

An Empirical Examination of Corporate Website as a Voluntary Disclosure Medium

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Abstract

Standards-setters, regulators and academics believe that corporate websites may enhance the flow of voluntary disclosure to the capital market and other stakeholders. Management's use of corporate websites is a common practice now, yet we know little about how these websites affect investors. In this study, I analyze seven corporate websites disclosures categories to examine their predictive ability and their value relevance. The results show that the key non-financial statistics, projected information, information on intangible assets, social and environmental information, are associated with future revenue, future earnings, and contemporaneous stock return. The paper contributes to the growing literature on websites disclosure and more generally to the literature on voluntary and strategic disclosure.

Key Words: Corporate Websites, Content analysis, Information content, voluntary disclosure

1. Introduction

Within the last 5 years, the FASB, the CICA and the IASB have published reports that strongly recommend to all listed companies to maintain a corporate website in order to make investor relations information available electronically. These reports support the regulator and standard setters view on the importance of the corporate website in enhancing firm's voluntary disclosure strategy. In an October 18, 1999 speech, Securities and Exchange Commission (SEC) Chairman Arthur Levitt called firms to broaden access to financial information: I appeal to companies, in the spirit of fair play: make your quarterly conference calls open to everyone, post them on the Internet, invite the press¹. In Canada, the Ontario Securities Commission believes that the corporate website improves investor access to corporate information². In this paper, we examine whether regulators (SEC and OSC) and standard setters (FASB, CICA, and IASB) are justified in their belief. In particular, we test whether web site disclosures about background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, and social and environmental information are useful in predicting changes in future revenues and earnings and in explaining contemporaneous stock returns for retail firms.

¹ Quality Information: The Lifeblood of Our Markets," remarks by Chairman Arthur Levitt, Securities and Exchange Commission, The Economic Club of New York, New York City, October 18, 1999.

² National Policy 51-201 "Disclosure Standards"

While research provides evidence that the extent of firm's web site disclosure are positively associated with stock market transactions motivations (Trabelsi, Labelle, and Dumontier; 2007; Debreceeny and Rahman, 2005), relatively little research examines the usefulness of specific web site disclosures. Both CICA and FASB reports urge additional academic research that examines whether and in what contexts these supplemental disclosures are useful. Such research may inform OSC decisions on whether to encourage or require more Web site disclosures. The OSC stipulates "As technology evolves and as more investors gain access to the Internet, it may be that postings to certain companies' Web sites alone could satisfy the "generally disclosed" requirement. At such time, we will revisit this policy statement and reconsider the guidance provided on this issue. In the meantime, we strongly encourage companies to utilize their Web sites to improve investor access to corporate information' (OSC 2001).

We select background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, and social and environmental information as the FASB (2001) report encouraged companies to continue improving their business reporting with regard these seven disclosure categories.

In our empirical analysis, we find that the key non-financial statistics are associated with future earnings, and contemporaneous stock return. Projected information and information on intangible assets are associated with future revenue, future earnings, and contemporaneous stock return. Social and environmental information is associated with contemporaneous stock return.

Our paper provides evidence that corporate website disclosures provide relevant information to investors and suggests that some specific disclosures are particularly important. This finding complements the results of Asthana and Balsam (2001, 2004); Hodge and Maines (2004); and

Hodge and Pronk (2006), who also find evidence that online financial reporting of information results in more efficient and timely dissemination of value relevant accounting information.

The remainder of this paper is organized as follows. Section 2 describes the disclosures we analyze. We discuss related research in Section 3. Section 4 presents our research design. Sections 5 and 6 present the data and results. The final section provides conclusions.

2. The corporate website Disclosures

The corporate website disclosures improve and accelerate access to financial information, increase the extent of such information (Ashbaugh, 1999), and reduce the printing and distributing costs required by traditional financial reporting (TFR) on paper format (Beattie and Pratt, 2003). The Web is a space where the firm can present and enhance the information published in classical media, drawing on the multimedia resources offered by Internet technology (Jones and Xiao 2003; Lymer, Jones and Xiao, 2002; Trites, 1999a).

I examine seven voluntary disclosure categories considered useful by investors, financial analysts, and standard setters (Botosan, 1997). They include background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, social and environmental information.

