# NEGATIVE MORTGAGE RATES 

Working Group on Negative Mortgage Rates

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## 1. BACKGROUND

Danish interest rates have generally been falling since 2009. In January and February 2015 the Danish central bank, Danmarks Nationalbank, lowered its key policy rate further to the current level of $-0.75 \%$ as a result of the upward pressure on the Danish krone. The negative interest rate has rubbed off on the interest rates of Danish mortgage loans funded by floating-rate and short-dated mortgage covered bonds, which have also been negative from time to time.

Negative interest rates are a most uncommon phenomenon. The financial infrastructure was therefore unprepared for this situation, systemically as well as contractually. Apart from the practical approach, negative mortgage rates raise questions with respect to tax treatment and bond structure.

Against that backdrop, the Danish Minister for Business and Growth appointed a working group in early February 2015 tasked with analysing the different aspects relating to negative mortgage rates. The Working Group included representatives from the Danish mortgage banks, the Association of Danish Mortgage Banks, the Danish Mortgage Banks' Federation, the Danish Bankers Association, the Danish Insurance Association, VP Securities, the Danish Financial Supervisory Authority, Danmarks Nationalbank, the Danish Ministry of Taxation and the Danish Ministry of Business and Growth. The Danish Ministry of Business and Growth chaired the Working Group.

This report constitutes the Working Group's final reporting to the Danish Minister for Business and Growth.

## 2. INTEREST RATE DEVELOPMENT

Danish interest rates have generally been falling since 2009. On 15 January 2015, the Swiss central bank abandoned its exchange rate cap on the Swiss franc vis-à-vis the euro. This led to a massive currency inflow into Denmark. In addition, on 22 January 2015, the European Central Bank (ECB) announced an expansion of its asset purchase programme to include sovereign bonds etc. The programme turned out to be more extensive than expected, which boosted currency inflows. ${ }^{1}$

The massive currency inflows exerted an upward pressure on the Danish krone. Danmarks Nationalbank consequently lowered the certificates of deposits (CD) rate from $-0.05 \%$ to $-0.75 \%$ in the period from 20 January to 6 February, cf Chart 1 . The CD rate is currently the key policy rate. ${ }^{2}$

[^0]Chart 1. Development in CD rate, January 2012-April 2015


Source: Danmarks Nationalbank

### 2.1 Impact of monetary policy rates on mortgage rates

The Danish mortgage system generally comprises three loan types, which may all be with or without principal payments.

Firstly, there is the traditional fixed-rate mortgage loan (bond loan), where the loan term and the maturity of the underlying bonds are typically 30 years and the loan rate is fixed for the entire 30-year period.

Secondly, there is the cash loan with interest rate adjustment (adjustable-rate mortgage (ARM)) with a maximum loan term of 30 years. ARMs are refinanced at a frequency of typically one, 3 or 5 years, and the cash loan rate is determined in connection with refinancing. ARMs are mainly refinanced at auctions held at different times during the year.

Thirdly, mortgage banks offer loans with terms up to 30 years funded by floating-rate bonds. The bonds funding these loans are refinanced, for instance, every 3 or 5 years, but the loan rates are fixed more often, typically every 6 months, on the basis of money market rates such as CITA or CIBOR. ${ }^{3}$

Changes in monetary policy rates will impact market rates. Short-term interest rates such as money market rates are most affected, while long-term yields may be affected only to a negligible extent.

Danmarks Nationalbank's interest rate cuts have fed through to money market rates such as CITA, which was as low as $-0.87 \%$ (6-month) in mid-February 2015, rising to around $-0.40 \%$ (6-month) by mid-April 2015, cf Chart 2.

[^1]Chart 2. Development in 6-month CITA, CIBOR and CD rate


Source: Datastream and Danmarks Nationalbank

The interest rate cuts have also fed through to the interest rates of ARMs. Yields on bonds funding ARMs subject to annual interest rate adjustment (ARMs with 1-year funding) thus averaged $-0.16 \%$ at the auctions held in February/March 2015. ${ }^{4}$

Also long-term (30-year) mortgage rates have dropped significantly to approximately $2 \%$. Long-term rates have not been close to negative territory, however, which should be interpreted as a sign that markets currently consider negative rates a temporary phenomenon. But the low long-term mortgage rates do indicate that markets expect these rates to remain low, but positive, for a long time ahead, cf Chart 3.

