DANISH MORTGAGE REGULATIONS—STRUCTURE, EVOLUTION, AND CRISIS MANAGEMENT

I. INTRODUCTION

The Danish mortgage system was hailed by the International Monetary Fund in late 2006 as "highly rated" and one of the "most sophisticated" mortgage systems in the world.[1] All mortgages granted by credit institutions to property purchasers ("Homebuyers") in Denmark must be supported by an "equivalent bond with a maturity and cashflow that matches those of the underlying loan almost perfectly."[2] This foundational principle, known as the "balance principle," *balanceprincippet*, is codified in Danish law[3] and has been the basis and hallmark of Denmark's mortgage market model since the market's inception in 1797.[4]

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1. INT'L MONETARY FUND, THE DANISH MORTGAGE MARKET—A COMPARATIVE ANALYSIS 3 (2007), *available at* http://www.imf.org/external/pubs/ft/scr/2007/cr07123.pdf [hereinafter THE DANISH MORTGAGE MARKET—A COMPARATIVE ANALYSIS].

2. *A Slice of Danish*, ECONOMIST, Jan. 3, 2009, at 55. When a mortgage bond matches the maturity and cashflow of an underlying mortgage, the "income" earned by the credit institution from the interest payments on the loan by the homeowner "covers" the credit institution's payments to a bond holder.

3. LOV. Nr. 454, om realkreditlån og realkreditobligationer m.v., af. 10/06/2003, §§ 19–21, *available at* https://www.retsinformation.dk/Forms/R0710.aspx?id=26295:

> Obligationsudstedelse og balanceprincip
>
> § 19. Realkreditobligationer skal være omsættelige massegældsbreve eller fondsaktiver og optaget til offentlig notering på en fondsbørs.
>
> § 20. Midler fremkommet ved udstedelse af realkreditobligationer eller andre værdipapirer kan alene anvendes til udlån mod pant i fast ejendom, jf. dog stk. 2 og 3.
>
> Stk. 2. Finanstilsynet kan fastsætte regler om, at midler i begrænset omfang kan anvendes til andet end udlån mod pant i fast ejendom.
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> Stk. 3. Finanstilsynet kan tillade, at der i koncernforhold kan udstedes realkreditobligationer og andre værdipapirer i et realkreditinstitut til finansiering af realkreditlån i et andet realkreditinstitut.
>
> § 21. Finanstilsynet fastsætter regler om opgørelse af og grænser for:
>
> (1) Forskellen mellem de fremtidige betalinger på udstedte realkreditobligationer og andre værdipapirer på den ene side og de fremtidige betalinger på pantebreve og finansielle instrumenter på den anden side,
>
> (2) den renterisiko, der følger af den i nr. 1 nævnte forskel, og
>
> (3) forskellen mellem indfrielsesvilkårene for udstedte realkreditobligationer og andre værdipapirer på den ene side og pantebreve og finansielle instrumenter på den anden side.

See also the unofficial English translation of Act. No. 454 at http://195.184.36.35/Lov.aspx?ItemID=1a979082-76fa-4904-8d1d-b8536d86ea62 (last visited Jan. 14, 2009):

> Issue of bonds and the balance principle
>
> 19. Mortgage-credit bonds shall be convertible mass debt instruments or securities and shall be admitted for public quotation on a stock exchange.

At first glance, the mortgage market system of a small Scandinavian country with a population of approximately 5.5 million and a land area of slightly under 43,000 square kilometers (slightly less than twice the size of Massachusetts),[5] may seem insignificant. However, in contrast to the country's land size and population, the Danish mortgage market, relative to its gross domestic product ("GDP"), is the largest in the world.[6] Further, in terms of sheer monetary value, it is the second-largest mortgage market in Europe.[7] This "tiny" country has an immense value in its real estate.

Mortgage bonds comprise just over seventy percent of the Danish bond market.[8] Financial organizations call Danish mortgage bonds "very strong

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20. (1) Funds raised by the issue of mortgage-credit bonds or other securities may solely be used for lending against mortgages on real property, see however subsections (2) and (3) hereof.

(2) The Danish Financial Supervisory Authority may lay down rules that funds may, to a limited extent, be used for purposes other than lending against mortgages on real property.

(3) The Danish Financial Supervisory Authority may in group circumstances permit the issue of mortgage-credit bonds and other securities in a mortgage-credit institution for the purpose of financing mortgage loans in another mortgage-credit institution.

21. The Danish Financial Supervisory Authority may lay down rules on calculations of and limits for:

(1) the difference between, on the one hand, future payments on mortgage-credit bonds and other securities issued, and on the other hand, future payments on mortgages and financial instruments,

(2) interest-rate risk caused by the difference mentioned in no. 1 hereof, and

(3) the difference between, on the one hand, the redemption terms of mortgage-credit bonds and other securities issued and, on the other hand, mortgages and financial instruments.

4. KNUD WESTLUND, REALKREDIT: HISTORISK, ØKONOMISK OG FORVALTNINGSMÆSSIG UDVIKLING AF ORGANISERET REALKREDIT I DEN VESTLIGE VERDEN GENNEM 200 ÅR 42 (1967) (The Creditor Association for Copenhagen Homeowners, Kreditkassen for Husejere i København, was created in 1797 with the purpose of granting mortgages to the homeowner-victims of the 1795 Copenhagen fire.).

5. Estimates are current as of July 2008. Central Intelligence Agency, *Denmark*, WORLD FACTBOOK, https://www.cia.gov/library/publications/the-world-factbook/geos/da.html (last visited Apr. 2, 2010).

6. "[The Danish mortgage] market is far bigger than Germany's or America's." *A Danish Model in Aztec Dress; Mortgages*, ECONOMIST, Jan. 4, 2007, at 62 [hereinafter *Aztec Dress*]. "The total volume of outstanding mortgage debt [in Denmark] totaled 101% of GDP in 2003, compared to 81% in the U.S." Mikkel Svenstrup & Søren Willemann, *Reforming Housing Finance: Perspectives from Denmark*, J. REAL EST. RES. 105, 105–06 (2006). *See also* Janne Thomsen & Arjan Verbeek, *Danish Mortgage Bonds (Realkreditobligationer): Highly Secure Financial Instruments—Special Comment*, *in* MOODY'S INVESTOR SERVICE—GLOBAL CREDIT RESEARCH 3 (Maya Penrose ed., 2002), *available at* http://www.realkreditraadet.dk/Admin/Public/DWSDownload.aspx?File=%2FFiles%2FFiler%2Fpdf%2Fanalyser%2FMoodys_2002_RKR.pdf (Danish mortgage market is the largest in the world in per capita terms).

7. REALKREDIT DANMARK, DANISH MORTGAGE BONDS 9 (2007), *available at* http://www.danskebank.com/da-dk/ir/Documents/Other/DanishMortgageBondMarket2007.pdf (The Danish mortgage market is second in Europe to Germany's Pfandbrief mortgage market.).

8. DANMARKS NATIONALBANK, FINANCIAL STABILITY 2005, at 31 (2005), *available at* http://

and very low-risk financial instruments."[9] In the over two hundred years since the inception of the mortgage bond market, "there has never been an incidence of default on a Danish mortgage bond."[10] Largely due to this stable regime, emerging mortgage markets, such as Mexico's, are now attempting to emulate the Danish system.[11] Billionaire financier George Soros has also called for an adoption of the Danish system in the United States as well as in other countries.[12]

Given this global high esteem and regard, the Danish system appears to be the "best possible"[13] mortgage system yet to be conceived. As such, given the current unstable global financial climate, if any housing finance system were to retain integrity through these tough times, it ought to be the Danish version. This Note traces the history, development, and recent crises of the Danish mortgage system. It also examines how the amount of insularity the system has protects it from the global market while continuing to court global investors to its product.

The strength of the Danish mortgage system was recently called into question when Denmark's eighth-largest bank went bankrupt in July 2008.[14] At that time, Roskilde Bank no longer met solvency requirements

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www.nationalbanken.dk/C1256BE9004F6416/side/Financial_Stability_2005_uk/$file/finstab05_uk_web.pdf.

9. Thomsen & Verbeek, *supra* note 6, at 1.

10. Jens Thomsen, Governor, Danmarks Nationalbanken, Speech given on the seminar "The Danish Mortgage Credit System" at the Royal Danish Embassy in Washington, D.C. (Apr. 20, 2006), (transcript available in DANMARKS NATIONALBANKEN, BACKGROUND TO JENS THOMSEN SPEECH ON 20/4 IN WASHINGTON: DENMARK'S MORTGAGE CREDIT SYSTEM AND MACROECONOMIC POLICY 3 (2006), http://www.nationalbanken.dk/C1256BE900406EF3/sysOakFil/JT_tale_Washington_april 2006_ENG/$File/JT_Realkredit_tale_Wash_april06.pdf) [hereinafter Governor Jens Thomsen's 2006 Speech].

11. *See Aztec Dress*, *supra* note 6, at 62.

12. *Billionaire George Soros Commends Danish Mortgage Credit System*, MINISTRY OF FOREIGN AFFAIRS OF DENMARK, EMBASSY OF DENMARK, WASHINGTON, D.C., Aug. 18, 2008, http://www.eksporttilusa.um.dk/da/servicemenu/NYheder/BillionaireGeorgeSorosCommendsDanishMortgageCreditSystem.htm. In fact, the Soros Foundation was instrumental in implementing the Danish-styled mortgage system in Mexico in September 2005, which rolled out the first mortgages in 2006. *Id. See also Mexico Chooses Danish Mortgage Credit System*, INVEST IN DENMARK—MINISTRY OF FOREIGN AFFAIRS OF DENMARK, Sept. 12, 2005, http://www.investindk.com/visNyhed.asp?artikelID=13669; *VP Securities Services to Set Up Mortgage Credit System in Mexico*, VP SECURITIES A/S, Sept. 6, 2005, http://www.uk.vp.dk/C1256CF300390A8E/0/75FAEF723F8917C6C1257075002A6A03.

