Global Diversification and Corporate Disclosure

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ABSTRACT: This paper examines whether a firm's level of voluntary disclosure varies with its level of global diversification. We argue that information asymmetries and agency costs arising from the global diversification of operations and financing increase the incentives for firms to disclose at a higher level. We measure global diversification of operations by factor-analyzing foreign shareholdings and foreign debt, and we measure global diversification of financing by factor-analyzing foreign sales and foreign subsidiaries. Using a sample of 216 firms from 17 countries selected from *Fortune*'s Global 500 list and Botosan's (1997) disclosure index, we find that the level of voluntary disclosure is positively related to the extent of global operations, but is not related to the extent of global financing.

Keywords: globalization; global diversification; voluntary disclosures.

JEL Classification: M41.

I. INTRODUCTION

Numerous studies examine disclosure practices in international settings. For example, Hope (2003a) finds in an international setting that higher levels of disclosure improve analysts' forecast accuracy. Jaggi and Low (2000) and Hope (2003b) examine the effect of legal systems and culture on disclosure practices across countries. However, to date, we know very little about how disclosure practices change as firms become more international. Only a few studies have examined the association between the degree of globalization and disclosure levels. Early examples include Choi (1973), who finds that firms seeking debt from international markets disclose more, and Gray et al. (1995) and Hossain et al. (1995), who find that voluntary disclosures are higher for firms that are listed internationally.

More recently, Khanna et al. (2004) examine the disclosures of non-U.S. firms that interact with the U.S. market. Their study is more comprehensive than the earlier studies because they simultaneously examine three different aspects of globalization—specifically, interactions with U.S. capital, product, and labor markets—and because they use a variety of variables to measure globalization. Their results show that non-U.S. firms with more interactions with U.S. capital, product, and labor markets are more likely to adopt U.S. disclosure practices.

On the other hand, Khanna et al.'s (2004) analysis has at least two limitations. First, they only examine non-U.S. firms interacting with the U.S. market. They do not consider other cross-border activities that non-U.S. firms might have in other countries or the cross-border activities of U.S. firms.

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Second, they use a measure of total disclosure (Transparency and Disclosure scores from Standard & Poor's) that captures both voluntary and mandatory disclosures. Thus, it is not clear whether their results are being driven by managers' incentives or whether they merely reflect more stringent reporting and disclosure requirements in the U.S.

Here, we provide evidence that complements Khanna et al. (2004). Specifically, we contribute to the literature by providing further evidence of the separate effects of financial and operational globalization on disclosure practices by (1) using a broader definition of globalization (i.e., any interactions outside the home country), (2) including U.S. firms, and (3) using a measure of voluntary disclosure based on Botosan (1997).

Based on a sample of 216 U.S. and non-U.S. firms selected from *Fortune*'s Global 500 list and using Botosan's (1997) disclosure index, we find that the level of voluntary disclosure is positively related to the extent of globalization of operations, but not related to the extent of globalization of financing. In further analyses of the subcomponents of voluntary disclosures (i.e., historical disclosures, current-focused disclosures, and future-focused disclosures), we find that the relation between operational globalization and voluntary disclosure is driven by historic and current-focused disclosures. Although the results hold for both U.S.-listed and non-U.S.-listed firms, when identified separately, we find that U.S. firms tend to disclose more with increasing global financing. Also, U.S.-listed non-U.S. firms tend to make more historic information disclosures than their non-U.S.-listed counterparts with increasing global financing.

The remainder of this study is partitioned as follows. Section II reviews the literature and develops hypotheses. Section III describes the research design and sample. Section IV contains the results, and Section V offers the summary and conclusions.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Many empirical studies examine the relation between disclosure and cost of equity capital. For example, Welker (1995) shows that firms providing greater disclosure have smaller bid-ask spreads. Botosan (1997) finds a negative relation between disclosure and cost-of-equity capital for firms that have low analyst followings. Healy et al. (1999) find an increase in disclosure leads to increased stock liquidity, and Botosan and Plumlee (2002) expand on Botosan (1997) and find a negative relation between annual report disclosure and cost-of-equity capital using a much larger sample. Finally, Sengupta (1998) shows that disclosure can reduce the cost-of-debt capital. Diamond and Verrecchia (1991) model the relationship between disclosure and the cost-of-equity capital documented in empirical research. They show analytically that an increase in disclosure can reduce information asymmetry, which leads to an increase in liquidity and a reduction in the firm's cost of capital. This research motivates our study, which examines whether firms characterized by more global operations and financing combat information asymmetry arising from greater globalization, by providing greater voluntary disclosure.[1]

Global Diversification of Operations

Global diversification of operations can increase firm value by internalizing markets for specialized assets (Caves 1971; Hymer 1976; Rugman 1986), by increasing operational flexibility (Kogut 1983), and by reducing taxes (Hines and Rice 1990). Also, globalized firms can increase value if investors prefer geographically diversified portfolios and if the firm can diversify at less cost than individual investors (Kogut and Kulatilaka 1994). In an accounting-based study, Bodnar and Weintrop (1997) examine the value relevance of the foreign and domestic portions of earnings of U.S.

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[1] Khanna et al. (2004) also consider the interactions of non-U.S. firms with the U.S. labor market. However, because the proxy they use—country-level data related to business travel to the U.S.—is extremely crude and given the lack of any other obvious measures for labor market interactions, we do not explore the labor market effect in this paper.

multinationals. They find that the market capitalizes the foreign portion at a higher rate and suggest this reflects greater growth opportunities associated with firms' foreign operations.