Background information

Background information such as statement of goals, strategies adopted, main line of products manufactured, firm's principal markets as well as a description of its competitive environment can be useful to investors in as much as they provide a context for interpreting the detailed financial information published by the firm (Botosan, 1997).

Summary of historical results

According to the survey conducted by SRI International (1987), individual or professional investors consider the historical summary of results to be important or even crucial. Access to the historical summary of annual and quarterly financial results facilitates the analysis of trends (Botosan, 1997).

Key non-financial statistics

Non-financial statistics are indicators that are not normally presented in financial statements and cover such as: number of employees, average age of key employees, market share, and input/product ratio. The Jenkins Committee report (AICPA, 1994) as well as the Kolton Committee's (FASB, 2001) recognize the utility of non-financial statistics for making investment decisions and encourage firms to publish them. Furthermore, the SRI International study indicates that 73.7% of professional investors recommend that firms disclose non-financial ratios and statistics.

Projected information

The Kolton Committee report (FASB, 2001) as well as that of the Jenkins Committee (AICPA, 1994) also encourage firms to increase the extent of this category of information because of its importance for both investors and financial analysts. Moreover, certain empirical research studies have shown the usefulness of reporting forward looking financial information.

Management discussion and analysis

The management discussion and analysis is an effective tool, allowing the firm to tell how it has created value for its shareholders and how it plans to continue doing so (CICA, 2001). Research studies conducted by Barron, Kile, and O'Keefe (1990) and by Clarkson, Kao, and Richardson et al. (1999) show the predictive utility of the management discussion and analysis. However, the Goodfellow Committee (CICA, 2001), in explaining the motivation for establishing management discussion and analysis guidelines, expresses the concern that the information provided in such reports may sometimes lack both utility and clarity.

Information on intangible assets

This category includes information on intangible assets not recognized in financial statements. This category is added to the Botosan (1997) disclosure index given the growing importance and relevance of intangible assets for both firms and investors. According to the Kolton report (FASB, 2001), voluntary disclosures on intangible assets such as research and development, human resources, customer relations, and innovations are particularly useful in making investment decisions.

Social and environmental information

Social and environmental information includes the statement of the firm's social objectives and the description of its social commitments through specific projects (community involvement, cultural, recreational, and sports activities). It also includes the description of activities reducing the pollution linked to the firm's activities as well as its undertakings linked to the treatment, management or recycling of waste products. Blaconniere and Patten (1994) and by Cormier and Magnan (1997) confirm the informational content of social and environmental reporting. Thus the utility of this category of information for investment decisions.

3. Related Research

Internet financial reporting (IFR) is currently attracting a great deal of attention from academics and from standard setters and regulators. As a research theme, IFR is a topic of growing discussion (Gowthorpe 1999; Lymer 2002, 1999). Studies on firms' use of the Internet for financial reporting can be grouped into three main complementary categories.

Descriptive studies of IFR aimed to survey two major aspects: the content and format of the financial information presented on Web sites. Figure 1 shows these two aspects. As concerns content, the Web site may simply reproduce the TFR process which mandatory information is presented in compliance with standards, as well as present voluntary disclosure already published in paper format or on regulated sites such as SEDAR in Canada and EDGAR in the United States.

The main contribution of the foregoing descriptive studies resides in the benchmark they offer for assessing, first, the emergence and then the evolution of IFR (Lymer 2002, p. 246). However, according to Lymer (2002, p. 247), most of these studies have no theoretical foundation, given their exploratory nature. It is in this context that this author encourages the pursuit of more in-depth academic studies.

We may add that these descriptive studies also fail to isolate the Internet's contribution to traditional financial reporting. Its impact must be measured in attempting to answer the research questions we raise in the introduction. It is also necessary to measure the Internet's incremental contribution to financial reporting in order to ascertain its determinants and whether they are the

same as those of TFR. The answer to these questions should help standard setters to define their response to the evolution of this medium of financial reporting.

Studies that aim at a better understanding of IFR determinants show that size, activity sector, sophistication of users, performance, and dispersal of shareholders explain the variability of the two aspects of IFR : content and format of financial information presentation on corporate Web sites.