13. The term "best possible" is borrowed from the ratings given to Danish mortgage bonds by Moody's and Standard and Poor's. In 2002, Danish mortgage bonds received next to "best possible" ratings, receiving from Moody's a "level Aaa-Aa2, where Aaa is the best possible rating. Standard & Poor's has given the Danish mortgage bonds ratings on the level AAA-AA, where AAA is the highest possible rating." REALKREDITRÅDET [ASSOC. OF DANISH MORTGAGE BANKS], ASSOCIATION OF DANISH MORTGAGE BANKS—IN BRUSSELS 6, http://www.realkreditraadet.dk/Files/Filer/Engelsk/Association_of_Danish_Mortgage_Bank_-_in_Brussels.pdf [hereinafter BANKS IN BRUSSELS].

14. *See* Press Release, Marc Dalgas, Head of Capital Markets, Roskilde Bank, Roskilde Bank A/S Mandates for Tender Offer and Consent Solicitation Process (Sept. 12, 2008), *available at* https://

in the face of increasing "write downs"[15] of real estate loans.[16] Most of these real estate loans do not equate with mortgages regulated under the mortgage system, but are instead related to "property development projects."[17] Thus, Roskilde's demise was premised not on mortgage defaults or other problems with the mortgage bond system, but rather with Roskilde's other loans which failed due to the bank's "'slipshod' credit policy and a collapse in the local property market."[18]

However, much of Roskilde's holdings were also nested in the mortgage credit market:[19]

> In common with most regional and local Danish banks, Roskilde Bank continues to finance its mortgage loans via mortgage providers Totalkredit/Nykredit and DLR Kredit. Since 2007, Roskilde Bank has not provided guarantees against losses in connection with the arrangement of mortgages to Totalkredit. Therefore, the guarantees against losses on mortgage loans will decrease. Going forward, losses on Totalkredit mortgages arranged

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www.roskildebank.dk/filarkiv/01_PressreleaseTenderOfferandConsentSolicitation.pdf (discussing its July 14, 2008 announcement of its lack of liquidity and its plan to sell the bank).

15. The definition of "write-offs" or "write-downs" is:

> Write-down on loans: Under the new accounting rules, banking institutions' provisions are to be referred to as write-downs in future. For loans on which a loss is expected (i.e. there is an objective indication of a deterioration in value), the banking institutions must write down the loan to the present value of the expected future payments, including realisation of collateral.

FINANCIAL STABILITY 2005, *supra* note 8, at 113.

16. *See* Kim McLaughlin & Rasmus Jorgensen, *Denmark's Roskilde: A Small Bank in Big Trouble*, REUTERS, Aug. 25, 2008 [hereinafter *Denmark's Roskilde*], http://www.reuters.com/article/rbssBanks/idUSLP6004120080825. "In [the second quarter] of 2008 Roskilde Bank significantly increased its writedowns which is estimated to result in a pretax loss of about DKK500 million . . . ." EEVA ANTILA, REYNOLD R. LEGERSTEE & KIMMO RAMA, MOODY'S INVESTORS SERVICE, CREDIT OPINION: ROSKILDE BANK A/S, (2008) [hereinafter CREDIT OPINION: ROSKILDE BANK A/S], *available at* http://www.roskildebank.dk/filarkiv/ RoskildeCreditOpinion_060808.pdf.

17. CREDIT OPINION: ROSKILDE BANK A/S, *supra* note 16, at 3. In 2004, there was a rise of *prioritetslån*, a "mortgage loan" or a "home financing loan" directly issued by banks and not by mortgage credit institutions, which are structured by national mortgage regulations. *See* FINANCIAL STABILITY 2005, *supra* note 8, at 8, 19. Interest rates for *prioritetslån* are generally higher than those offered by the mortgage-credit institutions. *Id.* at 19. One type of such bank-initiated "home financing loans" is the guaranteeing of the remaining 20% in a mortgage-credit loan that only provides a 80% loan to value ratio. *Id*. at 32 & n.1. Ironically, these loans were considered to "entail a relatively low risk." *Id.* at 8.

18. *Denmark's Roskilde*, *supra* note 16.

19. "The banking institutions' sales of mortgage-credit products are in some cases linked to a guarantee vis-à-vis the mortgage-credit institute . . . . In practice, under the guarantee system the intermediary banking institution assumes most of the credit risk associated with the mortgage-credit loan." FINANCIAL STABILITY 2005, *supra* note 8, at 32.

by Roskilde Bank will be offset against the current commission to the bank for its current service to Totalkredit's borrowers.[20]

Thus, even though its liquidity woes were linked to bad real estate loans and not the mortgage bond market, Roskilde Bank's financial failures affected its guarantees against Homebuyers' default on mortgages arranged by the bank on behalf of the mortgage credit institutions.

Later in July 2008, Roskilde Bank put itself up for sale.[21] With no takers, it was bailed out by the Danish Central Bank, Nationalbanken, in August 2008.[22] The bailout amounted to over 4.5 billion kroner, which was equivalent to approximately $897 million USD.[23] Nationalbankens Governor Nils Bernstein expressed "that other Danish banks' ability to access international capital could have been compromised if the central bank had not stepped in to guarantee Roskilde's debt."[24]

Roskilde's demise brought to light a chink in the armor of the Danish mortgage system despite its reputation as a "tightly regulated" market that traditionally "shielded mortgage bonds from default risk."[25] Since 2007, Roskilde Bank had not guaranteed any of its arranged mortgages with Totalkredit.[26] Thus, while "[m]ortgagors shall be liable for the loan [mortgage] personally and with the mortgaged property towards the series

20. CREDIT OPINION: ROSKILDE BANK A/S, *supra* note 16, at 4. There is a distinction between Danish mortgage banks (also known as mortgage credit institutions) and Danish commercial banks. Six Danish mortgage banks comprise the Association of Danish Mortgage Banks: BRFkredit, DLR Kredit, FIH Realkredit, LR Realkredit, Nykredit Realkredit, and Totalkredit. Realkreditraadet.dk, Medlemmer, Realkreditrådet [Members, Assoc. of Danish Mortgage Banks], http://www.realkreditraadet.dk/Om_os/Ledelse_-_organisation/Medlemmer.aspx (last visited Feb. 7, 2009). Other mortgage credit institutions include Nordea Credit and Realkredit Danmark. Finansraadet.dk, Realkreditinstitutter, [Mortgage Credit Institutes] http://www.finansraadet.dk/danish/menu/publikationer/laantilerhvervslivet/realkredit/realkreditinstitutter (last visited Feb. 7, 2009). All mortgages (as opposed to any type of real estate loan, such as a *prioritetslån*) must have a source of issuance from a mortgage credit institute. *See* LOV Nr. 454, *supra* note 3, § 18 Stk. 1 ("Realkreditinstitutter med tilladelse her i landet har eneret til at udstede realkreditobligationer her i landet."). *See also* the unofficial English translation of Act. No. 454, *supra* note 3 ("Mortgage-credit institutions authorised to conduct mortgage-credit business in Denmark shall hold exclusive rights to issue mortgage-credit bonds in Denmark."). Commercial banks such as Roskilde Bank, however, may arrange mortgages on behalf of mortgage credit institutions. Commercial banks gain commissions from mortgage credit institutions, such as Totalkredit and Nykredit, in exchange for their services to Homebuyers and their guarantees against Homebuyers' default. *See* CREDIT OPINION: ROSKILDE BANK A/S, *supra* note 16, at 4 (Danish regional and local banks can secure mortgage loan financing through mortgage credit institutes and receive fees for these loans).

21. *Denmark's Roskilde*, *supra* note 16.

22. Kim McLaughlin & Peter Levring, *Danish Central Bank Buys Out Ailing Roskilde Bank*, REUTERS, Aug. 25, 2008, http://www.reuters.com/article/bankingFinancial/idUSLP56732520080825.

23. *Id*.

24. *Id.* (summarizing Bernstein's concern).

25. THE DANISH MORTGAGE MARKET—A COMPARATIVE ANALYSIS, *supra* note 1, at 3–4.

26. CREDIT OPINION: ROSKILDE BANK A/S, *supra* note 16, at 4.

or the mortgage-credit institution in general,"[27] in the event that Homebuyers default, mortgage credit institutions remain obliged to pay mortgage bond holders.[28] If a commercial bank originally services the loan, it must also provide a guarantee to the mortgage credit institution should Homebuyers default; the "link" between the lender and the risk-holder in cases of default prevents irresponsible lending.[29] Roskilde Bank's avoidance of guaranteeing mortgages to credit institutions shattered the payment-reinforcement mechanism that is central to Denmark's mortgage market system.

How was it possible for a bank, within a tightly regulated, highly regarded mortgage system, to face liquidity problems and ultimately insolvency? If the Danish mortgage system is considered the best in the world, what are its weaknesses? Understanding the weaknesses of the "best" mortgage system could help identify similar, latent weaknesses in other nations' mortgage systems. Analyzing the Danish government's solutions to those weaknesses, and determining whether such actions translate to viable long-term solutions, will allow other systems to take more intelligent steps in safeguarding themselves from system failure.

Answering these questions first requires an understanding of the history of the Danish mortgage system, including the evolution of its mortgage laws and regulations, and their operation on the mortgage system itself. The Danish mortgage system is largely financed by bonds, which are issued based on a "balance principle"—a 1:1 ratio of bonds to debt.[30] This system has been adjusted over time to accommodate the various needs of investors and the health of the Danish economy in times of recession.

Next, within this historical framework, this Note will analyze the current regulations. Further, this Note will discuss the significant areas of

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27. Unofficial English translation of Act No. 454, *supra* note 3, § 23 Stk 1. *See* LOV Nr. 454, *supra* note 3, § 23 Stk 1 ("For lånet hæfter låntagerne både med det pantsatte og personligt over for serien henholdsvis realkreditinstituttet i øvrigt.").

28. *See A Slice of Danish*, *supra* note 2, at 55. "[I]ssuers of mortgage bonds remain responsible for making payments on them." *Id*.

29. "[L]ax lending is encouraged when the link is broken between those who sell mortgages and those who bear the risk of default." *Id*.

