

# **MNC DATABASES – REPORT ON DATA GATHERING**

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## **Executive summary**

- The key objective of the data collection was to construct databases of overseas-owned with UK operations and UK-owned MNCs with overseas operations, given specified employee thresholds. Additional information relating to eligible MNCs was also required.
- Two financial analysis packages, FAME and AMADEUS, were used to construct comprehensive databases of overseas-owned and UK-owned MNCs.
- Much additional information on these companies was subsequently sought from hard copy and internet sources.
- The process of data collection revealed insights into the nature of MNC organisation and operations, and the adequacy of existing measurements of such. For instance, for a number of MNCs, their ultimate holding company's (UHC) location can be difficult to determine, and the shared parentage of some companies complicates a definition of their ownership.
- Although the coverage of companies in the databases is comprehensive, there is scope for further investigation of particular data items relating to individual MNCs.
- For the most part, the objective of the exercise was met. However, the comprehensive, multi-staged data collection required to meet this objective suggests that it was overly-ambitious given the time available.

## **1 Key objectives**

The study required the construction of two databases: I) overseas-owned MNCs with UK employees, and II) UK-owned MNCs with overseas employees. In mid-November 2001, I met with Professors Edwards and Marginson who outlined key criteria for developing these databases. To be considered eligible, overseas-owned MNCs needed to comprise  $\geq 500$  employees world-wide and have  $\geq 100$  employees in the UK. UK-owned companies needed to have  $\geq 500$  employees world-wide,  $\geq 100$  employees in the UK, and  $\geq 100$  employees in one other country.

For each company identified in the searches, the following information was required: company name, ultimate holding company (UHC), country of location of the UHC, location of overseas subsidiaries (for UK-owned MNCs), sector (SIC 1992 2 digit), description of business activities, total (world-wide) employees, number of UK employees, overseas employment (UK-owned MNCs), dates of establishment of UK subsidiaries of overseas-owned MNCs, UK contact details (address, telephone number, fax), and the personnel or human resource director's name.

Initially, four months' full-time research time was allocated to achieving these objectives, with approximately half to compiling the overseas-owned MNCs database and the other half to constructing the UK-owned companies database (see Appendix A). After a review of progress, the research contract was extended to five months.

## **2 Data sources**

Initially, it was thought that the Financial Analysis Made Easy (FAME), a database available on CD-ROM and DVD and the first source to which we had access, would

furnish adequate data to achieve the above objectives<sup>1</sup>. After discussions with the Warwick Business School and University's IT Departments, it was decided that one of the department's computers would need to be specially configured to run the DVD database.

A comparison of the CD-ROM (October 2001) and DVD (August 2001) data showed that the latter provided a more comprehensive listing of overseas-owned MNCs. FAME was searched at different UK employee 'thresholds' (i.e.  $\geq 1000$ ,  $\geq 500$ ,  $\geq 200$  and  $\geq 100$  employees). This produced company listings ranging from 558 companies with  $\geq 1000$  UK employees to more than 3,000 companies with  $\geq 100$  UK employees.

From discussions with Karen Lamb, the Key Account Manager from the database supplier (Bureau Van Dijk), it became apparent that FAME, a tool for financial analysis in the first instance, would actually provide only some of the data required for the overseas-owned MNC dataset. More specifically, whilst FAME could show whether a company in the UK comprised  $\geq 100$  employees, a simultaneous search for companies in this dataset with  $\geq 500$  employees world-wide could not be run (only one threshold figure could be specified per search). Furthermore, Karen indicated that for companies held in FAME, a UK-based company database, their links to European- and world-wide operating data were often incomplete.

Karen sent another financial database, AMADEUS (CD-ROM and DVD versions, both for October 2001), to assist with filling these data gaps. Again, however, she pointed out that AMADEUS was partial in terms of world-wide and some European-level company employee and other data because it depended on individual companies to supply this information.

It was thus necessary to find other databases for the missing data relating to companies listed by FAME and AMADEUS. Although Bureau Van Dijk supplies other data sources (e.g. ICARUS which covers private US companies and is purely internet-based) which would have been useful, they could not be pursued due to cost.

