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ASSOCIATION OF
DANISH MORTGAGE BANKS

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The Danish mortgage system and the fair value option for liabilities

Summary

On 11 May 2010, the IASB published an exposure draft on *Fair Value Option for Financial Liabilities*. For all liabilities designated under the fair value option, the exposure draft proposes that the effects of changes in the liability's credit risk should be presented in OCI rather than affecting profit or loss. In the exposure draft, the IASB acknowledges that the proposals might create an accounting mismatch in profit and loss in some cases.

Danish mortgage banks fund a specific group of loans by issuing listed bonds. The fair value changes of the loans and bonds offset each other. Further, Danish mortgage banks buy and sell these bonds on a day-to-day basis. Recognising both the loans and the bonds at fair value through profit or loss in the financial statements eliminates the inconsistency in the timing of the recognition of gains and losses that would otherwise result from measuring them both at amortised cost and recognising a gain or loss each time a bond is repurchased. Since the adoption of IFRS in 2005, Danish mortgage banks have therefore used the fair value option to fair value the issued covered loans (the asset) and the issued listed covered bonds (the liability) according to IAS 39 9(b)(i) and IAS 39 AG4E(d)(ii). This treatment has ensured that no accounting mismatches were created by IAS 39.

The exposure draft will create accounting mismatches in Danish mortgage banks. The reason is exactly as described in the ED on page 8; that the entire change in the fair value of the assets would be recognised through profit or loss but part of the change in the fair value of the liability would not.

The Danish mortgage system is based on a one-to-one relationship between Danish mortgage banks' lending and issued mortgage bonds which among other things means that the mortgage bank only funds loans by selling bonds with matching characteristics and that bonds can only be redeemed when a borrower decides to redeem a loan. This is done by either the borrower or the mortgage bank buying the bonds in the market. With this close relationship any change in the mortgage bonds' credit risk will only affect the borrower and never influence the value of the mortgage banks. A change in the liability's credit risk and price will therefore have a corresponding effect on the value of the loan – defined as the price at which it can be redeemed. The reason is that the change in the price of the bonds will be offset by the opposite change in the value of the prepayment option on the loan. The current IAS 39 and the possibility of fair valuing both the asset and the liability ensures that there is no accounting mismatch, whereas the ED will create accounting mismatch.

The ED will create accounting mismatch of a significant size. A change in the credit risk of say 100 basis points will have an effect on the value of the outstanding mortgage bonds of about 70 bn DKK which is nearly 500 per cent of the average net interest income in the last 5 years. Since 2008, the spread between Danish mortgage bonds and Danish government bonds has widened more than 100 basis points, whereas the spread between similar mort-

gage bonds with similar rating (given unchanged rating) has only changed insignificantly. (This illustrates that the definition of "Liabilities own credit risk" is essential.) When an accounting mismatch is created the financial statements will NOT provide a fair presentation.

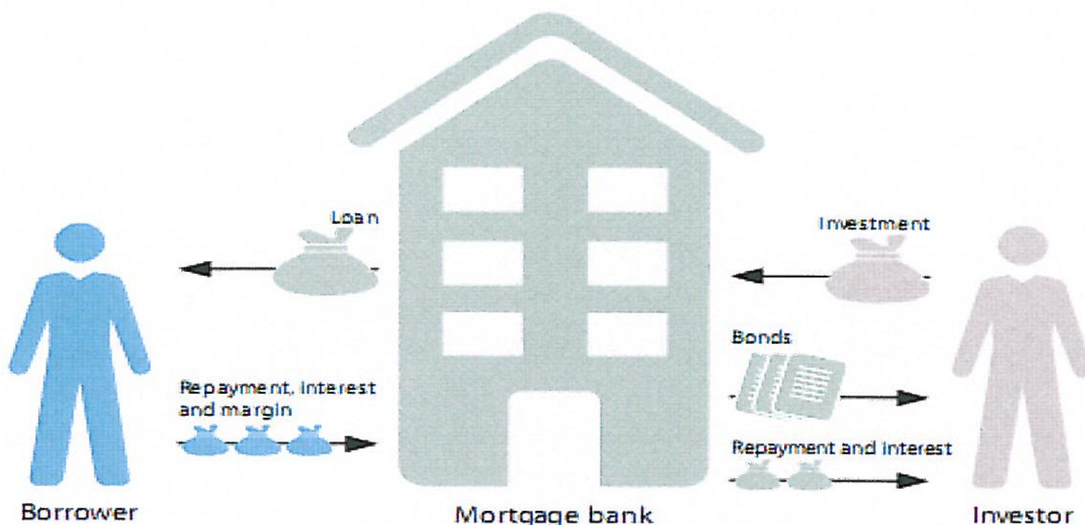
The background for this conclusion has been set out below. First we give an introduction to the Danish mortgage system, and second we have listed an example to illustrate that any change in the credit risk of the mortgage bank will only affect the borrower and never influence the value of the mortgage bank.