Based on a sample of 660 firms from 22 countries, Debrecey et al. (2002) tested the relation between the Web site's format and content and the size of the firm measured by stock market capitalization. The results of the ordinal logistic regression models show that format and reporting practices are positively and statistically related to the firm's size. The authors conclude that large firms are more disposed to adopt a variety of reporting media, including their Web site, to report more information at lower cost and in a more attractive way. Large firms have a large number of widely dispersed shareholders and, in this regard, the Internet constitutes an ideal tool for connecting with them.

The results from empirical studies are somewhat mixed as concerns the influence of sector of activity on IFR. Marston and Leow (1998) document a significant relation between IFR practices and the firm's sector of activity. Their contingency table shows that firms in the financial sector tend to report summary financial information, whereas those in the services sector tend to present their complete annual report. Ashbaugh et al (1999) show a statistically significant difference as concerns size and performance between those industrial or service and food firms that use IFR and those that do not. Craven and Marston (1999) find no significant statistical difference in IFR between firms from various industrial sectors.

The studies of Ashbaugh et al (1999) and Ettredge et al. (2002) find no positive and statistically significant relation between performance and IFR. Ashbaugh et al. (1999) analyzed this relation using asset return to measure the firm's operational performance. Their univariate analysis does show a statistically significant difference between the performance of firms publishing financial information on the Internet and firms that do not. However, in their logistic regression analysis, the sign is positive but not statistically significant.

The Ettredge et al. (2002) study distinguishes the publication of compulsory information notably that contained in annual or quarterly reports, from that published voluntarily. Their regression analysis shows no statistically significant association between the two types of IFR and the firm's performance measured by stock returns.

According to Pirchegger and Wagenhofer (1999), the shareholder with only a few of the firm's shares will tend to use its Web site instead of using more expensive sources such as analysts and brokers. Consequently, IFR is of greater advantage to firms with widely held shares. However, Ettredge et al. (1999) use the notion of information overload to suggest that the individual investor will find an aggregated annual report more useful than a detailed annual report. These authors therefore expect the publication of an aggregated annual report on a firm's Web site to be positively related to the number of its small investors or the dispersal of its shareholders.

Pirchegger and Wagenhofer (1999) analyzed the relation between several aspects of IFR and shareholding structure for a sample of 31 Austrian and German firms. They compiled indices grouping these aspects into 4 categories: reporting procedures used on the Web, technology used, synchronization and support provided to the user. Their results document a positive and statistically significant association between IFR aspects and shareholder dispersal. However, their results contradict those of Ashbaugh et al (1999), who find that the probability of a firm's using IFR, is not significantly linked to shareholding structure as measured by the median of the percentage of shares held by individual investors.

Our analysis of the literature sheds light on the fact that, in general, IFR will vary in its aspects along with size. For the other factors such as sector of activity, performance, dispersal of shareholders, user sophistication, debt, the results are not as robust. In our opinion, these mixed results could be explained in several ways. First, generalized use of dichotomous or ordinal measurements to define aspects of IFR or, to a lesser extent, use of a disclosure index to compute a noisy score both substantially reduce the variability thus measured as compared to the true diversity of firms' IFR strategies. This makes it somewhat difficult to characterize firms according to the extent of their IFR.

Second, when authors use a disclosure index to analyze aspects of IFR, they often only inventory the reporting practices rather than the content. These studies are thus more concerned with technical aspects than with those linked to the presentation and content of IFR. These latter aspects require a more direct and precise evaluation.

In conclusion, Internet financial reporting (IFR) on corporate Web sites can be used to improve and accelerate access to financial information, to increase the extent of such information, and to reduce the printing and distributing costs required by traditional financial reporting (TFR) on paper format (Beattie and Pratt, 2003). The Web is a space where the firm can present and enhance the information published in classical media, drawing on the multimedia resources offered by Internet technology (Jones and Xiao 2003; Lymer, Jones and Xiao, 2002; Trites, 1999a).

The studies that we have reviewed in this section document great heterogeneity in the presentation format and practices in the financial reports displayed on Web sites. On the one hand, the descriptive studies indicate that firms find themselves at various stages in their use of the Internet to report financial information on their Web sites. On the other hand, studies that examined the determinants of this heterogeneity come to several contradictory conclusions except for firm size, which almost all identify as the main explanatory factor.

