



EUROPEAN CENTRAL BANK

EUROSYSTEM

Manual on investment fund statistics

Based on regulation ECB/2013/38 and
guideline ECB/2014/15

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1 Aim of this manual

1. On 18 October 2013, the Governing Council of the European Central Bank (ECB) adopted Regulation ECB/2013/38 concerning statistics on the assets and liabilities of investment funds (hereinafter “the Regulation”). The Regulation was published in the Official Journal of the European Union on 7 November 2013¹ and entered into force on 27 November 2013. It defines the statistical standards for collecting and compiling investment fund (IF) statistics in the euro area. The Regulation is binding on Member States whose currency is the euro.
2. On 4 April 2014, the Governing Council of the ECB adopted Guideline ECB/2014/15 on monetary and financial statistics (hereinafter “the Guideline”). The Guideline was published in the Official Journal of the European Union on 26 November 2014² and entered into force on 1 January 2015. Article 19 of the Guideline contains provisions on the reporting by national central banks (NCBs) of statistics on the assets and liabilities of IFs.
3. This manual aims to further clarify and illustrate the requirements laid down in the Regulation and the Guideline; it contains no additional requirements and has no legally binding status. A clear and consistent understanding of the statistical requirements contained in the Regulation and the Guideline among statisticians in NCBs within the European System of Central Banks (ESCB) is essential for the production of harmonised IF statistics. The information in the manual may also be of interest to reporting agents and users of the statistics.
4. The manual is composed of 13 chapters. Chapter 2 provides further clarification of the definition of IFs. Chapters 3 and 4 provide guidance on how to classify IFs by nature of investment and by type of fund. Chapter 5 describes the further breakdown into “of which” positions. Chapter 6 describes the treatment of master-feeder fund structures. Chapter 7 describes the treatment of short positions. Chapter 8 provides guidance on the compilation of statistics based on security-by-security reporting by IFs. Chapter 9 describes the calculation of accrued interest on debt securities. Chapter 10 provides further guidance on the derivation of transactions for assets and liabilities reported by IFs on an aggregated basis. Chapter 11 describes possible methods to be used by NCBs for the purpose of estimating monthly data. Chapter 12 provides guidance on the derivation of data in the case of IFs which have been granted derogations. Chapter 13 provides details on the annual quality report to be provided by NCBs which choose to collect only the number of units or aggregated nominal amount in the security-by-security reporting.

¹ OJ L 297, 7.11.2013, p. 73.

² OJ L 340, 26.11.2014, p. 1.

2 Definition of investment funds

2.1 Collective investment undertaking

5. The Regulation defines an IF as “a collective investment undertaking that invests in financial and/or non-financial assets, within the meaning of Annex II, to the extent that its objective is investing capital raised from the public”. Money market funds (MMFs) within the meaning of Annex I to Regulation (EC) No 1071/2013 of the European Central Bank of 24 September 2013 concerning the balance sheet of the monetary financial institutions sector (ECB/2013/33)³ are not included in the definition of an IF.
6. In order to comply with the definition of an IF, an investment undertaking must be “collective”. An investment undertaking is considered a collective investment undertaking if the document which establishes the undertaking allows for investments from more than one investor. Therefore, even if an undertaking has only one investor, but legally (ex ante) more than one investor is allowed, the undertaking is considered to be collective.
7. The following examples are therefore considered collective undertakings:
 - funds in which there is a majority shareholder (for example, an insurance company), as long as other investors are also allowed in the fund (sometimes referred to as insurance subsidiaries).
 - subsidiaries of a parent IF whose only business is to act as “investment vehicles” for the parent fund, i.e. to undertake investments based on the investment decisions of the parent fund, as long as the document which establishes the subsidiary does not impose any restrictions on the number of the subsidiary’s shareholders/investors.
8. The following example is therefore not considered a collective undertaking:
 - undertakings which are linked to insurance products where the insurance company invests in the undertaking by buying shares/units issued by the undertaking and the insurance company is the sole holder of the shares/units of the undertaking and the undertaking is not accessible to other participants.

³ OJ L 297, 7.11.2013, p. 1.

2.2 Other legal acts identifying investment funds

9. The Undertakings for Collective Investment in Transferable Securities Directive (UCITS IV; hereinafter “the UCITS Directive”),⁴ as amended by Directive 2014/91/EU (UCITS V),⁵ is aimed at allowing collective investment schemes to operate freely throughout the European Union (EU) on the basis of a single authorisation from one Member State, while at the same time providing more effective and uniform protection for unit-holders.

Article 1(2) of the UCITS Directive defines UCITS as “an undertaking:

- (a) with the sole object of collective investment in transferable securities or in other liquid financial assets referred to in Article 50(1) of capital raised from the public and which operate on the principle of risk-spreading; and
- (b) with units which are, at the request of holders, repurchased or redeemed, directly or indirectly, out of those undertakings’ assets. Action taken by a UCITS to ensure that the stock exchange value of its units does not significantly vary from their net asset value shall be regarded as equivalent to such repurchase or redemption.”

Moreover, Article 3(a) specifies that the “following undertakings are not subject to this Directive:

- (c) collective investment undertakings of the closed-ended type”.

Thus, all undertakings falling under the UCITS Directive should also be part of the reporting population for IF statistics. As the Directive only applies to undertakings of the “open-end” type, they should be classified as such for the purpose of IF statistics.

10. Registering an IF under the UCITS regime has the benefit that once a fund is authorised in one Member State, it has the right to sell and promote the sale of its shares/units in any other Member State. Moreover, the term “UCITS” is a global brand for a transparent and tested regime that is recognised worldwide, which can be important for both institutional investors and retail investors.
11. Apart from the UCITS Directive, two regulatory initiatives have been implemented at EU level with a view to harmonising oversight of investment funds, namely the Alternative Investment Fund Managers Directive (AIFMD)⁶

⁴ Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) (OJ L 302, 17.11.2009, p. 32).

⁵ Directive 2014/91/EU of the European Parliament and of the Council of 23 July 2014 amending Directive 2009/65/EC on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) as regards depositary functions, remuneration policies and sanctions (OJ L 257, 28.8.2014, p. 186).

⁶ Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 (OJ L 174, 1.7.2011, p. 1). See also the European Securities and Markets Authority (ESMA) Guidelines on key concepts of the AIFMD (ESMA/2013/611), available on [ESMA's website](#).

and the European Venture Capital Funds Regulation⁷. Rather than regulate the funds themselves, both legal acts focus on fund managers who are not already covered under the UCITS Directive and require reporting to national competent authorities by manager and by fund. These legal acts may significantly enhance the identification and supervision of investment funds available at national level, especially private equity funds and hedge funds.⁸ Funds identified under these legal acts should be considered to be part of the IF reporting population.⁹

2.3 Treatment of investment funds in liquidation

12. Generally, funds in liquidation which still fulfil the definition are to be recorded in investment fund statistics, as the resolution process and the selling of the assets of a fund constitute economic transactions that are important for the analysis of the sector. In some cases, however, the management company of a fund sells the assets of the fund to a liquidator company whose sole purpose is to sell the assets and remunerate the investors of the fund. In these cases, to alleviate the reporting burden on the liquidator companies, it is acceptable to exempt the funds under liquidation from reporting under investment fund statistics.

⁷ Regulation (EU) No 345/2013 of the European Parliament and of the Council of 17 April 2013 on European venture capital funds (OJ L 115, 25.4.2013, p. 1).

⁸ The detailed reporting requirements of the AIFMD apply to all fund managers above certain thresholds (€100 million if leveraged, €500 million if not leveraged). Nevertheless, managers below the established thresholds also need to report at least annually to the national competent authorities. These are considered subject to investment funds reporting.

⁹ This includes funds which only have limited reporting obligations. For example, under Articles 3(3)(d) and 24(1), (2) and (4) of the AIFMD, funds report a limited set of instruments and exposures to the national competent authorities on annual basis.

3 Classification of investment funds by the nature of the investment

13. In accordance with the Guideline, NCBs shall report statistical information on IF assets and liabilities broken down into the following six sub-sectors: equity funds, bond funds, mixed funds, real estate funds, hedge funds, and other funds. The Guideline further specifies that funds of funds shall be classified under the category of the funds in which they primarily invest. This chapter provides guidance on how to classify IFs by nature of investment.

3.1 Investment funds, other than hedge funds, classified by the nature of their investment

14. Given the difficulties in adopting harmonised definitions of IFs classified by the nature of their investment, the glossary to the Guideline simply defines “bond funds” as IFs investing primarily in debt securities, “equity funds” as IFs investing primarily in equity, “mixed funds” as IFs investing in both equity and bonds with no prevalent policy in favour of one instrument or the other, “real estate funds” as IFs investing primarily in real estate, and “other funds” as the residual category (i.e. IFs other than bond funds, equity funds, mixed funds, real estate funds or hedge funds). The glossary further specifies that the criteria for classifying IFs by sub-sector are derived from the public prospectus, fund rules, instruments of incorporation, established statutes or by-laws, subscription documents or investment contracts, marketing documents, or any other statement with similar effect.
15. The classification of IFs by the nature of their investment may differ across countries. In certain countries, the investment policy may be subject to specific regulatory provisions that allow ex ante classification of IFs by the nature of their investment. In these countries, the classification of IFs by the nature of their investment should therefore be based on these national provisions.¹⁰
16. In countries where national regulatory provisions do not allow IFs to be classified by the nature of their investment, the classification should also be undertaken on an ex ante basis and be determined, as specified in the Guideline, on the basis of the IF’s prospectus or other relevant documents. The ex-ante approach consists in assessing the investment policy on the basis of what has been declared by the IF (or the fund manager) and not on the basis of the actual investments made.

¹⁰ The content of these provisions may, of course, differ across countries. Therefore, it may occur that IFs in one country are required to invest only 50% in a certain asset category in order to be classified in the respective IF sub-sector, while the threshold in another country may be higher (for example 75%, or even 90%).

17. In the case of IFs which define *lower limits* for the investment in specified asset classes, the word “primarily” in the definition of equity, bond and real estate funds should be understood as “more than 50%”. In other words, if an IF is defined, for example, as investing at least 50% of its assets in equity, the IF should be classified as an equity fund.
18. If the IF only defines lower limits and only invests in two instruments (bonds and equity), the IF should be classified as a mixed fund when the lower limits for each of the two instruments lie close to 50% (i.e. a fund is not required to have a predefined investment mix of exactly 50/50).
19. In the case of IFs which define only *upper limits* for the investment in specified asset classes, “primarily” should be interpreted with some flexibility. In general, the following guiding principles apply.
 - (a) If an IF defines an upper limit for one type of asset which shows that the IF assigns a prominent role to that specific asset class (even though it may not at all times invest more than 50% of its assets in it), the IF should be classified according to that asset class. For example, if an IF has defined its investment strategy as investing up to 90% of its assets in equity, the IF should be classified as an equity fund.
 - (b) If an IF defines upper limits of above 50% for both “debt securities” and “equity”, without stating any explicit preference for either asset class (see (d) below), the IF should be classified as a mixed fund. For example, if an IF has defined its investment strategy as investing up to 60% of its assets in equity and up to 80% of its assets in bonds, the IF should be classified as a mixed fund.
 - (c) If an IF defines upper limits from which a lower limit of “more than 50%” for the investment in a specific asset class can be derived, the IF should be classified according to that asset class. For example, if an IF has defined its investment strategy as investing up to 10% in bonds, up to 20% in money market instruments and up to 15% in non-financial assets and not investing in financial derivatives, the IF should be classified as an equity fund, since it can be deduced that the IF invests more than 50% in equity.
 - (d) If an IF defines upper limits of above 50% for different asset classes, but specifically states its primary objective under normal market conditions, then the IF should be classified according to its primary investment policy as declared for normal market conditions. For example, if an IF has defined its investment strategy as one of investing up to 90% of the assets in equity and up to 70% of its assets in bonds, but it specifically states in its prospectus that under normal market conditions its primary objective is to have an equity-oriented portfolio (i.e. investing primarily in equity) then the IF should be classified as an equity fund.
20. The aforementioned rules are aimed at obtaining a meaningful classification, thereby also improving the harmonisation of the “mixed funds” category.

21. Consideration has also been given to classifying IFs ex post, based on the asset allocation observed on a quarterly basis. In this case, an IF which actually invests more than 50% in equity would be classified as an equity fund and would be reclassified into another IF sub-sector if the proportion of equity investment falls below 50%. However, the ex post approach has a number of drawbacks: (i) the allocation of IFs to the different sub-sectors depending on the asset allocation at a specific point in time would not be representative of the investors' intentions (i.e. an investor decides in what fund to invest and is therefore ex ante aware of the IF's potential investment decisions); (ii) each time an IF is allocated to a different IF sub-sector, the NCB would have to report a reclassification adjustment,¹¹ which could potentially lead to a high level of instability in the stock data; and (iii) the NCBs would have to check the asset allocations of the IFs on a regular basis and reclassify them where necessary, which would entail significant costs for the compilers. Based on these considerations, the *ex ante approach should, in principle, be applied*. However, under certain specific circumstances, NCBs may also opt for the ex post approach. This includes, for example, borderline cases where the ex post approach is the only practical way to confirm the original classification.

