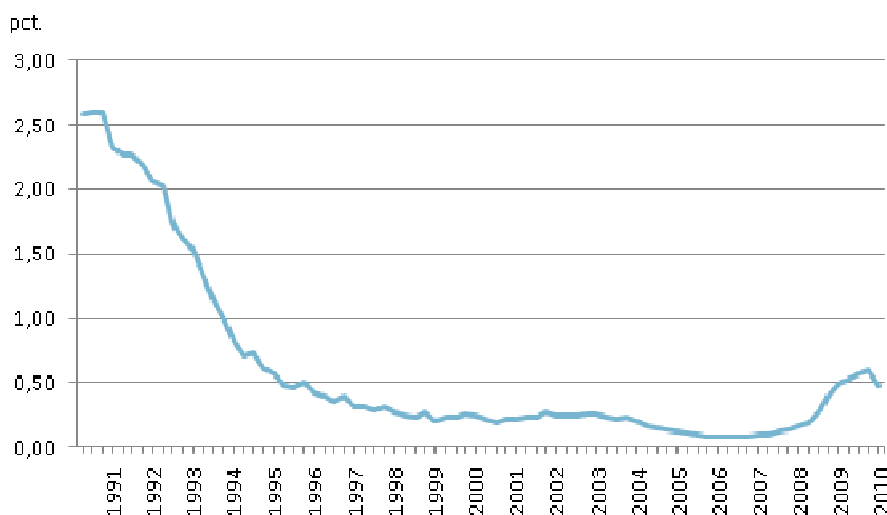


Fig. A.13. Delinquencies of Mortgage Credit Institutes 1990-2010, Source: Realkreditraadet and Realkreditforeningen, 2010

Prior to a forced sale the court calls meetings with the debtor to explore if voluntary sales or preventive settlements can be found with creditors to prevent a forced sale to go through an auction.

Pursuant to current standard procedures, the court shall first summon the debtor for an information meeting, and may appoint an attorney to help the debtor with realizing a sale or with preparing for the auction. In case the forced sale cannot be averted, the court system calls a preparatory meeting, and prepares sales information to be widely published (www.tvangsauktion.dk). The overall purpose is to achieve higher auction prices to the benefit of both debtor and creditors. Statistics demonstrate good results in so far as a large proportion of defaults avert going through the full foreclosure process to public auction, (statistics available at www.dst.dk).

The average duration of a full foreclosure process in Denmark is six months. At an auction property rights are instantly transferred to the winning bidder of the auction, and all concerned legal charges are cleaned from the land registry. If the proceeds of the auction do not cover outstanding debt, the debtor remains personally liable for the uncovered amount. The level of defaults is relatively small, although a market crisis is instantly affecting the level of defaults.

Statistics Denmark records number of announced forced sales by month, which can be seen as an indicator of the property market, ref. to <http://www.statistikbanken.dk/statbank5a/default.asp?w=1366>. Developments in the announced monthly auctions are shown in Fig. A.15, but not all announced auctions are conducted, due to pre-action efforts of averting forced sales. Statistics on number of properties taken over by mortgage credit institutions is available from www.realkrediteraadet.dk.

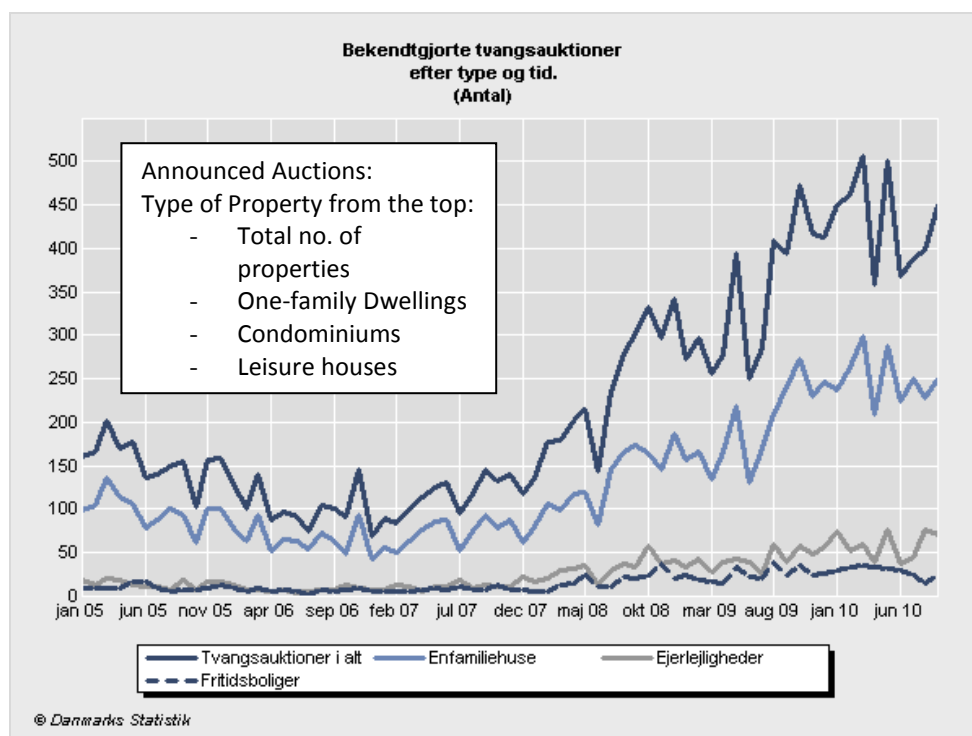


Fig. A.15. Announced monthly number of auctions by property type 2005-2010, Source: Statistics Denmark

Only a proportion of announcements results in actual forced sales, thanks to pre-auction voluntary settlements. As an example in year 2000 in total 2.584 forced sales were announced, but only 1502 public auctions were actually conducted.

Spang-Hanssen (2009) has described Danish foreclosure procedures in depth and has analyzed statistics on foreclosure in Denmark over a 30-year period, as illustrated in fig. A.14. It can be seen that foreclosures in Denmark are relatively few in comparison with the market size, and that foreclosures peaked in 1990, when the effect of credit rationing seriously impacted the property market.

Forclosures 1979-2008

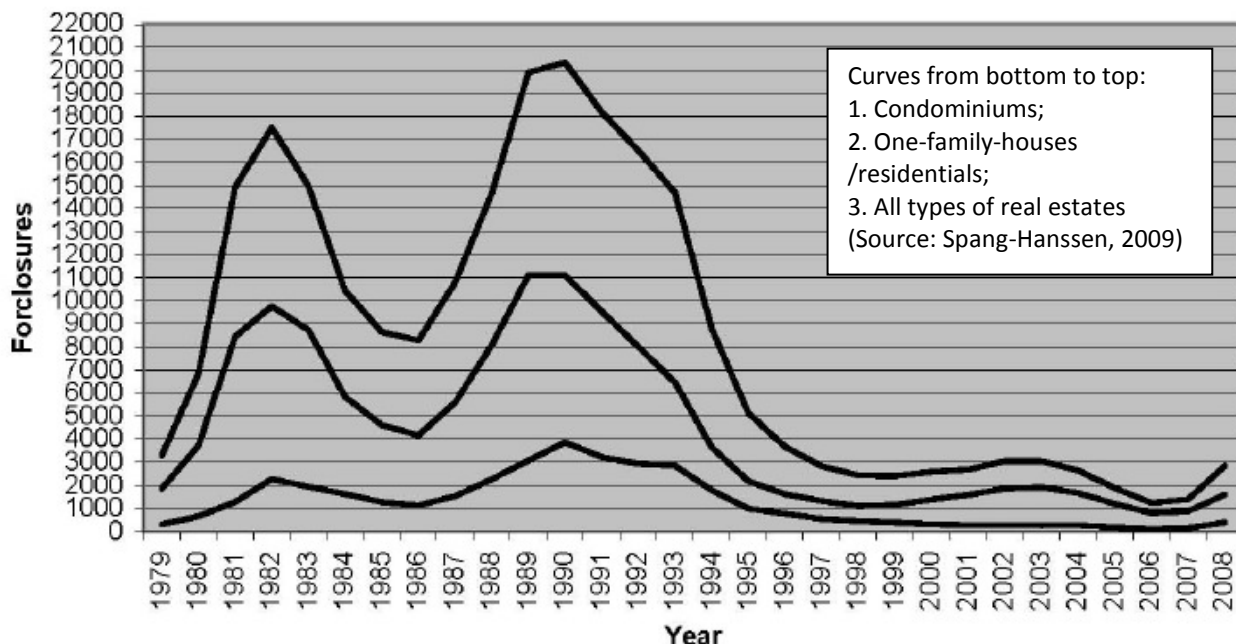


FIG. A.14. Graph over Danish real estate auctions between 1979—2008, Tabel 1, in (Henrik Stakemann Spang-Hanssen, May 2009 – Page 6 of 82). (Source: Statistics Denmark’s database “Announced Auctions”— Graph prepared by Spang-Hanssen on 14 May 2009).

In the cases, when auctions do not render satisfactory prices, Mortgage Credit Institutes may choose to take over the properties, and hold them until they can sell them at a satisfactory price. Taken over properties are indicative of the conditions in the market, Fig. A.16. In comparison there were around 1.4 million private dwellings in Denmark in 2008.

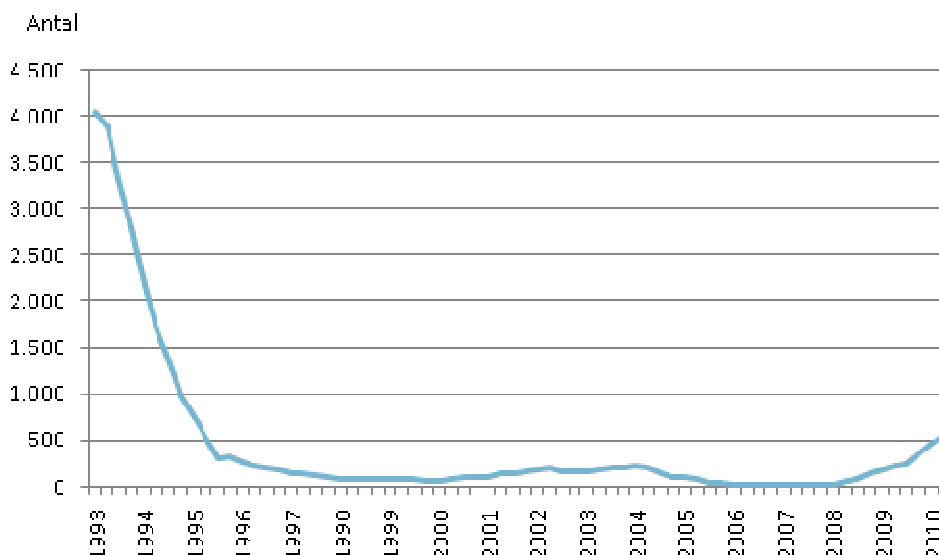


Fig. A.16. No. of Properties taken over by the Mortgage finance Institute, 1993-2010 (Source: Realkreditraadet and Realkreditforeningen, Latest update Q2, 2010).

All the statistics on foreclosure etc. shows that the global financial crisis of 2007-2009 has not caused as big problems in the Danish housing and mortgage market, as the mortgage credit rationing policies of the 1980’s and the 1990’s did. When comparing to foreclosure rates and other difficulties experienced in the US market

during the same period of 2007-9 with foreclosure reaching dual digit % levels, the contrast between the qualities of the mortgage financing systems stands out.

Concluding comments

Effective foreclosure constitutes a sharp condition for security of collateral, and malfunctioning foreclosure systems have negative implications for availability and cost of credit (Djankov, et al., 2008).

It is presumed that effective foreclosure has a preventive effect, and sharply reduces attractiveness of strategic default, as indicated by findings of Gent and Kudlyak (2010) on the impact of access to recourse in some states of the US. Well-functioning foreclosure regulation and procedures affect behavior in the market and install discipline through the incentive structure, whereas investors respond negatively to poorly functioning debt enforcement.

The level of foreclosures in the Danish mortgage market is small, even during the recent crisis, in proportion to the volume of credit delivered through the Danish mortgage market.

It is suggested here, that swift foreclosure of the few is the necessary price to be paid for a low-cost credit system to the benefit of all. Those (unfortunates) who do default have to be assisted in other ways than through the credit market, e.g., by availability of alternative rental housing in different qualities, locations and price classes. Diverse tenure forms in the housing market may therefore be a quality that serves beneficial to conserving the health of the homeownership sector - and mortgage markets.

It is argued here, that the benefits of swift foreclosure far outweighs the social costs, because effective foreclosure lowers the costs of credit for all and attracts capital, thus widening the access to real credit.

9. SECURITY OF COLLATERAL: On Property valuation and loan underwriting by Mortgage Credit Institutes

“Mortgage lending entails certain risks that have to be properly managed if the business is to be successful”, (UN-ECE, 2005, p. 13)

9.1 Property Valuation as a Basis for Loan Allocation

The Achilles' Heel of Mortgage Financing

Since legal rights are well protected, and the collateral can be accessed effectively through working procedures of foreclosure, it can be concluded that questions of security of collateral in Denmark are basically related to the collateral value: of assessing collateral *value* as a basis for loan allocation.

The challenge is to assess the value of the real property in question conservatively and according to best practices, so that the probability is high that the value of outstanding debt continues to stay well within the future market value of the pledged property.

Performing reasonable, yet conservative, valuations is no easy task, as stated by numerous authors:

“Valuation is the Achilles' heel of mortgage credit system” (Callø, 1932, p. 296), in particular in economic growth periods, since assessments have to stay within conservative limits of the long term market prices, which are difficult to predict - and easy to overrate - when market trends are positive.

Kristensen calls property value assessment *“a capitalized hope for the future”* (Kristensen, 1932, p. 324).

”Men Billedet skifter ganske, naar Nedgangstiden melder sig og det viser sig, at det kapitaliserede Haab til Fremtiden, der bar Ejendomsværdierne og Pantegælden oppe, ikke gaar i Opfyldelse.” (Kristensen, 1932, p. 323)

“The picture changes entirely when an economic downturn occurs and it becomes apparent that the capitalized hope for the future, that had previously kept the property values and mortgage credit high, does not materialize”

Clearly, assessors must be sound and reliable persons, but cannot be expected to be experts in macro-economics, and even if they were, scholars of macro-economics also often fail in predicting steep turns in the property market.

Striving for high accuracy in property assessments might well be illusory, given potential market fluctuations at a different scale caused by macro-economic events. Nevertheless, margins of safety, conservative assessments, and diversification might better counter long term uncertainties of the property market.

In respect to local variations, the Danish mortgage credit system has an advantage through its composition of collateral pools, characterized by large diversity (and dynamics), because they are related to the definition of the loan series, not the type or location of property.

Thereby collateral pools are by definition in-homogenous with regard to geography, type of property, and value. In contrast to the collateral pools of MBS's in the US mortgage market, the Danish collateral pools backing each mortgage credit loan series conform with the concept of diversification by not being tied to a particular sub-market of property.

Principles of Collateral Value Assessment

Valuation principles as a basis for mortgage lending are set out in the Mortgage Credit Act, 2003:

MCA § 10.-(1) The mortgage-credit institution shall set an estimated value on the real property to be used for the loan authorisation.

(2) Said value shall fall within the amount that an experienced buyer with knowledge about price conditions and market conditions for the relevant type of real property would be deemed to be willing to pay for said property (market value). Conditions which occasion a particularly high price shall not be taken into consideration during valuation.

(3) The mortgage-credit institution shall in its valuation take into account any risk of changes in market conditions or structural conditions.

In case of special properties, such as properties for commercial or cultural purposes other or supplementary valuation principles are prescribed (replacement value and imputed rent methods). Valuations for mortgage lending have to strive to be more precise than the general public valuation conducted as mass appraisal and must take special conditions, including the maintenance state of the property in question.

Consequently, property valuations for mortgage credit have to be conducted with due consideration of a range of issues such as:

- Collateral market value at loan issue, typically sales price
- Local market peculiarities, e.g., in case of a price deviating from normal levels
- Precautions regarding future market value variations
- Current maintenance state of the property - in- and outside
- Protection of the quality and state of the collateral over time.

Property valuations have since the beginnings of the mortgage credit system been a critical issue dependent on competence, incentives, and ethics in the whole valuation set-up, e.g., to avoid undue interference between credit sales activities and assessment.

Valuations have been organized as a local network of reputable assessors recruited from the local areas, with an insight into the local markets, e.g. as farmers or most recently, trained as assessors.

Valuation of property is becoming even more important, given the latest developments:

- New mortgage products without amortization of the principal for shorter or longer periods. The property value is only assessed once at the time of granting the loan. Subsequently, the market prices may fall, even under a conservative assessed value according to the law. Then the principal of a

traditional mortgage credit could, for a period of time, be larger than the maximum lending limits (a condition described as having negative equity or what is colloquially called , being „*under water*”). With traditional amortization, the principal is reduced over time, meaning that the lending limits become less critical as the loan matures. This is not the case with “interest-only” mortgage loans.

- The appearance of so-called SDO and SDRO with the requirement of regular re-valuation to ensure that the total outstanding debt of a mortgage credit institutions stays within loan limits at any time. Mortgage credit banks need to back the uncovered proportions of outstanding debt with base capital.

