

# SOURCES AND METHOD

## INSURANCE AND PENSION STATISTICS

Financial Statistics  
Securities and External Statistics

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*The Insurance and Pension statistics are a collection of sector-based statistics. The statistics contain monthly and quarterly pension data for the companies in the insurance and pension sector.*

### **INSURANCE AND PENSION STATISTICS**

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#### **0 Administrative Information about the Statistical Product**

##### **0.1 Name**

The Insurance and Pension statistics collection (I&P) includes:

- Balance sheets of insurance companies and pension funds
- Insurance provisions of insurance companies and pension funds
- Investments of insurance companies and pension funds, by country and currency
- Investment returns of insurance companies and pension funds, by country and currency
- Currency exposure and hedging of insurance companies and pension funds

##### **0.2 Subject area**

Insurance and pension statistics

Money and credit market

### **0.3 Responsible Authority, Office, Person etc.**

Danmarks Nationalbank, Statistics, Securities and External Statistics:

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### **0.4 Purpose and History**

The purpose of the statistics is to show the balance of I&P-companies with focus on their investments, returns, liabilities and hedging.

### **0.5 Users and Application**

The statistics are aimed at users who have an interest in the development of Danish I&P-companies and more generally the financial markets in Denmark. The users are I&P-companies, universities, Danmarks Nationalbank, ministries, interest groups, households and others.

### **0.6 Sources**

The information collection system for the I&P-statistics is based on the following main sources:

- Reports from Danish I&P-companies and branches of foreign R&D companies
- Investment fund statistics
- Securities statistics

The reporting population includes Danish I&P-companies, as well as branches of foreign I&P-companies operating in Denmark. Investments and transactions made by Danish companies' foreign entities are not included in the statistics.

### **0.7 Legal Authority to Collect Data**

Pursuant to section 14a of the [National Bank of Denmark Act](#), inserted by Act no. 579 of 1 June 2010, Danmarks Nationalbank has separate authority to collect, compile and publish statistical information to perform its tasks. The collected information may be used for other purposes than compilation of statistics. This particularly applies in connection with oversight of financial stability and when laying down monetary and foreign-

exchange policies, as well as in relation to Danmarks Nationalbank's participation in the European cooperation in the financial area.

## **0.8 Response Burden**

The response burden lies with the I&P companies. The companies report their financial assets and liabilities on a monthly basis, with the exception of insurance provisions, which are reported on a quarterly basis. In the case of smaller non-reporting I&P-companies, investment details are provided by the securities database of Danmarks Nationalbank.

## **1 Contents**

### **1.1 Description of contents**

The statistics show monthly returns on investments, transactions and stocks, as well as quarterly data concerning the liabilities of I&P-companies. In addition, the statistics include monthly data on the companies' total currency exposure and hedging.

### **1.2 Statistical concepts**

All amounts in foreign currency are translated into Danish kroner at the exchange rate prevailing on the trading day.

The statistics include the following dimensions:

- Company type
- Values
- Balance sheet item
- Provision type
- Type of investment
- Counterparty sector
- Country
- Currency

#### ***Company type***

The breakdown by company type is based on the guidelines for sector breakdown in the European System of Accounts (ESA2010). The industrial classification is in accordance with the joint European nomenclature NACE Rev.2, which is the basis for the Danish industrial classification of all economic activities (Dansk Branchekode 2007 (DB07)) from Statistics Denmark. For various company types, sector and industry codes are stated in brackets below.

The statistics is broken down by the following company types:

- Life insurance companies (sector code: S.128, industry code: K12)  
Consists of all financial corporations which are principally engaged in financial intermediation as a consequence of the pooling of life insurance risks, mainly in the form of direct insurance.
- Pension funds (S.129, K15)  
Consists of all financial corporations which are principally engaged in financial intermediation as a consequence of the pooling of social risks and needs of the insured persons (social insurance). Pension funds as social insurance schemes provide income in retirement, and often benefits for death and disability. E.g. the sector comprises ATP (The Danish Labour Market Supplementary Pension). The Employees' Expense Fund (LD) and the Social Pension Fund (DSP) are not included in the statistics.
- General insurance (S.128, K14 & K13)  
Consists of all financial corporations which are principally engaged in financial intermediation as a consequence of the pooling of non-life insurance and reinsurance risks.