The Danish mortgage system

Mortgage banking in Denmark

Danish mortgage banks are specialised banks which only grant loans against mortgages on real property by issuing covered bonds. Loans are granted at loan-to-value (LTV) ratios of up to 80% for private residential loans and typically up to 60% for other purposes, including commercial purposes. The mortgage banks issue covered bonds and do not seek funding in the money market for its mortgage lending. The loans remain on the balance sheet of the issuing mortgage bank until maturity, and thus the mortgage bank carries the credit risk of the loans until they mature.

The chart below shows how the traditional Danish mortgage model works in practice.



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The covered bond market

The covered bond market plays a very important role in the Danish economy due to its size. The market has an outstanding amount of nearly EUR 366bn corresponding to approx. 130% of Danish GDP. The Danish covered bond market is Europe's second largest after the German Pfandbrief market.

Volume of bonds issued, end-2008, EURbn

	GE	FR	UK	IT	SP	NE	SE	DK
Covered/mortgage bonds **	579	119	187	7	315	21	126	366

Source: ECBC European Covered Bond Fact Book, September 2009

Danish mortgage bonds are traded actively on NASDAQ OMX Copenhagen A/S.

Throughout the financial crisis, Danish mortgage banks continued to be able to sell all new issues for the full funding of their lending activities. The tap issues took place on all business days without any government purchase or depositor guarantee schemes.

Match-funding principle

Danish mortgage banks operate on the basis of a match-funding principle in managing covered assets and covered bonds issued. This means that mortgage banks fund loans by selling bonds with matching characteristics. Therefore, the loan type, repayment profile, term and currency determine which bonds the mortgage bank will sell, see the fact box.

Fact box: The Danish mortgage model – examples of match funding

Funding of fixed-rate callable loans:
If a borrower wants a 30-year fixed-rate callable repayment mortgage, the mortgage bank will fund the loan by selling a corresponding amount of 30-year fixed-rate callable bonds with amortisation.

Funding of ARMs:
If a borrower wants an adjustable-rate mortgage loan with annual interest rate fixing, the mortgage bank will sell 1-year fixed-rate bonds. The loan terms reflect that the loan rate is adjusted every year when the mortgage bank refinances the current debt outstanding on the loan by selling new 1-year bonds.

Funding of floating-rate callable loans with an interest rate cap:
If a borrower wants a 30-year floating-rate callable interest-only loan with a 5% interest rate cap, the mortgage bank will fund the loan by selling a corresponding amount of 30-year floating-rate callable interest-only bonds with a 5% interest rate cap.