In practice, the quality of valuations depends on setting up a sound organization with an in-built healthy incentive structure, and with a network of assessors having clear principles for execution with well-defined standards and instructions. Valuation quality can be enhanced by the availability of good market information, by use of market statistics, and by other types of supportive data. The Danish development history has shown the importance of having competent and trustworthy assessors with a good insight into the local property market. At the same time, they must not have any – direct or indirect - personal interest in the actual assessment, and they must be independent from the sales policies of the credit organizations.

The performance incentives of assessors must be of a healthy nature, and not be tied to value. System controls and oversight must be functional and effective. Such prerequisites are both demanding and critical, since the prudence of each single assessment contributes to the foundation under the mortgage credit system.

A distinction is to be made between the individual property assessment process and the generalized valuations derived from market statistics.

Collateral values are critically important at the level of specific loan applications as well as at the conglomerate level. With SDO/SDRO requirements LTV requirements have to be fulfilled at both levels, and the latter has to be continuously respected through adhering to capital coverage standards within the mortgage credit bank.

Globalization has opened for both indirect and direct investments in property worldwide, which again adds to the importance of market valuation. Furthermore, valuation of property becomes generally critical, when real property becomes part of the company balance sheet.

Loan Underwriting

A difficulty in any long term credit is generally the nature of asymmetric information in the relation between borrower and lender, (UN-ECE 2005, p. 11-12), and the difficulty of predicting the borrowers’ ability to service a loan in the long run. Information systems can help reduce this information asymmetry.

As mentioned above, borrowers’ payment ability was not originally an explicit part of loan underwriting by the Danish mortgage associations, although it cannot be excluded that local assessors, who knew people well, could have taken other aspects into account in special cases. The basic principle of credit allocation was assessing ‘bricks only’, the value of the property as a basis for loan allocation, as evidenced by the widespread practice that mortgage loans followed the property in a sale, *ei.* were taken over by the new owner in a sale.

That principle was maintained after the 1989 revision of the Mortgage Credit Act (Ref. to Boligministeriet, 1987, p. 69), but it has long been standard to check if applicants were registered in a “Register of Bad Debtors” (www.rki.dk (Ribers Kredit Information) –founded in 1971).

The current Mortgage Credit Act does not prescribe loan underwriting of the applicants credit history or ability to honour the debt, except in the case of commercial properties. However, standard procedures of loan application do in actual practice include an analysis of applicants’ economic situation.

Mortgage Credit is still allocated on the basis of assessed value of the pledged property, but personal and household incomes are now documented as part of a mortgage loan application. The closer the loan amount comes to the maximum LTV-limits, the more critical becomes the personal income and credit history.

Mortgage loan conditions offered by MCIs are graded according to how safely the borrowed amount falls within the LTV limits.

Documentation of the applicants' capacity to honour his debt obligations at the time of loan issue is no guarantee that the person will continue to be in a favourable economic situation throughout, until the loan expires, although probabilities can be estimated based on statistical profiles generated by the Mortgage Credit Institutions. The MCI has its own interest in helping customers find feasible mortgage credit arrangements suited to their particular circumstances to reduce the risk of default.

Thus underwriting of the borrowers' credit capacity, although not prescribed in the mortgage credit act, has become part of both business practices and ethical standards of "Responsible Lending", (ref. to EU guidelines, 2009). Responsible borrowing is equally important in a market based system that by nature does not eliminate personal risk taking, see the presentation by the President of the European Mortgage Federation, Peter Engberg Jensen, at the Annual Conference 2010, <http://www.hypo.org/Content/default.asp?PageID=575>)

9.2 Public Information Infrastructure

Information Requirements

The underlying logic of the importance of information for mortgage credit can be summarized as follows:

- Lower information costs mean lower transaction costs, and thus cheaper credit;
- Quality of property valuations depend on availability and quality of data, etc.
- Better information improves transparency; transparency reduces uncertainty thus risk; reduced risks decrease cost of credit;
- Transparency in the primary market (property market) enhances market efficiency.

From this trail of thought it can be derived that mortgage credit development depends on the public information infrastructure, although information can also be built in proprietary systems or offered by private providers.

Beyond the specific contributions to mortgage credit affordability, transparency and information are also regarded as contributing factors to overall economic development, as discussed in Part C.

Public information infrastructure in Denmark concerning property data generally benefits from complete and updated key data on both persons and properties, especially personal IDs, property IDs and the adress ID system. Other public databases, such as the buildings and dwellings register, have certain deficiencies in data quality and updating standards. Information as concerns persons' credit history is available in the form of a "Register of Bad Debtors", a privately owned service, www.rki.dk.

Property market data - sales statistics – is captured in the public valuation system, and various private entities also record sales statistics. However, the mass appraisal system for property taxation has been given less priority due to property tax policies during recent years, and the property registration system and cadastres are not producing dedicated statistics for monitoring e.g., of the development of home-ownership.

In Denmark each of the mortgage credit institutes has also established their own extensive databases with sales statistics and other market information in support of their assessments and business decisions.

Instructions on property valuation for loan underwriting have been tightened as concerns assessment of underlying collateral of mortgage credit according to CDO /SDRO principles, ref. to (Finanstilsynets Bekendtgørelse nr. 687, 20. June, 2007). Although not mentioned explicitly, the type of data specified as required for valuation appears to be extracts from various public databases, the Cadastre, the Land Registry, the Building and Dwellings Register, etc.:

"§ 28. Værdiansættelsen foretages på grundlag af oplysninger om ejendommens grundareal, bygninger, tilbehør, rettigheder og forpligtelser, herunder bebyggelsesregulerende bestemmelser. Der skal endvidere

foreligge oplysning om ejendommens senest offentliggjorte ejendomsværdi samt fornødne oplysninger til bedømmelse af ejendommens forrentningsmuligheder m.v., herunder lejekontrakter, lejelister eller lignende samt andre forhold, der påvirker ejendommens værdi. Såfremt ejendommen er handlet mindre end 6 måneder før lånetilbudstidspunktet, skal der foreligge oplysning om handelspris og vilkår.”

The use of public data infrastructure for monitoring of property values is further specified in §30 (2), mandating Mortgage Credit Institutes to develop a dedicated appraisal model based on “.. *recognized, documented and publicly assessable data sources*”. The appraisal model applied by each Mortgage Credit Institute must be approved by the FSA, Finanstilsynet, pursuant to §30 (2).

“§ 30 Stk. 2. Instituttet kan, til brug for den løbende overvågning af en ejendoms værdi, anvende en dokumenteret værdiansættelsesmodel, der er godkendt af Finanstilsynet. Modellens statistiske oplysninger skal som minimum baseres på anerkendte, dokumenterede og offentligt tilgængelige kilder.”

In addition, a mortgage credit system financed through mortgage-credit bonds is tightly related with the financial infrastructure in a kind of symbiosis to allow bonds to be issued simultaneously with loans and to be traded continuously.

On Information, Transactions and Transaction Costs of Mortgage Pledging

Registration of mortgage pledges has taken place for over 160 years through a legal registration system designed to handle mortgage pledges safely, and pursuant to long established legislation and practices. How transaction time affects the property and mortgage market has been illustrated during transition to the fully digital system from September 2009, because the costs of delays caused by initial technical problems were quantified in terms of the costs of intermediate financing and other negative effects for the parties involved.

A new Authorization Process (“anmelderordning”) has been introduced to allow a pre-authorized mortgage credit institution to register mortgage pledges in the digital registry in real time immediately at the time of the loan agreement with the effect that costs paid by the borrower for freezing the mortgage bond selling rate during the elapsed time between loan agreement and final registration are saved (interest rate guarantees). Hereby this new feature of the digital registration system is expected to eventually save home owners an estimated total of DKK 100 million per annum in intermediate financing costs alone (Olsen, 2008, p. 214).

During times of interest rate changes, when large amounts of mortgages are prepaid and re-mortgaged, a digital process is expected to relieve the system of backlogs, which have occurred in the past.

Current mortgage pledges are registered in the digital registry by key information and a scanned version of the mortgage pledge. Gradually, all mortgage pledges will be converted to a digital format, as changes are registered. Mortgage pledges without expiry dates have been granted exemption from fees during a 5 year transition period, as an incentive to promote their conversion to a digital format.

The level of transaction costs is a matter of taxation policy, but it will less be of an issue of costs accumulated from time elapse, waiting times, and expedition duration, although an effort is still required by parties and advisers involved in a mortgage transaction.

The Basic Fee Structure of the Danish Legal Registration System is currently:

- Property sales: DKK 1.400 (€ 188) + 0.6% of sales price or public valuation (which ever is higher)
- Mortgage pledges: DKK 1.400 (€188) + 1.5% of the mortgage principal.

If mortgages are later re-mortgaged within the same amount of principal, only the basic fee of DKK 1.400 is charged; otherwise adding a charge of 1,5% of the amount exceeding the previous principal.

Everyone can access information in the registry by using a digital signature. However, for every extract of information system there is a charge of DKK 30 (€ 4). Registration on one property is divided into 4 data groups (screens), of which one represents all mortgages. To extract all information on one property the fee will be DKK 120 (€ 16). Users pay online by credit card. Owners can access information on their own property free of charge.

The charge on accessing information is not insignificant, and will probably prevent people from simply surfing through the system for entertainment purposes to e.g., look at peoples’ mortgages, but those willing

to pay will still have unlimited access to information on specified properties, by use of an identifier to a property, typically a street address. This is essential for the functioning of the property market.

Still, the easy access of the old days is gone, when anyone could walk into the local Registration Office and look up information in the land registry free of charge, irrespective of the number of properties looked at, and without having IT-competency. The technical progress has come at a price of a higher technical threshold level for users.

Property rights to financial assets have to be precisely managed by the technical systems with an impeccable integration to clearing of the gigantic sums transferred on the capital market, as provided through the systems of VP Securities A/S, www.vp.dk.

The role and responsibility of VP Securities A/S is to issue electronic financial assets, register ownership and rights, transactions of securities and clearing of payments, and a number of services associated, which ensures that the capital market is operating fully transparent and secure (Ann Bøttern Jensen, 2003, P.24). In consequence VP securities A/S manages a large number of securities accounts, one for each investor – small or large – in total around 3.6 million accounts (VP Annual report 2008), which permit each investor to secure their rights to securities such as mortgage bonds or shares.

The number of transactions with financial assets is staggering both in number and the volume of assets. Danish mortgage bonds issued by the Mortgage finance institutions represented the largest volume of financial assets registered and traded through VP Securities A/S, in the year from June 2008 to May 2009, 86,9% of the value of all traded financial assets in that period were bonds. The total market value of Danish mortgage bonds constituted DKK 3,372 billion, distributed on 2.474 series, by end of year 2008.

The value of financial assets traded through VP Securities is staggering: In 2008 the turnover reached DKK 30,702 billion, of which 25,642 billion in bonds (VP Securities A/S, Annual Report 2008), ref. to Table A.20.

The normal level of securities trading is around 35,000-40,000 transactions per day, but in 2008 VP Securities experienced peak loads of up to 200,000 securities transactions per day, due to unusual activity in the capital market. Hereby it was demonstrated that the VP's basic systems was capable and reliable beyond normal levels of activity, according to VP Securities A/S, annual report 2008, www.vp.dk. The system is currently also delivering technical infrastructure services for new developments of mortgage markets abroad e.g., through VPMEX.

Transaction Costs and Public Revenues

Revenues generated by fees and taxes levied on mortgage transactions reflect the high level of market activity. Mortgage pledges constitute the dominant form of property transactions in the legal registry. They contribute with the bulk of the revenues generated to the state by registration fees and taxes. The highest amount of registration revenues to date was recorded in 2006 at DKK 8,810 Million (or € 1,183 Million) for all fees, including fees for registering property mutations, transfers, and for registration of mortgage pledges. In comparison the total running costs of the whole Danish judicial system amounted to about 1,6 billion DKK (2008).

YEAR 2008 Revenues and Costs of Land Registration	Annual Operational Costs Mio DKK	Legal Registration Fees Mio DKK
National Survey and Cadastre, KMS*	237	
Special Land Registry Courts (Tinglysning)	232	
Total Judiciary System	1592	
Revenues Legal registration fees (Tinglysningsafgift)		7164

Table 19. Costs and Revenues of the Danish Land Registry 2008, in mio. DKK. Source: www.domstol.dk; www.kms.dk

*It is noted that the activities of KMS include general mapping activities not related to property transactions, and that no effort has been made here to calculate the net costs for running of the cadaster, which also includes activities outside the KMS.

The conversion to e-government in both institutions is expected to reduce the running costs on the longer run, once the transition process is completed, although the conversion was costly.

The legal registries (Tinglysningen) in Denmark receive about 3.5 Million documents for registration per year (Olsen, 2008). Only a minor part of these transactions represents property sales: about 100,000 properties are traded per year (www.dst.dk). In comparison, the number of new properties established in the national cadastre, KMS, was between 8,000 and 23,000 annually from 2000-2007 (Christensen, 2008).

Thus, the registration revenues are mostly generated from mortgage pledging constituted about 5 times the annual running costs of the Danish judicial system.

As it can be seen, the legal registry has become an essential service for a modern financial sector with a very high activity level. The underlying cadastre once established provides a stable basis, and there are relatively few mutations compared to the total number of transactions in the legal registry.

SUMMARY DATA (2000-) 2008	Number of transactions /year	Fees and taxes / year	Value of Assets registered (transacted)	Comments
The National Cadastre	8,000-25,000	Approx. DKK 100 Mill.	2 mill Properties, total value (public assessment 2007) DKK 5,600 Billion All ownership types included	Constitutes the stable basis for other transactions, but relatively few mutations
The Legal Registry, 'Tingbog' Property sales and transfers	Approx. t 100,000			National market
Tingbog Transactions in total, incl. registration of mortgage pledges	About 3.5 Mill documents	About DKK 8 Billion		The dominant type of transaction in the Legal Registry is registration of mortgage pledges to secure debt provided by Danish Mortgage Credit Institutions
Mortgage Credit and the mortgage bond market (general figures, order of magnitude)	New mortgage debt issued in 2008 at DKK 405 Bill ,of which 275,6 Bill for residential property *		Market value of mortgage bonds in circulation 2009: DKK 2,034 Billion Of in total DKK 3,372 Billion **, (All types of covered bonds)	International capital market

Table A.20 Summary data on the costs and revenues of the Danish land registration services

Sources:

<http://www.domstol.dk/om/publikationer/HtmlPublikationer/Aarsrapporter/Aarsrapport%202008/kap05.htm>

<http://www.domstol.dk/om/publikationer/HtmlPublikationer/Aarsrapporter/Aarsrapport%202008/kap03.htm>

<http://www.kms.dk/NR/rdonlyres/25FE79CD-931C-4123-BD1A-003D20D9AA0C/0/aarsrapport2008.pdf>,

The transaction fees and taxes may seem high, but they are in lower end when compared to other European countries, as shown by Wyman (2003). Whether they have had a negative impact on the market, as it could be expected in theory, remains an open question.

Even if the fees may not have reduced activity, it is still relevant to discuss the structure of fees and taxes levied on mortgage transactions, and consider if the level needs to be adjusted, once the new digital systems will be in place, and more experience will have been accumulated. However, it is clear that it will be difficult

to find alternative sources of public revenue of this magnitude in times when tax levels in general will have to be curtailed.

The point is made here that while the mortgage finance system depends on the legal registry, it has also enabled the development of the cadastre and land registry - partly through the revenues generated, and partly from being a driving force in advancing the cadastre and land registration systems, as was seen at the occasion of the legal reform of the Land Registration System in 1926, and with the on-going IT-technical reform designed to better service the financial sector.

Information Infrastructure and the European Mortgage Market

Evidence of the role of information infrastructure derives from the fact, that the EU-White Paper (2007, p.3) identifies a fragmented information infrastructure as constituting a barrier, which restricts cross-border lending, and prevents strategies of building more cost-efficient European real credit markets.

Each national system of property register, cadastre, and land registration, functions in different ways as concerns the operational dimension of the underlying infrastructure. Moreover, there are significant legal differences between the registration systems and the types of security they provide. In other words: the main bottlenecks to an open market on housing finance in the EU pertains not so much to the capital market, as to the national framework of the property registration system.

On this background the EU White Paper (2007, p. 9.) made recommendations on improvements on foreclosure, forced sales, and land registration procedures; it mandated improvements in the transparency and reliability of land registers, and in the use of reliable valuation standards.

Apart from that, the EU Commission set out to monitor the development in this specific area and publish regularly updated 'score boards' with information on transaction costs and foreclosure procedures in all member states according to EU-White Paper, (2007, p. 8). Member states are encouraged to participate in the EULIS Project, which has been sponsored by the Commission's Content Programme, <http://eulis.eu/service/>. Denmark has yet to do so.

Introduction of accurate and prudent valuation standards is the cornerstone of a secure international market for housing finance. The European Mortgage Federation has conducted a study on the Valuation of Property for Lending Purposes, 2007. At the same time new financial legislation has established a continuous need for supervision of the market value of the collateral basis for mortgages.

The study mentions the emerging introduction of the use of computer-supported valuations using GIS. Danish Mortgage institutions have already started applying GIS on a trial basis, since the Danish land information systems provide rich and complete data of high relevance for property valuation.

“Indeed, accurate and transparent property valuation is essential to the mortgage lending business as it promotes confidence in the collateral system. In this respect, property valuation represents one of the major building blocks of the mortgage system. The lender requires certainty that the asset being taken as a guarantee for a housing loan is of a certain value and will cover losses should the loan default. This confidence in the property value is one of the elements, which make mortgage debt a low risk, inexpensive way of providing housing finance and which in turn makes homeownership a reality for many throughout Europe.”

