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Accounting for Defined Benefit Plans

AN INTERNATIONAL COMPARISON OF EXCHANGE-LISTED COMPANIES

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JEL Classification: G23, G32, M41, M52

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ACCOUNTING FOR DEFINED BENEFIT PLANS: AN INTERNATIONAL COMPARISON OF EXCHANGE-LISTED COMPANIES

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ABSTRACT/RÉSUMÉ

Accounting for Defined Benefit Plans: An International Comparison of Exchange-Listed Companies

Defined benefit pension plans can entail one of the biggest liabilities that an exchange-listed company has on its balance-sheet. There exist comprehensive requirements for the reporting of such liabilities. This paper examines the impact that defined benefit pension plans had on the financial results of exchange-listed companies in 2007. This impact has been compared and analysed at the aggregated country level, as well as in more detail for some specific companies that sponsor large defined benefit pension plans.

JEL codes: [G23, G32, M41, M52]
Keywords: [defined benefit pension plans, pension funds, IAS 19, FAS 87, projected benefit obligation, defined benefit obligation, PBO, DBO, pension accounting, pension plan assets]

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Comptabilité des Regimes de Retraite à Prestations Définies: Une Comparaison Internationale de Sociétés Cotées.

Les plans de retraite à prestations définies peuvent entrainer une des dettes les plus importantes qu'une société cotée puisse inscrire à son bilan. Il existe des conditions requises détaillées afin de comptabiliser de tels engagements. Ce document examine l'impact de ces plans de retraite à prestations définies sur les résultats financiers des sociétés cotée en 2007. Cet impact est comparé et analysé au niveau agrégé du pays ainsi qu'à un niveau plus détaillé pour quelques société qui commanditent des plans de retraite à prestations définies de grande taille.

JEL codes: [G23, G32, M41, M52]
Mots clés: [plans de retraite à prestations définies, fonds de pension, IAS 19, FAS87, valeur actuelle probable des droits acquis, droits acquis des régimes à prestations définies, PBO, DBO, comptabilité des régimes de retraite, actifs des systèmes de retraite]

ACCOUNTING FOR DEFINED BENEFIT PLANS: AN INTERNATIONAL COMPARISON OF EXCHANGE-LISTED COMPANIES

by Clara Severinson[1]

I. Introduction

Comprehensive requirements for the reporting of pension obligations exist for exchange-listed companies that sponsor defined benefit pension plans. Pension plan defined benefit obligations can be one of the biggest liabilities that a company has on its balance-sheet, and as such, often receives particular attention from stakeholders, management, analysts and the press. Recent and proposed changes to accounting rules have introduced greater transparency and comparability between companies and countries to pension plan reporting, but also greater volatility to company balance sheets and earnings.

In order to get an understanding of the relative magnitude and impact of pension plan accounting on company financial statements, we have examined a number of pension indicators based on public information for a sample of companies. Firstly, we have examined a global index of 6,200 companies. This global index is a total market equity index created by Thomson Financial Limited that covers 50 countries and all sectors.[2]

For the second portion of our examination, we have examined a selection of 30 global companies with large pension funds in greater detail. The companies were selected as they are the exchange-listed companies that sponsor some of the world's largest pension funds. Also, these companies are based in OECD countries where defined benefit plans are common place.[3] The results of our examination of these companies are summarized in Section III.

II. Examination of a Global Index of Companies

Of these 6,200 companies in the global index, approximately 2,500 companies, or 40%, reported a Defined Benefit Obligation due to pensions as of their fiscal year ending in 2007. A Defined Benefit

[1] The author of this paper is Clara Severinson. She is an administrator of the private pensions unit at the OECD and a Fellow of the Society of Actuaries in the United States. She would like to thank delegates to the OECD's Working Party on Private Pensions, as well as, Juan Yermo, Jean-Marc Salou and Fiona Stewart from the OECD for their comments and assistance. The views expressed in this paper are the sole responsibility of the author and do not necessarily reflect those of the OECD or its member countries.

[2] The global index and all data used in our study are from Thomson Financial's Datastream database. All data has been examined at the group level.

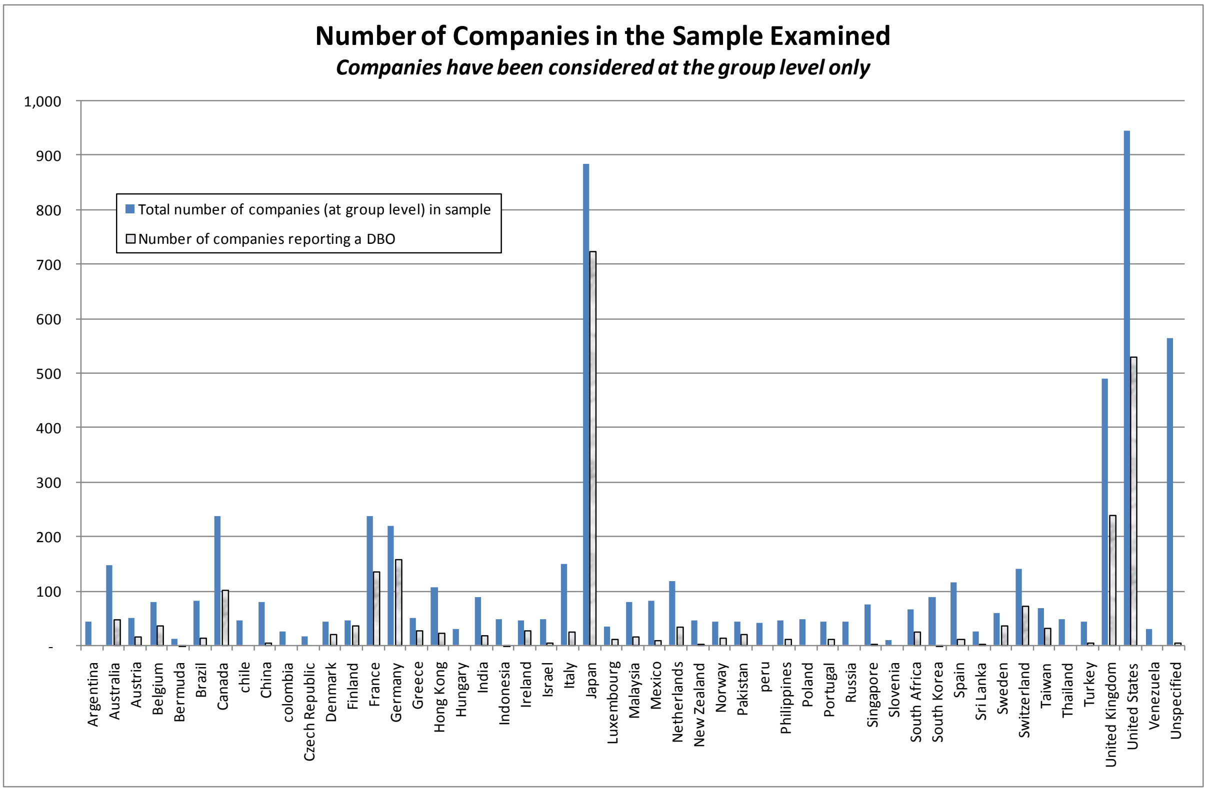
[3] The individually examined companies were chosen from Watson Wyatt's year-end 2006 study titled "The World's 300 Largest Pension Funds" and IPE's "Top 1,000 Pension Funds" published in September 2007.