3.2 Definition of hedge funds

22. In accordance with the Guideline, NCBs must report statistical information on assets and liabilities relating to hedge funds as a distinct sub-category of IFs. In the glossary to the Guideline, "hedge funds" are defined for statistical purposes as follows: "any collective investment undertakings regardless of its legal structure under national laws, which apply relatively unconstrained investment strategies to achieve positive absolute returns, and whose managers, in addition to management fees, are remunerated in relation to the fund's performance. For that purpose, hedge funds have few restrictions on the types of financial instrument in which they may invest and may therefore flexibly employ a wide variety of financial techniques, involving leverage, short-selling or any other techniques. This definition also covers funds that invest, in full or in part, in other hedge funds provided that they otherwise meet the definition. These criteria to identify hedge funds must be assessed against the public prospectus as well as fund rules, statutes or by-laws, subscription documents or investment contracts, marketing documents or any other statement with similar effect in respect of the fund."
23. Since a generally accepted definition of hedge funds does not exist, it has proved difficult to determine the key characteristics to be included in the definition of hedge funds for statistical purposes. Moreover, given the rapidly evolving business, some predominant criteria today may not be as relevant in a few years' time. The idea was therefore to define key characteristics which

¹¹ Only changes in investment policy which represent actual changes in comparison with the investment policy indicated in the prospectus or related documents should be treated as financial transactions. In this context, see also Annex IV, Part 2, Section 1 of the Guideline.

allow the identification of hedge funds and their differentiation from other IFs in the Guideline, while at the same time discussing hedge fund characteristics in more detail in this accompanying manual. This chapter therefore contains further clarification of the concepts used in the definition and discusses further potential characteristics of hedge funds which are not explicitly included in the definition given in the Guideline.

3.2.1 Further clarification of the concepts used in the definition of hedge funds

Positive absolute return

24. A key characteristic of hedge funds is their commitment to achieving positive absolute returns for their investors under all market conditions. This is in contrast to the practice of “IFs other than hedge funds”, which generally aim to track a specific market benchmark¹² and whose performance is then measured relative to that benchmark. Therefore, hedge funds typically indicate in their prospectus and in their advertising documentation that their performance is “de-correlated” from market trends. In order to achieve positive absolute returns, hedge funds pursue, and have the flexibility to apply, a much wider range of investment strategies than “IFs other than hedge funds”.

Investment strategies

25. In order to achieve positive absolute returns, hedge funds have few restrictions on the types of instrument in which they can invest or on the strategies they can employ.
26. The investment styles of hedge funds vary widely, taking different exposures, exploiting different market opportunities, and using different techniques and different instruments. The major strategies can be divided into three general groups, each of which includes a number of sub-categories. A detailed description of the main sub-categories is provided in Table 1. The three general groups are:
- *directional/market-trend strategies* consisting of attempts to anticipate market movements and taking positions based on market or securities trends;

¹² The goal of any IF other than a hedge fund is to beat the index, even if only modestly. If, for example, an index is down by 5%, while the IF is down only by 3%, the IF’s performance may still be considered good.

- *event-driven strategies* aimed at generating profits from price movements associated with specific corporate events, such as restructurings, takeovers, mergers, liquidations or bankruptcies;
- *market-neutral/arbitrage/relative-value strategies* that attempt to extract value from arbitrage opportunities targeted at exploiting market anomalies and inefficiencies. Market-neutral strategies try to avoid exposure to market-wide movements.

Table 1
Hedge fund strategies

Group	Strategy	Description
Directional strategies	Long/short equity hedge	This directional strategy involves equity-oriented investing on both the long and short sides of the market. The objective is not to be market neutral. Managers have the ability to shift from value to growth, from small to medium to large capitalisation stocks, and from a net long position to a net short position. Managers may use futures and options to hedge. The focus may be regional, such as long/short US or European equity, or sector-specific, such as long and short technology or healthcare stocks. Long/short equity funds tend to build and hold portfolios that are substantially more concentrated than those of traditional stock funds.
	Dedicated short bias	The strategy is to maintain net short as opposed to pure short exposure. Short-biased managers take short positions mostly in equities and derivatives. The short bias of a manager's portfolio must be constantly greater than zero to be classified in this category.
	Global macro	Global macro managers carry long and short positions in any of the world's major capital or derivatives markets. These positions reflect their views on overall market direction as influenced by major economic trends and/or events. The portfolios of these funds can include stocks, bonds, currencies and commodities in the form of cash or derivative instruments. Most funds invest globally in both developed and emerging markets.
	Emerging markets	This strategy involves equity or fixed income investing in emerging markets around the world. Because many emerging markets do not allow short selling, and do not offer viable futures or other derivative products with which to hedge, emerging market investing often employs a long-only strategy.
	Managed futures	This strategy invests in listed financial and commodity futures markets and currency markets around the world. The managers are usually referred to as commodity trading advisors (CTAs). Trading disciplines are generally systematic or discretionary. Systematic traders tend to use price and market-specific information (often technical) to make trading decisions, while discretionary managers use a judgement-based approach.
Event-driven strategies	Risk (merger) arbitrage	Specialists invest simultaneously long and short in the companies involved in a merger or acquisition. Risk arbitrageurs are typically long in the stock of the company being acquired and short in the stock of the acquirer. By shorting the stock of the acquirer, the manager hedges out market risk, and isolates his/her exposure to the outcome of the announced deal. The principal risk is deal risk should the deal fail to close. Risk arbitrageurs also often invest in equity restructurings such as spin-offs or "stub trades" that involve the securities of a parent and its subsidiary companies.
	Distressed/ high-yield securities	Fund managers invest in the debt, equity or trade claims of companies in financial distress or already in default. The securities of companies in distressed or defaulted situations typically trade at substantial discounts owing to difficulties in determining a proper value for such securities, lack of street coverage, or simply an inability on behalf of traditional investors to value accurately such claims or direct their legal interests during restructuring proceedings. Various strategies have been developed by which investors may take hedged or outright short positions in such claims, although this asset class is in general a long-only strategy. Managers may also take arbitrage positions within a company's capital structure, typically by purchasing a senior debt tier and short selling common stock, in the hope of realising returns from shifts in the spread between the two tiers.
	Regulation D, or Reg. D	This sub-set refers to investments in micro and small capitalisation public companies that are raising money in private capital markets. Investments usually take the form of a convertible security with an exercise price that floats or is subject to a look-back provision that insulates the investor from a decline in the price of the underlying stock.
Market-neutral strategies	Fixed income arbitrage	The fixed income arbitrageur aims to profit from price anomalies between related interest rate securities. Most managers trade globally with the goal of generating steady returns with low volatility. This category includes interest rate swap arbitrage, US and non-US government bond arbitrage, forward yield curve arbitrage, and mortgage-backed securities arbitrage. The mortgage-backed market is primarily US-based, over-the-counter (OTC) and particularly complex.
	Convertible arbitrage	This strategy is characterised by hedged investment in the convertible securities of a company. A typical investment is long in the convertible bonds and short in the common stock of the same company. Positions are designed to generate profits from the fixed income security as well as the short sale of stock, while protecting the principal from market moves.
	Equity market neutral	This investment strategy is designed to exploit equity market inefficiencies and usually involves having simultaneously long and short matched equity portfolios of the same size within a country. Market neutral portfolios are designed to be either beta or currency neutral, or both. Well-designed portfolios typically control for industry, sector, market capitalisation, and other exposures. Leverage is often applied to enhance returns.

Sources: Garbaravicius, T. and Dierick, F., "Hedge funds and their implications for financial stability", *ECB Occasional Paper Series*, No 34, August 2005, and Credit Suisse/Tremont Index.

27. Two further umbrella approaches, which are based on a mix of the categories above, are often quoted as investment strategies:
- *multi-strategy*: these funds allocate capital dynamically according to different strategies in response to market opportunities;
 - *funds of hedge funds*: these funds invest in other hedge funds for diversification (see below).
28. Furthermore, if *risk dispersion rules* are applicable (i.e. restricting the share of investment allowed in any specific asset category), they tend to be more flexible in the case of hedge funds than in the case of “IFs other than hedge funds”.

Performance-related fees

29. Hedge fund managers usually receive *performance-related fees* in addition to traditional management fees. Some hedge funds specify a “hurdle rate”, which means that the fund manager will not receive a performance fee until a minimum return has been generated. Furthermore, fee structures often contain “high watermark” provisions that require managers to make up for losses before receiving further performance-related fees.

Funds investing in other hedge funds

30. The definition of hedge funds also covers funds that invest, in full or in part, in other hedge funds, so-called “funds of hedge funds”, provided that they otherwise meet the definition.
31. Funds of hedge funds can be defined as IFs that invest primarily in hedge funds. In line with the definition of funds of funds in Section 3.3, the word “primarily” should be understood as “more than 50%”. In other words, if an IF is defined as one investing at least 50% of its assets in hedge fund shares, the IF should be classified as a hedge fund.
32. “Funds of hedge funds” also covers IFs that track indices of hedge funds, thereby providing investors with exposure to multiple hedge funds in a single product. Although such IFs could be considered to be tracking a market benchmark, they should nevertheless be classified as hedge funds, since they fulfil the hedge fund criteria, such as flexible investment policies, the commitment to achieve positive absolute returns, the minimum investment threshold and the frequent commitment by managers of their own money.

3.2.2 Other criteria not included in the definition of hedge funds

Investors in hedge funds and the distribution channels

33. Hedge funds are targeted mainly (but not exclusively) at *high net worth* individuals and *institutional* investors, such as pension funds and insurance companies. This targeting strategy is often achieved by imposing a *high minimum investment* threshold. Furthermore, hedge funds are often distributed via private placements and thus not promoted to retail investors.
34. However, hedge funds have also become more accessible to retail investors, mainly through the development of funds of hedge funds.

Subscription/withdrawal

35. Hedge funds often have predefined schedules with quarterly or monthly subscriptions and redemptions. Furthermore, many hedge funds have a lock-in period, which is an initial period of time during which investors cannot remove their money. Some hedge funds retain the right to suspend redemptions under exceptional circumstances.

Hedge fund managers

36. Hedge funds managers often have their own capital invested in the hedge fund that they manage, in which case they can be expected to put a high value on the preservation of capital.

3.2.3 Summary of hedge fund characteristics

37. Table 2 provides a summary of the main characteristics of hedge funds, both those explicitly included in the definition of hedge funds given in the Guideline and additional possible characteristics not specified in the definition.

Table 2**Hedge fund category characteristics – distinctive features**

Characteristics covered by definition:	
Positive absolute return	Positive absolute return under all market conditions, without regard to a particular benchmark.
Relatively unconstrained investment strategies	Few restrictions on the type of instruments or investment strategies. May employ a wide variety of investment techniques, including leverage, derivatives, long and short positions in securities or any other assets in a wide range of markets. More flexible risk dispersion rules.
Performance fees	In general, managers receive performance-related fees in addition to traditional management fees.
Additional characteristics not specified in definition:	
Investors and distribution channels	Traditionally (although not exclusively) targeted at high net worth individuals and institutional investors. This is often achieved by imposing a high minimum investment threshold. Not widely available to the public. Mainly distributed via private placements.
Subscription/withdrawal	Often predefined schedule with quarterly or monthly subscription and redemption and lock-in periods until first redemption.
Managers	Usually, managers also commit their own money.

See also Garbaravicius, T. and Dierick, F., *op. cit.*

3.3 Funds of funds

38. The glossary to the Guideline defines “funds of funds” as “investment funds primarily investing in investment funds’ shares or units”. According to the Guideline, “for the purpose of IFs broken down by nature of investment, investment funds mainly investing in investment funds’ shares or units (i.e. funds of funds) shall be classified under the category of funds in which they primarily invest.”
39. When classifying funds of funds, the same logic applies as in the case of IFs classified by the nature of their investment, as discussed in Section 3.1. For example, in the case of an IF that defines a *lower limit* for its investment policy, an IF which invests at least 50% of its assets in equity fund shares should be classified as an equity fund. Similarly, the same guiding principles as described in Section 3.1 also apply to funds of funds which define only *upper limits* for the investment in specified types of investment fund.
40. Regarding the ex post approach, the same drawbacks as outlined in Section 3.1 above apply. Under such an ex post approach, in the case of funds of funds, the classification should be based on the actual assets held by the IFs in which the funds of funds invest. These assets would have to be monitored at any relevant point in time. Further to the drawbacks outlined in Section 3.1, it would be even more burdensome for the compilers who would have to aggregate portfolios of several IFs to determine the correct IF sub-category. Therefore, as already stated in Section 3.1, the *ex ante approach should, in principle, be applied*. However, as also stated in Section 3.1, under certain specific circumstances, NCBs may opt for the ex post approach.

3.4 Money market funds and borderline cases

41. Article 2 of Regulation ECB/2013/33 states that “collective investment undertakings complying with all the following shall be treated as MMFs, where they:
- (a) pursue the investment objective of maintaining a fund's principal and providing a return in line with the interest rates of money market instruments;
 - (b) invest in money market instruments which comply with the criteria for money market instruments set out in Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS), or deposits with credit institutions or, alternatively, ensure that the liquidity and valuation of the portfolio in which they invest is assessed on an equivalent basis;
 - (c) ensure that the money market instruments they invest in are of high quality [...];
 - (d) ensure that their portfolio has a weighted average maturity (WAM) of no more than six months and a weighted average life (WAL) of no more than 12 months (in accordance with Annex I, Part 1, Section 2);
 - (e) provide daily net asset value (NAV) and a price calculation of their shares/units, and daily subscription and redemption of shares/units;
 - (f) limit investment in securities to those with a residual maturity until the legal redemption date of less than or equal to two years, provided that the time remaining until the next interest rate reset date is less than or equal to 397 days whereby floating rate securities should reset to a money market rate or index;
 - (g) limit investment in other collective investment undertakings to those complying with the definition of MMFs;
 - (h) do not take direct or indirect exposure to equity or commodities, including via derivatives and only use derivatives in line with the money market investment strategy of the fund. Derivatives which give exposure to foreign exchange may only be used for hedging purposes. Investment in non-base currency securities is allowed provided the currency exposure is fully hedged;
- [...].”
42. Since the definition of MMFs also covers the investment in MMF shares/units, funds of MMFs are covered by this definition to the extent that they meet the specified criteria (see (g) above).