“Finally, the performance of the European Covered Bond and Mortgage Backed Security (MBS) markets is primarily driven by the quality of the underlying asset. One of the key elements defining credit quality will be the asset's original valuation when the mortgage was advanced and then subsequent valuations monitoring the value of the underlying asset. Only if the valuation process is transparent, accurate and consistent will investors be willing to purchase Covered Bonds and MBS.” (EMF, 2007, P. 7)

In this way, the property registration and valuation systems face new challenges to be able to meet expectations of the financial services market.

Concluding Reflections on Property Valuation

Property value is an outcome of both the real and the financial markets.

Information on actual market values can be achieved in many informal and formal ways. The better information systems, and the better assessors support the system, the easier it becomes to produce synthetic overviews and quality statistics. However, future values of properties will always be subject to a degree of uncertainty.

Obvious benefits derive from developing information systems well suited for supporting market valuation for mortgage finance, as well as for mass appraisal and taxation. Taxation and levying of fees for utilities are usually part of a functioning urban system, and depend on basic identification of persons, properties, and addresses. In emerging economies mass appraisal systems and associated information systems may not yet be well functioning, and would not *per-se* constitute a critical barrier to mortgage finance development, but basic identification and location systems are instrumental for the functioning of a mortgage finance system. Therefore, the existence of an address system might possibly serve as an indicator of the maturity of local administration and urban systems.

In advanced economies with large credit markets, the importance of property valuation is growing with increasing mortgage market sophistication. Previously maximum LTVs had to be respected at loan issue for the particular property in question. With new standards in the financial sector on capital coverage, mortgage credit institutes are obliged to monitor property values of pledged properties as a recurring and continuing activity as concerns fulfilment of the general level LTV's.

Pursuant to new legislation, Mortgage Credit Institutes are committed to use certain data for valuation, and certain valuation models for their assessment of the values of pledged properties. Thus, new standards in the financial sector appear to have strengthened the role of the public data infrastructure and statistics, including mass appraisal systems.

The importance of property valuations exceeds mortgage finance: real assets and their market value is a matter of macro-economic importance, as further discussed in Part C. Yet, this does not seem to be reflected in the priorities given to valuations systems (e.g., in Denmark), nor in the way property assets are represented in national statistical systems.

Irrespective, it is suggested here that lack of property valuation data, and good information systems, should not be a critical barrier to introduction of mortgage credit facilities, because market information can initially be achieved through appropriate networks of informed market participants, and consequently development of mortgage finance will entail creating a new dynamics in building or expanding information systems.

A. V Development of Criteria for Danish Mortgage Market Development

10. Special Features of the Danish Mortgage Market

10.1 Discussion of Unique Features vs. Generalization

Analysis of Context and Criteria of the Danish mortgage finance system

The development path of the Danish mortgage credit system has illustrated how different factors impacted on or enabled its development under different stages of economic development from a basic rural society to an advanced, globalized economy. Based on such observations one may make assumptions on what is likely to hinder or enable its functioning elsewhere. It is also to be considered that the mortgage system itself underwent changes over time with an increasing level of sophistication.

A distinction need to be maintained between what are/were the actual operating conditions in Denmark, and what are the expected minimum conditions for introduction of a similar system in a different country setting. Identification of unique features of the development path may be helpful in the process of generalization. An intuitive selection of features presumed to be tied to a particular time and context is outlined and discussed below with emphasis on institutional arrangements.

An attempt has been made to identify distinct features of the Danish development path, presumably difficult or infeasible to replicate. On the other hand, other recurring issues and patterns emerged through an analysis of the Danish development path, which could potentially transcend time and place.

The institutional arrangements of mortgage credit associations shaped the mortgage market in Denmark for over a century, and may have had profound impact on the current mortgage finance market, although now phased out and substituted by modern, mono-line financial business entities.

Peculiarities in the development path could possibly be tied both to specific institutional arrangements and timing, or to more vague notions of credit culture, whether considered an outcome of institutional arrangements or the causality is reversed (Francois, 2002).

Since questions on social capital and building of trust are of relevance for economic development, the mortgage credit institutional arrangements are discussed below in respect to selected issues such as,

- Mortgage Credit Associations, geography and valuation,;
- Cooperative movements, mortgage associations and solidarity responsibility
- Organization, voluntary agreements and state supervision
- Institutional investors and mortgage bonds in the capital market;
- Social dimensions of mortgage credit;
- Credit culture and trust;

As described in preceding chapters, mortgage credit associations appeared and expanded at a time when there was hardly any financial infrastructure. Commercial banks and savings banks were only starting to appear, so the organization of mortgage associations contributed to development of a financial sector from below.

The long time line has highlighted particular events of relevance for mortgage credit development, including political intervention. The history has shown signs of bidirectional dynamics, whereby the mortgage credit system contributed to and functioned during various economic development stages from an agrarian society to a post-industrial urban society in the 21st century.

It was shown how mortgage finance in Denmark developed with urbanization in a symbiotic relationship starting in the mid 19th century, and intensified after WWII in parallel with expansion of the private

residential sector from the 1960's. However, the question is, if it is possible to draw parallels with the potential role of the mortgage finance system in overcoming the challenges of financing urbanization around the world today at different stages of development.

How to meet the gigantic demands for housing at a global level with rapid urbanization, is one of the most challenging issues. In this context a market solution to housing finance at no cost to society, sounds as a *fata morgana*, but with a view to Danish history might be a real option.

Some observations of potential general validity are discussed on the basis of the historical development path of the Danish mortgage finance system in respect to the interdependency between development of mortgage finance and a formal property regime.

It is suggested below that

- At the initial development stage, (prerequisite for) it is the clarification of property rights that has the potential to trigger emergence and growth of mortgage finance;
- At any development stage deficient property rights, mal-functioning (/limited) property registration systems and enforcement procedures translate into higher transaction costs, costlier mortgage credit and deters investors (limited availability of capital);
- It appears that at an advanced stage of development, the roles are inverted: The property rights systems have a high level of inertia and the financial sector drives developments in information systems (high volumes, revenues! performance criteria), as can be seen e.g., in the development of the Danish Legal Registry ('tinglysning').

What follows below is a discussion of the above with reference to selected observations made by housing finance experts in an effort to extract from history useful information for mortgage market development today.

Regardless of what can be explained and reasoned, there is still space for a sensation of serendipity in the history and growth of the Danish mortgage finance system through initiatives taken by persons at a fertile moment, sustained efforts of honest and hardworking members of the mortgage credit associations, helped by functioning basic institutions. Moreover the finance system was preserved and developed over time, thanks to the absence of totally destructive factors like war destruction, revolutions or totalitarian regimes, which Denmark narrowly escaped during and after WWII – thanks to sacrifices of our allies that we tend to forget about in our comfortable modern homes.

10.2 Organisation and the role of mortgage credit associations

Membership organization, geography and valuation

The geographical segmentation of early mortgage credit associations was partly a result of early state regulation and practicalities connected with their constitution as membership organizations. Members should be able to attend the annual general assemblies, which at times were lively debate forums. The initial idea was also that the oversight of the valuations conducted by local assessors set limitations for how large a geographic area each mortgage association could cover considering the means of transport of the time. Market transparency was initially a matter of direct observation.

Eventually, area coverage grew much larger, and the collateral pools of the Danish mortgage securities are characterized by diversity and dynamics through substitution as borrowers /properties are added or withdrawn.

The solidarity principle of mortgage associations did in practice result in a large number of specialized real credit associations each targeting a geographic area and a segment of borrowers, whether large estates, small farms, urban property in larger towns, in smaller towns, etc. The logic behind the structure was that members of a credit association were considered having largely comparable credit risks, although the volume and geographic diversification later diluted such distinctions.

Since even the first three mortgage associations covered large geographic areas, that might have been a weakness from the start. Only one mortgage association had a relatively limited geographical expansion: the Credit Association of property owners in Fyn's Stift, praised by Hein for this reason (Hein, 1888, p. 428).

The geographical segmentation of mortgage associations had its drawbacks. A key concern for borrowers was selling the bonds at reasonable rates, since the selling rates - then and now - determine the proceeds of the loan and the effective interest rates of the credit. Mortgage associations operating in regions at a distance from the capital city suffered from lower selling rates of their bonds on the stock market in comparison with similar bonds originated in the capital area over the years (Salløv, 1937).

The idea of issuing common bonds for all Danish mortgage credit associations was debated in the 1890's, and proposals were prepared with the objective of achieving better prices with investors, but no agreement was found among the mortgage credit associations. Mortgage credit associations in the Copenhagen area were not keen in merging with provincial associations.

One of the incentives for later mergers of mortgage credit associations was to provide more attractive securities for investors through volume and standardization. To this day market volume has remained a major factor for determinants of the liquidity (and thus prices) of the bonds.

The need for reliable but conservative valuations has been a continuous challenge for mortgage credit associations at all times, since valuations also must consider the expected future values of the collateral without jeopardizing security, by seeking to disregard market peaks and peculiarities. The topic plays a central role in any analysis of the mortgage credit system, since legal regulations of maximum LTV ratios are without effect, if the assessed property values in practice are set too high. The principle of setting a long term reasonable price level is simple in principle but difficult to apply.

Problems stemming from too lenient or optimistic property valuations surfaced during times of crisis.

Mortgage associations maintained their popular foundation over time with an active participation of borrowers, e.g., through representative bodies and recruitment of respected, local representatives for valuation of properties. Thereby valuation of market values was performed by persons with an intimate knowledge of local conditions. However, a backside was potential influence on assessments by other factors. Irresponsible assessments could e.g. occur, when representatives in the governing boards promoted expansion through more lenient assessments designed to give applicants higher loans (Glud 1951, p. 117).

To counter favourism in loan allocation it was soon found necessary to structure decision making within the mortgage credit associations in separate layers, such as to avoid undue interference between loan allocation and the valuation of properties. Similarly, a fine balance had to be sought between membership influence, mobilization of local market knowledge and independency of valuations.

Responsible lending remains a central issue in 2008 for all types of housing finance, see EMF position paper on responsible lending (EMF, 2008).

The organizational form of the mortgage associations can be seen as a clever social construct for building trust among investors, and the loan conditions were designed to create low risk securities, the most important criteria for achieving good selling prices of bonds on the market, thus a key to cheaper credit. But it took decades, before investors' trust was strong enough to raise the price of the mortgage bonds on the market.

With an association's joint and several liability among its members (borrowers), the construct had created its inbuilt incentives for responsible borrowing and lending. Old members would be risk averting, if the system operated logically and according to the founding ideas and statutes.

A peculiarity of the construct of mortgage associations was the lack of representation of lenders, on which the whole system depended. The financing principle is one of a strict balance between loans and bonds, but

that was not mirrored in representation within the associations. However, investors had their clear (and daily) voice through the market mechanism, on which the mortgage credit associations depended.

On Solidarity responsibility in Danish mortgage credit associations

Mortgage credit associations were based on a principle of joint and several responsibility. An administrative fee of typically 0,5% of the outstanding debt, was charged on all members to cover administration costs and possible losses. A surplus would be added to the reserve fund owned by the members, or be redistributed among the members. Thus all members pay fees and share the profit on equal terms.

The solidarity coverage in Mortgage credit associations was tested already in the late 1850's, when one association, "Kreditforeningen af Købstadgrundejere i Nørrejylland" came into difficulties. It had been founded in 1852, but its lending practices had been less conservative than practiced in other associations (Hein, 1888, p. 423).

The international economic crisis in 1857 hit the association badly, and although it continued to issue credits & bonds until 1860, the late payments had reached such a level that by 1861, all members were levied an extraordinary fee of 1,5% and 0,5% of their nominal loans (Westlund, 1967, p. 44). The effect was that those members who could afford it or get alternative funding, prepaid their loans, and among the remaining members, the late payments increased. As Westlund concludes, '*The carrying capacity of the solidarity responsibility was inadequate*'. The association came under state administration and was gradually liquidated. Even if the credit association of Nørrejylland was a special case, it did reflect negatively on the reputation of mortgage credit associations for some time, according to Westlund.

Credit associations were exposed to other stress tests of the solidarity responsibility during the economic crisis of the 1930's. Three rural hypothec associations (granting credit in 2nd priority security) came into difficulties during 1931-35, but none of them dared to draw on the solidarity responsibility, according to Westlund (1967, p. 49). Their management preferred to await political intervention, presumably due to the nature of the economic crisis considered an income, not a credit crisis in the rural sector.

The resolution negotiated by the state with the credit associations included setting the one hypothec association in deepest difficulties under state administration, and granting borrowers a two year stand-by in amortization with extended duration of their loans, the cost of which was subsidized by the state: Crisis legislation permitted rural borrowers in trouble a derogation of payments up to two years (Callø, 1932, p. 310). A reconstruction in the sector included negotiated arrangements with groups of holders of mortgage bonds, who accepted to have their assets depreciated. In other cases two hypothec associations reconstructed payments to add funds to the reserves (Westlund, 1967). Still, the overall losses in mortgage associations – even during the worst crisis – were around 1 promille, only, but borrowers suffered, Chapter A.6.1.

In another case the solidarity responsibility came into effect, when one mortgage credit association (Østifternes Husmandskreditforening) came into troubles because of experiments with issue of double currency bonds/loans, a practice later abandoned. An extraordinary contribution of 1,25% was levied on all members from December 1924 to 1926 (Betænkning 552, 1970, pp. 242-243).

The extent of solidarity responsibility held by members of mortgage credit associations was clarified in the revised mortgage credit act of 1936 (Salløv, 1937, p. 79).

The new provisions specified members' responsibility as covering

- Personal liability for the specific mortgage credit of each member, but
- Each member is held liable with the property (only) against solidarity claims for a value of maximum 2/3 of the nominal value of the mortgage credit – irrespective of the remaining outstanding debt.
- If reserve funds sank under the minimum coverage defined in their statutes, the association was obliged to levy extraordinary fees on all members to replenish their reserves.

Even with this clarification, solidarity responsibility within the mortgage credit associations was still considerable.

In conclusion it is suggested that the solidarity responsibility of mortgage associations seems to have functioned in the Danish case more in indirect than in direct ways, namely as a deterrent for mortgage association management to administer issue of loans conservatively, and not to harm the interest of its members. If trust in the association would be questioned due to poor lending records or management, it would hit all its members both from losses incurred and through the market mechanisms in the capital market with lower prices achieved on bonds, as shown by an example of Callø (1932, p. 311) of immediate punishment by the market of irresponsible behavior from the side of a Mortgage Credit Association.

The solidarity responsibility has also served as a positive incentive for mortgage credit association management, since reserve funds accumulated as a buffer against losses were owned by its members, who could achieve a bonus, when concluding their loan commitments, if the reserves permitted so.

A feature of solidarity is still in place: Every borrower pays the same administration fee in percentage of outstanding mortgage debt, irrespective of credit standing, but this principle may be under dismantlement.

On Voluntary agreements and State supervision

Public participation in public affairs has long been strong in Denmark.

Popular movements of all kinds have widely been organized in Denmark as membership associations, whether in cultural forms or in matters of economic importance. Cooperation between public authorities and civil society has widely been channeled through representative committees or stakeholder councils with mixed public and private representation. A tradition of establishing joint committees and of resolving issues through negotiated solutions and voluntary agreements has long been a characteristic feature connection Danish public administration and civil society. Councils of this kind can be seen as instruments of self-organization and oversight. This peculiar form of organization was also characteristic of the mortgage industry from its early days.

Mortgage Credit Associations were from their foundation under an obligation to submit their accounts to the state according to their statutes, but the state was rather passive and oversight was limited. In 1887 the mortgage associations established a common committee primarily for development of cooperation among mortgage credit associations and resolving common problems (“Fællesrepræsentationen for Realkreditforeninger”). The common committee included state representation in its board (Realkreditraadets registratur, 2005). Over the years cooperation was intensified and more systematic state oversight was introduced with appointment of public representatives on the board of each Mortgage Credit association, and mandatory auditing of quarterly financial reports pursuant to revised mortgage act of 1936.

Compared with supervision of other financial branches, state supervision of the mortgage industry came in late. Bjerre-Nielsen (Realkreditraadet 25 år, 1997) compares the mortgage industry oversight to state supervision being enacted over savings banks from 1881, over insurance enterprises by 1905, and over commercial banks from 1920. State supervision over mortgage institutes only came gradually, and cannot be said to similar to banks until 1980, when transferred from ‘Realkreditraadet’ to the Ministry of Housing, and later to the Financial Supervisory Agency and regulated as other financial enterprises by 2003.

It is remarkable that the Danish Mortgage Credit System functioned over 130 years delivering liquidity to a large part of the Danish economy without much financial supervision. Already in 1910 outstanding mortgage debt financed by mortgage credit associations peaked at a level about 75% of GDP.

Presumably, the good track record can be accredited to a number of factors, but primarily the design of the mortgage securitization process with its inbuilt healthy incentives and organizational structure. The system is designed to function through healthy incentives, rather than rely on controls. Thus the securitization model based on the balance principle can be seen as a resolution to building stronger mortgage financial institutions in the 21.st century, rather than call for more control to overcome inbuilt design weaknesses of financial institutions, as suggested by Engberg Jensen (2009).

Apparently, the mortgage credit associations managed to build a high level of trust to the satisfaction of investors, and have avoided malpractices, which could have tarnished the institution as a whole and sow dissatisfaction among borrowers and the public. This stands in contrast to e.g., the experience with the Savings and Loans associations in the US in the 1980's and 90's (Ferguson, 2009).

