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# INTERNATIONAL DIFFERENCES IN RESEARCH AND DEVELOPMENT REPORTING PRACTICES: A FRENCH AND CANADIAN COMPARISON

Yuan Ding, Gary Entwistle and Hervé Stolowy

## ABSTRACT

*This paper compares the research and development (R&D) disclosure practices in France and Canada, as evidenced in the annual reports of 76 French and 110 Canadian listed companies. It finds that Canadian high-tech companies (hardware, software, and biotechnology) disclose significantly more information on their R&D activities than their French counterparts. It also finds a strong link between R&D intensity and R&D disclosure among Canadian high-tech companies. Canadian companies overall are also found to be more likely to use non-financial disclosure as a means to resolve any R&D information asymmetry, while French firms disclose more traditional financial and accounting information. Canadian companies are also more willing than French firms to provide information concerning their future R&D expenditures. These results are consistent with inherent cultural and capital market differences between France and Canada. In contrast, the study does not find any significant difference in R&D expenditure capitalization policies between French and Canadian firms.*

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## INTRODUCTION

The growth of research and development (R&D) expenditures over the last two or three decades, together with the continuous substitution of knowledge (intangible) capital for physical (tangible) capital in firms' production functions, has elevated the importance of R&D to the performance of business enterprises (Lev, 1999). A number of research studies (e.g. Lev & Sougiannis, 1996) find a direct and positive correlation between R&D expenditures and such things as economic growth, future income, and productivity improvements of firms. Lev (1999) also argues that outputs from R&D constitute the principal assets of high-tech (e.g. biotechnology) firms. He further showed that the R&D contributes substantially to the firm's productivity and to its value creation, and that the financial market integrates these contributions into the firm's stock price.

At the same time however, investors have difficulty correctly evaluating a firm's R&D activity. Two main reasons could explain this difficulty. The first is due to the complex nature of the R&D activity. Consequently, there exists greater information asymmetry surrounding a firm's investment in R&D than to its expenditures on physical capital items (Mande et al., 2000). The second concerns accounting regulation, and the limits of traditional (and existing) rules in accounting for intangible assets (Gelb, 2002; Lev, 2002).

This study seeks to explore, using a comparative international context, how companies in France and Canada communicate about their R&D activities in their annual reports, both as a means to reduce R&D information asymmetry, and to transcend the limits of existing accounting regulation. In particular, we are interested in exploring how differences in the two countries' capital markets, and their inherent cultural compositions, affect their R&D information disclosures. We also explore whether French and Canadian firms differ in their willingness to capitalize their R&D expenditures, recognizing that both countries' accounting rules enable capitalization under certain conditions.

In our study, the annual reports of 76 French and 110 Canadian listed companies are analyzed. Our results show that Canadian companies disclose significantly more information on their R&D activities than their French counterparts, especially firms in the high-tech industries. Our study also finds a significant link between R&D intensity and R&D information disclosure within Canadian high-tech companies. Moreover, Canadian companies are more likely to use non-financial disclosure as a means to compensate for any R&D information asymmetry, while their French counterparts disclose mainly financial and accounting information on R&D. Finally, Canadian companies are also more willing than French firms to provide information concerning their future R&D expenditures. All these differences are consistent with differences in cultural and capital market

characteristics between the two countries. However, we do not find any significant difference between French and Canadian firms in their decision to capitalize R&D expenditures.

## CONTEXT ANALYSIS

Our research falls within the scope of environmental determinism, a theory that suggests a direct relationship between a nation's rules, regulations, and customs, and its environment. Using this theory, accounting researchers such as Belkaoui (1983), Taylor et al. (1986) and Gray (1988), have hypothesized and found international differences in reporting and disclosure, and have related these differences to the economic, political, and cultural environment of each country. Consequently, before studying R&D disclosure issues in France and Canada, it is necessary to first examine the environmental context in these two countries, in particular in the areas of R&D accounting regulation, capital market development, and culture.

### *R&D Accounting Regulation*

In a global context, IAS 38 (IASC, 1998) provides guidance for accounting for R&D. IAS 38 defines research as "original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding," while development is the "application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services prior to the commencement of commercial production or use." All costs engaged in a research phase must be expensed immediately. In contrast, an (intangible) asset arising from development should be recognized if, and only if, an enterprise can demonstrate all of the following:

(1) the technical feasibility of completing the intangible asset such that it will be available for use or sale;
(2) its intention to complete the intangible asset and use or sell it;
(3) its ability to use or sell the intangible asset;
(4) an indication as to how the intangible asset will generate probable future economic benefits;
(5) the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
(6) an ability to measure reliably the expenditure attributable to the intangible asset during its development.

