The Influence of Culture on Pension Plans

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Abstract: It is widely recognized that culture is a dimension affecting a vast array of management and social choices. However, we know little about the effect of culture on choices that combine both business and social issues in an accounting setting. Employee benefit choices by managers reflect both the business choices of a firm in the selection and retention of employees and social choices in the type and extent of benefits provided to employees. The objective of this study is to investigate the extent to which culture affects employee benefits as manifested in pension plans. In a comparison of plans that differ according to the home country of the parent firm and are offered in the regulated environment of the United States, results indicate an effect of culture on pension plan choices. In particular, culture plays a role in determining the funding level percentage of the plan, employer contributions receivable, and revenues received or receivable from employers.

It is widely recognized that culture is a dimension affecting a vast array of management and social choices (Whitely and England, 1977; Hofstede, 1980, 1983, 1991; Adler, 1983; Sekely and Collins, 1988; Schneider and De Meyer, 1991; Chow et al., 1994). However, we know little about the effect of culture on choices that combine both business and social issues. Employee benefit choices by managers reflect both the business choices of a firm in the selection and retention of employees and social choices in the type and extent of benefits provided to employees. Employers may offer benefits to employees in the form of both welfare and pension plans. These benefit choices are particularly informative in that along with compensation, benefit practices compose a significant element of the human resource management strategy for multinational firms. Human resource management strategies are in turn becoming more important from a corporate strategic perspective for these firms as well (Dowling et al., 1999).

Cultural norms impact managerial choice in the provision of employee welfare plans (Hempel, 1998; Oliver and Cravens, 1999), but research has not demonstrated an empirical relationship between culture and pension plans. International accounting...
standards address reporting requirements regarding pension costs and disclosures, but

differences still exist in the fundamental approach to pensions in various countries. The

objective of this study is to investigate the extent to which culture affects the actions of

management with respect to pension plans. We anticipate the most obvious manifestation

of a cultural effect to exist in the degree of generosity of employers in providing and

funding pension plans.

We specifically consider defined benefit pension plans in that the effect of culture is

perhaps more interesting regarding pensions for several reasons. Firstly, in an international

environment, companies providing pension plans comprise a set with diverse expectations

for pension and welfare benefits determined by the country or countries where the firms

operate. Since the U.S. government regulates and thus influences the overall environment,

the detection of a cultural effect is challenging. Because of this regulation, defined benefit

plans offer more discretionary choices for employers than defined contribution plans. Any

differential in the degree of generosity provided by an employer would be more

discernable for defined benefit plans.

The funding level of defined benefit pension plans offers an area to study. The

requirements for funding pensions will be determined by the laws of the country in

which the plan is operated. Some countries require a certain level of funding (the

U.S.), while others do not (Japan) (Bodie, 1991). The current international standard

regarding pensions, IAS 19-revised, does not require a company to disclose more than

the pension expense for the current year. The liability that results from the difference

between the accumulated obligation and the present value of the plan assets does not

have to be disclosed. Therefore, a critical piece of information is absent for users of

financial statements if a company follows only the guidelines of IAS 19. Without

disclosing the liability resulting from this difference, users cannot adequately determine

whether the company has sufficient funds to cover the future liability. Since this

adequacy of funding cannot be sufficiently determined from the information required

by IAS 19, we investigate data on defined benefit plans that is more explanatory using

disclosures provided in reporting to the Department of Labor. To know what needs to

be disclosed, we must first know where the problem areas lie. This article explores the

connection between culture and critical pension plan information to help determine if

there are differences. These differences, if found, will affect harmonization of

accounting standards.

Another dimension addressed by this study is the relative importance of private-

-sponsored versus government-sponsored plans. To the extent that government plans do not

provide coverage for the population, the burden falls upon private (employer-sponsored)

plans to fill the needs of society. There is a growing need for research to investigate the

provision of benefits by private sponsors as an expanding proportion of the world’s

population receives benefits from these plans. While accounting standard setting only

affects private sponsors, the mix of private versus public coverage in a culture will

necessarily determine how important the regulation of and the standard setting involving

these private plans are.