The size of the country and its high degree of decentralization could be other contributing factors. That the mortgage credit associations functioned in an un-corrupt society with high levels of trust is another possible factor that made the construct possible. When there were no major scandals which attracted the attention of the public and law-makers, it could presumably also be accredited to the ethical standards of management, borrowers' representatives and staff (not the least assessors), who shaped and managed the mortgage credit associations over its long history. Thus the topic of social capital is of high relevance when studying mortgage credit associations. One may even view mortgage credit associations as structures converting social capital into real capital, as briefly discussed in Part C.

GLUD's assessment (1951) of the role of Mortgage Credit Associations in Denmark

The author of the 100 year anniversary book on the Danish mortgage credit associations, the economist, Troels Glud, made deep and valuable observations on the role of mortgage credit institutions in development (Glud 1951, pp. 146-147).

Glud's conclusions are here cited extensively (below in Danish) because he touches on central issues of on the role and impact of mortgage finance in economic development. The key observations are summarized in English below:

- Mortgage Credit Associations democratized credit and gave a broad section of society access to credit;
- The numerous holders of small properties (family holdings, houses), who constituted the core membership foundation of the Mortgage credit associations, would not in other ways have had opportunity to invest, and thereby increase their income;
- The growth of the mortgage credit associations combined with the cooperative movement has contributed to leveling of incomes and assets, and thus been of importance for the social structure in Denmark (low in-equality, low Gini-factor);
- Access to financing of property acquisitions contributed to raising salaries;
- The Danish mortgage securitization model made it easier for the smallest land owners in rural areas to access the international capital market, than for the larger entrepreneur to achieve access to the stock exchange, because the latter process required substantial capital;
- The Mortgage Credit associations have provided cheaper credit than available in many other countries;
- Relatively cheap real credit has permitted an expansion of agricultural production and lower housing costs, whereby giving more room for consumption, which again eased the pressure on salaries to the effect of better competitiveness (- An observation made in 1951. That was then!).

Glud underlined that borrowers have only been able to enjoy the benefits of the mortgage system, because of economic opportunities, which were *not* created by the mortgage finance system. Without access to credit, however, they had not been able to exploit market opportunities (Glud, 1951, p. 146).

In other words, a critical factor in introduction of mortgage finance is availability of employment, entrepreneurship and market opportunities. It can therefore be concluded that income earning opportunities are needed for development of housing finance. The same conclusion can of course be reached through simple logical reasoning, since borrowers need to have expectations of earning an income to pay their mortgage. Thus, employment opportunities are important, initial conditions for mortgage credit development, but development in the housing sector also generates employment and increases income.

“Har der saaledes ikke været Grundlag for Kritikken af selve Foreningernes Virksomhed, er det dog let at forstaa den Tankegang, hvorpaa Kritikken er bygget, at Kreditforeningerne ved at demokratisere og billiggøre

Kreditte for vide Kredse har bevirket et større Kapitalforbrug, end det ellers vilde have været muligt at opretholde.

Dette er utvivlsomt rigtigt, idet de mange smaa og mindre Grundejere, som danner Grundstammen i Kreditforeningssystemet, uden dette ikke havde faaet Mulighed for at investere i det Omfang, som Tilfældet har været, og disse Samfundsklasser vilde da heller ikke have været i stand til at erhverve tilsvarende bedre Indtægter. At de samtidig med deres voksende Indkomst har kunne sætte deres Forbrug op, er dog ikke ensbetydende med, at de laante Midler er anvendt til Forbrug. For saa vidt som Retten til Gældsættelse på billige Vilkaar ved Kreditforeningssystemets Popularisering ikke blot som i andre Lande har været forbeholdt de større Grundejere, er der Grund til at tro, at Udbredelsen af Kreditforeningerne i Forbindelse med Andelssystemet overhovedet har bidraget til en vis Udligning af Indtægter og Formuer og saaledes været af Betydning for Landets sociale Struktur – i hvert Fald har den lette Adgang til Finansiering af Ejendomserhvervelse bidraget til at hæve Arbejds lønnen (Glud, p. 146 med henvisning til Axel Nielsen: Dänische Wirtschaftsgeschichte, Jena, 1933, s. 530). Det er ogsaa sandsynligt at Kapitaldannelsens Utilstrækkelighed i Danmark og den deraf følgende Gældsættelse til Udlandet for en Dels Vedkommende skyldtes den saaledes tilvebragte Indtægtsudligning (jfr. Carl Iversen, s. 141), blandt andet fordi den høje Arbejds løn tilskyndede til Maskinanskaffelser.

At Kreditforeningernes Demokratisering af Erhvervslivet ikke blot er af formel Natur, men ganske haandgribelig, fremgaar af den Kendsgerning, at det i Tiden fra og med Systemets Udbygning har været og stadig er lettere for den mindste Grundejer paa Landet end for den større Næringsdrivende i Byen at opnaa Børsfinansiering, for saa vidt som Notering af Aktier forudsætter Emission af meget betydelige Beløb ad Gangen, saaledes at andre end Grundejere er henvist til Banker og privat Finansiering.

Det større Kapitalforbrug har dog ikke blot været betinget af, at de mange Grundejere har kunnet stifte Laan, men ogsaa af, at de gennem Systemet har haft Mulighed for at laane paa forholdsvis billigere Betingelser end i mange andre Lande, idet Tilskyndelsen til at investere særlig i Jord og Bygninger alt andet lige maa være større, naar det kan ske til en lavere Rente. Samtidig med, at Landbrugsproduktionen har kunne udvides paa Grundlag af billig Kredit, har ogsaa et omfattende Byggeri kunnet opretholdes med deraf følgende forholdsvis lav Husleje, hvilket har muliggjort dels et ret stort Forbrug, dels bidraget til at lægge en Dæmper paa den iøvrigt stigende Arbejds løn med deraf følgende større Konkurrenceevne for Erhvervene.

Naar dette kan konstateres, maa det paa den anden Side erindres, at Forudsætningerne for, at Kreditforeningssystemet har kunnet udnyttes saa stærkt, har været, at Grundejerne kunde drage Fordel af de foreliggende erhvervsmæssige Muligheder. Denne Forudsætning var ikke skabt af Kreditforeningerne, men uden disse var Mulighederne næppe blevet udnyttet i det stedfundne Omfang.”

(Glud 1951, pp. 146-147, Book is not available in digital format, nor translated to English)

Concluding Observations on the Role of Mortgage Credit Association in the Market

The organization form of mortgage credit associations constituted a clever organizational construction at the time in full accordance with the social movements of the époque in Denmark, and the organizational form proved to be long-term durable, until it was overtaken by necessary modernization in a fast developing financial sector.

Outstanding members of the elite championed the system through the new Parliament, and played a significant role in pioneering mortgage credit associations, which can be seen as part of a new democratic movement at the time (mid 19th century).

MCA's overcame the lack of financial infrastructure and modern communication by creating a network of local associations, which served both as distribution networks and created trust by tapping into the social capital of trusted citizens.

MCA's nurtured responsible lending through the solidarity risks among members of the MCAs, and the organizational format created transparency and democratic and social control mechanisms to a degree that state oversight could play a rather withdrawn and passive role.

MCA's also engaged with locally respected assessors in touch with the property markets, whereby loan allocations could presumably be founded on realistic market assessments, although there were reported cases of too optimistic property valuations.

The non-profit orientation of the MCA's and the construct's ability of attracting capital to borrowers, who would otherwise have difficulties of reaching the credit market, fulfilled an important popular demand for widening access to credit, and constituted a dignified credit facility from the start.

Whether the social construct of mortgage credit associations are applicable elsewhere is questionable, partly because traditions vary, and partly because the same type of transparency, etc. may now be facilitated by other means, especially by use of ICT.

The organizational form may not be critical to the success of the mortgage system elsewhere, but democratic impact and local participation seem to be features having eternal qualities. Building local networks of trusted persons to support property valuation also holds prospective advantages.

10.3 On Mortgage Credit and Bonds in the Capital Market

On Mortgage Bonds Performance in the Capital Market

The first mortgage credit associations in Schlesia in the 1770's managed to increase trust in their securities and thereby reduce the effective interest rates for borrowers over a relatively short time (Hein, p. 412).

The Danish mortgage credit associations faced challenges for many years of achieving good selling rates for their mortgage bonds on the capital market.

The nominal interest rates were for a long time typically 4%, but since bonds have mostly sold below par, the effective interest rates could be considerably higher. Comparative data shows, that the cost of loans through mortgage associations were typically higher than for loans achieved through savings associations in the period from the start of mortgage credit associations to the 1960's (Westlund, 1967, p. 47). When mortgage associations were founded in the mid 19th century usury legislation determined a maximum interest rate of 4%. In this way mortgage bonds sold on the capital market were attractive to investors, who could effectively break the interest ceiling by investing in mortgage bonds.

When mortgage bonds were gradually becoming accepted in the capital market, legislation on maximum interest rates were in effect circumvented, and with mortgage bonds taking a larger market share, market determination of interest rates was a reality. Due to the current high volume of mortgage bonds in the Danish economy the effective interest of mortgage credit has for long been taken as a measure of the cost of capital in Denmark.

Low selling rates of bonds have created crisis in the mortgage associations at different times, when rates fell well below 90 and even below 75. Irrespective of the revenue achieved of selling the mortgage bonds of a loan, the nominal value of the loan still had/has to be repaid in accordance with the balance principle. If the bonds later increased significantly in value, borrowers would hardly be able to refinance by buying back the underlying bonds. The market crisis generated so much dissatisfaction in the 1930's that a new political movement emerged called, JAK (Jord, Arbejde, Kapital (Land, Work and Capital)), and established loan facilities around the country offering interest-free credit. The movement faded within a decade, when changes in the capital market again appreciated the price of mortgage credit bonds, and when financial supervisory authorities detected irregularities in the JAK financial system (Westlund, 1967, p. 45).

Mortgage interests have long been favourable for borrowers. In 2010 the selling rates of Danish mortgage bonds were close to or above par mirroring the current trust in the assets combined with low interest rate levels, with the result that institutional investors like ATP need to reconsider, if mortgage bonds give a satisfactory yield (Rohde, 2010). Danish mortgage bonds may even be seen as having a stronger track record than sovereign bonds, according to Rohde, with subtle reference to the Danish state bankruptcy in 1813.

Mortgage Credit and Economic Cycles

The founding ideas of the mortgage credit associations came under scrutiny during the severe crisis of the 1930's, and many contributions to the debate from that time are highly informative, such as a presentation made by P. A. Callø for the Association of National Economists in 1932. He observed that the strengths of

the mortgage credit associations are also their weaknesses, and that these are revealed during economic downturns.

He compared performance of different types of property on the market during the crisis, and observed how urban property, especially standard dwellings keep their prices relatively better than agricultural holdings. It surfaced that easy access to credit had stimulated property transactions and –prices in growth periods, and thereby had contributed to weakening of the resistance of the agricultural sector during the crisis. Hereby, he made the case for conservative principles of mortgage lending /borrowing in growth periods.

A sharp observer was also K. J. Kristensen (1932), who commented on the role of mortgage credit associations in good and bad times on the basis of an analysis of long term series of mortgage credit (1885-1932). He considered it a common misunderstanding to believe that the prime purpose of mortgage credit associations had been access to cheaper capital for construction purposes, and other improvements, although it had served a role in that respect. No, according to Kristensen, mortgage credit associations had primarily served another purpose: to capitalize and transfer existing real assets, and he was aware that an effect of easier access to or cheaper credit was higher property prices (pp. 320-2). He referred to the original idea of the mortgage credit associations of helping farmers' transition to self-ownership, which was a capitalization process. He discussed the point by analyzing the development in mortgage debt, property prices and agricultural production over time. He found that the agricultural sector had been able to finance transition of its production structure even during low price periods in the 1880's when indebtedness had even declined, and that the sector grew more indebted in economic growth periods, when property prices also went up. Therefore, he claimed that mortgage credit associations did not attract capital from other classes of society when needed for investments in modernization of production, but that mortgage credit facilitated a thrift of capital away from the agricultural sector during growth periods for unproductive consumption!

Kristensen even concluded – with reference to primarily rural credit - that easy access to real credit during economic growth periods led to unproductive consumption and aggravated economic down-turns (1932, pp. 328-9). Glud (1951) did contradict and moderate such perceptions of historical events, but the statement has gained new actuality with the high level of indebtedness among present day households, who generally do not apply mortgage credit for productive investments.

Cyclical movements in the housing and mortgage market continue to impact on the overall economy. Since the depression in the 1930's the mortgage market has grown with the economy and the volume of mortgage credit in Denmark reached unprecedented heights in 2006-2007, with outstanding mortgage debt for housing equal to GDP. During the latest decades mortgage credit institutions have diversified their mortgage credit products, and new mortgage credit legislation has since 2003 permitted Interest Only Mortgage (IOM) Credit (for a maximum duration of 10 years).

It has been debated how innovations in mortgage credit products, in particular the IOM's, have impacted on the property market through contributing to rising house prices and on the affordability of housing. The introduction of "interest only" mortgage credit options in 2003 are considered to have influenced market prices of housing in Denmark, and contributed to a price bobble on the housing market, according to Lunde, 2007, <http://borsen.dk/som/borsensearch/view/52a1a078deddbe8d0e54852fd617290c>.

The financial crisis triggered by the US- subprime mortgage market spread to the rest of the world due to the globalized nature of the financial markets. In Denmark – as in other countries - the global economic downturn has promptly been reflected in falling house prices and consequently on the availability of real credit financing.

On the other hand the robustness of the Danish mortgage credit market has proven high even in times of crisis, especially compared to the mortgage system in the US, even if the high levels of indebtedness of Danish house owners could forebode trouble.

In contrast, it can even be observed that the previous crisis around the 1990's in the Danish housing market was deeper (measured e.g., in number of defaults), when the Danish government attempted to control

household spending by tightening conditions for mortgage credit through drastic measures of credit rationing.

The financial crisis has demonstrated how mortgage finance is tightly linked to the overall economy, and how the Danish mortgage finance system has better weathered the storm and protected the economy against hazards, although excesses in the housing and in mortgage markets during the boom, now throw a shadow over (some) property market participants. The mortgage finance system itself has come out largely untarnished.

Regulation of access to mortgage credit used as an economic policy tool

As a consequence of the mortgage finance key role in the national economy, the sector has at times been exposed to regulatory interventions as part of the national economic policy in Denmark in order to cool down the economy.

Since the 1960's the usual tool in limiting mortgage credit has been a government controlled maximum ceiling of mortgage bonds issued, so mortgage credit associations had to negotiate quotas amongst themselves. The effect was that borrowers ventured for other – more expensive - credit options to fill in the demand.

During the period 1960's to 1995 the market share of the mortgage credit institutes went down to between 65% and 75% during periods of mortgage credit rationing, but when lifted briefly in 1983-85 lending through mortgage credit institutions reached the level of 90% of all real credit, a market share regained and maintained again as from 1993.

Frequent changes in the legal basis of mortgage credit followed after 1970 as a component in economic policies and with the intentions to regulate the incentives for savings and direct the scarce capital towards policy defined priorities. The usual tools applied were changes in maximum mortgage credit limits (LTV) and loan duration differentiated according to type of property and application of loan provenue. As statistics illustrate, the result was that housing was financed through other more expensive or inflexible forms of real credit, above the limits defined by law for mortgage financing. The question is therefore if the tightening of e.g., LTV ratios made mortgage credit provided by the Mortgage credit institutes more secure, when the top up loans were more expensive to service.

As a result, inflation and significant fluctuations in market prices over time with different availability of mortgage credit made some house owners winners and others losers, since their luck were to some degree determined by the time they had entered the real property market.

A general point stressed by the Mortgage credit institutes has been that it is better for borrower to convert more expensive forms of credit into standard mortgage loans. In that case, levels of mortgage indebtedness may not represent the full picture of households' credit risks.

Until 1989 there were different rules depending on whether mortgage credit was to be applied for new constructions or for acquisition of a property. Property valuation regulations were changed in 1980 to follow a principle of cash equivalent assessments, "cash valuations". New loan types were introduced and the total number of options and products on the market became rather complex.

Most dramatic, perhaps, was the government intervention in 1986 whereby an economic tightening package, the so-called "potato-diet", was introduced including restrictions on access to credit. Among other types of intervention, the package enforced more stringent amortization regimes, the so-called mix-loans, a combination of serial loans and annuity-based loans. The mix-loans were intended at increasing savings, but the potato-diet as a whole also impacted on the housing market, which went into a deep slump until the early 1990's with heavy price drops and extraordinary high levels of defaults (Hoffmeyer, 1997, p. 27-28).

Both the then director of the National Bank, and Minister of Economics have later conceded that they did not foresee the dramatic effect of credit rationing on the property market and the economy as a whole, and that

the regulations had carried a too high price. The mortgage market is a giant economic engine that is difficult for governments to master or fine-tune (Krag, 1932).