30. "[T]he so-called 'balance principle'—which virtually eliminates the mortgage lender's funding risk—is the central pillar of the Danish system for mortgage finance." Bob Pannell, *Denmark: Probably the Best Housing Finance System in the World?*, COUNCIL OF MORTGAGE LENDERS HOUSING FIN. (Council of Mortgage Lenders), Winter 2003, at 27, 29, *available at* http://www.cml.org.uk/cml/filegrab/pdf_pub_hf_603.pdf.pdf?ref=3367. "In principle, the mortgage banks issue bonds with precisely the same nominal value and interest rate as the principal and the interest on the loans which the bonds finance." REALKREDITRÅDET, DANISH MORTGAGE BONDS 8 (1998), http://www.housingfinance.org/uploads/Publicationsmanager/Europe_danishmortgagebonds.pdf.

change and how these changes have affected the enviable stability of the Danish mortgage system relative to other investment options for global investors. Then, this Note will examine the burst of the Danish housing bubble through the lens of these new regulatory changes.

II. HISTORY OF THE DANISH MORTGAGE SYSTEM

The Danish mortgage system is traceable to 1795.[31] That year, a large fire engulfed "many . . . districts in the old town" of Copenhagen,[32] the home of the Danish Parliament.[33] The fire consumed over nine hundred properties,[34] which was over one-fourth of the homes in Copenhagen.[35] The fire caused over 4.5 million rix-dollars[36] in damage, only half of which was recoverable from Københavns Brandforsikring, the only fire insurance company in the city.[37] The tremendous amount of destruction was partly due to the fact that streets in the older part of town were too narrow to allow adequate access to firefighters.[38]

The vast destruction prompted a need for a massive increase in lending to fund new construction. Traditionally, lending had been given on an unsecured basis with interest capped at four percent.[39] Both of these

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31. WESTLUND, *supra* note 4, at 42.

32. J. K. Frederiksen et al., *Engineering Geology of Copenhagen*, 62 BULL. ENGINEERING GEOLOGY & ENV'T 189, 200 (2003).

33. The Danish parliament, the Folketing or Folketinget, resides in the capital city of Copenhagen. Folketinget, http://www.ft.dk/ (last visited Apr. 2, 2010).

34. REALKREDITRÅDET [ASSOC. OF DANISH MORTGAGE BANKS], MORTGAGE FINANCING IN DENMARK 2, *available at* http://www.housingfinance.org/pdfstorage/Europe_mortgage%20finance%20in%20denmark.pdf [hereinafter REALKREDITRÅDET MORTGAGE FINANCING].

35. BRFkredit.dk, Overblik Over det Danske Realkreditsystems Historie [Overview of the History of the Danish Mortgage Credit System], http://www.brf.dk/C1256F5C005ADF31/alldocs/DOCJWIK-5KYKGT (last visited Jan. 16, 2009) [hereinafter Overblik] ("En voldsom brand hærgede i 1795 København, og næsten en fjerdedel af byens huse brændte ned til grunden."), *translation available at* http://www.brf.dk/C1256A8000376E8E/alldocs/DOCJWIK-5KYKGT ("In 1795, a fire roared in Copenhagen and one fourth of the city was burned to the ground.").

36. REALKREDITRÅDET MORTGAGE FINANCING, *supra* note 34, at 2. A rix-dollar, or *rigsdaler*, references the currency used at the time. The currency was not changed to *kroner* until 1875. Danmarks Nationalbank, Fra Rigsdaler til Kroner, https://nationalbanken.dk/dndk/hist.nsf/side/Fra_rigsdaler_til_kroner (last visited Apr. 2, 2010).

37. *Id.*

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> One of the consequences of these fires was the introduction of new fire regulations. The new regulations made it illegal to have streets as narrow as those that had been present in the old part of the town in order that, in the event of future fires, the fire brigade would be able to manoeuvre more easily.

Frederiksen et al., *supra* note 32, at 200.

39. BRFkredit.dk, *supra* note 35 ("På det tidspunkt [før 1795] var renten ved lov begrænset til højest 4 pct., og lån blev traditionelt ydet som personlig kredit uden pant."), *translation available at* http://www.brf.dk/C1256A8000376E8E/alldocs/DOCJWIK-5KYKGT ("[Before 1795], the maximum

factors limited the supply of credit because of limitations placed on incentives for lenders to offer loans. Because of the unsecured basis of loans, lenders were given no option to collect on an unpaid loan because no collateral had been exchanged in return for the loan.[40] In Copenhagen, with interest rates capped at four percent, the risk involved in lending was not adequately compensated for by interest returns, and therefore there was a limited supply of such loans offered on the market.[41]

Yet the devastation caused by the fire called for some kind of action. In this case, it was the general public who came up with a solution to the crisis. By 1797, a group of wealthy citizens created the first Danish mortgage institution: Kreditkassen for Husejerne i København ("Kreditkassen").[42] These loans were secured by a mortgage on real property with joint and several liability.[43] Owners pooled their land assets to form "credit societies,"[44] or "credit associations."[45] Against the

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interest rate was fixed by law at 4%, and financing was traditionally granted as personal loans without security.").

40. This problem can be further illustrated by examining the lack of a mortgage market in Russia until as recently as 1998. *See Russia's Mortgage Market Set for Further Growth at Ten Years Old*, RUSSIA TODAY, July 18, 2008, http://www.russiatoday.com/business/news/27652. There, loans for the purchase or improvement of property are unsecured, and therefore, the bank is not given the option of foreclosure as a safeguard against a delinquent payer. "Traditionally, investments in housing [in Russia] have been financed by personal savings or loans from family and friends." OLGA MASHKINA, PIIA HELISTE & RIITA KOSONEN, HELSINKI SCHOOL OF ECON., THE EMERGING MORTGAGE MARKET IN RUSSIA: AN OVERVIEW WITH FOREIGN AND LOCAL PERSPECTIVES, at v (2007), *available at* http://hsepubl.lib.hse.fi/pdf/hseother/b82.pdf. When the Law on Privatization of Housing was adopted in 1991, very few homes were privatized because of the continued low cost of housing and complex procedures. A housing market did not begin to emerge until 1992, when a constitutional amendment allowed "free distribution of housing" which, in practice, streamlined procedures for privatization. *Id.* at 2. Further, non-state banks were introduced in 1988. *Id*. at 6.

41. "The investors considered security to be the most important element in view of this interest ceiling and the substantial demand for loans." REALKREDITRÅDET MORTGAGE FINANCING, *supra* note 34, at 2.

42. BRFkredit.dk, *supra* note 35.

43. REALKREDITRÅDET MORTGAGE FINANCING, *supra* note 34, at 2. The history of the development of the Danish mortgage credit institute, as provided by the mortgage credit institutes themselves, describes the loans provided by Kreditkassen for Husejer i København as holding mortgagors jointly and severally liable. *Id.* However, it is unclear how the loans offered through Kreditkassen differ significantly from the loans currently offered by mortgage credit institutes. One difference is that the loans given out by Kreditkassen were guaranteed by the government whereas current mortgages are only privately guaranteed. A. Hein, *Vore Kreditforeninger. Deres Tilblivelseshistorie* [*Our Credit Associations. Their Developmental History.*], NATIONALØKONOMISK TIDSSKRIFT [NATIONAL ECONOMICS MAGAZINE] 409, 413, 419 (1888).

44. John T. Bernhard, *Empirical Collectivism in Denmark*, 13 J. POL. 623, 634 (1951).

45. "Credit association" is a literal translation of "kreditforening." Kreditforening references an association of *borrowers*. However, this is not to be confused with Kreditkassen for Husejere i København, which is often referred to as a "forening af kreditorer," or association of *creditors* or *lenders*. WESTLUND, *supra* note 4, at 42. The distinction between "Kreditkassen for Husejere i København" and kreditforeninger is emphasized in Hein, *supra* note 43, at 413 ("[D]enne Kreditkasse

combined collateral, loans were granted to the group instead of to individual borrowers.[46] This worked in favor of the owners because the association's loan rates were lower than rates obtained by owners individually.[47] Not only was more land mortgaged, thus increasing foreclosable assets in the event of default, but each owner-member of a credit association was also jointly and severally liable for the entirety of the mortgage. Thus, there was pressure by the association for an individual owner to keep up with his payments.[48] In addition, there was the guarantee that in the case of some defaulters, it did not mean that the entire association would default. Thus, the lenders had greater incentive to offer mortgages on an associational, rather than on an individual, basis.

All financing for the loans came in the form of bonds, or negotiable debt securities.[49] This is the root of the Danish balance principle, which demands that the amount of bonds sold be equivalent to the amount of loans distributed.[50] The pooling of the properties occurred before

var som bemærket ikke en Association af Laantagerne men af Laangiverne . . . ."). Although the creation of Kreditkassen for Husejere i København is often referenced as the inception of the modern Danish mortgage market, Kreditkassen was an association of lenders, unlike current mortgage credit institutes, which are associations of borrowers. *Id.*

46. The members of the association were held liable for the association's debt up to the value of their property. "Medlemmerne hæfter for Foreningens Gæld—med hele Ejendommens Taksationsværdi, saafremt Laanet naar de fulde 3/5, og med et forholdsvis mindre Beløb, naar Laanet er mindre . . . ." C. Thalbitzer, *Kreditforening*, *in* 14 SALMONSENS KONVERSATIONS LEKSIKON, 632, 633 (Chr. Blangstrup ed., 1923), *available at* http://runeberg.org/salmonsen/2/14/0662.html (access page 633 by selecting "next page").

47. "[S]tandardized mortgage[s] backed up by the whole association, of course, dramatically reduced the risk for lenders and justified in turn a lower interest rate." Peter Bogason, *Strong or Weak State? The Case of Danish Agricultural Export Policy, 1849–1906*, 24 COMP. POL. 219, 220 (1992). The discrepancies in interest rates are still apparent in the current loan market. For example, loans granted through mortgage credit institutions have lower interest rates than *prioritetslåner*, loans that are typically granted by commercial banks to cover additional financing for the Homebuyer. *See* FINANCIAL STABILITY 2005, *supra* note 8, at 19.

