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Commercial banks do not create money

Introduction

I was consulted by a professional colleague about the veracity of his opinions in an exchange on a commercial project in which members of a UK economic think-tank were involved, and where a UK MP was being asked to participate in a video to promote the project. The contention was that commercial banks create money/cash/currency.

In particular I reviewed an email sent on 22 February by one of the project participants to my contact as below:

QUOTE

I have yet to meet a front-of-house banker who actually understands that he/she lends money into existence. The accounting is a backroom function, and I don't suppose accountants realise either. This was the point of Richard Warner's experiment with a small German bank lending him €200k and looking at the accounting behind it.

Unsurprisingly, it was found that under double entry bookkeeping, when a loan agreement is signed and the funds are made available, it is recorded as an asset on the balance sheet. Whether this happens for the full amount or as it is drawn down is immaterial. But there must always be a matching liability on the b/s, and even though this might not be reflected in the customer's statement, that liability is recorded as a current a/c deposit in favour of the customer. It cannot be any other way.

When the customer draws down on his loan agreement it is recoded on both sides of the balance sheet. Neither other deposit balances nor the bank's own capital are involved. Therefore, the loan creates the deposit.

To quote Henry Dunning Macleod, "The essential business of a banker is to buy money and debts by creating other debts" (Elements of Banking p 240 – 1877 edition). Macleod was a practising barrister in banking law, so we can take it as gospel. This is the same genesis as the BoE's interpretation, and was confirmed by other central bankers in the film.

As to central banks, their currency creation is both in the form of bank notes and the maintaining of deposit accounts for commercial banks. Changes in these quantities are in addition to credit creation by commercial banks.

UNQUOTE

The detailed critique of that email is towards the end of this paper.

Until now I was unaware that there was a considerable body of academic debate about this subject.

Headline conclusion

Commercial banks do not create money/currency/cash; they collect and transmit it, taking risks in the process for which they hold a loss cushion. My contact and I have been in long debate and agreement, resulting in numerous papers and newsletters, that this loss cushion is too thin thanks to Basel Internal Ratings-based methodologies, but this does not alter the big picture.

Where the problems of the banking system lie

The loss cushion can also be called the bank's fractional reserve, because it is only a fraction of their business volume. It exists to absorb any and all losses incurred in the bank's risk-entailing activities. These activities include the fact of transmitting money - i.e. recycling it between creditors and debtors – and the action of doing so – i.e. running the operational facilities to do it.

The areas in which my colleague and I believe banks hold an inadequate loss cushion are:

- a. Business with sovereigns that is 0% risk-weighted as long as the sovereign is rated in Investment Grade, even if it holds the lowest rating of BBB- (S&P system)
- b. Business rated 0% with Eurozone member states that have ceded control of the tools of monetary policy such that they are sub-sovereign
- c. Business with public sector entities, which are assessed based on support from a sovereign, even where:
 - i. The support is inferred rather than explicit, contained in undertakings not to sell shares or similar, or expressed in any other way than a guarantee
 - ii. The support comes at one, two or three steps removed from the sovereign (government agency, a different government-owned enterprise but directly owned by one or more government agencies, a commercial contract with a government-owned enterprise)
 - iii. The sovereign is a Eurozone member state and is only a sub-sovereign itself
- d. Business with other banks, a hangover from the initial Basel 1 treatment where business with OECD banks received a 20% risk-weighting, without reference to the rating of the bank, the rating of the sovereign which supposedly stood behind the central bank which supposedly stood behind the bank...
- e. Business secured on commercial or residential real estate
- f. Business secured on – or based on ownership and leasing of – cars, aircraft, ships
- g. Derivatives, which are often loans dressed up and the risk on which is based on calculations of the same type as proved so erroneous in the recent Archegos case. The implication of this is that Central Counterparties (CCPs), to whom over-the-counter derivatives trades are novated for valuation, clearing and settlement, are not nearly so creditworthy themselves as financial regulators like to believe, because they under-value the risk in their book of trades, require too low a margin, and accept security for the margin that they value using the same methodology as the banks and which would accord with categories (a) – (f) above.

There is a problem of circularity: a bond receives an Investment Grade rating because it meets criteria laid down by central banks for the bond to be included in a list of collateral eligible for central bank monetary and payment operations. Once it has that rating the bond is entered onto that list. The rating is confirmed at the following review in part because the bond qualifies as eligible collateral.