Chart 3. Development in short- and long-term mortgage rates, 2012-2015


Note: Long-term mortgage rates reflect yields on 30-year fixed-rate callable mortgage covered bonds.
Source: Datastream and Danmarks Nationalbank

[^2]
## 3. IMPACT OF NEGATIVE INTEREST RATES ON MORTGAGE LENDING

### 3.1 Danish mortgage model

Negative mortgage rates impact the ordinary flows between borrowers, mortgage banks and investors. Usually, borrowers make interest payments and any principal payments to the mortgage banks, which pass on these payments to the investors holding the bonds funding the mortgage loans, cf Chart 4. Borrowers also pay an administration margin to the mortgage banks. If the mortgage rate turns negative, the cash flows may have to be reversed, implying that investors may have to pay interest to borrowers. The possibility of reversing the cash flows raises a number of fundamental questions, which will be dealt with below.

Chart 4. The balance principle


First of all, it should be emphasised that negative interest can, in theory, be offset against redemptions to investors and against borrowers' mortgage payments (administration margin and principal payments). A need for an actual payment to borrowers would only arise if the negative interest amounts were very large and the other loan payments very small.

The right to offset any negative interest payable to borrowers against investors' redemptions must be described in detail in the bond prospectus and the bond terms. Issuance of new bonds with revised documentation will therefore be necessary to secure the requisite right of set-off in respect of investors.

### 3.2 Adjustable-rate mortgages (ARMs)

Mortgage banks are deemed to be able to handle negative interest rates on ARMs (typically with 1-3-year funding) without any difficulty - both as regards existing loans and new loans.

ARMs are cash loans, meaning that the loan proceeds are settled at a price of 100, and the loans are refinanced at a price of 100 . If, for instance, bonds with a zero coupon rate are sold at a price above 100, the cash loan rate payable by the borrower on the loan will turn negative.

In the period from loan payout/refinancing to the next loan refinancing, borrowers will receive the negative interest from the mortgage banks, which will fund the payment thereof by the premium on the bonds paid by investors at issuance.

For investors, the sale of bonds at a price above 100 will imply a capital loss. In this way, investors pay negative interest to borrowers.

In practice, mortgage banks can offset the negative cash loan interest against principal payments (in case of a repayment loan) or against the administration margin, cf above. Mortgage banks will thus not have to make payments to borrowers or offset such payments against subsequent positive interest or principal payments unless the administration margin rates are lower than the negative mortgage rates. Administration margin rates on interest-only ARMs typically range between $0.8 \%$ and $1.5 \%$ in case of a loan-to-value (LTV) of $80 \%$.

### 3.3 Loans funded by floating-rate bonds

A significant proportion of Danish mortgage loans are funded by floating-rate bonds. Such bonds typically have a maturity of 3 or 5 years, and the coupon rates are fixed every 3 or 6 months. Coupon rates are fixed on the basis of a money market-based reference rate, such as CITA or CIBOR, with the addition of an interest rate spread that varies to ensure refinancing at a price of 100. Floating-rate bond loans have a loan term of up to 30 years, just like ordinary bond loans. At the beginning of March 2015, Danish mortgage banks' outstanding loans based on floating-rate bonds totalled approximately DKK 560bn, equal to $22 \%$ of total outstanding mortgage loans. ${ }^{5}$ Of these, approximately DKK 370bn are interest-only loans.

For loans funded by floating-rate bonds, a negative reference rate may result in negative bond coupon rates. As the maturity of the bonds issued is typically 3-5 years, and interest rates are fixed every 3 or 6 months, the bonds are not refinanced in connection with the interest rate fixing in most cases. This means that investors cannot "pay" the negative coupon interest by buying the bonds at a price above 100 as is the case for bonds funding ARMs. Thus, if coupon rates turn negative for a period and no interest rate floor applies to the loans under the bond terms, investors must, in principle, make interest payments to borrowers.

However, it is not practically possible to arrange interest payments from investors to borrowers, as mortgage banks do not always have knowledge of which investors have bought the issued bonds. Any negative interest on floating-rate bonds thus has to be dealt with in another manner. In this respect, it is necessary to distinguish between existing loans and new loans.