In Canada, the accounting rules for R&D are contained in the CICA Handbook Section 3450 (CICA, 1978) and essentially mirror those of IAS 38. In slight contrast, in France, according to the Consolidated Accounting Rules, the costs related to R&D projects should be expensed immediately.[1] However, companies can choose to capitalize the costs related to "applied" research and development projects, if these costs are reliably identifiable and valuable, clearly individualized, and have serious possibility of commercial profitability (Henrard et al., 2000). This research study explores whether French and Canadian firms differentially adopt the R&D capitalization option available to them as a means to reveal information to the market.

### *Capital Market Development*

In terms of the nature and development of their respective capital markets, some important differences exist between France and Canada, differences that would be expected to be associated with varying levels of information disclosure. In comparison with Anglo-American countries, France has a relatively less developed capital market, with enterprise financing activity being traditionally closed and internally oriented. In particular, the capital needs of enterprises come mostly from family deposit and profit reinvestment (Redis, 1994). Furthermore, cross-shareholding among large firms is a common feature of the French economy, as is the concern of the French government to enact economic policies aimed at ensuring the stability of shareholders and the security of enterprises. Hence, significant pressures to reveal information to a broad, external, investor group are not felt by French firms.[2] Canada meanwhile, is much more representative of the Anglo-American market model, in which broad capital markets and stock exchanges play an important role in firms' financing activities. Within such a model, pressure from external investors contributes to the formation of a more transparent and disclosure-oriented reporting philosophy.[3]

Another important difference between France and Canada relates to the level of economic integration with the U.S. Due to its geographic and cultural proximity, and to such formal structures as the North American Free Trade Agreement (NAFTA), the Canadian economy is highly integrated with that of the U.S. Hence, one might expect to see Canadian firms acting relatively more consistently with their disclosure-oriented American counterparts, a finding seen in the Entwistle (1999) study on R&D disclosure. Further, Pinches et al. (1996) suggests that the American capital markets pay considerable attention to corporate R&D at every stage of the whole process, from project initiation through to commercialization.

Hence, similar attention, and heightened R&D disclosure pressures, might be expected in the Canadian markets.

### *Culture*

One of the most visible cross-cultural research studies was done by Hofstede (1981, 2001). After interviewing employees of IBM in 50 countries in the world, Hofstede identified four inherent cultural or societal values: power distance, uncertainty avoidance, individualism vs. collectivism, and masculinity versus femininity.[4] Table 1 shows for France and Canada the scores and ranks on these four cultural dimensions. In comparison to Canada, French culture displays much larger power distance and stronger uncertainty avoidance. Conversely, Canadian culture ranks higher in terms of individualism and masculinity.

Based upon Hofstede's work, Gray (1988) hypothesized a number of links between the four cultural dimensions and a country's "accounting values"; two of these links are most relevant for this study. First, Gray predicted that a higher a country ranks in terms of uncertainty avoidance, and the lower it ranks in terms of individualism and masculinity, the more likely its accounting will emphasize conservatism.[5] Second, he suggested that the higher a country ranks in terms of uncertainty avoidance and power distance, and the lower it ranks in terms of individualism and masculinity, the more likely it will favor secrecy over transparency (i.e. over disclosure).

Salter and Niswander (1995) later directly tested Gray's (1988) hypotheses and found the strongest support for the predicted links between culture and extant disclosure practices in the country, and slightly less support for the hypothesized

***Table 1.*** Cultural Dimensions in France and Canada.

| Country | Power Distance[a] | | Uncertainty Avoidance[b] | | Individualism/ Collectivism[c] | | Masculinity/ Femininity[d] | |
|---|---|---|---|---|---|---|---|---|
| | Value | Rank | Value | Rank | Value | Rank | Value | Rank |
| France | 68 | 15/16 | 86 | 10/15 | 71 | 10/11 | 43 | 35/36 |
| Canada | 39 | 39 | 48 | 41/42 | 80 | 4/5 | 52 | 24 |

*Source:* Culture's Consequences, Second Edition, Sage Publications, 2001, p. 500.
[a] Values range from 11 to 104.
[b] Values range from 8 to 112.
[c] Values range from 6 to 91.
[d] Values range from 5 to 95.

cultural link with conservatism. Hence, and given the (cultural) results shown in Table 1, French accounting practices for R&D should be both less transparent (i.e. less disclosure oriented) and more conservative than Canadian practices.