There is a problem of haircuts: bonds have been assigned a far lower haircut in the ECB list of eligible collateral (with which I am most familiar) compared to the haircut the same collateral must be assigned for the purposes of assessing the Liquidity Adequacy of a bank for the purposes of the bank's Basel III liquidity ratios (Net Stable Funding Ratio and Liquidity Coverage Ratio).

This does not add up to the banks creating money. It adds up to the banks taking on risks during their transmission activities for which they have an inadequate fractional reserve or loss cushion. Banks certainly do not create the funding for the loans they make: they have to contract the funding in order to make the loan.

How banks fund themselves

Banks get the funding for their assets from a variety of sources. One only has to look at the liability side of a bank's balance sheet. Banks fund themselves from:

1. their shareholders
2. those who invest in their capital-like instruments
3. those who buy their medium-term debt instruments (which are not capital-like)
4. those who buy their short-term debt instruments (like Certificates of Deposit)
5. depositors into different types of account, whether at sight or at term
6. central banks

It is category 6 that has grown sharply since 2007-8, and indeed the central banks and the schemes they run (QE, APP etc.) have become significant indirect funders under categories 3 and 4, buying these instruments from banks in the secondary market.

Direct central bank funding for banks is usually on an overnight basis (although the ECB TLTRO programme is an exception to this). Funding is put at the bank's disposal on its settlement account in the high-value clearing. The finance needs to be collateralized (except in the case of TLTRO). That can either mean that the bank must pledge a portfolio of collateral, or that the funding derives from Repurchase Agreements conducted between the central bank and the commercial bank ('repo's').

How this is not directly linked to the funding of a loan to a customer

The making of a loan to a customer does not automatically cause a current account to be created as a liability in the same amount and at the same time. This statement was very concerning. If that is the basis for the enterprise then there is a considerable risk of embarrassment.

Departmental process chain in a bank

I have had the pleasure of working in several banks and within all the internal Business Units that would be involved. At the beginning of my career the bookkeeping had to be done on paper vouchers and the completion of those vouchers gives a complete overview. The fundamentals have not altered in the interim (something academics appear to dispute).

The internal Business Units are:

- Loan production/Relationship Management
- Credit Risk Analysis
- Loans administration
- Corporate Desk (Treasury Dealing Room)
- Money Desk (Treasury Dealing Room)
- Asset and Liability Management (Treasury Dealing Room)
- Treasury Dealing Room Middle Office
- Treasury Settlements
- Payment Processing
- Nostro Management and Reconciliation
- Accounting and Financial Control

Accounting for a loan, for a current account balance and for a deposit (at sight and at term)

When a loan is agreed, a loan account is opened in the name of the borrower and the loan amount is debited to it. This creates an asset on the bank's balance sheet. A credit contra-entry is needed so that the bank's bookkeeping balances.

The contra-entry would only be to a current account if the borrower already had one in the bank's books, AND the borrower had nominated it as the place where the loan proceeds should be disbursed to. No current account is automatically created.

Even if the loan proceeds were disbursed to a current account in the lender's books, the balance would not remain static as the writer infers, and sit there as an equal-and-opposite of the loan balance. The current account might have started in overdraft. If there were a residual credit balance it would be non-interest bearing. The borrower would withdraw the residual balance from the current account and put it on deposit at the same bank or a different one, at sight, overnight, on a notice account, on a fixed-term deposit account, in an investment in Certificates of Deposit or Commercial Paper, or else use the funds to pay off other loans and overdrafts, pay commercial invoices or whatever.

In the example with the least impact to the lending bank, where they would put the money into an interest-bearing deposit account with that same bank, the money would be moved off the current account and into a different account, leading to accounting entries of Debit current account with the contra-entry Credit deposit account. The Current and Deposit accounts sit in different places in the bank's account chart, so that the balances will roll up into the bank's balance sheet into 'Non-interest bearing deposits at sight' and 'Interest bearing deposits at sight' respectively.

If the deposit account was for a fixed term, it would roll up into 'Interest bearing deposits at term'.

External disbursement of a loan

However, in most cases, the loan is not disbursed to a current account in the lending bank's books, but is disbursed by its being paid away via a high-value payment to a different bank of the borrower's nomination.

