Employee Stock Options
Paper for the Advisory Expert Group on national accounts
By Eurostat

Executive Summary

This paper summarises research and discussions undertaken over the last four years in national statistics offices and international meetings, with regard to the recording of Employee Stock Options (ESOs) in the national accounts. Since business accountants have also been examining this issue, and business accounts data are likely to form the main basic statistical source for ESOs, this paper considers developments in international business accounting standards.

The main recommendations of the paper are as follows:

- Include all ESOs in compensation of employees (wages and salaries in kind), irrespective of whether they will be settled in new or re-purchased shares.
- Record ESOs in the accounts at vesting date or (as a practical alternative) spread across the grant to vesting date period.
- Value ESOs at market price, or using a suitable option pricing model.
- Record ESOs in the financial accounts as financial derivatives.

If the International Accounting Standards Board (IASB) proposals were to be adopted as we expect in July 2004 (the chances of this are high), they would broadly comply with these recommendations, and other Accounting Standards Boards (not subject to IASB authority) are likely to develop similar standards over time. There are some practical issues:

- ESOs should be allocated to a separate category of compensation of employees.
- Business and labour data sources should be updated to ensure that the basic sources treat ESOs consistently with national accounts, and there needs to be some discussion with Balance of Payments experts concerning ESOs granted to non-residents.

The SNA93 paragraphs most likely to be affected by the proposed treatment of ESOs would be 7.37-7.42, 14.117, 11.34-11.43.

Introduction

ESOs became increasingly important throughout the late 1990s. Whilst the ESOs have always been more popular in North America than in Europe or Asia, they have become established in most countries to a greater or lesser degree. Over the past three years, the fall in global stock markets has led to an undoubted reduction in the impact of ESOs, as many existing options have become worthless and employees are less willing to accept ESOs as part of compensation packages. However ESOs have not disappeared, and as a remuneration model are likely to remain in use. It is also possible that ESOs are an early indication of a trend away from the traditional payment and financing mechanisms which underlie the rationale of the national and business accounting systems, and which may become more apparent in the next economic upswing[1].

National Accountants have been considering the treatment of employee stock options (ESOs) for a number of years, within countries and in international meetings; there are no explicit rules for ESOs in either the SNA93 or the ESA95. At the OECD meeting of national accounts experts in October 2002, a broad agreement was reached that ESOs should be recorded as compensation of employees in the national accounts. The experts recommended that the timing and valuation of the recording of ESOs should be assessed alongside the proposals for business accounting from international accounting standards experts. This paper provides a summary of the conceptual issues and also considers the likely trends in business accounting, which will probably provide the principal data source.

Description of an ESO

ESOs may exist in a variety of forms, but the standard model[2] is as follows:

- At the "grant date" a company grants an employee the right to purchase a set number of shares at a set price (the "strike" price) at a particular time in the future.
- The employee must wait for a certain period of time (often at least two years, and known as the "vesting period") before the options are available for exercise. This time expires at the "vesting date" and there are generally conditions attached for the ESOs to vest (usually the employee should continue to work for the company at vesting date).
- The employee exercises the option at their discretion on or after the vesting date by purchasing shares at the strike price. These shares can then be held or re-sold on the market (generally the latter).

There are some variations on the standard model:

- With most ESOs, there is a relatively long period after vesting date in which the employee may choose to exercise their options. In others (known as 'European-Style options') exercise may only take place on a set day or very restricted period.
- There may be restrictions on the sale or off-setting of ESOs. For example, some ESO schemes may allow employees to sell or offset the ESOs on the open market, without actually purchasing them. Thus the ESOs of some (usually large listed) companies can be freely traded in the open market and a market price established.
- There may be a "reload" future where new ESOs are made available upon the exercise of existing ESOs.

[1] It is worth noting that the business accounting development work has not just focussed on employee stock options, but also stock options used to pay for other goods and services. It might be worth mentioning this in the new SNA.
[2] ESOs are different in nature from "Employee Stock/Share Ownership Plans", though there can be some overlap at the margin. ESOPs should probably also be dealt with in national accounts guidance, though they are not discussed in this paper.

- The ESOs may actually lead to a cash payment from the employer rather than being settled in shares, either as a compulsory feature or as a choice of the employee or employer.
- ESOs may be made by international companies to staff working in branches or subsidiaries abroad.