48. Denmark's mortgage credit institutes are often compared to Germany's credit cooperatives because of the funding of their mortgages through bond issuance and the joint and several liability imposed on the mortgagor for the association's debt payments. *See* Hein, *supra* note 43, at 413 (Germany's system of credit cooperatives influenced the Danish system after 1839.). Observations of the application of joint and several liability in Germany's system similarly apply to the Danish system: "An important feature of the credit cooperatives is that, especially in rural institutions, all of these people lived in a small area, interacted regularly, and had many other ties, both economic (such as employer / employee) and extra-economic (such as kinship or membership in the same social groups)." Maitreesh Ghatak & Timothy W. Guinnane, *The Economics of Lending with Joint Liability: Theory and Practice*, 60 J. DEV. ECON. 195, 213 (1999).

49. BRFkredit.dk, *supra* note 35 ("[Kreditkassen] finansierede sin virksomhed ved at udstede omsættelige gældsbreve (en art pantebreve eller obligationer)."), *translation available at* http://www.brf.dk/C1256A8000376E8E/alldocs/DOCJWIK-5KYKGT.

50. "[T]he basis [of the housing finance system] is still the balance principle, which requires a high degree of accordance between the terms of lending and the issued bonds." Bodil Nyboe Andersen, Governor, Danmarks Nationalbanken, Speech at the Annual Meeting of the Association of

associations were legally recognized in Danish law in 1849,[51] but its prevalent use to obtain mortgages is arguably one of the reasons why associations became legally recognized by 1850.[52]

In 1849, Denmark became a constitutional monarchy.[53] While the king had the "final" decision of whether the acts of Parliament, the Folketing, would be implemented, the monarch was essentially limited to a "symbolic and representative" role as opposed to a political one.[54] Thus, the people, through the Folketing, had command over their governance.

The new Folketing quickly passed the Danish Mortgage Act of 1850.[55] For the first time, the Danish mortgage system became codified with legal rules. This codification was designed to limit the risk investors took in financing mortgage bonds.[56] The rationale was that reducing risk for investors translated to increased investment due to the attractiveness of mortgage bonds that could provide solid returns at low risk.[57] This in turn would provide a greater supply of affordable funding options for homeowners. Thus, the mortgage credit institutes created by the Danish Mortgage Act of 1850 addressed the same problem that its informal

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Danish Mortgage Banks (Apr. 30, 2003) (transcript available in DANMARKS NATIONALBANK—MONETARY REVIEW 2ND QUARTER 2003, at 129 (2003), *available at* http://www.nationalbanken.dk/C1256BE9004F6416/side/Monetary_review_2003_2_Quarter/$file/atr2-03_saml_net.pdf.html) [hereinafter Andersen's 2003 Speech].

51. HARALD WESTERGAARD, ECONOMIC DEVELOPMENT IN DENMARK BEFORE AND DURING THE WORLD WAR 16 (1922) (The "chief aim" of the Free Constitution of 1849 was to "organize the community with reference to the free development of the powers of the individual."). *See* Grundloven af 05/06/1849, § 92 ("Borgerne have Ret til uden foregaaende Tilladelse at indgaa Foreninger i ethvert lovligt Øiemed.") [hereinafter Grundloven of 1849], *available at* http://www.danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/danmarks-riges-grundlov-af-5-juni-1849-junigrundloven.

52. "The credit associations . . . grew during the course of the last century and came to occupy an extremely strong position." SVEND AAGE HANSEN, EARLY INDUSTRIALISATION IN DENMARK 54 (1970).

53. *See* Grundloven of 1849, *supra* note 51, § 1 ("Regjeringsformen er indskrænket-monarkisk."). The English translation of The Constitutional Act of Denmark of June 9, 1953, states in Part I, § 2: "The form of government shall be that of a constitutional monarchy." The Constitutional Act of Denmark of June 9, 1953, *available at* http://www.eu-oplysningen.dk/upload/application/pdf/01726719/ConstitutionofDenmark.pdf.

54. Denmark.dk—The Official Website of Denmark, Constitution, http://www.denmark.dk/en/menu/About-Denmark/Government-Politics/Political-System/Constitution (last visited Jan. 16, 2009).

55. The Danish Credit Mortgage Act was passed on June 20, 1850. See a listing of all laws passed in Denmark between 1660 and 1892, REALREGISTER OVER LOVE OG RESKRIPTER M.M. 1660–1892, at 843 (1894) ("L[ov] [20. Juni 1850] om Oprettelse af Kreditforeninger og Laanekasser for Grundejere.").

56. "The main purpose of such legislation [e.g., the Danish Mortgage-Credit Loans Act] is to ensure a high level of security for investors in relation to covered bond investments." Nykredit.com, Legislation, http://www.nykredit.com/informationsSide.do?iwID=/investorcom/informationsside/B_3_0_0_Legislation.xml (last visited Jan. 31, 2009).

57. *See supra* note 9 and accompanying text.

predecessor, Kreditkassen, addressed: availability of affordable loans for housing.

Understood in this light, the Danish Mortgage Act did little to change how the system worked.[58] All it did was put in place state sanctions for breaches of the system's requirements.[59] The Danish Mortgage Act "allowed" credit unions to be formed where all the members of the union had "mutual liability."[60] It also codified the balance principle, requiring a near 1:1 ratio of bonds on the open market to lending.[61]

III. OPERATION OF THE DANISH MORTGAGE SYSTEM

A. The Balance Principle

The balance principle lies at the core of the Danish mortgage system and is legally mandated.[62] Generally, the balance principle requires that terms of payments to holders of mortgage bonds match the terms of the actual mortgages that the bonds fund.[63] "Compliance with the balance

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58. Despite the central role of joint and several liability in mortgages issued by Kreditkassen for Husejere i København and other informal credit associations, early legislation allowed the Ministry of the Interior (which oversaw the credit associations) to remove the requirement of joint and several liability in certain conditions. "Indenrigsministeriet kan meddele Samtykke til, at de deles i Serier uden gjensidigt solidarisk Ansvar, samt til at de optage Interessenter fra andre Landsdele, L. 19 Febr. 1861 §§ 1, 2 (S. 191)." RASMUS EMIL JÜRGENSEN, NYT LOVLEXIKON 453 (1875).

59. "[Lov om d. 20 Juni 1850] var tilvejebragt et godt og sundt Grundlag for Oprettelse af Kreditforeninger for alle faste Ejendomme; nu kom det kun an paa, hvorledes Ejendomsbesidderne under den foreskrevne Kontrol og Sanktion af Indenrigsministeriet vilde benytte dette Grundlag." Hein, *supra* note 43, at 418–19.

60. Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 3.

61. By 1861, credit associations gave out mortgages in a series of bonds where joint and several liability for the series was imposed on the members of the *series*, thus subdividing the group of persons liable for the loans. "Kreditforeningerne giver lån i løbende emission, og for at begraense det solidariske ansvar blev der i 1861 indført serieinddeling af såvel pantebreve som obligationer, således at det solidariske ansvar begraenses til seriens medlemmer." WESTLUND, *supra* note 4, at 44. For each mortgage, there is a covered bond that corresponds to the amount of the mortgage with the same terms. "Det samlede beløb af de i hver serie og afdeling cirkulerende obligationer skal være dækket af medlemspantebreve til mindst det tilsvarende beløb og med samme vilkår med hensyn til forrentning og amortisation." *Id.* at 55.

62. See *supra* note 3 and accompanying text regarding Danish regulations of the balance principle.

63. Stig Tørnes-Hansen, Jens Kristian Kimper & Klaus Kristiansen, *Denmark, in* COVERED BONDS BEYOND *PFANDBRIEFE*: INNOVATIONS, INVESTMENT AND STRUCTURED ALTERNATIVES 113 (Jonathan Golin ed., 2006):

> [T]he specific parts of the payments on the mortgages, that is, interest and instalments, are linked directly and unambiguously to interest payments and redemptions on mortgage bonds funding the mortgages. Proceeds from borrowers' payments exceeding payments to mortgage bond investors must be invested in mortgage loans or used to redeem mortgage bonds in circulation within 12 months.

principle" not only means that the amount of mortgages offered nearly matches the amount of mortgage bonds issued, but also "means every single payment on the mortgages is earmarked to specific pools of mortgage bonds."[64] Thus, the mortgage credit institute serves as a "pass-through"[65] entity or an intermediary that connects mortgagors with investor-lenders. By matching borrowers with investor-lenders, the "market risk exposure [and interest rate risk exposure] to the [mortgage credit institute] is limited to an absolute minimum."[66] Adhering to the balance principle ensures that mortgage credit institutes' risks are confined to mortgagors' credit risks.[67]

A mortgage credit institute is considered to adhere to the balance principle as long as it follows the principles of either the "general balance principle" or the "specific balance principle."[68] Each principle is accompanied by a series of tests relating to definition of payments, interest risk, exchange-rate risk, option risk, and liquidity risk.[69]

B. The Danish Mortgage Bond Market

Callable annuity bonds are the traditional type of bonds issued in the Danish mortgage bond market.[70] The income from the purchase of bonds serves as the loan capital disbursed to borrowers. When the borrower repays the loan with interest, the interest is paid to the bond-holder, typically biannually or quarterly.[71] The bonds have a set maturity date, usually ten, fifteen, twenty, or thirty years.[72] Each bond has an "embedded call option,"[73] meaning that at any time prior to the bond's maturity date,

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64. *Id*.

65. The term "pass-through" is also used to refer to the fact that the "[mortgage credit institute must] have sufficient liquidity to meet all future payments on mortgage bonds issued, hence, it will not depend on future funding markets in order to pay mortgage bond investors in due time." *Id*.

66. *Id*.

67. "Balanceprincippet sikrer, at realkreditinstitutterne ikke påføres en renterisiko. Institutternes risiko er således begrænset til den egentlige kreditrisiko, hvilket vil sige risikoen for manglende rente- og afdragsbetalinger fra låntager samt ejendomsvurderingens overensstemmelse med lånetilgodehavendet." REALKREDITRÅDET, REALKREDIT FINANSIERING I DANMARK 23 (2005), http://realkredit.net.dynamicweb.dk/Files/Filer/pdf/Publikationer/Realkreditfinansiering_i_DK05_RKR_040208.pdf.