In that case the contra-entry to the debit on a loan account would be a credit entry to the bank's nostro account, from which the loan amount gets paid away.

For a £pounds loan by Lloyds Bank, the contra-entry would credit Lloyds' Settlement Account at the Bank of England, as the loan proceeds would be paid out via CHAPS.

For a US\$ loan by Lloyds Bank, the contra-entry would credit Lloyds' account at its US\$ nostro agent.

A payment order must then be raised to order either the Bank of England or Lloyds' US\$ nostro agent to debit Lloyds' account and pay out as per the borrower's instructions.

Nostro reconciliation and residual asset and liability

When the statement on Lloyds' Settlement Account or on its US\$ nostro account comes in, the payment away to the borrower's account will appear under the debit entries, and the nostro reconciliation will match off that debit entry against the credit entry, which was the contra-entry of the debit to the loan account.

Then the bank is left with the loan balance as an asset, and possibly, if nothing else was done, a deficit on the respective nostro as a liability: on Lloyds' Settlement Account at the Bank of England or on its account at its US\$ nostro agent.

Role of Treasury Room

The Treasury Room then takes over and adds this one loan payment away to all the other payments away by currency, and to all incoming payments by currency, and projects the bank's balance on its nostro account by currency. The Treasury Room has to invest any residual positive balances, and fund any residual negative balances, at the best rate available in the currency concerned.

The result of all that is that the bank's nostro accounts show a small positive balance or a completely zero balance at end-of-day. Which it is will be determined by central bank rules, the local regulatory environment and/or sweep arrangements. A CHAPS Settlement Account is not permitted to go into overdraft intraday, and its end-of-day balance – which can only be positive if it is not zero - is swept into a Reserve Account overnight. A US\$ nostro account is permitted to go into overdraft intraday; if it is permitted to remain in overdraft overnight (which it may not be depending on which US state the nostro agent is located in), it will be charged a punitive rate. Instead banks will try to bring their US\$ nostro account to a positive balance at end-of-day and may have the balance swept overnight into an 'investment account', in order to avoid charges that can apply to their nostro, which is a Demand Deposit Account, were a balance to remain on it overnight.¹

Below is how it works in terms of the more detailed mechanics of the making of the loan, and the example used is where the loan is disbursed to a current account in the lending bank's books, and the borrower then puts the funds on overnight deposit with the same bank.

The creation of the loan, its term, base rate, margin and where it was being paid out from and where to all gets advised to Lloyds' Treasury Room straight away. The Treasury Room incorporates this new asset into its Asset and Liability Management position.

If the loan is paid out to a current account, that liability gets incorporated as well and at once, but its details will be altered at the point the borrower contracts to make an overnight deposit.

The asset (the loan) and the deposit (overnight deposit) are both logged into the Asset and Liability Management position, but without their being linked. They are not two parts of a linked transaction.

They roll up separately into accounts in the bank's General Ledger as determined by their details, which do not match one another:

1. the asset may be for 1, 3 or 6 months, whereas the current account is on demand
2. the interest basis for the loan will likely be an interbank rate while the basis for the overnight deposit is an overnight rate, and the current account is non-interest bearing

Treasury Room's approach to the bank's funding

The Asset and Liability Management positioning function in the Treasury Room groups the bank's assets and liabilities by their maturity, into buckets such as:

- a) up to 2 hours
- b) between 2 and 5 hours
- c) between 5 hours and end-of-day
- d) tomorrow
- e) the day after tomorrow
- f) 3 days to 1 week
- g) 1 week to one month
- h) 1-3 months
- i) 3-6 months
- j) 6 months to 1 years

The loan will go into bucket h or i, whereas the overnight deposit will go into bucket d.

The Treasury Room will look at the position, at the mismatches, at their funding and investment options and costs/returns, and make loans and investments themselves accordingly.

¹ An example of charges caused by a balance on a Demand Deposit Account are the periodic levies made for the purposes of maintaining the Federal Deposit Insurance Corporation's compensation scheme for retail customers

Options to fund a loan: direct and indirect

Treasury's funding options regarding the loan would include to match-fund it with an interbank deposit of the same tenor and interest basis, paid to the Settlement Account if in £pounds, or the US\$ nostro account if in US\$.