A key point about ESOs is that the employee has the choice of whether or not to exercise. Thus if the prevailing market price is below the strike price (ie. if the ESO is "under water"), the employee will simply not exercise the ESO. Therefore it is not possible for an ESO to have negative worth to the employee – at a minimum it has zero worth.

Choices for recording

There are three main choices to be made when recording ESOs in business and national accounting:

i) *Are ESOs part of wages and salaries?* If so, they should be considered an expense to the business (thereby reducing profit or operating surplus). If not, then they are simply a financial transaction.

ii) *When should ESOs be recorded?* The choice is between grant date, vesting date, exercise date, or spreading the value of the ESOs between two of these points in time.

iii) *How should ESOs be valued?* Some ESOs will have a market value because they are freely traded, but many will not. For the latter, one could use a form of stock options pricing model, or simply take the prevailing difference between strike price and market price of the share (which would usually be zero at grant date).

Business Accounting

It is important to consider developments in business accounting because this is likely to be the main source of data on ESOs available to statisticians – whilst tax data are sometimes available, the tax treatments of ESOs across countries are very different[3]. It is also rather unlikely that businesses will be able to make calculations of ESOs solely for statistical surveys. Hence this paper proceeds to examine business accounting issues to establish the background, and then returns to the national accounting treatment.

Existing business accounting standards for ESOs vary across countries. In most cases enterprises can choose whether or not to expense ESOs, but there is some form of compulsory disclosure in company documents. Since early 2002 many large US companies and multinationals have taken the decision to voluntarily expense ESOs in their accounts, and some European companies are following this trend.

IASB proposals

[3] See the summary of a 2001/02 study on behalf of the European Commission at: http://europa.eu.int/comm/enterprise/entrepreneurship/support_measures/stock_options/overview.pdf

The International Accounting Standards Board (IASB) issued an Exposure Draft on 7 November 2002 regarding "Share-based payment" [4]. The Board received a very large number of comments and is still considering its position - the current timetable is to introduce a new International Accounting Standard at the end of July 2004[5].

The IASB Exposure Draft deal with all payments for goods and services based on shares or options, to ensure that there is a consistency of approach. The following proposals relate specifically to equity instruments (ESOs) that are to be settled in shares:

- A company must recognise all share-based payment transactions in its financial statements. There is no exception for employee share purchase plans. Thus ESOs, as payments for a service (of employees) must be recognised as a business expense.
- A company should measure these transactions on the basis of the fair value of the goods and services received, or by reference to the fair value of the equity instruments granted, whichever fair value is more determinable. In the case of transactions with employees, the proposal specifies that the fair value of the equity instruments granted (ie. the ESOs) should be used.
- If the equity instruments vest immediately upon grant (that is, there are no conditions attached) the services are presumed rendered at grant date. If there is a vesting period with conditions attached, the services rendered shall be presumed to be given during the vesting period (ie. they should be spread between grant and vesting date).
- The fair value of equity instruments should be measured at grant date using a market value of equivalent traded options (if available) or using an option pricing model (binomial or Black-Scholes) with suitable allowance for particular features of the options. Rather than specify the model to be used in great detail, the IASB has proposed general guidelines, with full disclosure of the method used in the notes to the financial accounts. Any reload feature should either be accounted for in the valuation calculation or treated as a separate option grant.

The IASB recognised that the proposal to spread the impact of ESOs over the vesting period raises the question of how to record ESOs that do not eventually vest. Therefore it set specific requirements:

> i) The valuation of the equity instrument at grant date should be divided by the expected number of service (work) units, to obtain a value per service unit. The expected number of service units is derived by estimating the proportion of equity instruments which will not eventually vest.
>
> ii) Each accounting period, the value per service unit should be multiplied by the total number of service units actually delivered, to obtain the total expenses to be recorded in the financial statements.

[4] Electronic version can be found at http://www.iasc.org.uk/docs/ed02/ed02.pdf

[5] See http://www.iasc.org.uk/docs/projects/sbp-ps.pdf for further information. Note that political opposition in some countries (eg. the US) could slow down the process further. The IASB has announced that the new standard would apply from January 2005.

ii) If an equity instrument does not eventually vest, there should be no backward revision to remove the impact from past accounting periods, since the related service units have been delivered over that period.