68. DANISH MORTGAGE BONDS, *supra* note 7, at 10.

69. For the specific risk criteria that mortgage credit institutes must follow, see *id*. at 11.

70. *Id*. at 21.

71. "Borrowers' interest payments and redemptions made on the payment dates are distributed to investors corresponding to the percentage of bonds drawn so that any investor's holding in a given bond series will correspond to the overall percentage of bonds drawn in that series." *Id*.

72. *Id*.

73. *Id*.

the mortgage credit institute could call back, at par,[74] the bond from the bond-holder. This means that a mortgagor may make advance payments on his loan by requesting that the mortgage institute call back bonds worth an equivalent amount of his prepayment.[75] Because of the transaction costs[76] associated with this process, in addition to ensuring that bond coupon payments are made to the investor-lender, the borrower is limited to having the bonds called only on the quarterly payment dates to the bond-holder, and must provide at least two months' notice to the mortgage credit institute of their prepayment.[77]

For example, a mortgagor could exercise her call option during the life of the mortgage when current interest rates drop after obtaining the mortgage. Thus, because her original bonds came with a higher interest rate, those bonds would understandably have a greater net present value ("NPV") than current bonds being issued. Consequently, if the borrower calls back her bonds by prepaying with funds from a new loan, the borrower's new loan must be based on bonds amounting to the same value. Because the new bonds have a lower interest rate and hence, a lower market value, more bonds would need to underlie her new loan in order to adequately compensate for the calling of her original, higher-valued, bonds. This plan results in an increase in principal borrowed, but lower interest payments.[78] Effectively, under this arrangement, the overall payments made by the borrower are lower than in the case where she had

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74. *Id*.

75. The Danish and American mortgage markets are "globally exceptional" in their allowance of penalty-free mortgage prepayment. Allen Frankel, Jacob Gyntelberg, Kristian Kjeldsen, & Mattias Persson, *The Danish Mortgage Market: As Housing Finance Evolves, Are There Reasons to Follow the Danish Model?*, BIS [Bank for International Settlements] Q. REV., Mar. 2004, at 95. One of the key differences between the two systems, however, is that the risk that prepayment poses to the market (less interest is being paid to the lender) is borne by the bondholder in Denmark, whereas in the United States, it is borne by the lending institution. *Id.* at 96. The Danish balance principle is responsible for this difference in risk allocation. *See supra* note 3 and accompanying text.

76. "There are both fixed and variable transaction costs associated with exercising [the call or delivery] options." Kourosh Marjani Rasmussen & Jens Clausen, *Mortgage Loan Portfolio Optimization Using Multi-Stage Stochastic Programming*, 31 J. ECON. DYNAMICS & CONTROL 742, 743 (2007).

77. "The required notice of prepayment is two months before the next coupon date (five months for some older mortgage bonds)." NYKREDIT, THE DANISH MORTGAGE BOND MARKET 19 (2006), http://www.nykredit.com/investorcom/ressourcer/dokumenter/pdf/B_7_6_2_2_The%20_Danish_mortgage_bond_market_by_Nykredit.pdf [hereinafter THE DANISH MORTGAGE BOND MARKET].

78. "When the interest rates are low the call option can be used to obtain a new loan with less interest payment in exchange for an increase in the amount of outstanding debt." Rasmussen & Clausen, *supra* note 76, at 743.

not exercised her call option.[79] Since the embedded call option primarily benefits the borrower and places bond-holders in positions of investment uncertainty, allowing calls only a few times a year decreases risk to bond-holders while maintaining flexibility for mortgagors to build equity in their homes, thereby reducing credit risk in the entire system.

Another type of action available to the borrower is the delivery option.[80] At any time during the duration of the loan, a borrower may exercise her delivery option by buying the bonds underlying her mortgage and delivering them to the mortgage credit institute. This option is often used when the current interest rates are higher than the interest rate at which the borrower originally obtained her mortgage.[81] In this situation, the underlying mortgage bonds have a lower NPV than bonds currently being issued because the investment return is less due to its lower interest rate. When these bonds are bought at market prices by the borrower, she may be able to pay a discounted price because of the lower NPV.[82] Thus, the amount of funds needed to buy the original bonds on the open market may be less than the original cost of the bonds when they were first issued.[83] If the borrower finances the bond purchase with a new loan, the borrower is essentially exchanging her old loan for a new one that is based on a smaller principal, albeit with a higher interest rate. Additionally, the maturity dates for the underlying bonds of the new loan would be fifteen or thirty years from the *date of issuance*. Thus, the extended payback period combined with the lower principal loan value might offset the higher interest rate and result in lower monthly payments for the borrower, though it may cause a net increase in the total amount paid by the borrower if the bond is paid to maturity.[84]

79.

> The borrower will receive a gain in the form of lower future net payments and thus lower first-year net payments owing to the lower interest rate. However, this type of remortgaging typically results in an increase of the outstanding debt, depending on the price of the bonds underlying the new loan.

DANISH MORTGAGE BONDS, *supra* note 7, at 32.

80. Rasmussen & Clausen, *supra* note 76, at 743. This option is also referred to as the buyback option. Svenstrup & Willemann, *supra* note 6, at 106.

81. DANISH MORTGAGE BONDS, *supra* note 7, at 32.

82. How much of a discount the borrower receives depends on the market price of the underlying bonds. Should investors be unwilling to sell, the demand for such bonds may raise the market price. *See* THE DANISH MORTGAGE BOND MARKET, *supra* note 77, at 6 ("If no investors are prepared to sell, borrowers may be forced to pay a high price for buying back their bonds, and small illiquid bonds are therefore often expensively priced in the Danish mortgage bond market.").

83. This is based on the assumption that due to the change in interest rates, "borrowers may buy back their bonds . . . at lower prices than when their loans originated." Tørnes-Hansen et al., *supra* note 63, at 104.

84. "Borrowers initially achieve a reduction of their outstanding debt at the expense of higher

Since the borrower often obtains the funds to buy the underlying bonds through a new mortgage, the delivery option and call options appear to operate similarly. The fundamental difference, however, is that the delivery option allows for bond redemption at *market* price, instead of at par (as with the call option) or some other pre-determined rate. The delivery option imposes no additional investment risk upon the bond-holder and allows the mortgagor to take advantage of lower market prices.[85]

IV. REGULATORY CHANGE OF THE MORTGAGE SYSTEM AS A MACROECONOMIC TOOL

The credit associations established by the Danish Mortgage Act of 1850 had a cap on the loan-to-value ("LTV") ratio at sixty percent.[86] Thus, while the Act's goal was to increase the availability of loans to consumers, it limited the quantum of the loan per consumer. This was probably necessary in order to bolster the security guaranteeing the loan—that a foreclosure on a property would provide more than sufficient funds to cover the remainder of the loan.[87]

However, the low LTV ratio offered by the credit associations created a need for secondary loan markets to supplement the remaining forty percent of the property value that was uncovered by the loan.[88] The first second-mortgage institute was established in 1895.[89] The 1936 Act on Second Mortgage Institutions allowed the overall LTV ratio available for consumers to rise to seventy-five percent,[90] and put the institutes under the

payments, which they hope to be able to reduce by remortgaging to a lower coupon at a later date." DANISH MORTGAGE BONDS, *supra* note 7, at 32.

85. The mortgage market in the United States does not allow for prepayments based on a delivery option. *See* Svenstrup & Willemann, *supra* note 6, at 107 (comparing the methods of mortgage prepayment in the United States and in Denmark).

86. "Som Hovedgrundlag for K.'s Virksomhed maa nævnes Bestemmelsen om, at de kan give Laan indtil 3/5 af Ejendommens Taksationsværdi . . . ." Thalbitzer, *supra* note 46, at 633.

87. See *supra* note 46 and accompanying text regarding initial rules on the securitization of mortgage loans with property.

88. *See* Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 3.

89. Realkreditraadet.dk, Realkredittens historie [Mortgage aid history], http://www.realkreditraadet.dk/Branchen/Realkredittens_historie.aspx (last visited Feb. 12, 2009) ("Den første hypotekforening blev stiftet i 1895 . . . .").

90. "De af en Købstadhypotekforening bevilgede Laan udmaales af Direktionen under passende Hensyntagen til Laanets Rentefod og saaledes, at de med Tillæg af foranstaaende Behæftelser ikke maa overstige 3/4 af den Vurdering, der er lagt til Grund for Laanet." LOV Nr. 108 om Købstadshypotekforeninger, af 7/04/1936, § 14 Stk 1, *available at* http://www.logir.fo/foldb/lov/1936/0000108.htm. *See also* REALKREDITRÅDET MORTGAGE FINANCING, *supra* note 34, at 2.

supervision of the Ministry of the Interior.[91] Other secondary (or tertiary) mortgage institutes were established in 1959, increasing the effective LTV ratio for consumers to ninety-five percent.[92] "The process up to this point could be seen as a prolonged period of financial liberalisation and innovation."[93] The increasing impact of global markets on the Danish economy would soon alter this very careful construction of mortgage loans.

A. The Potato Diet Years

The change in the Danish mortgage market in the 1970s should be understood in the context of the world's economic situation at the time.[94]

> The performance of the Danish economy was very poor between 1973 and 1980 . . . .
>
> The economic costs were a low growth rate, little investment, high unemployment, high inflation and record interest rates and deficits on the balance of payments . . . . The measures of economic performance were in most years worse than those for the majority of other West European countries.[95]

With this backdrop, the Danish government decided to "tighten up the rules of the game" and used the Mortgage Credit Reform of 1970 as a "macroeconomic policy instrument."[96] The reforms eliminated secondary and tertiary mortgage markets,[97] effectively reducing the LTV ratio limits available to consumers. The reforms also reduced maturity limits on mortgage bonds to a maximum of thirty years[98] and disallowed mortgage

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91. "Indenrigsministeriet fører Tilsyn med Købstadhypotekforeningernes Laaneniveau og i øvrigt med Overholdelsen af de i nærværende Lov givne Forskrifter." LOV Nr. 108, *supra* note 90, § 8 Stk 1.

92. Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 3.

93. *Id.*

94. During the 1970s, the United States incurred an increasing amount of debt because of its involvement in the Vietnam War, the energy crisis, and other socio-political reasons. *See* President Jimmy Carter, Speech Given on the Energy Crisis (Feb. 1, 1977) (transcript available at http://globalpublicmedia.com/transcripts/426) (discussing the "worst economic slowdown of the last 40 years.").

95. HANS CHRISTIAN JOHANSEN, THE DANISH ECONOMY IN THE TWENTIETH CENTURY 165 (1987).

96. Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 3.

97. *Id.*

98. Ulrik Knudsen & Michael Sand, *Developments in the Danish Bond Market since 1970*, *in* DANMARKS NATIONALBANK—MONETARY REVIEW 1ST QUARTER 2004, at 35, 37 Box 1 (2004), *available at* http://www.nationalbanken.dk/C1256BE9004F6416/side/Monetary-review_2004_1_Quarter/$file/MON0104.pdf.

equity withdrawal.[99] One of the purposes for the changes may have been to reduce market volatility by reducing the use of the call or delivery options on bonds to extract equity. Removing even one motivation for exercising these options arguably provided some relative calm to the system by dissuading excessive trading. In addition, the changes imposed on the mortgage system effectively forced Danish citizens into lifestyle changes, thereby causing shifts in the economy. These macroeconomic uses of mortgage reform policies are best illustrated during the mid-1980s to 1990s when Denmark was still affected by the balance-of-payments crisis sparked by the 1973 war in the Middle East and rise in oil prices.[100]

The "Potato Diet"[101] refers to the economic policies adopted in Denmark between 1986 and 1993.[102] Changes to Danish mortgage regulations during this time included a cap on maturity rates for existing and new properties. For existing properties, bonds had to mature within twenty years.[103] For new properties, bonds had a maximum thirty-year maturity.[104] Furthermore, the amortization schedules throughout the maturity period were changed to charge greater interest in the initial years than had been charged under previous mortgage regulations.[105]

The effect of these changes—maturity periods and the shift in amortization schedules—forced Danes to examine more carefully their debt load. Existing property owners could not exercise their delivery option to decrease their overall monthly payment by reducing the loan principal, but they could increase their interest payments through an extended payment period. Thus, the limitation on a twenty-year maturity period reduced the volume of refinanced loans through the exercise of the delivery option, leaving less "new" debt to be incurred.[106]

The thirty-year capped maturity period for new properties accomplishes the same goals as the twenty-year capped maturity period for existing properties. Without a longer maturity period, borrowers would

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99. *See* Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 3. Further, the number of mortgage credit institutes available was reduced from over a dozen to just four through mergers of the institute. *Id.*; *see also* STATENS ARKIVER—ERHVERVSARKIVET, KREDITFORENINGSARKIVER: HVAD FINDER DU I LÅNESAGER OG VURDERINGSRAPPORTER? 2, http://www.sa.dk/media(392,1030)/Kreditforeningsarkiver.pdf.

100. JOHANSEN, *supra* note 95, at 165.

101. The term refers to tight financial situations that are often associated with austere diets.

102. *See* Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 3–4.

103. *See id*.

104. *Id*.

105. *Id*.

106. Denmark's balance of payments deficit had doubled by 1974, and doubled yet again by 1979. JOHANSEN, *supra* note 95, at 165–67.

have to be more conscious of their overall borrowing limits because monthly payments could not be reduced simply by refinancing balances and extending maturity dates. Further, by limiting the variances in the characteristics and types of mortgage bonds available on the market by setting definite caps, investor confidence in the system might grow, thus increasing stability in the system.

Altering the amortization schedules also allowed for increased stability in the market. With more interest charged initially, the average borrower would accumulate equity in his home more slowly. At the same time, equity withdrawal was disincentivized, leading to a reduction in Denmark's debt volume.

As the nation's debt decreased, thereby reducing the balance-of-payment deficit, household savings increased vis-à-vis equity building. This resulted in a decrease in prepayment risk for bondholders, bolstering system stability. In this manner, Danish mortgage regulations effectively controlled public savings patterns.[107] Further, these measures combated inflation in the housing market: due to the added regulations, the volume of houses bought during the period fell, eventually causing a thirty percent decrease in the price of housing.[108] By 1993, equity withdrawal was again permitted up to an eighty percent LTV ratio.[109]

A key factor in the local economy's reactions was that at the time, the Danish mortgage market was a relatively closed system. The influence of global markets had not yet become so forceful that it would dilute the regulatory impact on consumer and local investor decisions. Presently, however, because of the inextricability of global market influence on the Danish mortgage system, the system can no longer be used as a macroeconomic policy tool as it had been during the Potato Diet Years.[110]

107. Consumption rates fell during this period. *See* Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 4.

108. *See id*.

109. *See id*.

110. "Since [1993], mortgage credit parameters have not really been used as macroeconomic policy tools, partly because the internationalisation of the financial sector make any attempts at quantitative controls easy to circumvent through cross-border lending." *See* Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 4. Additionally, Denmark became a member of the European Economic Community ("EEC"), the predecessor to the European Union ("EU"), in 1973. Udenrigsministeriet—Royal Danish Ministry of Foreign Affairs, Denmark and the World, http://www.um.dk/publikationer/um/english/factsheetdenmark/denmarkanoverview/html/chapter07.htm (last visited Feb. 13, 2009). This facet of external supranational oversight has also hindered the use of mortgage regulations as a macroeconomic policy tool. While EEC directives regarding securities have been applicable since 1985, recent EU legislation is now directed squarely at the covered bond market and credit institutions. *See* Council Directive 85/611, 1985 O.J. (L375) 3, *available at* http://eur-lex.europa.eu; *see also* Directive 2001/108, art. 22 (4), 2002 O.J. (LO41) 35, *available at* http://eur-

B. *Post-Potato Diet Reforms and Current Regulation*

Reforms continued throughout the 1980s and 1990s in efforts to stabilize the economy.[111] One of the main legislative reforms came in 1989 when new mortgage banks formed and the reorganization of already-established mortgage institutes as limited liability companies was allowed.[112]

Since the end of the Potato Diet Years in 1993, new mortgage types have been introduced. These include deferred-amortization mortgages,[113] introduced in October 2003,[114] which allow for interest-only payments to be made for up to ten years before a typical amortization schedule is imposed on the principal for the remaining duration of the maturity period.[115] In addition to traditional fixed-rate mortgages, floating-rate mortgages were introduced in 1996.[116] The rates for these mortgages are not fixed and are based on prevailing market rates. A variation of this type of mortgage is the floating-rate mortgage with a cap on the highest-possible rate chargeable.[117] This variation was introduced in late 2004.[118]

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lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:041:0035:0042:EN:PDF (amending Council Directive 85/611); Council Directive 2006/49, 2006 O.J. (L177) 201, *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2006L0049:20080320:EN:PDF (regarding the capital adequacy of investment firms and credit institutions); Council Directive 2006/48, 2006 O.J. (L177) 1, *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2006L0048:20080321:EN:PDF (regarding the establishment and function of credit institutions). For a summary of Denmark's implementation of these directives, see Lotte Bomgaard, *Covered Bonds—EU Regulations and New Danish Legislation*, NYKREDIT, Mar. 1, 2007, http://www.nykredit.com/investorcom/ressourcer/dokumenter/pdf/B_7_6_6_1_NYKREDIT_EU_REGULATIONS_NEW_DANISH_LEGISLATION.pdf. The Association of Danish Mortgage Banks opened a branch office in Brussels in 2005 "to be centrally placed around EU institutions and to be able to influence EU initiatives in the mortgage sector." BANKS IN BRUSSELS, *supra* note 13, at 5.

111. For a chronological summary of changes to the Danish bond market since 1970, see Knudsen & Sand, *supra* note 98, at 37 Box 1.

112. Mikkel Svenstrup, *Mortgage Choice—The Danish Case* 2 (Arhaus Sch. of Bus. Working Paper, 2002), *available at* http://research.asb.dk/fbspretrieve/265/D02_22.pdf. Mortgage banks could provide the same types of loans as mortgage credit institutes. *See* REALKREDITRÅDET MORTGAGE FINANCING, *supra* note 34, at 3; *see also* Douglas B. Diamond, Jr. & Michael J. Lea, *Denmark*, 3 J. HOUSING RES. 16 (1992).

113. Knudsen & Sand, *supra* note 98, at 35, 37 Box 1.

114. FINANCIAL STABILITY 2005, *supra* note 8, at 31.

115. *Id.* at 49.

116. KATHLEEN SCANLON & CHRISTINE WHITEHEAD, COUNCIL OF MORTGAGE LENDERS, INTERNATIONAL TRENDS IN HOUSING TENURE AND MORTGAGE FINANCE 77 (2004), http://www.cml.org.uk/cml/filegrab/pdf_pub_resreps_51full.pdf.pdf?ref=3870.

117. The floating mortgage rate and the interest rate cap, or guarantee, are sold as separate products to ensure that the bond products underlying the floating mortgage rate are kept as "simple and liquid" as possible. Svenstrup, *supra* note 112, at 12.

118. *See* FINANCIAL STABILITY 2005, *supra* note 8, at 31.