Finally, it is important to consider the actions of non-U.S. pension plan sponsors as the

U.S. pension market holds a decreasing percentage of the world’s pension assets. U.S.

public and private plan sponsors held 50 percent of the world’s pension assets in 1990

(Davanzo and Kautz, 1992), and this level is expected to decrease to 44 percent by the year
2000. Sponsors from other countries such as Canada, the United Kingdom, Japan, and continental European countries are expected to hold either constant or proportionally larger shares of global total pension assets. The increasing potential influence of these non-U.S. sponsors makes it likely that the U.S. may play less of a major role as a template for international accounting standards regarding pensions. It is thus important to ascertain the effect of culture in terms of pension plan choices.

The remainder of the article is organized as follows. First, we provide background as to the effect of culture on pension plans both from the area of regulation and standard setting, and from issues regarding managerial choice and human resource management strategy. The next section develops exploratory hypotheses that are then tested in the Research Method section. The following section provides the results and an interpretation of the findings.

CULTURE AND PENSION PLANS

The effect of culture on pension plans may be apparent along two different dimensions. One dimension at the micro-level reflects the human resource management strategy for multinational firms. A key component within this strategy is the compensation and benefits decisions that are designed to coordinate with the overall human resource management strategy. The second dimension at the macro-level regards cultural effects as manifested in the regulation and standard setting environments for a country and how this translates to pension plan norms.

Human Resource Management Strategy

Although there is still considerable debate as to which particular elements of human resource management strategy are most sensitive to cultural issues, evidence exists that compensation and rewards in particular are culturally sensitive (Easterby-Smith et al., 1995). Moreover, the global strategy of a multinational will also affect specific human resource practices (Caligiuri and Stroh, 1995). The degree of subsidiary autonomy, global integration, and local responsiveness will all help to determine what particular choices the multinational will make with regards to human resources. Thus, it seems apparent that regardless of the strategies selected, there is little doubt that culture does indeed affect multinational human resource decisions on some level (See Hofstede, 1993; Schuler et al., 1994, 1996; Denison and Mishra, 1995). In fact, culture is the complicating issue that distinguishes international human resource management from decisions for a purely domestic firm (Dowling et al., 1999). For example, Monks (1996) found that in a study of multinationals operating in Ireland, a localized approach was dominant with headquarters monitoring the overall financial effects of human resource decisions. In this case, decisions were made with local concerns dominating home country norms, but the culture of the host country was also an important determinant. The effect of culture could be manifested in either localized or centralized decisions. If the multinational made human resource decisions that did not relate to local norms, but instead followed home country practices, then this would indicate the dominant effect of the culture of the headquarters of the multinational firm.
Within the context of social benefits, research does show a relationship between culture and Hofstede’s (1983) dimensions. In a study of cultural effects on managing human resources, Schuler and Rogovksy (1998) found a relationship between social benefit programs and individual dimensions denoting culture. Although they did not consider pensions, they based their research on specific benefit practices. The relationship to culture was evaluated across 24 countries resulting in recommendations for the use of social benefits and programs in various countries.

**General Regulatory Effects**

Developing accounting standards in an international setting involves a fundamental awareness of differences in environment. Hofstede (1980) first recognized these numerous environmental differences and formulated a set of dimensions defining national culture. Using Hofstede’s dimensions, Gray (1988) proposed a comprehensive model that explains how culture determines accounting values and systems. It is precisely these differences across cultures and accounting systems that make accounting harmonization problematic. These difficulties are perhaps more extreme when the area of interest involves the provision of a benefit that is, in essence, defined by social values.

Pension plans reflect the propensity of a society (or company) to care for its members in the future. The cultural attribute that is most apparent in terms of the provision of pension plans is Hofstede’s (1980) power distance dimension (Hempel, 1998). Power distance is the society’s level of equality among the members. Countries exhibiting a high level of power distance have a great deal of social inequality and autocratic leadership. Individuals in these countries seek to maintain the distance among its members. Countries with lower power distance are more likely to remove the inequalities in power or wealth among its members. Hempel (1998) notes that “the difference in sources and covered groups for pension programs is one of the most immediately striking variations across countries.” Hempel (1998) provides an analysis of the pension coverage averages for several countries and compares the level of coverage by country scores for the power distance dimension. His conclusion is that culture (in terms of the power distance dimension) explains the differences in pension coverage. Societies exhibiting low power distance are more likely to attempt to reduce income differences between its members with pension benefits. The pension benefits might be more generous in these countries and oriented towards generating more income for employees with lower income levels.