### 3.3.1 Existing loans funded by floating-rate bonds

The loan agreements for existing loans and the bond terms for the underlying, already issued, floating-rate bonds typically do not provide for a scenario with negative interest rates nor, consequently, do they describe how to handle negative interest rates. The existing mortgage model is based on the assumption that borrowers pay interest and investors receive interest. Thus, the infrastructure developed only supports this model, as opposed to the swap market, for instance, where the terms stipulate that any negative interest rates must be swapped.

It is at the discretion of the individual mortgage bank to determine how to handle any negative interest rates on existing loans funded by floating-rate bonds. It will rely on an interpretation of the relevant loan and bond terms and the general rules of Danish contract law. Any borrowers and/or investors who disagree with a mortgage bank's interpretation may enter into a dialogue with the mortgage bank regarding their approach to negative interest rates on their loans. Ultimately, they will have access to lodge a complaint in accordance with the applicable rules.
${ }^{5}$ See Danmarks Nationalbank's MFI statistics.

Realkredit Danmark announced in 2013 that they would introduce a floor of 0\% to the coupon rate of existing loans with interest rate fixing based on money market rates (CIBOR, EURIBOR and CITA). ${ }^{6}$ Consequently, borrowers will not receive any negative interest, and investors will not be charged any interest either. Similarly, Nykredit, BRFkredit and DLR Kredit announced in late March that an interest rate floor of 0\% would apply to existing floating-rate bond loans and the underlying floating-rate bonds. ${ }^{7}$ At the interest rate fixing at end-March 2015, the interest rate floor took effect for some of the ISINs of the floating-rate loans issued by these mortgage banks.

Conversely, Nordea Kredit has announced that they will not apply an interest rate floor in relation to borrowers, but rather let any negative interest accrue to them. Nordea Kredit has not indicated the extent to which they will attempt to collect any negative interest from investors.

### 3.3.2 Existing loans subject to refinancing and new loans

In respect of existing floating-rate loans that are refinanced with new floating-rate bonds, it is at the discretion of the individual mortgage bank to determine how to handle negative interest rates. In connection with the refinancing it may be inserted in the bond terms how to handle any negative interest rates in relation to investors. Some mortgage banks have indicated that it may be possible to refinance a loan on terms whereby the borrower will benefit from negative interest rates. This will depend on an interpretation of the relevant loan terms and the general rules of Danish contract law.

In respect of new loans funded by floating-rate bonds, the mortgage banks may insert provisions in both the loan terms and the bond terms on how to handle any negative interest rates in relation to investors and borrowers.

However, all mortgage banks may not choose the same approach. Some mortgage banks may opt to operate with negative coupon rates and handle them in different ways. Others may opt to apply a floor of $0 \%$ to the coupon rate, as several mortgage banks have done in respect of existing loans, see above.

## Models with negative interest rates

If negative coupon rates are applied, a possible model (model la) is to increase principal payments so that the mortgage payments (interest plus principal payments) cannot turn negative. That way, the debt outstanding on the loan will be reduced faster than in a situation with positive interest rates. On the investor side, this is handled by reducing the bond principal by the redemptions related to the ordinary principal payments on the loan plus the additional principal payments. This model ensures that the redemptions will always exceed the negative interest. Mortgage banks may therefore offset the negative interest against the redemptions to investors. That way, investors need not make an actual negative interest payment to mortgage banks, which would be difficult in practice. On the borrower side, the debt outstanding is reduced by the corresponding amount. In other words, the model obliges borrowers to apply any negative interest towards principal payments on the loan. Negative interest rates will thus contribute to reducing borrowers' debt. On the part of mortgage banks, there is a complete match between payments, exclusive of administration margin payments, and the issued bonds will match the issued loans at any time.

[^3]Another possible model (model Ib) is to pay the negative interest to borrowers. As in model la, bond investors will have their bond principals reduced by a market value corresponding to the negative interest. At the same time, the mortgage bank will issue bonds of a market value corresponding to the negative interest payment to the borrower and transfer the proceeds to the borrower. In practice, settlement with borrowers may be in the form of a set-off against borrowers' mortgage payments, provided they exceed the negative interest amount. On the part of mortgage banks, there is a complete match between payments, exclusive of administration margin payments, and the issued bonds will match the issued loans at any time as in model la. Model lb will be particularly relevant for business customers that need to receive the negative interest for the purpose of using it in an interest rate swap.