"Til slut vil jeg gerne sige nogle faa Ord om, at Kreditforeningernes store Kjøretøj bremser daarligt i daarlige Tider. Det vilde naturligvis være storartet, om vi kunde holde igen paa Laanene i daarlige Tider. Jeg tror, det overstiger vore Kræfter. Thi efter vore Statutter og Tradition er Laanet en Menneskeret. Jeg har da ogsaa spekuleret forgæves over et virkeligt retfærdigt Kriterium for Laaneindskrænkning eller ligefrem Nægtelse af Laan i daarlige* Tider. Er mon Forholdet ikke det, at de Penge, som Debitor ikke faar i Kreditforeningen, hvis der bremses, ja dem maa han søge i en Bank til langt større Rente end den i og for sig utilfredsstillende effective Kreditforeningsrente. Jeg skulde derfor være tilbøjelig til at mene, at Danmarks store Udnyttelse af Kreditforeningsvæsenet altid vil have den Skyggeside, at Renteniveauet bliver forholdsvis højt, særlig i Nedgangstider."*

Erik Krag, Nationaløkonomisk Tidsskrift, Bind 3. række, 40, 1932, p. 319
(Kommentar: *mon ikke der menes gode tider)

Danish experience has shown that mortgage markets are highly sensitive to legislation and legal changes. During its 200 years history, it has been seen how leaps in development have occurred with new legislation, which has profoundly affected the business structures and the market.

10.4 A special feature of the Danish mortgage finance system: Early Redemption

Access to Early Redemption and the Buy Back Option

The classical Danish mortgage credit bonds are issued in large, standardized series, and are non-callable by the lender, but mortgage loans are callable (can be prepaid) by the borrower, either by early repayment of outstanding debt, or by buying back the underlying mortgage bonds. Thereby borrowers are not locked in, when market interest rates change, a feature contributing to the qualities of the system and recommended by e.g., Svenstrup and Willemann, (2006) and Boyce (2009) for reforming the US mortgage markets.

That the loans of the Mortgage Credit Associations (MCAs) were non-callable by the lender was of utmost importance during the initial stages of the MCA development, and is still a central feature in the Danish mortgage finance system - for different reasons.

Initially the non-callable quality was attractive for borrowers, because it shielded borrowers from unpredictable demands of early repayment from lenders in contrast to other prevalent funding of real credit that was mostly deposit based or private. There are indications that borrowers were willing to accept to pay a rather high premium for non-callable loans during the first decades of the mortgage credit system.

Later on the access to early redemption has given borrowers more competitive credit, higher mobility and protection against negative equity during cyclical developments in the housing and credit markets. The advantage thereof has been to protect the borrowers against undesired early repayment, while giving borrowers access to refinancing, which has countercyclical effects.

This is so, because when interest rates go up and house prices go down, borrowers may buy back the underlying bonds at (lower) market prices and thereby reduce their outstanding debt (but refinance at higher interest rates); or if interest rates go down, they may repay their debt at par, and refinance at lower interest rates. For this reason the Danish mortgage credit (and bond) market is very active.

Borrowers' access to early redemption is also key to achieving true market competition in the mortgage credit market, because they are not tied in for the duration of the credit, an issue emphasized by EU as critical for developing a competitive inner market in mortgage finance (EU-Whitepaper, 2007).

The risk of prepayment is assessed by investors and included in the overall market determined rates of the bonds. The prepayment option has been used throughout the history of mortgage credit under special circumstances, for example as a large conversion conducted by mortgage credit associations in 1890's. Since the 1990's, when the purpose restrictions on mortgage credit were lifted, remortgaging became common practice among borrowers in the Danish mortgage credit system.

The prepayment option is relevant in the case of changing interest rates, or if converting mortgage loan type to new mortgage products, e.g., mortgages with adjustable rate mortgages (ARM) or in other ways remortgage in case of changing needs or market conditions. In a Danish context the attractiveness of converting up or down (to higher or lower interest rate bonds) also depends on taxation issues.

In consequence the activity level of the Danish mortgage securities market has been high, especially over the latest two decades. This has permitted conversion of mortgage credit by borrowers, when market conditions have changed; an option not easily available to e.g., American borrowers, who have come into situations of having negative equity (“being under water”).

Boyce (Boyce, 2009) praised the prepayment option (early redemption, buy back) of the Danish mortgage credit system in its classical version for having counter-cyclical properties. He described how it permits borrowers to buy back their loans in a low market at a discount, and thereby prevent getting into a negative equity situation. This is made possible e.g., when interest rates rise, and the bonds behind the credit can be bought back at lower prices, so that the value of the outstanding principal is reduced through the conversion.

With fluctuations in the financial market of interest rates and with the emergence of new mortgage products has followed huge waves of conversion of mortgage credit among Danish house owners over recent years. As a side effect the government has had substantial income from registration fee charges of mortgage pledges (Stubkjær, Zevenbergen, 2005. pp. 133-5).

The phenomena is described by Møller and Nielsen, 1997, as evidence of a sub-optimal design of the mortgage credit system, while other economists see this feature as a quality of the Danish Mortgage System. The prepayment option is praised as a central feature of the Danish Mortgage credit system by Svenstrup (2002), who finds “the delivery option embedded in Danish mortgages to be an important feature that facilitates a tight match between assets and liabilities in household portfolios.”

The prepayment option is a unique facility of the Danish mortgage finance system. In other European countries borrowers will have to negotiate with lenders and have to pay a rather high surcharge for prepayment to compensate for the lenders’ “lost earnings”, which may constitute an added cost of from 1,5% or up to 10 % of the outstanding principal (Wyman, 2003). This shortcoming in other housing finance systems has lately been addressed at the European level.

In the EU-Whitepaper of 2007 (EU-Whitepaper, 2007, p.5-6) early repayment is described as “*one of the most important issues for integrating EU mortgage markets*”. It can be concluded that the classical Danish system of mortgage credit based on a strict balance principle may take on a special role in the discussions as a functioning – and successful - case in this respect, belatedly because the buy-back option is being threatened by the deviations from the balance principle made possible through the 2007 amendments to the Danish mortgage credit act, which ironically were introduced due to EU regulations.

Early repayment

The Commission views early repayment as one of the most important issues for integrating EU mortgage markets. The impact assessment underlines the consequences of early repayment terms and conditions for all four Commission objectives. It also highlights the importance of early repayment for product diversity, which is identified by studies as one of the crucial elements for bringing the benefits of mortgage credit integration. In this context, the Commission believes that successfully addressing the issue of early repayment, in full awareness of the diversity of early repayment regimes across Member States, would enable the full benefits of an integrated European mortgage markets to be reaped.

The Commission is therefore determined to explore, in particular with Member States and the European Parliament, to what extent it would be possible to reach a consensus on an adequate European regime for early repayment. In 2008, the Commission will:

- immediately explore possible policy options for early repayment;*
- assess the costs and benefits of different policy options for early repayment (status quo, contractual option or mandatory right, level of compensation etc.).*

Source: EU-Whitepaper, 2007

Hereby it can be concluded that access to early redemption is a recommendable feature that lend itself to replication in other mortgage markets. Access to early redemption is facilitated by the securitization model based on the balance principle.

10.5 Observations re. Hosing Policy, Home Ownership and Equity in Denmark

Housing policy, Land Supply and Affordability

The mortgage credit market is tightly connected to the property market, and availability of mortgage credit also affects the property market. Low interest rates and wider credit availability tend to increase demand, and prices.

Land supply is a strong determinant of affordability, since it affects the property market strongly on the supply side. If there is little developed land for housing, prices are high and affordability correspondingly lower, as discussed in the case study of Ghana, Part D. In other words, mortgage market development is held back, where the land supply mechanisms do not function.

Land supply for urban development and housing usually depends on local authorities, responsible for urban planning and implementation of an active land policy in support of housing development.

In Denmark decentralization has been extensive, and town planning has generally been well functioning, so that informal housing development is unknown, and overall land supply has met demands for housing. The public and private sector developers play complimentary roles in urbanization and development of urban infrastructure. It can be added that Danish local authorities have also financed investments through mortgage financing.

Legality of new constructions has been ensured through mandatory systems of municipal building permits and issue of permits of use upon completion. Such formal permits are included as conditionalities for approval of mortgages on new properties or new constructions. In this way development of mortgage finance has also strengthened the planning system in Denmark as observed by Stubkjær (2001).

Finally it shall be mentioned that the Danish property market operates within a complete planning system regulating urbanization, so that also after the initial construction phase, properties are generally protected against planning hazards, which cannot be taken for granted in many other countries.

In Denmark the land supply mechanisms have functioned, so the subject was not has not discussed in depth in the historic section above. However, when not functioning, land supply becomes of central importance for mortgage market development, since bottlenecks in delivery of land for urban development can strangle efforts of fostering affordable credit. It shall be mentioned that according to Renaud (2008) financing cannot be expected to overcome shortcomings in land institutions.

Housing Policy and Home ownership

One may ask, if or how the qualities of the Danish mortgage finance system have affected homeownership in Denmark, and if more people have gained access to homeownership, including easing the entry to the housing market for e.g., the younger generations. More information on Danish housing policy can be found in Vestergaard (2007).

At a start, it can be mentioned that housing economists have found no correlation between GDP and the ratio of homeownership (Scanlon, Lunde, Whitehead; 2008, p. 117). Each housing market evolves along its particular development path and tends to retain its particular characteristics over time.

Home ownership may not necessarily be an objective of the national housing policy, but it is presumed here that affordability, choice and quality of housing is a measure of the outcome of the housing policy.

Availability of alternatives to private housing could be seen a measure of successful policies. Evidence of a housing market providing attractive alternatives for its citizens that suit different life situations is assumed to be a healthy feature.

It can be mentioned that Danish mortgage banks are financing various forms of properties, including rental housing or cooperative housing.

Irrespectively, one of the rather striking issues of the data recorded by EMF is the below average home ownership ratio in Denmark, recorded in 2007 by EMF as only 54% of the 2.68 million dwelling units (EMF, 2007) against an EU27 average of 70,4%. It calls for an explanation, why so relatively few households have acquired their own housing, when the housing finance system in Denmark is efficient and competitive.

In one respect, the profile of homeownership in Denmark differs from that of other European countries: The % of younger home owners in Denmark is relatively higher (Scanlon et al., 2007).

To cross check the mentioned EMF information on ownership, different statistical sources were analyzed. The national statistics database, (www.dst.dk) records general statistics on the ratio of privately owned housing in Denmark.

Since owner-occupancy and ownership is not equivalent, the mentioned national statistics does not provide clear data on the ratio of owner-occupied dwellings in Denmark due to definitional problems. An open question is what significance it has, that the mentioned statistics include dwellings owned by personal companies (I/S). In Denmark a business structure with many small enterprises means that they often operate from properties with combined use for business and dwelling purposes.

National statistics recorded that in 2008 there were in total 2.71 million housing units in Denmark out of which 1.92 mio units (70,9 %) were held in private ownership including owned by personal companies (I/S) and housing units of private cooperative dwellings, "andelsboliger", the latter in many respects having similarities with condominiums.

A study prepared by the National Bank of Denmark in 2006 (Olesen and Pedersen, 2006) estimated the number of dwellings owned by private households to constitute 1.763.000 units as of primo 2005. When adding the new housing units in subsequent years 2005-2008 (www.dst.dk), the resulting estimate is a total of 1,85 mio. privately owned housing units by end of 2008, corresponding to 68,2% of the total stock of dwellings in the same year.

(in total 71.400 units were built in 2005-2007 according to national statistics, plus 2008 (14.700 units)).

In comparison with the EMF country profile data on owner-occupied dwellings in Denmark (54% of all dwellings), the data above indicate that the actual rate of owner occupancy could be higher than reflected in the EMF data, - if home ownership and owner occupancy are concurring. However, the present study has not analyzed this issue in further depth.

It is suggested here, that the ownership ratio of 54% recorded by EMF could be underreported, and that the ratio might rather be in the order of 64% or even higher, whereby the market profile becomes closer to the EU27 average of about 70% owner occupancy. A more detailed scrutiny of the data definitions and data bases behind the national basic statistics is required in order to verify the matter. Measurement problems and classification systems of national statistics induce some uncertainty into the discussion to be explored.

Irrespectively of possible underreporting in current statistics, the tendency is still remarkable. Denmark – having a well performing mortgage credit system - has a relatively low ownership ratio, while some Southern European countries with low mortgage credit depth have high owner occupancy ratios! The present study has not been able to analyze the underlying patterns, so only speculative interpretations can be made.

Differences might be explained by differences in housing preferences, in history, or perhaps stem from particular social patterns. Alternative savings options to real property like investments in bonds, could form another explanatory factor of the special asset pattern in Denmark.

Family patterns differ in Northern and Southern Europe, whether a cause or result of the housing patterns. In Southern Europe young people stay with parents longer, possibly because of difficulties of acquiring own housing, and different generations live together. This might be reflected in higher ratios of owner occupied housing (Defined as owned by at a minimum one in the household). If combined with relatively low levels of mortgage credit/GDP, the figures might show that assets are held in families as real assets, but not capitalized, meaning that there is less flexibility and mobility in the housing (and employment) market, than where mortgage markets function better.

The role of mortgage finance systems can therefore not be said to uniquely be related with home-ownership levels or 'access' to private housing, but these questions were not analyzed in depth and merit further analysis.

Discussion of mortgage credit and private equity

Another related question is how the access to mortgage credit in Denmark has affected household savings in the form of private equity.

Early writers on mortgage credit in Denmark lamented the high level of indebtedness, which around year 1900 was as high as 62% of GDP and in 1909 had grown to 79,8 % of GDP (Hansen, 1976). Westlund observed already in 1967 that Denmark had one of the highest levels of mortgage debt per capita in Europe, only second to Switzerland and Lichtenstein (Westlund, 1967, p. 41), a matter also of concern for Lunde in the present market (2009).

A question is if the smooth access to mortgage credit has had negative consequences in the form of undermining a conservative savings culture, thus leading to un-sound economic behavior of borrowers in current housing markets? This question has not been analysed here, but Denmark was one of the nations with the highest household debt/GDP ratio and highest total liability per net wealth ratio, among 15 OECD countries analysed in 2007 (Lunde, 2009). In this discussion the question of housing quality is also of importance (but not treated here).

“By 2006, Denmark was the nation with the highest household debt/GDP ratio, highest household debt/disposable income ratio, highest total liability/net wealth ratio, and highest mortgage debt/net non-financial wealth ratios among the 15 OECD countries analysed (Girouard et al., 2007).” (Lunde, 2009)

Households' housing equity is calculated as the market value of real property minus outstanding mortgage debt. Since outstanding debt is well accounted for through statistics of the bond market, will the uncertainty in calculation of household equity depend entirely on assessment of market values of the underlying property assets. At the time of mortgage loan allocation mortgage credit institution conduct specific assessments in pursuant with the Mortgage Credit Act, §10.

However, for statistical purposes the general public valuation data is applied. Irrespectively, complications abound, and assessments depend on what data sources are applied and how ownership forms are reflected in the statistics. The National Bank of Denmark made an assessment of the housing assets in Denmark, 2006, based on different sources, (National statistics, sales statistics of the mortgage institutions, and the Building and Dwelling register). Based on this assessment households' housing assets were assessed as 1.936 billion dkk (2004), and 2.194 billion dkk (2005), which results in a calculated average of outstanding mortgage loans to value of housing assets at about 46% in both years (Olesen, Pedersen, 2006).

If the value of all real property in Denmark is applied as assessed by the public valuation by end of 2008, with the total of outstanding mortgage debt by Mortgage Institutions in Denmark, the total LTV ratio can be calculated to be 36% (2008). The corresponding total and average LTV ratio for owner-occupied housing is calculated at 55,8%.

The average levels of LTV do not seem to be alarming, but vulnerability and risks are not represented by average values. As has been demonstrated recently, particular segments of the mortgage market may expose the whole sector to risk. Detailed data is required to show the incidence of households with critical levels of indebtedness specified as segments of borrowers and by geographical areas. This is not the topic of the present study, but insight into this is provided by Lunde (2005, 2008, and 2009).

Housing equity is therefore a volatile parameter in seemingly contrast to the physical nature of real property matter it is derived from.

It can be mentioned that dramatic changes in market conditions for real property other than dwellings could affect mortgage credit institutes as a whole, since most Danish mortgage credit institutes service all market segments (commercial and agricultural properties included). Changing regulations on Mortgage credit affect loan conditions, which again affect property values. It can be added that the high level of losses of one Mortgage Credit Institute (BRF Kredit) generated by its relatively high proportion of credit to commercial properties and rental property investors, has exposed that MCI to special risks.

In the agricultural sector highly geared investment profiles combined with dramatically falling property market prices could prove poisonous. However, mortgage lending to agricultural enterprises are limited by a maximum LTV ratio of 70% with remaining credit in lower priorities supplied through the bank sector, which is consequently hit at first in case of widespread default. In the commercial property sector the maximum lending limit of 60% of the market value defined in the mortgage credit act of e.g. is supposedly protecting the mortgage institutions lending in first priority in case of default, although they are still exposed to risk in a low and dead market. Latest developments indicate that property values have fallen so steeply, that even the LTV limits have not provided sufficient shield against loss, when the denominator is reduced dramatically.

When market prices drop, the level of indebtedness increases instantly, as the outstanding debt remains constant. Consequently, the indebtedness ratio of Danish households will therefore be affected negatively. Still defaults in the real sector in Denmark is far below the alarming levels in other mortgage markets, see Chapter A.10.3.

10.6 Concluding Reflections

A market Based System at the Service of Society

The history of the Danish Mortgage Finance System is an example of a market based mortgage finance developed from below with only a few incentives provided by the state. Mortgage credit associations grew out of a need for credit among a wide section of the population in the mid-19th century, when Danish society went through a transition from an agrarian, subsistence based society to a specialised and urbanised one, even though the system had been spearheaded by leading citizens mainly belonging to the aristocracy.