Obligation, or DBO, is the term given by international accounting standards to a company's liability due to pension promises that have been accrued by current and past employees. Pension plans that are defined contribution in nature or pension plans that are fully insured with an insurance company typically have no associated DBO.

We have grouped the companies in our index sample that have reported a DBO by the country where they are domiciled. As an example, if a company is domiciled in the United States, then we have classified the company (and all its associated liabilities and assets) as from the United States. We have taken no regard as to where in the world companies may have pension plans or subsidiaries when making this classification. As such, our findings can make no statement about the level of pension liabilities or the state of pension funding in any particular country. Rather, in our examination, we have attempted to give a very general indication of which countries are the primary homes to companies where defined benefit plans have a significant impact on company finances.

The following chart shows the breakdown of the companies in our sample by where they companies are domiciled, as well as, what number of those companies have reported a DBO in their financial statements for the fiscal year ended in 2007 :

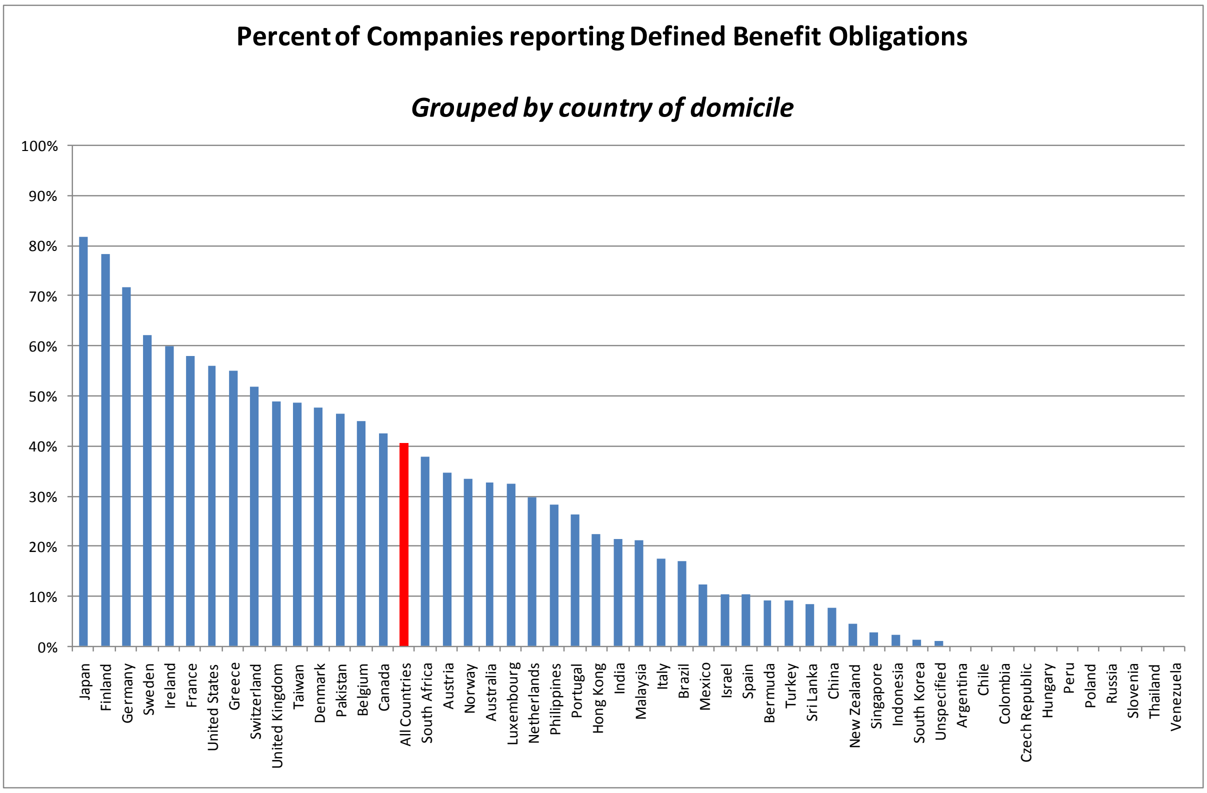
Table I(a): Results as of Fiscal-Year Ended in 2007



As can be seen from the chart, the largest number of companies in the sample is from the United States and Japan, followed by the United Kingdom.