Other options to increase the balance on the bank's nostro accounts include:

- x) create liquidity on the CHAPS Settlement Account by repo-ing gilts with the Bank of England within the CREST system, and transferring the proceeds from the bank's CREST settlement account to the bank's CHAPS Settlement Account
- y) package up assets that are eligible under Quantitative Easing, sell them to the Bank of England, and receive settlement on the CHAPS account
- z) create liquidity on the US\$ nostro by issuing a US\$ certificate of deposit, with proceeds paid to the US\$ nostro account

Two of the examples obtain the funding from commercial sources: match-funding the loan from an interbank deposit and issuing a Certificate of Deposit. Unfortunately the interbank market has reduced dramatically in size and liquidity since 2007-8.

Distinction between types of central bank operation

Example x could be regarded as a normal liquidity operation conducted with a central bank. The premise is that the bank always has a significant portfolio of gilts and it repo's a portion of them with the Bank of England, so creating liquidity. If it is an intraday operation the gilts go back into the bank's portfolio at end-of-day, the bank's CREST settlement account is re-debited, and the bank has to move funds to that account from its CHAPS Settlement Account.

Example y is money creation through the central bank, and is the category that has most expanded since 2007-8. The premise is not given that the bank already had a portfolio of these assets; equally as likely it has created them in the form, amount and particulars because the bank knows it can refinance them at the central bank. This can become a conveyor belt: the month's new mortgages are packaged up at month-end, sold to the central bank, and the resulting amount received is used to temporarily fund the next month's new mortgages, until they are sold on to the central bank and the whole thing starts again.

The extrapolation of Example y over different countries, currencies and asset classes is the big story, but it is one of money creation by central banks, and money transmission by commercial banks. The commercial banks run credit and other risks, and hold (in the combined view of myself and my colleague) an inadequate loss cushion: that too much money is transmitted given the risks the banks run and the capital they have - but they are not the origin of the money.

Allocation of capital

There is not one single approach to whether banks overtly allocate capital to the funding of a specific loan, but the methodologies differ by not a great deal, and sit under two mainstream options within major OECD banks. Both are based on the Internal Ratings-Based methodology (IRB) according to the Basel/Bank for International Settlements global guidelines.

Banks in non-OECD countries may still not be running IRB, and may continue to run what is known as the Basel 3 Standard Approach, which was the sole approach under Basel 1. It means that business is not risk-weighted at a granular level, but that categories of business may qualify for a reduced capital allocation e.g. when a loan is backed by a mortgage.

The approaches in banks in OECD countries are overwhelmingly based on IRB, so we can allow ourselves to concentrate on that.

Calculating the CCF, the RWA and the capital required to make a loan

Under both of the mainstream approaches the bank first calculates the amount of capital that the making of this loan requires it to have, by converting the loan's nominal amount into its Risk-Weighted Asset amount (RWA) through its IRB methodology. The resultant RWA is multiplied by the bank's Regulatory Capital Threshold (which is normally 7-10%) to determine the amount of capital required.

The task of applying the IRB is normally carried out in the Credit Risk Analysis unit, based on a manual of credit policies and templates. First a dataset of information on the borrower is captured, to ascertain the Customer Risk Rating. Then a dataset of information on the loan particulars is captured, to ascertain the Facility Risk Rating. These two Ratings are combined to ascertain the Credit Conversion Factor (CCF): the factor by which the nominal amount of the loan must be multiplied to determine its RWA.

The RWA is further multiplied by the Regulatory Capital Threshold to ascertain the required amount of capital.

For argument's sake let's say that a lending bank's CCF for a given loan of £10 million is 44.44%: the RWA is therefore £4,444,444. If this bank's Regulatory Capital Threshold is 9%, the making of the loan requires the bank to have capital of the RWA x 9%, meaning, in this case, £4,444,444 x 9% = £400,000. This is the same as 4% of the loan's nominal amount.

Interest basis, margin, and the Return on Capital

A loan of this size would historically have carried an interest rate linked to LIBOR, with a margin added on top: let's assume the margin is 2% and that LIBOR is 3%.

The bank's Return on Capital target would likely then be 13%, as the target would be set at 10% higher than the interbank rate of LIBOR. The logic of this is that an investor must be offered a substantially higher return for investing in the bank's capital than for investing in the bank's senior debt. The way of investing in the bank's senior debt would be to buy its Floating Rate Notes, which are assumed to yield LIBOR. The logic is that the same investor needs to receive an uplift of 10% in yield to compensate for their travelling right to the back of the creditor queue in a liquidation i.e. by taking more risk.