The organizational form of mortgage credit associations spread across the country in the same spirit as the cooperative movement after the adoption of the first democratic constitution in 1849. A successful economic transformation process with strong local mobilization and participation was facilitated by the mortgage credit associations even before existence of a general financial infrastructure. Initially, savings associations and credit associations were competing for market shares, but after a few decades the credit associations gained market dominance thanks to their capitalization model: Although cheaper in growth periods, credit from savings associations – which was callable by the lender - dried out during crisis periods, at a time when it was most needed. Mortgage credit obtained through mortgage credit associations was non-callable by the lender and allocation according to principles of value of ‘bricks only’ - both qualities of critical importance for borrowers.

The low risk financing system also relies on external factors, which protect mortgage credit arrangements against risks. Secure property rights through a well established registration system provided from the very beginning a firm basis for mortgage pledging, just as effective foreclosure procedures were in place.

Capitalization depended on a functioning capital market with major national investors, including the state leading the way by permitting special funds under state control to invest in mortgage bonds. Investors' trust in the system was built over decades at a time, when also the financial infrastructure was in its nascent phases. Institutional investors, like insurance companies, were critical for development of the mortgage finance system, expanded in parallel with development in the housing market and other institutions.

The bearing principle of the mortgage finance model, the balance principle with its in-built incentive structure, has protected the financing system against crises, and secured a huge flow of capital to the Danish society throughout its long history. Recent comparative studies provide evidence of the system's competitive advantages vis-à-vis other housing finance systems in developed economies.

The fully market based system of the Danish Mortgage Finance System has shown how the market can efficiently provide affordable credit to all sectors of society - at no cost, or risk, to the taxpayers, partly due to the on-balance securitization model, partly because there has been no doubt for investors about the underlying security of collateral, with high trust in the intermediaries, since investors in Danish mortgage bonds have not incurred losses due to a mortgage credit institution default during its more than 200 year history.

In this way the market may, ironically, have served the less affluent segments of society better than when artificial 'affordability' criteria of lending have been imposed by governments on the financial sector, as seen during sub-prime crisis in the US. The market based model of securitisation may even have contributed to lowering social inequality in Denmark, which has a low GINI-factor, as suggested by Glud (1951).

The 200 year history of the Danish Mortgage Finance System has illustrated that at the initial development stages of an economy, upgrading of the functions and services of property institutions serve as a lever for mortgage credit development, if there is a favourable macro-economic trend in society. Once the initial development phase has been completed, the financial sector requirements to the real property services constitute a driving force in upgrading the technical infrastructure and service delivery in the area of land and real property.

At any stage of development credit dries out if security of collateral is threatened, e.g., through deficient foreclosure or high risks.

In the case of Denmark it was shown how legal systems, information (systems) and transparency created a low risk environment, just as the mortgage credit system has impacted on, or even contributed to, the development of the public information infrastructure.

Transactions in the legal registry (property registration system) are by volume dominated by mortgage pledges, and the high volume of mortgage conversions and pledging have generated revenues for the state annually beyond the running costs of the entire judiciary system in Denmark, even though registration fees and taxes are in the lower end of fees, as comparative European studies have shown (Wyman, 2003).

Dynamics of Mortgage Finance

The Mortgage finance model in Denmark has stayed relatively stable, but in contrast mortgage products and application of mortgage credit seem to have undergone substantial changes. Mortgage credit in the housing sector is no more solely applied for property transactions or for investments, but increasingly applied to finance consumption. The mortgage market has therefore become even more tied to economic development both in positive and negative ways.

To what degree mortgage credit should /can be used for withdrawal of equity is partly a (market dependent) individual choice, partly a national economic issue. The EU-white paper (2007) describes how withdrawal of equity could be a coping strategy with the aging population in Europe, for which reason efficient mortgage credit systems are needed.

On the other hand, withdrawal of equity in growth periods may contribute to overheating of the economy and higher indebtedness, which leaves households vulnerable in down turns (Cardarelli et al, 2008). Equity may

evaporate with falling property prices, but debt does not, and households may be locked in by contracted demand in the property market, although access to remortgaging can help ease the credit burden.

Danish experience in the 1970's and 80's has shown that it is difficult to limit indebtedness of households during growth periods through state intervention in the market, but households react to signs of crisis in the market by changing attitudes, and by consolidation. However, this may still be too late a call for some and leave individual households trapped in situations of serious over-indebtedness, although the Danish mortgage finance system itself has proven robust also, when housing bobbles bust.

As the discussion has showed, statistics in the area of housing and mortgage finance is central to monitoring the development not only in the mortgage market, but in the economy at large. However, access to statistics is associated with definitional problems and there are certain difficulties in generating appropriate indicators. It is also clear that reliable indicators depend on the quality, currency of and access to property valuation data. With an increasing focus on matters of mortgage credit and associated macroeconomic questions, the importance of generating good statistics for valuation and key indicators becomes of central importance. Adjustments of data definitions and statistical production could be called for both from the real property information systems and the national statistics in Denmark.

Challenges of Developing the Land Sector to Service the Financial Sector

A closer study of the Danish Mortgage Finance System and a review of comparative systems may not have brought much news to economists, but land professionals may have to rethink their perception of the roles of property institutions in the economy. Firstly, because malfunctioning land institutions have a negative effect on housing affordability through inadequate land supply and higher transaction costs, and secondly because property valuation has become a macro-economic issue. In advanced economies, valuation of property is not only a one time task within the loan allocation process, but has become an on-going activity in the financial sector at the statistical level to ensure that the general level capital coverage regulations are respected.

The benefits of having indisputable and transparent property rights with effective enforcement have paid off in Denmark by reducing the risks, and thus by diminishing the cost of credit. The benefits have foremost been derived from the impeccable legal registry functions and effective foreclosure procedures. The cadastral functions are less visible, and mostly serve as an ordering tool, while the mechanisms of land supply for urban development have played a critical role for affordability and quality of housing in Denmark.

It has been argued that the quality of property institutions in emerging economies is a determining factor for development of a mortgage credit system. Moreover, the Danish example has shown that it is an astonishingly good investment to develop transparent and well functioning land institutions, as shown by direct and quantifiable revenues, even without accounting for the benefits accrued from better credit affordability, and wider benefits to society.

The reasoning above also supports the notion that in case of an underdeveloped mortgage finance market, the main constraints stem from malfunctioning institutions in the land sector—rather than in the financial sector. On the other hand, there is a two-way causality between property markets and mortgage markets because of their interdependency.

In the beginning, a certain volume of the formal land sector must be in place, because the Danish Mortgage Finance System derives part of its affordability from being a mass securitization system, i.e. from volume and standardisation. The Danish case illustrates how a good cycle of events began by providing market based mortgage finance for properties of sufficient collateral value to serve as security for mortgage pledging. Democratisation of mortgage credit depends on volume and standardisation, In this way the upper market segments can open the way for widening access for smaller properties, as was shown in the 19th century history of mortgage credit in Denmark. Housing finance for small holders with little collateral value may have to rely on other forms of credit /tenure, or on state guarantees, as illustrated by Renaud (1999), see Chapter A.1.2.

Formal credit facilities provide incentives for development of formal land markets. When properties are traded in an official property market and transactions depend on mortgage credit, under-declaration of sales prices is avoided, and the true market prices can be captured in the official valuation systems. The parties have no incentives for under-or over-declaration of sales prices, when transactions are to be registered as a basis for mortgage pledging in the legal registry. Furthermore, mortgage credit institutions request formal building permits (and insurance) as a condition for loan allocation, which has contributed to strengthening public planning (Stubkjær, 2001).

A distinction can be made between mortgage finance of property acquisitions and of refinancing. If the initial steps of mortgage financing are targeted at financing new constructions or acquisition of dwellings, then the market value of the property presumably equals the acquisition price, so that valuations become less dependent on public information sources. In contrast mortgage pledging may contribute to providing public information systems with fresh and accurate market data, if appropriately captured. In this way mortgage pledging can play its part in strengthening the public information infrastructure, and better property market information can thus be generated as a 'side-product' of mortgage financing.

Therefore, problems of in-transparent property markets in emerging economies might possibly be reduced with development of the mortgage market over time, despite initial deficient market valuation systems and market information, given a certain point of departure and conducive incentive structure.

However, a better mortgage finance system cannot repair the malfunctioning of land institutions or overcome fundamental structural problems with inherent risks, but the financial sector can contribute to kick start a good cycle of events in the land sector, because it is its main customer of information and registration services.

No development path is replicable. Neither is a replication of the orderly framework conditions characteristic of the Danish development path realistic in many countries, but some ideas from the Danish history could possibly provide inspiration, e.g. its modest start in a pre-modern society.

Although this analysis of the Danish Mortgage Finance System has focused on the role of cadastres and land registration in development, it is suggested that further analysis of the interdependency between mortgage credit and security of collateral is a fruitful area for further exploration.

All Credit to the Balance Principle

The concept of balance has a deep meaning and pervades the Danish mortgage system in more than one way.

At first, the balance principle of securitisation creates a transparent, simple, and robust financing system. Mortgage bonds are on-balance securities, whereby credit risks are held by the issuer, and the financing system is vertically integrated.

A system based on this dual 'balance' principle creates a healthy incentive structure engendering a conservative, yet productive, credit culture. Indeed, during most of its history the mortgage finance system functioned without intensive state supervision, but under a strict regulatory regime

The mortgage finance system has the additional advantage of balancing the interests of investors and borrowers. Thrift and moderation has to be balanced, as mirrored in the definition of maximum LTVs over time: LTV limits have to be high enough to allow entry of new owners into the property market, while also conservative and cautious enough to protect the borrowers and the system against risks in low markets, as already observed by David at presentation of the first draft law in 1850 (Hein, 1888).

At a macro-economic level, a deep mortgage market is considered a quality, while over-indebtedness may destabilize the economy. Mortgage finance therefore seems to be an act of balance between mobilising assets and over-indebtedness - both at a personal and at a macro-economic level. A balanced view on housing assets may be called for, since housing represents both use and a capital value. If the collateral view of housing takes overhand in developing nations, it may have detrimental effects on poorer neighbourhoods.

In advanced economies, a one-sided focus on capital value over use value in the housing market may lead market participants to excesses, to borrowers getting over-indebted and the market losing its balance, with the result that Adam Smith's "invisible hand" (1776) is transformed into a fist, which hits the economy hard.

At macro-level, the long term interest of borrowers and lenders may not differ as could be expected, because who are the borrowers and who are the investors? The borrowers constitute a major part of the population. And who are the institutional investors: that is also us, since pension and insurance funds of ordinary citizens hold a large proportion of the mortgage bonds. The inter-woven nature of the economic life means that apparent opposites may at the root be shared interests: There is actually a shared and common interest in achieving a fine balance, as is the case with reducing credit risks.

This study has discussed how the two-way causality between property rights infrastructure and mortgage finance may generate triggering mechanisms of growth at different stages of economic development. A better understanding of the marginal dynamics of the combined factors of property rights security and mortgage finance could possibly be leading the way to defining a strategy for setting the grand locomotive of mortgage finance in motion as a driver of the economy in other countries to the benefit of society and all prospective home owners - and at no cost to the tax payers.

11. From Principles to Criteria of Mortgage Finance Development

11.1 Point of Departure and Approach to development of Criteria

Purpose and Approach

Given the overwhelming, unsaturated, demand for housing finance around the world, it is natural to analyse in what other countries, given the particular circumstances in each country, the Danish mortgage system could potentially provide a mortgage credit option so as to expand availability to housing finance development and thus be contributing to (more) affordable housing.

A main question of the present study is under what circumstances the core elements of the Danish model of mortgage finance may function elsewhere, Appendix 1. The analytical logic applied is described in Part IO, Chapter IO.3.

In short, the overall objective of the present chapter is to discuss, and if possible define, a set of criteria, on which feasibility studies can be based - with special focus on the preconditions of property rights protection and security of collateral (Research Question A1). Propositions on prerequisites and criteria are to be applied for screening of readiness for development of a mortgage finance system.

A gradual refinement of the propositions of framework conditions can be drafted by a step by step approach to the analysis:

- Listing of important factors for mortgage credit development
- Definition of prerequisites in a broader sense, and if possible
- Identification of specific criteria.

The preceding chapters have mapped out the Danish Mortgage credit system over time, its core elements, and features with a focus on the relation between mortgage credit and property rights. The description and analysis of the Danish Mortgage finance system along its long development path resulted in a long list of observations and identification of important features. Still, the characteristics described do not represent a full model of the financial system. Nor do the observations form a suitable analytical framework for assessing the readiness for its introduction in other contexts.

In order that these factors and observations may be transformed into a general structure applicable for screening of readiness for mortgage market development elsewhere, these findings on the Danish mortgage finance system have been expanded with a review of recommendations in selected literature on housing finance development in general.

However limited the review, a range of theoretical and empirical studies were identified, which had a similar perspective of analysing the conditions/preconditions for housing finance development in developing or emerging economies. In this manner, other sources typically prepared through international agencies like the UN or the World Bank, contributed to setting up propositions on prerequisites and criteria for mortgage finance development, including the overall structure.

The propositions developed below are based partly on

- 1.) Findings of the preceding chapters on the Danish Mortgage Finance System,
- 2.) A review of guidelines and recommendations by housing finance experts in selected studies on housing finance implementation.

The two sets of criteria or recommendations have then been compared and merged into a structured set of prerequisites. In this way the approach is based mainly on qualitative reasoning and supplemented with some creative elements in setting up the proposed structure.

A distinction ought to be made between, on one side, an analysis of *what* the preconditions and criteria for the functioning of the mortgage finance system are, and, on the other side, *how* to determine whether these criteria are fulfilled. The latter issue concerns an assessment of the readiness for implementation of the

Danish system of mortgage in other countries, and an exploration of possible ways to measure the degree of compliance with such criteria, possibly by using selected indicators, the topic of **Part B**.

Due to the interwoven nature of the topics, every analytical perspective has illustrated the inference between mortgage finance and its context, in particular the property rights system. Selected theoretical issues of mortgage credit, property rights and economic development are discussed in **Part C**.

Propositions on criteria for mortgage finance as a basis for development of indicators

The propositions on prerequisites and criteria are to be applied for development of indicators, which by definition depend on assumption of relations between the subject matters they represent (mortgage finance, property rights, and economic development). Irrespectively, compliance with such criteria is not seen here as a guarantee that development of mortgage credit systems will be successful. In a similar way, domestic factors in one country could be irrelevant elsewhere.

The questions of what constitutes exact minimum criteria and what conclusions to draw as concerns the feasibility of transplanting the mortgage finance system are left open to expert assessments. In Part B is outlined a strategy on feasibility studies by use of macro-indicators and some other indicators, as and if available.

Propositions on criteria for mortgage credit are partly developed through logic reasoning based on the mortgage financing model per se, and partly by an analysis of contextual issues of importance for mortgage finance development. The first part is relatively simple, but the other is associated with difficulties because of fundamental questions on whether it is possible to generalize from specific observations on contextual factors, or if some features can be regarded as unique to a Danish setting.

PREREQUISITES / CRITERIA	Model determined Features	Context related features
General prerequisites (logic reasoning)	General Criteria	Criteria
Special factors of development (interpretation, assumptions)	Generalization?	Conducive Factors or Barriers / Constraints

In accordance, the discussion of criteria is conducted in two parts: At first factors associated with the mortgage finance model are discussed. Secondly, other contextual features are analyzed.

The vast subject area calls for delimitation. A top down approach was taken of reviewing requirements for general housing finance systems, followed by an analysis of selected topics within that structure.

The focus selected is primarily issues in the realm of property rights and the property market treated at some depth, e.g. in respect to the interdependence of mortgage credit and the underlying mortgage pledges, but the broader aspects are discussed as well, so as to derive propositions on the overall preconditions for functioning of the Danish system of mortgage finance.

The analytical structure has been derived from available application based resources - with a view to available indicators of various monitoring systems related to property rights and land registration, as elaborated in Part B. Nevertheless, broader macro-economic factors pervade the issue of mortgage financing, making it was impossible to limit the review to property related factors only.

The analysis relies heavily on collating findings from other studies, and on analytic reasoning supported by evidence in various studies and data. The approach taken is explorative in search of what factors, events and mechanisms have shaped the dynamics and patterns of development in Denmark, and if they are of possible relevance elsewhere.

Some reviewed sources illustrate patterns of dependency between context and system, and some well informed observers - in particular economists – have mapped out causal relations by documenting the role of certain systemic or contextual factors on mortgage finance, and their impact on the overall economy.

Even if it remains difficult to disentangle the role of the Danish Mortgage Finance system per se from its history and framework conditions, some of its core principles allow deduction of general criteria, as was outlined from the beginning (chapter A.1), resulting in a set of propositions derived by logical reasoning from the definition of mortgage credit. Each of the characteristics of the mortgage finance system can be translated into principles of operation and associated preconditions for its functioning.

In other respects the complexity of mortgage finance as a phenomenon and as an integrated part of the overall economy hindered a structured analysis of parameters. Due to complexity of factors and conditions in economic life, it will be a matter of interpretation, e.g., whether particular factors are to be considered enabling factors, constraints, criteria or preconditions, although perceptions can be substantiated.

For these reasons, the approach is more modestly to developing propositions on what factors are of *importance* for mortgage financing and exploring their relations and possible patterns of causality. Thus, the analysis can be said to be including subjective assessments, due to the lack of an overall conceptual model suited for the purpose of screening.