To clarify this further, the following chart shows the percentage of these companies reporting a DBO grouped by a country of domicile. The countries are displayed from left to right in descending order by the size of this percentage:

Table I(b): Results as of Fiscal-Year Ended in 2007



There are 4 main reasons that a company in our global index would **not** report a DBO (if we assume that the companies in the index are properly reporting their material pension liabilities under one of the major international accounting standards):

- The company offers no material pension benefits to its employees.
- The only material pension promises that the company makes are defined contribution in nature.
- Any material pension promises that the company offers are from multi-employer pension plans[4].
- The company offers defined benefit-type pensions, but any material obligations associated with these pension promises have been fully insured with an insurance company.

The companies in our global index that do report a DBO either offer defined benefit-type pension promises to some or all of their employees or have legacy defined benefit pension promises that they will be obliged to pay out at some point in the future.

[4] Multi-employer pension plans are reported as if they were defined contribution plans under US accounting rules. Multi-employer pension plans must be reported as defined benefit under international accounting rules. However, if sufficient data is not available in order to report these plans as defined benefit, then under international accounting standards rules, they can be reported as defined contribution.

The four countries with the highest percentage of companies reporting a DBO are Japan, Finland, Germany and Sweden – all countries with a strong tradition of defined benefit plans. Many of the countries with a large portion of companies reporting DBO's have experienced a strong shift towards defined contribution plans over the past years, such as the United Kingdom and the United States. A significant portion of the reported DBO's for companies domiciled in these countries could be due to legacy plans. Other countries such as the Netherlands and Belgium with a history of defined benefit plans, yet with lower percentages of companies reporting DBO's could be due to companies insuring away their pension obligations with insurance companies, or that they offer multi-employer plans that are reported as defined contribution.

How big are the Defined Benefit Plans in Relation to the Market Size of the Companies?

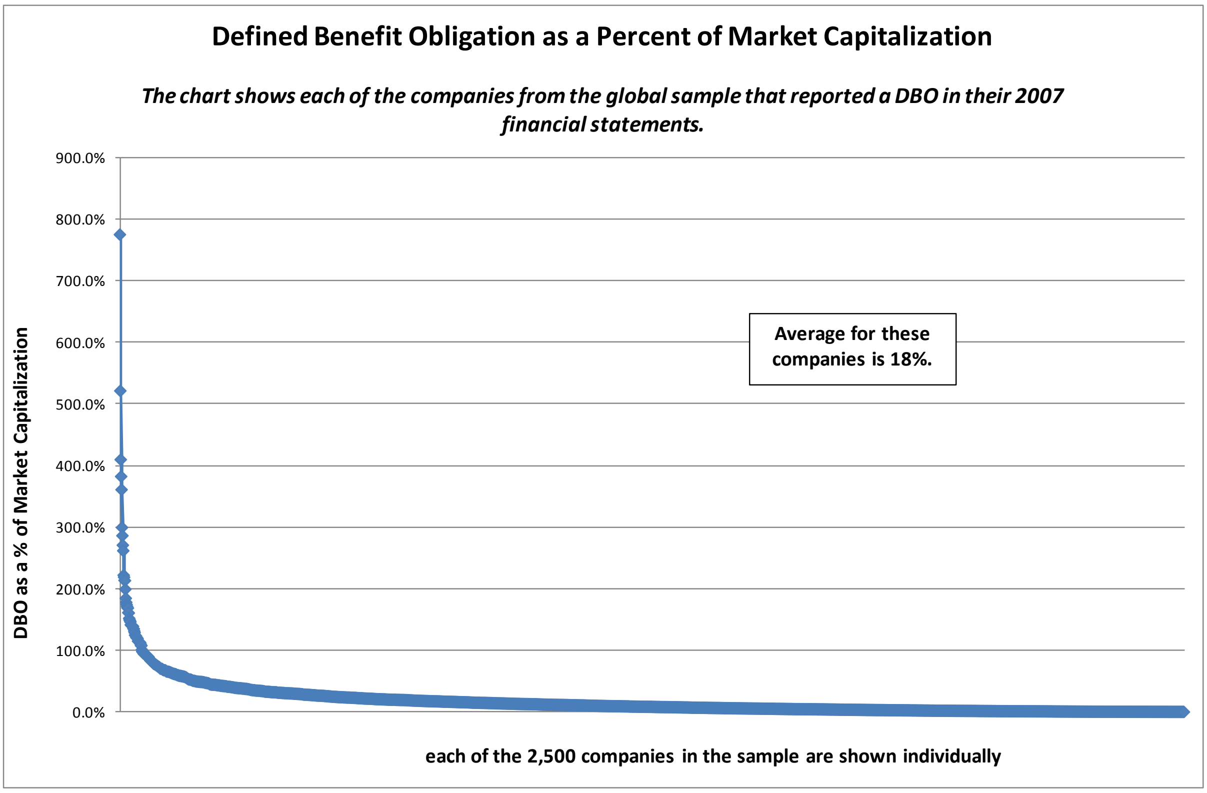
In order to get a sense of the relative sizes of defined benefit plans in relation to the market sizes of their sponsoring companies, we have we examined the following indicator for each company:

Defined benefit obligation / Company market capitalization

A company's market capitalization at a particular point in time is the share-price of the company times the number of shares outstanding and can be considered an indication of a company's size. The ratio of the company's DBO over its market capitalization could be seen as one measure of the relative importance of the company's DBO on its financial performance. In other words, a defined benefit pension plan is likely to have a relatively greater financial impact on a company with a DBO that is a very large percentage of its market capitalization than a company where the DBO is not as sizable in relation to the market size of the company. This indicator could therefore be considered one proxy for the relative importance from a financial perspective that a company places on its defined benefit pension plan. Other indicators could certainly also be considered such as the effect of the annual cost of maintaining a pension plan on the company's profit and loss statement. This and other indicators are discussed later in this paper.