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<sup>1</sup> FAME contains up to 1.8 million UK and Irish public and private companies. 500,000 of these companies are in a detailed format with up to 10 years information. The CD-ROM version houses the top 250,000 companies (Jordans/Bureau Van Dijk brochure).

Following a tutorial in the Corporate Information Section of the Warwick University library, and discussions with Warwick University Librarians (Chris Bark (CIS) and Hywel Williams) and other project team members, and independent investigation, other useful sources of MNC data were used:

- Hard copy sources:
  - Financial Times Top 500 Companies (world-wide, Asia-Pacific, Europe, US, Canada, Japan, Middle East and UK companies);
  - The Personnel Managers' Yearbook (2001/02) (UK companies); and
  - ETUI Multinationals Database (2000) (Europe).
  
- Internet sources:
  - Hoover's Online (US and UK companies);
  - Lexis-Nexis Professional (for UK companies (ICC Directory of UK companies), US companies (US Business Directory), Canadian companies (CANCORP Plus and Canadian Business Directory), and companies based elsewhere (Directory of Corporate Affiliations);
  - Global Access (80% quoted companies world-wide);
  - FT company on-line facility (companies world-wide);
  - Datastream (companies world-wide); and
  - Individual company web sites<sup>2</sup>.

To access certain databases (e.g. Lexis-Nexis, Global Access) it was necessary to liaise with librarians and IT staff at Warwick University to learn the procedures for remote access. The data sources were specified where used throughout the datasets.

### **3 Constructing the databases**

After discussion with team members, it was decided that MNC data should be stored in Microsoft Excel files<sup>3</sup>.

MNC ownership and employee thresholds provided the starting points for constructing the datasets. As noted earlier, FAME and AMADEUS constituted the main sources for compiling a list of overseas- and UK-owned MNCs (Phases 1 and 2 of data collection).

- Phase 1: Overseas-owned MNCs

Search criteria were applied to both FAME and AMADEUS (CD-ROMs and DVDs). However, FAME and AMADEUS differ somewhat in terms of the data they offer and the options available for searching for data. It was necessary to search the databases using slightly different specifications:

- FAME (CD-ROM and DVD):  
‘ $\geq 100$  employees (in the UK)’ and ‘companies with foreign parents’
- AMADEUS (CD-ROM and DVD):  
‘UK subsidiaries’ and ‘ $\geq 100$  employees (for all companies on the database)’  
and ‘exclude UK holding companies’

Against expectations, the FAME CD-ROM (October 2001) yielded more eligible companies (3,339) than the DVD (3,185, August 2001). It was possible to select an option in FAME to add data on turnover, contact details (including websites), etc. to employee and ownership data for listed companies. The expanded listing took several hours to export to a Microsoft Excel file in descending order of companies’ UK employee numbers. The columns of raw data were juxtaposed to create a dataset format for the study. Other columns of data were added, including a ‘Yes/No’ column to show whether or not the company comprised  $\geq 500$  employees world-wide, and a ‘Yes/No’ column to show whether the company had at least  $\geq 100$  employees in the UK.

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<sup>2</sup> The ‘Who Owns Whom’ search base was recently removed from the Corporate Information Section of Warwick University library.

An examination of the material from FAME revealed several problems. First, the vast majority of the companies in the list were shown to have  $\geq 100$  UK employees but FAME listed about 150 companies without employee numbers. These had to be researched independently, on a case-by-case basis, using additional sources (in particular, the ICC Directory of UK companies). Second, for many companies, it was not possible to locate data on their *total* (world-wide) number of employees due to the missing data links in FAME outlined earlier (including missing overseas and UK subsidiary information). This raised a question about the currency and coverage of the database source, particularly given its purported monthly update<sup>4</sup>. Additional sources, including the FT Top 500, Hoover's Online directory and ICC Directory of UK companies, were vital for filling in many of the data gaps on employment. Third, the main databases did not provide the data they claimed to provide for each requested data item. For example, although there was an option in both AMADEUS and FAME to search for the name of each company's personnel director, the resulting dataset comprised no such data. Karen Lamb confirmed that although there was provision to search for these data, virtually none of the companies in the database supply these details. This necessitated additional searches for such information from other sources (e.g. from the Personnel Managers' Yearbook 2001/02) on a case-by-case basis. It was such case-by-case searching that consumed a considerable portion of the time set aside for developing both datasets.