## HYPOTHESES

### *Overall R&D Disclosure*

Our first hypothesis concerns the overall level of information disclosed on R&D activities. Our prediction is:

> **H1.** Canadian firms disclose more information on their R&D activities than French firms.

Several arguments support this hypothesis. Firstly, capital markets (and stock exchanges) play a more important role in the financing activities of Canadian firms, which leads to a heavier disclosure pressure. Second, Canadian firms are more affected by the U.S. reporting environment where disclosure obligations and practices are arguably the severest in the world. Third, the cultural context in Canada privileges more transparent and full disclosure.

This hypothesis is also consistent with prior empirical research. For example, in their international study on environmental disclosures in 27 countries, Gamble et al. (1996) find that the British-American accounting model (which includes Canada) was associated with a higher percentage of companies providing environmental disclosures than companies operating under a Continental accounting model (which includes France); notably, Canada, along with the U.S. and U.K., had the highest average environmental disclosures per firm.[6]

### *R&D Capitalization*

Lev (1999) finds that despite the obvious benefits of R&D to the firm, which generally stretch over extended periods of time, the R&D investment is immediately expensed (written off) in U.S. corporate financial reports, hence leaving no trace of R&D capital on firms' balance sheets, and causing material distortions of reported profitability. Relatedly, in their research on discretionary capitalization of R&D in Australia and Canada, Smith et al. (2001) observe that capitalized development costs are valued by the market, and that the valuation coefficient of a dollar of capitalized development exceeds that for a dollar of expensed R&D. Ceteris paribus, these findings would suggest a predisposition in both French and

Canadian firms to capitalize R&D, so as to both reduce the distortion of reported net income, and to give a more accurate presentation of firms' financial situation, both of which should be welcomed by the financial markets. Nevertheless, as noted earlier, French firms feel relatively less disclosure pressure from the capital market, and accounting practices are more conservative. Consequently, our second hypothesis is:

**H2.** Canadian firms capitalize their R&D expenditures more frequently than French firms.

### *R&D Disclosure and Intensity*

Again, ceteris paribus, a firm should try to disclose as much as possible of its R&D activities in order to reduce information asymmetry and thereby decrease monitoring costs and the cost of capital (e.g. Welker, 1995). Accordingly, there should be a positive correlation between R&D disclosure and R&D intensity (i.e. the firm's spending on R&D). In earlier empirical work, both Tasker (1998) and Entwistle (1999) found that firms with higher levels of R&D spending were more likely to provide additional disclosures. Again, however, owing to both capital market and cultural differences, a lower correlation is expected between R&D disclosure and R&D intensity for French firms. Hence our third hypothesis is:

**H3.** There is a stronger link between R&D disclosure and R&D intensity in Canadian firms than in French firms.

### *Financial Versus Non-Financial Information*

Although R&D is a major productive factor and the principal asset driver of high-tech and science-based companies, information about firms' R&D activities, and their resulting benefits, is often inadequate for investment research and analysis. Indeed, Lev (2001) noted that traditional (accounting-based) information systems fail to provide adequate information regarding a firm's intangibles to enable appropriate decisions by managers, investors and public policymakers. Nevertheless, research such as Entwistle (1999) in Canada, and Gelb (2002) in the U.S., find that firms compensate for less formal GAAP disclosures with a wide range of flexible, and voluntary, supplemental disclosures. In our study however, owing to lower uncertainty avoidance and higher masculinity, we predict that Canadian companies should privilege greater non-financial

information to disclose their R&D activities. In contrast, French firms should be more satisfied providing traditional financial information. Hence our fourth hypothesis:

**H4.** In disclosing their R&D activities, Canadian firms provide greater amounts of non-financial information than French firms.

### *Future Expenditures*

Based again on the cultural context analysis, notably the higher French predisposition towards uncertainty avoidance, we predict that French firms will be less likely to communicate regarding their future R&D expenditures. Hence, our final hypothesis:

**H5.** Canadian firms will provide more information about their future R&D expenditures than French firms.

### *Control Variable: Size*

Size has often been identified as an important determinant of firm disclosure (Firth, 1979; Raffournier, 1995; Singhvi & Desai, 1971). We therefore control for size differences between Canadian and French firms to ensure that any differences do not materially affect our results.