These variations on floating rate mortgages, also known as adjustable rate mortgages ("ARMs"), outpaced traditional fixed-rate loans every month of 2004.[119] ARMs financed through banks have increasingly taken up market share.[120] From January 2004 to January 2005, banks more than doubled their market share,[121] predominantly because of the marked increase in the distribution of ARMs.[122] For a system that has a tradition of being risk-averse, the increased use of ARMs did not necessarily alarm financial analysts. Rather, Nationalbanken's "Financial Stability 2005" report stated that the use of ARMs increased through higher-income brackets, while lower-income households predominantly used fixed-rate mortgages.[123] Thus, the relative credit risk of mortgage loans did not increase. The loans susceptible to greater interest rate risk are distributed primarily to borrowers who can afford to pay potential increases in their monthly payments due to increased market rates. Consequently, the availability of the higher-risk mortgages did not impact the relative risk of default on payment to the bond-holders, but it allowed greater flexibility of investment options to those with higher incomes. Moreover, because those with lesser incomes primarily purchased less risky mortgages, the combined empirical evidence showed that the industry was doing a good job of providing professional advice.[124]

The Danish Mortgage Act was amended by the "Danish Mortgage Loans and Mortgage Bonds Act" in 2003.[125] Provisions from the Danish Mortgage Act that were not included in the Danish Mortgage Loans and Mortgage Bonds Act were incorporated into the Danish Financial Services Act that entered into force in 2004.[126] Some of the major provisions of the 2003 Danish Mortgage Loans and Mortgage Bonds Act include:

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119. *See id.* at 47.

120. "[Since 1996] non-callable bullet bonds make up more than 40 per cent of total market volume." Tørnes-Hansen et al., *supra* note 63, at 101.

121. *See* FINANCIAL STABILITY 2005, *supra* note 8, at 48, chart 28.

122. "This growth is mainly attributable to the introduction, in the 2nd half of 2003, of adjustable-rate bank mortgage loans to homeowners as an alternative to traditional capital-market financing via mortgage-credit institutes." *Id.* at 49.

123. *See id*. at 81, chart 41.

124. Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 5. Researchers of the factors leading to the sub-prime mortgage crisis in the United States would find this kind of self-imposed oversight or reflection regarding adequate education of consumers and analysis of empirical data that supports the likelihood of adequate education missing from our system.

125. *See* LOV Nr. 454, *supra* note 3. *See also* the unofficial English translation of Act. No. 454, *supra* note 3.

126. BRFkredit.dk, *supra* note 35. For Danish and unofficial English translations of these acts, see BRFkredit.dk, About the Danish Mortgage Credit System, http://www.brf.dk/C1256A8000376E8E/alldocs/DOCJWIK-5L7F44 (follow "The Danish Mortgage Loans and Mortgage Bonds Act (English translation)" hyperlink) (last visited Feb. 13, 2009); *id.* (follow "The Danish Mortgage Loans and

(1) The loan-to-value cap is 80 percent for owner-occupied all-year residences and other types of residences.[127] Other caps are set forth for other types of properties.[128]

(2) Estimated value on the real property used for the mortgage will reflect "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)"[129] and account for any risk of changes in market conditions. Additionally, "[c]onditions which occasion a particularly high price shall not be taken into consideration during

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Mortgage Bonds (Danish version)" hyperlink) (last visited Feb. 13, 2009); *id.* (follow "The Danish Financial Services Act (English translation)" hyperlink) (last visited Feb. 13, 2009); *id.* (follow "The Danish Financial Services Act (Danish version)" hyperlink) (last visited Feb. 13, 2009). The May 2001 Financial Services Act includes regulations on code of conduct, transfer of customer information, ownership, management, and statement of accounts. Realkreditraadet.dk, The Danish Mortgage Legislation, http://www.realkreditraadet.dk/Mortgage_financing/The_Danish_Mortgage_Legislation.aspx (last visited Nov. 3, 2008). Both of these Acts were revised in 2007. *See* LOV Nr. 577, om ændring af lov om finansiel virksomhed og forskellige andre love, af 10/06/2007, *available at* https://www.retsinformation.dk/Forms/R0710.aspx?id=27608. *See* BEK Nr. 718, Bekendtgørelse om obligationsudstedelse, balanceprincip og risikostyring, af 21/06/2007, *available at* https://www.retsinformation.dk/Forms/R0710.aspx?id=27640. For unofficial English translations of both acts, see http://www.nykredit.com/investorcom/ressourcer/dokumenter/pdf/Annexes.pdf (last visited Feb. 13, 2009). However, as the amendments primarily deal with the function and operation of mortgage banks, this paper will refer to the Acts of 2003.

127. LOV Nr. 454, *supra* note 3, § 5:

> Inden for en lånegrænse på 80 pct. af ejendommens værdi kan der ydes lån til følgende ejendomskategorier:
>
> (1) Ejerboliger til helårsbrug.
> (2) Private andelsboliger.
> (3) Private beboelsesejendomme til udlejning.
> (4) Alment boligbyggeri.
> (5) Ungdomsboliger.
> (6) Ældreboliger m.v.
> (7) Ejendomme til sociale, kulturelle og undervisningsmæssige formål.

An unofficial English translation of the text reads:

> Within a lending limit of 80 per cent [sic] of the value of the property, loans may be granted for the following categories of property:
>
> (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.

Unofficial English translation of Act. No. 454, *supra* note 3, § 5.

128. *Id*.

129. *Id.* § 10 Stk. 1–2.

valuation."[130] Mortgage credit institutions may deviate from these rules in certain circumstances that do not involve owner-occupied residences.[131]

(3) Reinforcement of the balance principle by limiting investments using funds raised by the issue of mortgage credit bonds to lending against mortgages on real property.[132]

These are recodifications of basic foundational principles of the Danish mortgage market, but the Act reflects the marked increase in the use of ARMs. On the one hand, the reinforcement of basic principles grounds the types of mortgage products that can be created by the mortgage credit institutes. On the other, the Act recognizes the prevalence of ARMs and includes provisions to ensure that their issuance is not at odds with the structural adherence to the Balance Principle.[133]

With lower loan-to-value ratios for loan approval and the added volatility of floating mortgages, the credit risk of borrowers has increased. The guarantee of the loan by the land value eroded because values were inflated due to the housing bubble and the increased borrowing against property value. The mortgage credit associations in Denmark thrived from the Act's inception because of its careful review of risk aversion—historically, the joint and several liability of the association's members reduced the credit risk of the members individually, and the low LTV

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130. LOV Nr. 454, *supra* note 3, § 10 Stk. 3.

> Realkreditinstituttet skal ansætte en kontantværdi af ejendommen til brug for låneudmålingen.
>
> Stk. 2. Værdien skal ligge inden for det beløb, som en kyndig erhverver med kendskab til pris- og markedsforholdene for den pågældende type ejendom må skønnes at ville betale for ejendommen (markedsværdi). Forhold, der betinger en særlig høj pris, må ikke indgå i værdiansættelsen.
>
> Stk. 3. Rea Realkreditinstituttet skal ved værdiansættelsen tage hensyn til eventuel risiko for ændringer i markeds- eller strukturforhold.

Id. § 10 Stk. 1–3.

131. *Id.* § 10 Stk. 4. (granting allowances from the regulations in Part 10 for loans for non-profit rental housing, subsidized private cooperative housing, properties for social, cultural, and educational purposes).

132. *Id.* § 20 Stk. 1:

> Midler fremkommet ved udstedelse af realkreditobligationer eller andre værdipapirer kan alene anvendes til udlån mod pant i fast ejendom, jf. dog stk. 2 og 3.

Exceptions to § 20 Stk. 1 are allowed under the discretion of the Danish Financial Supervisory Authority. *See id.* § 20 Stk. 2–3. The Danish Financial Supervisory Authority also has discretion to decide upon regulation of interest risk, redemption terms, and other return on investment allowances. *Id.* § 21.

133. *See The Statutory Basis for the Financial Sector*, *in* DANMARKS NATIONALBANK—REPORT AND ACCOUNTS 2003, at 151 (2003), *available at* http://www.nationalbanken.dk/C1256BE9004F6416/side/Report_and_accounts_2003/$file/aar_uk_03_web.pdf.

ratios virtually guaranteed that the loan would be repaid by foreclosure on the property in the event of default. The deviation from these core aspects of the Danish market's foundation, combined with new European Union directives, prompted the Folketing to adjust the Danish Mortgage Act to promote, but regulate per the Balance Principle, the creation of new mortgage products based on ARMs.[134]

Yet, such a "reining in" did not stir the mortgage market negatively. Rather, "[s]ince the overall mortgage credit market has expanded, the development of new types of loans, and the corresponding new mortgage bonds, has not translated into a reduction of the outstanding stock of traditional callable fixed-rate mortgage bonds, where the most liquid issues are concentrated."[135] This is indicative that mortgages with more lenient loan-to-value ratios that were sold prior to the change in legislation were being sold to those who could actually afford them. In other words, the mortgagor *could* have only borrowed eighty percent of the value of the property, but opted for a higher loan-to-value ratio to better leverage her assets. It was not a matter of insufficient funds, but rather of how Danes had chosen to allocate their funds during the housing boom.

It is noticeable in hindsight that the amendments to the Danish Mortgage Act occurred in 2003. While most of the world, including the United States, continued to see a dramatic rise in housing prices, property values, and economic growth, the Danes had quietly shifted the rules and infrastructure of their mortgage market to cope with the potential pitfalls of market risk. The Folketing implemented its wisdom of calculated risk aversion by mandating in the Act that a mortgage credit institution be mindful of market conditions (such as property valuation) that were unstable or could produce unnaturally high market prices. The portentous action by the Danish government may have been the reason why lasting damage to the system was averted.

The Folketing's protectionist attitude over its mortgage market is well founded. Over the past two hundred years, Denmark has formulated one of the most efficiently run domestic mortgage markets in the world. Its

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134. The 2007 amendments address the issuance of some types of covered bonds ("SDOs") that are funded differently from traditional mortgage bonds, but still operate by using property as collateral. One of the main differences between the two types of bonds is that the LTV ratio limits on SDOs must be adhered to for the entire life of the loan. Thus, if property prices decline, thus increasing the LTV ratio, the mortgage credit institute must offer additional collateral to bring the LTV ratio back within bounds. This reduces investment risk for the bondholder, especially in times of volatile housing prices. DLR KREDIT, ANNUAL REPORT 2008: 8TH FINANCIAL YEAR 10 (2008), https://newsclient.omxgroup.com/cds/DisclosureAttachmentServlet?messageAttachmentId=212544.