The statistics provide fund look-through of Danish invest funds (S. 124) owned by I&P companies. This shows which investments (e.g. shares and bonds) the I&P sector hold through investment funds.

The statistics do not provide fund look-through of foreign investment funds.

## **Values**

### **Stocks**

The stocks are calculated as the market value of assets on the closing balance. Bonds etc. are quoted on a dirty price basis, i.e. including accrued interest.

The stocks in the investment tables are stated as net assets, where derivatives (both assets and liabilities), loans (liabilities) and lending (assets) have been netted. Net measurements typically result in a lower position than gross measurements. Consequently, the assets in the balance sheet table cannot be compared with those in the investment tables, as assets and liabilities are not netted in the balance sheet.

The investment tables provide fund look-through of Danish investment funds owned by I&P companies. This allows the user to determine which

assets are held by I&P companies through Danish investment funds. Stocks through fund look-through are calculated by the following formula:

$$\text{Stock} = \text{Market Value(Closing Balance)} * \text{I\&P Ownership (Closing Balance)}$$

The Danish investment funds report how large a percentage of the funds are owned by I&P companies. This ownership percentage is then applied to the underlying investments in the fund. The above measure shows the stocks held by I&P companies through Danish investment funds.

### **Returns**

Monthly returns (both non-adjusted and currency-adjusted) are calculated in Danish kroner using the following formulae:

$$\text{Returns} = \text{Price changes} + \text{Exchange rate changes} + \text{Dividend} \\ + \text{Accumulated interest}$$

$$\text{Currency-adjusted Returns} = \text{Price changes} + \text{Dividend} + \text{Accumulated interest}$$

The currency-adjusted returns do not include price changes of currency derivatives.

The returns reflect not only returns generated through the investment of pension assets, but also the returns on, among other things, investments of owner's equity, other technical provisions, etc.

The price changes do not include accrued interest. The accumulated interest contains both coupon payments and accrued interest.

When conducting fund look-through of Danish investment funds, the returns on the underlying investments in the funds are calculated using the end-of-month share owned by I&P companies.

$$\text{Returns} = (\text{Price changes} + \text{Exchange rate changes} + \text{Dividend} \\ + \text{Accumulated interest}) * \text{End-of-month I\&P share}$$

### **Return on Investment in per cent**

For each month, the return on investment in per cent is based on the following formula:

$$\text{Return on investment} = \frac{\text{Returns}}{0.5 \times \text{Net transactions} + \text{Opening balance}}$$

Where *Net transactions* stands for the total net transactions of the month, and *Opening balance* is the stock at the beginning of the month. An adjustment of  $0.5 \times \text{Net transactions}$  is added to the opening balance to account for transactions during the month. The factor 0.5 is chosen based on the assumption that transactions are evenly distributed throughout the month.

The above calculation is an approximation that may have certain limitations. Some of these limitations include:

1. The adjustment by  $0.5 \times \text{Net transactions}$  in the denominator. This is used since reports do not state the time of month that specific purchases/sales take place.
2. The calculations do not take into account the exposure value of derivatives. Instead, market value is used as a measure of stocks (see the section on derivatives). Therefore, the statistics do not include the return on investment for derivatives alone; as such a calculation would not be meaningful.

### ***Net transactions***

Net transactions are calculated at market value. The transactions are recorded at net value on the trading date, i.e. as net purchases on the assets side and net sales on the liabilities side. Transactions also include withdrawals and repayments on bonds.

The calculation does not include fees, commissions and other similar payments for services provided in connection with the transaction.