For the approximately 2,500 companies in our sample that reported a DBO in their 2007 financial statements, the ratio of each company's DBO over its market capitalization is shown below. The ratio is shown individually for each company in descending order from left to right with the company with the greatest ratio furthest to the left:

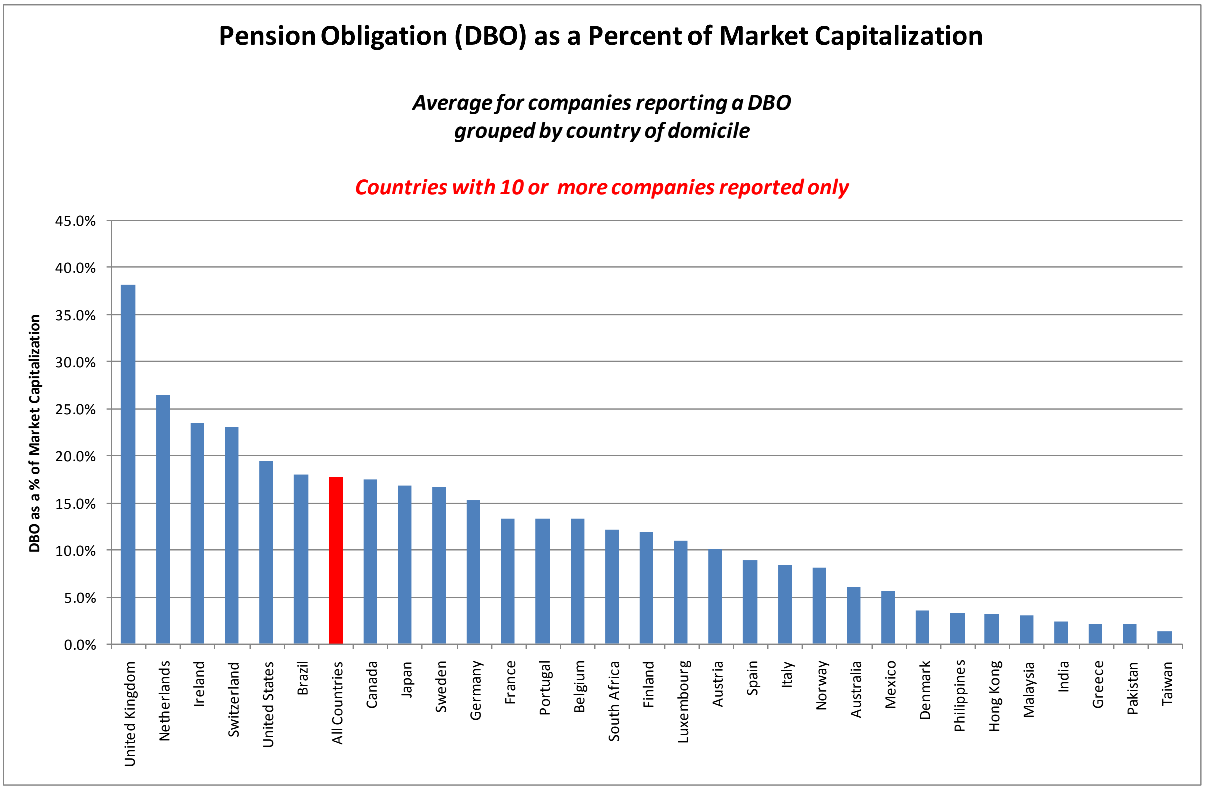
Table I(c) : Results as of Fiscal-Year Ended in 2007



The highest ratio in our sample came from one company with a DBO that was 774% of the company's market value. The average of this ratio for the 2,500 companies reporting a DBO in 2007 was 18%, whereas the median was 8%. Further, 179 of these 2,500 companies, or 7%, had a DBO that was more than 50% of the company's market capitalization. 23 of the companies, or 1%, reported a DBO in 2007 that was more than 150% of their market capitalization. Of these 23 companies, 10 have their domicile in the United Kingdom, 7 in the United States, 3 in France, 2 in Switzerland, and 1 in Sweden.

The following graph shows the average of this same indicator for all companies in our global index that reported a DBO in fiscal-year 2007. We have grouped these companies by their country of domicile. In order to mitigate the effect of one or two individual companies, we have only shown the countries with at least 10 companies in the index that reported a 2007 DBO.

Table I(d) : Results as of Fiscal-Year Ended in 2007



The country with the highest average DBO as a percentage of market capitalization is the United Kingdom at 38%, followed by the Netherlands at 27%, Ireland and Switzerland at 23% and the United States at 19%.