11.2 Discussion of Criteria for the Functioning of the Danish Mortgage Finance System

Criteria derived from the securitization model

As has been seen in chapter A.1.1, basic criteria of mortgage finance can be derived from definitions of the associated terminology. Other issues of importance for functioning of the Danish financing system in specific can be derived directly from the principles of its securitization model. With reference to §2 in Danish the mortgage credit act (2003), one indispensable condition is registration of mortgage pledges on the basis of defined and formally registered property rights.

Core characteristics of general framework conditions follow from the basic definition of mortgage credit, as has been shown:

- Mortgage credit relies on the existence of secure property rights as defined by law and formalized;
- Mortgage credit is extended only on the condition of pledging an interest on the property concerned;
- The market value of the pledged property is expected to cover the outstanding debt; and
- In case of default the lender will have effective access to the collateral.

An analysis of the development path of the Danish mortgage finance system confirmed the stability of the four basic principles over time, and showed that property rights were secure and registered prior to introduction of the mortgage finance system. In consequence the basic prerequisites can be elaborated with reference to the history, legal framework and current practices:

1. Basic Prerequisites:

- Clear, registered and transparent property rights,
- Mortgage pledges registered in sequential order with well-defined priorities,
- Conservative, maximum Loan To Value's defined by law,
- Conservative valuation standards embedded in practice
- Clear foreclosure legislation and effective procedures
- Organizational structures and infrastructure supportive of the above.

The Balance principle constitutes the core principle of the Danish mortgage finance system. The securitization model based on the balance principle has proven functional under different stages of development, and for different sophistications levels of the financial market.

Features of the Danish Mortgage finance model include a timeless core:

- Securitization based on a strict balance principle and covered bonds issued pursuant to special legislation
- Standardization of credit/bonds and high volume of bonds traded on the capital market
- None-callable credit by lender, while borrower has access to early redemption at low costs;
- Demand for securities supported by institutional investors
- High protection level of investors in covered bonds embedded in law, including a preferential position in case of bankruptcy of the MCI,
- Transparency of organizations and markets thanks to simple securitization model.

The mortgage finance system is entirely market based and only dependent on the state for creation of the proper regulatory environment and appropriate infrastructure of physical and non-physical character. Mortgage Banks are not permitted to engage in other types of banking or investment activities. Neither are they subject to serving non-market agendas or social obligations, but the securitization principles and operational practices have democratized real credit and facilitate social mobility in Denmark.

The Danish securitization model is based on an alignment of incentives and interests, since the mortgage credit stays on the balance of the specialized mortgage credit institute. It is important to note that investors have a claim against the mortgage credit institute, thus not against the individual borrower. It is also of central importance that the success of a mortgage finance system is critically dependent on its ability to attract capital, and investors' interest in mortgage bonds hinges on the trust in the issuing mortgage credit institution.

Although the credit side is the most noticeable component of the mortgage finance system, the success of the financing system relies on raising capital through the capital market. The in-built clever incentives in the organization of mortgage credit associations/Institutes based on the balance principle founded the security, low risk and trust on which the attractiveness of the investment in Danish mortgage bonds depend.

Other issues are of importance for the functioning of the Danish mortgage credit system, especially standardization and volume. It follows that mortgage volume requires both a demand for long term credit and investors in bonds, which again depend on both a functioning property market and a capital market as well as on general economic conditions permitting borrowers to engage in long term credit. Associated with each of these factors can again be derived a list of enabling factors concerning transparency, transactions and infrastructure of various types.

In consequence, trust in the Mortgage Credit Institute becomes critical. Business standards, integrity and transparent management are essential to development of mortgage credit, which is of no surprise, but inversely negative factors like pervasive corruptive features of the business environment could potentially undermine efforts of developing mortgage finance.

The securitization model succeeded in mobilizing of capital at an early stage of development even prior to existence of a mature banking system, and is still considered the reason why Danish mortgage bonds have performed well during times of crisis.

In summary the market profile of Mortgage Credit Institutions can be characterized by:

- The role of the state is withdrawn as regulator and ensuring enabling framework
- Mortgage credit Institutions are mono-line business entities operating under strict regulation, but with an inbuilt alignment of interests and incentives;
- Market dominance has been gained through attractiveness of the financing model, not through any preferential treatment;
- Mass securitization depends on large, institutional investors;

- Management and credit culture has been engendered through transparency – and previously democratic and social control mechanisms;
- Trust in the mortgage finance system was built over a long time;
- The financing system is facilitated by supportive market infrastructure both on the side of investors and borrowers, both fully covered by cost recovery mechanisms;
- Mortgage credit is available at close to capital market costs.

From these features may be derived the following propositions on market prerequisites:

2. Propositions on market prerequisites:

- Enabling regulatory framework
- Transparency and business culture
- Market infrastructure and functioning markets
- A functioning capital market with institutional investors

On Credit risk and Criteria

It has been shown that credit risk is the main risk of the Danish mortgage finance system, because other risks of the Mortgage Credit Institute are largely eliminated through its clever securitization model, under the overall presumption that the legal framework, property market and financial infrastructure is functioning.

Here the focus is on the functioning of the mortgage finance system in respect to the underlying security of collateral in the form of pledged properties. Security of collateral is one of the cornerstones of trust on which the real credit system relies, since with sufficient security of collateral, mortgage credit institutes are protected against losses.

Credit risk, the risk that the borrower will not (be able) to service his/her debt, is the main risk pertaining to the Danish mortgage finance system. It has to be covered by the value of the pledged property, which can be accessed through a process of forced sales in case of default. A forced sale may or may not result in a loss for the mortgage credit institute, but the process carries procedural costs. In case bids achieved at a forced sale do not cover the outstanding debt to the mortgage credit institute, the institute may choose to take over the property to win time to find a buyer in the market, or to keep the property until the market turns more advantageous.

The centrality of security of collateral for the mortgage finance means that property rights protection and legal enforcement are critical to mortgage finance development. The role of a robust environment of property rights protection is discussed extensively in Chapter A.8.

Criteria for functioning of the Danish mortgage finance system can be analyzed through the issue of credit risk in respect to different components of collateral quality and collateral security by elaborating the chain of events and conditions required to form an effective chain of pledging property, securing and accessing collateral.

When exploring what is required for ensuring effective security of collateral, the logical chain has been followed of actions involved in mortgage pledging and effective access to collateral in case of default. By doing so, a chain of criteria were deducted.

3. Logical chain of criteria for mortgage pledging:

- General legal framework must be functioning– rule of law, contract law, property law, etc.
- Registration system for property rights functioning;
- Transaction costs non-prohibitive;
- Registration of mortgage pledges in order of priority and without hidden charges;
- Effective foreclosure proceedings and organization;
- Functioning valuation system for appropriate assessment of collateral value
- An active property market with adequate supply and full transparency

- Collateral asset pool value maintained and insured (Housing quality & physical infrastructure)
- A general credit culture with commitment to honour contracts.

When going into further detail, elaboration of criteria and associated indicators can be made in an iterative process to define what criteria are suited for screening of the conditions of collateral security. An indefinitely number of parameters could potentially be of interest, but a limited set must be identified for it to be efficiently and effectively serving the purpose.

However, in emerging markets, conditions cannot be expected to be perfect, but the factors can be applied as a checklist when sounding out what is the status and performance within different legal provisions and procedures.

On protection of property rights, collateral security and collateral quality in Denmark

A well-functioning legal framework permit the Danish mortgage system to function smoothly by protecting property rights and mortgage pledges, in combination with an operative environment supportive of market transparency, with safe transactions and swift enforcement.

The mortgage finance market in Denmark benefits from a long historic tradition of protecting property rights and conducting property rights transactions in public. Transparency and access to information on land and real property is now supported by public registers and a developed information infrastructure, as well as by professional standards and capacity in the real estate sector.

Collateral security of the underlying mortgage pledge is dependent both on reliable and conservative property assessments and on working foreclosure legislation and processes, which in Denmark can be completed over a period of about 6 months. Originally, there were no safety nets for defaulters, and only in modern times have decent alternative housing options and social security become available. Still effective foreclosure remains a deterrent for irresponsible borrowing. Moreover, defaulters cannot walk away from debt in Denmark, since uncovered debt after a forced sale remains a personal debt, and public registries and information systems leave no escape.

Collateral quality is supported by functioning planning systems that ensure urban standards and orderly land development. Availability of serviced land for new housing is generally not a constraint in Denmark, where orderly planning provides a relatively predictable environment for the property market.

Collateral quality is further enhanced through functioning building regulations, craftsmanship and construction maintenance, so that the building mass has an overall good quality. For over 200 years, has security for mortgage lending been underpinned by mandatory (fire) insurance coverage (and the insurance sum being part of the collateral).

The above factors can be summarized as a list of factors, which have been of importance for implementation of Danish mortgage finance associated with property rights and land over time:

4. Summary list of prerequisites for mortgage finance:

Mortgage credit relies on the existence of secure property rights as defined by law;

- Functioning, general legal framework – rule of law, contract law, property law, etc.
- Formalized property rights and functioning registration systems

Mortgage credit is extended only on the condition of pledging an interest on the property concerned;

- Registration of mortgage pledges in order of priority and without hidden charges

That the value of the pledged property is expected to cover the outstanding debt;

- Functioning valuation system for appropriate assessment of collateral value
- Quality of collateral supported by functioning planning

That secure mortgage credit presumes effective access to the collateral in case of default

- Effective foreclosure proceedings and organization

Affordability of credit & functioning urban systems

- Land delivery for urbanization, physical infrastructure, housing quality
- Affordability of credit is improved through standardization and volume in mortgage finance

Functioning property markets

- Enabling infrastructure: financial, physical, information
- Active property market with transparency & non-prohibitive transaction costs
- Quality of urban development supported by planning and physical infrastructure.

In other settings the above list of factors sum up to be ideal requirements, but still do represent factors of importance for development of mortgage finance. For these reasons the list of factors serve as input to developing propositions on criteria for mortgage finance, as further developed below.

11.3 Review of Guidelines and Recommendations on Housing Finance Implementation

Type of Resources

Substantial sources are available on both housing finance (e.g., Ben-Shahar et al. 2008; Nadler, 2005) and on housing indicators (e.g. Angel 2000), but the approach defined here of analysing preconditions for introduction of mortgage finance systems differs from the approach used in most studies.

While comparative studies describe and compare systems according to how they perform in their respective domestic markets, the purpose of this study is to analyse the feasibility of transplanting the Danish mortgage finance system to a different environment. The task is consequently to answer the question, what the preconditions, or success criteria, are for introduction in other countries of a mortgage finance system using the Danish model of securitization. It is also necessary to identify the basics of an enabling environment for mortgage system development.

When sources present the situation of mortgage credit systems in operation and their de-facto context, such conditions cannot be taken to be equivalent to the preconditions for introducing a mortgage credit system elsewhere. The actual conditions, under which the mortgage finance has functioned in Denmark over time, may not represent minimum standards, under which a system of this kind can function. Neither is it likely that all relevant factors can be defined in terms of well-defined standards. Complexity and bi-directional causality is at play. As an example, one may ask if mortgage finance systems nurture formal housing markets or the opposite mechanism is predominant.

The research questions are positioned in a dynamic field between policy on one hand empirical issues, and, on the other, theoretical issues, for which useful contributions can be found among a variety of sources - from academic studies to policy documents on housing finance. The variety is associated with different perspectives as reflected by the type of sources:

- a. Academic sources on development of housing finance
- b. Resources of Financial networks – market participants
- c. International Development Banks
- d. United Nations Agencies

Another distinction can be made between housing finance studies directed towards specific geographic or market segments, such as e.g.,

- The European Union
- OECD Countries
- Countries in Transition
- Emerging Economies
- Developing Economies.

In particular, numerous studies have been prepared for development of mortgage finance in emerging markets, where the housing industry has been booming. Studies on housing finance in developing

economies, on the other hand, are largely focused on other forms of housing finance, especially micro-finance.

Therefore a differentiation between types of economies for screening of readiness emerges already in the basic information sources, ref. to discussion of country classifications in Chapter B.9.2.

A document published by United Nations Economic Commission for Europe, 2005, has been found of particular relevance for developing prerequisites for housing finance: “*Housing Finance Systems for Countries in Transition, Principles and Examples*”, United Nations, New York and Geneva, 2005, (UN-ECE, 2005, <http://www.unece.org/hlm/prgm/hmm/welcome.htm#housingfinance>). The UNECE document describes the main forms of mortgage finance in Europe and focuses on preconditions for introduction of market based housing finance systems in emerging economies. Its analytical angle concerns the prerequisites for introduction of well-proven housing finance systems to new markets in countries in transition.

The mentioned document was prepared by a team of international experts under the UN Economic Commission for Europe, over a period from 2001 to 2005, with “the goal of assisting governments in transition countries in designing working housing finance for their citizens”.

The UN-ECE document is a policy paper, but it is research based as indicated in its list of references. In particular Dr. Michael Nadler's works have impacted on the logical structure of the study (Nadler, 2001 and 2005). It targets countries in transition, meaning a transition from a centrally planned - to a market economy. The guidelines were prepared with the purpose in mind to enable decision makers to select appropriate measures for selection and implementation of housing financing schemes. For these reasons, the document has an authoritative character.

The document lines out the framework conditions and principles of market based housing finance systems in general, exemplified by three different models of housing finance: The German ‘Bausparkassen’ system, the Danish Mortgage securitization system (DRK) and the US version Mortgage-backed securities (MBS), (UNECE, 2005, p. 2).

The objective of the document differs somewhat from that of the present study, but the topics covered overlap those required here. The generalized level of the UN-ECE document helps position the special focus of the Danish mortgage finance system within the overall range of framework conditions for mortgage credit, ref. to:

“It is designed to show how housing financing policies could be developed and improved, which general housing finance systems could be applied, what experience of some specific solutions has shown and which criteria and information could be used in evaluating, preparing and selecting appropriate policy measures.”(UNECE, 2005, p. 1)

It is therefore presumed that the guidelines provide an adequate structure for defining general criteria for implementation of mortgage finance systems in countries in transition or in similar circumstances. Whereas the UNECE document can be considered normative at a general level, specific criteria in special areas, such as land registration need further elaboration.

Abundant evidence underlines the importance of a favourable environment for mortgage finance, in respect to factors of macro-economics, policy, governance and the property market.

It has also been shown above that Danish mortgage finance is tied to a functioning legal framework, land supply, and property market. The centrality of “security of collateral” for the functioning of mortgage credit systems was elaborated in Chapters A-8-9, including prudent valuation practices.

At the specific level, no readily available sets of principles have been found in the Danish literature, which fulfil the purpose of screening the readiness for introduction of the Danish mortgage finance elsewhere. Neither does the general literature on housing finance explicitly cover that perspective. Some guidance has been found in policy documents prepared by housing finance experts of e.g., the World Bank, (Hassler, Lea, etc.), based on Bank experience with development of mortgage finance e.g., in Asia and in transition

economies. For these reasons the propositions on prerequisites for development of Danish mortgage finance has been based on collating clues from the mentioned sources and by analytical reasoning.

Proposals on detailed criteria have been identified by triangulated from different perspectives, but no systematic testing of the analytical framework was made.

Case studies illustrated the role of each of the parameters in different settings, but were insufficient for testing contents, or detecting shortcomings, see Part D.

11.4 Analytical Structure and Concepts of the UNECE- Guidelines 2005

Use of Guidelines on Housing Financing, UNECE (2005)

The principles outlined in the UN-ECE 2005 have been found to be largely consistent with recommendations of housing experts representing other institutions that works on housing finance development (Sheng, Hassler, Lea, Renaud,). Therefore, the structure set out in the guidelines is used as a first approximation of a framework, while findings of other sources will be applied to provide further evidence to the analysis.

The analytical perspective of the UNECE guidelines supports the definition of preconditions for housing finance, because it outlines the framework conditions for housing development at a macro level, including the topics of property rights' protection, collateral security, and land delivery.

The UNECE document defines a structured set of principles, obstacles, risks and prerequisites for introduction of market based housing finance systems, common to the three different financing models presented, as well as specific principles and preconditions of each of the models. If applying these UNECE principles in an inverse form, they may serve as criteria.

In other words, a preliminary set of criteria at a generalized level for introduction or development of a mortgage system in a given country was derived from the UN-ECE document, while gaps in respect to special areas of legal registration had to be filled in based on other sources.

The areas covered by the guidelines include general prerequisites for a functioning housing finance system such as working legislation, a stable banking sector, and a clear definition of government involvement in a situation of macro-economic stability. Fulfilment of prerequisites is expected to nurture free competition among housing finance providers in an open housing market (UN-ECE, 2005, pp. 61-62).

Not only does the UNECE define necessary components for a functioning framework, it also defines a hierarchy of complementary actions, first of all the development of institutions and policies to facilitate the role of private and non-profit lenders and developers. The role of government is defined in improving the regulatory system to allow supply markets (land, finance, infrastructure) to function efficiently, so that the supportive supply mechanisms respond to demand (UNECE 2005, p. 62). Government policies are to function in a facilitating role for the market. Notably, it cannot be expected that higher (income) subsidies will lead to better housing, according to UN-ECE (2005).

In the UNECE guidelines and elsewhere security of property rights and land supply for urbanization are often emphasised. What remains to be done in the context of the present study is to elaborate associated criteria for the functioning of the regulatory system, so the focus below is on development of proposals of specific criteria in respect to land delivery, property rights, and registration systems.