For fund look-through of Danish investment funds, net transactions are calculated based on reports from the investment funds. However, to account for the shift in I&P shares in the investment funds, the underlying net transactions of investment fund assets are calculated as:

$$\begin{aligned} \text{Net transactions} &= \text{Closing balance} * \text{End-of-month I\&P share} \\ &\quad - \text{Value changes} * \text{End-of-month I\&P share} \\ &\quad - \text{Reclassifications} * \text{End-of-month I\&P share} \\ &\quad - \text{Opening balance} * \text{Start-of-month I\&P share} \end{aligned}$$

Therefore, net transactions are calculated residually, after a scaling of the relevant figures using I&P ownership percentages. This reflects the net transactions made by I&P companies through Danish investment funds, both in relation to fund transactions on behalf of I&P companies, and the

indirect transactions carried out by I&P companies through changes in ownership etc.

It is assumed that price and exchange rate changes occur after transfer of ownership, while reclassifications take place at the beginning of the month.

### ***Derivatives***

The stocks of derivative contracts are calculated at market value, which typically has an initial value close to zero. The development of the market values of the derivatives will then reflect the returns until the contract is cleared or settled. Hence, the stock on derivatives does not reflect the risks associated with its underlying asset type, but instead the value of the derivative if it is settled at a given time. For the stocks to reflect the risk of the derivative, it is necessary to use notional value of the derivative. The statistics do not include the exposure values of the I&P-sector's total derivatives. However, exposure values for currency derivatives are listed in the table "Currency exposure and hedging of insurance companies and pension funds".

### ***Relationship between flow and stocks***

The returns and transactions calculated in the statistics do not equate that total sum of differences from opening to closing balance. Consistency between opening and closing balance is ensured as follows:

$$\begin{aligned} \textit{Opening balance} + \textit{Price changes} + \textit{Exchange-rate changes} + \textit{Transactions} \\ + \textit{Reclassifications} = \textit{Closing balance} \end{aligned}$$

Reclassifications include corrections, changes in population and definitions, or other technical changes.

### ***Pension contributions, payouts and other changes (insurance provisions)***

- Contributions:  
Consists of the total pension contributions paid
- Payouts:  
Consists of the total pension benefits and other payouts before payment of taxes
- Other changes:  
Consists of premiums and payouts on general insurance, value changes and more. Provision changes due to chang-

es in underlying population are not included in this category.

### ***Currency exposure, hedged and not hedged***

I&P companies report monthly data on currency exposure and hedging, supplemented by information from the investment funds owned by the I&P companies.

Currency exposure is the total position in a given currency. The calculation takes into account currency exposure through Danish investment funds and hedging of the same to the extent that the mutual funds are owned by an insurance or pension company.

The hedged currency exposure consists of the sum of currency derivatives, i.e. derivatives where the underlying asset is currency. The primary instruments used for currency hedging are forward exchange contracts and cross currency swaps.

The part of the exposure that is not hedged (net exposure) is calculated as currency exposure from the total balance sheet and exposure from derivatives other than currency exposure derivatives, i.e. derivatives where the underlying asset is currency, less the hedged exposure.

As institutional investors, companies in the I&P sector play an important role in connection with the purchase and sale of Danish kroner. Danmarks Nationalbank applies, among other things, data to identify players behind the buying and selling of kroner as part of monitoring the fixed exchange rate policy.

### ***Balance sheet items***

*The statistics contain the following balance sheet items*

#### 3. Financial assets

- Securities (see type of investment)
- Other assets:  
Typically adjusting entries, prepaid insurance premiums, goodwill, prepaid rent, deferred Typisk periodeafgrænsningsposter, forudbetalte præmier til forsikringselskaber, goodwill, forudbetalt leje, deferred pension investment return tax receivable etc.

#### 4. Liabilities

- Owner's equity:



Defined as the sum of assets less the sum of liabilities (including insurance provisions), as defined in the Executive Order on Financial Statements.

- Other liabilities  
Typically adjusting interests, accrued dividend payments, accrued bonus liabilities towards customers, accrual of pension investment return tax owed etc.

### ***Provision type***

The insurance provisions are calculated as described in the Executive Order on Financial Reports issued by the Danish FSA.

The provisions cover both Danish and foreign liabilities.