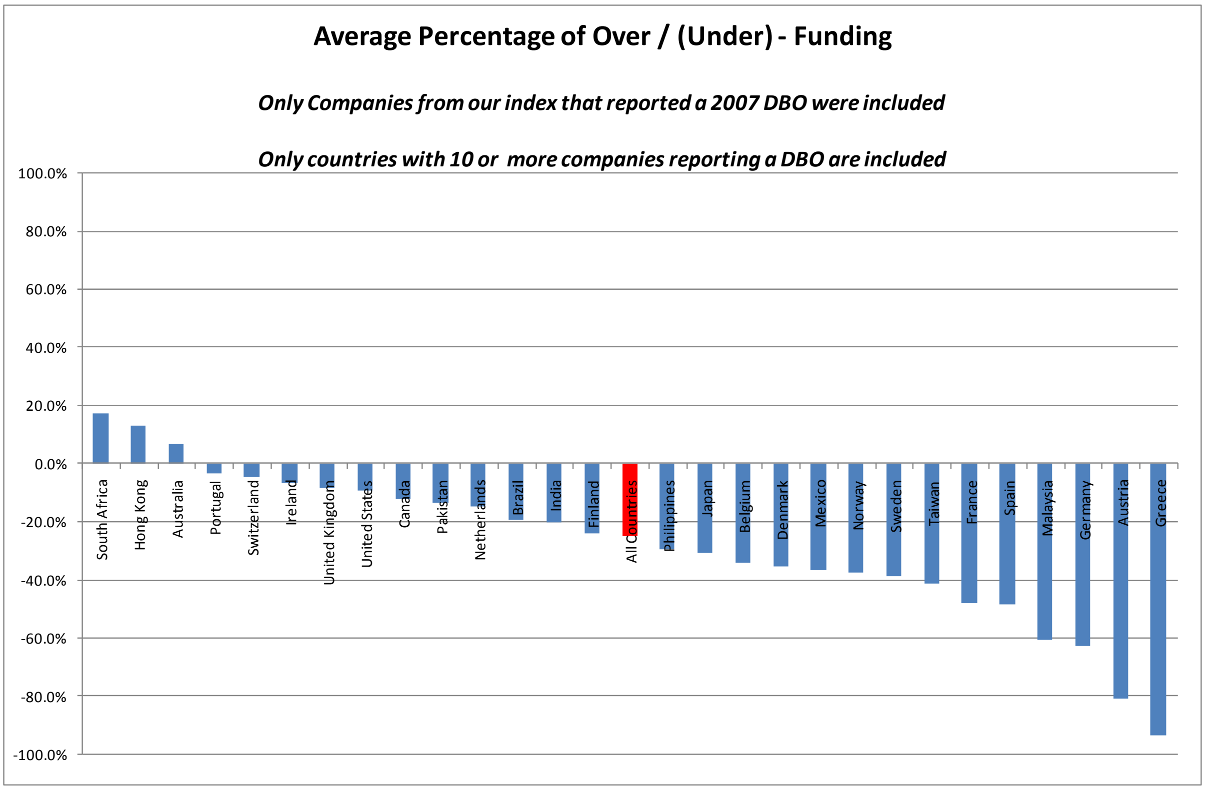
Are Defined Benefit Obligations Over-funded or Under-funded?

We have also looked at to what extent pension fund assets are backing the pension obligations for the 2,500 companies in our sample that reported a DBO in their financial statements for the fiscal-year ended 2007. For each of these companies, we have determined the percentage by which a company's DBO is over-funded (where plan assets exceed the DBO) or under-funded (where plan assets are less than the DBO).

It is important to note, however, that the definition of plan assets under international accounting standards is quite strict and does not give credit for all types of funding vehicles. In particular, pension obligations financed using book-reserves with external credit insurance in the case of company insolvency are considered completely unfunded for purposes of international pension accounting standards. Therefore, countries where this type of financing arrangement is common, such as, for example, Sweden and Germany, tend to have companies with balance sheets that appear relatively less funded and hence less secure than countries where segregated pension funds is the dominant form of pension funding. Arguably, this does not always give an accurate picture of the level of security of company pension obligations in these countries.

That said, the chart below shows the average percent by which a company's pension fund assets exceed (or do not exceed) the company's DBO as defined by international accounting standards. Companies have again been grouped by country of domicile. To minimize the effect on country results of just a few companies, the graph only shows those countries where at least 10 companies reported a 2007 DBO.

Table I(e) : Results as of Fiscal-Year Ended in 2007



Of the companies in our index that reported a 2007 DBO, those that are domiciled in the South Africa, Hong Kong and Australia had, on average, the best funded status of the companies in our study. These were also the only countries whose companies had, on average, pension plan assets that exceeded the associated pension obligations on an accounting basis. The rest of the countries are on average to some extent under-funded.

Greece, Austria and Germany had on average the lowest funded status on an accounting basis. This can most likely be explained by the common use of book-reserves as a financing vehicle for pension obligations in these countries.

Across all companies that reported DBO's in the fiscal-year ending in 2007, the average level of underfunding was 24%.

III. Examination of a 30 Exchange-Listed Companies with Large Pension Funds

To complement our review of financial reporting for company defined benefit plans, we have examined a group of 30 exchange-listed companies on an individual basis. In this portion of our study, we have looked at publicly available financial data for these companies as of fiscal-year 2007. To further our comparison, we have also examined how this financial data has developed over time by comparing the 2007 fiscal-year data to past fiscal-year data starting from 2002.

These 30 companies were chosen for our study for the following reasons:

- These companies sponsor some of the world's largest company-specific pension funds.
- These companies are domiciled in a range of OECD countries where defined benefit pension plans are particularly prevalent.[5]
- They are exchange-listed companies with publicly available 2007 annual reports at the time of our study.

The 30 companies examined and their respective countries of domicile are listed below. In this study, we have not identified these companies by name. However, all information examined in our study is on the consolidated group level and is available publicly.[6]

Company	Country of Domicile	Company	Country of Domicile
Company 1	USA	Company 16	Germany
Company 2	Belgium	Company 17	Germany
Company 3	UK	Company 18	Netherlands
Company 4	Japan	Company 19	Germany
Company 5	Canada	Company 20	Switzerland
Company 6	USA	Company 21	Germany
Company 7	Ireland	Company 22	Netherlands
Company 8	UK	Company 23	USA
Company 9	Netherlands	Company 24	France
Company 10	USA	Company 25	Japan
Company 11	Sweden	Company 26	UK
Company 12	USA	Company 27	Switzerland
Company 13	Japan	Company 28	Sweden
Company 14	Canada	Company 29	Norway
Company 15	Switzerland	Company 30	Finland

Each of the companies has been identified as Company 1 through Company 30 based on the level of our primary indicator: DBO as a percentage of market capitalization. The 30 companies have been identified as follows:

- The company with the highest ratio in 2007 of DBO to market capitalization has been called Company 1. Company 1 is shown furthest to the left in all the graphs shown throughout the rest of the report.