43. If an IF does not fulfil all the criteria and, thus, does not comply with the MMF definition, it must be classified as an IF within the respective fund type category. Classification issues may arise if an IF invests in money market instruments, but does not comply with the MMF definition. In this case, the investment in money market instruments should be considered equivalent to an investment in fixed income securities. For example, if an IF invests more than 50% in money market instruments, but does not comply with the definition of MMFs (see (d) above), it should be classified as a bond fund. Similarly, an IF investing, for instance, 40% in shares, 30% in bonds and 30% in money market instruments should also be classified as a bond fund.
44. Classification issues may also arise if an IF invests above 50% in deposits and, given its other investments, does not comply with the MMF definition. In this case, deposits should be viewed as a separate asset class. Thus, if an IF invests more than 50%, but does not meet the MMF definition, the IF should be classified as an “other fund”. For example, an IF investing 40% in shares, 30% in bonds and 30% in deposits would be classified as a mixed fund. In this case, deposits account for less than 50% of total investments and should be treated as a measure for ensuring liquidity. The other investments thus determine the fund category. For the sake of simplicity, guiding principles similar to those given for money market instruments apply to investment in MMF shares/units. Similarly, in this case, investment in MMF shares/units should be considered equivalent to an investment in debt securities. Thus, if an IF invests, for example, 80% in MMF shares/units, but, given its other investments, does not comply with the MMF definition, it should be classified as a bond fund. In theory, of course, in order to be consistent with the approaches outlined in the paragraphs above, the ultimate investments underlying the issue of MMF shares/units should be considered when allocating the IF to one of the IF sub-categories.

3.5 Changes in investment policy

45. Regarding the treatment of changes in the investment policy of an IF, including MMFs, the default is that a change in an IF's or MMF's investment policy is recorded as a financial transaction. This follows from the fact that any change in investment policy has to be agreed by the investors prior to the change, so it is seen as an active investment decision. An NCB may deviate from this default approach and report a reclassification adjustment only if it has ex ante information that the policy change was not due to a conscious decision made by the investors.
46. If an NCB discovers that it has misclassified a MMF as an IF (or vice versa), it should inform the ECB and agree on the steps to take to ensure consistent reporting of MMF and IF data, including historical data.

4 Classification of investment funds by type of fund (open-end versus closed-end investment funds)

47. In accordance with the Guideline, NCBs shall report statistical information on IF assets and liabilities broken down into open-end funds and closed-end funds, i.e. by type of IF. This chapter provides guidance on how to classify IFs by type.
48. The glossary to the Guideline defines open-end IFs as “investment funds whose units or shares are, at the request of the holders, repurchased or redeemed directly or indirectly out of the undertaking’s assets”, and closed-end IFs as “IFs with a fixed number of issued shares whose shareholders have to buy or sell existing shares to enter or leave the fund”.
49. In some cases, IFs fall somewhere in-between the closed-end and open-end definition, since they have certain restrictions regarding the issue or redemption of their shares/units. This includes, for example, IFs that only allow investors to buy new shares or redeem shares above a certain minimum amount, which may be very high. In some cases, participations in the IF can only be redeemed or issued at pre-determined points in time (e.g. on a monthly or quarterly basis), or redemptions and issues may be temporarily suspended owing to prevailing market conditions.
50. In these cases, the IFs should still be recorded as open-end IFs, since the possibility exists, albeit with some restrictions, to buy and/or sell the shares/units directly from/to the IF.
51. In principle, only IFs that do not issue new shares after the IF has been launched and whose shares are not redeemable until the IF is liquidated should be recorded as closed-end IFs. However, even in the case of closed-end IFs, new shares may be issued and/or redeemed in exceptional circumstances.

5 Further breakdowns: ETFs, PEFs, and securities lending

52. In accordance with the Guideline, all end-month stocks and monthly flow adjustments shall also be reported for the sub-sector exchange-traded funds (ETFs) as an “of which” position of “total funds”. It is further specified that, to the extent that data are available, including on a best estimate basis, end-quarter stocks and quarterly flow adjustments shall also be reported for the sub-sector private equity funds (including venture capital funds) as an “of which” position of “total funds”. Since ETFs and private equity funds (including venture capital funds) are only sub-sectors of the whole investment fund population, they have to be included in the main aggregates for the purpose of investment fund statistics, where they have to be allocated to the respective fund type according to the nature of their investment.

5.1 Definition of ETFs

53. ETFs are defined in line with the European Securities and Markets Authority (ESMA) Guidelines on ETFs and other UCITS issues (ESMA/2012/832).¹³ ESMA defines a UCITS ETF as “a UCITS at least one unit or share class of which is traded throughout the day on at least one regulated market or Multilateral Trading Facility with at least one market maker which takes action to ensure that the stock exchange value of its units or shares does not significantly vary from its net asset value and where applicable its Indicative Net Asset Value”. As specified in the Guideline, non-UCITS that comply with the ESMA ETF definition should be included in the reporting of IF statistics as ETFs.

54. For the identification of ETFs, whether they are UCITS-compliant or not, the following indications can be followed.

- Normally, ETFs are managed passively and, while most of these funds track an index, others may track a commodity or a basket of assets like an index fund.

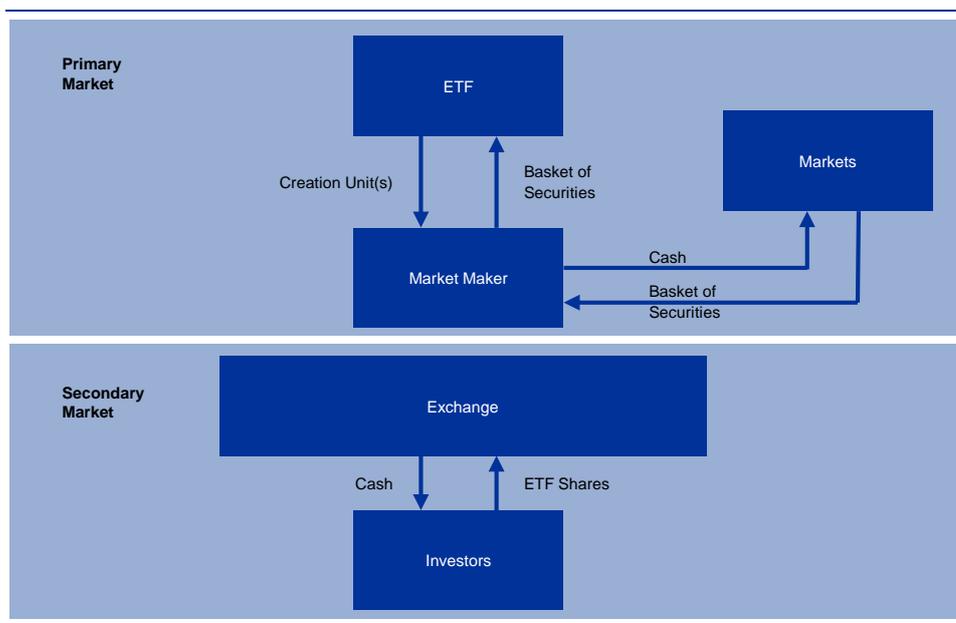
However, there are also actively managed ETFs as defined in the ESMA Guidelines. In this case the fund’s manager “has discretion over the composition of its portfolio, subject to the stated investment objectives and policies (as opposed to a UCITS ETF which tracks an index and does not have such discretion). An actively-managed UCITS ETF generally tries to outperform an index.” Actively-managed ETFs still have a relatively low market share.

¹³ See Guidelines on ETFs and other UCITS issues (ESMA/2012/832), available on [ESMA's website](#).

- Typically, ETF shares cannot be bought from the investment company, but investors can buy them via an exchange on the secondary market where they are traded like a stock. The creation/redemption process for ETF shares is depicted in Figure 1.

Figure 1

Creation/redemption process for ETF shares



Source: Irish Funds Industry Association (IFIA)

- Since ETF shares are traded on an exchange, they experience price changes during the day as they are bought and sold. The portfolios of ETFs are normally public knowledge, and they are traded at a price close to their net asset value. In a few cases, when the price deviates from the net asset value, market makers can take advantage of this arbitrage opportunity by creating or liquidating creation units until the price of the ETF share returns to the net asset value of the index or of the basket of securities the ETF tracks.
- UCITS ETFs are a subset of UCITS funds and should therefore be classified as open-end funds. In general, whether they are UCITS-compliant or not, ETFs mainly exhibit features that are typical of open-end funds: the valuation of ETF shares is very close to that of open-end funds which can be bought or sold at a price which is set equal to their net asset value at the end of each trading day. There are also a number of other differences between ETFs and closed-end funds, as summarised in

Table 3.¹⁴ For this reason, ETFs are generally expected to be classified as open-end funds.¹⁵

Table 3
Differences between ETFs and closed-end funds

	ETF	Closed-end fund
Traded on an exchange?	Yes	Yes (generally)
New investment possible?	Through market makers	No (generally)
Fund is managed	Passively (mostly)	Actively (normally)
Trading price	Close to net asset value; market makers intervene to keep the price close to the net asset value	Can vary significantly from its net asset value due to premiums or discounts; results from market supply and demand
Transparency of the portfolio to investors	High	Low
Fees	Relatively low	Relatively high

55. For the purpose of IF statistics, ETFs, whether set up as a UCITS or as a non-UCITS, are to be included in the sub-sector exchange-traded funds (ETF) as an “of which” position of total funds. In practice, most ETFs are structured and registered as UCITS. In this case, the identifier “UCITS ETF” has to be used in the name of the fund, making it easily identifiable.¹⁶
56. Non-UCITS ETFs are registered at national level and are not harmonised at EU level. Generally, they do not have to follow the same prudential rules as UCITS funds. This is why they are allowed broader investment strategies and different investment limits and might be subject to a significantly different tax treatment. These differences, and the fact that non-UCITS ETFs are registered and supervised nationally and are not necessarily branded “ETF”, make it more difficult to identify the funds as ETFs and thus to include them in the “of which” position for ETFs.

5.2 Distinction from other exchange-traded products

57. Exchange-traded products can be divided into three sub-categories: ETFs, exchange-traded commodities/currencies (ETCs), and exchange-traded notes (ETNs). While all these products are listed and traded on exchanges, there are significant differences between ETFs on one hand and ETCs and ETNs on the other.
58. The key difference between ETFs and the other exchange-traded products discussed below lies in their respective underlying structure: ETFs are collective

¹⁴ On the other hand, closed-end funds and ETFs have in common that they are both traded on the secondary market.

¹⁵ In rare cases, ETFs may be classified under the closed-end fund category, partly because the distinction between open-end and closed-end funds is not always clear cut or because national competent authorities classify them as closed-end funds.

¹⁶ See Section VII, paragraph 15 of ESMA’s Guidelines on ETF and other UCITS issues.

investment undertakings, i.e. institutional entities, which invest the capital of their shareholders. Consequently, the shareholders are indirectly the owners of the fund's assets. This is not the case for ETNs and ETCs, which are essentially debt securities, meaning they are only backed by the credit of the issuer.

59. As in the case of ETFs, the returns of ETNs and ETCs are usually linked to the performance of a market benchmark, the performance of a commodity or currency index, or a strategy. They are also traded on an exchange. However, ETNs and ETCs are not funds, as they are designed quite differently. Instead, they are senior, unsubordinated debt which is issued by a single issuer. This means that, unlike ETFs, ETNs and ETCs do not hold the underlying assets in trust for their investors; instead “investors rely on the product issuer’s promise to pay them, and this promise may or may not be ‘secured’ – entitling investors to a claim over the issuer’s assets if the issuer gets into financial difficulties”.¹⁷ Thus, ETNs and ETCs are debt securities which carry a counterparty risk, i.e. there is a risk that the issuer of the ETC may default and the investor may lose the money invested.
60. So, while ETFs are only exposed to market risk, ETNs and ETCs may be subject to both market risk and the risk of default arising from the issuing bank. In practice, many issuers of ETCs fully collateralise their products by physical commodities or other adequate securities so that the counterparty risk is hedged out. In this case, ETCs are not necessarily riskier than ETFs.
61. Although ETCs are considered to be relatively new financial products allowing investors to easily participate in the performance of commodity or currency indices, they are by construction essentially the same as ETNs. They are defined as “securities issued by an investment vehicle in relation to an investment in a commodity or in commodities derivative contracts entered into by the issuer with intermediaries operating in the commodities market”.¹⁸ Thus, ETCs can be seen as a subset of ETNs which track a commodity or currency (index).
62. Although, for an investor, ETNs and ETCs may look very similar to ETFs, as they all track a certain asset or an index of assets, the underlying structure differs substantially. ETNs and ETCs are, by construction, not funds but debt securities and, therefore, should not be included in the reporting of IF statistics.