The provisions in the statistics are broken down by the following categories:

- Provisions – average rate products  
Life insurance or investment contracts covered by Class I and Class VI in the classification of the product types that life insurance companies may be licensed to issue, cf. Annex 8 of the Financial Business Act
- Collective bonus potential  
The part of the surplus that is not distributed as bonus to the individual insurance policies.
- Provisions – market rate  
Insurance or investment contracts associated with investment funds, cf. Class III of the classification of the product types that life insurance companies may be licensed to issue, cf. Annex 8 of the Financial Business Act.
- *Premium provisions*  
The expected present value of all future cash flows relating to future claims events on existing policies.
- Claims provisions  
The expected present value of future cash flows relating to claim events which have occurred in the past.
- *Other provisions*  
This item comprises special bonus provisions, risk margin, profit margin, bonus and premium discounts etc.

## ***Type of investment***

### 1.1. Shares and other equity

#### 1.1.1. Unlisted shares and equity

Consist of unlisted shares and other equity which are typically less liquid than listed assets.

### 1.2. Investment funds

Cover both certificate-issuing investment funds and custodian investment funds.

### 1.3. Bonds

#### 1.3.1. Government bonds

Comprise government bonds, treasury notes and treasury bills issued by the central government.

#### 1.3.2. Danish mortgage bonds

Bonds issued by Danish mortgage banks, including the bond categories RO, SDO, SDRO issued against mortgage in real property. Junior covered bonds are not included in this category.

### 1.4. Derivatives

A derivative is a financial instrument whose value is derived from other financial instruments, exchange rates, goods or indicators. The derivatives item consists of interest rate derivatives, currency derivatives, credit derivatives, commodity derivatives and more.

#### 1.4.1. Interest rate derivatives

Derivatives with interest rate as the underlying instrument type. This includes interest rate swaps, interest futures, interest options etc.

#### 1.4.2. Currency derivatives

Derivatives with currency as the underlying instrument type. This includes FX swaps, cross-currency swaps, currency futures, currency options, etc.

### 1.5. Deposits and net lending

Loans, lending and deposits, netted

#### 1.5.1. Net lending

Loans and lending, netted

### **Counterparty sector**

The breakdown by sector is based on guidelines from the European System of Accounts (ESA2010). The industrial classification is in accordance with the joint European nomenclature NACE Rev.2, which is the basis for the Danish industrial classification of all economic activities (Dansk Branchekode 2007 (DB07)) from Statistics Denmark. For various company types, sector and industry codes are stated in brackets below.

- Non-financial corporations (S.11) consist of institutional units which are independent legal entities and market producers, and whose principal activity is the production of goods and non-financial services.
- Property (industry code LZZ) is a subcategory of non-financial corporations and consists of real estate and lending.
- Financial corporations (S.12) consist of central banks, deposit-taking corporations and money market funds, investment funds excl. money market funds, other financial intermediaries and captive financial institutions and money lenders, financial auxiliaries, insurance corporations and pension funds.

### **Country**

The breakdown by country follows the ECB Regulation on Balance of Payments and Capital Balance Statistics (ECB / 2011/23) with subsequent amendments (ECB / 2013/25).

The BRIC group consists of Brazil, Russia, India and China.

### **Currency**

The statistics apply the ISO 4217 standard for breakdown by currency.

Derivatives are not broken down by currency and are therefore not included in the currency breakdown of the investments.

## **2 Time**

### **2.1 Reference period**

Balance sheet items and insurance provisions are calculated on a quarterly basis. Investment stocks and flow and currency hedging are calculated on a monthly basis.

## **2.2 Date of publication**

The statistics are published quarterly, two months after the end of the quarter.

However, investment stocks and flow and currency hedging are published every month, one month after the end of the month.

## **2.3 Punctuality**

The statistics follow the same publishing principles as the balance of payments statistics.

## **2.4 Frequency**

The statistics are published every quarter and every month, but with difference in contents cf. item 2.2.

## **3 Accuracy**

### **3.1 Overall accuracy**

The statistics cover more than 98 per cent of the Danish I&P sector (measured on the balance sheet). The calculation of the I&P companies' currency exposure and currency hedging is based on a separate reporting basis, which covers more than 90 per cent. of the Danish I&P sector (measured on the balance sheet).

