The Danish Mortgage Credit System and the US Experience


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Key points

• The Danish mortgage system could provide input to the reform of the US system
• Similarities in relation to products offered + capital markets funding
• Easy wins
  ▪ Eliminate market risk in intermediary
  ▪ Possibility to repay mortgage at market price – eliminate moving costs
  ▪ Create skin in the game
    • Originate to hold without structural subordination
• More difficult trade offs
  ▪ Reducing credit risk through full recourse loans
    • Lower credit costs
    • Higher liquidity as no incentive to search for private information
  ▪ Implication for social model
    • Possibility to recover from default
    • Social safety net
# US vs. Danish mortgage system

<table>
<thead>
<tr>
<th>US Characteristic</th>
<th>DK Characteristic</th>
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<tbody>
<tr>
<td>Original product is fixed rate with refinancing option</td>
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<td>(although more products have emerged)</td>
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<td>Product</td>
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<td>Financing</td>
<td>Capital market financing</td>
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<td>Interest rate</td>
<td>Determined in bond market</td>
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<td>Redemption</td>
<td>Option to redeem at par and market price</td>
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<td>Market risk</td>
<td>Minimized by match funding requirement</td>
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<td>Reduced by use of derivatives</td>
<td>Homogenous market, cf. Limited business model</td>
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<td>Heterogenous market</td>
<td>Market liquidity</td>
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<tr>
<td>Originate to distribute</td>
<td>Homogenous market, cf. Limited business model</td>
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<td>Securitizations, CDOs, resecuritizations</td>
<td>Transparency</td>
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<td>Recourse to collateral</td>
<td>Vanilla bonds, individually referrable to specific loans</td>
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<td>Legal enforceability</td>
<td>Dual recourse for investors, quick and efficient</td>
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<td>foreclosure regime.</td>
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And government involvement in the US and not in Denmark
**Danish Mortgage Banking - The basics of the system**

**Mortgage origination**

- Borrower
- Mortgage deed
- Mortgage proceeds
- Covered bond
- Proceeds from bond sale
- Mortgage bank
- Investor

**Payments**

- Principal and interest payment
- Margin
- Principal and interest payment
- Reserve fund payment if in arrears

**Interest rate set in bond market and no market risk**
Remortgaging (refinancing) - overview

Mortgage deed II

Mortgage proceeds

Covered bond II

Proceeds from bond sale

Borrower

Mortgage bank

Investor

Prepayment of old mortgage

Value of covered bond I
Min(par value ; market value)

Covered bond I

Possibility to repay mortgage at market price; eliminate moving costs + create liquidity
The Danish Mortgage Model – stylized balance sheet

- Not deposit funded
- Lending limits of 60 or 80 percent of market value of the mortgaged property depending on property segment
- Incentive for originator to provide refinancing/credit risk and not market risk with originator

Skin in the game - Originate to hold without structural subordination
Danish mortgage institutions have experienced very low impairments on loans financed by covered bonds – also during economic and financial stress periods.

Credit risk reduced through full recourse loans
Legal enforceability

DK
- Avg foreclosure takes 6 months
- Loss will constitute a personal claim
- Community rehousing obligation

EU
- Foreclosures take 6 years in Italy at the extreme
- Social consideration given more weight in some jurisdictions

And strong creditor protection
Development in bid-ask spread during the crisis

High liquidity as no incentive to search for private information

Note: Only bonds with an outstanding nominal amount of at least EUR 1 billion and trades of at least DKK 10 million have been included.

Source: Nasdaq OMX, Danish FSA and Danmarks Nationalbank.
Questions to be answered

• **Full recourse or no recourse?**
  - Implications for costs
  - And social model

• **Accept or no accept of tail risks?**
  - Implications for role of public authorities or not

• **And then the easy ones…**
  - Originate to distribute or to hold?
  - Market risk in intermediary or not?
  - Deposit funded or market funded?
  - Refinance option at market price or not?