However, geographically diverse operations can reduce firm value if the managers' and shareholders' interests are not aligned. As Bodnar et al. (1999) observe, global firms are more complex than domestic firms. This increases the cost of coordinating activities of different parts of the firm. In addition, delegating resources and authority to geographically diverse locations can increase agency costs (i.e., managers making decisions that reduce firm value) making monitoring more difficult and costly (Denis et al. 2001). Moreover, foreign operations can exacerbate information asymmetry because, relative to managers in the home country, local managers have more specific knowledge about the future cash flows associated with invested assets. Thomas (1999) finds that investors on average underestimate the persistence of foreign earnings due to a lack of understanding of firms' foreign operations. He argues that this underestimation is caused in part by poor disclosure. More recently, Duru and Reeb (2002) find that analysts' forecasts become less accurate and more optimistic as operations become more geographically diversified. However, using data from 22 countries, Hope (2003a) finds that analysts' forecast accuracy is better when the quantity of firm-level disclosures is high. Likewise, Behn et al. (2002) find that geographic disclosures made by U.S. firms are informative.

Even so, proprietary costs can constrain the level of disclosure about foreign operations. Behn et al. (2002) and Herrmann and Thomas (2000) find that while more U.S. firms provided geographic segment information after SFAS No. 131, fewer firms disclosed earnings by geographic area as it is no longer required under the new standard. This provides some evidence that proprietary concerns can reduce incentives to voluntarily provide disclosures about foreign parts of an entity.

Whether disclosure is a function of global diversification of operations is an empirical question. Based on Khanna et al. (2004), who find that interactions with a product market outside the home country can increase disclosure levels, we hypothesize that:

H1: Greater global diversification of operations will be associated with greater voluntary disclosure.

Global Diversification of Financing

Firms can pursue global strategies in raising capital. For example, by listing in foreign markets, firms may be able to increase their shares' liquidity and lower their cost of capital. Likewise, by raising debt in countries with high tax rates, firms can increase their interest tax shields.

Merton (1987) provides a model that shows that investors buy shares that they know about. Stulz (1999) explains that when issuing equity on a global basis, managers must convince a larger set of investors about the expected cash flows the investor will receive. In other words, information asymmetries and agency problems that exist at a domestic level are likely to be exacerbated when firms access global equity markets. Doukas and Pantzalis (2003) note that the increase in information asymmetry and agency costs arising from geographically diverse operations can also increase debt-related agency costs. Specifically, global diversification can intensify conflicts between the firm's owners and debtholders because debtholders find it more difficult to monitor firms with a wide geographic spread.

Doukas and Pantzalis (2003) provide empirical evidence that globally diverse firms use less long-term debt financing relative to short-term financing as a consequence of their higher debt-related agency costs. Similarly, Clarke et al. (2004) find that diversified firms with severe information asymmetries trade at a discount and that this discount is related to the increased cost of raising external finance.

These studies suggest that firms that access equity or debt funds on a global basis confront more acute information asymmetries and agency costs than firms that raise capital from purely domestic sources. In this study, we examine whether the source of funding, i.e., domestic versus foreign, leads to different incentives for voluntary disclosure.

Thus, we hypothesize that:

H2: Greater global diversification of financing will be associated with greater voluntary disclosure.

III. DATA AND RESEARCH DESIGN

Sample

We use a sample of 216 firms selected from the *Fortune* magazine's 1998 Global 500, which represents the 500 largest companies in the world based on total revenues. We sent letters to all 500 firms requesting annual reports in late 1999. We received 331 reports in response. Depending on the firm's balance sheet date, the annual reports were for the 1999 or 1998 fiscal year. Out of the 331 reports received, we deleted 69 firms from the finance, banking, and insurance industries, 23 firms with annual reports in a language other than English, and 13 firms with summary financial statements. Another ten were deleted because they did not disclose information on their foreign sales, leaving 216 in the final sample.

Dependent Variables

The dependent variable for our tests is the total voluntary disclosure provided by the firm (*VDISC*). We use the disclosure index developed by Botosan (1997) to quantify the disclosure levels.[2] While Botosan's (1997) index was developed for U.S. companies, we recognize that disclosure requirements differ between countries. Therefore, as discussed below, we include country indicator variables to control for differences in regulatory requirements.

The Botosan index covers five essential areas of disclosure: (1) background information, (2) historical results, (3) nonfinancial statistics, (4) projected information, and (5) management discussion and analysis. Disclosure scoring was done in the same manner as in Botosan (1997) and was based on her guidelines. Each report required between 1 to 1.5 hours to rate.

Because rating the disclosures is subjective, we had a subsample of 23 firms (11 percent of the overall sample) rated by two independent raters. The average absolute difference in the raw score was 2.10 with a standard deviation of 2.60. The largest difference was 12, but this was clearly an outlier as the second largest difference was 6. Sixteen of the 23 absolute differences were equal to 2 or less, suggesting that our measure is not highly influenced by between rater differences. Furthermore, to keep the variations minimal, raters collected the data in close consultation with the researchers.

In addition to *VDISC*, we factor analyze the five components of *VDISC*—i.e., background information, historical results, nonfinancial statistics, projected information, and management discussion and analysis—and arrive at two reasonably distinct factors: one representing background and nonfinancial disclosures and the other representing projected information and disclosures related to the management's discussion and analysis. Given the nature of the disclosures covered by each of the two factors, we regard the background and nonfinancial information factor as a current information (*CURRENT_INF*) measure and the projected and management discussion and analysis information factor as a prospective information (*PROSPEC_INF*) measure. Historical information did not load heavily on either factor, so we treat this as a separate measure (i.e., *HIST_INF*). We also

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[2]   Other disclosure studies (e.g., Jaggi and Low 2000; Hope 2003a, 2003b) use disclosure ratings from the Center for International Financial Analysis and Research (CIFAR). However, this index is only available for 1991 and 1993.

estimate our models using these new measures (*HIST_INF*, *CURRENT_INF*, and *PROSPEC_INF*) as alternative dependent variables to provide more depth to our analysis.

Like Botosan (1997), we rank the disclosure scores (including the factor scores for *CURRENT_INF* and *PROSPEC_INF*) to convert the scores into levels. However, Botosan's (1997) sample consists of firms from only one industry while we have firms from eight different one-digit SIC codes. Thus, the issue of whether the ranking should be done across or within industries arises. Because three of our industry subsamples are small (4–6 firms per industry) relative to the largest industry that has 63 firms and to avoid creating biases due to the different subsample sizes, we create a single ranking for the whole sample and then control for industry influences by including industry indicator variables in our regression.