Other than Hempel (1998), there is no research that investigates the effect of culture on pension plans. Limited evidence also exists regarding the potential for harmonization across pension reporting standards. To address these gaps, we separately consider these areas where pensions, culture, and standard setting interact. The first area is the prevalence of private-sponsored versus government-sponsored pension plans. The second area is the accounting standard setting and disclosure process in general.

**The Prevalence of Private Pension Plans**

Table 1 provides an overview of the primary sponsors of pension plans in a variety of countries and details of the specifics of the plans. Plans privately sponsored by employers
are providing an increasingly larger percentage of the total retirement benefits to employees in non-U.S. countries (Crosson, 1991; Winston, 1991). Although the U.S. has a public retirement plan, Social Security, the amount of money contributed to private pension plans continues to grow. This trend is continuing in other developed countries as well, where the typical primary provider of pension plans is becoming the private employer (Table 1). Beyond the information provided in Table 1, you find that the government is the primary provider in France, Germany, and Sweden, in 1988 roughly 70 percent of the total population aged 65 and over received some benefits from a private pension plan in France (Dailey and Turner, 1991). The private benefit percentage for older citizens in France is clearly much higher than that in Germany-West (33%) or the Netherlands (31%) and dramatically higher than in Japan (9%). The most recent comparable measure available for the U.S. indicates that approximately 29 percent of the population aged 65 or over received benefits from private plans (Dailey and Turner, 1991).

Various economic situations, coupled with social benefit traditions, will also affect the provision of benefits from government-sponsored plans. Government-sponsored plans may not be able to provide adequate benefits to employees. Given the aging of the population and the decreasing size of the existing workforce, countries such as Canada, France, Italy, and Japan are facing pension debts in the state system that show no sign of abatement (The Economist, 1993; Dornbusch, 1995). During the period from 1970 to 1988, the ratio of plan beneficiaries to active participants steadily increased in France, Canada, Japan, and the U.K. (Dailey and Turner, 1991). In the U.K., the ratio of active workers to pensioners was 3.3 to one in 1990. This ratio is expected to decrease to 2.4 to 1 by the year 2030 (The Economist, 1996). Thus, even private plans will be increasingly burdened by a growing pool of beneficiaries and a decreasing pool of active workers. However, encouraging private plans sponsored by corporate employers provides a means of reducing some of the pressure on state plans. One International Monetary Fund study found that in the major industrialized nations, pension expenditures represent the largest portion of social expenditures (Haar, 1989). For most countries, this percentage is expected to increase over time. A report from the World Bank also urges pension reform with an increased emphasis on privately sponsored plans (The Economist, 1994).

Thus, the overall increase in pension plans that are sponsored by private sources can affect the future ease of harmonization. Plans with a variety of sponsors and components that are not standardized by government providers create the potential for greater differences within the same country. Within-country differences do have an effect on the potential for harmonization (Archer et al., 1995).

### Standard Setting and Disclosure

The fundamental influence of regulation on pension plans begins with the standard setting process. Culture affects the ease of harmonization of accounting standards across nations (Bloom and Naciri, 1989; Meek and Gray, 1989; Freedman and Stagliano, 1992) and affects the development of national accounting systems (Gray, 1988; Salter and Niswander, 1995). Private pension plans are highly regulated by governments in most countries. This level of regulation stems from the potential for abuse in the absence of monitoring as well as from the desire to inform the public
### Table 1. Comparison of Pension Plans

<table>
<thead>
<tr>
<th></th>
<th>Australia</th>
<th>Canada</th>
<th>France</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical providers</td>
<td>N/Aa</td>
<td>Private and government</td>
<td>Government and supplementary private</td>
<td>Government and supplementary private</td>
</tr>
<tr>
<td>Type (defined benefit or defined contribution)</td>
<td>Defined contribution</td>
<td>Defined benefit</td>
<td>Defined benefit</td>
<td>Defined benefit</td>
</tr>
<tr>
<td>% of private workforce as participants in private plans</td>
<td>28%</td>
<td>28%</td>
<td>100%</td>
<td>42%</td>
</tr>
<tr>
<td>% of total contributions to private plans paid by employers</td>
<td>67%</td>
<td>72%</td>
<td>60%</td>
<td>89%</td>
</tr>
<tr>
<td>Indexation of retirement benefits for private plans (inflation)</td>
<td>N/Aa</td>
<td>Not common for private plans</td>
<td>According to national salary indexb</td>
<td>N/Aa</td>
</tr>
</tbody>
</table>