135. THE DANISH MORTGAGE MARKET—A COMPARATIVE ANALYSIS, *supra* note 1, at 12.

citizens are well educated in their housing finance options, which has helped the personal wealth of Danes to grow through residential real estate investment, whether or not the property is occupied. The securities issued on the domestic and world markets are highly valued and respected. Denmark has not only cultivated an image of domestic economic stability, but it offers a beacon of stability for the rest of the world as well. The Danish mortgage market is a prime example of an economically successful system that can produce large returns for its populace through increased stability in housing availability and affordability[136] and its creation of a marketable, viable investment product.

V. 2008 FINANCIAL STATUS OF DENMARK VIS-À-VIS MORTGAGE-CREDIT BONDS

Denmark does not have a "subprime" market comparable to that in the United States.[137] However, the Danish mortgage bond market has been labeled "exotic" as recently as April 22, 1999.[138] This labeling of the Danish mortgage bond market may be for no other reason than its complexity and uniqueness as opposed to its novelty or illegality. Because of its incomprehensibility and strangeness to international investors, changes to regulations of the Danish mortgage system have been influenced by the need to make Danish mortgage bonds more appealing to foreign investors. This need translated to a desire by mortgage-credit institutes to relax the "balance principle."[139]

In 2003, Nationalbanken's Governor Bodil Nyboe Andersen commented on the relaxation of the balance principle:

> Over the years, the mortgage-credit sector has often suggested that the balance principle be removed, or at any rate softened considerably.
>
> Danmarks Nationalbank has always advised against a more than marginal relaxation. The balance principle is important to

136. Subsidized housing is available for those in need, allowing people to save until a point in time when they can qualify to purchase a home.

137. DANMARKS NATIONALBANK, FINANCIAL STABILITY 2008, at 11 n.1 (2008), *available at* http://www.nationalbanken.dk/C1256BE9004F6416/side/DF4F96A8070AA8C2C125744A002B6506/$file/FinancialStability_2008.pdf.

138. Governor Jens Thomsen's 2006 Speech, *supra* note 10, at 1.

139. Bodil Nyboe Andersen, Governor, Danmarks Nationalbanken, Speech at the Annual Meeting of the Association of Danish Mortgage Banks (Apr. 22, 1999) (transcript available at http://www.governmentdebt.dk/dnuk/pressroom.nsf/side/Annual_Meeting_of_the_Association_of_Danish_Mortgage_Banks_on_22_April_1999!OpenDocument).

> maintaining the blue-chip status of the bonds and has a great deal of the credit for the very high rating enjoyed by Danish mortgage-credit bonds. The balance principle is fundamentally a very simple way of managing risk.
>
> The mortgage-credit product may not be very exciting, but it is a good, simple and inexpensive product that gives even small borrowers the opportunity to finance homes and businesses on financial-market terms.[140]

However, despite this view of the value of the balance principle as a stalwart for stability and risk-limitation, the post-Potato Diet Years' liberalization principles inaugurated in 1993, which brought with them a greater variety of loan options, were meant to stimulate growth. Growth is stimulated by attracting new consumers, many of whom bring added risk but in untraditional forms. An example of this is the higher-income person who purchases a home on a fixed-rate mortgage, but then, because of the increased variety of loan options, decides to purchase a summer home using an ARM. This added higher-risk ARM imposes a risk of default not only on one loan, but on two.

Further, following lean economic times, it was this liberalization that allowed Denmark's economy to come out of the doldrums. Homeowners who faced financial difficulties now had the option to refinance their homes under different mortgage programs and withdraw the equity that they had acquired. Because these homeowners exercised this "self-help" option, "society was spared many problems"[141] such as an increase in the mortgage loan default rate, unemployment, homelessness, and overall economic instability. Additionally, society positively benefited from the spurred economic growth resulting from the liberalization policies. Thus, the impetus for allowing the new mortgage products was to stimulate economic growth.

Yet the advent of rising interest rates and a decline in homeowners' net income created an environment of vulnerability and instability. The financial status of Danish banks prior to the August 2008 Roskilde Bank bailout was "good" because of the relatively few problems in procuring

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140. *See* Andersen's 2003 Speech, *supra* note 50.

141. Bodil Nyboe Andersen, Governor, Danmarks Nationalbanken, Speech at the Annual Meeting of the Association of Danish Mortgage Banks (29 April 2004) (transcript available in DANMARKS NATIONALBANK—MONETARY REVIEW 2ND QUARTER 2004, at 135 (2004), *available at* http://www.nationalbanken.dk/C1256BE9004F6416/side/Monetary_Review_2004_2_Quarter/$file/MON2_04_web.pdf.).

liquidity. The majority of portfolios included mortgage-credit bonds that could be pledged as collateral at Nationalbanken, thus allowing an avenue for the bank to procure liquidity. The financial statement stated that the re-mortgaging of mortgage-credit loans from fixed-rate to ARMs had no impact on the liquidity of a bank because Nationalbanken offered the same collateral, if needed.

Roskilde Bank had severe liquidity issues which led to its failure. This may be best explained through the use of "loan bills." Borrowing by banks via "loan bills" uses a program specifically instituted for the period between May 23, 2008 and September 30, 2010.[142] Banks can issue "loan bills," which are then purchased by other banks. Purchasers of loan bills can use the bills as collateral at Nationalbanken to obtain cash for temporary liquidity needs.[143] Thus, if one bank "lends" money to another bank by purchasing a loan bill, the lending bank need not fear that the outlay of capital will then be unrecapturable in the short term to meet liquidity needs because Nationalbanken would supply it, if necessary. The program was intended to promote the exchange of liquidity between banks.[144] If this program was in place, did Roskilde not issue loan bills? Or did other banking institutions opt to not purchase Roskilde's loan bills despite the option to obtain cash from Nationalbanken on those loan bills?

The record hints at the latter. While there is little detailed information about the failure of the bank, it was known that other banks were reluctant to purchase Roskilde's holdings in July 2008 when Roskilde first put itself up for sale. At that time, no other banks were interested in purchasing Roskilde. In this climate, even with the backing by Nationalbanken allowing loan bills to be converted to cash for *short term* liquidity needs, there were no banks who would wish to hold on to a loan bill for the long term, as evidenced by the lack of buyers for the bank.

While it has been acknowledged by Jens Thomsen that increasing global market exertions on the Danish mortgage bond market make it improbable that mortgage regulations will be used again as a macroeconomic policy tool, it must also be recognized that Danish mortgage regulations continue to affect market outcomes. The

142. *Terms and Conditions for Temporary Secured Lending Facility at Danmarks Nationalbank*, *in* DANMARKS NATIONALBANK—REPORT AND ACCOUNTS 2009, http://www.nationalbanken.dk/C1256BE900406EF3/sysOakFil/%20200903_Bestemmelser_laan_mod_sikkerhed_laaneobligationer_ENG/$File/200903_Terms_cond_Temporary_Secured_Lending_Facility.pdf.

143. *Report of the Board of Governors 2008*, *in* DANMARKS NATIONALBANK—REPORT AND ACCOUNTS 2008 (2008), *available at* http://www.nationalbanken.dk/DNUK/Publications.nsf/89fd431fb535b111c12570d6004e29de/5977a14a66300b5fc125757c004a7ccc/$FILE/kap02.htm.

144. *Id.*

liberalization of the laws post-1993 and the ensuing economic growth is illustrative of such positive effects. While existing mortgage regulations could not prevent Roskilde Bank's collapse, they did prevent widespread bank failure.

It is remarkable that the history of the Danish mortgage system demonstrates a constancy of changed circumstances and reaction. Because of a devastating fire, a new system of mortgage lending arose. After the implementation of a new constitution, mortgage regulations were codified. In response to the increased debt and monetary instability throughout the world during the 1960s and 1970s, acts were passed restricting the maturity periods on loans and the loan-to-value ratio of a particular mortgage loan. Then, there was a period of relaxation of some of the rules to promote the creation of new products, followed by a period of additional rules to ensure that the products continue to adhere to basic principles of the Danish mortgage market.

VI. CONCLUSION

The Danish mortgage bond system provides consumer flexibility and investor confidence. Consumers receive loans at interest rates determined solely on the market and type of loan, as opposed to based on a derived credit risk analysis. They may pre-pay their loans by calling or delivering the underlying bonds to the mortgage credit institute. The delivery option, which is not available in the United States, allows borrowers to capitalize on market fluctuations *even when interest rates rise*. In the United States, one of the few markets that also allows prepayment, only secondary markets can capitalize on these fluctuations.[145] The trade-off for this market transparency and accessibility is the strict LTV ratio maximum imposed on the loans.

In the Danish mortgage system, investors are shielded from most risk factors. While they may be subject to interest rate risk and prepayment risk, mortgage credit institutes provide transparent records regarding prepayment trends of each issued bond series.[146] Credit risk is largely accounted for by guarantees from the mortgage credit institute or lending banks. Stability of the entire system is grounded in the balance principle.

145. *See* Svenstrup & Willemann, *supra* note 6, at 107 (illustrating the buyback or delivery option differences between Denmark and the United States).

146. Investors are given historical prepayment rates as well as weekly preliminary estimates. DANISH MORTGAGE BONDS, *supra* note 7, at 34.

The Danish mortgage system model, though espoused as one of constancy—the balance principle was essentially maintained for over 200 years—is an example of a mortgage system that constantly evolved with the economic status of the times.[147] This evolution is necessary to maintain a healthy economy. While it is no longer explicitly asserted that the Danish mortgage system is used as a "macroeconomic policy tool," the system in reality is, and moreover it must be, malleable to serve the needs of the economy at a given time. The "bailout" of Roskilde by Nationalbanken is not necessarily a sign of ensuing turmoil in the system, but rather is an example that the worst-case scenario can occur. However, the system has survived this worst-case scenario, demonstrating that the system, as it is, can handle economic crises. These crises serve as yet another fulcrum for reexamining the system to understand what the next step ought to be in its evolution.

Jocelyn H. W. C. Chong[*]

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147. For example, "[t]hanks to the balance principle, . . . new types of [ARMs] do not result in additional large funding or liquidity risk for the mortgage banks." THE DANISH MORTGAGE MARKET—A COMPARATIVE ANALYSIS, *supra* note 1, at 9.

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