Several questions remain unanswered. Our research attempts to examine the value relevance of voluntary information posted on the corporate web site. Two related studies (and Pronk, 2006; Asthana and Balsam, 2004) have examined the value relevance of online financial reporting information. For example, Hodge and Pronk (2006) examine whether professional and nonprofessional investors use different online quarterly financial information when making investment decisions, and whether the online information they use depends on whether they are

researching a new investment or evaluating a current investment. They find that professional investors prefer to view PDF-formatted quarterly reports and tend to rely directly on the financial statements compared to nonprofessional investors who prefer to view HTML-formatted reports and have a tendency to rely more on management's discussion of the quarter's results. The results also document that for nonprofessional investors, investment familiarity (i.e., whether they are evaluating a current investment or researching a new investment) strongly impacts the type of financial information they view within a firm's quarterly reports. Asthana and Balsam (2004) examine the effect of filing form 10-K on EDGAR on the incidence of small and large trades. They find that the change to EDGAR filings results in significant increases in the volume of small, but not large trades, during the five day window (-1, 3) around the filing date. Furthermore, using stock return as a proxy for the information content of the 10-K, they results show that post-EDGAR small trades are more likely to reflect that information, i.e., more likely than in the pre-EDGAR period to be buys (sells) when returns in the five day window after the trade are positive (negative).

4. Research Design

I test whether the background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, and social and environmental information contribute additional explanatory power when included in regressions where the dependent variables are future (one-year-ahead) changes in revenues, future changes in earnings, and contemporaneous stock returns.

Following Bryant (1997), Gu and Lev (2004) and Cole and Jones, we estimate the following regressions:

$$Ret_i = \alpha_0 + \alpha_1 NI_i + \alpha_2 NI_{i-1} + \alpha_3 BI_i + \alpha_4 SHR_i + \alpha_5 KNFS_i + \alpha_6 PINF_i + \alpha_7 MD\&A_i + \alpha_8 IA_i + \alpha_9 SEI_i + \varepsilon_i$$

Where:

Ret_{*i*}: company *i*'s stock return of fiscal year *t*; **NI**_{*t*}; **NI**_{*t-1*}: company *i*'s earnings before extraordinary item for fiscal year *t* and *t-1*; **BI**: background information, **SHR**: summary of historical results, **KNFS**: key non-financial statistics, **PINF**: projected information, **MD&A**: management discussion and analysis, **IA**: information on intangible assets, **SEI**: Social and environmental information,

5. Data

Sample selection

As shown in table 1, a sample of 180 firms was randomly drawn from the population of firms listed on the Toronto stock exchange and in the Stock Guide data base. Of the 180 firms selected, 16 firms from the financial sector were excluded for a sub sample of 164 or approximately 15% of the population. Ten firms were excluded because they were suspended or removed from the base. Ten others were excluded from the analysis because the Infominder software¹ could not detect the periodic updates made by the firm. The sampling period went from September 2000 to December 2000 with Infominder advising us of any CWS change made by the sample firms during that time period. 36 firms were excluded because of the unavailability of accounting or stock market data. Finally 51 firms were deleted as they do not disclose additional voluntary information on their website. The final sample consists of 57 firms.

{Insert table 1 – about here}

Descriptive Statistics

Table 5 presents the descriptive statistics and the univariate tests on the mean differences between the characteristics of firms deciding to broaden the access to additional financial information and firms that do not. Table 2 shows that all the proxies for stock market transaction

arguments are significantly different in the expected direction. For instance, significant differences do exist in the level of pressure from investors (PI) as well as that of risk of litigation (RISK).

There is a higher turnover in the shares of firms deciding to broaden the access to their information. They have a less concentrated ownership structure (SHAREHOLDING), publish more complex traditional financial information (COMPLEX), and have a higher R&D spending. These firms also tend to seek greater visibility. Indeed, table 2 shows that 40% of these firms are cross listed (LISTING) and that 54% have issued or plan to issue shares or debt (FIN). For firms that do not decide to publish additional information on the Internet, the proportion is clearly lower and stands at 13% and 23 % respectively.