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<tr>
<th></th>
<th>Italy</th>
<th>Japan</th>
<th>Netherlands</th>
<th>Sweden</th>
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<tbody>
<tr>
<td>Typical providers</td>
<td>N/Aa</td>
<td>Private and government</td>
<td>Private dominates</td>
<td>Government dominates</td>
</tr>
<tr>
<td>Type (defined benefit or defined contribution)</td>
<td>N/Aa</td>
<td>Defined benefit</td>
<td>Defined benefit</td>
<td>Equal</td>
</tr>
<tr>
<td>% of private workforce as participants in private plans</td>
<td>N/Aa</td>
<td>37%</td>
<td>62%</td>
<td>N/Aa</td>
</tr>
<tr>
<td>% of total contributions to private plans paid by employers</td>
<td>N/A(^a)</td>
<td>100%</td>
<td>74%</td>
<td>N/A(^a)</td>
</tr>
<tr>
<td>Indexation of retirement benefits for private plans (inflation)</td>
<td>N/A(^a)</td>
<td>Not common for private plans</td>
<td>Virtually complete indexation</td>
<td>N/A(^a)</td>
</tr>
</tbody>
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<tr>
<th>Switzerland</th>
<th>United Kingdom</th>
<th>United States</th>
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<tr>
<td>Typical providers</td>
<td>Private dominates</td>
<td>Private and government</td>
</tr>
<tr>
<td>Type (defined benefit or defined contribution)</td>
<td>Defined contribution</td>
<td>Defined benefit</td>
</tr>
<tr>
<td>% of private workforce as participants in private plans</td>
<td>92%</td>
<td>29%</td>
</tr>
<tr>
<td>% of total contributions to private plans paid by employers</td>
<td>58%</td>
<td>73%</td>
</tr>
<tr>
<td>Indexation of retirement benefits for private plans (inflation)</td>
<td>N/A(^a)</td>
<td>Common for private plans</td>
</tr>
</tbody>
</table>


\(^a\)Not available.

\(^b\)In effect for the time period of the sample; now will switch to indexation for inflation (Milbank, 1995).
and plan participants. Most of the regulatory interest has been directed towards disclosure issues. The effect of culture on disclosure practices has been investigated often with the intent of determining the potential for harmonization of accounting standards. Zarzeski (1996) found that both the secretiveness of a culture and market forces could affect disclosure behavior. In a study focusing on employee benefits, Needles et al. (1991) hypothesized that regulatory differences across countries would appear in the disclosures for pensions. However, results of the study indicated that the overall degree of regulation for a country was not reflected in the pension disclosure practices. The countries studied appeared to exhibit fairly similar disclosures. A more recent examination by Street and Gray (1999) notes that relatively few differences exist in pension disclosures pursuant to IAS 19 when compared to those prepared under U.S. GAAP. This finding leads us to question the applicability of pension disclosures as a means to examine any underlying cultural differences.

Most of the studies regarding disclosures in general involve comparisons across different countries without considering similarities in country groups or regulatory backgrounds. It is not surprising perhaps that Needles et al. (1991) were not able to detect the effect of culture on pension disclosures. A more precise examination of the effect of culture on pensions requires a study of cultural differences that might manifest in the same reporting environment. In addition, pension disclosures on financial statements may not be sufficient for this examination. Therefore, a more direct means to investigate the influence of culture on pension choices requires examining pension plans that are subject to the same regulatory influences. Any other differences that might occur would then reflect the cultural influences on the managers making the choices.

**HYPOTHESESIZED EFFECTS OF CULTURE**

Given that pensions are indeed so highly regulated within each country’s environment, perhaps pension disclosures do not provide for any degree of managerial discretion that would reflect a cultural orientation. Epstein and Mirza (1997) concluded that “The relevant accounting standard, IAS 19, is concerned only with the accounting aspects of pensions; the funding of pension benefits is considered to be a financial management matter and accordingly is not addressed by this pronouncement.” It is more likely that managers would display any cultural influence through other aspects of pension reporting. If the nature and type of disclosures are standardized, then it is more important to examine other pension issues. Eventual harmonization with respect to pension reporting may need to be considered on two levels. The first level considers the existing reporting environment regarding disclosures. The major work in this area (Needles et al., 1991) suggests that pension disclosure practices were fairly similar across the sample. Harmonization regarding general disclosures is thus not likely to be as problematic. A second level considers the provision of additional information that is much more beneficial to users of financial statements. This information is less likely to be provided in mandated disclosures on financial statements.