Both models outlined above are deemed to comply with the balance principle, as the underlying bond and the loan principals are reduced by the same amount.

## Model with interest rate floor

An alternative to models la and $l b$ is to introduce a floor of $0 \%$ to the coupon rate (model II). In that case, borrowers will not receive negative interest payments, and investors will not have the bond principal reduced.

The bonds are normally issued at a (positive or negative) spread which is added to a reference rate (eg CITA) so that the bonds can be sold at a price of 100 . If the bond has an interest rate floor and the market rate is negative, the interest rate floor may imply that the bonds must be issued at a price above 100.

For new loans, the interest rate floor will not imply that borrowers do not receive negative interest payments - as is the case where interest rate floors are applied to existing loans - but merely that the negative interest accrues to borrowers in the form of a capital gain (provided that the negative interest rate was anticipated by investors). However, this further implies that borrowers (excluding companies etc) will be liable to pay tax on the premium on the loan for the year concerned. Under the current tax rules, the tax cannot be distributed over the term of the loan. If interest rates become more negative than expected during the term of the loan, borrowers will not receive any gain from this, as the price of the bond is determined at issuance.

## 4. TAX TREATMENT OF NEGATIVE INTEREST

No previous decisions have been made as to the tax treatment of negative interest. Under the applicable rules, taxable income is determined on the basis of taxpayers' total annual income, including interest income. Certain expenses such as debt interest may be deducted from taxable income.

With a view to clarifying the tax treatment of negative interest, the Danish tax authorities issued a so-called Guidance on 27 February 2015, which provides an interpretation of the applicable rules. The Danish tax authorities establish in their Guidance that negative interest should be equated with positive interest for tax purposes. Interest expenses are thus tax-deductible for lenders (bank depositors or bond investors), and interest income is taxable for borrowers. Reference is made to the Guidance by the Danish tax authorities, which is attached as Appendix 1.

The tax treatments differ for the models described above.

As to $A R M s$, any negative interest payments received by borrowers will be taxable, irrespective of whether the amount will be set off against principal and administration margin payments or whether it will actually be paid. Correspondingly, investors' capital
losses on the bonds are tax-deductible. The time of investors' tax deductions depends on the tax rules to which the individual investor is subject.

With respect to new loans funded by floating-rate bonds and new bond issues relating to existing loans, models involving negative interest rates or an interest rate floor, as described above, may be applied.

In model la, where negative interest rates are dealt with through a reduction in investors' bond principals and borrowers' debts outstanding by an amount equivalent to the negative interest due, borrowers will be taxed on interest income on a current basis, even if they have not received the amount. This effect should be seen in the light of the generally low interest rates and the savings borrowers achieve, and of the fact that under the rules on good practice, borrowers were assessed to be able to service a fixed-rate 30 -year repayment mortgage when their loans were raised. Conversely, investors may deduct the value of negative interest income for tax purposes without any liquidity effect arising. The effect on investors' liquidity positions is neutralised when the bonds are redeemed, and investors only receive the bond principal less accrued negative interest. The effect on borrowers' liquidity positions is gradually neutralised as the loans are repaid.

In model lb, where negative interest is paid to borrowers, they will also be taxed on the interest payments received.

In the interest rate floor model (model II), borrowers will, as stated earlier, receive a capital gain if the bonds are sold at a price above 100, but must be redeemed at a price of 100 upon maturity ${ }^{8}$. Borrowers' capital gains will be taxable in the year the loans are raised. After tax, the implication of the premium is that borrowers will have a higher current interest deduction, or reduced taxable interest income. Income tax timing differences may also occur in this model, which should be seen in the context of the low interest rate level, which also implies that the present value of the effect on the tax base will probably be quite modest.

In model II, the effect on borrowers' liquidity positions in the year of issuance will be larger than in models la and $l b$.

## 5. CONCLUSION

Denmark has a highly efficient mortgage system. The system is characterised by its balance principle and high degree of transparency and standardisation, making it easily accessible to both borrowers and investors. At the same time, it makes for a liquid mortgage covered bond market.

An overarching objective of the Working Group on Negative Mortgage Rates has been to preserve a framework for retaining a transparent and liquid bond market. However, specific agreements between mortgage banks on the approach to negative interest rates are not allowed. That would constitute coordination and would conflict with the Danish Competition Act.