## DATA COLLECTION

The sample of firms we used for testing our hypotheses are listed companies which recorded an R&D expense in their financial statements, and for which an annual report was available for examination. In total, 76 French companies, each belonging to the SBF 250 Index of the Paris Stock Exchange, and 110 Canadian companies, each listed on the Toronto Stock Exchange, were analyzed.[7] Of the full sample of 186 firms (see Appendix), 28 French and 76 Canadian companies belonged to the high-tech industry (i.e. hardware, software, or biotechnology).

Using content analysis methodology, we analyzed each annual report to identify any R&D disclosure items. Consistent with previous disclosure research (e.g. D'Aveni & MacMillan, 1990; Entwistle, 1999), the unit of measure for an item of disclosure was the sentence, defined in the Concise Oxford Dictionary (1990,

p. 1103) as "a set of words complete in itself as the expression of a thought." Each disclosure item was classified in terms of both its type and location. Disclosure type was based on the six categories used in the Entwistle (1999) study, notably: inputs, outputs, future expenditures, financing, accounting/financial and strategy. The disclosure location was either in the financial statements, management discussion and analysis, or general presentation (i.e. other parts of the annual report). All other variables required for the statistical analysis such as R&D expense, total current operating expenses, and R&D accounting policy were also collected from the annual reports.

## RESULTS

### *Descriptive Statistics*

Table 2 provides a general disclosure profile of the sampled firms. On average, Canadian firms disclose more information on their R&D activities, and are also more R&D intensive. A slightly greater proportion of Canadian companies also capitalize their development expenditures.

### *Inferential Statistics*

*Overall R&D Disclosure*

Our first hypothesis is related to the overall amount of R&D disclosure provided by the firm. For the total sample of 76 French and 110 Canadian firms, a Student *t* test (refer Table 3) confirms the mean disclosure difference is statistically significant ($t = 5.673; p = 0.000$). However, when we break the firms between high-tech and non high-tech, we find a statistically significant difference only for high-tech firms. Hence our first hypothesis is partially supported.[8]

*R&D Capitalization*

Although in Table 2 we observed proportionately more Canadian companies capitalize their development expenditures (31.8% versus 23.7%), a Pearson Chi-Square test results in a *p*-value of 0.148. Separate tests for high tech ($p = 0.553$) and non high-tech ($p = 0.432$) firms, similarly fail to find a statistically significant difference between French and Canadian firms. Hence, our second hypothesis regarding the greater propensity of Canadian firms to capitalize their R&D expenditures is not supported.

***Table 2.*** Descriptive Statistics.

| Country | Quantity of R&D Disclosure[a] | | | | R&D Intensity[b] | | | | R&D Accounting Policy | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Max | Min | Median | Mean | Max | Min | Median | Expensed | Capitalized | Total |
| France | 35.4 | 186 | 3 | 29 | 0.059 | 0.767 | 0.000 | 0.029 | 58 (76.3%) | 18 (23.7%) | 76 (100%) |
| Canada | 91.1 | 350 | 1 | 68 | 0.135 | 1.000[c] | 0.001 | 0.066 | 75 (68.2%) | 35 (31.8%) | 110 (100%) |

[a] Quantity of R&D Disclosure is measured by the number of sentences of R&D provided in the firm's annual report.
[b] R&D Intensity is measured by the current year's R&D expense amount as a percentage of total current operating expenses.
[c] One Canadian company, Imutec Corporation, recorded all of its operating expenses as R&D expenses.

***Table 3.*** Overall R&D Disclosures.

| Country | Statistic | Total | High-Tech | Non High-Tech |
|---|---|---|---|---|
| France | Mean | 35.4 | 44.0 | 30.3 |
| Canada | Mean | 91.1 | 119.5 | 27.8 |
| | *t*-Value | 5.673 | 4.605 | −0.519 |
| | Significance | 0.000 | 0.000 | 0.605 |

*R&D Disclosure and Intensity*

To test our third hypothesis, we first use the following regression model for the full sample of firms:

$$\text{Info}_i = \alpha_0 + \alpha_1 \text{RD\_Inten}_i + \varepsilon_i \quad (1)$$

where: Info = quantity of R&D disclosure as measured by the number of sentences of R&D provided in the firm's annual report. RD_Inten = current year's R&D expense as a percentage of total current operating expenses.