Independent Variables

Global Diversification Variables

To examine the issue of how globalization affects disclosure, we measure global operating diversification (*GLOBAL_OPR*) with a factor score from the factor analysis of foreign subsidiaries and foreign sales and global financing diversification (*GLOBAL_FIN*) with the factor score from a factor analysis of foreign-held shares and foreign debt.[3] Foreign subsidiaries (*FOR_SUBS*) is the number of foreign subsidiaries reported in the company annual report divided by total number of subsidiaries. Foreign sales (*FOR_SALES*) is foreign sales as reported in the company annual report divided by total sales. Foreign-held equity (*FOR_SHS*) is the percentage of common shares in large blocks of shares held by foreign shareholders. Foreign debt (*FOR_DEBT*) is the amount of foreign debt reported in the company annual report divided by total assets (i.e., total financing through equity and debt). We collected the data for *FOR_SALES* and *FOR_DEBT* from the firms' annual reports and the data for *FOR_SUBS* and *FOR_SHS* from OSIRIS.

Control Variables

Because prior research suggests that analysts following, shareholder concentration, growth, firm size, and performance are related to voluntary disclosure levels, we include these variables in our multivariate tests as control variables (e.g., see Lang and Lundholm 1993; Leuz and Verrecchia 2000; Cafferman and Cooke 2002; Eng and Mak 2003).[4]

Number of analysts following the firm (*ANALYST*) is the mean adjusted number of analysts following the firm collected from OSIRIS. We mean adjust because of collinearity between analysts following and all independent variables except *GLOBAL_FIN*. Hope (2003a) demonstrates that analysts following is associated with greater levels of voluntary disclosure. Therefore, we expect a positive relation between *ANALYST* and the disclosure measures.

To control for shareholder concentration, we use a level of independence measure (*SHARE_SPREAD*) that is available from OSIRIS. The level of independence of the firm from controlling interests, including a parent company or controlling shareholders, is rated by OSIRIS on a qualitative scale ranging from A+, A, A– down to C– where an A+ (C–) represents higher (lower) independence. We converted these scales into numeric scales ranging from 9 for A+ to 1 for C–. Separation of ownership and control is the primary reason for agency costs that induce managers to make voluntary disclosures. Therefore, we expect a positive relation between *SHARE_SPREAD* and our various disclosure measures. We collect *SHARE_SPREAD* from the OSIRIS database.

Firms with high growth prospects and high intangibles arising from factors such as technology, corporate strategy, and human resources will have specific knowledge that is not effectively and

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[3] When two variables are factorized, only one factor score is generated for each company.

[4] We also used several other control variables including new debt issue, new equity issue, age of the firm, debt equity ratio, and capital intensity (noncurrent assets divided by total assets). These variables were consistently insignificant and were dropped from our final models.

efficiently transferable to investors through accounting information such as earnings (Lev and Sougiannis 1999). Firms attempt to mitigate the information asymmetry arising from high growth by making voluntary disclosures (Frankel et al. 1999). Therefore, we predict a positive relation between growth prospects and voluntary disclosure. We use a restricted form of Tobin's Q to measure growth (*GROWTH*). This is the sum of market value of equity (*MVE*) and book value of long-term debt divided by book value of plant property and equipment (long-term assets). This metric provides a measure of the long-term growth prospects of the firm. Since *GROWTH* had a skewness of 7.78, its log is used for the multivariate analyses. We collect *MVE*, LTD, and LTA from the Compustat Global database.

Firm size (*SIZE*) is the mean adjusted total assets of the firm reported in U.S. dollars. Prior research shows large firms disclose more (e.g., Lang and Lundholm 1993; Cafferman and Cooke 2002), and Hossain et al. (1995) argue that firm size is an effective proxy for omitted variables. We expect a positive relation between *SIZE* and our disclosure measures. We collect *SIZE* from the Compustat Global Vantage database.

To control for firm performance, we use return on assets (*ROA*) defined as net income (*NI*) divided by total assets. Skinner (1994) demonstrates that the level of disclosure increases for poor-performing firms because in such situations firms attempt to limit their exposure to litigation risk by providing greater disclosure. However, Lang and Lundholm (1993) find a positive relationship between firm performance and disclosure level. Therefore, we do not make a prediction about the direction of the relation between *ROA* and disclosure. We collect *NI* and total assets from the Compustat Global Vantage database.

Finally, it is important to control for the reporting environment within a country. We use a series of country indicator variables to accomplish this. However, there is empirical evidence that non-U.S. firms listed in the U.S. are influenced by the U.S. reporting environment. For example, Khanna et al. (2004) find that non-U.S. firms listed in the U.S. have higher total disclosures than non-U.S. firms not listed in the U.S. Street and Bryant (2000) find that non-U.S. firms that are listed in the U.S. voluntarily disclose more. Therefore, we also include a variable for the interaction between the country indicator and an indicator variable for U.S. listing that is coded 1 for firms listed on one of the U.S. exchanges. For example, we include an indicator for Australia and the interaction between this variable and the U.S. listing indicator. In this way, we are able to control for both a home country effect and a U.S. listing effect.[5]

Model

We estimate a total of 12 models based on the following generic model:

Voluntary Disclosure Level = b_0 + b_1*GLOBAL_OPR* + b_2*GLOBAL_FIN* + b_3*ANALYST* + b_4*SHARE_SPREAD* + b_5*GROWTH* + b_6*SIZE* + b_7*ROA* + *INDUSTRY INDICATORS* + *COUNTRY INDICATORS* + *COUNTRY INDICATORS* * *U.S. LISTING INDICATOR*   (1)

where *Voluntary Disclosure Level* is *VDISC*, *PROSPEC_INF*, *CURRENT_INF*, and *HIST_INF* where each of these variables is measured by ranks.