Due to the high ratio of coverage, the degree of reliability is primarily related to the quality of individual reporting from the respondents and the information on securities in Danmarks Nationalbank's securities database. The overall reliability is estimated to be high.

### **3.2 Sources of Inaccuracy**

Potential sources of inaccuracy include the reported figures from respondents and Danmarks Nationalbank's securities database, as well as changes in the underlying population.

In particular, smaller non-life insurance companies and occupational pension funds are exempt from reporting directly to Danmarks Nationalbank, which is why data on these come from indirect sources such as the securities database. The indirect sources do not supply the liabilities side of the balance sheets, unlisted ownership interests, loans / deposits and derivatives. Reconciliations arising from such differences are insignificant in size. Changes due to new companies introduced to the underlying population will be included as reclassifications.

The majority of I&P companies report directly to Danmarks Nationalbank. Sources of uncertainty associated with these are mostly related to misinterpretation of definitions and incorrect information. Since there is rarely

a replacement among the reporters, it is considered that the probability of misinterpretation of definitions is not significant. Of course, the likelihood of incorrect information being reported is always present, but there is also a high likelihood of such errors being detected in the internal controls.

To take into account the discrepancies between different data sources and calculation methods in the statistics, certain figures have been reconciled at the highest levels of aggregation.

### **Balance sheet reconciliation**

The balance is reconciled in the table "Balance sheet of insurance and pension companies", so that the total value of assets is equal to the total value of liabilities. Reconciling items are placed under other liabilities or other assets.

Discrepancies between assets and liabilities are primarily due to two causes. The first is that information about non-R&D companies is only received on the asset side through indirect sources, so no corresponding liabilities are stated. The second reason is that the companies only compile a full financial balance sheet, which is why owner-occupied property and tangible assets are not included.

### **Reconciliation between total investments and investments through Danish investment funds**

There may be minor discrepancies between what the I&P company reports their shares in Danish investment funds are worth and what the investment funds themselves report on their underlying holdings. Among other things, this is due to different valuation methods, reporting errors and different update frequencies.

When fund look-through is applied, investment fund data is applied for valuation of assets broken down by investment type. However, on the highest level of aggregation for the I&P sector as a whole, the total value of listed assets is based on direct figures from the I&P sector, regardless of whether fund look-through is applied.

### **3.3 Measures on Accuracy**

For the year 2018, the average difference between assets and liabilities is 2 per cent. The average difference between I&P-owned stocks reported by investment funds and I&P-reported ownership in investment funds differ by 0.5 per cent.

## 4 Comparability

### 4.1 Comparability over time

Figures from the statistics are comparable over time. Certain inaccuracies may arise due to changes in the underlying population, see section 3.2

### 4.2 Comparability with other statistics

The statistics use intersections that are comparable to the national accounts' financial accounts, balance of payments, securities, investment fund and individual pension statistics. However, there will typically be some differences in calculation methods.

An example is the individual pension statistics which illustrate the pension wealth of households. The I&P statistics include households' pension wealth under the insurance provision item, which also includes provisions for risk cover regarding, for example, death and disability. Therefore, the figures from the individual pension statistics in the I&P statistics cannot be directly retrieved.

### 4.3 Coherence between Provisional and Final Statistics

The statistics are typically revised one quarter back when the present quarter is published; cf. also [Danmarks Nationalbank's revision policy for financial statistics](#) and the appurtenant [revision cycle](#).

## 5 Accessibility

### 5.1 Forms of Dissemination

Published quarterly via:

[www.nationalbanken.dk](http://www.nationalbanken.dk)

<http://nationalbanken.statistikbank.dk>

[www.statistikbanken.dk](http://www.statistikbanken.dk)

### 5.2 Basic Material: Storage and Usability

Data material is primarily received electronically and stored for further processing

### 5.3 Dokumentation

See Financial Statistics

### 5.4 Øvrige oplysninger

No further information is available.

## 6 Supplementary Documentation

None.