5.3 Private equity funds

63. Under the Guideline, the reporting of IF statistics shall encompass the collection of end-quarter stocks and quarterly flow adjustments for the sub-sector private

¹⁷ See “Commodity [ETFs and ETCs](#)”.

¹⁸ See “[ETC / Exchange Traded Commodities: a new way of investing in commodities](#)”, *Borsa Italiana*, 2014.

equity funds (including venture capital funds) as an “of which” position of “total funds” on a best estimate basis.

64. Two regulatory initiatives at EU level have been launched which may enhance the identification of private equity funds (PEFs) and thereby foster harmonisation of the statistical data on these funds: the Alternative Investment Fund Managers Directive (AIFMD) and the European Venture Capital Funds Regulation.¹⁹ While the AIFMD basically covers all non-UCITS funds, PEFs are only indirectly defined in the Directive as alternative investment funds (AIFs) which “acquire control of a non-listed company”.²⁰ The Guideline has therefore adopted the definition of PEFs as “unleveraged investment funds that predominantly invest in equity instruments and instruments that are economically similar to equity instruments issued by unlisted companies”.²¹ The Guideline also states that a “sub-category of PEFs are venture capital funds (VCFs), which invest in start-up companies. PEFs (including VCFs) are normally constituted as closed-end funds or as limited partnerships managed by a private equity company (PEC) or venture capital company (VCC) in the case of VCFs.”
65. While many kinds of investment in private equity are undertaken by PEFs (including VCFs) and each acquisition and sales process is different, there are characteristics which are shared by the large majority of PEFs: they make long-term, fully equity-backed investments in unlisted, private companies; they do not offer any redemption rights for investors for a certain period (often for five years or more after the first closing of the fund); there is no leverage used at fund level; and they do not engage in credit origination activities.

5.3.1 Distinction between private equity funds and private equity companies

66. To distinguish PECs and VCCs from PEFs (including VCFs), the Guideline states: “While PEFs (including VCFs) are classified as investment funds in line with Article 1 of Regulation (EU) No 1073/2013 (ECB/2013/38), PECs and VCCs are classified as financial auxiliaries (ESA 2010 category S.126) if they solely manage the assets of PEFs and VCFs; and as other financial intermediaries (ESA 2010 category S.125) if they invest on their own account in private equity.” Thus, they are not to be included in the reporting population for IF statistics.

¹⁹ Based on these legal acts, in most Member States, the national competent authorities supervising these funds have set up registers to which the NCBs also have access. This helps to identify potential funds for the reporting population of IF statistics.

²⁰ See also Article 26(1)(a) of the AIFMD.

²¹ The definition of PEFs originally came from the [European Private Equity & Venture Capital Association](#) (EVCA, now Invest Europe), in particular Appendix 1 of its contribution of 13 November 2012 to the Consultation on the recommendations of the High-level Expert Group on Reforming the structure of the EU banking sector.

67. Despite the existence of this definition, it might not always be straightforward to classify an entity as a PEF, and thus as an IF, or as a PEC, which can be classified as a financial auxiliary or other financial intermediary (OFI) under the European System of Accounts (ESA) 2010. The ESMA Guidelines on key concepts of the AIFMD²² state that the key characteristics of an AIF are that:
- (a) the undertaking does not have a *general commercial or industrial purpose*;
 - (b) the undertaking pools together capital raised from its investors for the purpose of investment with a view to generating a *pooled return* for those investors; and
 - (c) the unitholders or shareholders of the undertaking – as a collective group – have no *day-to-day discretion or control*. The fact that one or more but not all of the aforementioned unitholders or shareholders are granted *day-to-day discretion or control* should not be taken to show that the undertaking is not a collective investment undertaking.
68. Especially the last characteristic (c), namely no day-to-day control over the assets in which the capital is invested, is critical in order to differentiate an IF from other types of direct investment. Individual investors in a PEF do not have a direct control over the management of the firms in which the fund invests only indirect control through the PEF manager. In the case of PECs, however, which invest on their own account, there is no separation between the investors and the control of the companies in which the capital is invested. Thus, such undertakings do not fulfil the criteria for AIFs and are to be classified as OFIs.
69. In practice there may also be borderline cases, e.g. undertakings describing themselves as “PEFs” which in fact invest on their own account, or “PECs” which pool resources from third parties to invest on their behalf. In these cases, the entities should be classified according to their principal activity. Thus, if they mainly invest on their own account, they should be classified as OFIs.
70. Moreover, if an undertaking only manages the assets of PEFs and VCFs, it does not adhere to characteristic (b) as outlined by ESMA and, thus, should not be classified as an IF. Instead, such undertakings are to be classified as financial auxiliaries.

5.3.2 Classification of PEFs and venture capital funds

71. PEFs (including VCFs), as an “of which” position of total funds, should generally be classified according to the nature of their investment, as outlined in Section 3.1. Most PEFs (including VCFs) are classified as equity funds if they primarily invest in equity or as other funds if they largely invest in unlisted companies, e.g. via loans or participations. Moreover, owing to the illiquid

²² See page 5 of Guidelines on key concepts of the AIFMD (ESMA/2013/611), available on [ESMA's website](#).

nature of their investment, PEFs (including VCFs) are normally classified as closed-end funds.

72. PEFs (including VCFs) should not be allocated to the sub-sector “hedge funds”, since there are significant differences between these types of investment. The main differences can be summarised as follows: while private equity investments focus on the long term and are rather illiquid, hedge funds tend to focus on more liquid, short-term investments. Thus, PEFs are normally classified as closed-end funds, while hedge funds are normally classified as open-end funds. While it is possible for investors in hedge funds to periodically withdraw parts of their investment, this is not the case for PEFs. Furthermore, hedge funds generally do not have direct control over the businesses or assets in which they invest, while PEFs may be actively involved in the management of firms. Finally, hedge funds may engage in short selling, while PEFs only take long positions.

5.4 Securities lending

73. Under the Regulation, securities lending (see Section 7.2) shall be reported on a quarterly basis as an “of which” position of the total of debt securities (category 2) and equity and investment fund shares/units (category 3)²³ for securities which have been lent under securities lending operations or sold under repurchase agreements (or any other similar types of operation, such as sell and buy-back transactions).²⁴

²³ Category 3 is sub-divided into two separate items, namely equity/listed shares (category 3a) and investment fund shares/units (category 3b).

²⁴ See Table A in Part 1 of Annex II to the Regulation.

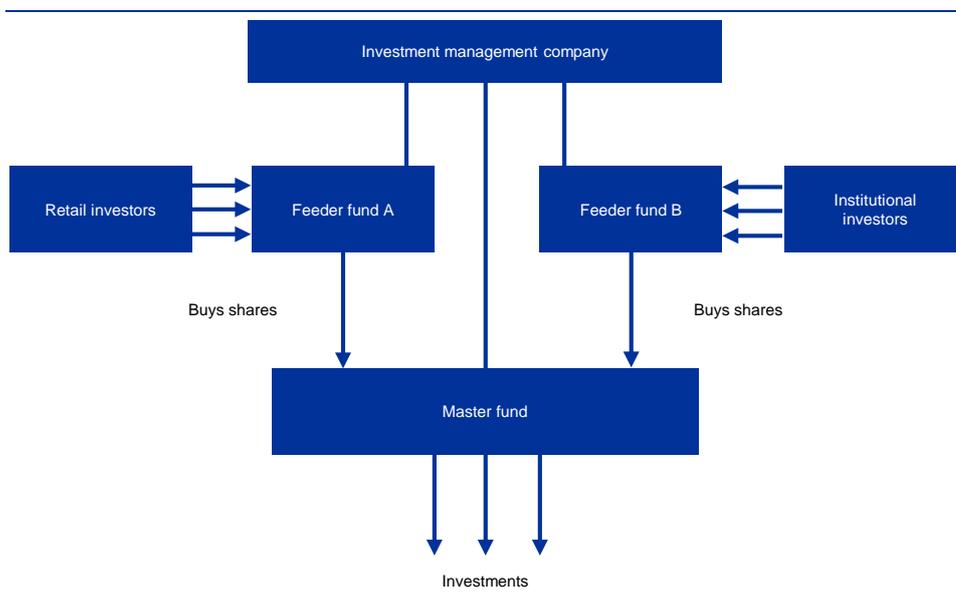
6 Structures of investment funds

6.1 Treatment of master and feeder funds

74. The master-feeder fund structure generally involves the use of a master fund in which separate and distinct feeder funds invest. Figure 2 shows an example of a master-feeder fund structure:

Figure 2

Example of master-feeder fund structure



75. In this structure, an investment management company may have multiple feeder funds, each tailored to a certain category of investors (for example, retail investors or institutional investors). The feeder funds do not invest the capital themselves, but instead buy shares/units in a master fund, which invests the capital raised. This structure may be a purely internal structure within the investment management company in order to make use of economies of scale and thereby reduce costs. In this case, the feeder funds only invest in master funds of their own investment management company, and these master funds only receive investments from the feeder funds of their own investment management company.

76. Feeder and master funds, even though contained within one structure, are considered separate legal entities and both comply with the definition of IF provided in the Regulation. Each feeder fund and master fund should therefore be reported separately in the list of investment funds. In accordance with Article 4(1) of the Regulation, the assets and liabilities of these funds should also be reported on a fund-by-fund basis, i.e. all master and feeder funds should report their assets and liabilities individually.

77. The reporting of assets and liabilities by both the master and feeder funds leads to double counting in the aggregated assets and liabilities in the IF statistics, which could be seen as undesirable, since the double figures may have a purely administrative background. However, the derivation of consolidated assets and liabilities of IFs at the euro area level will take this double counting into account by netting inter-IF holdings of shares/units issued by euro area IFs.
78. Taking into account Article 4(3), which specifies that “subject to the prior approval and in accordance with the instructions of the relevant NCB, IFs may report their assets and liabilities as a group, provided that this leads to results that are similar to fund-by-fund reporting”, and the fact that the ECB will ultimately derive consolidated assets and liabilities of euro area IFs, group reporting could be applied in the case of master-feeder fund structures. Therefore, if the reporting by master and feeder funds on a consolidated basis is preferable in practice, this approach may be followed by NCBs, as long as all feeder funds and master funds of one structure are located in the same national territory and belong to the same IF sub-sector in line with Article 19(1)(a) of the Guideline. In this case, the consolidated balance sheet will show on its assets side the investments made by the master fund, and on its liabilities side the shares/units issued by the feeder funds broken down by different holders.
79. However, irrespective of whether or not group reporting is applied, each feeder and master fund must be reported separately in the list of IFs.

6.2 Investment funds with sub-funds

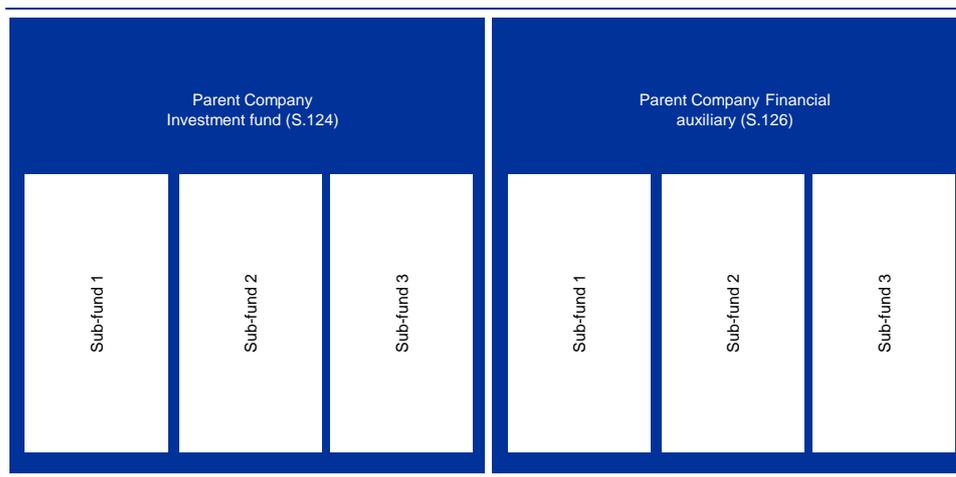
80. Most investment funds are set up as stand-alone funds, with a single investment portfolio. However, there are also funds which are organised as sub-funds of a parent company. While they are normally part of the same legal entity, the sub-funds are operated and traded as separate investment funds, which have different investment objectives and policies.²⁵ In fact, the sub-funds are treated as separate entities which have assets and liabilities distinct from other sub-funds under the parent company.
81. In line with this, Article 4(1) of the Regulation requires every IF in the reporting population to “report data on its assets and liabilities on a fund-by-fund basis”. Moreover, Article 4(2) states that “if an IF segregates its assets into different sub-funds in such a way that shares/units relating to each sub-fund are independently backed by different assets, each sub-fund shall be considered as an individual IF”.
82. Regarding the classification of parent companies, two cases are distinguished. First, if the parent company only provides services to the sub-funds and does not issue any IF shares/units of its own or otherwise does not fulfil the IF definition, the parent company is to be classified as a financial auxiliary (ESA

²⁵ The parent companies of the sub-funds are often also referred to as “umbrella funds”.