Using this model, the results in Table 4 suggest a significant link ($p = 0.000$) between R&D disclosure and R&D intensity.

Following from this result, we then perform two regressions, one for French, and one for Canadian firms, to further explore the association between R&D disclosure (Info) and R&D intensity (RD_Inten). The results (not shown) found that in France, there is a statistically significant association between these two variables ($p = 0.021$), however with a very low $R^2$ (0.07), while in Canada, such an association is much stronger ($p = 0.000$, $R^2 = 0.365$). When these regressions were run separately for high-tech and non high-tech firms, the results only held for Canadian high-tech firms. Hence, our third hypothesis is partially supported.

***Table 4.*** R&D Disclosure and R&D Intensity.

Model 1: $\text{Info}_i = \alpha_0 + \alpha_1 \text{RD\_Inten}_i + \varepsilon_i$

| Variable | Unstandardized Coefficients | | *t*-Value | Significance |
|---|---|---|---|---|
| | B | Std. Error | | |
| Constant | 42.054 | 5.002 | 8.408 | 0.000 |
| RD_Inten | 252.728 | 25.582 | 9.879 | 0.000 |
| $R^2 = 0.347$ | | | | |

*Note:* Info = Quantity of R&D Disclosure as measured by the number of sentences of R&D provided in the firm's annual report. RD_Inten = R&D intensity as measured by the current year's R&D expense amount as a percentage of total current operating expenses.

***Table 5.*** Financial Versus Non-Financial Information.

| Country | Statistic | Accounting/Financial | | Financial Statements | |
|---|---|---|---|---|---|
| | | Number[a] | Percent[b] | Number[c] | Percent[d] |
| France ($n = 76$) | Mean | 11.8 | 0.437 | 7.41 | 0.300 |
| Canada ($n = 110$) | Mean | 4.67 | 0.076 | 0.82 | 0.016 |
| Total ($n = 186$) | Mean | 7.6 | 0.224 | 3.63 | 0.132 |
| | *t*-Value | −6.015 | −12.348 | −9.011 | −9.685 |
| | Significance | 0.000 | 0.000 | 0.000 | 0.000 |

[a] Number of R&D disclosures classified as Accounting/Financial.
[b] Ratio of R&D disclosures classified as Accounting/Financial over the total R&D disclosures in the annual report.
[c] Number of R&D disclosures within the Financial Statements section of the annual report.
[d] Ratio of R&D disclosures within the Financial Statements Section over the total R&D disclosures in the annual report.

*Financial vs. Non-Financial Information*

Our fourth hypothesis involves the nature of the firms' R&D disclosures and suggests that Canadian firms are more likely to provide more non-traditional information. While Table 2 revealed that French firms disclose on average less R&D information than their Canadian counterparts (35.4 versus 91.1), Table 5 shows that both in absolute and relative value terms, French firms' disclosures are both more likely to be of an accounting/financial nature, and to be located in the financial statements (all $p$-values = 0.000). These results hold when splitting the sample between high-tech and non high-tech. Hence, our fourth hypothesis is supported.

*Future Expenditures*

Our final hypothesis predicted that Canadian firms would be more likely to provide R&D disclosure with a future orientation. The results in Table 6 are in line with this

***Table 6.*** Future R&D Expenditures.

| Country | | Future R&D Expenditures | |
|---|---|---|---|
| | | Number[a] | Percent[b] |
| France ($n = 76$) | Mean | 0.092 | 0.003 |
| Canada ($n = 110$) | Mean | 3.38 | 0.035 |
| Total ($n = 186$) | Mean | 2.04 | 0.022 |
| | *t*-Value | 4.991 | 5.359 |
| | Significance | 0.000 | 0.000 |

[a] Number of R&D disclosures classified as future expenditures.
[b] Ratio of R&D disclosures classified as future expenditures over the total R&D disclosures in the annual report.