To ensure that the maximum number of relevant companies were captured for this dataset, a search of the AMADEUS (DVD) was then undertaken. It produced a similar figure of 3,465 overseas-owned MNCs. However, there was not as much overlap between the FAME and AMADEUS listings as might be expected, with the latter including about 1,000 'new' company names. Examining the first dozen or so of these did not reveal any apparent pattern in ownership terms - some were overseas-owned with UK operations (those with  $\geq 500$  employees in the UK were immediately eligible for the study), others were UK-owned MNCs with overseas subsidiaries, and

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<sup>3</sup> The Microsoft Excel files are called: overseas-ownedcoys.xls, uk-ownedcoys.xls, and sharedparents.xls.

<sup>4</sup> AMADEUS did not enable a search for a company's employee size on a country by country basis as its employee figures relate to the dataset *as a whole* (i.e. companies across Europe, some 128,000).

still others were UK-owned companies with an insufficient number of employees in overseas subsidiaries to be considered for further study.

Furthermore, the AMADEUS company listing comprised subsidiary- and intermediate-level companies as well as UHCs. Because the database did not hold full information about the UHCs of the first two, it was later necessary to work out each company's position in an organisational hierarchy and establish its UHC using internet data sources (see earlier). Working through the rest of this list of 'question mark' companies in this way on a case-by-case basis took several weeks' work; the research contract was extended accordingly.

In total, the dataset comprised a list of 2,968 companies from FAME, plus a further 505 'question mark' from AMADEUS, to total 3,473 overseas-owned MNCs. When the dataset was checked, a number of repeat parent or UHC companies were found (they were subsequently given the same reference number). This reduced the final number of overseas-owned MNCs to 2,907<sup>5</sup>. Of these, 2,525 met the employee size thresholds of  $\geq 500$  employees with  $\geq 100$  in the UK, while 264 did not (i.e. they had insufficient overseas employee numbers). A search within the dataset for companies with  $\geq 1,000$  employees found 1,243 eligible MNCs. Employee data were found for about 95% of the companies, leaving 109 companies with missing employee data. A number of these were listed as having UHCs in places such as the Cayman Islands and Virgin Islands, and thus needed further investigation to establish whether or not these locations were merely 'flags of convenience' (see '4 – Enhancing and cleaning the datasets').

The FAME and AMADEUS databases were not sufficient on their own but, jointly, gave as comprehensive a list of MNCs as could be analysed in the available time.

- Phase 2: UK-owned MNCs

The second key phase of the research involved the construction of the UK-owned MNC dataset. Intuitively, it made sense to use the FAME (UK-based) database to

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<sup>5</sup> Before adjusting for duplicates, 3,473 companies were listed.

build this listing. However, there were limitations on the ways in which one could specify search criteria in this database. In terms of company ownership, FAME's standard option to search for 'companies with foreign subsidiaries' produced only 196 (DVD) and 181 (CD-ROM) 'hits' – even before other search criteria were applied. Searching by 'foreign holding', the country of the holding company (i.e. the U.K.) could be specified, producing a list of 46,216 companies. However, there was no option to cross-tab this result with a criterion such as 'foreign subsidiaries' (i.e. in all countries but the U.K.). Furthermore, subsidiaries could not be searched for in terms of their country of location - the only options were 'subsidiary name', 'number of subsidiaries' and the limited 'companies with foreign subsidiaries' option (see above).

Consequently, the AMADEUS CD-ROM and DVD were examined. Using these databases, it was possible to specify a search for:

- AMADEUS:  
'UK parent company/holding companies' and 'overseas subsidiaries' and  
' $\geq 100$  employees (relating to the UK UHC/parent company)'

The DVD produced a larger listing (1,861 companies) and was used to form the basis of the UK-owned MNC dataset. As with FAME, it was possible to select an option in AMADEUS to add data concerning the turnover, contact details, etc for the listed companies to employee and ownership data. The expanded listing took several hours to export to a Microsoft Excel file in descending order of companies' UK employee numbers. Again, columns of other raw data were juxtaposed and new columns which showed whether a company held  $\geq 500$  employees world-wide,  $\geq 100$  employees in the UK and  $\geq 100$  employees in one other country, were added.