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[5] Recent empirical studies in accounting have employed the La Porta et al. (1998) legal framework to examine the impact of the legal environment and accounting regulatory environment on the properties and quality of financial reporting (e.g., Jaggi and Low 2000; Hope 2003b). These studies demonstrate that country-level measures related to the legal and regulatory environment can be important in explaining various practices associated with financial reporting. In additional analyses, we used La Porta et al.'s (1998) rule of law variable in place of our country indicators and interaction variables. The tenor of the results remained unchanged.

IV. RESULTS

Descriptives and Preliminary Analyses

Tables 1 to 6 provide descriptive statistics and the results of preliminary analyses. Table 1 shows the descriptive statistics for *VDISC* and independent variables. In spite of all firms being Global 500 firms, there is wide variation in many of the variables. The mean for *VDISC* in its raw form (as opposed to ranks) is 44.431 with a range from 21 to 85.[6] Of the five components of *VDISC*, background and MD&A disclosures make up 57 percent of the mean of the *VDISC* score. For the global operation variable, the variation is considerable. For example, the proportion of foreign subsidiaries ranges from 0 to 99 percent, with a mean of 37 percent. The percentage of total sales derived from foreign operations ranges from 0 to 98 percent, with a mean of approximately 31 percent. There is also a fair amount of variation in the global financing variables coming primarily from the percentage of common shares variable, which ranges from 0 to 100 percent with a mean of just 5 percent. There is much less variation in the foreign debt variable, which ranges from 0 to only 4.6 percent with a mean of 0.2 percent. It is desirable to have variation in our global operations and financing variables to ensure that we can discriminate between different levels of globalization. Finally, the control variables also exhibit a fair amount of variation, particularly *GROWTH*, *SIZE*, and *ROA*.

Table 2 provides the factor loadings of the globalization variables extracted through factor analysis. These extracted variables represent global diversification of operations (*GLOBAL_OPR*) and global diversification of financing (*GLOBAL_FIN*). Table 2, Column 2 shows the loadings for *GLOBAL_OPR*. It has equal loadings from *FOR_SUBS* and *FOR_SALES* and explains 74 percent of the variations of *FOR_SUBS* and *FOR_SALES*. Table 2, Column 3 provides the loadings for *GLOBAL_FIN*. It has equal loadings from *FOR_DEBT* and *FOR_SHS*. *GLOBAL_FIN* explains 50.2 percent of the variation in *FOR_DEBT* and *FOR_SHS*.

Table 3 gives a breakdown of the disclosure scores by country. Of the 216 firms in our sample, over 37.5 percent are U.S. firms, 26 percent are Japanese firms, 4 percent are German firms, 3.4 percent are U.K. firms, and 3.2 percent are French firms. Although not exactly representative of the countries represented in the Global 500, our sample's distribution of countries is similar to that of the Global 500's distribution. For example, based on all Global 500 firms, the largest percentage of firms come from the U.S. and Japan with 32.5 percent and 25 percent, respectively. However, Germany, France, and the U.K. are slightly underrepresented in our sample as the percentages for these countries range from 6 percent to 8 percent for the full set of Global 500 firms.

The median raw disclosure scores for the 17 countries indicate that Sweden had the highest *VDISC*, followed by Italy. Sweden also has the highest scores for four out of the five subcategories of *VDISC*. The only subcategory where it has a lower rank is prospective disclosures, where Belgium has the highest score. However, one should not draw too many conclusions from Table 3 as many countries have very few firms in the sample.

Table 4 provides a breakdown of the disclosure scores by industry. Fifty-one percent of our firms are from the manufacturing sectors (primary and secondary), 18.5 percent from the transportation industry, and 16.8 percent are from the transportation and communication industries. Manufacturing—Secondary had the highest median score of 48 for *VDISC*, followed by Manufacturing—Primary at 44. The lowest median score is 39 for the Service Industry—Recreation. The higher scores for the two manufacturing industries could reflect the fact that the Botosan (1997) index was designed for the machinery industry, and thus, it may be more applicable to manufacturing

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[6] Our mean score of 44.431 is well above Botosan's (1997) score of 30. There could be two reasons for this difference. First, our sample includes nonfinancial firms from a wide range of industries, whereas Botosan's sample is from a narrow group of industrial firms. Second, ours are Global 500 firms, whereas hers are firms of varying sizes. Her sample's average market value is U.S.$713 million, whereas ours is a total asset value of U.S.$32.5 billion.

TABLE 1
Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Dependent Variable				
VDISC	21	85	44.431	11.365
Bkg_Disc	7	27	14.655	3.637
Hist_Disc	0	11	4.176	1.700
NonFin_Disc	0	28	7.847	4.844
Prosp_Disc	0	13	2.701	2.903
MD&A_Disc	0	23	10.884	4.192
Primary Variables				
FOR_SUBS (%)	0.000	99.465	37.186	32.112
FOR_SALES (%)	0.000	98.196	30.851	28.121
FOR_SHS	0.000	100.000	5.046	13.461
FOR_DEBT (%)	0.000	0.046	0.002	0.005
Control Variables				
ANALYST	0.000	70.000	12.278	12.602
SHARE_SPREAD	0.000	9.000	6.861	3.027
GROWTH	0.251	75.495	3.324	6.362
SIZE (U.S.$ billion)	2.532	391.859	32.489	48.085
ROA	−0.335	0.512	0.046	0.065

Variable definitions:

$VDISC$ = total disclosure score from annual report as per Botosan (1997) index:

Bkg_Disc = disclosure of background information;

$Hist\_Disc$ = disclosure of historical information;

$NonFin\_Disc$ = disclosure of nonfinancial information;

$Prosp\_Disc$ = disclosure of prospective information; and

$MD\&A\_Disc$ = disclosure of management discussion and analysis information.