The Working Group agrees that negative interest rates will not cause severe problems for ARMs. The main challenge is in relation to floating-rate bond loans with and without repayments.

[^4]The Working Group agrees that it is generally not a problem if mortgage banks take different approaches to negative interest rates on loans funded by floating-rate bonds. According to all the models described, borrowers would receive negative interest, only in different ways; as a direct payment, as a reduction of their debt outstanding or as a capital gain.

If relatively uniform models are applied, mortgage bank issues of floating-rate bonds will be close substitutes. This will deepen liquidity in the bond market for the benefit of investors. Deeper liquidity will make for lower interest rates for the benefit of borrowers.

In models without an interest rate floor (models la and $l b$ ) borrowers will be taxed based on the interest amounts received from time to time. In models with an interest rate floor (model II) borrowers will be taxed entirely on their capital gain at the time of issuance and thus before they achieve any savings by virtue of a capital gain or the current mortgage interest tax deduction/reduced current taxable interest income, and also before it is clear whether such a gain is in fact ultimately achievable. There is a risk that the gain will be reduced or eliminated completely if borrowers subsequently prepay a loan between scheduled refinancing dates. As the bonds funding the loan are non-callable, loan prepayment may have to take place at a price above 100. According to the current rules, no corresponding tax deduction is allowed for the capital loss suffered from such loan prepayment.

Borrowers subject to models with an interest rate floor will receive the expected negative interest in the form of a higher bond price, while borrowers subject to models without an interest rate floor will receive the actual negative interest. It cannot be determined beforehand which scenario would best serve borrowers' interests. That would depend on the development in market conditions.

It should be noted that mortgage covered bond investors still have no experience in buying large amounts of bonds with negative interest rates. Systemic challenges with respect to the treatment of negative interest rates are presumed to arise for many investors in the near term, especially foreign investors. These challenges must be expected to arise irrespective of the model used and regardless of whether the underlying loans are amortised. This is due to the fact that the systemic challenges are not isolated to the handling of cash flows, but also concern the handling of negative coupon rates in trading systems, risk management systems, accounting systems, etc. But there are solutions to such systemic challenges. Most investors are therefore expected to be, or to become, able to handle both models with and without interest rate floors.

It should be highlighted, however, that a solution requiring investors to handle negative coupon interest by actually delivering payment to borrowers is unrealistic. This would pose an excessive administrative challenge - particularly for foreign investors. Such a solution would expectedly lead to a lack of investor demand for the product.

It is the overall opinion of the Working Group that negative interest rates should, as a general rule, be a possibility in future vis-à-vis investors as well as borrowers. The contractual framework by way of loan terms, prospectuses and bond terms must be revised accordingly to avoid any doubt about the legal position of investors and borrowers. The issuing mortgage bank must be certain of its right to offset negative interest vis-à-vis investors without risking an event of default. Where negative interest rates are a possibility in connection with the refinancing of existing loans using new bonds, borrowers must be notified of any changes to their loan terms. In connection with the refinancing of existing loans, the loan terms must be adapted to match the new bonds and allow for the possibility of negative interest rates and increased principal payments/redemptions vis-à-vis borrowers as well as investors.

The Working Group has considered whether it would be advisable, in part to avoid systemic overcomplexity, to legislate on the treatment of negative interest rates on loans funded by floating-rate bonds. However, in the opinion of the Working Group, there is no immediate need for legislation in this area, as mortgage banks could simply be given leeway to choose the approach best suited to their individual business models.

Nonetheless, the Working Group recommends that the Minister for Business and Growth monitor the area closely for the purpose of evaluating, in the course of 2016 , whether the interest rate development and mortgage banks' conduct in this respect should give rise to any legislative initiatives. Furthermore, the Ministry of Taxation has announced that it will invite the sector participants to a meeting in order to clarify the tax aspects of loans with interest rate floors, cf section 4.

This document is an English translation of the original Danish text. In the event of discrepancies between the original Danish text and the English translation, the Danish text shall prevail.

## 6. APPENDIX 1: Guidance issued by SKAT (the Danish Customs and Tax Administration), 27 February 2015

## Summary

The Guidance describes the rules governing taxation and deduction of negative interest for tax purposes.