2010 category S.126). Second, if the parent company of sub-funds does issue its own IF shares/units and also fulfils the IF definition,²⁶ the parent company is to be classified as an investment fund (ESA 2010 category S.124). Figure 3 highlights the two possible classifications of parent companies of sub-funds.

Figure 3

Classification of parent companies of sub-funds



Notes: If the parent company fulfils the definition of an IF, it is to be allocated to the non-MMF investment fund sector (ESA 2010 category S.124).
If the parent company does not fulfil the definition of an IF, it is to be classified as a financial auxiliary (ESA 2010 category S.126).

²⁶ This can, for example, be the case for SICAV (*société d'investissement à capital variable*) funds, which are common in some European countries.

7 Treatment of short-selling

83. Short positions occur when one party sells securities of which it is not the economic owner to another party. The party with the short position records a negative asset. Therefore, if an IF short-sells securities, this should be recorded as a negative transaction in securities. This applies in the case of the sale of securities which were acquired by means of either reverse repo-type operations or securities borrowing.
84. This treatment overcomes the double counting that would otherwise arise in the global holdings of a security, given that the security is recorded as an asset both on the balance sheet of the ultimate outright purchaser of the security and on the balance sheet of the original lender of the security.

7.1 Securities repurchase agreements (repos)

85. Repos are securities repurchase agreements in which one party (the “security provider”) sells securities for cash at a specified price to another party (the “security taker”) with a commitment to repurchase the same or similar securities at a specified price on a future date. It is called a repo from the perspective of the security provider and a reverse repo from the perspective of the security taker.
86. In principle, the security taker should not record the acquisition of the security under a reverse repo as a transaction in securities. However, if the security taker sells on the security (i.e. short-sells the security) to a third party, then the security taker (temporary acquirer) should record a negative transaction (and the outright purchaser a positive transaction) in the security.
87. As specified in Table A in Annex II, Part 1, of the Regulation, in the case of repos, “where the temporary acquirer sells the securities received, this sale must be recorded as an outright transaction in securities and entered in the temporary acquirer’s balance sheet as a negative position in the securities portfolio”.
88. It follows that, in the case of reverse repos, when an IF is the temporary acquirer of a security and sells on the security, this sale should be recorded as a negative (“short”) position in the security. Any interest accrued should also be recorded as a negative position (i.e. the interest accrued increases the negative position).

7.2 Lending of securities

89. Securities lending/borrowing without cash collateral involves one party lending securities to another party with a firm commitment to return the same (or similar) securities on a specified future date. Unlike in repo-type operations, there is no exchange of cash collateral; instead, securities lending/borrowing is either backed by non-cash collateral or there is no collateral involved at all.
90. As set out in the Regulation, securities lending operations are recorded in the same way as repo-type operations. Table A in Annex II, Part 1, of the Regulation specifies that “securities lent out under securities lending operations or sold under a repurchase agreement remain on the original owner’s balance sheet (and are not recorded on the temporary acquirer’s balance sheet) where there is a firm commitment to reverse the operation and not simply an option to do so”.
91. It follows that short sales of securities borrowed without cash collateral should also be recorded in a way consistent with that required for short sales of securities received in a reverse repo, namely as negative transactions in securities. Again, the interest accrued should be also recorded as a negative position.

8 Compilation of statistics based on security-by-security reporting

92. As described in Annex I, Part 1, of the Regulation, reporting agents are required to provide the debt and equity positions of IFs on a security-by-security basis, and other asset and liability positions on an aggregated basis.
93. The information to be provided on a security-by-security basis is set out in Table 2 in Part 3 of Annex I to the Regulation. In general, for each such position, reporting agents are required to report two of the following three variables:²⁷ (1) number of units (equity) or aggregated nominal amount (debt); (2) security price; and/or (3) total amount.²⁸ NCBs may also choose to collect transactions on a security-by-security basis in line with Table 2 in Part 3 of Annex I to the Regulation.
94. Based on the information collected on a security-by-security basis and on an aggregated basis, NCBs then derive the aggregated quarterly assets and liabilities of the IF sub-categories in line with Table 1 in Part 17 of Annex II to the Guideline.
95. This chapter describes, in conceptual terms, how the statistics on the assets and liabilities of IFs can be derived from the security-by-security data collected from the IFs. This description covers both the derivation of stocks (including estimation procedures if the necessary information is only partly, or not at all, available from the ESCB's Centralised Securities Database (CSDB) or compatible national securities database) and the derivation of transactions/revaluation adjustments from those stocks if security-by-security information on transactions is not collected directly from reporting agents.
96. The solutions presented in this manual should not be seen as the only possible approach. NCBs may choose to apply different methods.

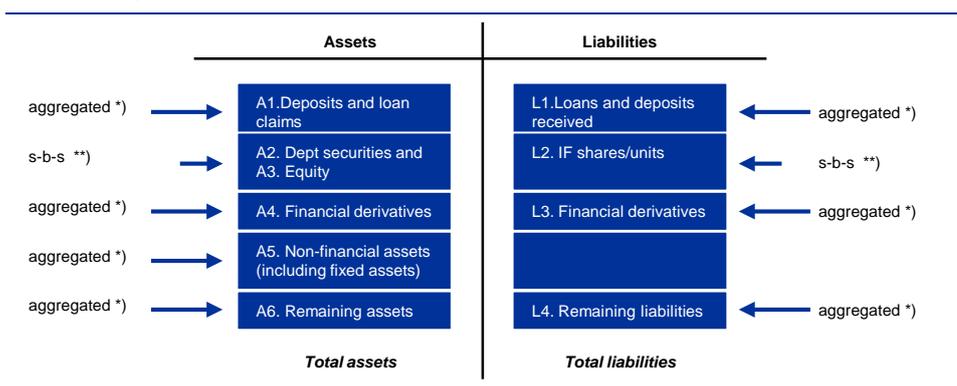
²⁷ As indicated in Table 2 in Part 3 of Annex I to the Regulation, NCBs may also choose to only collect data on the number of units or aggregated nominal amount. This chapter of the manual only covers those cases where NCBs collect data on two of the three variables. Chapter 12 provides details of the quality report to be provided by NCBs that choose to collect data on only one variable.

²⁸ As explained in Table 2 in Part 3 of Annex I to the Regulation, if an IF reports transaction data on a security-by-security basis, it would be sufficient for the NCB to report only the total amount of the position.

8.1 Compilation of stocks

97. Article 19(5) of the Guideline describes in general terms how the aggregated quarterly²⁹ assets and liabilities of the IF sub-categories (in line with Table 1 in Part 17 of Annex II to the Guideline) are derived.
98. The compilation of stock statistics can be split into two steps: (1) the calculation of the totals for each asset/liability category and for total assets/total liabilities; and (2) the enrichment of the securities information with reference data covering issuer sector, issuer residency and issuing currency, as well as the instrument/maturity classification as provided by a reference database, e.g. the CSDB.
99. The value of each asset and liability position, as shown in Figure 4, can either be derived from the reported security-by-security information or is provided directly by the reporting agents.

Figure 4
Schematic presentation of assets and liabilities of an investment fund



*) Item may be reported "currency-by-currency" to facilitate the derivation of transactions.

***) For securities with publicly available identification codes. The relevant NCB may also require reporting agents to report security-by-security (s-b-s) information for securities without publicly available identification codes.

100. For those aggregated positions where values or prices are reported in currencies other than the euro, the first step includes a currency conversion into euro. For the securities items, the missing third value out of "number of units or aggregated nominal amount", "price" and "total amount" is also derived, based on the two reported values. With these data, it is possible to add up total assets and total liabilities. Any (positive) discrepancy between total assets and total liabilities will be added as a lump sum to the (total) securities position on either

²⁹ Or monthly, where NCBs collect data on IF assets and liabilities on a monthly basis in accordance with Article 5(2) of the Regulation.

the asset or the liability side. Alternatively, the discrepancy may be added to remaining assets or remaining liabilities.³⁰

101. In a second step, the security-by-security data are enriched with securities reference data from the CSDB or compatible national securities database covering the following variables: (1) instrument category, (2) instrument maturity,³¹ (3) issuing currency, (4) issuer sector, and (5) issuer residency. “Incomplete” reference information can mean either that the entire securities reference information is missing (security identifier cannot be matched to the CSDB, either because the security is not covered in the CSDB, or because the identifier is inaccurate or incomplete) or that one or more individual fields in the CSDB or local securities database are missing.³² The proposed estimation method, explained below, is aimed at filling these gaps by deriving missing information from the most similar complete records, thereby exploiting the information available to the largest extent possible.
102. Taking into account the five reference variables for stock statistics, there are 31 possible combinations of gaps in the reference data, including the case where no reference data are available at all (error type 1 in Table 4 below).

³⁰ Such discrepancies, if any, should be insignificant, given that all amounts are reported, and IFs should report the required statistical information in accordance with the minimum standards for accuracy, as specified in Annex IV to the Regulation. The allocation of the discrepancy to the securities item is mainly due to the fact that the securities item is likely to be the most relevant position. However, in order to simplify the calculations, the discrepancy may be allocated to remaining assets or remaining liabilities, since these are not further broken down.

³¹ The instrument maturity should first be determined by the instrument category, which provides a split into short-term debt (up to one year) and long-term debt (over one year). This approach ensures consistency with other statistics. The long-term debt category should then be broken down into “over one and up to two years” and “over two years” using the variables “issue date” and “maturity date”.

³² In practice, the case of missing fields should become less relevant, since the CSDB or compatible national securities databases should, in principle, have built-in procedures to estimate missing reference information in a consistent way for all statistics relying on the CSDB or a compatible national securities database. However, fall-back solutions should be available to fix gaps in the reference data which have not previously been fixed.

Table 4

Different error types in the reference information (X marks missing data)

		Error type															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Variable	Instrument category	X		X	X	X	X					X	X	X	X	X	X
	Instrument maturity	X	X		X	X	X		X	X	X				X	X	X
	Issuing currency	X	X	X		X	X	X		X	X		X	X			X
	Issuer sector	X	X	X	X		X	X	X		X	X		X			X
	Issuer residency	X	X	X	X	X		X	X	X		X	X		X		

		Error type															
		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Variable	Instrument category	X	X	X	X							X					
	Instrument maturity	X				X	X	X					X				
	Issuing currency		X			X			X	X				X			
	Issuer sector			X			X		X		X				X		
	Issuer residency				X			X		X	X					X	

103. After classifying the gaps by “error type”, the estimation procedure looks for complete security records with similar reference information for all fields which are filled in, including the complete and incomplete record(s). Data are then only estimated for the field(s) with a gap, based on the complete record(s). The advantage of this method is that the estimation of, for example, the issuer sector for a debt security with over two years original maturity issued by a US resident has no impact on the data referring to securities issued by euro area residents. The estimation is carried out separately for assets and liabilities.

Table 5

Matching of complete and incomplete records for the estimation of reference data

	Instrument category	Instrument maturity	Issuing currency	Issuer sector	Issuer residency
Complete record(s)	Long-term debt	> 2 years	GBP	40% corporates 60% banks	US
Incomplete record(s)	Long-term debt	> 2 years	GBP	??	US

104. If there is no matching complete security record³³ where all completed fields coincide with those of the incomplete security, the incomplete record is downgraded to a record in which all fields are missing (error type 1 in Table 4) and is distributed in a second round of processing according to the overall structure of all complete securities records (again separately for the asset and liability sides). In theory, it is also possible to have more sophisticated

³³ A complete security record refers to a security record in which all necessary fields have been completed.

procedures in which the record is downgraded step-by-step, i.e. where the requirements for matching are gradually reduced to fewer and fewer fields.

105. This estimation procedure guarantees that the statistical categorisation is applied to all balance sheet categories where this is required. All assets and liabilities can now be aggregated for reporting.

8.2 Derivation of transactions/revaluation adjustments – the flow-derivation method

106. Article 19(1)(b) of the Guideline specifies that “where security-by-security (s-b-s) stock information is available, revaluation adjustments may be derived in accordance with a common Eurosystem method, i.e. the flow-derivation method referred to in Part 4 of Annex IV”.
107. The stock data, as presented in Section 8.1, form the basis for the derivation of transactions/revaluation adjustments and investment income data for securities following a security-by-security approach (i.e. separately for each security).
108. This section outlines conceptual solutions for the derivation of transactions. The approach presented here consists in the direct calculation of transactions. Revaluation adjustments (consisting of price revaluations and exchange rate adjustments) and other adjustments, which are ultimately to be provided by the NCBs to the ECB, are derived as “stock difference between t_1 and t_0 minus transactions”.

8.2.1 Transactions/revaluation adjustments for debt securities

109. Transactions in debt securities which occur between t_0 and t_1 can be derived using either “dirty” prices (including accrued interest) or “clean” prices (excluding accrued interest). With dirty prices, the transactions are calculated as:

$$TR_{t_0t_1} = (DT_{t_1} - DT_{t_0}) * \frac{(DP_{t_0} + DP_{t_1})}{2} \quad (1)$$

where

DT = debt securities – aggregated nominal amount, and

DP = debt securities (dirty) price in euro.

110. When clean prices are used in the derivation of transactions, the interest income between two reporting periods must be incorporated in the transactions. The derivation of the interest income is described in Chapter 9.

$$TR_{t_0t_1} = (DT_{t_1} - DT_{t_0}) * \frac{(CP_{t_0} + CP_{t_1})}{2} + IN_{DT_{t_0t_1}} \quad (2)$$

where

DT = debt securities – aggregated nominal amount,

CP = debt securities (clean) price in euro, and

IN = interest income.