{Insert table 2 – about here}

Table 2 also shows that the standard deviation of adjusted stock market returns of firms deciding to broaden access to additional financial information is higher (0.0505) than for firms that do not. Consequently, they are more threatened by the risk of litigation.

With regard to the level of competition, table 2 documents a higher Herfindahl index for firms that decide to broaden access to financial information by Web site disclosure. However, the difference is not significant with regard the average return on equity over the last 5 years. The industry level of competition discourages managers from using the corporate website to disclose additional information.

6. Empirical Results

In our empirical analyses, we examine the role of the background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, and social and environmental information. The sample is smaller as just 57 firms in our sample provide additional disclosure on their web site.

Stock Returns regression

Evidence on the relationship between the corporate web site disclosures categories and contemporaneous stock returns is presented in Table 3. In specification (1), the level and change of NI are significantly associated with returns. Together the historical financial statement information explains 26.8 percent of the variation in returns.

To test whether the background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, and social and environmental information, we include BI, SHR, KNFS, PINF, MD&A, IA, SEI as additional variables in specification (1). Table 3 document that background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, and social and environmental information are highly significant and positively associated with returns. When the corporate web site disclosures categories are included in the specification, the explanatory power of the model increases substantially, with the adjusted R^2 increasing from 0.268 to 0.479. This sizable increase reflects the relevance of voluntary information posted on the corporate web site.

{Insert table 3 – about here}

7. Conclusions

In this paper, we examine the usefulness of several corporate web site disclosure categories using a sample of 57 Canadian firms. We test whether background information, summary of historical results, key non-financial statistics, projected information, management discussion and analysis, information on intangible assets, and social and environmental information contain information that is associated with changes with contemporaneous stock returns. We find that voluntary information posted on Canadian firms web sites have incremental information content and a significant explanatory power in the contemporaneous stock return analyses.

These findings support the views of the OSC, CICA, FASB, and academics that the corporate web site can be used to enhance the voluntary disclosure policy of a firm and to improve the information flow to investors. Our findings complement those of Hodge and Pronk (2006) who find that professional investors prefer to view PDF-formatted quarterly reports and tend to rely directly on the financial statements compared to nonprofessional investors who prefer to view HTML-formatted reports and have a tendency to rely more on management's discussion of the quarter's results.

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Table 1 - Sampling procedure

Description	Number of firms
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Population of Canadian firms in the August 3, 2002 issue of <i>Stock guide</i>	<u>1,094</u>
Random selection	180
Exclusion of firms in the financial sector	<u>16</u>
Sub-sample	164
Suspended firms	10
Firms whose Web site updates could not be tracked by the <i>Infominder</i> software	10
Exclusion of firms whose accounting or stock market data were not available on the Stock Guide or on the Datastream data bases	<u>36</u>
Firms that do not provide additional disclosure	<u>51</u>
Final Sample	<u>57</u>

Table 2: Descriptive statistics and univariate tests on the characteristics of firms broadening the access to additional voluntary disclosure on the Internet

	Decision	N	Average	Minimum	Maximum	T-value sign. level	Z-value sign. level
PI (in millions)	1	57	37.900	117.200	165.289	1.270	5.517
	0	51	19.158	5.900	758.146	0.207	0.000* *

SHAREHOLDING	1	57	25.581	0.1	79	2.990	3.016
	0	51	38.330	0.3	85.9	0.003* *	0.003* *
COMPLEX	1	57	0.6585	0.1021	1.9230	3.067	2.442
	0	51	1.1976	0.0407	6.2500	0.003* *	0.015* *
R&D (\$ millions)	1	57	618.399	0	20426.067	<i>1.861</i>	3.084
	0	51	62.730	0	1868.658	<i>0,0711</i>	0.020
PERF	1	57	0.05	0	1	0.931	0.931
	0	51	0.10	0	1	0.354	0.352
FIN	1	57	0.54	0	1	3.569	3.401
	0	51	0.23	0	1	0.001* *	0.001* *
LISTING	1	57	0.40	0	1	3.502	3.345
	0	51	0.13	0	1	0.001* *	0.001* *
COMPET	1	57	-0.02255	-1.083	0.345	0.932	1.013
	0	51	-0.06576	-1.083	0.343	0.353	0,311
HERFIN	1	57	0.101	0.013	0.143	2.509	3.016
	0	51	0.020	0.002	0.0653	0.014	0.003
RISK	1	57	0.0505	0.0139	0.6572	3.417	3.762
	0	51	0.011	0.0039	0.4573	0.001* *	0.000* *
SIZE (\$ millions)	1	57	2265.143	2.957	29310.706	2.781	5.528
	0	51	235.232	1.302	5886.147	0.006	0.000
NAF	1	57	8.95	1	31	<i>1.902</i>	2.390
	0	51	5.83	1	26	<i>0.062</i>	0.017* *
BIG	1	57	0.96	0	1	<i>1.885</i>	<i>1.864</i>
	0	51	0.87	0	1	<i>0.062*</i>	<i>0.062*</i>