## 1. Preamble

The most recent development in interest rates has led to a number of cases where a negative interest rate has been fixed for various types of claims/debts, including mortgage bonds/mortgage loans and bank deposit accounts. Negative interest rates mean that creditors must pay interest to debtors.

No decisions have previously been made with respect to the taxation of negative interest received (debtors) and the tax deductibility of negative interest paid (creditors).

Therefore, the Danish tax authorities have set out the basic rules on taxation and tax deductibility of negative interest in this Guidance.

## 2. Opinion of the Danish tax authorities

Pursuant to section 4 e of the Danish Central Government Tax Act (statsskatteloven), interest income is included in taxable income.

Pursuant to section 6 e of the Danish Central Government Tax Act, debt interest expenses are deductible from taxable income. According to its wording, this provision is not limited to debtors' debt interest expenses. It should therefore be concluded that tax deductibility also applies to creditors with interest expenses.

The concept of interest is not defined in Danish tax legislation. C.A.11.1.1. (interest income) and C.A.11.2.1. (interest expenses) of the Guidance Notes 2015-1 define interest as "customary, periodic remuneration to a creditor, calculated as a specific percentage of the debt outstanding from time to time, for providing capital". Thus, the definition of interest only covers positive interest rates. The Guidance Notes do not define interest in the event of negative interest rates, in which case the interest cannot be defined as remuneration to a creditor for providing capital.

Against this background, the Danish tax authorities are of the opinion that where negative interest constitutes periodic remuneration to a debtor, calculated as a certain percentage of the debt outstanding from time to time, this constitutes interest for the purposes of sections 4 e and 6 e of the Danish Central Government Tax Act.

Accordingly, debtors' interest income in the form of negative interest is taxable pursuant to section 4 e of the Danish Central Government Tax Act, and creditors' interest expenses in the form of negative interest are tax-deductible pursuant to section 6 e of the Danish Central Government Tax Act.

A debtor's interest income in the form of negative interest as well as a creditor's interest expenses in the form of negative interest must be included in the capital income of private individuals, cf section 4(1)(i) of the Danish personal tax act (personskatteloven). Persons applying the Danish Business Tax Scheme must include interest from their business activities in their personal income. This also applies to negative interest from their business activities.

For the purposes of tax base calculations, creditors' accrued interest expenses in the form of negative interest are tax-deductible pursuant to section 9(1) of the Danish Pension Returns Tax Act (pensionsafkastbeskatningsloven). Correspondingly, interest income in the form of negative interest received by debtors must be included as return on capital in their tax base pursuant to sections 3, 6 and 7 of the Danish Pension Returns Tax Act, cf section 15(1) of the said Act.

The treatment of negative interest rates in relation to other tax legislation will be dealt with later.

## 3. Application of Guidance

The Guidance will be rescinded upon incorporation in the Guidance Notes 2015-2.

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## Negative <br> mortgage rates

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[^0]:    See Danmarks Nationalbank's Monetary Review, 1st Quarter 2015.
    2 The CD rate is not always the key policy rate. It depends on the counterparties' net position vis-à-vis Danmarks Nationalbank.

[^1]:    ${ }^{3}$ A CITA interest rate swap reference rate was established at the turn of the year 2012/2013. In a CITA (Copenhagen Interbank Tomorrow/Next Average) interest rate swap, the T/N rate is swapped for a fixed DKK rate for a fixed term agreed on when the swap is initiated. The CITA rate is often considered a secured rate. CIBOR is the rate at which banks are willing to lend Danish kroner for a period of 1 week, 2 weeks, $1,2,3,6,9$ or 12 months to a prime bank on an unsecured basis.

[^2]:    ${ }^{4}$ Due to price spreads in connection with refinancing, however, no payment accrued to borrowers.

[^3]:    ${ }^{6}$ Reference is made to the presentation from October 2013 ("Handling of negative interest rates") on the website of Realkredit Danmark.
    ${ }^{7}$ BRFkredit stock exchange announcement no 37/2015, Nykredit stock exchange announcement of 20 March 2015, DLR Kredit stock exchange announcements from January and March 2015.

[^4]:    ${ }^{8}$ Floating-rate mortgage loans are generally bond loans. Capital gains on bond loans are not taxable if payment was made within a period of 6 months of the loan offer and if the offer price was below 100 .