FOR_SUBS = number of foreign subsidiaries reported in the company annual report divided by total number of subsidiaries from OSIRIS;

FOR_SALES = foreign sales as reported in the company annual report divided by total sales from annual report;

FOR_SHS = percentage of common shares in large blocks held by foreign shareholders as reported in OSIRIS;

FOR_DEBT = amount of foreign debt reported in the company annual report divided by total assets from annual report;

$ANALYST$ = mean adjusted number of analysts following the firm as reported in OSIRIS;

$SHARE\_SPREAD$ = level of independence of the firm from controlling interests such as parent company and controlling shareholders as measured by OSIRIS;

$GROWTH$ = a restricted form of Tobin's Q to measure growth, i.e., sum of market value of equity book value of long-term debt divided by book value of plant property and equipment (long-term assets) as reported in Compustat Global Vantage (in U.S. dollars);

$SIZE$ = mean adjusted total assets as reported in Compustat Global Vantage (in U.S. dollars); and

ROA = net income divided by total assets as reported in Compustat Global Vantage (in U.S. dollars).

TABLE 2
Factor Loadings for Global Diversification Variables

	GLOBAL_OPR Loading	GLOBAL_FIN Loading
FOR_SUBS	0.860	—
FOR_SALES	0.860	—
FOR_DEBT	—	0.709
FOR_SHS	—	0.709
% of variation explained	74.0	50.2

Variable definitions:

GLOBAL_FIN = factor score from the factor analysis of foreign-held equity (FOR_SHS), and foreign debt (FOR_DEBT); and

GLOBAL_OPR = factor score from the factor analysis of foreign subsidiaries (FOR_SUBS) and foreign sales (FOR_SALES).

industries. Of the five components of *VDISC*, the components that show the most variation between industries are nonfinancial disclosures and MD&A disclosures.

Table 5 provides the loadings of the two factors representing *CURRENT_INF* and *PROSPEC_INF* based on a factor analysis of the five components of *VDISC*. As discussed above, *CURRENT_INF* loads heavily on background and nonfinancial information and *PROSPEC_INF* loads heavily on prospective and MD&A information. Historical information loads on both *CURRENT_INF* and *PROSPEC_INF* but at lower levels.

Within our sample, we have 131 U.S.-listed firms and 85 non-U.S.-listed firms. Table 6 provides the results of t-tests comparing the U.S.-listed and non-U.S.-listed firm for each of the independent and dependent variables. Not surprisingly, there are significant differences between the U.S.-listed and non-U.S.- listed firms on several variables (at the 0.05 level or lower). For example, the U.S.-listed firms tend to provide more background disclosures and more historical disclosures. For this reason, the U.S.-listed firms tend to have higher disclosure scores. In addition, the U.S.-listed firms tend to have more foreign subsidiaries and more foreign sales, and as a result, *GLOBAL_OPR* is significantly higher for the U.S.-listed firms. In terms of the control variables, U.S.-listed firms tend to have more analysts following the firm, more dispersion of ownership, and higher growth. U.S.-listed firms are also bigger and more profitable than the non-U.S.-listed firms in the sample. Since there are significant differences between the two groups, we also analyze the U.S.-listed and non-U.S.-listed subsamples separately.

Table 7 contains the Pearson pairwise correlation coefficients for the disclosure variables, global diversification variables and the control variables. *VDISC* is positively associated with *GLOBAL_OPR*, but is not significantly correlated with *GLOBAL_FIN*. *CURRENT_INF* is also significantly correlated with *GLOBAL_OPR*, but not *GLOBAL_FIN*. In contrast, *PROSPEC_INF* and *HIST_INF* are not associated with any of the global variables. Several of the independent variables are significantly associated. Most notably, the degree of global operations has relatively high correlations with *ANALYST* and *ROA*. Consequently, we computed variance inflation factors (VIFs) when estimating our regressions. Most VIFs were within the range of 1 and 2 and none exceeded 4.[7]

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[7] A VIF greater than 10 is regarded as an indication of high multicollinearity between independent variables.

TABLE 3
Country Disclosure Statistics

	n	Listed in U.S.	VDISC Median	Bkg_Disc Median	Hist_Disc Median	NonFin_Disc Median	Prosp_Disc Median	MD&A_Disc Median
Australia	3	2	35	11	3	6	2	10
Belgium	2	1	40	13.5	3	11	5.5	7
Bermuda	1	1	31	10	3	6	4	8
Brazil	1	0	50	13	6	8	3	10
Canada	3	1	40	18	3	8	4	6
China	1	0	31	15	2	8	0	6
Finland	2	2	46.5	17	4	7	4.5	10
France	16	6	40.5	15	3	9	1	10
Germany	19	11	42	15	4	10	2	8
Italy	3	2	51	16	3	12	2	14
Japan	56	8	40.5	14	3	6	2.5	12
The Netherlands	4	2	37	13	2.5	8	1.5	8
Spain	1	0	43	11	2	8	3	16
Sweden	3	2	60	19	6	16	2	14
Switzerland	3	3	44	16	3	8	2	13
United kingdom	17	9	41	14	3	8	0	10
United states	81	81	45	14	4	6	2	12
Total	216	131						

See Table 1 for variable definitions.

TABLE 4
Industry Disclosure Statistics

Industry	n	VDISC Median	Bkg_Disc Median	Hist_Disc Median	NonFin_Disc Median	Prosp_Disc Median	MD&A_Disc Median
Mining and Construction	17	40	13	4	8	2	10
Manufacturing—Primary	47	44	14	4	6	2	10
Manufacturing—Secondary	63	48	15	4	10	2	12
Transportation, Communication, and Utilities	36	41	16	4	8	2	8
Trading—Wholesale and Retail	39	41	13	3	4	2	12
Real Estate, Holding Company, and Investment	6	40	13	3	10	3	7
Service Industries—Recreation	4	39	13	4	3	1	10.5
Service Industries—Others	4	43.5	13.5	3	12	3.5	8
Total	216						

See Table 1 for variable definitions.

TABLE 5
Disclosure Components

| | Loadings[a] | |
Variables	CURRENT_INF	PROSPEC_INF
Bkg_Disc	.757	.358
Hist_Disc	.172	.307
NonFin_Disc	.849	−.204
Prosp_Disc	−.007	.637
MD&A_Disc	−.053	.768

[a]Based on Varimax rotation.
Variable definitions:

CURRENT_INF = current information mainly about background and nonfinancial information; and
PROSPEC_INF = prospective information mainly about future forecasts and prospects.