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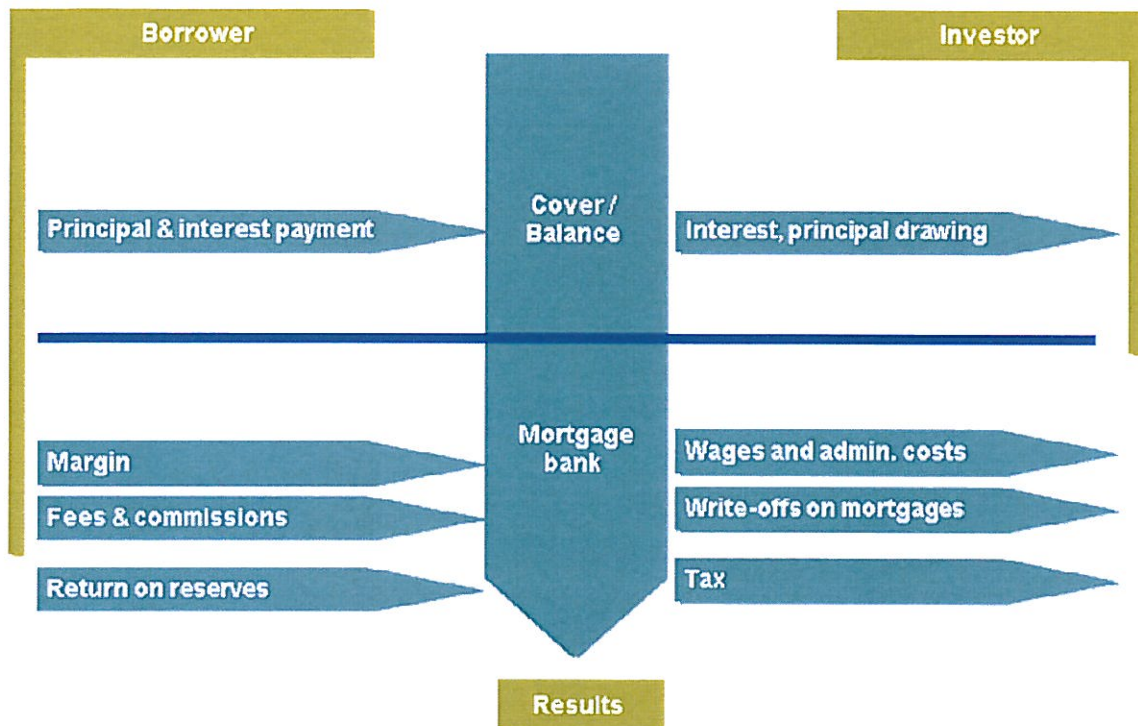
The match-funding principle is applied in relation to mortgage loans and covered bonds and managed at a detailed level. In pursuance of the match-funding principle;

- Covered bonds are issued and sold on a daily basis (tap issuance) simultaneously with the fixing of the final terms of loans granted. The final terms of loans granted are fixed within the terms of the issued covered bonds.
- Loans are not granted if mortgage banks cannot obtain the relevant covered bond funding, ie Danish mortgage banks do not have any pipeline risk.
- Mortgage banks have trading desks that sell the covered bonds directly in the primary market, and funding rates are passed directly through to borrowers. Loan rates are thus fixed on the basis of actual funding rates quoted by mortgage banks' trading desks, ie marked-to-market. Margins are fixed separately on a fully transparent basis, meaning complete transparency about the margins for borrowers.
- Interest, repayments and redemptions (prepayments) from borrowers are collected at the latest one banking day before payment of interest, repayments and redemptions to bondholders fall due.
- Issued covered bonds only mature either when the underlying loans mature (fixed-rate loans, capped floaters, certain floaters) or when the loans are refinanced (ARMs, floaters). When loans are refinanced, loan rates are reset to match the interest rates at which the new funding (bonds) is issued and sold.
- Borrowers have the right to prepay at all times by exercising either a call option (cash prepayment at par) or a delivery option (prepayment of the mortgage bonds issued to fund the loan at current market prices).
- Covered bonds are cancelled or drawn at par, if callable, to match borrower prepayments.
- The mortgage bank carries the credit risk of the loans in respect of the bondholders, so any impairment of the loans will be covered by the mortgage bank. However, the borrower is personally liable in case a sale of the property does not generate sufficient proceeds to repay the loan.
- Mortgage banks earn a transparent separate margin from borrowers on top of the funding rates. The margin covers servicing of the loans and the bonds plus the above-mentioned credit risk. The final terms of the granted loans give the mortgage banks an opportunity to change the margin in times of rising defaults and losses. The mortgage banks also earn loan transaction fees.
- The loans are granted and the bonds are issued in groups or so-called capital centres. In case of insolvency of a mortgage bank, the proceeds from borrowers are protected from the creditors of the mortgage bank and passed through to the bondholders, and the bondholders only potentially suffer credit risk in that situation. Bondholders have never suffered any loss on Danish mortgage bonds in 200 years. This specific situation is also reflected in the fact that the bonds in the individual capital centres have separate credit ratings from the Danish mortgage bank ratings.