[5] Most of the companies with the largest pension funds are domiciled in the United States or the United Kingdom. In order to broaden the international comparison, we have selected companies with the largest pension funds from a range of OECD countries.

[6] Data has been provided by Thomson Financial's Datastream database.

- The company with the second highest ratio in 2007 of DBO to market capitalization has been called Company 2. Company 2 is shown second from the left in all the graphs throughout the rest of this report.

- And so forth.

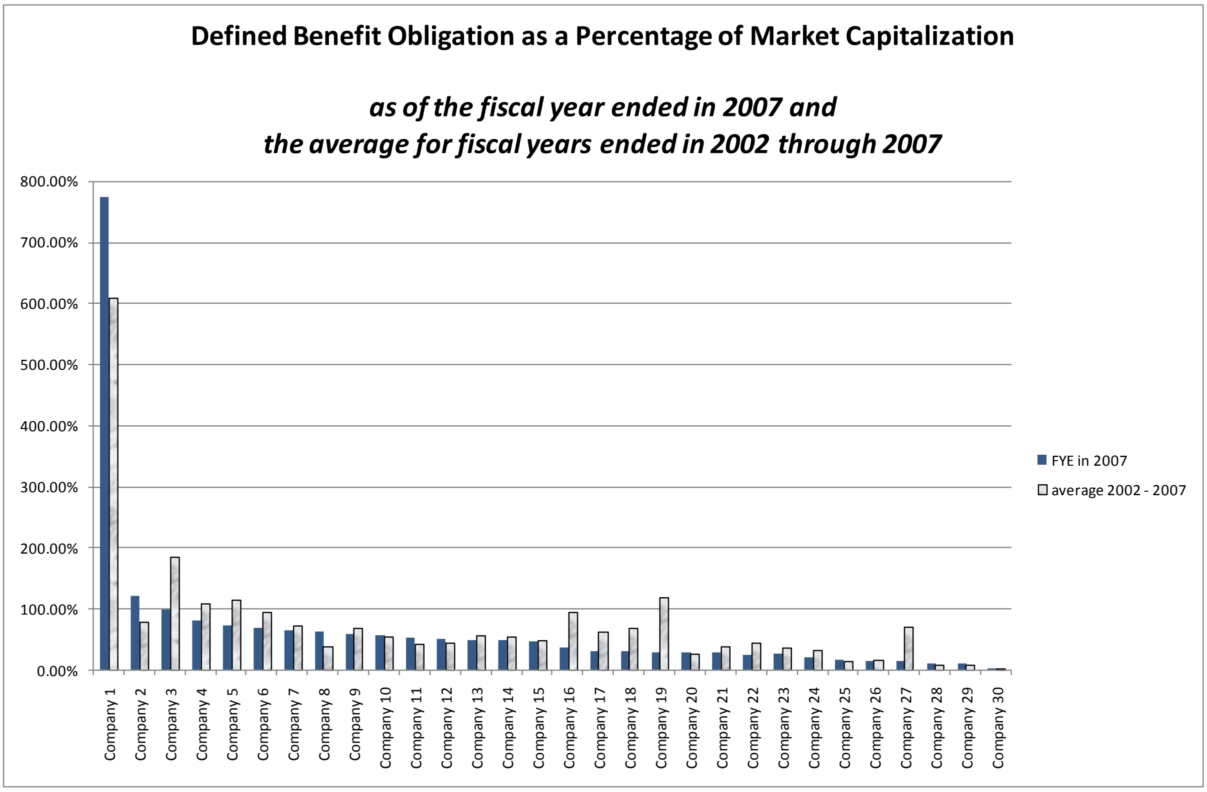
This same pattern is followed until we reach Company 30 which is the company that has the lowest ratio in 2007 of DBO to market capitalization of the 30 companies. Company 30 is shown furthest to the right in all the graphs shown throughout the rest of this report.

As mentioned above and as was the case for the examination of the global sample of companies, we first examined the pension obligations of the 30 individual companies in relation to their market size:

Defined benefit obligation / Company market capitalization

As previously discussed, the purpose of this measure is to give an indication of the relative importance from a financial perspective that a company places on its defined benefit pension plans. The following graph shows the level of this primary indicator for Company 1 through Company 30:

Table II(a): Results as of Fiscal-Year Ended in 2007



For Company 1, the size of the DBO is almost 8 times the market size of the company as reported in their 2007 financial statements. This was by far the highest ratio of all the 30 companies, followed by Company 2 with a 2007 DBO that is 1.2 times the size of its market size. For all the 30 companies, the average DBO as a percent of market capitalization was 67.3% as of fiscal-year end 2007 which is an improvement on average for these 30 companies compared to the five previous years.

Fiscal year ended in year	Average of DBO as a % of Market Capitalization
2007	67.3%
2006	67.9%
2005	88.2%
2004	78.4%
2003	72.5%
2002	91.7%

As noted above, the average of the DBO to market capitalization for these companies was 67.3% in 2007. If we exclude the extreme outlier which is Company 1, the average drops to 42.9% for 2007. This can be compared to the average of 18% for the 2,500 companies of our global index that reported a DBO in 2007 that we examined in the first section of this study. Given that the 30 companies that we focus on in this section sponsor some of the world's largest pension plans, the fact that the average of DBO to market capitalization is much higher for these companies than for our global average of companies reporting pension plan DBO's is not surprising.