See Table 1 for additional variable definitions.

Regression Results

Tables 8 to 10 provide results of our OLS regressions. Table 8 provides the estimation results for the full sample. Table 9 provides the estimation results for the U.S.-listed sample. Table 10 provides the estimation results for the non-U.S.-listed sample. Results for each alternative dependent variable, i.e., *VDISC*, *PROSPEC_INF*, *CURRENT_INF*, and *HIST_INF*, are provided in each table.[8]

Examining the full sample results in Table 8, we find that for *VDISC*, *GLOBAL_OPR* is positively related to *VDISC*. This suggests that firms with more globalized operations provide more voluntary disclosures, providing support for H1. However, *GLOBAL_FIN* is not significantly related to *VDISC*. Thus, contrary to H2, global diversification of financing is not associated with levels of voluntary disclosure. In addition, we find that *ANALYST* and *SIZE* are correctly signed and are significant at the 0.05 level or better. Thus, firms that are followed by more analysts and larger firms provide higher levels of total voluntary disclosure. Overall, the model is significant and explains 11.9 percent of the variation in *VDISC*.

To gain more insight into the relation between global diversification of operations and financing and the different types of voluntary disclosure, we replace *VDISC* with *HIST_INF*, *CURRENT_INF*, and *PROSPEC_INF* in three separate models. *GLOBAL_OPR* is positively related to *HIST_INF* and *CURRENT_INF*, indicating consistent with H1, current and historical disclosures are greater for firms with more globalized operations. This is not the case for *PROSPEC_INF*, however, which is not significantly related to *GLOBAL_OPR*. In contrast, similar to what we find with *VDISC*, our results incorporating different types of voluntary disclosure provide little support for H2. Specifically, *GLOBAL_FIN* is not related to *CURRENT_INF* or *PROSPEC_INF* and is negatively related to *HIST_INF*.

Because U.S.-listed and non-U.S.-listed firms differ on several dimensions (see Table 6), we repeat the analysis for the two subsamples separately. Table 9 provides the results for U.S.-listed firms. We find no support for either H1 or H2 when *VDISC* is employed as the dependent variable, since we document no relationship between globalization of operations or financing and overall disclosure level for this subset of firms. However, when we examine the different types of disclosure we find some support for H1. Specifically, firms with more globalized operations tend to provide

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[8] For brevity, results for industry indicators, country indicators, and country indicators*U.S. listing indicator are not reported. In general, the indicators were not significant.

TABLE 6
Comparison of Means for Dependent and Independent Variables of U.S.-Listed and Non-U.S.-Listed Firms

Panel A: Dependent (Disclosure) Variables

	USLIST	n	Mean	t-value	p-value (two-tailed)
VDISC	0	85	42.082	−2.475	0.014
	1	131	45.954		
Bkg_Disc	0	85	14.112	−1.778	0.077
	1	131	15.008		
Hist_Disc	0	85	3.600	−4.160	0.000
	1	131	4.550		
NonFin_Disc	0	85	8.271	1.035	0.302
	1	131	7.573		
Prosp_Disc	0	85	2.982	1.147	0.253
	1	131	2.519		
MD&A_Disc	0	85	10.471	−1.169	0.244
	1	131	11.153		
CURRENT_INF	0	85	−0.045	−0.627	0.531
	1	131	0.042		
PROSPEC_INF	0	85	−0.138	−1.719	0.087
	1	131	0.100		

Panel B: Global Variables

	USLIST	n	Mean	t-value	p-value (two-tailed)
GLOBAL_OPR	0	85	−0.207	−2.476	0.014
	1	131	0.134		
GLOBAL_FIN	0	85	−0.125	−1.483	0.140
	1	131	0.081		
FOR_SUBS	0	85	0.317	−2.048	0.042
	1	131	0.408		
FOR_SALES	0	85	0.257	−2.194	0.029
	1	131	0.342		
FOR_SHS	0	85	3.359	−1.488	0.138
	1	131	6.140		
FOR_DEBT	0	85	0. 002	−0.611	0.542
	1	131	0. 002		

Panel C: Control Variables

	USLIST	n	Mean	t-value	p-value (two-tailed)
ANALYST	0	85	8.294	−3.861	0.000
	1	131	14.863		
SHARE_SPREAD	0	85	6.306	−2.191	0.030
	1	131	7.221		
GROWTH	0	85	2.160	−2.186	0.030
	1	131	4.079		
SIZE (U.S.$ billion)	0	85	24.617	−1.951	0.052
	1	131	37.596		
ROA	0	85	0.018	−5.523	0.000
	1	131	0.065		

See Tables 1, 2, and 5 for variable definitions.

TABLE 7

Pearson Correlations for Firm- and Country-Level Variables

	VDISC	HIST_INF	CURRENT_INF	PROSPEC_INF	GLOBAL_OPR	GLOBAL_FIN	ANALYST	SHARE_SPREAD	GROWTH	SIZE	ROA
VDISC	1.000										
HIST_INF	0.636**	1.000									
CURRENT_INF	0.590**	0.240*	1.000								
PROSPEC_INF	0.273*	0.255*	-0.108	1.000							
GLOBAL_OPR	0.337**	0.145	0.366**	-0.012	1.000						
GLOBAL_FIN	0.049	-0.158	0.135	-0.06	0.221*	1.000					
ANALYST	0.275*	0.122	0.232*	0.102	0.401**	0.051	1.000				
SHARE_SPREAD	-0.007	0.035	-0.168	0.196	-0.050	-0.067	0.310**	1.000			
GROWTH	0.055	-0.085	0.089	-0.133	0.127	0.086	-0.065	-0.288**	1.000		
SIZE	0.120	0.041	0.151	0.090	-0.138	0.182	-0.032	0.002	-0.297**	1.000	
ROA	0.028	0.031	0.165	-0.177	0.411**	0.024	0.174	-0.183	0.083	-0.041	1.000

*, ** Significant at 0.05 level and 0.01 levels, respectively, based on two-tailed tests.