For example, the funding status of the plan and employer contributions are critical barometers of the ability of the pension plan to provide for the needs of employees. Similarly, management’s choices with regard to these two issues may reflect cultural
norms in the extent to which funding issues and the flow of funds differ according to the home country of the firm offering the pension plan. Since we expect differences related to culture to manifest in these two primary areas regarding pension plans, we develop the following exploratory hypotheses:

**H1:** Culture is a determining factor in the funding level of pension plans.

**H2:** Culture is a determining factor in the flow of cash (employer contribution) from the firm to the pension plan.

The funding level is of particular interest when the employer is funding the plan because employee funding would be deducted from the employee’s salary and then contributed to the plan. This is the most common pattern in the U.S. Employer funding, although regulated, offers more discretion by the employer as to when the cash is actually contributed to the plan.

Thus, investigating both of these components would provide information that addresses the fundamental nature of the benefit provision and the desire to care for employees in the future. It is anticipated that in a comparable environment, variations in the levels of generosity towards employees would be related to cultural factors.

**RESEARCH METHOD**

**Sample Selection**

If pension plan funding is determined by the laws of each country and the IAS standards do not require disclosure of funding levels, how will the users of financial statements be able to judge the comparability of the liabilities of various companies? The influence of culture may exist, but there is not a common basis of comparison. To investigate this issue, we must obtain data for the same pension component from companies whose origin and operations are outside of the U.S. Since this information is not currently available from secondary data sources, it is thus necessary to collect a sample of pension plans that are subject to the same regulatory influences, but allow some manifestation of differences in national culture. Therefore, we collect information on U.S. pension plans for firms operating in the U.S. that differ according to the home country of ownership. Since the plans are domiciled in the U.S., these plans are subject to the same reporting and disclosure requirements.

In addition, we require information that is more comprehensive than that reported in financial statement disclosures to test our hypotheses. The only public data source of pension information on wholly owned subsidiaries of non-U.S. firms is provided by the Internal Revenue Service Form 5500, *Annual Return/Report of Employee Benefit Plan*. This unique data source provides information on employee benefit plans (including pensions) with 100 or more participants. This data source provides a proxy for the information behind the disclosures in the financial statement footnotes and provides information that would not be publicly available for the wholly owned subsidiaries of non-U.S. firms. For example, if a firm is 100 percent owned by a non-U.S. company, it would
not be required to file financial statements in the U.S., but it would be required to file a Form 5500 in the U.S.

Identification of the final sample for analysis involved first determining non-U.S. firms with significant (greater than 20%) ownership of U.S. firms. This increased the likelihood that the firms would be large enough to sponsor plans that would be available in the Form 5500 database. Our basis for this identification was the 1994 annual Forbes list of the 100 largest foreign investments in the U.S., which corresponds to ownership during 1993 (Lombo, 1994).

Form 5500s were then obtained for the calendar year 1993. The Forbes list of 100 foreign owners specifies 175 U.S. subsidiaries. This list of 175 companies was matched to the list of companies sponsoring a pension plan and filing a Form 5500. This process resulted in a sample of 147 firms that appeared on both lists. The final procedure to collect the sample consisted of matching every non-U.S. firm to a wholly owned U.S. firm to control for size and industry effects. Firms were matched by financial data available on the National Automated Accounting Research Service (NAARS) according to three-digit SIC code, sales, and asset size. This matching process resulted in a total of 126 firms: 63 non-U.S. and 63 U.S. firms without reportable (5% or greater) foreign ownership that sponsored plans which filed a Form 5500.

**Tests of Hypotheses**

We group the sample for analysis according to the culture areas developed by Gray (1988), based on Hofstede (1980, 1983). We use these groupings expecting firms with owners from countries reflecting similar dimensions of culture to exhibit similar societal norms in their pension choices. Unfortunately, the sample does not comprise sufficient firms from each country to allow analysis by country. Gray’s (1988) groupings provide an avenue by which to test the cultural predilections of the firms according to country with a minimum loss of information. Table 2 describes the home countries of the firms included in the sample and the corresponding groups for analysis. Tests of hypotheses employ these groups as a categorical variable to represent the influence of culture.