The IASB gave worked examples to illustrate its proposals. One of these is simply reproduced in Box 1 below.

Further complexity can be added to the calculations if there are more vesting conditions (for example the entity must realise a certain profit rate) and if the options are re-priced or cancelled/reissued. These involve making further assumptions, which will not be considered here.

The IASB has been careful to issue a very detailed justification for its proposals, since the business community has been highly critical during past attempts to expense ESOs. In partic ular, the IASB considered at length the arguments that ESOs settled with newly issued shares represent a dilution of shareholder value, and not a cost to the company.

The IASB rejected this argument on the basis that:

i) It is the company that sets up ESOs and the company that receives the services of the employees, and that all share-based purchases of goods and services should be treated equally, including ESOs where a company undoubtedly receives services from its employees.

ii) Even if there is no actual cash cost to the company from the ESOs, the company is consuming resources which must be consumed. In every other case where equity is issued by the company, a corresponding inflow (usually of cash) to the company is recorded.

Box 1. Worked example from IASB proposals in ED2

An entity grants 100 options to each of its 500 employees with a 3 year vesting period. It estimates the fair value of each option to be €15, and that 20% of options will not eventually vest because the employees will leave the company (with an even spread over the three years). This gives a total figure of €600,000 (500x€15x80%) for fair value of options expected to vest.

The 500 employees are expected to deliver 1350 years of service (allowing for the 20% which will leave). Thus fair value of options divided by expected service gives a value per service unit of €444.44.

If actual service units delivered in the three years are 500, 500, 450 (totalling 1450 units – more than expected), the value of services to be recorded (expensed) in the financial statements are €222,222, €222,222 and €200,000 respectively.

It is possible for ESOs to be issued by firms whose shares are unlisted. The IASB proposals for accounting for ESOs cover all firms and specifically specify that an estimated market price of the shares should be used if they are not publicly traded.

Since the end of the comment period, the IASB Board has discussed stock options a number of times and has tentatively agreed to retain the key methods in ED2. However as part of the convergence programme with the US Federal Accounting Standards Board, there has been some tentative adoption of certain detailed FASB rules (which are set down in the relevant Financial Accounting Standard 123), whilst the FASB has proposed some changes to FAS 123. The most important change has been to move away from the "units of service" method towards the US approach of spreading the expense over the period which the employees work to earn the related benefit – in many cases the impact would be broadly the same since there would probably be quite strict qualification rules on the allocation of ESOs outside the grant to vesting date period. Nevertheless, from monitoring of ongoing discussions, it must be said that the most likely outcome is that US accounting rules will continue to differ from IASB rules in the detail, even if the key principles are shared.

ESOs in the national and financial accounts

The primary question for ESOs is whether or not they should be recorded as compensation of employees in the national accounts. Neither ESA95 nor SNA93 specifically prescribe the treatment of employee stock options in the accounts. SNA93 (para 7.21) describes compensation of employees as:

"the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period."

SNA93 also sets out the recording basis:

"Compensation of employees is recorded on an accrual basis; i.e., it is measured by the value of the remuneration in cash or in kind which an employee becomes entitled to receive from an employer in respect of work done during the relevant period, whether paid in advance, simultaneously or in arrears of the work itself." [SNA93 para 7.21]

According to ESA95 (para 4.05) compensation of employees should include any bonus shares distributed to employees and bonuses paid. Bonus shares could be seen as an extreme form of stock options – where the employee receives shares for free instead of having to purchase at the strike price – although stock options present considerably greater complexity. ESA95 (para 4.12a) specifies that "…ad-hoc bonuses or other exceptional payments, 13th month, etc, are recorded when they are due to be paid", which differs from the regular recording of wages and salaries which should be "recorded in the period when the work is done".

Some national accountants have suggested other ways of recording (at least part of) employee stock options in the national accounts (as capital transfers, dividends, etc) but these solutions do not reflect the fundamental nature of stock options that they are granted to workers as a reward/incentive for their labour. Taking the arguments above into account, it seems reasonable to treat employee stock options as compensation of employees (as wages and salaries in kind).