Worked examples of the mainstream approaches as they are applied to funding a specific loan

Now let's look at how banks regard the loan of £10 million as being funded.

Approach 1: the bank sees the loan as funded with 96% deposits/third-party funding and 4% with capital

The Financial Control unit of the bank makes sure that the internal Customer-Facing Business Unit responsible for the loan is levied with two internal charges:

- 13% per annum Capital Charge on the 4%
- a cost-of-funding of LIBOR on the 96%

It would be the role of the internal Treasury/Money Desk to make sure that the funding was obtained at LIBOR and no higher, from whichever source the funding was drawn. Any difference between the actual cost of funding and LIBOR would accrue to the credit or debit of the internal Treasury/Money Desk.

The Customer-Facing Business Unit responsible for the loan would receive from the borrower:

- LIBOR + 2% on £10 million = 5% on £10 million = £500,000

The Customer-Facing Business Unit responsible for the loan would be charged:

- LIBOR on £9.6 million = 3% x £10 million = £288,000
- 13% on £400,000 = £52,000

Result – the Net Interest Revenue of £212,000 is diminished by the Capital Charge of £52,000 down to £160,000. This profit in excess of the Return on Capital target remains in the Customer-Facing Business Unit.

Approach 2: the bank sees the loan as funded with 100% deposits/third-party funding

The Financial Control unit of the bank makes sure that the internal Customer-Facing Business Unit is charged the cost-of-funding on 100% of the loan amount. The LIBOR element in both Interest Received and Interest paid is a wash through the internal Customer-Facing Business Unit, who then sit initially with the interest margin of 2% on £10 million, or £200,000.

In a separate process the Financial Control unit would make a periodic charge to the Customer-Facing Business Unit for their consumption of the bank's capital, in respect of all the business that the Customer-Facing Business Unit was responsible for. The Capital Charge under this approach might be lower to compensate for the Customer-Facing Business Unit having already paid out LIBOR on the amount on the entire loan rather than on 96% of it, but the Capital Charge could also be identical; there would be some considerable and ongoing negotiation on this point.

Given identical loan particulars, and an identical Capital Charge, the economics for this case work out as follows:

The Customer-Facing Business Unit responsible for the loan would receive from the borrower:

- LIBOR + 2% on £10 million = 5% on £10 million = £500,000

The Customer-Facing Business Unit responsible for the loan would be charged for the funding:

- LIBOR on £10 million = 3% x £10 million = £300,000

Net Interest Revenue in the Customer-Facing Business Unit:

- £500,000 - £300,000 = £200,000

Capital charge made periodically into the Customer-Facing Business Unit:

- 13% on £400,000 = £52,000

Result – the Net Interest Revenue of £200,000 is diminished by the Capital Charge of £52,000, down to £148,000. This profit in excess of the Return on Capital target remains in the Customer-Facing Business Unit.

Critique of email of 22 February

The writer is correct that the creation of a loan results in a loan account being debited, generating an asset on the bank's balance sheet. The remainder of his argument is incorrect.

He goes off track at once with 'there must always be a matching liability on the b/s'. Yes, there must be a credit voucher in the same amount as the debit voucher that creates the loan, and the bank's balance sheet must balance at its foot, but loans do not have to be match-funded (although they can be), and certainly a bank does not maintain a discrete liability on one side of its balance sheet which corresponds to an earmarked asset on the other.

The writer confuses having a matching balance sheet at the level of each transaction (which is an incorrect assertion) with having matching credit and debit vouchers for each transaction (which is correct, albeit self-evident as without it the transaction would not reach the book-keeping).

The question is what credit entry is made in the same amount and at the same time as the debit voucher which creates the loan. The writer has his view: 'that liability is recorded as a current a/c deposit in favour of the customer. It cannot be any other way.'

It can, and it is. The credit entry identifies the mechanism through which the loan proceeds are put at the borrower's disposal.

A loan MIGHT be disbursed into a customer's current account if the customer already had one at the lending bank AND if the customer specifically instructed the bank to pay the loan proceeds into it, but a current account is not automatically opened when a loan is made.