Variable definition:

HIST_INF = historical information (i.e., = Hist_Disc).

See Tables 1, 2, and 5 for additional variable definitions.

TABLE 8
Regression Results for Full Sample

	Exp. sign	VDISC			HIST_INF			CURRENT_INF			PROSPEC_INF		
		Std. Beta	t	p	Std. Beta	t	p	Std. Beta	t	p	Std. Beta	t	p
Intercept			6.622	0.000		6.283	0.000		7.115	0.000		6.318	0.000
GLOBAL_OPR (H1)	+	0.238	2.443	0.008	0.190	2.084	0.019	0.263	2.810	0.003	-0.001	-0.007	0.497
GLOBAL_FIN (H2)	+	0.059	0.739	0.230	-0.119	-1.585	0.057	0.099	1.280	0.101	0.002	0.024	0.490
ANALYST	+	0.209	1.720	0.044	0.047	0.412	0.340	0.198	1.694	0.046	0.094	0.774	0.220
SHARE_SPREAD	+	-0.010	-0.113	0.455	-0.048	-0.560	0.288	-0.055	-0.629	0.265	0.084	0.914	0.181
GROWTH	+	0.106	1.233	0.110	-0.030	-0.377	0.353	0.031	0.374	0.354	0.108	1.262	0.104
SIZE	+	0.134	1.740	0.042	0.012	0.161	0.436	0.222	2.998	0.002	-0.009	-0.116	0.454
ROA	+/−	-0.063	-0.647	0.518	0.031	0.341	0.734	-0.082	-0.867	0.386	-0.007	-0.075	0.940
Model Summary		Adj. R²	F	p	Adj. R²	F	p	Adj. R²	F	p	Adj. R²	F	p
		.119	1.728	.009	.225	2.560	.000	.184	2.210	.000	.115	1.698	.011

p-levels are based on one-tailed tests where a sign is predicted.
Coefficients for the indicator variables are not tabulated.
See Tables 1, 2, 5, and 7 for variable definitions.

TABLE 9
Regression Results for U.S.-Listed Sample

	Exp. sign	VDISC			HIST_INF			CURRENT_INF			PROSPEC_INF		
		Std. Beta	t	p	Std. Beta	t	p	Std. Beta	t	p	Std. Beta	t	p
Intercept			4.994	0.000		7.275	0.000		3.991	0.000		4.919	0.000
GLOBAL_OPR (H1)	+	0.127	0.952	0.172	0.231	1.755	0.041	0.262	2.082	0.020	-0.162	-1.211	0.114
GLOBAL_FIN (H2)	+	0.079	0.724	0.235	-0.111	-1.034	0.152	0.147	1.436	0.077	-0.002	-0.020	0.492
ANALYST	+	0.207	1.274	0.103	0.010	0.060	0.476	0.178	1.165	0.123	0.091	0.557	0.289
SHARE_SPREAD	+	0.026	0.213	0.416	-0.138	-1.146	0.127	0.099	0.861	0.196	0.010	0.081	0.468
GROWTH	+	0.113	0.862	0.195	0.000	0.002	0.499	0.079	0.642	0.261	0.113	0.857	0.197
SIZE	+	0.131	1.289	0.100	-0.001	-0.007	0.497	0.232	2.428	0.008	-0.015	-0.152	0.440
ROA	+/-	0.013	0.089	0.930	0.101	0.688	0.492	-0.206	-1.472	0.144	0.250	1.684	0.096
Model Summary		Adj. R^2	F	p	Adj. R^2	F	P	Adj. R^2	F	p	Adj. R^2	F	p
		.125	1.688	.032	.149	1.845	.015	.224	2.391	.001	.122	1.669	.035

p-levels are based on one-tailed tests where a sign is predicted.
Coefficients for the indicator variables are not tabulated.
See Table 1 for variable definitions.

TABLE 10
Regression Results for Non-U.S.-Listed Sample

	Exp. sign	VDISC			HIST_INF			CURRENT_INF			PROSPEC_INF		
		Std. Beta	t	p	Std. Beta	t	p	Std. Beta	t	p	Std. Beta	t	p
Intercept			4.808	0.000		4.339	0.000		5.841	0.000		4.619	0.000
GLOBAL_OPR (H1)	+	0.428	2.528	0.007	0.296	1.801	0.038	0.281	1.731	0.044	0.236	1.479	0.072
GLOBAL_FIN (H2)	+	-0.032	-0.254	0.400	-0.240	-1.940	0.029	-0.004	-0.033	0.487	-0.082	-0.679	0.250
ANALYST	+	0.187	0.961	0.170	0.128	0.678	0.250	0.145	0.776	0.220	0.121	0.660	0.256
SHARE_SPREAD	+	-0.028	-0.183	0.428	-0.037	-0.248	0.402	-0.175	-1.181	0.121	0.088	0.606	0.273
GROWTH	+	0.086	0.614	0.271	-0.131	-0.962	0.170	0.087	0.643	0.261	-0.029	-0.218	0.414
SIZE	+	0.195	1.449	0.076	0.187	1.439	0.078	0.241	1.872	0.033	0.031	0.248	0.403
ROA	+/-	-0.207	-1.534	0.130	-0.090	-0.686	0.456	-0.055	-0.423	0.674	-0.265	-2.079	0.042
Model Summary		Adj. R^2	F	p	Adj. R^2	F	p	Adj. R^2	F	p	Adj. R^2	F	p
		.000	1.000	.481	.060	1.216	.265	.081	1.298	.204	.113	1.428	.132

p-levels are based on one-tailed tests where a sign is predicted.
Coefficients for the indicator variables are not tabulated.
See Table 1 for variable definitions.

greater *HIST_INF* and *CURRENT_INF* but not greater *PROSPEC_INF*. We also find some limited support for H2 since firms with more globalized financing tend to provide greater *CURRENT_INF*, but the statistical significance is marginal (p-value of 0.07). We find no evidence that such firms provide greater *HIST_INF* or *PROSPEC_INF*, however.