We confine our analysis to defined benefit plans since these types of plans allow a considerable degree of managerial choice relative to defined contribution plans. Defined benefit plans promise to provide a pre-determined benefit to employees. Government regulations determine the minimum level of funding each year, but, essentially, it is the employer’s responsibility to insure that the contributions in the plan will yield the promised benefit. Defined contribution plans specify the amount to be placed in the plan and government regulation determines when those contributions must be made. Short of changing the plan, the employer has little discretion with respect to defined contribution plans once they have been established.

In terms of defined benefit plans, there are a variety of measures that could indicate choices made by management. The reported funding level can be determined by first considering the amount of cash contributed to the plan along with plan earnings (the assets of the plan), and then subtracting from the assets the benefits offered to the employees when they retire (the liabilities of the plan). To determine the liabilities, a discount factor must be used to calculate the present value. The choice of discount factor (the discount
rate) can result in a higher or lower value for the plan liabilities depending upon the selection of management. Management can determine the discount rate used in the actuary’s calculations of potential plan liabilities. The cultural orientation of the company’s management could influence the choices made concerning the funding level and amount of cash transferred from the firm to the pension plan. For example, the extent to which management wishes to provide for employees might be reflected in the extent of contributions to the plan and the generosity of the benefits offered by the plan.

The Form 5500 provides data concerning each plan's assets, liabilities, and actuarial information. We extracted data items that would affect the funding level, the amount of cash not yet placed into the plan (the receivables from the plan's balance sheet), and the amount of cash which the employer will place into the plan for the 1993 plan year (the revenues received or receivable from the employer). These are the most basic items that allow a degree of management discretion and thus would reflect any cultural orientation.

To test the funding level, we define the variable, *funding level percentage*, which is calculated by taking the plan assets minus the plan liabilities and dividing the result by the plan liabilities. Plan assets in excess of plan liabilities indicates an over-funded plan, and the reverse indicates an under-funded plan. By dividing the over- or under-funded amount by plan liabilities, we mitigate the effect of plan size on the variable. The *rate used to calculate the liability* is another variable of interest as this choice can increase or decrease the amount of the liability.

Additional variables were collected from the balance sheet on the Form 5500 for each plan. Receivables represent instances where cash has been promised by the company, but has not yet been added to the plan. To scale the variables for size, all balance sheet items were divided by total plan assets. Specifically, we employ four variables: non-interest-bearing cash, employer contributions receivable, participant contributions receivable, and income receivable. Management determines the amount of contribution to the plan and also has control over the timing of the actual contribution. This degree of management discretion could also reflect a cultural orientation. Plans with management from cultures that truly wish to provide for their employees would likely be concerned that plan assets are adequate to meet plan liabilities.

The income statement on the Form 5500 provides an additional variable to consider the extent of the employer’s contribution to the employee’s welfare. The income statement item, *revenues received or receivable from employers*, is divided by total revenues to create a variable that represents the percentage of total plan revenues contributed by the company. In other words, this variable reflects how much of the income of the plan comes from the employer compared to what the plan itself creates through earnings or the employer collects from others. One would not expect, or want, all of the income to come

<table>
<thead>
<tr>
<th>Group 1 (Anglo)</th>
<th>Group 2 (More developed Latin)</th>
<th>Group 3 (Germanic)</th>
<th>Group 4 (More developed Asian)</th>
<th>Group 5 (Nordic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia (2)</td>
<td>France (5)</td>
<td>Germany (7)</td>
<td>Japan (6)</td>
<td>Netherlands (6)</td>
</tr>
<tr>
<td>Canada (12)</td>
<td>Italy (1)</td>
<td>Switzerland (4)</td>
<td></td>
<td>Sweden (2)</td>
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<tr>
<td>United Kingdom (9)</td>
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from employer contributions because that would indicate that the assets were not earning a return. However, the higher the percentage, the more that management is taking responsibility for caring for the employees. Again, management discretion is manifested in the generosity of revenue contributions to the plan.

Of the 126 firms identified on the Form 5500 tapes, 104 firms offered defined benefit plans. If a firm offered more than one defined benefit plan, then a mean was calculated for the firm for all of the plan variables. Therefore, the final sample for analysis consists of 104 firms with one observation for each variable.