Timing of recording

In terms of timing of recording, the Eurostat proposal presented to the October 2002 OECD national accounts experts meeting[6] was for recording ESOs in compensation of employees at vesting date (earlier if the ESOs were tradable before vesting date) or for spreading the vesting date value across the vesting period. Any changes in the value of ESOs after this are recorded as holding gains/losses for households. The main underlying rationale for vesting date recording is that before this time the employee must usually fulfil certain conditions to vest (most commonly continuing to work for the company), and therefore ESOs can be considered only as a contingent asset/liability. Whilst most countries could accept the Eurostat suggestions, there were some concerns about the treatment of revisions in the case of spreading the value across the vesting period, although it does have attractions in more closely matching the delivery of the services of the employees (SNA93 paragraph 7.21 specifies that compensation of employees should reflect "work done by the [employee] during the accounting period").

The IASB proposals on time of recording were an interesting mixture of grant date valuation with an allowance for changes in the services delivered by employees. They overcome the revision problem because the grant date valuation sets the average compensation per employee unit, and this average remains unchanged throughout the vesting period (unless of course there is repricing).

Valuation method

The Eurostat proposal was to use market value or a suitably adjusted option pricing model at vesting date, and this seemed to command support in most countries. Some countries preferred to measure the value of an ESO as the difference between the ESO strike price and the market price of the share at vesting date (ie. the implied value of the ESO from post-vesting share price movements would be excluded from compensation of employees). The Eurostat proposal is broadly in line with the IASB proposals for the use of "fair value", though the IASB is likely to recommend grant date recording. The difference between grant and vesting date measurement would reflect the changes to the market value or modelled value of the ESO, which would reflect the change in expected future value of the ESO arising from market movements in share price levels and volatility – arguably there would not be a systematic difference between valuation at grant date and at vesting date.

Given the rather large number of assumptions that would need to be made under the IASB proposals (in particular in relation to the likelihood of ESOs vesting), there may be a concern that there will be a certain lack of comparability between the estimates of different companies. Nevertheless the disclosure rules and necessity of obtaining an audit opinion should reduce this risk, and the IASB in its recent discussions has been moving more and more towards explicit rules on the factors which must be adjusted for in the options pricing model used.

Financial accounts questions

[6] This document can be found at http://www.oecd.org/dataoecd/47/24/1959635.doc.

There must be a counterpart financial asset/liability created for the employee/employer when the ESOs are recorded. The most logical place to create the asset/liability is in the category of financial derivatives, where options are already included.

Before vesting date, there is arguably no financial asset in the system because, as described above, an unvested ESOs is a contingent asset (defined in SNA93 para 11.25 as arrangements which "do not give rise to unconditional requirements either to make payments or provide other objects of value") – the ESOs do not vest unless certain conditions are fulfilled. If ESOs were spread across the vesting period, one would either need to create assets/liabilities in financial derivatives, or assets/liabilities in "Other accounts receivable and payable" which would then be extinguished by the creation of a financial derivative at vesting date.

Some commentators have pointed out that even at vesting date, many ESOs may not be considered as financial derivatives in the system. The revised version of the SNA93 says that "Financial derivatives are financial instruments that are linked to a specific financial instrument or indicator or commodity, and through which specific financial risks can be traded in financial markets in their own right." (SNA93 para 11.34). ESOs are not written with risk management in mind and sometimes cannot be traded on the market in their own right; therefore they do not appear to meet the SNA93 definition

Nevertheless, "Over the Counter" (OTC) options would appear to be included in the category of financial derivatives in SNA93. These types of options are typically arranged bilaterally between two parties (often in the field of foreign exchange) and are not tradable. They may however be sold back to the writer and could be off-settable on the market. ESOs share many of the characteristics of OTC options and, providing there are no restrictions in the grant conditions, could be off-settable on the market.

If this argument were accepted, then one would need to decide if the lack of a risk management motive would be sufficient to exclude ESOs from financial derivatives. If some ESOs cannot be considered as financial derivatives under SNA93, then they could continue to be considered as "Other accounts receivable and payable" in the accounts, until the point at which they are exercised.

In practice, the IASB proposals would not create any financial accounting data on the split between options which are tradable and those which are not. Statistical offices would need to use a single classification scheme for all ESOs (or be forced to undertake a company by company analysis or special data collection).

Financial balance sheet issues

There has been some debate about the use of newly issued shares to exercise stock options.