111. The following example shows the effect of accrued interest and coupon payments on the IF balance sheet. The example has been simplified in order to distinguish between the effect of accrued interest (which occurs in the first period) and the effect of coupon payments (which occurs in the following period). Further examples are provided in Chapter 9.

112. At t_0 the IF owns debt securities that are worth 100 at a price of 10 per debt security.

A		Balance sheet (t_0)		L	
100	Debt securities	IF shares/units	100		

113. As interest accrues, the holdings of debt securities increase (by 5% in one year between t_0 and t_1).

A		Balance sheet (t_1)		L	
105	Debt securities	IF shares/units	105		

114. The debt securities record a positive transaction due to the interest accrued (+5), which is reflected in IF shares/units.

A		Transactions (t_0, t_1)		L	
5	Debt securities (accrued interest)	IF shares/units	5		

115. If – at t_2 – the IF then receives the coupon payment of 5 stemming from the IF's holdings of debt securities (i.e. 0.5 per share), "deposit and loan claims" increase by 5 and the holdings of "debt securities" again decrease to 100.

A		Balance sheet (t_2)		L	
5	Debt securities (accrued interest)	IF shares/units	105		
100	Debt securities				

116. The payment of coupons is recorded as a transaction of 5 in “deposit and loan claims”. The debt securities record a negative transaction due to the coupon payment (-5).

A	Transactions (t_1, t_2)		L
5	Deposit and loan claims	IF shares/units	0
-5	Debt securities (minus coupon payment)		

117. If dividends are distributed to the IF’s shareholders, these would be recorded as a negative transaction in IF shares/units issued, together with a corresponding negative transaction on the assets side.

8.2.2 Transactions/revaluation adjustments for equity

118. Transactions in shares and other equity which occur between t_0 and t_1 can be approximated by the following basic formula:

$$TR_{t_0t_1} = (EQ_{t_1} - EQ_{t_0}) * \frac{(p_{t_0} + p_{t_1})}{2} \quad (3)$$

where

EQ = number of shares, and

p = price per share in euro.

119. In line with ESA 2010,³⁴ the following sections describe the treatment of dividend payments and stock splits that have occurred during the reporting period, when deriving transactions/revaluation adjustments.

Dividends paid in cash

120. The following example shows the effect of dividend payments on the IF balance sheet in the case of dividends paid in cash. The example is simplified in order to distinguish between the effects of accumulation of retained earnings (which occur in the first period) and the effects of payment of dividend (which occur in the second period).

121. At t_0 , the IF owns 10 shares in a corporation at a price of 10 per share.

³⁴ Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union (OJ L 174, 26.6.2013, p. 1).

A		Balance sheet (t_0)		L	
100	Equity	IF shares/units		100	

122. During the period t_0, t_1 the value of the shares increases to 10.5 per share due to the accumulation of retained earnings.

A		Balance sheet (t_1)		L	
105	Equity	IF shares/units		105	

123. If – at t_2 – the IF then receives a dividend of 5 stemming from the IF’s holdings of shares (i.e. 0.5 per share), “deposit and loan claims” increase by 5 and the value of “shares and other equity” decreases again to 100.

A		Balance sheet (t_2)		L	
5	Deposit and loan claims	IF shares/units		105	
100	Equity				

124. The following would be recorded as “revaluation adjustments”. Before a dividend is paid, any increase in the value of shares due to accumulation of retained earnings is to be treated as a revaluation adjustment in “equity”. The decrease in the price of the shares (due to payment of dividends) is also recorded as a revaluation adjustment. The counterpart entry would be recorded as a revaluation adjustment under IF shares/units issued.

A		Revaluation adjustments (t_0, t_1)		L	
5	Equity (increase in share prices due to expectation of dividend)	IF shares/units (increase in asset prices)		5	

A		Revaluation adjustments (t_1, t_2)		L	
-5	Equity (decrease in share prices following payment of dividend)	IF shares/units (decrease in asset prices)		-5	

125. The payment of dividends in cash is recorded as a transaction of 5 in “deposit and loan claims” and passed on to the IF shareholders as a reinvestment in “IF shares/units” issued.

A		Transactions (t_1, t_2)		L	
5	Deposit and loan claims	IF shares/units		5	

126. If dividends are distributed to the IF's shareholders, these would be recorded as a negative transaction in IF shares/units issued, together with a corresponding negative transaction on the assets side.

Scrip dividends

127. In the case of scrip dividends, shareholders are offered a choice of cash dividends or more shares – the scrip dividend. The distribution of a dividend in the form of shares increases the investment in the shares by the shareholders.

128. The following example shows the effect of dividend payments on the IF balance sheet in the case of dividends paid in shares, taking the same simplified example as in the previous section, where dividends were paid in cash.

129. In this case, when the IF receives the dividend of 5 in the form of shares stemming from the IF's holdings of shares (i.e. 0.5 per share), equity increases by 5 as a result of the additional shares, but decreases by 5 owing to the simultaneous decrease in the value per share, so it remains at 105 overall.

A		Balance sheet ()		L	
105	Equity	IF shares/units		105	

130. The amounts recorded under "revaluation adjustments" would be identical to those recorded in the case of dividends paid in cash.

131. In this case, the IF shareholder has taken an active decision to hold a proportion of its portfolio in the form of shares in the company instead of cash. Therefore, the payment of dividends in shares is recorded as a transaction of 5 in "equity" and passed on to the IF shareholders as reinvestment in "IF shares/units" issued.

A		Transactions (t_1, t_2)		L	
5	Equity	IF shares/units		5	

Treatment of bonus shares and stock splits

132. In the case of bonus shares (also referred to as a stock dividend or scrip issue) or stock splits, companies increase the number of shares in issue either by further sub-dividing the stock that is already outstanding (stock splits) or by distributing more shares as dividends. In other words, the shares are restructured and shareholders are offered a number of new shares for each share previously held. For example, a two-for-one scrip issue (i.e. two new shares in addition to one old share) is equivalent to a three-for-one stock split. In contrast to when new shares are issued in return for additional funds, no new resources are provided in these cases. Furthermore, these cases do not amount to active portfolio decisions, given that the shareholder does not have the option of receiving cash. Therefore, stock splits and the issue of bonus shares do not represent transactions.
133. Both bonus shares and stock splits increase the number of shares, and both reduce the value per share, all other things being equal. The distinction between the two is a technical one: a bonus share is shown in the accounts of the company as a transfer from retained earnings to equity capital, whereas a stock split is shown as a reduction in the par value of each share.
134. The CSDB contains two attributes that can be used to derive the correct transactions in the case of stock splits, namely “last split date” and “last split factor”³⁵. First, the last split date is used to determine whether a stock split occurred during the reporting period. Second, if a stock split did occur, the last split factor is used to adjust the number of shares and the price at t_1 in the basic formula (3) to calculate transactions. The amended formula to calculate transactions taking into account stock splits is:

$$TR_{EQ_{t_0}t_1} = (EQ_{t_1} * SF - EQ_{t_0}) * \frac{(p_{EQ_{t_0}} + p_{EQ_{t_1}}/SF)}{2} \quad (4)$$

where

SF = last split factor.

8.2.3 Transactions for investment fund shares/units issued

135. According to paragraphs 5.47 and 5.167 of ESA 2010, financial transactions in investment fund shares include:
- (a) the value of net contributions to a fund (i.e. subscriptions minus redemptions); and

³⁵ The “last split factor” is defined as the number of shares before the split divided by the number of shares after the split, i.e. the value $\frac{1}{2}$ denotes a two-for-one stock split.

- (b) the property income (interest, dividends), net of a part of management costs, received by investment funds from the investments they have made and assigned but not distributed to the shareholders of the investment funds. The effect is that the income assigned to shareholders but not distributed is treated as reinvested in the fund.

136. It follows that financial transactions in investment funds shares/units issued can be derived as follows:

$$\begin{aligned} \text{Transactions in IF shares/units} = \\ (\text{Subscriptions} - \text{Redemptions}) + (\text{Property income} - \text{Management charges}) \end{aligned}$$

137. Alternatively, transactions in IF shares/units issued can be derived as the difference between the transactions in assets and the transactions in liabilities other than IF shares/units issued. This would lead to the same result as the formula in the above paragraph.³⁶

8.2.4 Estimations when there is no price information in the CSDB

138. The formulae for calculating transactions in sub-sections 8.2.1 and 8.2.2 above require price information for t_0 as well as t_1 . As price data are reported together with the corresponding stocks, they will not be available from the reporting agents where positions are zero at either t_0 or t_1 . In such cases, the price information is sourced from a reference database. In practice, the reference database may lack price data for any given security. In this case, it may not be sufficiently accurate to use only the price at t_1 or t_0 to estimate the transactions, particularly during periods with strong moves in share prices.

139. Moreover, an approach is needed to derive transactions for those positions where the reference information has been estimated for the stock data, i.e. where no price information is available on a security-by-security basis, as there is no link to an individual security.

140. In both cases, transactions on these records may be calculated by using price indices derived from security-by-security records reported by the reporting agents where full price data are available. The basic idea behind this approach is comparable to the solution for the stock data (Section 8.1), whereby missing information is also derived from the most similar complete records. For transactions, volume-weighted Laspeyres price indices are derived from the records with complete reference data for each equity or debt category (X) of the securities held by the IFs at the end of the previous quarter:

$$PR(X)_{t_0t_1} = \frac{\sum P_{t_1} * S_{t_0}}{\sum P_{t_0} * S_{t_0}}$$

³⁶ It is not mandatory to collect property income and management charges under the Regulation. Therefore, in practise, differences may arise if this data is not available to statistical compilers.

where

P = price, and

S = stock.

141. In cases where the price information for an individual security is missing at either t_0 or t_1 because the position is zero and the price is not available in the reference database, these price indices ($PR(X)_{t_0 t_1}$) can be used to estimate the missing price by deflating the price observed at t_0 or t_1 by the price index, and used as input to calculate transactions in line with formulae (1) and (3). If the price is missing at t_0 , the formula used to calculate transactions, using the formula for shares and other equity as an example, is

$$TR_{t_0 t_1} = (EQ_{t_1} - EQ_{t_0}) * \frac{(p_{t_1}/PR(X)_{t_0 t_1} + p_{t_0})}{2} \quad (5)$$

and, analogously, if the price is missing at t_1 , the formula is

$$TR_{t_0 t_1} = (EQ_{t_1} - EQ_{t_0}) * \frac{(p_{t_0} + p_{t_1} * PR(X)_{t_0 t_1})}{2} \quad (6)$$

142. The same price indices can also be used to price-adjust the aggregate balance sheet positions at t_0 where no complete reference information is available (AGG). As a last step, transactions are derived as the difference in (adjusted) aggregate positions.

Adjustment of positions at t_0 :

$$AGG(X)_{t_0_adj} = AGG(X)_{t_0} * PR(X)_{t_0 t_1} \quad (7)$$

Calculation of transactions:

$$TR_{t_0 t_1} = AGG(X)_{t_1} - AGG(X)_{t_0_adj} \quad (8)$$

9 Calculation of accrued interest on debt securities

143. As specified in Article 19(7) of the Guideline, in the IF data reported by the NCBs to the ECB, “debt securities” should include accrued interest, i.e. the holdings of debt securities should be recorded at “dirty” prices. Annex IV, Part 4, of the Guideline also specifies that accrued interest on securities is included in the stock data on securities and in the transaction value. Furthermore, accrued interest on debt securities should be separately identified and transmitted as an “of which” position to the ECB.
144. At the same time, the Regulation is flexible regarding the inclusion/exclusion of accrued interest in the data reported by IFs to the NCBs. As can be seen from Table B in Part 2 of Annex II to the Regulation, NCBs may require IFs to report, on a security-by-security basis, either “clean” or “dirty” prices and/or total amounts of securities (i.e. either excluding or including accrued interest).
145. This section provides guidance on the methodology to be used for the compilation of accrued interest in the case of stocks and transactions/revaluation adjustments.

9.1 Derivation of accrued interest for stocks

9.1.1 Theoretical background

146. If NCBs collect clean prices and/or holdings of debt securities excluding accrued interest, the NCBs need to derive the corresponding accrued interest in order to add it to the holdings of debt securities before transmitting the data to the ECB. The total amount of accrued interest on debt securities must then also be provided to the ECB as an “of which” position.
147. If NCBs collect dirty prices and/or holdings of debt securities including accrued interest, the NCBs also need to derive the corresponding accrued interest in order to provide the “of which” position for accrued interest on debt securities.
148. The basic formula to derive accrued interest, *stemming from coupon payments*, for a specific debt security is:

$$AI = C * \frac{N}{Y} = C * \frac{D2.M2.Y2 - D1.M1.Y1}{Y} \quad (9)$$

where

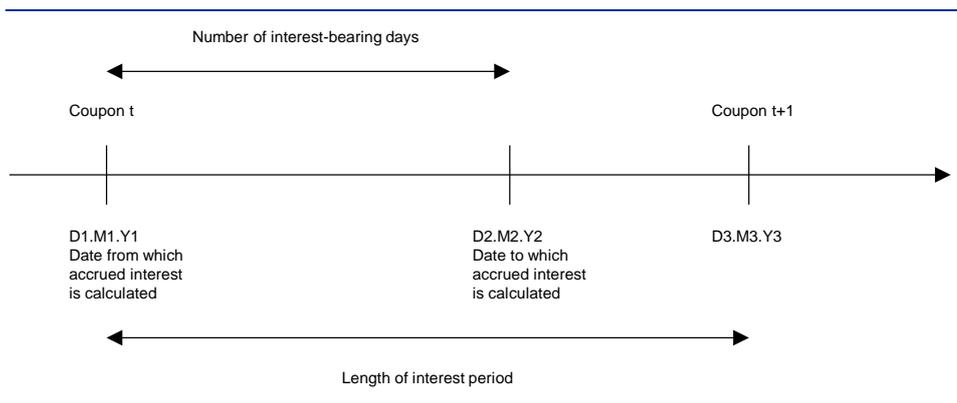
AI = accrued interest,

C = coupon amount (*annualised value*),

N = number of interest-bearing days = number of days between “date from which accrued interest is calculated (inclusive) – D1.M1.Y1” and “date to which accrued interest is calculated (exclusive) – D2.M2.Y2” (see Figure 5), and

Y = number of days between two coupon payments (length of interest period),
annualised = number of days in a “year”.