RESULTS OF ANALYSIS AND INTERPRETATION OF RESULTS

To test the hypotheses initially, a Pearson correlation was computed between the pension plan variables and a categorical variable indicating the country group (Table 2) for the plan of the firm. The country group is the variable that represents culture in the analysis. Table 3 provides the results of this test and indicates that when considering the category of the pension variable, there are three significant correlations between pension plan variables and the measure of culture. Funding level percentage, employer contributions receivable, and revenues received or receivable from employers all show a significant degree of correlation to the variable group. Thus, there is a significant correlation in each category of pension variable except for the rate used to calculate the liability. Although not all of the correlations are significant, these results warrant additional investigation given the relationship among the variables. In particular, the significance of the funding level percentage, revenues received or receivable from employers, and the employer contributions receivable denotes the generosity of the employer and thus, may reflect a cultural predisposition.

To more fully explore the significant correlations, a multivariate analysis was computed using the following regression model:

$$ FUNDPER = \beta_0 + \beta_1 \text{GROUP} + \beta_2 \text{RATE} + \varepsilon $$

where $FUNDPER$ is funding level percentage; $\text{GROUP}$ is country group for the firm sponsoring the plan; $\text{RATE}$ is the rate used to calculate the liability.

<table>
<thead>
<tr>
<th>Pension variable</th>
<th>Pearson correlation coefficient</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding level percentage</td>
<td>-0.18839</td>
<td>0.0579</td>
</tr>
<tr>
<td>Rate used to calculate the liability</td>
<td>-0.00244</td>
<td>NS</td>
</tr>
<tr>
<td>Receivables:</td>
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<td></td>
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<tr>
<td>Non-interest-bearing cash</td>
<td>0.08056</td>
<td>NS</td>
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<tr>
<td>Employer contributions receivable</td>
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<td>Participant contributions receivable</td>
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<td>Income receivable</td>
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<tr>
<td>Revenues:</td>
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<td>Received or receivable from employers</td>
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</tbody>
</table>

NS: not significant at 0.10 or below.
The results of the model are shown in Table 4 and indicate that the model is significant, as are both of the independent variables. The level of funding is modeled as a function of both the rate selected (which estimates funding) and culture (which determines the degree of funding.) Both the correlation analysis and the regression model support Hypothesis 1, which posits culture as a determining factor of the funding level. In other words, the cultural bias of the firm’s managers will affect the degree to which the firm attempts to fund the plan. Given that Table 1 shows that employers in different countries tend to pay a different percentage of the total contributions, this result is as anticipated.

Finally, we computed a Kruskal–Wallis test for the same variables examined in the correlation analysis. A Kruskal–Wallis test (Conover, 1980), a non-parametric version of an ANOVA, allows us to test which country groups are different from each other through the use of multiple comparisons. The Kruskal–Wallis test as shown in Table 5 indicates significant differences between the groups for both the employer contribution receivable and the revenues received or receivable from employers, and provides support for Hypothesis 2.

The difference in the revenues received or receivable from employers demonstrates how much coverage the employer provides for the employee. Employers can provide all of the contributions or the contributions can be split between the employer and the employee. The larger the mean, the greater the percentage of total contributions made by the employer. The results of the multiple comparison indicate that group 4 (Japan) differs significantly from groups 1 (Anglo), 2 (More developed Latin), and 3 (Germanic), with Japan providing the greatest percentage of employer contribution. While only 37 percent of the private workforce in Japan are participants in private plans, the employers that do offer plans pay 100 percent of the contributions (see Table 1). None of the other countries offer as much employer coverage, with the other percentages of coverage ranging from 58 for Switzerland to 89 for Germany. It is problematic to use Table 1 as a complete predictor, since information on some of the key countries is not available and standardization of the data may not be as complete as one might wish. Yet, the information presented in Table 1 does help to explain the results of the multiple comparisons and supports the influence of culture on pension plan decisions.

The significance of the employer contribution receivable, which supports the results of both the correlation and regression analyses, reinforces the differences between the cultural orientations of the different groups. Multiple comparisons (Conover, 1980) also shown in Table 5 indicate that group 1 (Anglo) differs significantly from groups 3

### Table 4. Regression Analysis. Culture as a Determinate of Funding Percentage

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate</th>
<th>( F ) value</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>Class variable</td>
<td>-1.841</td>
<td>0.0686</td>
</tr>
<tr>
<td>RATE</td>
<td>-16.4468</td>
<td>-2.294</td>
<td>0.0239</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.0613; \ p = 0.0167; \ F = 4.266; \ df = 100. \]

NS: not significant.