One possible point of view is that the issue of new shares to employees at below market prices is simply a dilution of existing shareholder value. If the shareholders are viewed as separate units from the firm, this implies that employees benefit at the expense of holding losses for existing shareholders, and the stock options are costless to the firm.

In business accounting, shares are recorded in the balance sheet at issue value, with various reserves recorded to ensure that the balance sheet actually balances – this implies that the shareholders are entities separate from the firm, a premise that seems well based in the legal position of joint stock companies in almost all countries. But in the national accounts, it is necessary that any financial asset has an equal and opposite liability in the system, and unallocated "reserves" are not recognised. Hence shares are valued in the national accounts balance sheet of corporations at market value (see SNA para 13.83) which links the "worth" of companies with the fortunes of their shareholders. It is nevertheless important to make clear that changes in valuation due to holding gains/losses between vesting date and exercise date do not appear in income accounts.

The alternative view is that the firm does have an 'opportunity cost' because it undertakes a commitment to issue financial instruments (shares) on demand in the future at below market prices. It is this opportunity cost which would then be recognised in the accounts as the firm's liability in stock options. Whilst the concept of opportunity cost is set out in the existing SNA system (see para 1.60), it seems to be invoked only in the context of asset valuation. However discussions in other areas of the SNA revision process suggest that the use of opportunity cost may widen in the revised SNA.

This alternative view could also be expressed in terms of a simple rule that "the method of financing should not dictate the way a transaction is recorded in the non-financial accounts". Why should we treat firms that finance stock options through new share issues differently from those firms which use cash resources to repurchase shares from the market?

During discussions, most countries seemed to agree that the way in which ESOs are exercised (whether through new or existing shares) is not material to the treatment in national and financial accounts.

This was also the view taken by the IASB in its proposals.

Worked example in national accounts of share option

Annex 1 shows a worked example of the national and financial accounting treatment of ESOs, based on the IASB example given in box 1

Cash-settled share-based payments

The IASB proposals consider the case of "cash-settled share-based payment transactions" and recommend that a liability of the company should be established as the employees render service, and that liability should be re-measured at fair value (with an impact on profit/loss) until the liability is settled.

The national accounting treatment of cash bonuses paid to employees is very clear – they should be recorded as part of compensation of employees when they are due to be paid (ESA95 para 4.12). The proposed IASB treatment would create a timing difference between the business accounting data and the national accounts requirement. However in principle the national accounts wishes to match compensation of employees to the time period when the work is done; the decision to measure cash bonuses when they are due (in effect, when paid) was a practical one, based on the difficulty of accruing the bonus to when it is earned. The IASB has proposed a method for matching compensation to the period when it is earned, and this might be considered acceptable for national accounts purposes.

Cross-border ESOs

Some countries[7] have pointed out that there is an international case to be considered for ESOs. Sometimes large multinational companies grant stock options to employees of their local subsidiaries. There would therefore need to be entries made for cross-border compensation of employees and for the associated financial movements. There are both theoretical and practical issues here. On a practical level, it is not possible to use bank settlements data but data must be obtained from businesses or (less satisfactory) from tax authorities. On a theoretical level one would need to be clear that there is an impact on Reinvested Earnings of Foreign Direct Investment, which would have a knock-on effect in shares recorded in the financial account. Participants in the October 2002 OECD national accounts experts group agreed with this analysis, and suggested that a discussion with Balance of Payments experts would be necessary.

Practicalities

In the very limited cases where separate data for ESOs are available, it has been noted that ESOs tend to be rather volatile – partly because they may be issued in irregular tranches, and partly because of volatility in underlying share prices. The IASB proposal would significantly reduce the observed volatility because the measure of average fair value per service unit is made at grant date. The irregular timing of grants would remain, though this type of volatility is already observed for cash bonus awards. Therefore it would certainly be best practice to identify ESOs in a separate sub-category within compensation of employees in the national accounts, at least for a transitional period.

Under the IASB proposals, the separate information on ESOs available in financial statements may only be found in the notes to the statements. This will require the adjustment of accounting plans to ensure that this element is collected by administrative systems, or the revision of business statistics questionnaires.