Figure 5
Calculation of interest-bearing days



149. There are various ways to calculate the number of interest-bearing days and the number of days in a “year”. The accrued interest calculation for a debt security is dependent on the day-count convention specified for the security. The most commonly used day-count conventions are 30/360, 30E/360, Actual/365, Actual/360 and Actual/Actual, where the numerator denotes the “number of interest-bearing days” and the denominator denotes the number of days in a “year”. Table 6 provides a summary of the most commonly used day-count conventions and a numerical example showing the calculations and their outcome for a particular security using the different day-count conventions.

Table 6
Day-count conventions¹

Day-count convention	Basic rule for determining the number of interest-bearing days (N)	Basic rule for determining the number of days in a "year"	Formula	Amount
30/360	30 days/month N=(D2-D1)+30*(M2-M1)+360*(Y2-Y1) - if D1 is 31, change to 30. - if D2 is 31 and D1 is 30 or 31, change D2 to 30, otherwise leave at 31	360 days/year	$(10000 \cdot 0.0275) \cdot \frac{N}{360}$	121.45831
30E/360	30 days/month N=(D2-D1)+30*(M2-M1)+360*(Y2-Y1) - if D1 is 31, change to 30 - if D2 is 31, change to 30	360 days/year	$(10000 \cdot 0.0275) \cdot \frac{N}{360}$	120.69442
Actual/365	Days/month as per calendar N=number of days between D1.M1.Y1 and D2.M2.Y2	365 days/year	$(10000 \cdot 0.0275) \cdot \frac{N}{365}$	121.30136
Actual/360	Days/month as per calendar N=number of days between D1.M1.Y1 and D2.M2.Y2	360 days/year	$(10000 \cdot 0.0275) \cdot \frac{N}{360}$	122.98611
Actual/Actual (ICMA method)	Days/month as per calendar N=number of days between D1.M1.Y1 and D2.M2.Y2	Days/year as per calendar (based on interest period length)	$(10000 \cdot 0.0275) \cdot \frac{N}{365.25}$	120.96994

¹ The number of days between two dates includes the earlier date but not the later date.
Characteristics of security A:
Nominal amount: 10,000.
Annual coupon rate: 2.75%.
Coupon frequency: 2 per year.
Start of interest period (last coupon date): 22/10/2003.
Date to which accrued interest is calculated: 31/03/2004.
End of interest period (next relevant coupon date): 22/04/2004.

150. The accrued interest for a security should, in principle, be calculated using the day-count convention applicable to that specific security. Day-count conventions are, in principle, available from the CSDB (or compatible national securities database). If no information regarding the day-count convention is available, the day-count convention "Actual/Actual" (ICMA³⁷ method) should be used.

151. Under the "Actual/Actual" convention, the denominator is the actual number of days in the coupon period multiplied by the number of coupon periods in the year (subject to exceptions in relation to irregular coupon periods). This method raises particular issues in relation to irregular coupon or calculation periods.

When the coupon period is regular:

$$AI = C \cdot \frac{N}{D \cdot F} \quad (10)$$

where

F = coupon frequency, and

D = number of days between two coupon payments (D1.M1.Y1 and D3.M3.Y3).

³⁷ International Capital Market Association.

152. In the case of irregular calculation periods, the approach used is to divide the interest period into notional interest periods.
153. As with the derivation of the actual amount of accrued interest, the dirty price can be derived from the clean price and vice versa.

Example: if the clean price is 102 (per cent of the par value) on 31 March 2004, then the dirty price is derived as follows (assuming the 30/360 convention):

$$P_d = P_c + c \left(\frac{N}{Y} \right) \quad (11)$$

where

P_d = dirty price,

P_c = clean price, and

c = annual coupon rate.

In this particular example: $P_d = 102 + 2.75(159/360) = 103.214583$

154. The following paragraphs refer to calculations of outstanding amounts of accrued interest for different types of bond.
155. In the case of bonds that are issued at discount³⁸/premium on their face value, when the bond matures, the investor will receive a lump sum equal to the initial investment plus/less interest that has accrued. In other words, in the case of securities issued at a discount or at a premium and which do not pay coupons, the accrued interest is equal to the difference between the redemption price and the issue price of the security. In this case, the interest accrues over the life of the bond and is automatically reflected in the price of the instrument. The interest accrued over a given period can be derived by taking the difference between the nominal amount valued at the redemption price and the nominal amount valued at the issue price divided by the life of the instrument (for the same nominal amount).
156. The clean price in the case of a bond issued at a discount or at a premium can be derived by subtracting from the dirty price the part related to the interest accrued.
157. In the case of bonds issued at a discount/premium and with coupon payments, the interest accrued has two components: (1) the interest accrued due to coupon payments; and (2) the amount of interest accruing due to the difference between the redemption price and the issue price.
158. In the case of bonds issued at a discount and paying a coupon, the interest due to the discount accrues until the bond is redeemed and is added to the accrued interest due to coupon payments. In this case, the total accrued interest is

³⁸ Zero coupon bonds should be treated as securities issued at a discount.

greater than the accrued interest due to coupon payments, since the issue price is lower than the redemption price.

159. In the case of bonds issued at a premium and paying a coupon, the interest due to the premium accrues negatively until the bond is redeemed and is added to the accrued interest due to coupon payments. In this case, the total accrued interest is lower than the accrued interest due to coupon payments, since the issue price is greater than the redemption price.

9.1.2 Use of the Centralised Securities Database

160. In the CSDB, a daily accrued income factor (which provides the accrued income per unit and per day) is calculated for each security.³⁹ This daily accrued income factor takes into account the accrued interest on bonds paying a coupon as well as the interest accrued in the case of bonds issued at a discount or at a premium. Therefore the accrued income can be derived as follows:

Interest income (debt):

$$IN_{DTtot1} = \frac{(DT_{t_0} + DT_{t_1})}{2} * DAYS * ACF \quad (12)$$

where

DT = debt securities – aggregated nominal amount,

DAYS = number of interest-bearing days = number of days between “date from which accrued interest is calculated (inclusive), t_0 ” and “date to which accrued interest is calculated (exclusive), t_1 ” = number of days between t_0 and t_1 , and

ACF = accrued income factor = daily security-specific accrued income factor in %, calculated following the debtor approach. The factor includes the combined effect of interest accrued due to coupons and income accrued due to the difference between the issue and the redemption price.

161. Using the CSDB, the accrued interest can therefore be derived using the attributes “accrued income factor” and “last coupon date”, from which the number of interest-bearing days can be derived. Alternatively, since the CSDB explicitly provides the attribute “accrued interest”, this attribute can be used directly instead of deriving it from the “accrued income factor” and the “last coupon date”.

³⁹ The CSDB includes the possibility of calculating accrued income on a security-by-security basis following either the “debtor” or the “creditor” approach. In conformity with the System of National Accounts (SNA) 2008, the approach chosen for the purpose of this manual is the debtor approach.

9.2 Derivation of accrued interest for transactions

162. As specified in ESA 2010 (paragraph 4.50), accrued interest is to be recorded as a transaction until it is paid. The interest accruing in each period prior to maturity should be recorded as a financial transaction that represents a further acquisition of the financial asset. When accrued interest is paid, a corresponding decrease is recorded in the amount held of the respective financial asset.

163. The amount of accrued interest between t_0 and t_1 to be added to the total value of the transactions as defined in Section 8, can be derived according to the following basic formula:

Interest income (debt):

$$IN_{DTt_0t_1} = \frac{(DT_{t_0} + DT_{t_1})}{2} * DAYS * ACF - IP_{t_0t_1} \quad (13)$$

where

DT = debt securities – aggregated nominal amount,

$DAYS$ = number of interest-bearing days = number of days between “date from which accrued interest is calculated (inclusive), t_0 ” and “date to which accrued interest is calculated (exclusive), t_1 ” = number of days between t_0 and t_1 ,

ACF = accrued income factor = daily security-specific accrued income factor in %, calculated following the debtor approach. The factor includes the combined effect of interest accrued due to coupons and income accrued due to the difference between the issue and the redemption price, and

$IP_{t_0t_1}$ = interest paid during the period t_0 to t_1 .

164. In order to derive the interest paid during the period t_0 to t_1 ($IP_{t_0t_1}$), the attributes shown in Table 7 are also available from the CSDB.

Table 7

Attributes available from the CSDB in order to derive the interest paid

Attribute name	Description
Last coupon rate (Ct)	Last coupon rate in percentage per annum. actually paid (annualised rate)
Last coupon date	Date of last coupon paid.
Coupon frequency (F)	Number of times per year that the coupon rate is paid out: "annual" transforms into 1, "semi-annual" into 2, etc.

Interest paid:

$$IP_{t_0t_1} = \frac{(DT_{t_0} + DT_{t_1})}{2} * Ct * \frac{1}{F} * n \quad (14)$$

where

n = number of coupons paid in the period t_0 to t_1 .

The date of the last coupon paid makes it possible to identify whether the last coupon actually paid falls within the reporting period or not.

165. An alternative way to derive accrued interest for transactions is by taking the difference between the total income accrued for stock positions at the respective end-period reporting dates.

$$IN_{DRT0t1} = IA_{t1} - IA_{t0} \quad (15)$$

where

IA_{t0} = interest accrued at t_0 , and

IA_{t1} = interest accrued at t_1 .

166. The following numerical example shows the calculations and their outcome for transactions in accrued interest for a particular security.

Table 8

Calculation of transactions in accrued interest – numerical example

	Number of days of accrued interest (N)	Accrued interest (AI) $1 = N \cdot DT \cdot ACF$	Coupon paid (IP)	Number of days between end-period reporting dates	Monthly transactions (DT \cdot ACF \cdot days) – IP (Approach 1)	Monthly transactions AI (t) – AI (t-1) (Approach 2)
22/10/07	0	0	0			
31/10/07	9	6.8	0			
30/11/07	39	29.3	0	30	22.5	22.5
31/12/07	70	52.6	0	31	23.3	23.3
31/01/08	101	75.9	0	31	23.3	23.3
29/02/08	130	97.7	0	29	21.75	21.8
31/03/08	161	121.0	0	31	23.3	23.3
22/04/08			137.5			
30/04/08	8	6.0	0	30	-115	-115
31/05/08	39	29.3	0	31	23.3	23.3
30/06/08	69	51.8	0	30	22.5	22.5
31/07/08	100	75.1	0	31	23.3	23.3
31/08/08	131	98.4	0	31	23.3	23.3
30/09/08	161	121.0	0	30	22.5	22.6
22/10/08			137.5			
31/10/08	9	6.8	0	31	-115	-114
30/11/08	39	29.3	0	30	22.5	22.5
31/12/08	70	52.6	0	31	23.3	23.3

Note: Differences between Approach 1 and Approach 2 may be due to rounding.

Characteristics of security A:

Nominal amount (DT): 10,000.

Annual coupon rate: 2.75%.

Coupon frequency: 2 per year.

Last coupon date: 22/10/2007.

Next coupon date: 22/04/2008.

ACF (using Actual/Actual) = 0.000075136 (= 0.0275/366).

10 Derivation of transactions for items reported on an aggregated basis

10.1 Overview

167. As set out in Table 1 in Part 17 of Annex II to the Guideline, NCBs report all assets and liabilities of IFs in terms of stocks and flow adjustments (revaluation adjustments and reclassification adjustments) to the ECB. However, according to the Regulation, in the case of revaluation adjustments/transactions, not all these items are necessarily reported by reporting agents to the NCB, although the NCB may extend its requirements to cover all these items.
168. As a minimum, IFs report data on revaluation adjustments or transactions for the following set of items: (i) securities not collected on a security-by-security basis (total currencies);⁴⁰ (ii) total financial derivatives (if not exempted); and (iii) total non-financial assets, mainly real estate (if not exempted).
169. Items where no revaluation adjustments or transactions need to be reported by the IFs include (i) deposits and loans claims, (ii) remaining assets, (iii) loans and deposits received, (iv) remaining liabilities, and (v) those items where the NCBs may exempt IFs from reporting them if the quarterly stocks represent less than 5% of IF shares/units issued (financial derivatives and non-financial assets).
170. For the purpose of deriving data on revaluation adjustments or transactions, reporting agents can, subject to the instructions of the NCB, apply the two alternative methods that are already used in the context of MFI balance sheet statistics,⁴¹ the “transaction method” or the “balance sheet method”. Under the transaction method, reporting agents consider all transactions which occur during the reference period and report them at transaction value. It follows that this method includes realised gains/losses resulting from a sale of a security in revaluation adjustments. Under the balance sheet method, transactions are calculated by taking the sales at the value at which they were recorded on the balance sheet at the end of the previous period, and purchases at the value at which they are recorded on the balance sheet at the end of the current period. Intra-period buy-sell operations of the same security are not recognised. It follows that realised gains/losses are not covered.