Through these tests, we note that it is difficult to draw any conclusions regarding the effect of globalization of operations and financing on the disclosure practices of the non-U.S.-listed firms since the models we estimate are not statistically significant.

Overall, we find that *GLOBAL_OPR* is positively and significantly related to levels of voluntary disclosure. This is driven by significant relations between *GLOBAL_OPR* and *HIST_INF* and *GLOBAL_OPR* and *CURRENT_INF*. In addition, these two relations appear to be driven by the U.S.-listed firms in the sample. Although we do not find support for H2 in our main tests, we do find that for U.S.-listed firms, *GLOBAL_FIN* and *CURRENT_INF* are positively related.

Because our sample is dominated by U.S. and Japanese firms, we conduct several sensitivity tests to determine whether firms from these countries are driving our results. First, because our indicator variables were generally not significant, we repeat the full sample tests with only three country and listing indicators, i.e., *USA*, *JAPAN*, and *USLIST*. The results (not tabulated) indicate that *USA* is positively and significantly associated with *VDISC* and *HIST_INF* ($p < 0.01$). In addition, *USA* and *JAPAN* are positively and significantly associated with *PROSPEC_INF* ($p < 0.01$). However, while *USA* and *JAPAN* appear to have some impact on the intercept, *GLOBAL_OPR* remains positive and significantly related to *VDISC*, *HIST_INF*, and *CURRENT_INF* as in Table 8.

Second, we allow the slope coefficients to vary for *GLOBAL_OPR* and *GLOBAL_FIN* by including the following interaction variables: *GLOBAL_OPR*USA*, *GLOBAL_FIN*USA*, *GLOBAL_OPR*JAPAN* and *GLOBAL_FIN*JAPAN*. Of the four interaction variables, only *GLOBAL_FIN*USA* is significant (results not tabulated). It is positively associated with *VDISC* ($p < 0.05$). More interesting, both *GLOBAL_OPR*USA* and *GLOBAL_OPR*JAPAN* are insignificant, while *GLOBAL_OPR* remains significantly related to *VDISC*, *HIST_INF*, and *CURRENT_INF*. Thus, the relations between *GLOBAL_OPR* and our voluntary disclosure measures are the same for the U.S., Japanese, and other firms in the sample.

Third, to identify whether U.S. listing affects the disclosure practices of non-U.S.-based firms, we repeat our tests on only non-U.S. firms. We include interaction terms *GLOBAL_OPR*USLIST* and *GLOBAL_FIN*USLIST* to allow for different slope coefficients for non-U.S. firms listed in the U.S. and non-U.S. firms not listed in the U.S. We find that the interaction variable *GLOBAL_FIN*USLIST* ($p < 0.05$) is positively and significantly associated with *HIST_INF*. However, more importantly, *GLOBAL_OPR*USLIST* is not significant. Along with the results of the tests for the U.S. and Japanese firms, this result suggests that the relations between *GLOBAL_OPR* and our various disclosure measures are the same for all U.S.-listed firms in the sample, whether domiciled in the U.S. or not.

Combined, these additional analyses suggest that that the significance of *GLOBAL_OPR* is not being driven by the U.S., Japanese, or non-U.S.-listed firms. Rather, the results for *GLOBAL_OPR* appear to be quite robust.

V. CONCLUSION

In this study, we examine the effects of global diversification on voluntary disclosure. We argue that information asymmetries and agency costs arising from diversification of global operations and global financing increase the incentives for firms to disclose at a higher level. Additional disclosure will help the investors to monitor management and thereby reduce investors' transaction costs and the firms' cost of capital.

Using a sample drawn from 17 countries and a comprehensive disclosure index based on Botosan (1997), we find evidence that indicates that firms that have more globalized operations provide higher levels of voluntary disclosure, which supports our H1. Probing further, we find that this relation is driven by the historic and current components of total disclosure. Further, the U.S.-listed subsample appears to be driving the relations between globalized operations and historic and current disclosures. In contrast, we find no strong evidence that total voluntary disclosures are related to global financing in our samples.

Our results complement those of Khanna et al. (2004) who examine only non-U.S. firms interacting with U.S. markets and use a measure of total disclosure. Like Khanna et al. (2004), we find a significant association between globalized operations and disclosure levels. Contrary to Khanna et al. (2004), we do not find strong evidence that globalized financing activities are related with higher levels of disclosure. The difference might be due to Khanna et al.'s (2004) measure of disclosure. They use total disclosure that includes mandatory and voluntary disclosures, while we attempt to limit our analysis to voluntary disclosures only. Thus, when firms in their sample list in the U.S. (which is one of the measures they use to capture financing interactions), their total disclosures will be affected by the listing requirements of the U.S. exchanges, and as a result, their required disclosures will increase (assuming the U.S. requirements are more stringent which is likely to be the case) and this will drive an increase in total disclosures. On the other hand, our measure of total disclosure is designed to capture disclosures that are incremental to required disclosures.

Thus, one interpretation of our results is that in communicating with debt and equity holders, firms do not need to go beyond the required disclosures because these are sufficiently comprehensive. However, another interpretation is that additional disclosures above and beyond the mandated disclosures are provided through other information channels (e.g., conference calls, private disclosures filed with banks) instead of in the annual report. We leave it to future research to explore these alternative explanations.

As usual, we state some caveats. First, the Botosan (1997) disclosure index, which was developed for U.S. firms, may understate the level of voluntary disclosures for firms in countries with lower levels of required disclosures than the U.S. Second, our sample is based on the largest firms in the world, so our results are not generalizable to smaller firms. Third, global diversification is a complex variable. Although we tried to capture the essence of global diversification by using composite measures, the strength of our conclusions depends on the extent to which our component variables represent global diversification. Finally, like most voluntary disclosure studies, we cannot fully claim that *VDISC* captures all voluntary disclosures made by the firm.

Nonetheless, global diversification is of growing importance and disclosure by firms diversifying across country boundaries is attracting more attention by standard setters and policy makers. Therefore, it is important for researchers to understand how global diversification can influence corporate disclosures.

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