AMADEUS could not be instructed with a Boolean expression to automatically list employee figures for the UK MNCs' overseas-based subsidiaries, total overseas or company totals. To find the employee figures for overseas subsidiaries, it was necessary to search individual company records in AMADEUS on a case-by-case basis. However, this revealed that many figures were not available, and there were no figures for overseas subsidiaries outside of Europe. It was necessary to undertake searches of alternative sources for much employee data. Among the most useful for

this purpose were individual company websites, the US Business Directory and CANCORP Plus<sup>6</sup>. These sources also pointed up the omission of information in AMADEUS concerning even the existence of certain overseas subsidiaries for a number of MNCs. ‘New’ subsidiaries were added to the subsidiary listings in the dataset though it was not always possible to accompany this information with subsidiary employee data.

Concern with the accuracy of information on ‘question mark’ company ownership (see earlier) led me to undertake a case-by-case check of the ownership details provided by AMADEUS for UK-owned MNCs. This revealed a few duplicates and that many companies were not in fact UHCs or ultimate owners. For instance, a number of companies were actually subsidiaries of other UK companies in the listing. Companies that were ineligible on this basis in ownership terms were duly marked up in the spreadsheet.

Including companies derived from the ‘question mark’ list, the raw UK-owned MNC file comprised a list of 2,544 companies. When shared-parent MNCs (see below) were excluded, a total of 577 UK-owned MNCs were found to have  $\geq 500$  employees in the UK and  $\geq 100$  employees in one other country. This figure dropped to 438 companies when the UK employee size threshold was raised to  $\geq 1000$ . Using the UK employee (as opposed to total company) figure for each MNC reflects that company totals were often not available due to much missing overseas subsidiary employee data (see below). It thus provides a form of *minimum* company size in terms of employees, as well as the *minimum* number of companies with  $\geq 1,000$  or  $\geq 500$  employees in the dataset.

### **Enhancing and checking the datasets**

An initial draft of the datasets were e-mailed to all project team members by mid-February 2002, just prior to a team meeting the following week. Difficulties with

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<sup>6</sup> With the additional searches, although it was often possible to determine whether a company met the specified employee thresholds, it was frequently difficult to establish the total number of employees in a MNC as individual web sites seldom cite all of their subsidiary employment figures, and usually list the number of employees at the head office or parent company. The other sources also seldom list all of a MNC’s subsidiaries.

emailing the UK-owned MNCs dataset due to its large size meant that it had to be divided into two files.

At the meeting, team members asked that columns with accurate company employee totals be included. However, it was only possible to sum the employee figures available for each company, and as outlined earlier, this was often less than the total employee figure due to missing employee and subsidiary data. The sum given in the spreadsheet for each company thus indicates a *minimum* number of employees in that firm.

As well as employee thresholds, MNC *ownership* formed a key search criterion for both datasets. After the meeting, several team members examined the accuracy or otherwise of data on the location of some overseas-owned MNC parents/UHCs, and raised a number of errors and doubts. As well as errors in the data provided by AMADEUS, these were thought to reflect the inclusion of subsidiary, intermediate and parent companies as UHCs in the company listing – despite the clear search specification for UHCs. In all but 14 cases, I was able to verify the ownership details of dubious cases noted by the team members against sources other than FAME and AMADEUS and updated the dataset in the last week of March 2002.

- ‘Phase 3’: MNCs with ‘shared parentage’

As noted earlier, the accuracy of ownership data for UK-owned companies was checked on a case-by-case basis. This involved the examination of an organisational chart for each company in the AMADEUS base. This revealed that a number of MNCs (about 180) had ‘shared parentage’ and their ultimate owner or UHC was not recorded<sup>7</sup>. After discussion with team members, it was decided that the shared parent companies should be treated as follows. Those that were obviously overseas-based (as indicated by appellations such as SA, A/S, GmbH, etc) were left in the UK company file but treated as ineligible for study purposes. Others were checked against the