⁴⁰ For securities without publicly available identification codes in the case of the combined approach, or all securities in the case of the aggregated approach.

⁴¹ For a detailed description of the two methods in the context of MFI balance sheet statistics, see *Manual on MFI Balance Sheet Statistics*, ECB, April 2012, available on the [ECB's website](#).

10.2 Deposits and loans

171. The value of euro denominated deposits will not change over time and net transactions can be derived directly as differences in stocks.⁴² For deposits in other currencies, the value expressed in euro will change dependent on the development of the exchange rate against the euro. Therefore, in order to derive the revaluation adjustment for deposits, NCBs might choose to collect deposits broken down by the relevant currencies.
172. The same approach could also be followed in the case of loans which may be taken out by IFs, in particular hedge funds, to leverage investments.
173. IFs may also hold loans as investments on the assets side. The value of these loans may depend not only on the currency of the loan, but also on the interest rates prevailing in the market and the creditworthiness of the debtor. Therefore, collection of a currency breakdown may not be sufficient to compile high-quality revaluation adjustments. In cases where the investment in loans by IFs is significant on a national level, the relevant NCBs should consider collecting the revaluation adjustments or transactions from the reporting agents.
174. The transaction value of deposits and loans excludes fees. It also excludes accrued interest that is receivable/payable but has not yet been received or paid. Accrued interest on deposits and loans is recorded under remaining assets/remaining liabilities.

10.3 Financial derivatives

175. When a new financial derivative contract is created, it should be recorded on the balance sheet, and the initial asset/liability position should be recorded as a financial transaction. The transaction value should not include fees or repayable margin payments. In the case of forward-type contracts and warrants, the transaction value is normally zero, and for option-type contracts, the transaction value corresponds to the premium.
176. During the life of a financial derivative, changes in its market value should be recorded as revaluation adjustments. Favourable (positive) changes in the market price should be recorded on the asset side and unfavourable (negative) changes in the market price should be recorded on the liability side. Payments due to marking to market which results in a change in the value of a financial derivative position should be recorded as financial transactions.
177. When a financial derivative is settled, any associated payments (excluding fees) should be recorded as financial transactions.

⁴² Valuation changes in the case of time deposits with a fixed interest rate are disregarded in this example.

178. Purchases or sales of financial derivatives on secondary markets should be recorded as financial transactions valued at transaction prices.

10.4 Non-financial assets

179. The most relevant item within non-financial assets is holdings of real estate. Given that the geographical areas of investment and the types of real estate invested in are likely to differ considerably between investment funds, it seems almost impossible to derive transaction data from reported stocks without further information.

180. From a practical point of view, there seem to be two general approaches to the data provision. Given that transactions in real estate are relatively infrequent, the NCBs might require IFs to directly report transactions in real estate in addition to the stock data. An alternative approach would be for IFs to report revaluation adjustments related to holdings of real estate in addition to the stock data, providing the necessary input to derive transactions.

181. In the case of non-financial assets, it may be difficult to allocate geographically non-financial assets that are not real estate, such as works of art. In this case, for the sake of simplicity, the non-financial assets could be allocated as domestic.

10.5 Remaining assets/liabilities

182. The most relevant item within remaining assets/liabilities is accrued interest receivable/payable on loans/deposits. Accrued interest that is not yet paid should be recorded as a financial transaction. The transaction value does not exclude taxes levied on interest.

11 Derivation of monthly data (methods for estimation techniques)

183. As specified in Article 19(6) of the Guideline, for reference months that are not end-quarter months, the monthly data on IF assets and liabilities other than investment fund shares/units issued must be estimated on the basis of the collected monthly and quarterly data.⁴³ The estimates can be made either by the NCBs, preferably at individual fund level (alternatively by IF sub-sector), or the NCBs may request the ECB to make the estimates, in which case the ECB may request additional information such as fund-by-fund or security-by-security data.

184. The purpose of this section is to describe some possible methods to be used by the NCBs for the purpose of estimating the monthly data, both for stocks and for transactions/revaluation adjustments. Two approaches are considered: (i) *the temporal disaggregation method*, which may be used when NCBs collect only IF shares/units on a monthly basis and when the structure of the IF's securities portfolio is assumed to change during the quarter; and (ii) *use of the CSDB or local securities database*, which would be possible when the structure of the IF's securities portfolio can be assumed to be quite stable during the quarter, or when monthly security-by-security information is collected from IFs.

11.1 Temporal disaggregation methods⁴⁴

185. These are methods that exploit the information provided by the functional relationship estimated at a lower frequency (e.g. quarterly) between an indicator ("anchor" variable) and the variables to be interpolated. The information provided by the functional relationship is then used together with the anchor variable, which is also available at higher frequency (e.g. monthly), to obtain monthly estimates of the other variables. This procedure allows data to be interpolated for both stocks and flows.

186. In the case of IF statistics, the estimation of intra-quarter monthly stocks and flows data on assets and liabilities of IFs will be based on the stocks and flows data available at a monthly frequency, which will serve as anchor values (such as "investment funds shares/units issued"), and the observed exhaustive quarterly breakdowns of stocks and flows collected from reporting agents.

⁴³ Unless all required data are collected on a monthly basis, as set out in Article 5(2) of the Regulation.

⁴⁴ These methods were also used to compile historical monthly series for euro area loans and deposits from other resident sectors by type of sub-sector. See "Technical notes on the historical monthly series for euro area loans and deposits to other resident sectors", ECB, May 2006, available on the [ECB's website](#).

187. In the case of *stock* data, the quarterly end-period stocks coincide with the monthly stock data with reference to the end-quarter month. The estimated intra-quarter monthly observations are thus obtained by interpolating available quarterly stock data. On the other hand, in the case of *flow* data, monthly estimates are derived by *distributing* the quarterly flow data, since quarterly flows should be equal to the sum of the three monthly flows.
188. Several alternative procedures have been proposed in the literature to deal with the temporal disaggregation of data and missing observations (including forecasting).⁴⁵ One of the procedures that make use of the indicators available at the desired higher frequency and related to the series to be estimated is the procedure proposed by Chow and Lin and further developed by others.⁴⁶ These procedures are presented in this manual as possible interpolation techniques to derive monthly data on IF assets and liabilities.
189. The Chow-Lin procedure can, in formal terms, be expressed as follows: let y_t be the unknown series to be estimated at monthly level and Y_t its available quarterly values, while w_t is the indicator (or “anchor” series) available at monthly level, and W_t is the quarterly values. The unknown relationship at monthly level between the anchor series and the variables to be interpolated can be expressed as:

$$y_t = aw_t + u_t \quad (16)$$

where

u_t is the disturbance error and is estimated by using the information provided by the relationship at quarterly level between the anchor series and the variables to be interpolated:

$$Y_t = \beta W_t + e_t \quad (17)$$

190. Thus, the Chow-Lin procedure takes into account the historical relationship between the control variable (e.g. investment fund shares/units issued) and the sub-components at the quarterly level.
191. In order to derive the final monthly estimates, a two-step procedure can be applied. As a first step, the Chow-Lin procedure with AR(1) errors is implemented, using as an indicator the monthly investment fund shares issued. However, in the case of assets and liabilities of IFs, the interpolation problem is complicated by the existence of horizontal (or adding-up) constraints, e.g. the sum of the monthly series for the assets and liabilities has to coincide with the

⁴⁵ For a review of the different methods, see Eurostat, Handbook on quarterly national accounts, European Commission, Luxembourg, 2013, Chapter 5.

⁴⁶ See Chow, G. and Lin, A.L., “Best Linear Unbiased Interpolation, Distribution, and Extrapolation of Time Series by Related Series”, *The Review of Economics and Statistics*, Vol. 53, No 4, November 1971, pp. 372-375; Fernández, R.B., “A Methodological Note on the Estimation of Time Series”, *The Review of Economics and Statistics*, Vol. 63, No 3, August 1981, pp. 471-476; and Litterman, R.B., “A Random Walk, Markov Model for the Distribution of Time Series”, *Journal of Business & Economic Statistics*, Vol. 1, No 2, April 1983, pp. 169-173.

total assets/liabilities, and these are not necessarily satisfied by the interpolation procedure. To tackle this issue, in a second step the horizontal aggregation errors resulting from the application of Chow-Lin (first step) can subsequently be distributed to the monthly interpolated series by using the Denton adjustment procedure.⁴⁷

192. Finally, a non-negativity constraint has to be imposed when deriving the monthly stock data. This can be imposed in the second step of the interpolation phase together with the additivity constraint, such that in all the cases where the result of the first-step interpolation is negative, the observation is set to one,⁴⁸ and any resulting additivity discrepancy between the monthly interpolated balance sheet items and the corresponding total assets/liabilities is then adjusted together with the other horizontal discrepancies.
193. Where the Chow-Lin procedure is applied, the initial forecasts must be based on a sufficient number of historical data points to obtain acceptable results. Therefore, existing historical data, even though not necessarily in line with the requirements as set out in the Regulation, will need to be used.

11.2 Use of the Centralised Securities Database or a local securities database

194. The information available on a security-by-security basis regarding the holdings of securities by IFs at the end of the quarter could possibly be used (for certain IF sub-sectors) to estimate transactions for the reference months that are not end-quarter months. This approach would be based on the assumption that the structure of the IF's securities portfolio does not change during the quarter. In this case, the security-by-security information on assets held by IFs at the end of the previous quarter, combined with security prices available from the CSDB or local securities database, could be used as a basis for estimating the developments during the quarter. Given the irregular nature of transaction data, price information should be taken into consideration. In this way, this method can also complement the temporal disaggregation methods for deriving transactions, especially when strong changes in prices for one or more security category are observed.

⁴⁷ See Denton, F., "Adjustment of Monthly or Quarterly Series to Annual Totals: An Approach Based on Quadratic Minimization", *Journal of the American Statistical Association*, Vol. 66, No 333, March 1971, pp. 99-102.

⁴⁸ Negative values resulting from the application of the Chow-Lin procedure in the first step cannot be set to zero, since this would, in the case of many negative values, lead to a problem of singular matrices in the second step.

12 Derogations regarding reporting frequency

195. Article 8(2) of the Regulation states that “derogations may be granted to IFs that are subject to national accounting rules which allow the valuation of their assets less frequently than quarterly” and that “the IFs to which such derogations apply shall be subject to the requirements set out in Article 5 of the Regulation at a frequency consistent with their accounting obligations regarding the timing of valuation of their assets”.
196. Furthermore, Article 19(4) of the Guideline specifies that “notwithstanding such derogations, the monthly and quarterly IF data reported by NCBs to the ECB shall always include data relating to these IFs”.
197. In most cases, the IFs to which such derogations will be granted are likely to be closed-end real estate funds, since these types of fund often value their non-financial assets (mainly consisting of property) only on an annual or semi-annual basis. The categories of IF to which the derogations may be granted have been published in a decision of the European Central Bank concerning derogations granted under the Regulation.⁴⁹
198. Since the changes in their non-financial asset positions will depend on the development of property values as well as the buying and selling of properties, the estimated monthly and quarterly data should ideally take these into account. However, if the appropriate information is not available, NCBs could simply repeat the last available stock data until new information becomes available. Once the new information becomes available, the transaction between time t-1 and time t can be redistributed taking into account the number of months between t-1 and t.
199. If the assets are only valued on an annual basis, the redistribution of the annual transaction will lead to revisions in the monthly and quarterly data provided for an entire year. While this does not comply with the revision policy set out in Article 19(3) of the Guideline, an exception to the revision policy can be made in this case.
200. In the case of IFs other than real estate funds (or other funds investing mainly in non-financial assets) to which such derogations are granted, monthly and quarterly estimations could possibly be derived by using the CSDB or local securities database as described in Section 11.2. Alternatively, the same approach as for real estate funds, as described above, could be applied.

⁴⁹ Decision (EU) 2015/32 of the European Central Bank of 29 December 2014 concerning derogations that may be granted under Regulation (EU) No 1073/2013 concerning statistics on the assets and liabilities of investment funds (ECB/2013/38) (ECB/2014/62) (OJ L 5, 9.1.2015, p. 17).

13 Annual quality report referred to in Annex I to the Regulation

201. As specified in Table 2 in Part 3 of Annex I to the Regulation, NCBs may choose to collect security-by-security information only on the “number of units or aggregated nominal amount” instead of also collecting security-by-security information on, for example, the price of the security or the total amount of the security. However, if an NCB chooses to adopt this approach, it “must check, and inform the ECB, at least once a year that the quality of the aggregated data reported by the NCB, including the frequency and size of revisions, is unaffected”.
202. In order to check the quality of the aggregated data reported to the ECB, the NCB could cross-check the data for a representative sample of IFs by comparing the data published in the annual accounts of these IFs with the data derived from the security-by-security information and the prices available from the CSDB.

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Postal address 60640 Frankfurt am Main, Germany
Telephone +49 69 1344 0
Website www.ecb.europa.eu

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