***Table 7.*** Size of Two Sample Firms.

| Country | Statistic | Size |
|---|---|---|
| France ($n = 76$) | Mean | 23.19 |
| Canada ($n = 110$) | Mean | 19.76 |
| | *t*-Value | −10.703 |
| | Significance | 0.000 |

*Note:* Size = Logarithm of total assets.

prediction. Specifically, Canadian firms provide an average of 3.38 future-oriented R&D disclosures, while French firms are hesitant to provide any such disclosure (mean = 0.092). This difference is statistically significant at $p = 0.000$. There is also a statistically significant difference ($p = 0.000$) when the disclosure is considered in percentage terms. These results hold for both high-tech and non high-tech firms.

*Control for Size*

We need to control that our results are not materially influenced by a potential size difference between the two sample-firms. Table 7 shows that French firms are larger than Canadian firms, and that the difference is statistically significant ($p = 0.000$).[9] However, this size difference works against all our hypotheses, as larger firms have generally been found to disclose more information. In our study, French firms disclose less information. Hence, we provide evidence that environmental factors, such as culture, can exert a strong influence on disclosure, irrespective of firm size.

## SUMMARY

In this study, we compared the R&D disclosure practices in France and Canada, as evidenced in a sample of listed firms' annual reports. In so doing, we add to the growing body of research in international accounting, and to our understanding of environmental determinism theory. Using this theory, we expected disclosure differences in French and Canadian firms due in particular to differing capital markets and inherent cultural divergences.

As predicted, we found that Canadian firms provided significantly more information on their R&D activities than French companies, notably those in the hardware, software or biotechnology industries. This result is consistent not only with the greater disclosure pressures faced by Canadian firms within their capital markets, but also with the full disclosure and transparency philosophy more notable in Canada than in France. We also observed a significant positive

correlation between R&D disclosure and R&D intensity among Canadian high-tech firms. This suggests that Canadian R&D intensive firms are more willing to disclose their R&D activities, perhaps to decrease the firm's monitoring costs and the cost of capital, while their French counterparts privilege secrecy over disclosure. Canadian firms also use more non-financial information to disclose their R&D activities, while French firms restrict themselves to providing more traditional accounting and financial information. Canadian firms are also more willing to disclose information regarding their future R&D expenditures. Finally, we noticed a slightly increased tendency of Canadian firms to capitalize their R&D expenditures, however, the difference between the two countries was not statistically significant.

## NOTES

1. Published on April 29, 1999 by the *Comité de la réglementation comptable* (Accounting Regulation Committee).

2. Notably, even the "listed" French companies included in our study still demonstrate the characteristics of a more "traditional" financial market model. For example, L'Oréal, Michelin and Bouygues are still controlled by their respective founders, while Renault and France Telecom are still owned by the French state, and EADS by several European states.

3. According to Gray et al. (1984), stock exchanges appear to have been one of the predominant forces in the emergence of public corporate disclosure.

4. Refer to Gray (1988) for a fuller description of these four values.

5. In his research, Gray defined conservatism as "a preference for a cautious approach to measurement so as to cope with the uncertainty of future events as opposed to a more optimistic, laissez-faire, risk-taking approach." He also noted that "conservatism varies according to country, ranging from a strongly conservative approach in the continental European countries, such as France and Germany, to the much less conservative attitudes of accountants in the U.S.A. and U.K." In contrast, other researchers explore conservatism by concentrating on the relationship between accounting earnings and market value of the firm. According to this second viewpoint, conservatism exists in accounting where there is more timely recognition in earnings of bad news regarding future cash flows than good news (Basu, 1997). Following this definition, research (e.g. Ball et al., 2000) found that common law countries (e.g. Canada) have a more conservative accounting than code law countries (e.g. France), and that countries with developed capital market have a more conservative accounting than those dominated by family-owned firms (Ball et al., 2003). In our research, we adopt Gray's definition since it is most commonly used by culture-based research in accounting.

6. These disclosures include short qualitative discussion, extended qualitative discussion, footnote discussion, or journal entries recorded in financial statements (Gamble et al., 1996).

7. The original Entwistle (1999) study had 113 firms. The French company data was for the year 2000 while the Canadian company data was for years 1993–1995. Arguably, since 1995, due to increased globalization of capital markets, one could expect an increased level of disclosure by French companies, hence working against the predicted hypotheses.

8. These non high-tech firms were described as "traditional" in Entwistle (1999), and include such industries as household goods, mining, utilities, and oil and gas.
9. The results also hold for the high-tech firms.