Where: FUNDPER is funding level percentage; GROUP is country group for the firm sponsoring the plan; RATE is the rate used to calculate the liability.
The Anglo group has the smallest mean and the Nordic group the largest. The Germanic group has the second largest mean. The larger mean indicates that a greater portion of the assets are tied up in receivables from the employers, so that less cash has actually been transferred from the company into the pension plan. Thus, the results show that if the firm has its origin in an Anglo culture, it is more likely to make payments to the plan more quickly than firms from either Germanic or Nordic origins. Unfortunately, there is no publicly available source for international data that deals with the timing of the cash funding. This clearly indicates a future research direction.

**IMPLICATIONS FOR FUTURE RESEARCH**

This study presents results that the cultural orientation of a firm plays a part in the managerial decisions made by the firm in a regulated environment where international standards do exist. This fact has been documented in several areas of management and control, but never investigated with respect to pension plans. First, culture affects the determination of how much of the contribution to the pension plan is to be made by the firm. Once this decision is made, culture also affects the decision on when the contribution is to be made and how the funding will be disclosed. Knowledge of the potential effect of culture becomes more important as contributions to private pensions become a larger part of the total compensation for world populations, and as multinational companies play a larger role in the world economy.

The results of this exploratory study are particularly interesting given the vast diversity in approaches to pension disclosures and pension funding throughout the world. Even within a controlled environment, the cultural orientation of managers becomes apparent in those particular aspects of pension choice that reflect social issues. This result reinforces the difficulty faced by international standard setters regarding pensions. If these cultural differences exist within a single reporting environment more highly regulated (and disclosure-oriented) than the international accounting standard (IAS 19) prescribes, then it will likely be even more difficult for international standard setters to achieve harmony in

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**Table 5.** Kruskal–Wallis and Multiple Comparisons. Class Variable: Country Group as Determined by Gray (1988)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\chi^2$</th>
<th>$p$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding level percentage</td>
<td>3.3353</td>
<td>NS</td>
</tr>
<tr>
<td>Rate used to calculate the liability</td>
<td>2.3802</td>
<td>NS</td>
</tr>
<tr>
<td>Receivables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-interest-bearing cash</td>
<td>5.3970</td>
<td>NS</td>
</tr>
<tr>
<td>Employer contributions receivable</td>
<td>9.9607</td>
<td>0.0411</td>
</tr>
<tr>
<td>Participant contributions receivable</td>
<td>2.4807</td>
<td>NS</td>
</tr>
<tr>
<td>Income receivable</td>
<td>4.5051</td>
<td>NS</td>
</tr>
<tr>
<td>Revenues:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received or receivable from employers</td>
<td>10.036</td>
<td>0.0398</td>
</tr>
</tbody>
</table>

NS: not significant at 0.10 or below.

Multiple comparisons for significant results (See Table 2 for country groups): Employer contributions receivable, group 1 differs from groups 3 and 5. Revenues received or receivable from employers, group 4 differs from groups 1, 2, and 3.
reporting across numerous regulatory environments. More importantly, there must indeed be additional areas that the standard setters must address. At the parent level of the multinational firm, it appears that the lack of disclosure resulting from the current standard is not sufficient to provide users of financial statements with adequate information to assess the pension obligations of the company. More importantly, the difficulties for users are likely to multiply as multinational firms increase operations, and plans become more varied to serve the needs of a diverse set of employees.

Future research must continue to investigate the information content in existing disclosures. Other than the Form 5500 information in the U.S., secondary data sources are virtually non-existent. One alternative to evaluate the adequacy of disclosure is to collect primary data on multinational firms that consider the cultural orientation of private pension plan sponsors and their goals regarding the provision of pension plans. Once we understand the differing motivations of multinational firms regarding their diverse employees, then it is possible to modify international standards to provide information more useful to users of financial statements.

NOTES

1. The Form 5500 tapes are organized by Employer Identification Number (EIN) of the plan sponsor. EINs could not be obtained for every plan directly or indirectly sponsored by a firm on the Forbes list. It is not possible to identify every possible plan sponsored by a company if a variety of EINs are registered for the same company. Unless we knew that a company with two different (but similar) names and two different EINs were part of the same company, we only included the company that matched the name listed in Forbes. Because of this process, not all of the different parts of some of the companies may have been included.

REFERENCES