Key:

Decision takes the value 1 if the firm discloses additional financial information on its Web site, otherwise 0. The dependent variables are the following: PI: monthly average of shares traded/average of shares circulating from January to December 2001, SHAREHOLDING: percentage of shares held by executives and major shareholders, COMPLEX: book value/market value ratio, R&D: natural logarithm of current spending on research and development, PERF: firm's performance measured by a dichotomous variable obtained by comparing the net income earned in 2002 (NP2002) and that achieved in 2001 (NI2001). Perf=1 if NI 2002>NI 2001 and otherwise 0, FIN: issuing shares or debt, variable that takes the value of 1 if the firm has issued shares or debt in 2003,2002 or 2001 and otherwise 0, LISTING: listing on a foreign exchange, dichotomous variable which takes the value of 1 if the firm is cross listed, otherwise 0. COMPET: average returns on equity of the firm over the last 5 years, HERF: Herfindahl index constructed using quarterly Stock Guide data base, RISK: standard deviation of adjusted stock market returns over the previous 10 years, SIZE: natural logarithm of the firm's total assets, NAF: the average number of analyst following the firm during 2000, BIG: takes the value of 1 if the firm is audited by one of the big 4 firms, otherwise 0. ICS: SIC is a dummy variable based on firm's one digit SIC code.

Table 3 : Results of Annual Regression of Returns on Earnings Information and the Corporate Web Site Disclosure Categories

$$\text{Ret}_i = \alpha_0 + \alpha_1 \text{NI}_i + \alpha_2 \text{NI}_{i-1} + \alpha_3 \text{BI}_i + \alpha_4 \text{SHR}_i + \alpha_5 \text{KNFS}_i + \alpha_6 \text{PINF}_i + \alpha_7 \text{MD\&A}_i + \alpha_8 \text{IA}_i + \alpha_9 \text{SEI}_i + \varepsilon_i$$

Ret_i : company i's stock return of fiscal year t; NI_i ; NI_{i-1} : company i's earnings before extraordinary item for fiscal year t and t-1; **BI**: background information, **SHR**: summary of historical results, **KNFS**: key non-financial statistics, **PINF**: projected information, **MD&A**: management discussion and analysis, **IA**: information on intangible assets, **SEI**: Social and environmental information.

Independent Variables	Regression without Web site disclosures categories	Regression without Web site disclosures categories
Intercept	0.176 (1.729)	0.129 (0.143)
NI	0.406** (3.138)	0.453** (3.727)
NI _{t-1}	-0.270* (2.088)	-0.311* (0.031)
BI		-1.008 (0.956)
SHR		1.152* (0.049)
KNFS		1.683* (2.438)
PINF		3.233** (5.631)
MD&A		-0.044 (0.739)
IA		2.093** (4.851)
SEI		-3.185* (2.714)
Adj. R ²	0.268	0.479

**, * indicate statistical significance at the p = 0.01 and 0.05 levels, respectively (two-tailed test); T-statistics in parenthesis

ⁱ. *InfoMinder* is a service for searching and detecting changes and updates of Web pages. *Infominder* is currently used to detect updates on the Web pages for firms, products, events, and news. Indeed, any information edited on a Web page and likely to change can be detected by using *InfoMinder*. For further information on this service, you may consult <http://www.infominder.com/webminder/IMTechSummary.jsp>.