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# APPENDIX

## *List of Sample Firms*

French Companies ($n = 76$)

| | | |
|---|---|---|
| Air Liquide | Exel Industries | Pinguely Haulotte |
| Alcatel | Faurecia | Plastic Omnium |
| Alstom | Fininfo | Radiall |
| Altran Technologies | France Telecom | Renault |
| Arkopharma | Gemplus International | Rhodia |
| Aventis | Genesys | Saint-Gobain |
| Bolloré Investissement | GFI Industries | Sanofi-Synthélabo |
| Bouygues | GFI Informatique | Schneider Electric |
| Bouygues Offshore | Groupe Silicomp | Seb |
| Bull | Highwave Optical | Séché Environnement |
| Business Objects | Infogrames | Soitec |
| Carbone Lorraine | Ingenico | S. T. Dupont |
| Cegid | Ipsos | STMicroelectronics |
| Ciments Français | Lapeyre | Thales |
| Clarins | Lectra | Thomson Multimedia |
| Coflexip | L'Oréal | Transiciel |
| Compagnie Générale de Géophysique | Metrologic Group | Usinor |
| Dalloz | Michelin | Valeo |
| Damart | Nexans | Vicat |
| Danone | Nicox | Virbac |
| Dassault Systèmes | Oberthur | Vivendi Environnent |
| EADS | Orange | Vivendi Universal |
| Eramet | PCAS | Wanadoo |
| Essilor | Péchiney | Wavecom |
| Eridania Béghin-Say | Pernod Ricard | |
| Eurofins Scientific | Peugeot PSA | |

Canadian Companies ($n = 110$)

| | | |
|---|---|---|
| ABL Canada Inc. | Domtar Inc. | National Hav-Info |
| Accugraph Corporation | Dorel Industries Inc. | Newbridge Networks |
| Advanced Gravis | DuPont Canada Inc. | NII Norsat International |
| Alcan Aluminum | Dusa Pharmaceuticals | Northern Telecom Limited |
| Allelix Biopharmaceuticals | DY 4 Systems Inc. | OCS Technologies |
| Alta Genetics | Eicon Technology | Offshore Systems |
| AIT Advanced Info | Electrohome Limited | Plaintree Systems |
| AlphaNet Telecom | Epic Data International | Potash Corporation |
| Arrowlink Corp. | Foremost Industries | Promis Systems |
| ATI Technologies | Gandalf Technologies | QSound Labs, Inc. |
| Autrex Inc. | Geac Computer | Quadra Logic |

## APPENDIX (*Continued*)

| | | |
|---|---|---|
| Biochem Pharma | Gennum Corporation | Quartex Corporation |
| Biomira Inc. | Global Election Systems | Quebec Telephone |
| Bioniche Inc. | Glyko Biomedical | Scintrex Limited |
| Biovail Corporation | GSW Inc. | Scott Paper Limited |
| BMB Compuscience | Haley Industries Limited | Shaw Industries |
| CAE Inc. | Hemosol Inc. | Sherritt Inc. |
| Calian Technology | H. E. R. O. Industries | Sico Inc. |
| Cameco Corporation | Hummingbird Commun. | Sidus Systems Inc. |
| Canadian Marconi | Imasco Limited | SNC Lavalin Group Inc. |
| Cangene Corporation | Imutec Corporation | Softkey International |
| Canstar Sports Inc. | Inco Limited | Sony Corporation |
| CCL Industries Inc. | Intera Information | Spar Aerospace Limited |
| Cinram Ltd. | International Murex | Spectrum Signal |
| C-MAC Industries | International Retail Systems | Speedware Corporation |
| Cognos Incorporated | International Verifact Inc. | SR Telecom Inc. |
| Cominco Ltd. | ISG Technologies Inc. | Synergistics Industries |
| Computalog Ltd. | Lafarge Corporation | Tee-Com Electronics Inc. |
| Contintental Pharma | LSI Logic Corporation | Teleglobe Inc. |
| Corel Corporation | MDS Health Group | Telepanel Systems Inc. |
| D. A. Stuart Ltd. | Memotec Communications | TIE Telecommunications |
| Delrina Corporation | Microbix Biosystems | Triple Crown Electronics |
| Deprenyl Animal Health | Microstar Software | TSB International |
| Deprenyl Research | Mitel Corporation | Unican Security |
| Develcon Electronic | Modatech Systems | Varity Corporation |
| Disys Corporation | Moore Corporation Limited | Xillix Technologies |
| DMR Group Inc. | Mosaid Technologies | |