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<sup>7</sup> Although a small number of the companies in this file appeared to be located overseas, further investigation revealed that they had UK parentage or UHCs; this was an example of how AMADEUS listed intermediate-level operations rather than a strictly defined listing of UK UHCs. For this reason, such companies were left in the dataset, with an accompanying note about their parentage/UHC and UK employee number.

existing UK- and overseas-owned MNC listings to avoid duplication. Shared-parent companies that were found to have unlisted parents were extracted from the UK-owned MNC file and entered into a new dataset. However, the complexity of MNC ownership was indicated by the presence of companies in this file that had three or more parent companies. One of their parents was often a UK company already listed in the UK-owned MNC file while the others were ‘new’ and/or overseas owners. This third dataset was sent to two of the team members for a judgement as to the companies’ eligibility for and definition in the study.

## **5 Issues raised by the data collection**

As noted earlier, it was necessary to employ a number of data sources to establish the eligibility or otherwise of MNCs in light of the study search size and ownership thresholds. Variations in the accuracy and currency of data from different sources need to be borne in mind in any analysis of the datasets. Employment definitions may vary across sources, for instance. Further, there remains the difficulty of finding both country/subsidiary *and* total employee figures figures for MNCs from databases used here.

The data collection pointed up the complex character of MNC operations, particularly in terms of the ownership arrangements of many (e.g. shared parentage and difficult to determine UHCs). This needs to be acknowledged in subsequent work on the datasets.

Whilst the data collection resulted in the construction of relatively comprehensive MNC datasets, data gaps remain for some companies (e.g. relating to their turnover). Despite an exhaustive search for useful databases, it may be the case that there exist additional sources that are less orientated toward the provision of financial data and more toward employee information, and that could be used in conjunction with FAME and AMADEUS to construct the MNC database – as opposed to merely fill data gaps in the FAME and AMADEUS company lists.

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## **6 Further work**

There was not time to establish the dates of incorporation of the UK subsidiaries of overseas-owned MNCs. Although this information could be accessed for most of the subsidiaries from AMADEUS and the ICC Directory of UK companies, this will have to be done on a case-by-case basis. The ICC Directory would also be used to fill in gaps relating to other information sought by the team (e.g. company turnover, etc.) – again on a case-by-case basis.

The doubts listed by team members about particular company data (particularly ownership) were checked but for a very small number of companies, no additional data could be found. At the time of writing the report, there had been time to examine only some of the dubious ‘Netherlands’ and ‘flags of convenience’ locations of certain overseas-owned companies. Furthermore, company numbers 600 to 1000 were not re-examined as none were raised for checking.

Criteria now need to be determined and applied to the shared parent companies to assess whether they are essentially UK-owned, overseas-owned or genuine ‘hybrids’ in ownership terms.

There may exist databases other than those discovered and examined here that have the capacity to generate a MNC list against which the FAME and AMADEUS datasets can be verified and possibly extended.

## APPENDIX A: Overview of the research process

<b>Dates and duration</b>	<b>Tasks performed</b>
Early Nov–mid Nov 2001	<ul style="list-style-type: none"><li>• Established research requirements and search criteria with team members</li><li>• Gained familiarity with search instruments (e.g. via a tutorial, librarians, liaison with supplier organisations)</li><li>• Commenced searches for data on overseas-owned MNCs</li></ul>
Mid-Nov–Christmas 2001	<ul style="list-style-type: none"><li>• Continued searches for overseas-owned MNC data</li></ul>
Early Jan–mid-Feb 2002	<ul style="list-style-type: none"><li>• Met with team members to discuss project progress and task priorities</li><li>• Commenced searches for data on UK-owned MNCs</li><li>• Provided team members with drafts of both datasets</li></ul>
Mid-Feb–mid-Mar 2002	<ul style="list-style-type: none"><li>• Completed searches for data for both datasets</li><li>• Created a third dataset of ‘shared parent’ MNCs</li><li>• Augmented datasets according to team members’ specifications</li><li>• Continued to liaison with team members</li></ul>
Mid-Mar– end Mar 2002	<ul style="list-style-type: none"><li>• Wrote report on the research process</li><li>• Updated datasets according to input from other team members</li><li>• Flags of convenience?</li></ul>

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