Disbursement to a current account at the lending bank is one (and in my experience the least frequent) of a number of disbursement options, exceeded in frequency by:

1. Disbursement to the borrower's main account in the loan currency, wherever that is held (a major borrower might have bilateral loan facilities at twenty banks whereas they hold their main current account with just one of them: the remaining nineteen lending banks disburse their loans via a high-value payment to the current account held with the one);
2. Disbursement to an agent bank under a syndicated loan, if this particular borrowing is a drawdown under a syndicated facility;
3. Disbursement to a solicitor or notary for a real estate loan;
4. Disbursement to a trust agent for the closing of the financing of a ship or aircraft;
5. Disbursement to an Issuing and Paying Agent under Commercial Paper Programme, if this particular borrowing is either a drawdown under a Commercial Paper Back-Up Line of Credit or the bank's loan is made in the form of a purchase of Commercial Paper.

All five of these options would involve a credit contra-entry to one of the bank's own payment accounts. If Lloyds Bank in the UK was having to pay away £10 million, the contra-entry would be a credit to their CHAPS Settlement Account at the Bank of England. If it was US\$10 million Lloyds would credit their US\$ nostro account. If it was Yen, they would credit their Yen nostro account.

The accounting is little different from an ordinary money transfer: Debit to an account identifying a customer (reducing its credit balance or increasing its overdrawn balance); Credit to the payment account of the bank from which the money transfer is to be disbursed.

This being the case, the writer's final sentence is also incorrect: 'When the customer draws down on his loan agreement it is recorded on both sides of the balance sheet. Neither other deposit balances nor the bank's own capital are involved. Therefore, the loan creates the deposit.'

On the contrary, other customers' deposits may well be involved, and the bank's own capital is certainly involved. The bank must allocate a given fraction of its capital to back the loan. Whether or not this is allocated as part of the direct funding for the loan is discussed in the previous section. The remainder of the funding for the loan will be drawn from a mix of sources such as the deposits of other customers, deposits taken from other banks, the proceeds of liquidating securities and so on. The Customer-Facing Business Unit responsible for the loan does not see this, though, as the bank's funding mix is determined by the Treasury Room/Money Desk and not at the level of individual loans: no liability must be or is automatically contracted that matches the loan in every particular. There is no matching between the two as the writer claims. The loan certainly is not funded by itself.

If the writer's claims were true, the bank could not release the loan proceeds to the borrower to let them use the money: to make other investments, to pay down other loans, to buy physical assets, to pay wages and suppliers. Instead the bank would have to put a block on the customer's current account so as not to lose its funding for the loan.

In real life the borrower does come into control of the loan proceeds and does use them for any and all of these purposes. This incontrovertible fact gives the lie to the writer's entire line of argument.

If that were not enough, one could consider the converse argument which must be true if the writer's main argument about a loan creating its own deposit is true: that when a bank takes a deposit, it creates a loan with the same particulars in the customer's name. That does not happen. Neither happens.

BL experience

Banks where BL operated related processes and policies as a practitioner:

- Lloyds Bank International Antwerp/Zurich/Amsterdam
- Sanwa Bank
- Manufacturers Hanover/Chemical
- BankBoston

Banks where BL validated/re-engineered related processes and policies as a PwC Change Management consultant:

- Canadian Imperial Bank of Commerce
- European Investment Bank
- Lloyds TSB
- Standard Chartered Bank (London)
- Britannia Building Society

Banks where BL advised on related processes and policies as an independent consultant:

- Societe Generale
- Deutsche Bank
- Unicredit Italy and Germany

Banks where BL advised on the integration of the IBOS service into related processes and policies as the General Secretary of IBOS Association (www.ibosbanks.com):

- Unicredit Italy/Germany/Austria/Romania
- KBC Belgium/Netherlands/Poland/Czech Republic/Slovakia/Hungary/Bulgaria
- Intesa SanPaolo Italy/Slovenia
- RBS/Natwest/Ulster Bank
- Santander Spain/Portugal/Brazil/Mexico/Chile/Uruguay/Poland (Bank Zachodni)/China (Bank of Shanghai)
- US Bank
- Silicon Valley Bank
- PNC Bank
- Royal Bank of Canada
- Nordea Denmark/Norway/Sweden/Finland

BL/29.3.22