Some countries do not measure compensation of employees through business accounts data, but rather through administrative (often tax or social security) data sources or earnings statistics. Where administrative statistics are used, it will be important to understand how ESOs are treated there and if continued use of these data sources, with no adjustment, will lead to an incorrect registering of stock options. For example, use of tax data where taxable income is defined as including stock options only when they are exercised will introduce a lag and different valuation basis compared with business data on wages and salaries. It would not be sensible to

[7] For example see the contribution from Israel at http://www.oecd.org/dataoecd/25/18/1957107.doc

require all countries to use business accounts data for estimating compensation, however it is not immediately clear whether the ESO data from business accounts could be substituted for the ESO data inherent in other data sources.

<u>Annex 1: Worked Example (based on the IASB example in Box 1)</u>

An entity (company B) grants 100 options to each of its 500 employees with a 3 year vesting period. It estimates the fair value of each option to be €15, and that 20% of options will not eventually vest because the employees will leave the company (with an even spread over the three years). This gives a total figure of €600,000 (500x€15x80%) for fair value of options expected to vest.

The 500 employees are expected to deliver 1350 years of service (allowing for the 20% which will leave). Thus fair value of options divided by expected service gives a value per service unit of €444.44.

If actual service units delivered in the three years are 500, 500, 450 (totalling 1450 units – more than expected), the value of services to be recorded (expensed) in the financial statements are €222,222, €222,222 and €200,000 respectively.

Extending th is example further: Let us assume that the strike price of the ESOs is €20 and at vesting date (the start of year 4) the fair value of the option is €20. The 400 employees with vested options wait one year and then all exercise at the start of year 5. They then immediately sell the shares to company C for a €25 profit.

Period of grant date to vesting date

Company B (year 1)

<u>Generation of income account</u>

Uses		Resources	
D1 Compensation of employees	+222,222		

<u>Financial Account</u>

Changes in assets		Changes in liabilities	
		AF.79 Other accounts payable	+222,222

Employees (year 1)

<u>Allocation of primary income account</u>

Uses		Resources	
		D1 Compensation of employees	+222,222

<u>Financial Account</u>

Changes in assets		Changes in liabilities	
AF.79 Other accounts receivable	+222,222		

Company B (year 2)

As for year 1.

Employees (year 2)

As for year 1.

Company B (year 3)

Generation of income account

Uses	Resources
D1 Compensation of employees +200,000	

Financial Account

Changes in assets	Changes in liabilities
	AF.79 Other accounts payable +200,000

Employees (year 3)

Allocation of primary income account

Uses	Resources
	D1 Compensation of employees +200,000

Financial Account

Changes in assets	Changes in liabilities
AF.79 Other accounts receivable +200,000	

Vesting of options

Note that there are two revaluation effects here – the first (+155,556) because the accumulated other accounts payable are worth less than the value of the vested options at vesting date, and the second because the options appreciate in value through the rest of the year (+200,000).

Company B (year 4)

Financial Account

Changes in assets	Changes in liabilities
	AF.34 Financial Derivatives +644,444
	AF.79 Other accounts payable -644,444

Revaluation Account

Changes in assets		Changes in liabilities	
		AF.34 Financial Derivatives	+155,556
		AF.34 Financial Derivatives	+200,000

Employees (year 4)

Financial Account

Changes in assets		Changes in liabilities	
AF.34 Financial Derivatives	-644,444		
AF.79 Shares	+644,444		

Revaluation Account

Changes in assets		Changes in liabilities	
AF.34 Financial Derivatives	+155,556		
AF.34 Financial Derivatives	+200,000		

Exercise of options

Company B (year 5)

Financial Account

Changes in assets		Changes in liabilities	
AF.2 Currency and Deposits	+800,000	AF.34 Financial Derivatives	-1,000,000
		AF.5 Shares	+1,800,000

Employees (year 5)

Financial Account

Changes in assets		Changes in liabilities	
AF.2 Currency and Deposits	-800,000		
AF.34 Financial Derivatives	-1,000,000		
AF.5 Shares	+1,800,000		

Sale of shares to company C

Employees (year 5)

Financial Account

Changes in assets		Changes in liabilities	
AF.2 Currency and Deposits	+1,800,000		
AF.5 Shares	-1,800,000		

Company C (year 5)

Financial Account

Changes in assets		Changes in liabilities
AF.2 Currency and Deposits	-1,800,000	
AF.5 Shares	+1,800,000	