Danish mortgage banks' use of the one-to-one match between loan and issued bonds means that all interest and principal payments pass through from borrowers to investors.

Match-funding principle



The match-funding principle has significant implications for the risk profile of Danish mortgage banks. The mortgage banks eliminate market risk. The market risk (funding and refinancing risk) is completely passed on to borrowers. The only risk that mortgage banks actually incur is the credit risk related to borrowers.

Prepayment options and own credit risk

The match-funding principle ensures that borrowers may always prepay their loans by buying the underlying bonds in the market on the same terms as other investors. This market-based prepayment offers borrowers a cheaper prepayment option for fixed-rate loans if interest rates have increased as bond prices will have decreased.

A change in the market price can be caused by a change in the credit risk of the mortgage bonds. This will only affect the price of prepayment of the loan for the borrower and never influence the value for mortgage banks. A change in the fair value of the liability's credit risk and the price of the bonds will therefore have a corresponding effect on the fair value of the loan, including the embedded prepayment option – defined as the price at which it can be redeemed. The change in the fair value of the prepayment option will always offset the change in the fair value of the bond.

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Change in credit risk affects the borrower

With the one-to-one relationship between the lending and issued mortgage bonds of Danish mortgage banks, any change in the credit risk of the mortgage bonds will only affect the borrower and never influence the value of the mortgage bank. See the example:

A borrower raises a loan with the following characteristics	
Nominal value	DKK 1m
Interest rate	5%
Loan term	30 years
Type	Bullet
Mortgage bank margin	0.50%
Price of the bonds funding the loan	95

We have considered the loan over a period and observed the impact of changes in the price of the bonds on the value of the loan and the P/L of the mortgage bank.

Time	Borrower			Mortgage bank		Investor	
Year 0							Price: 95
	Proceeds	950.000 DKK	<-----	950.000 DKK	<-----	950.000 DKK	Market value
Year 1	Interest	50.000 DKK	----->	50.000 DKK	----->	50.000 DKK	Interest
	Margin	5.000 DKK	----->	5.000 DKK			
							Price: 90
	Value of loan = Market value of corresponding bonds	900.000 DKK				900.000 DKK	Market value
Year 2	Interest	50.000 DKK	----->	50.000 DKK	----->	50.000 DKK	Interest
	Margin	5.000 DKK	----->	5.000 DKK			
							Price: 92
	Redemption = Market value of corresponding bonds	920.000 DKK	----->	920.000 DKK	----->	920.000 DKK	Market value

Year 0

The mortgage bank sells bonds of a nominal value of DKK 1m at a price of 95.
The proceeds, DKK 0.95m (DKK 1m*0,95), are disbursed to the borrower.

The mortgage bank recognises DKK 0.95m – the loan – under assets and DKK 0.95m – the market value of the bonds – under liabilities.

Year 1

The price of the bonds is assumed to have fallen to 90.

The borrower pays DKK 0.05m (5%*DKK 1m) in interest to the mortgage bank, which passes the amount on to bondholders.
The borrower pays DKK 0.005m (0.05%*DKK1m) in margin to the mortgage bank. This amount is recognised as income in P/L.

The value of the bonds is recognised by the mortgage bank at DKK 0.90m.
Correspondingly, the loan is recognised at DKK 0.90m in the mortgage bank.

The change in the bond price has no net impact on P/L.

Year 2
The price of the bonds is assumed to have risen to 92, and the borrower now wishes to prepay his loan.

The borrower pays DKK 0.05m in interest to the mortgage bank, which passes on the amount to the bondholders.
The borrower pays 0.005m in margin to the mortgage bank.

The value of the bonds is recognised by the mortgage bank at DKK 0.92m.
Correspondingly, the loan is recognised at DKK 0.92m in the mortgage bank.
The change in the bond price has no net impact on P/L.

The borrower buys bonds of a nominal value of DKK 1m in the market at a price of 92 and delivers the bonds to the mortgage bank for the prepayment of the loan. The loan and the bonds are recognised at 0, and the transaction has no impact on P/L.

If the price of the bonds is affected by the credit risk to the mortgage bank, it will not impact the mortgage bank's net cash flow or P/L as the entire impact will be passed on to the borrower as part of the price at which the borrower will be able to prepay his loan.