The guidelines include a model for evaluating benefits of different housing finance systems under various circumstances, with due reference to context dependency. The underlying understanding is that there is no common, or best, solution, and that various types of housing finance need to be available for customers. It is argued that market competition between housing finance suppliers is essential to avoiding monopoly and to providing the best conditions for borrowers.

Concepts and Definitions of Evaluation Framework

A draft evaluation framework may approach assessment of the readiness for MFS from two sides: Partly, by assessing the status of enabling factors; and partly by screening possible obstacles for mortgage market development.

In this way screening of, on one side, enabling factors and, on the other, obstacles describes the playing field: In a troublesome environment, it may suffice to check out barriers of development, and if the conditions are found to be far below minimum conditions, detailed screening may not be necessary in this context.

Framework conditions are described in normative terms in (UNECE 2005a) whether in a positive or a negative form as: prerequisites, “absolute necessity”, necessity, obstacles, criteria, risks, conditions, requirements, or merely as indicators.

The term “criteria” is applied in (UN-ECE 2005, p. 1) as “criteria of assessment” and occurs in many instances in the meaning of “prerequisites”: “... *which criteria and information could be used in evaluating, preparing and selecting appropriate policy measures.*”

It is suggested to consolidate the various concepts mentioned under different headings in UNECE 2005, while maintaining the distinctions as follows:

- Some preconditions have to be fulfilled in any case for the functioning of a market based housing financing. If not fulfilled, these factors become obstacles for introducing market based housing financing systems;
- A range of risks, which are to be managed - before and after- when implementing any market based housing financing system.

To clarify the terminology, this paper uses mainly the following terms:

- Framework conditions: the whole set of circumstances = context
- Criteria: to serve as an “umbrella term” covering the specific prerequisites, necessities, conditions, requirements, to be fulfilled at a certain minimum level as components of framework conditions.
- Risks: to cover both extraordinary risks to be considered in advance, and risks which must be managed during implementation;
- The terms are somewhat overlapping, as obstacles, for example, may become risks, if going ahead with implementation, irrespective of identified obstacles.

Parameters of relevance for introduction of Mortgage Finance Systems (MFS) are classified into criteria, obstacles, and risks: In broad terms ‘criteria’ seek to set minimum standards and capture “known factors”, ‘risks’ seek to represent “the unknown” in respect to context.

Criteria are used here to cover basic parameters, which are observable, such as legislation, income levels, and inflation rates. The determination of minimum standards, or critical values, of each parameter (criteria) belongs to a detailed level of analysis. As an example, when it is agreed, that high inflation rates represent an obstacle for MFS, the next question is, what would be a prohibitive level of inflation, i.e. a threshold criterion for introduction of MFS? Criteria may thus be defined in substance, but remain undefined in quantitative/qualitative terms. This is particularly the case, when the topic concerns softer issues of the context.

Risks: Other parameters of the contextual environment could be more difficult to capture, since they may either belong to a complex set of conditions of e.g., political character, or factors, which by their nature cannot be predicted, quantified, or could be difficult to measure quantitatively or qualitatively (risks of land conflicts, independence of the legal system, level of corruption, etc.). Risks are also normal factors in the capital market, which are assessed by market participants.

Risks factors can partly be described in terms of current known uncertainties, and partly in terms of the probability of undesirable events, e.g., the risk of expropriation or other government intervention, as

perceived by observers or stakeholders. The latter will only be mentioned in so far as other general resources permit. Risk factors need to be explored in order to capture factors of high importance for investors.

Components of the framework conditions could both represent criteria (now) and risks (in the future), depending on the limitations of available information and the inherent nature of unpredictability of future events. Although an overall grouping of factors can be made, some uncertainty remains in the conceptual structure.

Obstacles to introduction of market-based housing finance systems are understood as “... *factors influencing the fact that people are reluctant to borrow on the free market:*” as described in (UNECE 2005, pp. 8-9). As obstacles can also be counted such factors that cause potential *investors* to be reluctant to invest in mortgage securities in the given market.

An extended list of obstacles explains why a genuine housing market has not been widely adopted in many transition countries:

- uncertain property titling;
- quasi-ownership tenure in rental housing;
- illegal housing constructions;
- decrease in financial affordability of housing;
- privatization of public housing;
- etc.

The main obstacles can be classified according to their nature (p. 9):

- Economic obstacles
- Socio-economic obstacles
- Legislative obstacles
- Cultural obstacles
- Institutional obstacles.

Such obstacles can be viewed in conjunction with criteria, since hindrances encountered may help shed light on the critical parameters of setting up housing finance systems. A screening process could make use of information on such known obstacles for diagnosing the framework conditions for housing finance, in a similar way as outlined by USAID in the rapid assessment of Land Tenure and Property Rights (2007) under the concept of Constraints (ref. to Chapter B.4.2).

Conceptual Change from Preconditions and Risks - to Indicators of Readiness

Indicators are here seen as parameters of measuring the degree of compliance with criteria, or the severity of obstacles and risks.

Once a sub-set of criteria is defined, the next step is to analyse the most significant indicators for profiling the conditions for introduction of mortgage finance systems. In order to convert the principles into a practical screening process, potential sources of information have to be explored. Operational aspects will also be determining for the type of screening, which can be conducted in practice.

Interestingly, parameters of relevance for mortgage finance are likely to be interdependent, such as rule of law, quality of institutions, and protection of property rights (UNECE-2005, p. 55-56). As a consequence, assessment of readiness for mortgage finance may not require a screening of all criteria, if it is possible to identify powerful indicators correlating with other key development factors.

It is expected that in case of a negative investment climate, the correlation of negative indicators is strong, so that the mapping of some criteria/risks would suffice. In principle, one killer option is sufficient for hindering introduction of a market based mortgage finance system, for example sky high inflation rates. In the other range of the scale, profiling of favourable condition for housing finance could be more subtle, since it is necessary to capture the overall conditions covering the whole range of topics, especially the urban dynamics, and to make sure that there are no major obstacles (lack of access to foreclosure, for example).

Another practical use of a screening model is to serve as an X-ray of the framework conditions as an aid for formulation of policies and strategies to overcome the obstacles for introduction of housing finance systems. According to UNECE (2005, pp. 58-59) national governments have a responsibility for doing exactly that:

“If the prevailing conditions in a particular economy differ clearly from the necessary prerequisites described above, national Governments have a responsibility to facilitate and stimulate business activities between private lenders and borrower.”

Stakeholder Analysis According to UN-ECE

The three parties of mortgage finance systems are the borrowers, the lenders, and the government, a structure which helps establish a clear overview of expectations and goals. The UN-ECE 2005 framework structures its analysis of the three parties as checklists for each market participant (ref. to elaborate table, UNECE 2005, pp. 48, 53, 58):

Goals	Performance Indicators	Outcome
Borrowers	Check lists	Housing market & financial market;
Lenders /Investors	Check lists	Direct and indirect benefits
Government	Check lists	
Housing market		

The process of selecting a housing finance system is envisaged by UNECE as conducted in steps, whereby in step one, goals are defined for the three participating parties in the financial intermediation process. In step two, indicators are to be defined to measure the performance of the financial institutions in relation to their stated goals. What is missing in the above structure is the point of departure for the decisions. That the housing finance system not only fits the purpose of the parties, but also the given circumstances.

It is argued here that a stakeholder analysis belongs to a detailed feasibility study at country level and in connection with the development of implementation strategies, in which case the mentioned structure can be applied. However, what can be learned from this approach is to duly consider the interests of all parties- not the least the investors. There will be no market based housing finance, if the system is not able to attract investors, so it is of critical importance to analyse their interests and defined their success criteria.

Investors are as important as the borrowers, so screening of readiness need to cover the financial market prerequisites, but that was not included in the present study. A long checklist of factors to be explored in country screening was prepared by VP Securities A/S (Appendix 2).

In this respect the Danish model of securitization based on the balance principle creates a unique and transparent link between the interest of the borrowers and the investors, which can be described as being in harmony, *in balance*.

11.5 Propositions on Criteria for Mortgage Finance Development

Structure of Prerequisites and Building Blocks of Topics and Criteria

The thematic structure of the UNECE guidelines has been used for defining criteria for introduction of the Danish Mortgage Finance system. Five groups of prerequisites for market based housing finance were defined by UNECE (UNECE 2005, pp. 55-57) as follows:

- (a) Economic prerequisites
 - Macroeconomic level stability
 - Microeconomic level affordability
- (b) Institutional prerequisites
 - Stable institutions
 - Functioning legislation which guarantees property rights, contractual freedom, rapid foreclosure, etc.

- Legislation and supervision of financial sector
- (c) Financial sector-specific prerequisites
 - Financial legislation and developed financial institutions
 - A capital market sector
 - Professionals and distribution channels
- (d) Housing sector-specific prerequisites
 - Adequate urban infrastructure
 - Land supply
 - A construction sector
- (e) Housing subsidies.
 - Cost efficient, well targeted, and transparent
 - Clear role of public sector;

It follows that the top-level priorities are: conditions of macroeconomics, governance, financial reforms, and housing policy.

However, even at this level the importance of land and property issues are underlined with emphasis on: stable institutions, functioning legislation which guarantees property rights, rapid foreclosure and land supply for urban development.

World Bank sources confirm the above prerequisites for market based housing finance systems, see for example Technical Brief to The Board, Housing Finance in Emerging Economies, World Bank Group Board (Presentation, June 9, 2005, www.ifc.org), under the two headlines of 1. Required sound foundations, and 2. Enabling role of the State.

- **Required sound foundations**
 - Relative macroeconomic stability
 - Workable legal system (titles, foreclosure)
 - Risk management, funding tools & regulations
 - Competing private lenders
 - Affordable housing (cf. supply constraints)
- **Enabling role of the State**
 - Less of direct lender/builder, rather build conducive market environment, catalyst role to expand accessibility

In concordance with other sources, Renaud (2008) describes macroeconomic stability as an absolute prerequisite for the development and growth of private mortgage markets and sustainable long term finance. Mexico is mentioned as an example of how successful reforms by year 2000 made possible the revival of private mortgage lending. The critical importance of a functioning legal registration system is underlined.

Renaud (ibid., p. 275) has prioritized areas of intervention that ought to be strategic priorities in the development of mortgage markets based on lessons learned:

- Macroeconomic stability
- A strong, long-term, persistent, government commitment to financial reforms
- Restructuring/termination of costly and unsustainable public housing programmes
- Correcting large distortions in the housing markets (with high housing price-to-income ratios)
- Development of primary, retail mortgage markets,
- Etc..

Renaud sees three critical roles of government in developing the mortgage capital market (ibid., p. 276):

1. Ensuring the quality and enforceability of the mortgage collateral;
2. Building a complete legal and regulatory framework coherent with the overall financial system;
3. Reducing uncertainty for market players throughout the entire process.

Sheng (1999) summarized the importance of property rights by a single statement: “Finance is the derivative of the real sector”. Renaud sees distortions in the housing market to stem from malfunctioning institutions of

property rights and bad urban policies. Consequently, to enable mortgage finance development, the root causes of malfunctioning urban systems have to be remedied by strengthening property rights, land registration systems, and land supply. Renaud warns that mortgage markets cannot be expected to mitigate multi-dimensional impacts of bad urban policies. The UNECE guidelines (2005) suggest a causal order of housing finance development: At first establishing the conditions, then the housing finance institutions will emerge.

*“Once these conditions are established, the appropriate housing finance institutions will emerge.”
(UNECE, 2005, p.1)*

In other words, shortcomings in property rights systems and land delivery mechanisms must be addressed as a priority in order to make mortgage finance development possible. For this reason, UNHABITAT (2009) is missing the target when pounding on banks to provide mortgage credit, without addressing the required foundation of clear property rights and sound institutions.

“Such structural improvements usually include stronger property rights, land titling and effective registration systems. In addition, a more elastic land supply and market responsive urban planning are part of the solutions. The development of mortgage markets cannot be counted on to mitigate the multidimensional impacts of bad urban policies.” (Renaud, 2008, p. 275)

“Eliminating the worst distortions in the housing markets proper, in particular regarding and property registries are a prerequisite for the growth of mortgage markets”, according to Renaud (2004, p. 26) with reference to a study of affordability indicators by Angel (2000).

These are powerful statements, and they do as well provide evidence of the use of a single indicator of the ‘housing price-to-income’ ratio to detect distortions in the housing sector. The housing price-to-income ratio can serve as a good indicator of structural deficiencies in property rights, land tenure, and registration systems.

The macro-economic indicator of affordability (ratio between housing price and income) is not uniquely pointing to the supply side of housing and credit, since the demand represented by the denominator ‘income’ is affected by other factors, but supply factors are critical.

Other studies present similar sets of prerequisites for mortgage market development. As an example, the Harvard Joint Center for Housing Studies (Harvard, 2005) has defined the building blocks for housing finance in emerging economies structured in 9 building blocks (among which requirements in the property sector are enhanced below):

1. Macroeconomic stability
2. Adequate laws, titling systems, and judicial processes
3. Robust markets for new and existing housing
 - The presence of numerous buyers and sellers, adequate information on prices and characteristics, an accurate and timely title registration system and the lack of discriminatory or onerous taxes (e.g., stamp duties, property taxes) foster housing markets and make houses safer collateral for finance.
4. Adequate supply levels of housing units, both in volume and in price range
 - consistent with the distribution of household income. Such supply characteristics implies having an efficient production process capable of generating: land with infrastructure and services, quick license and permit approval mechanisms, short production cycles and ample acquisition finance (both credit and, if needed, subsidy).
5. Competitive and efficient primary mortgage markets
6. Products that meet the needs of borrowers and lenders
7. An infrastructure for information for assessing collateral and credit risk
8. Adequate levels of household domestic savings relative to the size of the economy
9. The development of mortgage capital markets.

These ‘building blocks’ confirm the list of prerequisites set up below, but a modified structure is proposed below.

11.6 Proposed Modified Analytical Structure

Subset of Prerequisites for Danish Mortgage Finance Development

In consequence of the above, a modified structure of the long list of preconditions of (UN-ECE 2005) has been defined as a subset of topics with a slightly different emphasis adapted to the focus on the property market infrastructure needed as a foundation for a functioning mortgage credit system, in specific the Danish mortgage credit system, because credit risk is its main risk factor.

As has been argued in preceding chapters, collateral security is key to keeping credit risks low. For these reasons criteria affecting collateral security are highlighted as prerequisites for the Danish Mortgage Finance System to function as designed.

The factors of the UNECE framework have been reorganized by consolidating housing market prerequisites into one group and splitting institutional prerequisites into two to emphasise the aspect of collateral security. When the specific topics concerning the financial sector are disregarded, and the list of topics reorganized and merged with topics identified in previous chapters, a modified list of key issues can be defined as a subset of the long list of prerequisites (Table A.21):

Below, the factors of prerequisites 1-4 have been organized into a proposed framework for screening of the conditions for introduction of a marked based mortgage finance system.

1. <i>Economic Prerequisites:</i>	Macroeconomic Stability
2. <i>Institutional Prerequisites:</i>	Working Legislation and Sound Institutions
3. <i>Collateral Prerequisites:</i>	Secure Property Transactions and Mortgage Pledging
4. <i>Housing Market Prerequisites:</i>	Enabling Housing Policy and Local Housing Markets
5. <i>Financial Sector-Specific Prerequisites</i>	

The fifth group of criteria, financial sector-specific prerequisites (UNECE, 2005, p. 55-57), is not covered here but mentioned in context, since these issues are linked to other prerequisites and covered by financial experts, reference to the checklist applied by VP Securities A/S (Appendix 2)

The four types of prerequisites are further structured with emphasis on issues of property rights, land supply, and collateral security:

1. *Economic prerequisites:*
 - a. Macroeconomic level stability
 - b. Microeconomic level affordability (income, income distribution, employment)
2. *Institutional prerequisites:*
 - a. Stable institutions - overall governance
 - b. Working legislation & Rule of Law
 - c. Detailed legislation on property rights protection
 - d. Sound institutions in the domain of landed property
3. *Collateral prerequisites:*
 - a. Secure property transactions and mortgage pledging
 - b. Effective foreclosure and access to collateral
 - c. Security of collateral (mortgage pledges, collateral quality, and value)
 - d. Access to information for assessing collateral and credit risk
4. *Housing policy and market prerequisites:*
 - a. Housing policy and a clear role for the public sector
 - b. Demand for new housing and upgrading
 - c. Land supply and physical infrastructure
 - d. Construction sector, and urban housing markets

Table A.21. Prerequisites for Mortgage Finance (with reference to UN-ECE, 2005)

The above structure (Table A.21) serves to define sets of criteria and sub-criteria to be applied for screening, with emphasis on analysis of conditions for securing collateral.

The list represents topics discussed in the analysis of the Danish Mortgage Finance System in a generalized form and in a structured format, as an intermediate product of an iterative process of developing more detailed criteria for assessment of the conditions for mortgage finance development.

Within each of the prerequisites more detailed criteria – and ideally minimum requirements – would be desirable, if it makes sense at all, considering the myriad of factors, that might interfere in the credit market. Development of further details of criteria and preconditions is seen as an iterative process both depending on developing the conceptual framework ('modelling'), and feedback from potential users in an application oriented context, e.g., when conducting feasibility studies. It must be emphasised that in a market based mortgage finance system, decisions on feasibility of mortgage finance development will ultimately be in the hands of investors.

The list of prerequisites illustrates, that mortgage finance is heavily dependent on contextual macro-economic factors and on the housing market at large.

For a more detailed discussion of criteria and indicators, see Part B, chapter B.10.