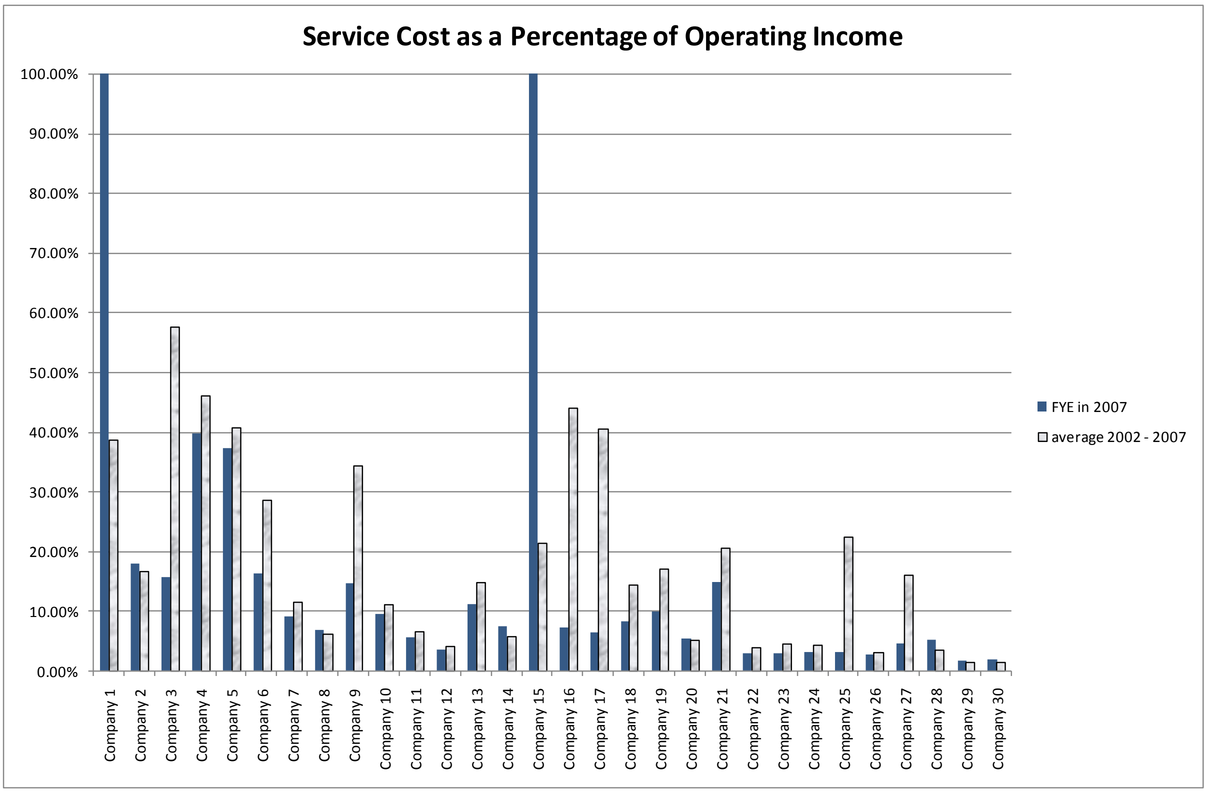
The size of a company's DBO in relation to its market capitalization, however, is only one part of the story. This ratio takes no account of pension plan assets, the annual cost of running the pension plan or other important company-specific factors. Rather, it focuses solely on companies' balance sheets. In order to get a more complete picture, we must also look at the effect of defined benefit plans on companies' annual profits. One measure of how a pension plan affects annual company profits is to look at a company's Service Cost in relation to its operating income. The Service Cost is the annual cost to a company of active plan members accruing an additional year of service in the pension plan. Roughly speaking, the larger the ratio of the Service Cost to the operating income is for a company, the greater the impact the pension plan will have in reducing a company's annual profits.[7] For example, if a company's service cost is close to 0% of a company's operating income, then the on-going cost of the pension plan is likely to have relatively little effect on the company's profits. At the other extreme, if a company's Service Cost is a very large procent of a company's operating profits, then it could be expected that any profits the company would have made in a year have been significantly reduced due to the cost of running the pension plan.

The following chart shows Service Cost as a percentage of operating income during fiscal-year 2007 for each of the 30 companies.[8] Note that the order of the 30 companies from left to right in the table below is the same as in the previous Table II(a).

[7] The operating income for the companies has been measured by Thomson Financial as the difference between sales and total operating expenses.

[8] We have limited the value of this ratio to be between 0% and 100%. So, if a company's Service Cost is greater than its Operating Profit in a particular year, we have set the ratio of the Service Cost to Operating Income in that particular year to be 100%.

Table II(b): Results as of Fiscal-Year Ended in 2007



Of the thirty companies, Company 1 and Company 15 had the highest ratio of Service Cost in relation to operating profit in 2007. (In fact, these two companies had negative operating profits during 2007.) The average of service cost as a percentage of operating profit for all the companies combined over the past six years is:

Fiscal year ended in year	Average of Service Cost as a Percent of Operating Profit
2007	15.8%
2006	11.4%
2005	16.1%
2004	17.6%
2003	27.6%
2002	22.5%

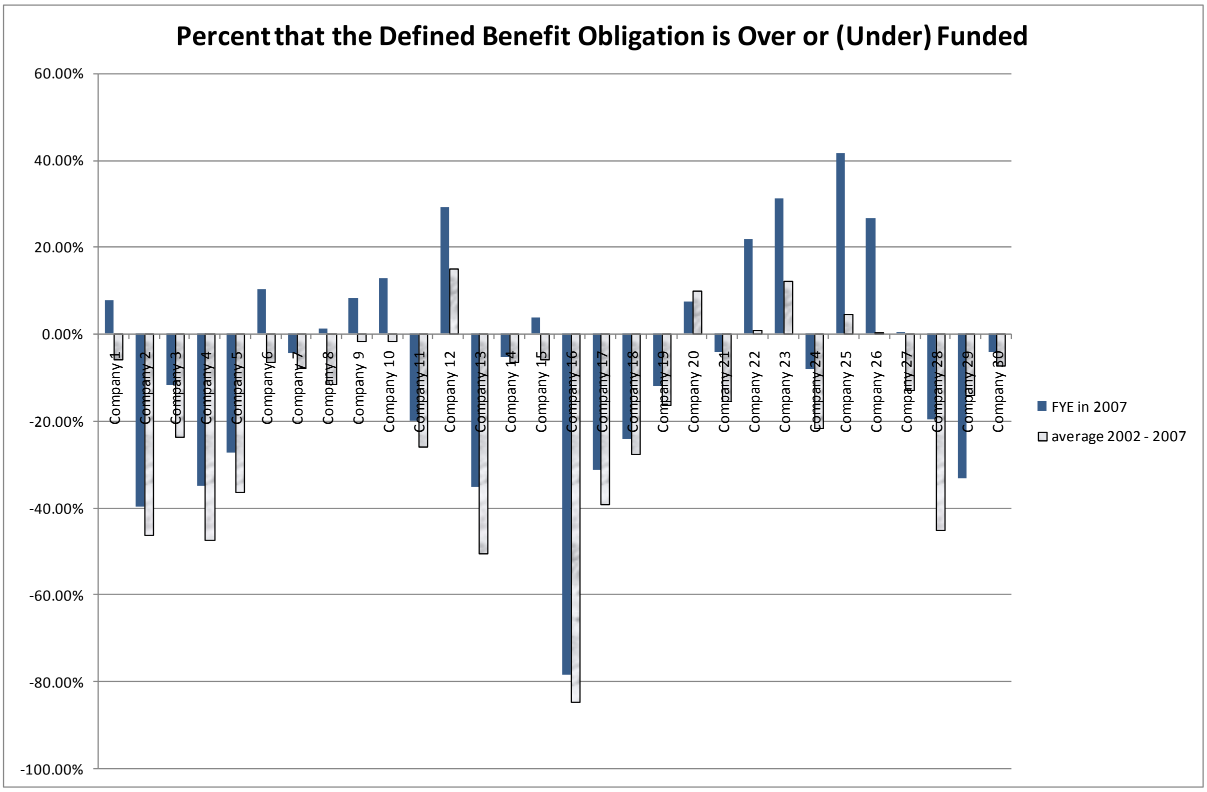
Pension Fund Assets, Funding Status and Asset Allocation

Up to this point, we have focused on the pension obligations for these 30 companies. However, we must also look at the assets backing these pension obligations. The chart below shows the percentage by which a company's defined benefit obligation is overfunded (where plan assets exceed the DBO) or underfunded (where plan assets are less than the DBO).

Percent Over/(Under)-Funded = (Plan Assets – DBO) / DBO

To illustrate, a company where the percentage over-funded is equal to 0% would have pension fund assets exactly equal to the company's DBO. If the plan assets are greater than the DBO, then this percentage would be greater than 0% and the pension obligations would be overfunded. If the plan assets are less than the DBO, then this percentage would be less than 0% and the pension obligations would be underfunded.

Table II(c) : Results as of Fiscal-Year Ended in 2007



Most of the companies have been consistently underfunded on an accounting basis over the past six years. The average level of underfunding has, however, significantly improved during that time from -22.4% in 2002 to -6.4% in 2007.

Fiscal year ended in year	Average Percent (Under)/Over-funded
2007	-6.4%
2006	-11.8%
2005	-18.6%
2004	-21.4%
2003	-21.7%
2002	-22.4%

It is interesting to note that, as of 2007, the 30 examined companies that sponsor some of the world's largest pension plans have significantly better funded pension obligations than the average of the companies in our global index. Pension plan DBO's in our 30 companies are on average underfunded by 6% whereas the DBO's for our global index are on average underfunded by 24%.

IV. Summary of Findings

The findings of our examination of the global index of companies indicate that defined benefit pension plans appear to have the most financial implications for companies domiciled in Western Europe, the United States and Canada, Brazil and Japan. These regions have long histories of traditional defined benefit plans, although this has been changing over the past several years as companies move away from traditional defined benefit plans towards plans that are more defined contribution in nature. Despite the move towards defined contribution that has been made by many companies, legacy defined benefit plans and their obligations often remain on company balance sheets and continue to have a financial impact. On average, and measured on an accounting basis, pension obligations tend to be quite underfunded.

It is important to note that in our study, we have only looked at a few broad indicators. In order to form more specific conclusions as to the financial implications of defined benefit pension plans in any particular country or company, country-specific and company-specific factors would need to be examined in greater detail.

In the second part of our study, our high-level examination of the group of 30 exchange-listed companies sponsoring some of the world's largest pension funds indicates that the funding level of the pension plan obligations for these 30 companies has on average improved over the past several years. The size of the pension obligations in relation to the market size of the companies, the service cost of the plans compared to operating income, and the funded status of the companies' pension plans have, on average, also improved. There could be a number of reasons for these improvements, although the strong market performance in the few years preceding 2007 has been one of the major factors.

Further, the potential impact on the company financial statements of the pension obligations for the 30 companies are on average much greater than the impact for the average company. This is not surprising given that the 30 companies sponsor some of the world's largest pension funds. That said, as of the fiscal-year ended 2007, the pension obligations of the 30 companies were on average significantly better funded than the pension obligations of the average company.

The increased rigour, transparency and volatility of defined benefit plans that have been introduced over the past several years due to stricter international accounting requirements have pushed the managing of pension plan financial results into the spotlight for many companies. With further accounting reforms expected to international accounting standards, we would expect the focus on defined benefit plan financials to continue. The magnitude of pension obligations can represent a very significant portion of a company balance sheet. We expect that the financial management of defined benefit pension plans will remain a top priority for the sponsoring companies.